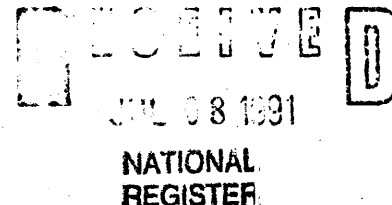


United States Department of the Interior
National Park Service

National Register of Historic Places
Registration Form



This form is for use in nominating or requesting determinations of eligibility for individual properties or districts. See instructions in *Guidelines for Completing National Register Forms* (National Register Bulletin 16). Complete each item by marking "x" in the appropriate box or by entering the requested information. If an item does not apply to the property being documented, enter "N/A" for "not applicable." For functions, styles, materials, and areas of significance, enter only the categories and subcategories listed in the instructions. For additional space use continuation sheets (Form 10-900a). Type all entries.

1. Name of Property

historic name Hibbing Disposal Plant
other names/site number Hibbing Wasse Treatment Plant

2. Location

street & number 1300 East 23rd Street N/A not for publication
city, town Hibbing N/A vicinity
state Minnesota code MN county St. Louis code 137 zip code 55746

3. Classification

Ownership of Property	Category of Property	Number of Resources within Property	
<input type="checkbox"/> private	<input type="checkbox"/> building(s)	Contributing	Noncontributing
<input checked="" type="checkbox"/> public-local	<input checked="" type="checkbox"/> district	<u>2</u>	<u>3</u> buildings
<input type="checkbox"/> public-State	<input type="checkbox"/> site	<u>7</u>	<u>3</u> sites
<input type="checkbox"/> public-Federal	<input type="checkbox"/> structure	<u>9</u>	<u>6</u> structures
	<input type="checkbox"/> object		<u>6</u> objects
			<u>6</u> Total

Name of related multiple property listing: Federal Relief Construction in Minnesota 1933-1941
Number of contributing resources previously listed in the National Register 0

4. State/Federal Agency Certification

As the designated authority under the National Historic Preservation Act of 1966, as amended, I hereby certify that this 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 meets does not meet the National Register criteria. See continuation sheet.
Ian R. Stewart Deputy State Historic Preservation Officer
Signature of certifying official Ian R. Stewart Date 6/6/91
State or Federal agency and bureau Minnesota Historical Society

In my opinion, the property meets does not meet the National Register criteria. See continuation sheet.
Signature of commenting or other official _____ Date _____
State or Federal agency and bureau _____

5. National Park Service Certification

I, hereby, certify that this property is:
 entered in the National Register. Entered in the National Register
 See continuation sheet.
 determined eligible for the National Register. See continuation sheet.
 determined not eligible for the National Register.
 removed from the National Register.
 other, (explain): _____
Melvin Bryan Signature of the Keeper Date of Action 8/9/91

6. Function or Use

Historic Functions (enter categories from instructions)

GOVERNMENT/public works

Current Functions (enter categories from instructions)

GOVERNMENT/public works

7. Description

Architectural Classification

(enter categories from instructions)

Moderne

Materials (enter categories from instructions)

foundation Concrete

walls Concrete

roof Concrete

other

Describe present and historic physical appearance.

See Continuation Sheets

United States Department of the Interior
National Park Service

National Register of Historic Places
Continuation Sheet

Section number 7 Page 1 Hibbing Disposal Plant

DESCRIPTION

The Hibbing Disposal Plant is located off U.S. Highway 169, directly east of the St. Louis County Fairgrounds. The plant includes two contributing buildings and seven contributing structures as well as three non-contributing buildings and three non-contributing structures. The buildings and structures are typically constructed with cream-colored reinforced concrete and include Moderne Style features such as rounded corners, decorative pilaster columns, a variety of raised panels, and cornices with a scalloped edge. The non-contributing elements are usually of a smaller scale which often feature architectural details similar to the original complex, and do not detract from the integrity of the historic property. All buildings and structures are considered contributing unless otherwise noted.

1. Grit House - The grit house is a 30' x 28' one story building constructed with reinforced concrete. A decorative band, similar to the detailing of the original buildings of the complex, joins the door and window openings. The words, "Village of Hibbing Waste Treatment Plant," appear on the north facade. The grit house was constructed in 1970 and is considered non-contributing.

2. Floculator - The floculator is a 30' x 20' one story rectangular reinforced concrete structure with a lower level which is built into a steep hillside. The south facade includes two window openings with six light industrial sash which rest on a projecting sill. Raised panels separate the windows. The north facade is identical although the window openings have been infilled with glass block. A raised panel with a curved design is placed above the east facing entrance. The flat roofed building includes a cornice with a scalloped edge. A coagulant is added to the sewage within this structure which forms small gelatinous masses known as floc.

