RECEIVED 2280
JUN 28 2013
NAT. REGISTER OF HISTORIC PLACES
NATIONAL PARK SERVICE

598

United States Department of the Interior
National Park Service

National Register of Historic Places Registration Form

This form is for use in nominating or requesting determinations for individual properties and districts. See instructions in National Register Bulletin, *How to Complete the National Register of Historic Places Registration Form.* If any item does not apply to the property being documented, enter "N/A" for "not applicable." For functions, architectural classification, materials, and areas of significance, enter only categories and subcategories from the instructions. **Place additional certification comments, entries, and narrative items on continuation sheets if needed (NPS Form 10-900a).**

1. Name of Property

historic name Red Wing Waterworks

other names/site number

2. Location

street & number 935 Levee Road [N/A] not for publication

city or town Red Wing [N/A] vicinity

state MN code MN county Goodhue code 049 zip code 55066

3. State/Federal Agency Certification

As the designated authority under the National Historic Preservation Act, as amended,

I hereby certify that this X nomination ___ request for determination of eligibility meets the documentation standards for registering properties in the National Register of Historic Places and meets the procedural and professional requirements set forth in 36 CFR Part 60.

In my opinion, the property X meets ___ does not meet the National Register Criteria. I recommend that this property be considered significant at the following level(s) of significance:

___ **national** ___ **statewide** X **local**

Barbara Howard June 21, 2013

Signature of certifying official/Title Barbara Mitchell Howard, Deputy State Historic Preservation Office, MN Historical Society Date

State or Federal agency/bureau or Tribal Government

In my opinion, the property ___ meets ___ does not meet the National Register criteria.

Signature of commenting official Date

Title State or Federal agency/bureau or Tribal Government

4. National Park Service Certification

I hereby certify that this property is:

✓ entered in the National Register ___ determined eligible for the National Register

___ determined not eligible for the National Register ___ removed from the National Register

___ other (explain:)

for Edson K. Beall 8.13.13

Signature of the Keeper Date of Action

5. Classification

Ownership of Property
(Check as many boxes as apply.)

- [ ] private
- [x] public - Local
- [ ] public - State
- [ ] public - Federal

Category of Property
(Check only **one** box.)

- [x] building(s)
- [ ] district
- [ ] site
- [ ] structure
- [ ] object

Number of Resources within Property
(Do not include previously listed resources in the count.)

Contributing	Noncontributing	
2		buildings
		district
		site
1		structure
		object
3		**Total**

Name of related multiple property listing
(Enter "N/A" if property is not part of a multiple property listing)

N/A

Number of contributing resources previously listed in the National Register

N/A

6. Function or Use

Historic Functions
(Enter categories from instructions.)

GOVERNMENT: Public Works

Current Functions
(Enter categories from instructions.)

VACANT: Not in use

7. Description

Architectural Classification
(Enter categories from instructions.)

LATE VICTORIAN: Romanesque

Materials
(Enter categories from instructions.)

foundation: CONCRETE
walls: STONE, BRICK
roof: COMPOSITE
other:

Narrative Description

(Describe the historic and current physical appearance of the property. Explain contributing and noncontributing resources if necessary. Begin with **a summary paragraph** that briefly describes the general characteristics of the property, such as its location, setting, size, and significant features.)

Summary Paragraph

The Red Wing Waterworks is located in Red Wing, Minnesota, just west of the Mississippi River along Levee Road.The property consists of three contributing resources. The oldest, completed in 1885, is a two-story main pumping station, built of locally-quarried limestone. The pumping station, designed in the Industrial Romanesque Revival style by Henry H. Harrison, is distinguished by its locally-quarried stone exterior. The other two resources were built in 1910 as part of an effort to improve water quality. The one-story brick well pump house was added to in 1920 and 1932 as new wells were brought into the system. The circular steel-reinforced concrete reservoir is the largest resource, measuring eighty feet in diameter.

Narrative Description

See attached continuation sheet.

8. Statement of Significance

Applicable National Register Criteria

(Mark "x" in one or more boxes for the criteria qualifying the property for National Register listing.)

- [x] A Property is associated with events that have made a significant contribution to the broad patterns of our history.
- [ ] B Property is associated with the lives of persons significant in our past.
- [ ] C Property embodies the distinctive characteristics of a type, period, or method of construction or represents the work of a master, or possesses high artistic values, or represents a significant and distinguishable entity whose components lack individual distinction.
- [ ] D Property has yielded, or is likely to yield, information important in prehistory or history.

Criteria Considerations

(Mark "x" in all the boxes that apply.)

Property is:

- [ ] A Owned by a religious institution or used for religious purposes.
- [ ] B removed from its original location.
- [ ] C a birthplace or grave.
- [ ] D a cemetery.
- [ ] E a reconstructed building, object, or structure.
- [ ] F a commemorative property.
- [ ] G less than 50 years old or achieving significance within the past 50 years.

Areas of Significance

(Enter categories from instructions.)

COMMUNITY PLANNING AND DEVELOPMENT

Period of Significance

1885-1962

Significant Dates

1885, 1910, 1921, 1932

Significant Person

(Complete only if Criterion B is marked above.)

Cultural Affiliation

N/A

Architect/Builder

Harrison, Henry H. (engineer, 1885)

Wolff, L. L. (engineer, 1910)

Period of Significance (justification)

The period of significance begins with the final transfer of the waterworks system from the contractor to the City of Red Wing in 1885, although construction of the main pumping station was nearly complete in 1883. The closing date reflects the fifty-year guideline used by the National Park Service.

Criteria Considerations (explanation, if necessary)

Statement of Significance Summary Paragraph (Provide a summary paragraph that includes level of significance and applicable criteria.)

The Red Wing Waterworks provided its citizens a clean supply of water while supplying a ready source for the local fire department. Representing a substantial civic investment, the waterworks enabled Red Wing to develop both its industrial base and its residential neighborhoods. Consisting of three contributing resources, the waterworks are locally significant under Criterion A, representing community planning and development through its public works. The period of significance begins in 1885, when the waterworks system became operational, and ends in 1962.

Narrative Statement of Significance (Provide at least **one** paragraph for each area of significance.)

See attached continuation sheet.

Developmental history/additional historic context information (if appropriate)

9. Major Bibliographical References

Bibliography (Cite the books, articles, and other sources used in preparing this form.)

See attached continuation sheet.

Previous documentation on file (NPS):

____preliminary determination of individual listing (36 CFR 67 has been requested)
____previously listed in the National Register
____previously determined eligible by the National Register
____designated a National Historic Landmark
____recorded by Historic American Buildings Survey #_____
____recorded by Historic American Engineering Record #_____
____recorded by Historic American Landscape Survey #_____

Primary location of additional data:

_X_ State Historic Preservation Office
____Other State agency
____Federal agency
____Local government
____University
____Other
Name of repository: _____

Historic Resources Survey Number (if assigned): GD-RWC-1381

10. Geographical Data

Acreage of Property 1 acre
(Do not include previously listed resource acreage.)

UTM References
(Place additional UTM references on a continuation sheet.)

	Zone	Easting	Northing		Zone	Easting	Northing
1	15	536327	4934665	3			
2				4			

Verbal Boundary Description (Describe the boundaries of the property.)

The nominated property is described as Goodhue County 55-175-1060.

Boundary Justification (Explain why the boundaries were selected.)

The boundary of the nominated property includes the parcel of land historically associated with the waterworks.

11. Form Prepared By

name/title Daniel J. Hoisington

organization _____ date _____

street & number P. O. Box 13585 telephone 651-415-1034

city or town Roseville state MN zip code 55113

e-mail djh@hoisingtonpreservation.com

Additional Documentation

Submit the following items with the completed form:

- **Maps:** A **USGS map** (7.5 or 15 minute series) indicating the property's location.

  A **Sketch map** for historic districts and properties having large acreage or numerous resources. Key all photographs to this map.

- **Continuation Sheets**

- **Additional items:** (Check with the SHPO or FPO for any additional items.)

Photographs:

Submit clear and descriptive photographs. The size of each image must be 1600x1200 pixels at 300 ppi (pixels per inch) or larger. Key all photographs to the sketch map.

See attached continuation sheet.

Property Owner:

(Complete this item at the request of the SHPO or FPO.)

name City of Red Wing

street & number 315 West 4th Street telephone _____

city or town Red Wing state MN 55066

Paperwork Reduction Act Statement: This information is being collected for applications to the National Register of Historic Places to nominate properties for listing or determine eligibility for listing, to list properties, and to amend existing listings. Response to this request is required to obtain a benefit in accordance with the National Historic Preservation Act, as amended (16 U.S.C.460 et seq.).
Estimated Burden Statement: Public reporting burden for this form is estimated to average 18 hours per response including time for reviewing instructions, gathering and maintaining data, and completing and reviewing the form. Direct comments regarding this burden estimate or any aspect of this form to the Office of Planning and Performance Management. U.S. Dept. of the Interior, 1849 C. Street, NW, Washington, DC.

7. NARRATIVE DESCRIPTION

The Red Wing Waterworks, comprised of the pumping station, well house, and reservoir, is located on a one-acre site near the Mississippi River, just northwest of the downtown commercial center of Red Wing, Minnesota, a city of 17,000 residents. The surrounding buildings are generally industrial in use; however a marina is located on the north side of Levee Road, just opposite the waterworks. During the course of its history, the distance between the river and the waterworks has increased with landfill. During much of the period of significance, 1885-1962, Levee Road was a gravel road, later paved as the city improved the waterfont. Railroad tracks are located directly south and adjacent to the waterworks.

The property consists of three contributing resources: a pumping station, a well house, and a reservoir.

It was not uncommon to find distinguished or unusual architecture for buildings related to water functions in cities, especially as developments in water supply represented progress in city development. The primary waterworks pumping station was constructed of rough-faced stone in 1883-85. It is set back from Levee Road with a grassy lawn between the road and the building (Photo #0001). Roughly rectangular in plan, forty by fifty-four feet, the general appearance of the main building is defined by its use of locally quarried limestone. The roof is flat with the east section (originally the boiler room) roughly five feet taller than the west (engine room). The foundation is stone and concrete.

The multiple full-arched entries are the most striking visual element. These arches were typical of the industrial Romanesque style popularized in the 1870s by Boston architect Henry Hobson Richardson (Photo #0002). There are two each on the north and south elevations, now enclosed and stuccoed, except for the southwest door, which has a metal roll-up door. Lacking any historic photographs, it is difficult to ascertain how these arched spaces were used, but remaining interior framing suggests single or double entry doors with a glass surround (see Photo #0011).

The ground floor features a raised red brick belt course roughly five feet from the ground, laid in a soldier bond that extends above the full arches. There are windows on the main (north) façade, although one is now enclosed. The remaining window has a wood frame with six-over-six sashes and a stone sill (Photo #0003). On the south elevation, there are four windows on the second floor, with two enclosed with vertical boards. On the east elevation, there is a single window, also boarded, and a round, raised brick segmented arch (Photo #0004). The ground floor has a single entry metal door within the arch, with a low wooden ramp providing access. Directly above this entry arch is a round window with a stepped triple row of header bricks. The window has now been filled with bricks as well. The southeast corner shows a stepped corbel and extends down the south wall. Walls are capped with metal flashing, while the coping on the low parapets is a rough stone.

The west end of the building consisted of coal storage room with an eighty-foot chimney (photo #0005) Unlike the rest of the building, the coal room was constructed of brick, which is now stuccoed on the exterior, but with exposed brick in the interior (see photo #0010, wall on the right). The chimney was removed sometime after 1960, but its stone base remains intact on the north wall, (photo #0006) with a small metal fire door suggesting its use.

Sanborn insurance maps show that as capacity grew, the need for additional coal storage led to construction of an additional one-story, wood coal storage bin on the north side of the chimney. This was completed between 1885 and 1891 (see Additional Documentation, map #4). This bin was removed during the 1910 shift to the use of well water, with a new one-story, gabled coal storage space built off the west of the original (and existing) coal storage (see Additional Documentation, Figure #5). This, too, was removed, sometime after 1960.

The pumping station's interior space remains generally intact from the time of construction. The building consists of three rooms, originally used as the boiler room, the engine room, and the coal room (Photos #0010 and #0011). No mechanical pumping works remain in this building.

The other two resources were constructed in 1910, when the city upgraded its water system with the addition of a large 750,000-gallon reinforced concrete reservoir and an attached brick well house.

The rectangular, flat-roofed well house is roughly ten feet wide and forty feet long, set in an east-west orientation (Photo #0007). It was constructed in three phases, with the first portion erected shortly after completion of the reservoir in 1910. Additions were made in 1921 and 1932 to accommodate new wells, extending the building to the east. The exterior is a light brown brick, while the roof and the foundation are concrete. The building is utilitarian with little ornamentation. On the track side, there are two metal double entry doors, plus six randomly-spaced windows — now enclosed with concrete block. There is a small brick chimney on the northeast corner. There is an additional metal double entry door on the east elevation. On the west elevation, there are three rectangular windows, again, all enclosed. In the older 1910 section of the building, the windows have rough stone sills, now painted. No mechanical pumping works remain in this building.

The reservoir is steel-reinforced concrete, eighty feet in diameter, with an overall twenty-five-foot height, mainly underground. There is a slightly domed concrete roof (Photos #0008 and #0009).

Integrity is the ability of a property to convey its significance. The waterworks and its three contributing resources remain largely unchanged from the time of construction. The location and setting near the Mississippi River conveys the direct connection between the original source of water — the river — and the pumping station. The pumping station, the oldest resource, retains most of its original appearance and design with its rough limestone walls, the brick course, and the full-arched entries. Originally, the

building had a smokestack, roughly eighty feet high, which removed in the 1960s. In addition, one-story coal bins were added and removed, returning the present building to its original 1885 footprint.

The reservoir is substantially unchanged since its construction, except for a coat of gunnite in the 1960s. The well house is the accumulation of three phases of construction, all within the period of significance. All retain original materials, with only the closure of windows and the full arched openings detracting from its integrity.