United States Department of the Interior
National Park ServiceNational Register of Historic Places
Continuation SheetSection number 7 Page 2 Hibbing Disposal Plant

3. Primary Clarifiers - The primary clarifiers are located within an oval-shaped reinforced concrete structure set within an earth berm. The overall dimensions of the structure are 96' x 48' which provides space for the two circular-shaped clarifiers, each of which is 45' in diameter. Four pilaster columns with decorative panels are placed along each of the side walls in order to carry the concrete beams which support the reinforced concrete roof. A series of small window openings, which were originally covered with iron louvers, are joined by a band of raised panels. The east facing entrance is framed by a concrete surround. A cornice with a scalloped edge was removed when a precast roof slab was added in 1970. The clarifiers force solid sludge to the bottom of the tanks, allowing liquid waste to run off.

4. Trickling Filters (2) - The two trickling filters are enclosed by self supporting, reinforced concrete dome roofs, 150 feet in diameter. The domes rise from a projecting sill to a height of 32 feet, less than half the rise of similar structures. Each dome contains 78,000 pounds of reinforcing steel and 334 cubic yards of concrete. The concrete domes are extremely thin, about half of each shell is only three and one-half inches thick, with the thickness increasing to six inches at the base and up to five inches at the top. The reinforcing in the shell consists of four layers of round bars, two meridional, and two ring. In the thinner sections of the shell the layers rest against each other, leaving one inch of concrete between the steel and the surface. In the thicker areas, the steel is separated into two layer mats which are pulled apart to keep the outer steel just one inch from the surface. The domes were originally painted with two coats of emulsified asphalt followed by one coat of aluminum paint. Each structure is capped by a louvered vent. The cost of the domes was approximately 75 cents per square foot of covered area. The trickling filter is a treatment unit consisting of broken stones over which sewage is distributed in drops, film, or spray, and through which it trickles, providing the opportunity for the formation of zoological slimes which clarify and oxidize the sewage.

United States Department of the Interior
National Park Service

National Register of Historic Places
Continuation Sheet

Section number 7 Page 3 Hibbing Disposal Plant

5. Bar Screen Building - The bar screen is housed in a small, rectangular building constructed with concrete faced with steel siding. Initial screening takes place in the bar screen building, which also includes a by-pass which allows the sewage to be diverted from the plant to a new treatment facility to the south. The building was constructed in 1990 and is considered non-contributing.

6. Office and Pumping Plant - The office and pumping plant is a 38' x 28' rectangular shaped reinforced concrete building covered by a flat roof. All window openings rest on a projecting sill which circles the building and is interrupted only by the entrances. The west facade includes a central entrance door framed by a concrete surround which is flanked by paired steel sash. These windows are separated by a decorative panel consisting of fluted design while the remaining windows are separated by raised panels. A decorative panel is also placed above the east entrance. The building is completed with a cornice with a scalloped edge. A plaque on the interior includes the following wording:

Federal Works Agency
Public Works Administration
John M. Carmody
Federal Works Administrator
Franklin D. Roosevelt
President of the United States
Hibbing Disposal Plant
1939

The building also includes a tool room and laboratory, with the pumping plant and wet well located in the basement.

7. Boiler House - The boiler house is a small, square-shaped building constructed with concrete. Although the boiler house was built in about 1970, it was designed to reflect the architecture

United States Department of the Interior
National Park Service

National Register of Historic Places
Continuation Sheet

Section number 7 Page 4 Hibbing Disposal Plant

of the original complex and includes a band of raised panels and a cornice with a scalloped edge. The boiler house is considered non-contributing.

8. Secondary Clarifiers - The secondary clarifiers are housed within an oval-shaped reinforced concrete structure built within a hillside such that the western portion of the structure rises only several feet above the ground. The overall dimensions of the structure are 96' x 48', which provides space for the two circular-shaped clarifiers, each of which is 45' in diameter. Two pilaster columns with raised panels are placed along each of the side walls in order to carry the beams which support the reinforced concrete roof. A ventilating chamber, 13' wide, rises 7' above the remaining structure. The chamber features rounded corners with a fluted pattern and an entrance on the south end wall with a concrete surround. Louvered openings are spaced along the facades.

9. Digesters - The digesters include two circular structures featuring reinforced concrete walls, each of which is 45' in diameter. The entire structure is incorporated within an earth berm with only the roof left exposed. Solids are stored within the digester tanks which permit decomposition. A small concrete addition which projects from the southern edge of the berm contains a heat exchanger. This addition was constructed in about 1970.

10. Sludge Drying Bed - The sludge drying bed is a 201' x 101' structure consisting of low concrete walls which divide the structure into four equal sections. The sludge drying bed is an area comprising natural or artificial layers of porous material upon which digested sewage is dried by drainage and evaporation.

11. Garage and Chlorination Basin - The garage and chlorination basin are located in a 42' x 22' reinforced concrete building which is capped by a flat roof. All window openings feature steel sash resting on a projecting sill which encircles the building and

United States Department of the Interior
National Park Service

National Register of Historic Places
Continuation Sheet

Section number 7 Page 5 Hibbing Disposal Plant

is interrupted only by the entrances and garage door openings. All windows are joined by raised concrete panels while a decorative panel with a fluted design is placed above each doorway. The entrances to the two garages are placed along the north facade with each door framed by a curved surround. A cornice with a scalloped edge completes the building. The chlorination basin is located in the basement, where chlorine was added to the treated waste water.

12. Intermediate and Final Settling Tanks - The intermediate and final settling tanks are incorporated within a reinforced concrete structure with overall dimensions of 65' x 110'. One story sections of the structure project above ground at both the east and west ends. These tanks represent one of the final steps in the treatment process. Chlorine is added to the treated water which is released in a nearby creek. This structure was constructed in 1974 and is considered non-contributing.

13. Sludge Lagoon - The sludge lagoon is a man-made pond with a diameter of approximately one hundred feet. The lagoon is used for the storage or digestion of sludge. The structure was built in the modern era and is considered non-contributing.

14. Garage - A rectangular metal-clad garage is located near the entrance to the treatment plant. This building was constructed in the modern era and is considered non-contributing.

The Hibbing Disposal Plant was constructed between 1938-39 by the Federal Emergency Administration of Public Works, commonly known as the Public Works Administration. The complex retains its original function and remains in good condition.

8. Statement of Significance

Certifying official has considered the significance of this property in relation to other properties:

nationally statewide locally

Applicable National Register Criteria A B C D

Criteria Considerations (Exceptions) A B C D E F G

Areas of Significance (enter categories from instructions)

Engineering
Social History
Health/Medicine

Period of Significance

1938-1941

Significant Dates

1938

Cultural Affiliation

N/A

Significant Person

N/A

Architect/Builder

Taylor, J.C., Public Works Administration
Foster, Charles
Roberts and Schaefer Co.

State significance of property, and justify criteria, criteria considerations, and areas and periods of significance noted above.

See Continuation Sheets

See continuation sheet

United States Department of the Interior
National Park Service

National Register of Historic Places
Continuation Sheet

Section number 8 Page 1 Hibbing Disposal Plant

STATEMENT OF SIGNIFICANCE

The Hibbing Disposal Plant is historically significant under National Register Criterion A as an intact and well preserved example of the modern sanitation facilities brought for the first time to many communities throughout Minnesota by the Federal work programs of the Depression Era. The disposal plant is also significant as one of the largest projects in northern Minnesota which was sponsored by the Federal Emergency Administration of Public Works, commonly known as the Public Works Administration (PWA), and for providing the City of Hibbing with complete and up-to-date sanitation facilities.

The Hibbing Disposal Plant is eligible under National Register Criterion C because of the engineering significance of the trickling filters which are covered with two of the largest, self-supporting reinforced concrete dome roofs in the world.

Plans for the construction of a sewage treatment plant were announced as early as August 4, 1933 in an issue of the Improvement Bulletin which included a notice on the proposed plant. Federal funds were to be used to construct the facility which was intended to provide service for North and South Hibbing, Brooklyn, Homes Acres, and Ryan Addition. Hibbing was one of the early applicants for funding from the Public Works Administration and a variety of civic improvements were among the first proposals submitted to the Minnesota State Advisory Board. However, the construction of the sewage treatment plant did not begin until 1938. The following notice appeared in an issue of the Improvement Bulletin dated March 24, 1939:

"Hibbing, Minn--Sewage Treat Plant--(\$400,000). Bids, Section C. Bids close March 28, 10:30 a. m. -- Docket No. 1393. Vil Clk, Wallace Brandt. Vil Engr, J.H. Rough, Archt, J.C. Taylor, Hibbing. Consult Engr, Charles Foster, 316 Medical Arts Bldg, Duluth.....Section C, Taking Bids, including pumping plant, 27 x 37 intake gate house, flocculator, primary and secondary

United States Department of the Interior
National Park ServiceNational Register of Historic Places
Continuation SheetSection number 8 Page 2 Hibbing Disposal Plant

settling basins, sludge digesters, 2 trickling filters, chlorinating basin, sludge drying beds, concr fdns, reinf concr wk, struc steel and iron work, brk, 4-ply tar and grav rf, steel sash, glass brk."