8. NARRATIVE STATEMENT OF SIGNIFICANCE

The Red Wing Waterworks provided its citizens with a clean supply of water while supplying a ready source for the local fire department. Completed in 1885, the main pumping station is the earliest extant city public works building. The well pump house and concrete reservoir, completed in 1910, illustrate the city's response to the growing awareness of water quality and public health issues. The period of significance, 1885-1962, represents the span of years of continuous daily operations of the water department in this building.

In the early 1880s, Red Wing had a population of around 6,000 residents. A prosperous Mississippi River town, it was attracting major industries that took advantage of natural resources, such as clay, stone, and wood, as well as excellent transportation via water and rail.

The immediate impetus for a city water system came from local concerns about the fire safety. In 1882, a series of fires damaged or destroyed business blocks and factories, including the Turner Opera House, the National Hotel, and Betcher's sawmill. Rumors spread that it might be the work of arsonists. In the early morning hours of March 4, 1883, a disastrous fire swept through the Diamond and Red Wing Flour Mills. Reverend Joseph Hancock described the conflagration: "By the time the fire engine arrived the flames had gained such headway that the elevator and warehouses, with the Bluff Mill, were soon destroyed, with the contents. . . . The fire raged for five hours before it was under control. The total loss was estimated at $240,000."[1]

Its aftershock, with the loss of jobs and capital, brought a swift reaction. At once, businessmen circulated a petition asking the city council to purchase a new steam engine for the fire department. But more was needed, the petition contended, stating: "The time has come when better facilities than we now have for extinguishing fires are imperatively needed, and which must be had in the shape of a permanent waterworks or cisterns in different portions of the city. The best system and in the end the cheapest would be the establishment of a system of waterworks with pipes and hydrants in every portion of the city."[2]

The editor of the Red Wing *Advance* agreed: "The millers and coopers are out of a job. What greater calamity could happen to a city than the burning up of a large manufacturing establishment? By the burning of the mills, the water supply for fighting fires in the business portion of the city is diminished

---

[1] J. W. Hancock, *Goodhue County, Minnesota, Past and Present* (Red Wing: Red Wing Printing Company, 1893), 349.

[2] *Red Wing Argus*, March 18, 1883.

one half, and by that much of the demand for waterworks increased."[3]

By March 15, 1883, the city council passed a resolution to form a committee to "examine, devise and recommend the best plan for an efficient system of waterworks for the city." Its members visited Decorah, Iowa, Stillwater, Faribault, Minneapolis, and St. Paul to examine similar facilities.

Among the early choices were "the construction of a reservoir on Barn Bluff, and supplying it with water from the Mississippi by means of steam power; the furnishing of a supply of water by means of one or more artisan wells; the purchasing of the Taylor grist mill property on Hay Creek, and utilizing the water power to pump water from Hay Creek into a reservoir to be located on Jennison's bluff; an artisan well on College Bluff, to afford water by a pump worked by a wind mill; the increasing of fire cisterns at the intersection of the streets at suitable localities, etc." In the end, the city council decided to forgo an artesian well and rely on river water.[4]

The impetus to build a waterworks, although driven by the factory fires, must be understood within the national trends in technology and civic improvements. Following the Civil War, as the field of engineering boomed and urbanization swept the country, the construction of waterworks systems began on a large scale. With the growth of cities and towns came the need and desire to develop an adequate water supply, which would, in turn, provide high standards of living and sanitation. By 1870, there were 244 waterworks in operation across the United States. Within five years, the number had grown to 422.

Historian Martin Melosi observed, "Water supply was the first important public utility in the United States and the first municipal service that demonstrated a city's commitment to growth." If that is the case, then Red Wing's civic and business leaders, who saw themselves as progressive, understood that the city would need to invest in its water and sewer infrastructure. One newspaper editorial described the need as "more than the simple matter of waterworks. It means more than all else, perhaps, that we are now on the road to become that manufacturing centre to which we have been looking forward to with so much gratification and pleasure. . . . It places our city in better standing in the markets of the world; it gives it a name that will stand as a synonym of go ahead-ativeness that it had not had before."[5]

Unlike many other towns, including Stillwater, the city determined to maintain ownership of the water system. Early waterworks systems in the United States were often privately owned and operated. The issue seems to have been widely discussed in Red Wing, with at least one letter to the editor warning

---

[3] Red Wing *Advance*, March 7, 14, 1883.

[4] Red Wing *Advance*, March 21, 1883.

[5] Martin V. Melosi, *The Sanitary City: Environmental Services in Urban American from Colonial Times to the Present* (Pittsburgh: University of Pittsburgh Press, 2000), 201.

about the dangers of private ownership. "I intend to vigorously kick against any proposition looking to a private corporation coming here and owning the works. . . . The city does not want a repetition of a 'St. Paul' here — having certain parties put in the works, and then . . . pay five times as much for them as they cost." A local newspaper noted, "It is, perhaps, one of the most important questions, involving as it does the interests of every citizen of our young city. . . . The management of these works will be under the exclusive control of the city council, who are your servants and are subject to your instruction from time to time."[6]

There was some opposition, generally from those who argued that "it was an imposition on the part of a few to lay an unnecessary tax upon the many." There was also contention over the location of the mains, limited to the downtown commercial area and the industrial plants near the river. Authorization of a bond issue was approved at a public referendum by a vote of 493 to 151, with the Third Ward providing the only close vote (88-78).[7]

The waterworks were developed under the direction of an innovative engineer, Henry H. Harrison, who was involved in a large number of similar constructions across the country. He represents a new and growing profession in the late nineteenth century. The American Waterworks Association formed in 1881 when twenty-two men representing water utilities in Illinois, Indiana, Iowa, Kansas, Kentucky, and Tennessee, met at Washington University in St. Louis, Missouri. They adopted a constitution that stated the purpose of the association as being "for the exchange of information pertaining to the management of water-works, for the mutual advancement of consumers and water companies, and for the purpose of securing economy and uniformity in the operations of water-works."[8]

A native of West Virginia, Henry H. Harrison moved to Missouri as a young man and found employment as an engineer in a local mill. In 1875 his expertise won him contracts with the McGowan Pump Company of Cincinnati, Ohio, to develop waterworks for Cedar Rapids and Marshalltown, Iowa. He was then hired by Fruin and Company, a nationally recognized firm in the burgeoning market of municipal waterworks. In 1880 Harrison came to Minnesota to assist the city of Stillwater in construction

---

[6] Red Wing *Advance*, June 13, 1883. The other utility in town, the Red Wing Gas Light Company, was organized in 1872 as a private corporation.

[7] Red Wing *Advance*, July 4, 18, 1883. In 1875, 46.2 percent of the nation's waterworks were privately owned. Letty D. Anderson, "The Diffusion of Technology in the Nineteenth Century American City: Municipal Water Supply Investments," (Ph.D. diss., Northwestern University, 1980), 104, 106; B. M. Wagner, "The Acquisition of Private Water Plants by Municipalities," *Journal of the American Water Works Association* 2 (March 1915): 25-41.

[8] Moses N. Baker, *The Quest for Pure Water: The History of Water Purification from the Earliest Records to the Twentieth Century* (Baltimore: American Water Works Association, 1948), 380.

of their water system, employed by the Stillwater Water Company, a private enterprise. He decided to remain there and opened his own firm. Harrison went on to a long and profitable career in waterworks and pumping station development, designing systems in at least ten Minnesota cities and several more throughout the Midwest. These included the Cloquet pumping station and the 1890 Owatonna Waterworks pumping station, a cottage-style building listed on the National Register of Historic Places.[9]

The construction contract was awarded August 28, 1883, to the Northwestern Water and Gas Supply Company of Minneapolis, for the sum of $80,400, working off of Harrison's plans.[10] Later that fall, the Red Wing *Advance* reported:

> Our waterworks are progressing finely. A visit to the scene of operations, at the foot of Hill street, near C. Betcher's mill, disclosed the fact that the works there are being pushed to completion as rapidly as possible. The filtering wells and cistern are completed, and the building to be used for a boiler and pump house is nearly ready for a roof. The building is constructed of stone and brick and when completed will be a very substantial and convenient structure. The work of digging trenches for the mains commenced Monday, and a large number of men are employed for that purpose. When completed Red Wing will have waterworks second to none in the State.[11]

The pumping station building was the most visible part of this expansive new infrastructure. The works were constructed on Levee Street, measuring forty by fifty-four feet, and divided into a pump room and a boiler room. A brick coal shed adjoined the main building. The core machinery consisted of two noncondensing duplex pumps manufactured by the George Blake Manufacturing Company of New York City, with a capacity of one-and-a-half million gallons of water in twenty-four hours. With a pair of pistons powered by the successive high-pressure and low-pressure use of a single blast of steam, the horizontal engine maintained an even pumping pressure.

---

[9] Augustus B. Easton, editor, *History of the Saint Croix Valley* (Chicago: H. C. Cooper, 1909), 186-87. Other nearby waterworks by Harrison include those built for the cities of Fairfax, St. Paul, St. Peter, Redwood Falls, and Hudson (Wis.). He played a prominent role in Stillwater politics and served as state representative between 1913 and 1920. The Stillwater water department building (1891), designed by Harrison, has been locally designated by the City of Stillwater as a landmark building.

[10] St. Paul *Daily Globe*, February 3, 1883. The Northwestern Water and Gas Supply Company had been organized that same year (1883). Its business plan stated, "The company expects to be able to build and operate . . . city improvements in small towns."

[11] Red Wing *Advance*, August 15, October 31, 1883.

A small pump drew water from the Mississippi River, then transported it through a fourteen-inch cast iron intake pipe to the main pumping station. The river was often turbid, especially after spring rains, so the water passed through a simple purification process. The techniques were introduced to the United States in 1872 when the city of Poughkeepsie, New York, constructed a system of sand and gravel filtration. Harrison designed a modified version for Red Wing's new plant, consisting of three cisterns (removed in 1910). The first used screens to clear the water of large impurities, such as leaves and small fish, while the second had a sand barrier to further filter it, and the third was a holding cistern for the water.[12]

The water was then pumped into the street mains and to a large reservoir on Sorin Bluff. The initial plan for the reservoir was to dig it into the rock bluff, but after work began, the contractors expressed concern for its stability. Instead, an above ground reservoir, with a capacity of one million gallons, was constructed. A newspaper account described it, noting: "It is constructed circular and is eighty feet in diameter, in the clear, and averages twenty-seven feet in depth. It is covered by a conical roof, consisting of very strong and substantial timber truss, supported in the center by a stone pier, and is covered by shingles laid on light board sheeting."[13]

The final piece of the project was the installation of a series of water mains — nearly seven miles' worth — that distributed the water throughout the city, with fifty-two hydrants.[14]

The contractor turned the new water system, including the reservoir and mains, over to the city on May 20, 1885, to be supervised by the new city water commission. The following year, the Red Wing Fire Department reorganized, with the City Council awarding charters to four hose companies and one ladder company. A citywide alarm system went into operation. The city authorized construction of sewers in 1885. Finally, additional coal storage was added on the southeast side of the pumping station within a few years. By 1902, one of the Blake engines had been replaced by a more powerful Snow compound vertical pumping engine, bringing total capacity to three million gallons a day.[15]

Concerns about Water Purity

The new water system laid the foundation for expanding service throughout the city as it grew. Almost immediately the cleanliness of the water became an issue. If the initial challenge was physical —

---

[12] "Blake's Improved Duplex Steam Pump," *The Manufacturer and Builder* 15 (May 1883), 102.

[13] Red Wing *Advance-Republican*, May 27, 1885.

[14] *Manual of American Waterworks* (New York: 1889), 430.

[15] Franklyn Curtiss-Wedge, editor, *History of Goodhue County, Minnesota* (Chicago: H. C. Cooper, 1909), 561-62.

collecting, storing, and delivering water — the challenge of the early twentieth century was environmental — providing safe and clean water for drinking, cooking, bathing, and manufacturing.

In the 1880s and 1890s water purity became a major health concern in the United States. As one writer observed, "You have a right to expect as much protection from [the] water supply as from the police force." As population growth increased the pollution of the water, engineers and scientists struggled to understand the causes and remedies. While quality could be based on simple observation, by the turn of the century, scientists had much stronger understanding of bacteria and disease. *Engineering News* reported in 1896: "The relation between typhoid fever and water supply is now recognized as being so close that continued high typhoid mortality in any city is taken as pretty conclusive evidence that the public water supply is tainted." Water must now not only look clean, but it must be free of harmful microbes.

The national response was a rapid advance in filtration systems. In 1900, one noted engineer, George Whipple, warned, "Experiments have shown that simple sand filtration is not capable of removing more than one-half of the coloring matter from water, under favorable conditions, and that ordinarily the amount of reduction is not more than one-third to one-fourth." This meant that Red Wing's system was seen as increasingly behind the times.[16]

These appeals for clean water fell on a receptive audience in Red Wing, where public health concerns had a forceful advocate in Dr. Charles Hewitt. A native of Vermont, he served as an assistant surgeon for the United States Army during the Civil War. After the war, he moved to Red Wing to start a private medical practice. In 1872, Hewitt drafted the legislation that created a state board of health in Minnesota, only the third such board in the United States, and after its passage, the doctor was named the first Secretary of the Board. The following year, he opened a laboratory to systematically test water and food. Following a tour of Europe in 1889 and 1890, including a visit to Louis Pasteur's lab, Hewitt increasingly pressed for better water and sewer systems in Minnesota.[17]

In the first decade of the twentieth century, the state board of health issued warnings about the quality of the city's water. In 1909, Dr. H. H. Hill, who worked with the state board, told local residents, "No one at Red Wing shows much regard for their health if they drink the city water. The state board of health has

---

[16] Allen Hazen, "The Albany Water Filtration Plant," *Transactions of the American Society of Civil Engineers* 43 (1900): 293, 314-315.

[17] Philip D. Jordan, "Beginnings of Minnesota Public Health," *Bulletin of the History of Medicine* 21 no. 5 (September-October 1947): 744-752; William Watts Folwell, "Dr. Folwell Recalls Service of State's First Health Inspector," *Minneapolis North High School Polaris,* May 5, 1921; Charles N. Hewitt, *Minnesota from the Standpoint of Public Health* (St. Paul: W.T. Rich and Company), 1885.

examined and reported on the city water many times and always to the same effect — that it is unfit to drink." A local newspaper editor joined the alarm, writing, "Pure water is a necessity in every home; the health of a community depends on it to a large extent. . . . Mississippi water at best is not productive of healthful conditions and at this point, fifty miles below the big Twin Cities, its use is more harmful than is imagined." In response, the city council appointed a special committee on pure water.[18]

The push for additional capacity was not simply driven by the need for cleaner water. By 1909, the city's growth areas moved an increasing distance from the river, notably up Central Avenue and College Hill. H. N. Cook, the fire chief, submitted a report to the city council that real and personal property in these areas reached nearly $500,000, but "there was no pressure available for fighting a fire on the hill." He recommended building a reservoir on Sand Hill and installing additional pumps.

There was some concern that the new well might draw away from the needs of nearby factories. At a city council meeting, managers of the Red Wing Malting Company, Minnesota Malting Company, Red Wing Sewer Pipe Company, and the Red Wing Union Stoneware Company filed a letter stating that these companies would "hold the city liable for any decrease in the flow of any of the wells at their manufacturing establishments which . . . may be caused by the pumping of the new well at the pump station."[19]

These concerns were swept away by the civic-minded leaders of the city. In the first decade of the twentieth century, Red Wing went through an extraordinary period of public investment, spurred by a booming economy and a leadership cadre with a strong sense of responsibility. This wave of investment became a common point of the city's self-identification. The *Red Wing Republican* proudly reprinted an editorial from the *St. Paul Dispatch*, labeling the community as "The Desirable City." The capital city newspaper praised the blending of commerce and charity in the making of "a live, livable, lovable city," and attributed it to the "private generosity, the gratitude of rich men and women to the city that has made their wealth possible, [in] so shaping and developing Red Wing, with continual gifts of parks and boulevards, theaters and libraries and hospitals, as well as the more basic improvements."[20]

In the end, the city council approved a major upgrade of its infrastructure, when the city council approved a bond issue for $25,000 for "installing a means for purifying the water system," including the drilling of a well on the Levee Street site, as well as construction of a new reservoir and well house. It

---

[18] *Red Wing Republican*, March 2, 1910; *Red Wing Free Press*, October 8, 1909, February 4, 1910.

[19] Minutes of the City Council, August 6, 1909.

[20] George Whipple, "Clean Water as a Municipal Asset," *American City* 4 (April 1911): I 62; *St. Paul Dispatch*, December 13, 1906.

marked a transition from the use of water from the Mississippi River to well water. Other civic improvements included a new pump and pump house on College Hill, as well as miles of new concrete walks and curbs ($31,000), expanded sewer lines ($12,000), and improvements to Levee, Broadway, City and Colvill Parks.[21]

Engineer Louis P. Wolff designed the new system. Although his firm was located in St. Paul, Wolff was well-known to local commissioners since he served as Red Wing City Engineer and Goodhue County Surveyor for many years. In 1901, Wolff joined with Charles F. Loweth to form an engineering firm which designed both highway and railroad bridges. Loweth and Wolff targeted local governments as a market for their engineering services. The firm was widely respected and two of their water towers — in Brainerd and Pipestone — are listed in the National Register of Historic Places. Wolff is buried in Oakwood Cemetery in Red Wing.[22]

Wolff's plan called for a well drilled seventy-five feet east of the pumping station, adjacent to a steel-reinforced concrete reservoir, eighty feet in diameter and twenty-three feet high. The contract was let to La Crosse Construction Company for the sum of $10,224. Work began soon after and was completed in early 1910. The capacity of the new system was 750,000 gallons during a period of twenty-four hours, at a time when the city used 500,000 in that span. In addition, noted a local newspaper, "The huge pumps in the present power plant . . . are plenty strong enough to pump water from the reservoir into the mains."[23]

This was not the last step, however. In the summer of 1920, cases of typhoid fever and diarrhea plagued the city. The death of one citizen from typhoid fever led to an investigation by the State Board of Health. Its findings stated, "Our water supply is in danger as long as the present system of pumps are in use." In response, city workers raised the pump about five feet and plugged a sewer drain to the river with concrete. Two years later, an additional pumping station and well were constructed at the lower end of Barn Bluff.[24]

In 1931 and 1932, new wells were drilled to meet the growing demand of the city's residents. This required an addition to the east side of the 1910 well house.[25]

---

[21] *Red Wing Daily Republican*, December 29, 1909; Minutes of the City Council, March 5, 1909, August 6, 1909.

[22] Wolff also designed several bridges that are listed in the National Register of Historic Places, including the Third Street Bridge, Cannon Falls, and the Bullard Creek Bridge, Hay Creek Twp.

[23] *Red Wing Daily Republican*, December 29, 1909.

[24] Minutes of the City Council, September 3, 1920; Madeline Angell, *Red Wing, Minnesota: Saga of a River Town* (Minneapolis: Dillon, 1977), 286.

[25] Minutes of the City Council, September 4, 1931.

Later History

As the city system expanded, the water department no longer used the main pumping station, turning the building into storage space. In the late 1970s, it was converted into the city dog pound, but is now vacant. The reservoir remained in use until recent years. In 1966 the Board of Water Commissioners hired the Pressure Concrete Construction Company to recondition the reservoir. The waterworks, known as Station #1, played an increasingly minor role as capacity expanded in residential areas away from the river. There were recurring issues because the well pumps were located below the flood plain, and in 2002, the well house and reservoir were withdrawn from use.[26]

Conclusion

After it became operational in 1885, the Red Wing Waterworks delivered a steady supply of water to its citizens and offered a reliable flow for the city's fire department. Designed by one of Minnesota's most noted civil engineers, Henry Harrison, it is the oldest known local government building still extant in the city. Twenty-five years later, as concerns about water quality grew, the city's water system shifted from the use of Mississippi River water to artesian wells, leading to the construction of the well pump house and the reservoir. The complex as a whole illustrates the infrastructure challenges that faced the growing city of Red Wing between 1885 and 1910 — extracting water from the river, then the ground, maintaining its quality, and then delivering it to homes and businesses throughout town. It therefore qualifies for the National Register of Historic Places for its association with community planning and development.

[26] Minutes of the City Council, July 2, 1966, April 22, 2002.

9. BIBLIOGRAPHY

Books

Anderson, Kenneth. *Not a Drop to Drink*. New York: Carlton Press, 1962.

Anderson, Letty Donaldson. "The Diffusion of Technology in the Nineteenth-Century American City: Municipal Water Supply Investments." Ph.D. diss., Northwestern University, 1980.

Angell, Madeline. *Red Wing, Minnesota: Saga of a River Town*. Minneapolis: Dillon, 1977.

Baker, Moses N. *The Quest for Pure Water: The History of Water Purification from the Earliest Records to the Twentieth Century*. Baltimore: American Water Works Association, 1948.

Blake, Nelson Manfred. *Water for the Cities*. Syracuse, N.Y.: Syracuse University Press, 1956.

Curtiss-Wedge, Franklyn, ed. *History of Goodhue County, Minnesota*. Chicago: H. C. Cooper, 1909.

Easton, August B., ed. *History of the Saint Croix Valley*. Chicago: H. C. Cooper, 1909.

Folwell, William Watts. "Dr. Folwell Recalls Service of State's First Health Inspector," *Minneapolis North High School Polaris,* May 5, 1921.

Galishoff, Stuart. "Triumph and Failure: The American Response to the Urban Water Supply, 1860-1923." In *Pollution and Reform in American Cities, 1870-1930*, edited by Martin Melosi. Austin: University of Texas Press, 1980.

Hancock, J. W. *Goodhue County, Minnesota, Past and Present*. Red Wing: Red Wing Printing Company, 1893.

Hazen, Allen. "The Albany Water Filtration Plant," *Transactions of the American Society of Civil Engineers* 43 (1900): 293, 314-315.

Hewitt, Charles N. *Minnesota from the Standpoint of Public Health.* St. Paul: W.T. Rich and Company, 1885.

Jordan, Philip D. "Beginnings of Minnesota Public Health." *Bulletin of the History of Medicine* 21 no. 5 (September-October 1947): 744-752.

Melosi, Martin V. *Effluent America: Cities, Industry, Energy, and the Environment.* Pittsburgh: University of Pittsburgh Press, 2001.

Melosi, Martin V. *The Sanitary City: Environmental Services in Urban America from Colonial Times to the Present*. Pittsburgh: University of Pittsburgh Press, 2000.

Ogle, Maureen. *All the Modern Conveniences: American Household Plumbing, 1840-1890.* Johns Hopkins Studies in the History of Technology (n.s.), no. 20. Baltimore: Johns Hopkins University Press, 1996.

Ogle, Maureen. "Redefining 'Public' Water Supplies, 1870-1890: A Study of Three Iowa Cities." *Annals of Iowa* 50 (Spring 1990): 507-30.

Tarr, J. A. "The Evolution of the Urban Infrastructure in the Nineteenth and Twentieth Centuries." In *Perspectives on Urban Infrastructure*, edited by Royce Hanson. Washington, D.C.: National Academy Press, 1984.

Wagner, B. M. "The Acquisition of Private Water Plants by Municipalities." *Journal of the American Water Works Association* 2 (March 1915): 25-41.

Zink, Clifford W. The Hackensack Water Works. Oradell, N. J.: The Water Works Conservancy, 2003.

Newspapers

Red Wing *Advance*

Red Wing *Advance-Republican*

Red Wing Argus

Red Wing Daily Republican

Red Wing Free Press

PHOTOGRAPHS:

Name of Property: Red Wing Waterworks
City or Vicinity: Red Wing
County: Goodhue County State: MN
Name of Photographer: Daniel J. Hoisington Date of Photographs: October 2011
Location of Original Digital Files: 122 Demont Avenue E, Little Canada, Minnesota

Photo #1 (MN_Goodhue County_Red Wing Waterworks_0001)
Waterworks main building, north elevation, camera facing south.

Photo #2 (MN_Goodhue County_Red Wing Waterworks _0002)
North elevation, camera facing southeast.

Photo #3 (MN_Goodhue County_Red Wing Waterworks _0003)
Detail of window on north elevation, camera facing south.

Photo #4 (MN_Goodhue County_Red Wing Waterworks _0004)
South elevation (left), camera facing northwest.

Photo #5 (MN_Goodhue County_Red Wing Waterworks _0005)
South elevation (right), camera facing northeast.

Photo #6 (MN_Goodhue County_Red Wing Waterworks _0006)
Detail of chimney, northwest corner, camera facing southeast.

Photo #7 (MN_Goodhue County_Red Wing Waterworks _0007)
Pumphouse, south elevation (left), camera facing northwest.

Photo #8 (MN_Goodhue County_Red Wing Waterworks _0008)
Pumphouse and partial view of reservoir, north elevation (right), camera facing south.

Photo #9 (MN_Goodhue County_Red Wing Waterworks _0009)
Reservoir, camera facing east.

Photo #10 (MN_Goodhue County_Red Wing Waterworks _0010)
Interior, coal room, camera facing east.

Photo #11 (MN_Goodhue County_Red Wing Waterworks _0011)
Center room, north wall, camera facing north.

Figure 1: Site map

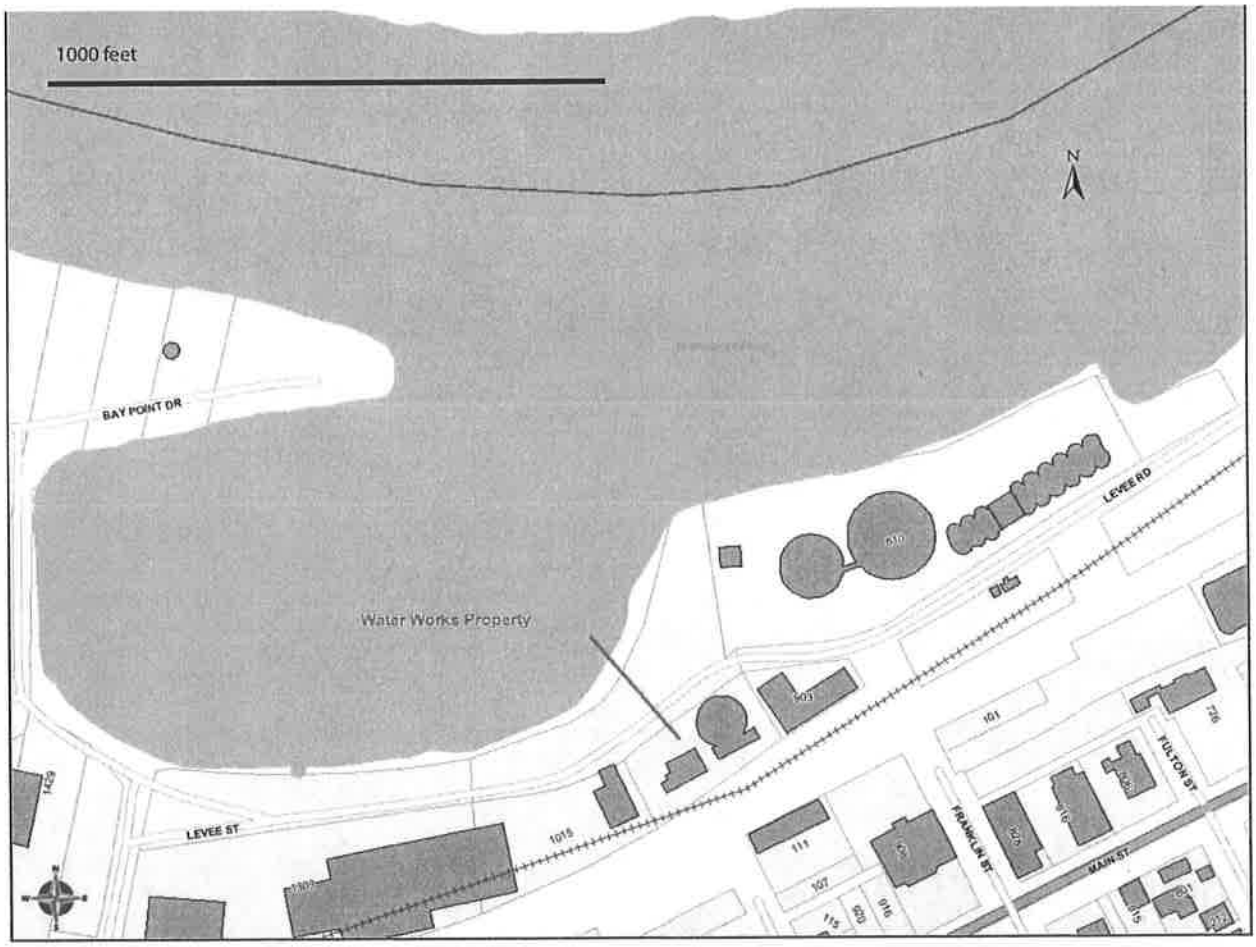


Figure 2: Site map with photograph key

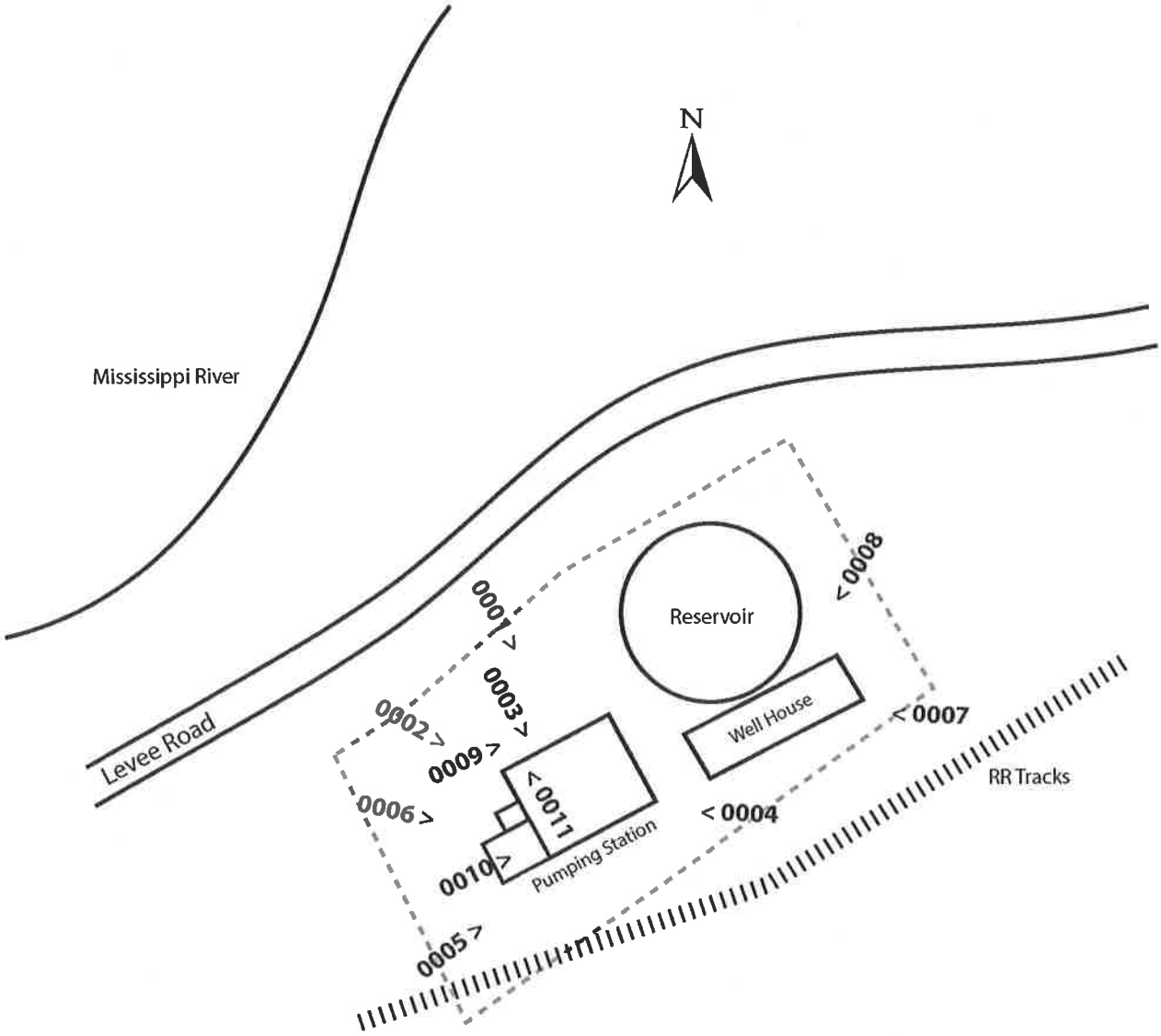


Figure 3: Sanborn Insurance Map, 1884

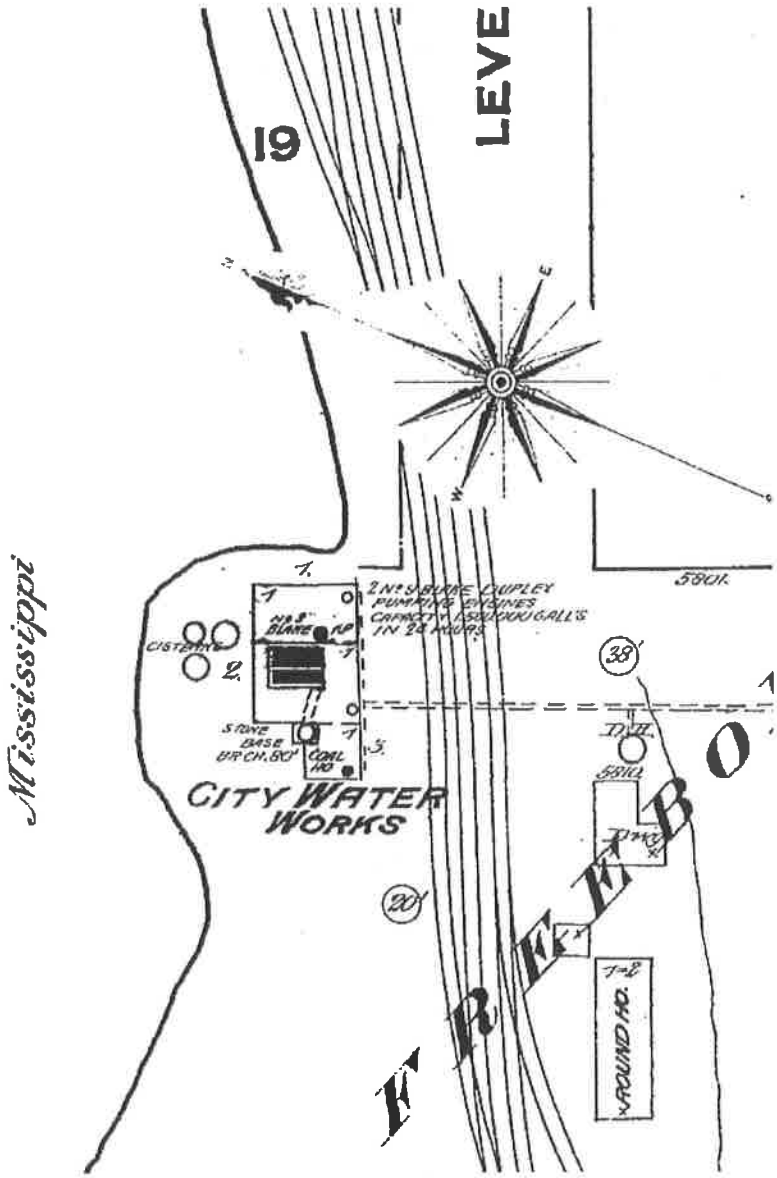


Figure 4: Sanborn Insurance Map, 1894

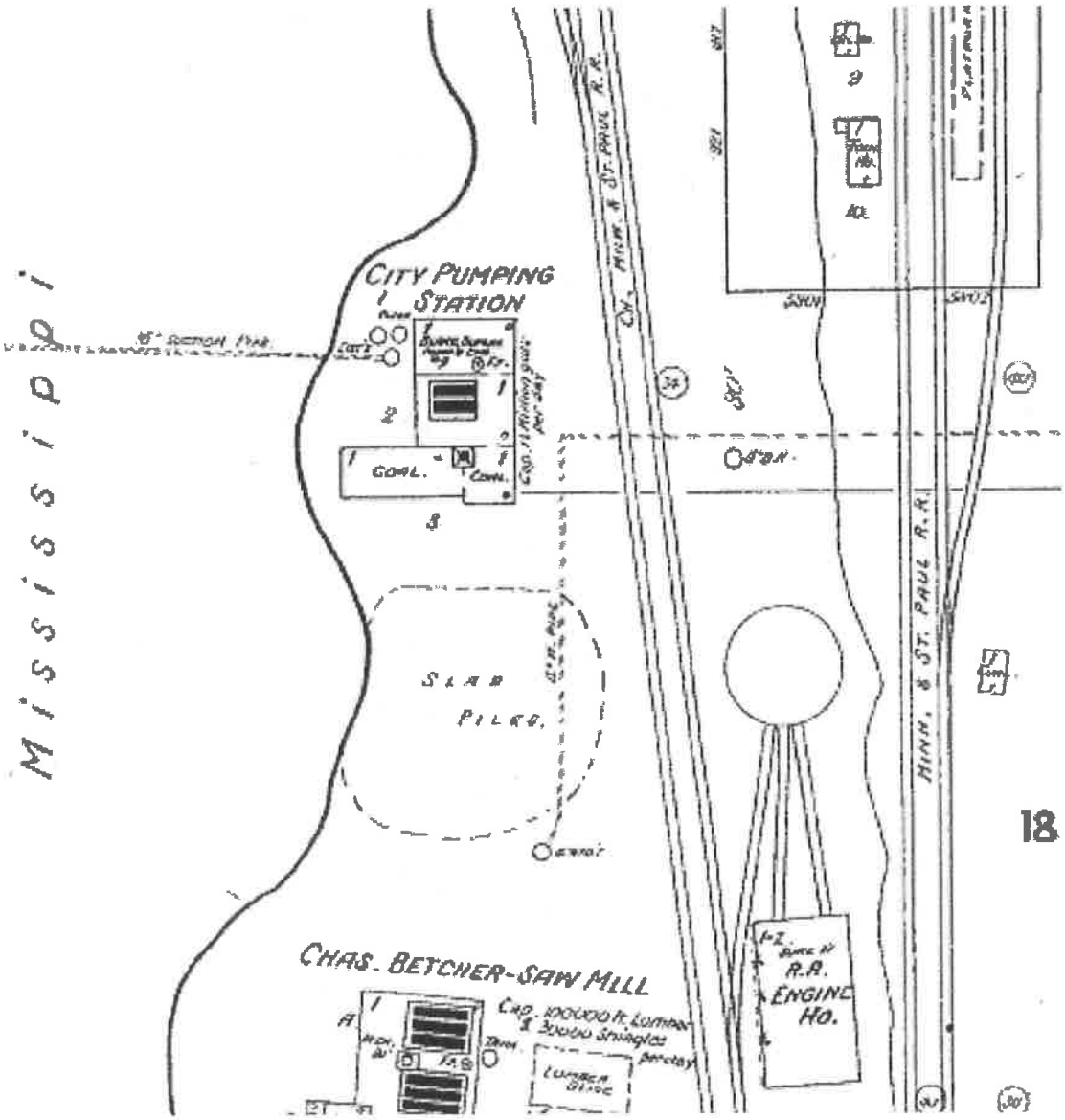
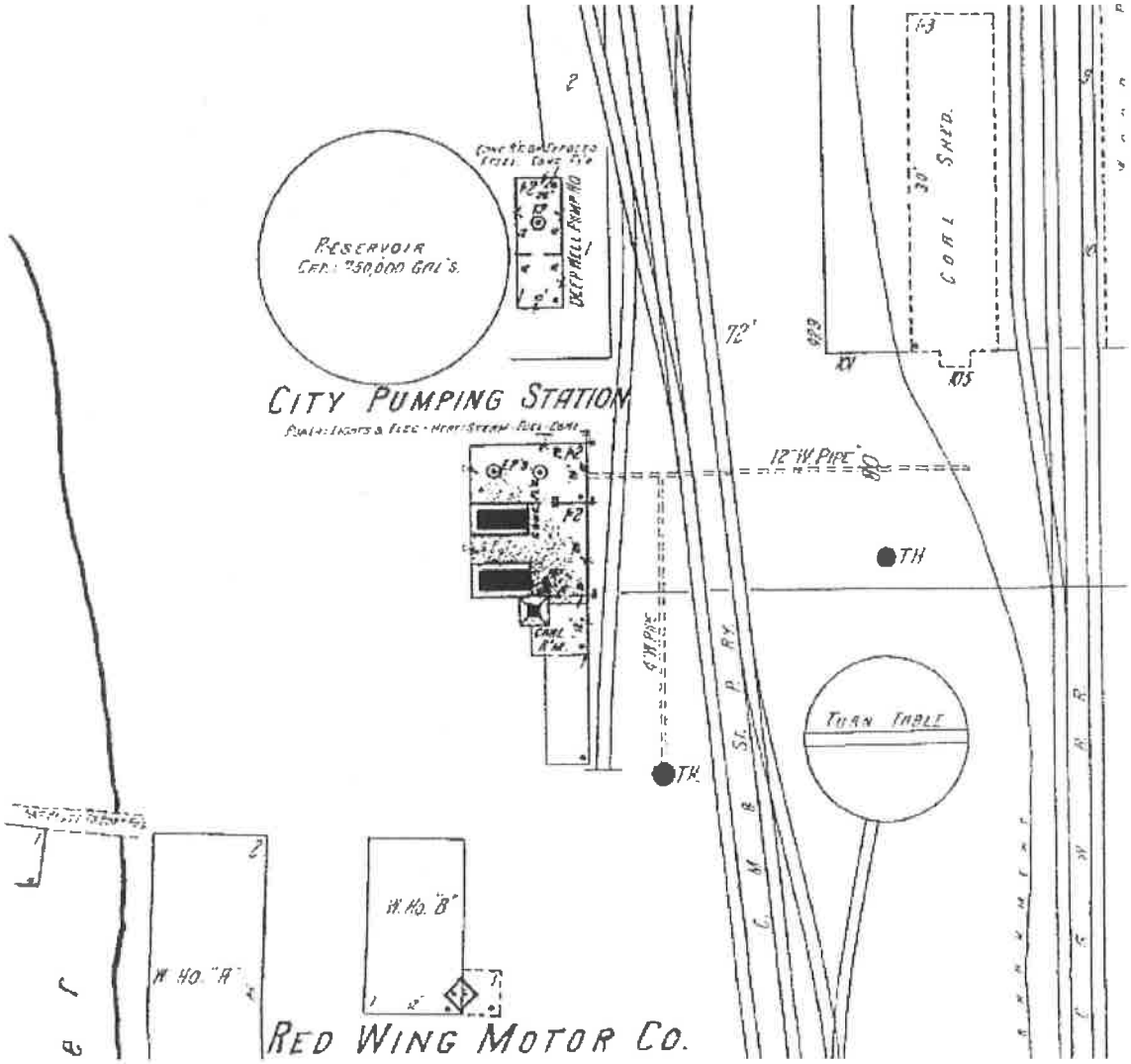
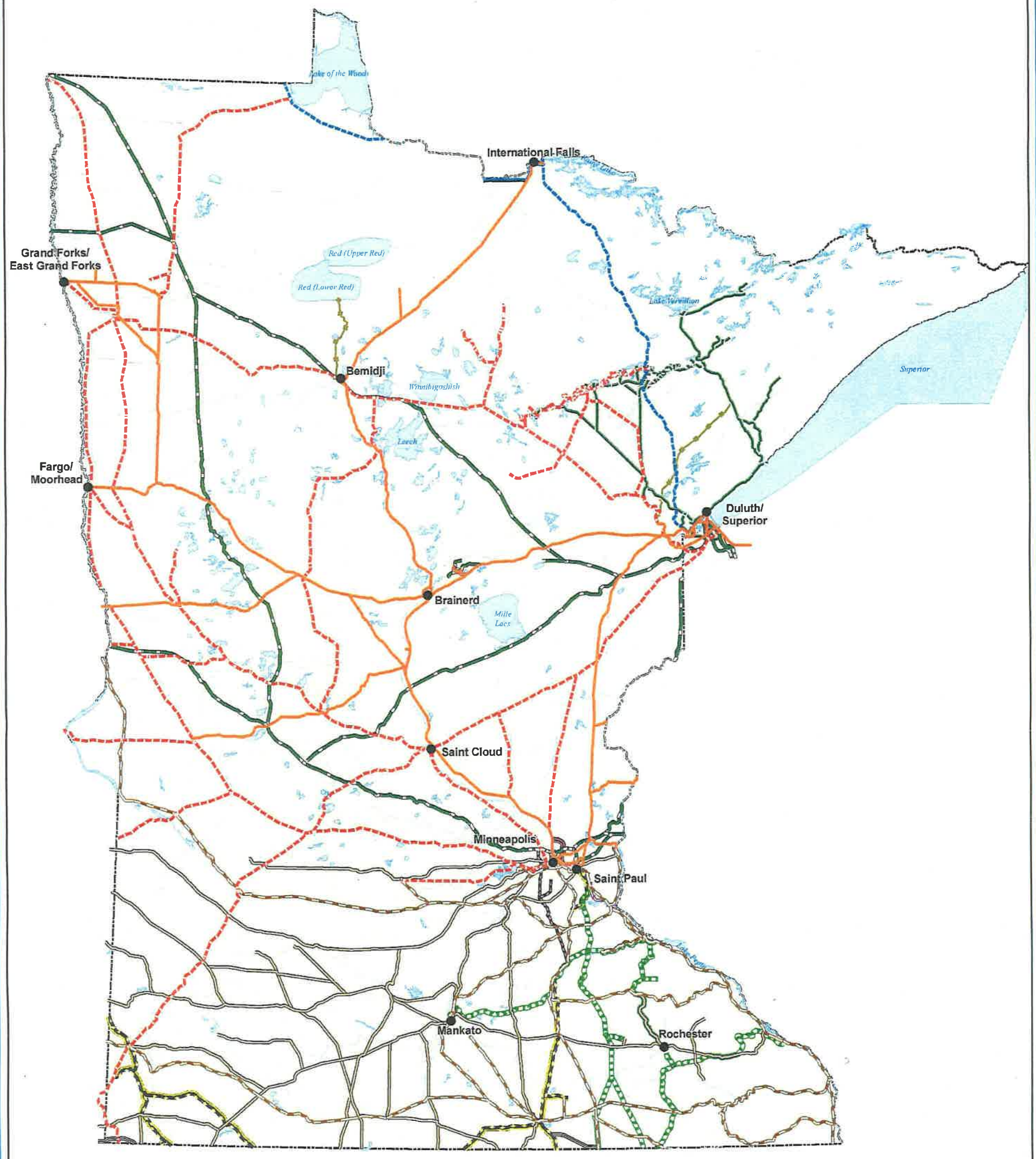


Figure 5: Sanborn Insurance Map, 1927





Map adapted from the MN DNR divison of Fish and Wildlife 100k Lakes and Rivers and 100k Hydrography, Railroad Commissioners Map of Minnesota, 1930 and MN DOT Abandonded Railroads GIS data.

Plot Date: 6/29/2007

Railroads

- Chicago Milwaukee and St. Paul
- Canadian Northern
- Chicago and Northwestern
- Chicago Burlington and Quincy
- Chicago Great Western
- Chicago Rock Island and Pacific
- Duluth and Northeastern
- Duluth Missabe and Northern
- Great Northern
- Illinois Central
- Minneapolis Northfield and Southern
- Minneapolis St. Paul and Sault Ste. Marie
- Minnesota Dakota and Western
- Minnesota Transfer
- Northern Pacific

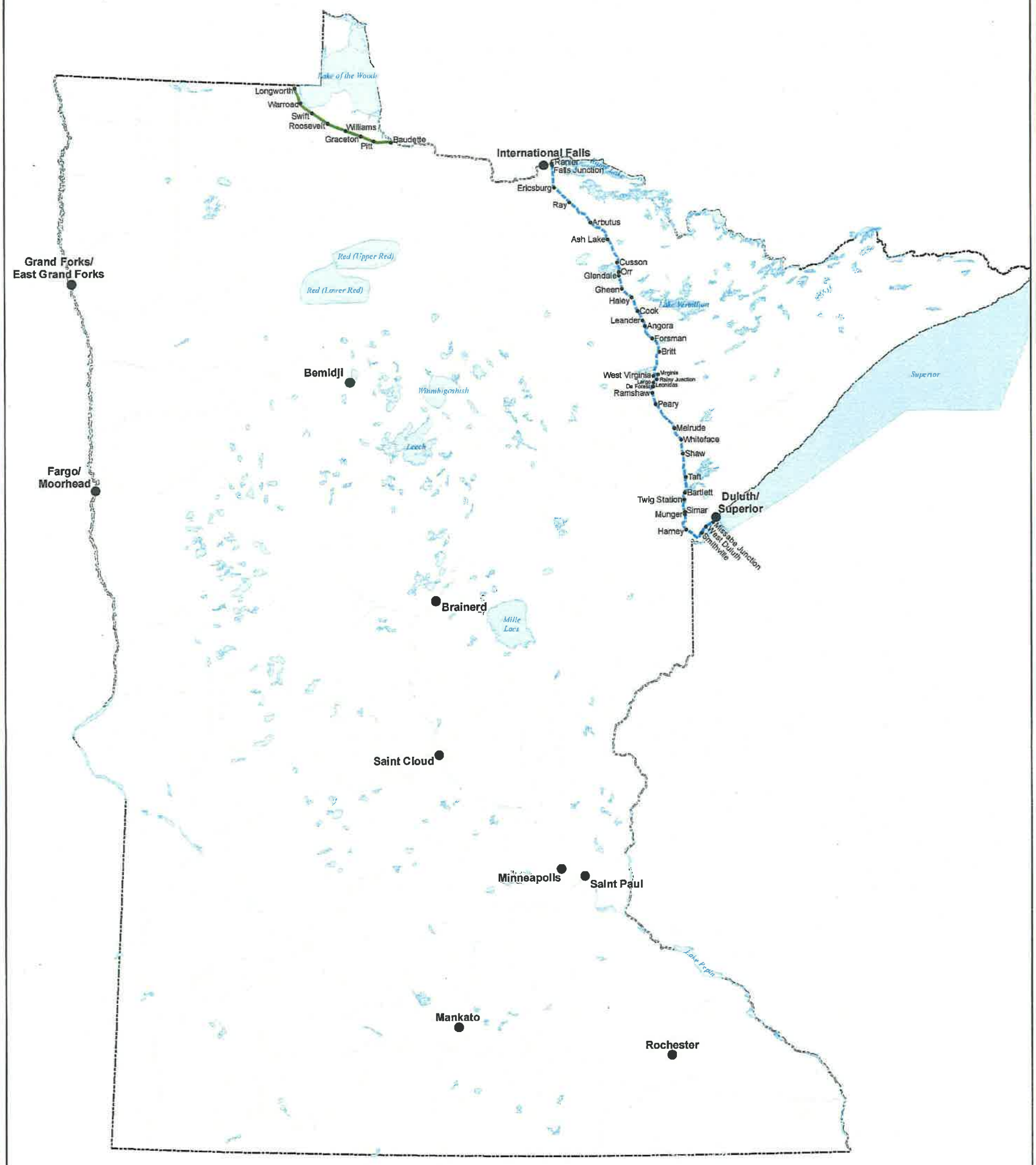
N W E S

0 35 Miles

1 inch equals 35 miles

MINNESOTA RAILROADS - 1930

Railroads in Minnesota, 1862-1956
Multiple Property Documentation Form



Map adapted from the MN DNR divison of Fish and Wildlife 100k Lakes and Rivers and 100k Hydrography, Railroad Commissioners Map of Minnesota, 1930 and MN DOT Abandonded Railroads GIS data.

Plot Date: 1/16/2007

Legend

- Canadian Northern
- Duluth Winnipeg and Pacific
- Places Adjacent to Railroad Corridors
- Major City
- River
- Lake
- County

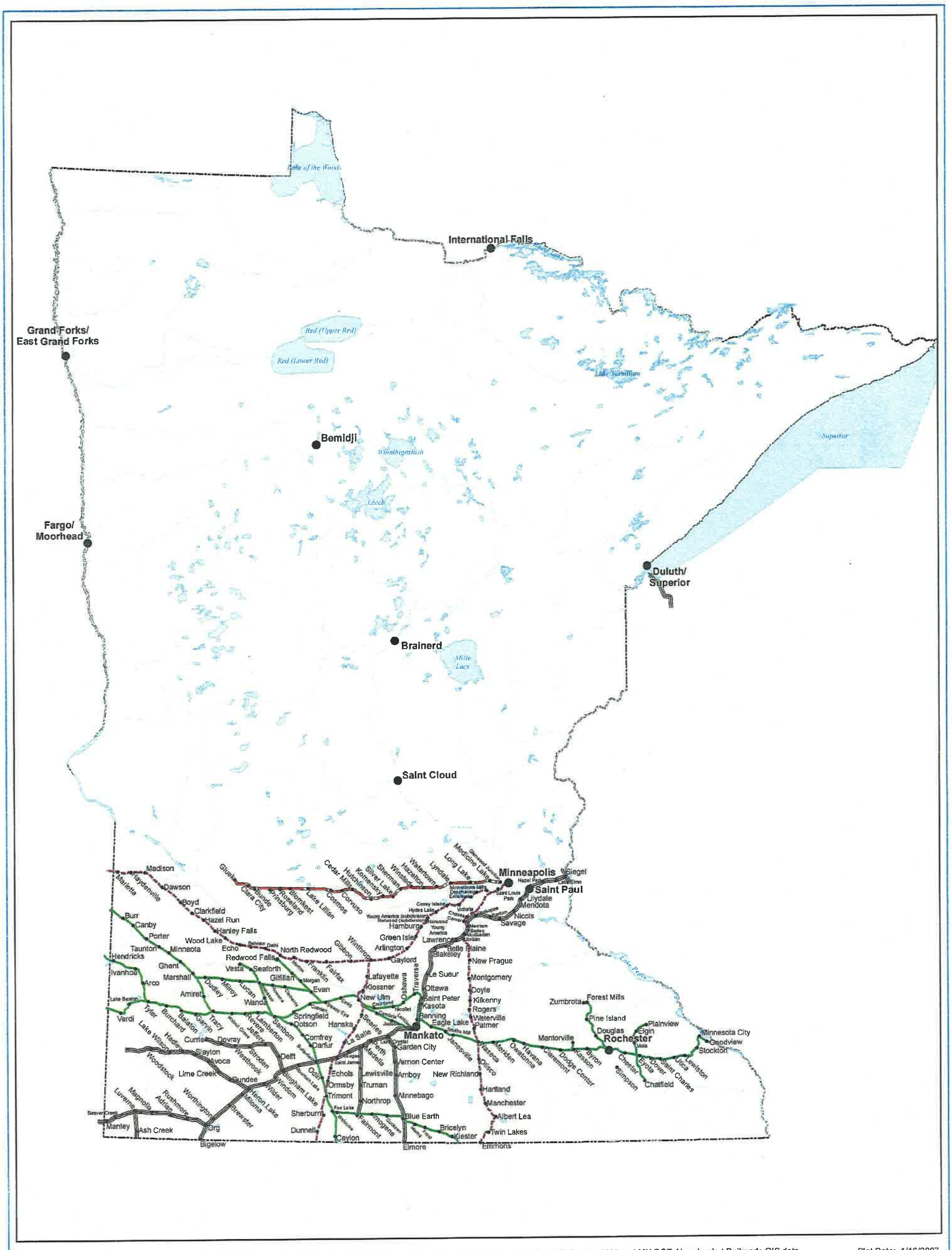
N W E S

0 35 70 Miles

1 inch equals 35 miles

CANADIAN NORTHERN RAILWAY - 1930

Railroads in Minnesota, 1862-1956
Multiple Property Documentation Form



Map adapted from the MN DNR divison of Fish and Wildlife 100k Lakes and Rivers and 100k Hydrography, Railroad Commissioners Map of Minnesota, 1930 and MN DOT Abandonded Railroads GIS data.

Plot Date: 1/16/2007

Legend

- Chicago and Northwestern
- Chicago St. Paul Minneapolis and Omaha
- Minneapolis and St. Louis
- Minnesota Western
- Places Adjacent to Railroad Corridors
- Major City
- River
- Lake
- County

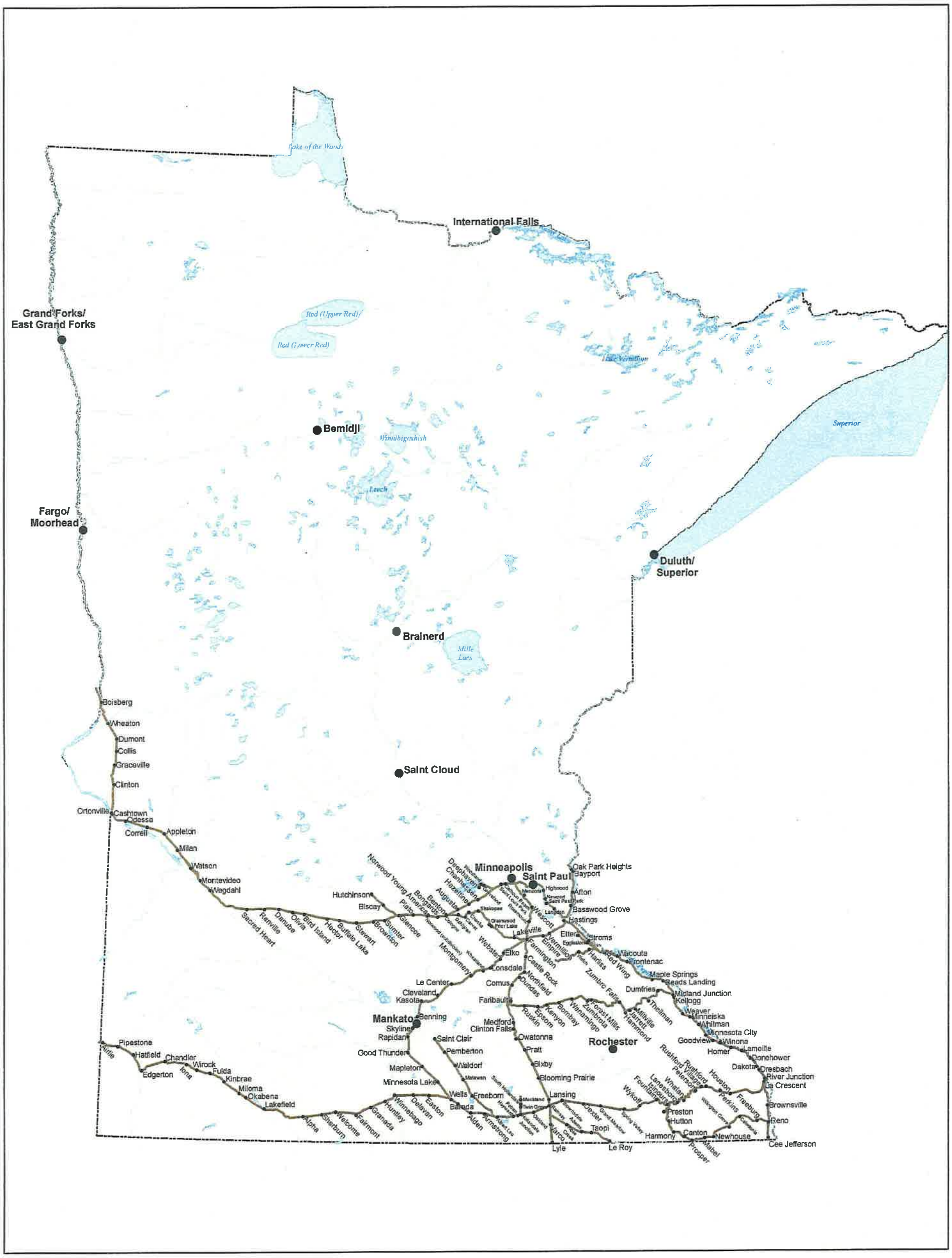
N W E S

0 35 70 Miles

1 inch equals 35 miles

CHICAGO AND NORTHWESTERN RAILWAY - 1930

Railroads in Minnesota, 1862-1956
Multiple Property Documentation Form



Map adapted from the MN DNR divison of Fish and Wildlife 100k Lakes and Rivers and 100k Hydrography, Railroad Commissioners Map of Minnesota, 1930 and MN DOT Abandonded Railroads GIS data.

Plot Date: 1/16/2007

Legend

- Chicago Milwaukee St. Paul and Pacific
- Places Adjacent to Railroad Corridors
- Major City
- River
- Lake
- County

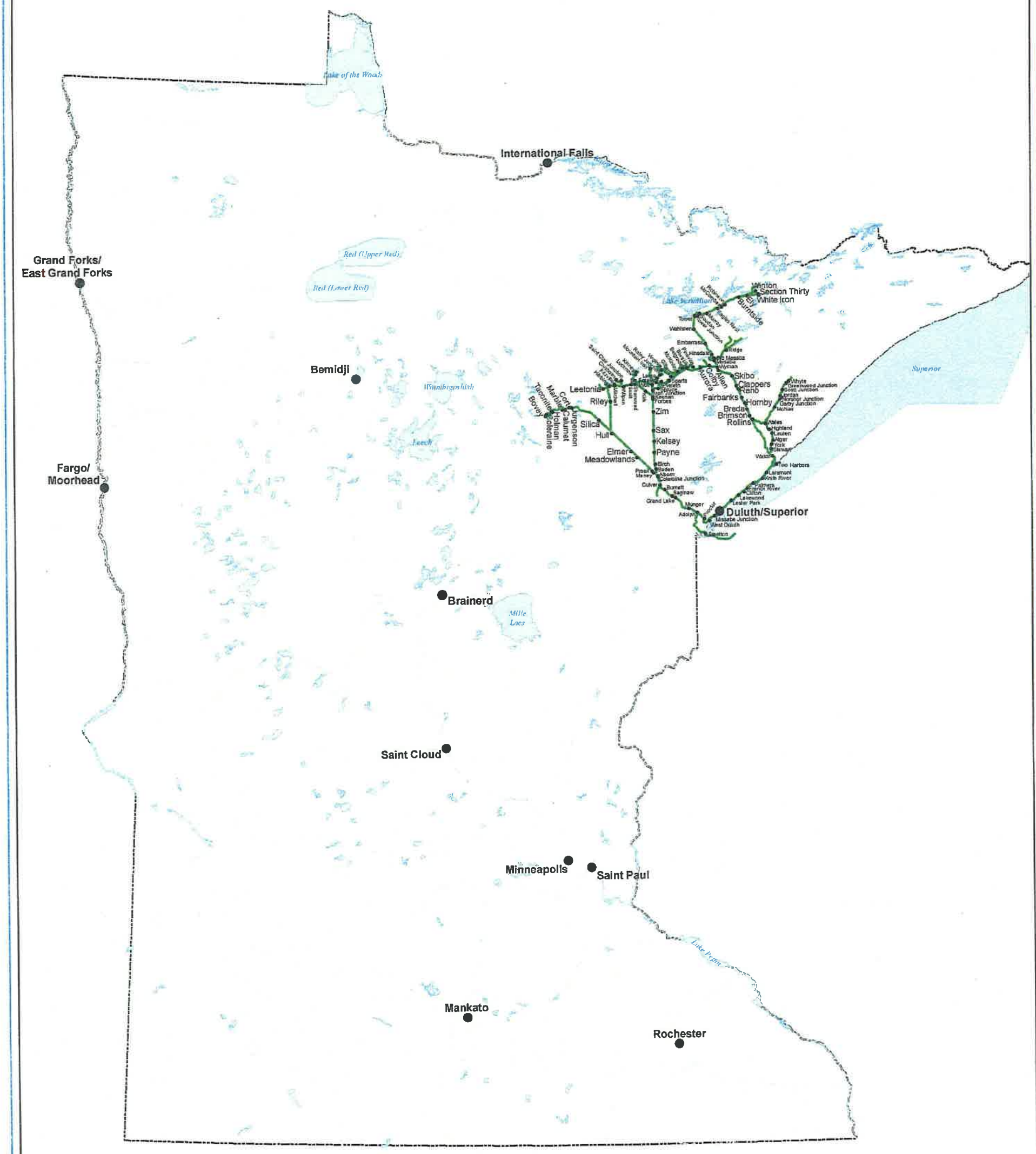
N
W E
S

0 35 70 Miles

1 inch equals 35 miles

CHICAGO MILWAUKEE ST. PAUL AND PACIFIC RAILWAY - 1930

Railroads in Minnesota, 1862-1956
Multiple Property Documentation Form



Map adapted from the MN DNR divison of Fish and Wildlife 100k Lakes and Rivers and 100k Hydrography, Railroad Commissioners Map of Minnesota, 1930 and MN DOT Abandonded Railroads GIS data.

Plot Date: 1/16/2007

Legend

- Duluth Missabe and Iron Range
- Places Adjacent to Railroad Corridors
- Major City
- River
- Lake
- County

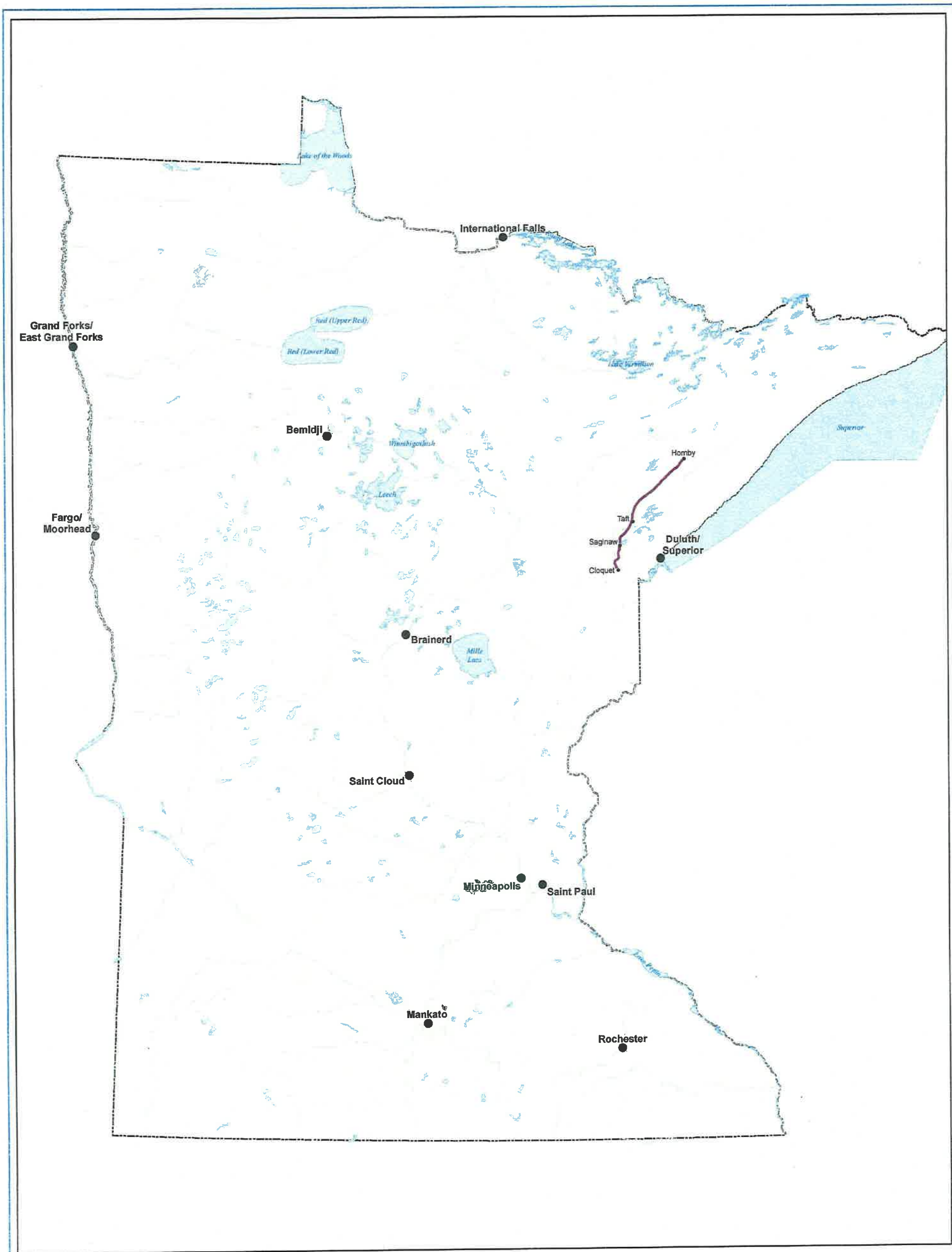
N W E S

0 35 70 Miles

1 inch equals 35 miles

DULUTH MISSABE AND IRON RANGE RAILWAY - 1930

Railroads in Minnesota, 1862-1956
Multiple Property Documentation Form



Map adapted from the MN DNR divison of Fish and Wildlife 100k Lakes and Rivers and 100k Hydrography, Railroad Commissioners Map of Minnesota, 1930 and MN DOT Abandonded Railroads GIS data.

Plot Date: 1/16/2007

Legend

- Duluth and Northeastern
- Places Adjacent to Railroad Corridors
- Major City
- River
- Lake
- County

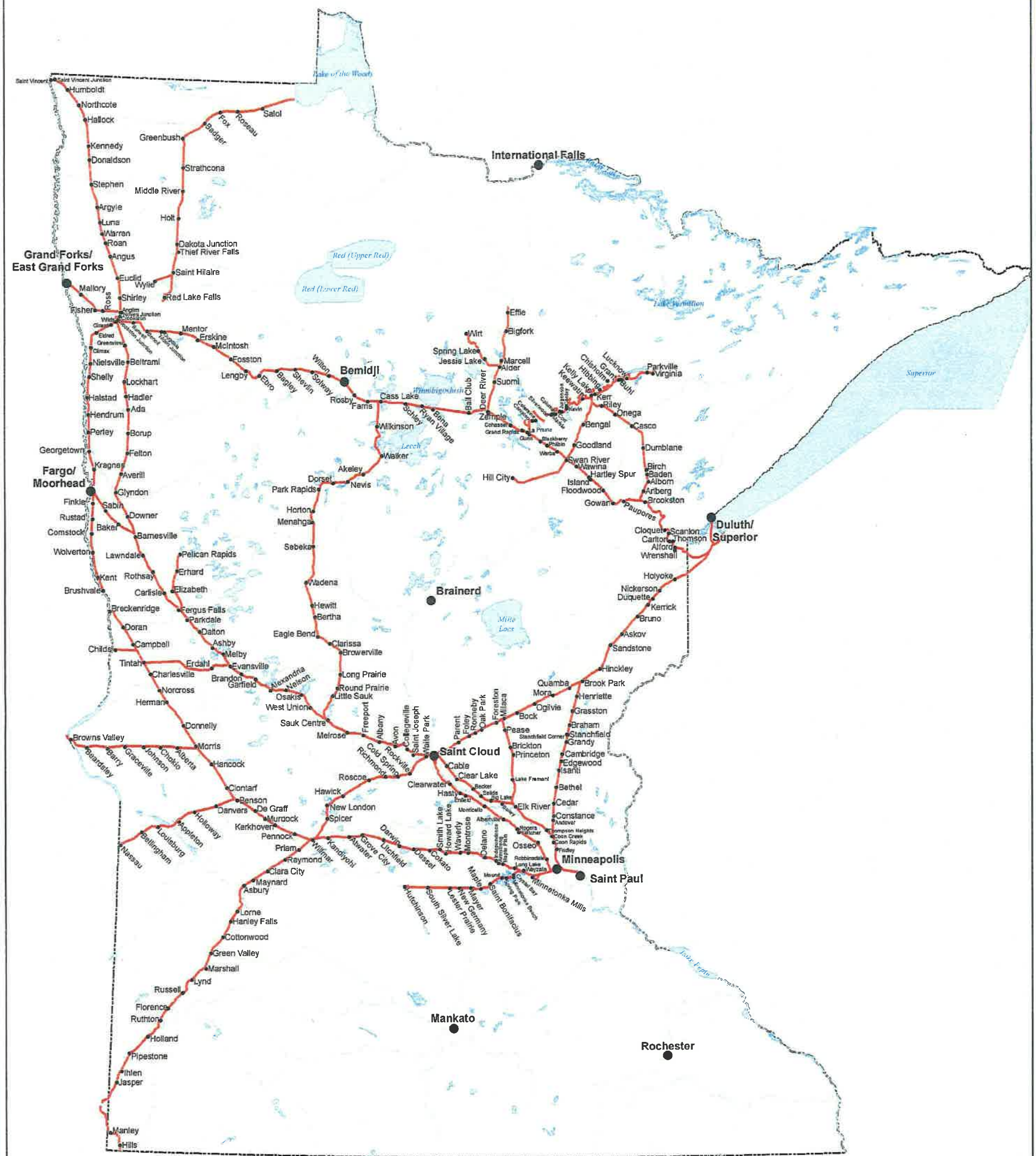
N W E S

0 35 70 Miles

1 inch equals 35 miles

DULUTH AND NORTHEASTERN RAILROAD - 1930

Railroads in Minnesota, 1862-1956
Multiple Property Documentation Form



Map adapted from the MN DNR divison of Fish and Wildlife 100k Lakes and Rivers and 100k Hydrography, Railroad Commissioners Map of Minnesota, 1930 and MN DOT Abandonded Railroads GIS data.

Plot Date: 1/16/2007

Legend

- Great Northern
- Places Adjacent to Railroad Corridors
- Major City
- River
- Lake
- County

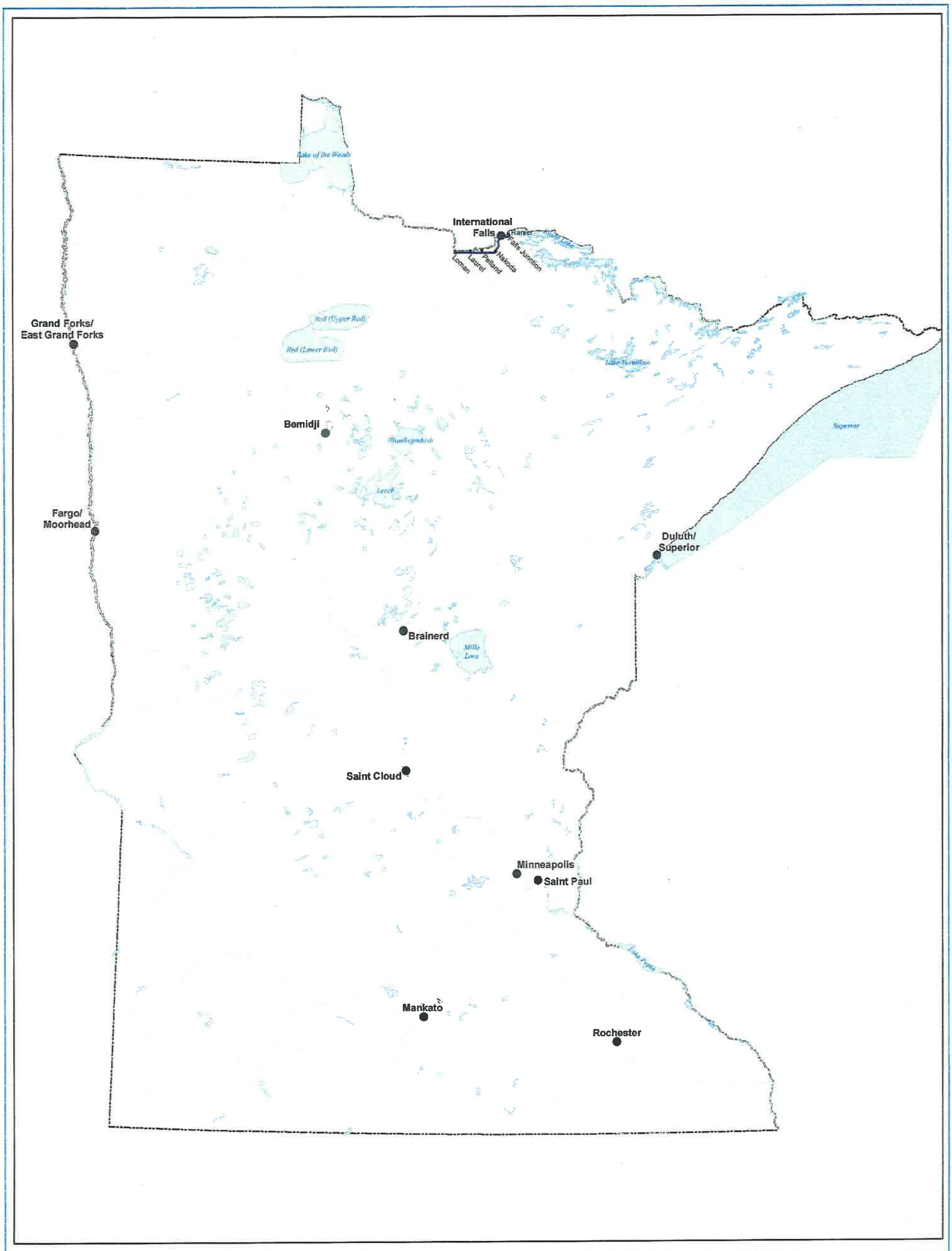
N W E S

0 35 70 Miles

1 inch equals 35 miles

GREAT NORTHERN RAILWAY - 1930

Railroads in Minnesota, 1862-1956
Multiple Property Documentation Form



Map adapted from the MN DNR divison of Fish and Wildlife 100k Lakes and Rivers and 100k Hydrography, Railroad Commissioners Map of Minnesota, 1930 and MN DOT Abandonded Railroads GIS data.

Plot Date: 1/16/2007

Legend

- Minnesota Dakota and Western
- Places Adjacent to Railroad Corridors
- Major City
- River
- Lake
- County

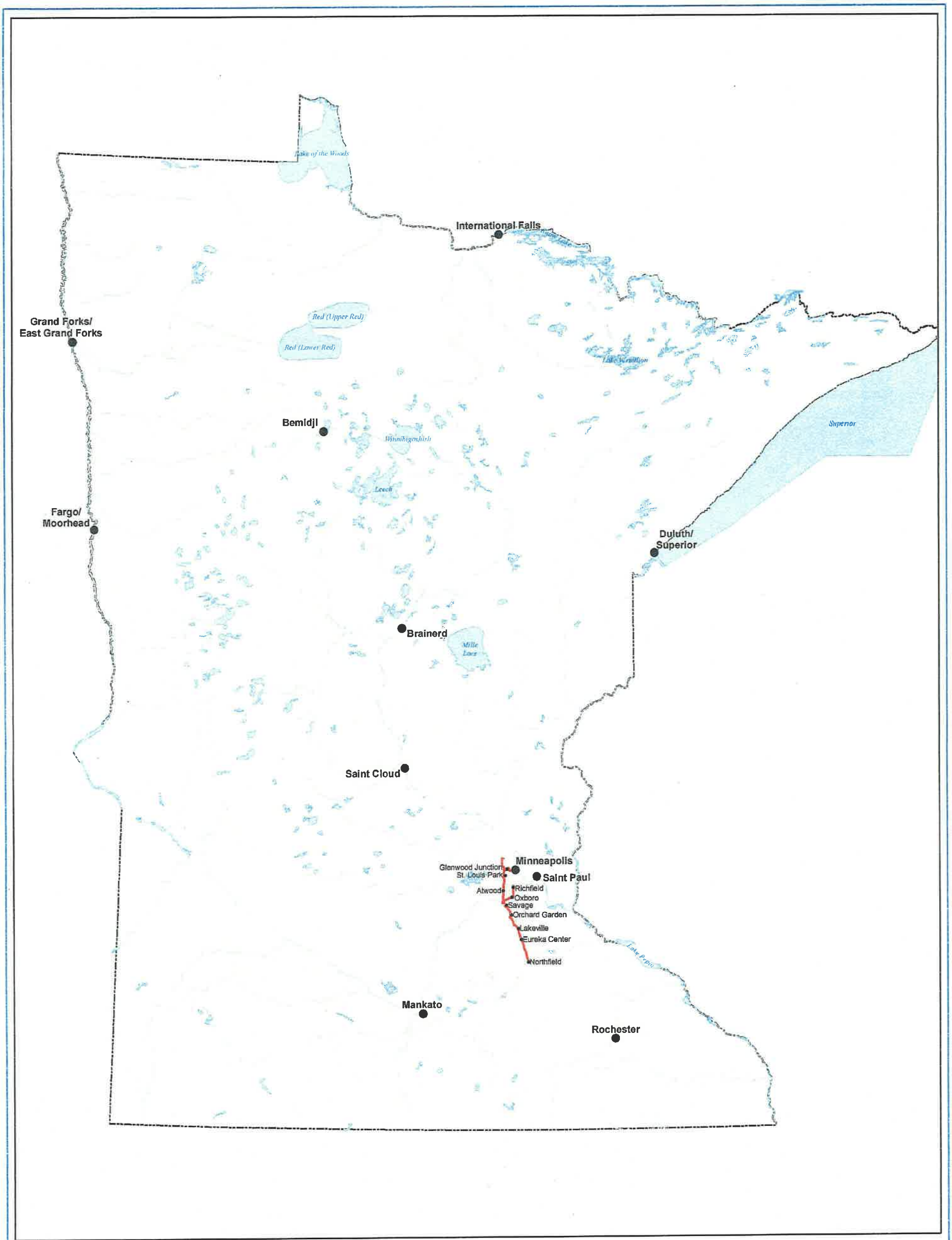
N W E S

0 35 70 Miles

1 inch equals 35 miles

MINNESOTA DAKOTA AND WESTERN RAILWAY - 1930

Railroads in Minnesota, 1862-1956
Multiple Property Documentation Form



Map adapted from the MN DNR divison of Fish and Wildlife 100k Lakes and Rivers and 100k Hydrography, Railroad Commissioners Map of Minnesota, 1930 and MN DOT Abandonded Railroads GIS data.

Plot Date: 1/16/2007

Legend

- Minneapolis Northfield and Southern
- Places Adjacent to Railroad Corridors
- Major City
- River
- Lake
- County

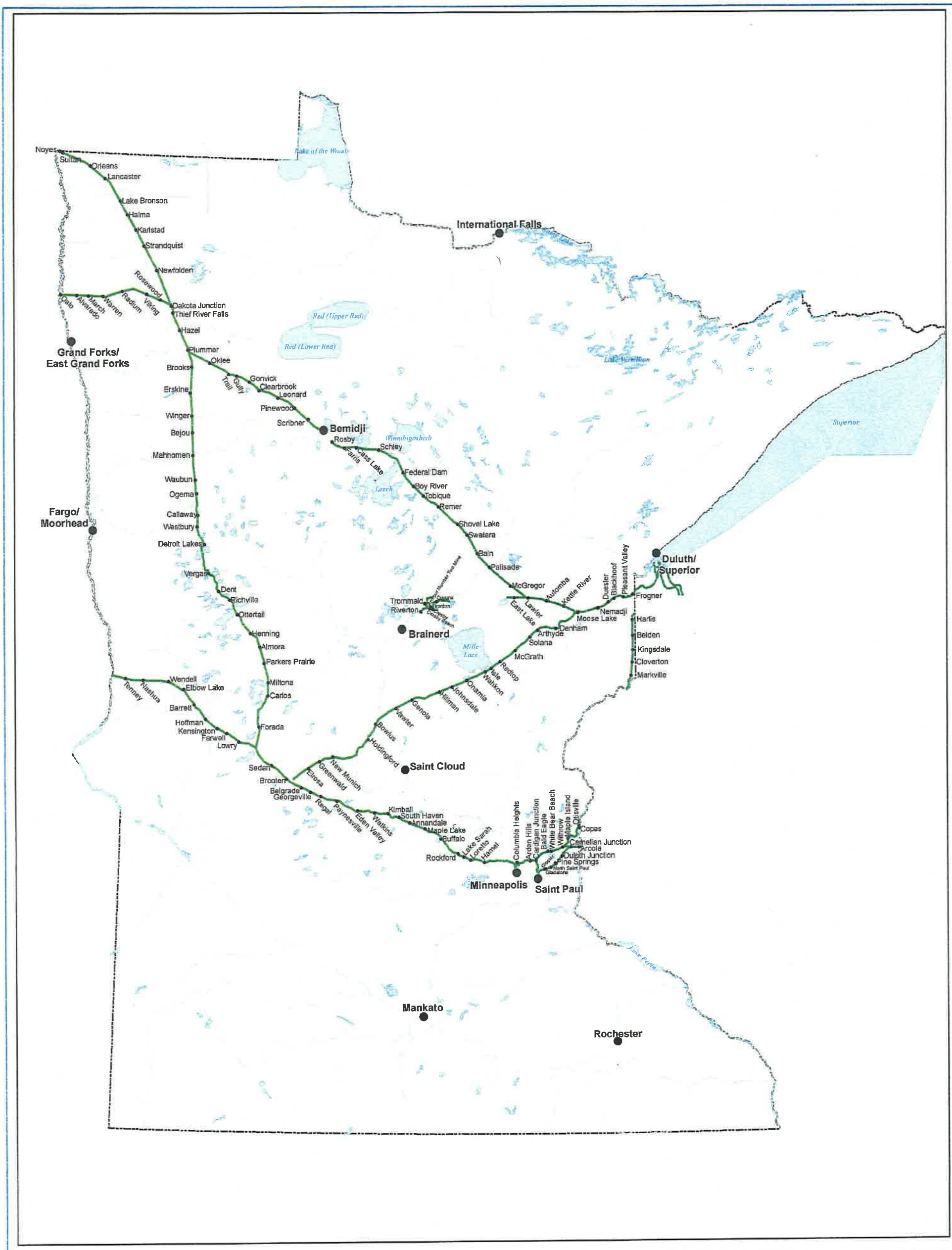
N W E S

0 35 70 Miles

1 inch equals 35 miles

MINNEAPOLIS NORTHFIELD AND SOUTHERN RAILWAY - 1930

Railroads in Minnesota, 1862-1956
Multiple Property Documentation Form



Map adapted from the MN DNR divison of Fish and Wildlife 100k Lakes and Rivers and 100k Hydrography, Railroad Commissioners Map of Minnesota, 1930 and MN DOT Abandonded Railroads GIS data.

Plot Date: 1/16/2007

Legend

- Soo Line
- Places Adjacent to Railroad Corridors
- Major City
- River
- Lake
- County

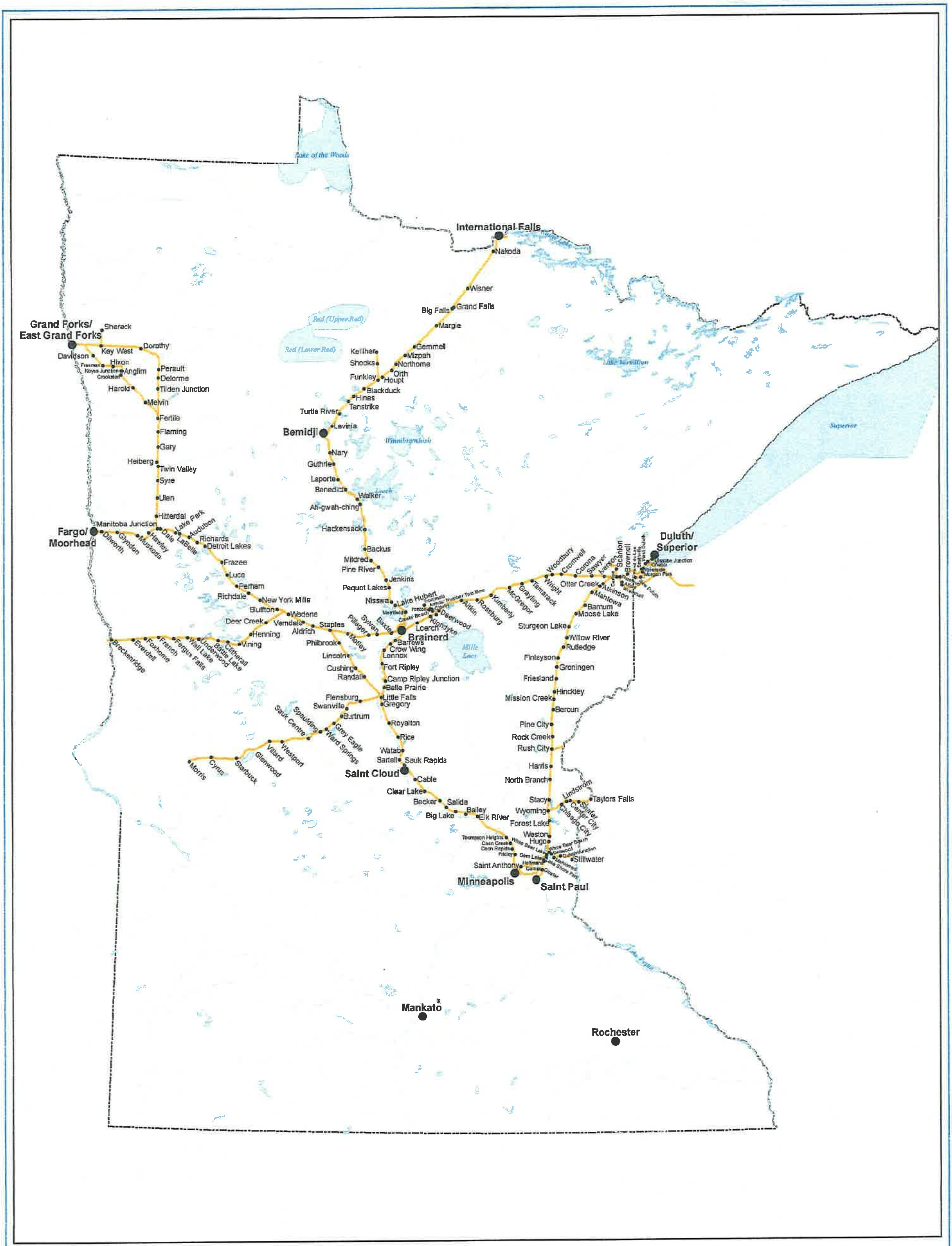
N W E S

0 35 70 Miles

1 inch equals 35 miles

MINNEAPOLIS ST. PAUL AND SAULT STE. MARIE (SOO LINE) RAILWAY - 1930

Railroads in Minnesota, 1862-1956
Multiple Property Documentation Form



Map adapted from the MN DNR divison of Fish and Wildlife 100k Lakes and Rivers and 100k Hydrography, Railroad Commissioners Map of Minnesota, 1930 and MN DOT Abandonded Railroads GIS data.

Plot Date: 1/16/2007

Legend

- Northern Pacific
- Places Adjacent to Railroad Corridors
- Major City
- River
- Lake
- County

N W E S

0 35 70 Miles

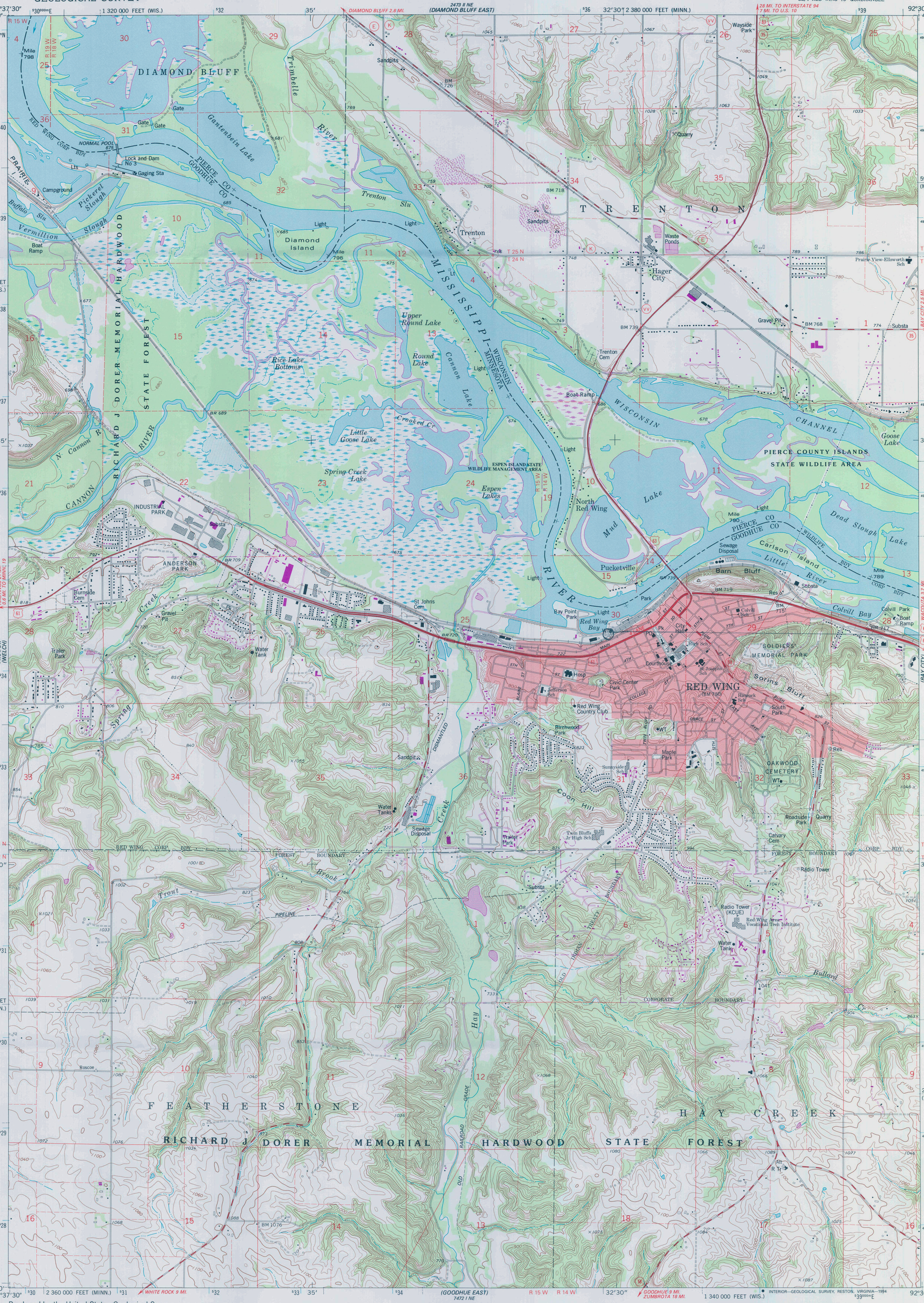
1 inch equals 35 miles

NORTHERN PACIFIC RAILWAY - 1930

Railroads in Minnesota, 1862-1956
Multiple Property Documentation Form

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

RED WING QUADRANGLE
MINNESOTA—WISCONSIN
7.5 MINUTE SERIES (TOPOGRAPHIC)
SE/4 RED WING 15' QUADRANGLE



Red Wing Waterworks
Red Wing, Goodhue Co, MN
15 536327 4934665

Produced by the United States Geological Survey
Control by USGS, NOS/NOAA, and Minnesota Highway Department
Topography by photogrammetric methods from aerial photographs taken 1973-74. Field checked 1974
Projection: Minnesota coordinate system, south zone (Lambert conformal conic)
10,000-foot grid ticks: Minnesota coordinate system, south and Wisconsin coordinate system, central zone
1000-meter Universal Transverse Mercator grid ticks, zone 15, shown in blue
1927 North American Datum (NAD 27)
North American Datum of 1983 (NAD 83) is shown by dashed corner ticks
The values of the shift between NAD 27 and NAD 83 for 7.5-minute intersections are given in USGS Bulletin 1875
There may be private inholdings within the boundaries of the National or State reservations shown on this map
Red tint indicates area in which only landmark buildings are shown
Fine red dashed lines indicate selected fence and field lines where generally visible on aerial photographs. This information is unchecked

MN
GN
0°18' 5 MILS
2° 36 MILS
UTM GRID AND 1994 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

SCALE 1:24 000
1 ½ 0 1 MILE
1000 0 1000 2000 3000 4000 5000 6000 7000 FEET
1 .5 0 1 KILOMETER
CONTOUR INTERVAL 20 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
FOR SALE BY U.S. GEOLOGICAL SURVEY, DENVER, COLORADO 80225, OR RESTON, VIRGINIA 22092
AND WISCONSIN GEOLOGICAL AND NATURAL HISTORY SURVEY, MADISON, WISCONSIN 53706
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

MINN.
QUADRANGLE LOCATION

Revisions shown in purple compiled in cooperation with State of Minnesota agencies from aerial photographs taken 1991 and other sources. This information not field checked. Map edited 1994
Information shown in purple may not meet USGS content standards and may conflict with previously mapped contours

ROAD CLASSIFICATION
Primary highway, hard surface
Light-duty road, hard or improved surface
Secondary highway, hard surface
Unimproved road
Interstate Route
U. S. Route
State Route

RED WING, MINN.–WIS.
SE/4 RED WING 15' QUADRANGLE
44092-E5-TF-024
1974
REVISED 1994
DMA 7473 II SE – SERIES V872

Future Home
RED WING
Marine Museum
Home of Red Wing Thorobred Motors
Gaso Cruisers - Manner Boats

THE GOODER THE BAD
RED WING MOTOR CO.