The treatment plant was built at a cost of \$439,946. The Public Works Administration provided a grant for 45% of this amount while the remaining 55% was financed by a local bond issue. This represented one of the largest projects in northern Minnesota. The architect for the project was J.C. Taylor of Hibbing while Charles Foster of Duluth served as consulting engineer. The complex dome roofs of the trickling filter buildings were designed by the Roberts and Schaefer Company of Chicago under the Z.D. System for concrete shells. W.C. Jones served as the inspector/engineer for the Public Works Administration.

The general contract was awarded to the E.W. Coons Company of Hibbing in April 1939. The material contracts were awarded as follows:

Miscellaneous Iron - Lindberg-Madison Welding Co., Hibbing

Painting - Dahlquist Bros., Minneapolis

Plumbing and Heating - Mechanical Construction Company, Hibbing

Sand and Gravel - E.W. Coons Co., Inc., from the Hibbing and Burnett plants

Sewage Equipment - The Dorr Co., Inc., Chicago

Tile Work - Drake Marble Co., Minneapolis

Wiring - Micka Electric Company, Hibbing

Cast Iron Pipe - United States Pipe and Foundry Co., Minneapolis

Filter Media Rock - (10,000 cubic yards) - E.W. Coons Co., Inc., from their pool quarry and crushing plant near Hibbing

United States Department of the Interior
National Park ServiceNational Register of Historic Places
Continuation SheetSection number 8 Page 3 Hibbing Disposal Plant

When the plant was nearing completion, an issue of the Improvement Bulletin dated February 9, 1940 included a feature article on the project. The article focused on the innovative construction methods utilized for trickling filter buildings which were among the largest structures in the world with self supporting, reinforced concrete dome roofs. Because each building was 150 feet in diameter, the low rise of only 32 feet posed a considerable engineering problem. Engineers employed an elliptical cross section with no horizontal thrust at the base, less dead weight, and less building material to meet the problem. The structures were described in Carl Condit's American Building as "an early example of shell domes in the United States."

Architect J.C. Taylor, who was registered as both an architect and mechanical engineer, was responsible for the design of many of Hibbing's best known buildings. He designed the Andy Anderson House and the Sons of Italy Hall, both National Register Properties, as well as the Park School, noted for its extensive use of glass block. He also designed St. James Episcopal Church, an example of the Mission Revival Style, and he is attributed with the Nickoloff House, an exquisite Streamline Moderne residence. Taylor also designed the Calumet Village Hall, a WPA project, and an addition to the Grand Rapids Public Library, also a WPA project, which included a series of panels containing sculpture executed in low relief.

The Hibbing Sewage Treatment Plant was representative of sanitation facilities constructed throughout the state by the Federal work programs. Such projects were often given preferred status and the construction of modern public utilities was one of the most popular projects of the period. In fact, over 50% of the initial applicants for funding from the Public Works Administration included some provision for public utilities. The Works Progress Administration sponsored the construction of 58 new treatment plants in Minnesota and 1,021 nationwide, while the PWA was responsible for some of the largest projects in the state such as the Minneapolis and St. Paul Sewage Treatment Plant. Procedures had already been developed by the Works Progress

United States Department of the Interior
National Park Service

National Register of Historic Places
Continuation Sheet

Section number 8 Page 4 Hibbing Disposal Plant

Administration to encourage the construction of treatment plants. WPA Field Letter No. 122 dated September 25, 1937 by the Division of Operation stated:

"Effective September 21, 1937, project applications for the construction, reconstruction, repair or extension of sanitary sewers dumping into lakes, rivers or streams will not be approved unless evidence is transmitted with the application that the sewage is treated in a sewage disposal plant or unless a general plan is submitted for the establishment of a sewage disposal plant with evidence that the proposed work fits into the plan. In the latter case, assurance of the completion of the plant in a reasonable period of time must be provided.

In order to facilitate the approval of future sanitary sewer applications, it is necessary that one of the following statements (applicable to the project) be included in Item 5 of the project application Form 036:

"The effluent from this sewer (or sewer system) will be treated in an existing sewage disposal plant."

"The effluent from this sewer (or sewer system) will be treated in a sewage disposal plant under construction."

The effluent from this sewer (or sewage system) will be treated in a sewage disposal plant to be constructed by _____ (date)."

The effluent from this sewer (or sewage system) does not dump into any lake, river or stream."

Project applications providing for the construction, reconstruction, repair or extension of sanitary sewers from which the effluent is not treated in a sewage disposal plant and which dumps into a lake, river, or stream must be accompanied by the general plan referred to above for a proposed sewage disposal plant or a sewage disposal plant now under construction...."

United States Department of the Interior
National Park Service

National Register of Historic Places
Continuation Sheet

Section number 8 Page 5 Hibbing Disposal Plant

Earlier that year WPA Field Letter No. 178 dated February 13, 1939 stated that, "The last report of the State Board of Health indicates that out of 644 towns having a population of 150 or more, 362 do not have sewer systems. Of the 282 towns having sewer systems, 166 have treatment plants of various ages, many of which are not efficient and need modernizing." It was also noted that a new system cost an estimated \$25.00 per capita while extensions and improvements of existing systems cost \$5.00 per capita.

The need for treatment facilities was further documented in an issue of the Improvement Bulletin dated March 29, 1940 which stated:

"Eighty-eight Minnesota cities and villages built new sewage treatment plants during the ten year period ending December 31, 1939. These 88 towns have a population of 1,051,070 or two-thirds of the state's municipal population.

On January 1, 1930, only 99 cities and villages in the state having a population of 197,418 or 12 per cent of the urban population had sewage treatment plants. On December 31, 1939, plants served 187 towns with 1,248,488 people or 78 per cent of the city and village population.

There still remains a considerable job of considerable size to be done in Minnesota in building sewage treatment plants to prevent pollution of public waters. Records show that 550 municipalities in the state are without plants. Three of them have a population in excess of 10,000, eight have a population of between 5,000 and 10,000, eleven have a population between 2,500 and 5,000, thirty-seven have a population ranging from 1,000 to 2,500 and 491 have a population of less than 1,000.

It is encouraging to know that some of these towns, both large and small ones, are taking preliminary steps toward the construction of storm sewers or intercepting sewers with the intention of ultimately building sewage disposal plants."

**United States Department of the Interior
National Park Service**

**National Register of Historic Places
Continuation Sheet**

Section number 8 Page 6 Hibbing Disposal Plant

The Hibbing Disposal Plant meets the requirements for listing Public Utilities on the National Register of Historic Places as set forth in the Multiple Property Documentation Form entitled Minnesota Federal Relief Construction, 1933-41. The plant is significant as one of the largest work relief projects in northern Minnesota and for providing a modern and complete treatment plant for the City of Hibbing. The plant possesses engineering significance because of the dome roofs of the trickling filters which were among the largest self-supporting, reinforced concrete structures of their type in the world.

9. Major Bibliographical References

City of Hibbing. Plans and Specifications for the Hibbing Disposal Plant.

Improvement Bulletin. August 4, 1933 - March 29, 1940.

Foster, Charles. "The Hibbing Sewage Treatment Plant...The dome roofs are among the largest in the world." Improvement Bulletin, February 9, 1940. pp. 31-32.

See 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 # _____

Primary location of additional data:

- State historic preservation office
- Other State agency
- Federal agency
- Local government
- University
- Other

Specify repository: _____

10. Geographical Data

Acreage of property 12 acres

UTM References

A

1	5
5	0
6	2
0	0

5	2
5	2
3	2
0	0

C

1	5
5	0
6	5
8	0

5	2
5	2
1	3
0	0

B

1	5
5	0
6	4
4	0

5	2
5	2
4	2
0	0

D

1	5
5	0
6	3
4	0

5	2
5	2
0	1
0	0

See continuation sheet

Verbal Boundary Description

The boundary for the Hibbing Disposal Plant is shown as the heavy line on the accompanying map entitled Hibbing Disposal Plant. It is drawn to a scale of 1 inch equals 75 feet.

See continuation sheet

Boundary Justification

The boundary includes the buildings and structures that have been historically associated with the property and that maintain historic integrity.

See continuation sheet

11. Form Prepared By

name/title Rolf T. Anderson

organization N/A date October 9, 1990

street & number 212 West 36th Street telephone 612-824-7807

city or town Minneapolis state Minnesota zip code 55408

HIBBING DISPOSAL PLANT

- | | |
|-----------------------------|--|
| 1. Grit House (nc) | 8. Secondary Clarifiers |
| 2. Flocculator | 9. Digesters |
| 3. Primary Clarifiers | 10. Sludge Drying Bed |
| 4. Trickling Filters (2) | 11. Garage and Chlorination Basin |
| 5. Bar Screen Building (nc) | 12. Intermediate and Final Settling Tanks (nc) |
| 6. Office and Pumping Plant | 13. Sludge Lagoon (nc) |
| 7. Boiler House (nc) | 14. Garage (nc) |

Fairgrounds

1375' to U.S. Highway 169

