NPS Form 10-900
(Rev. 8-86)

1842

OMB No. 1024-0018

United States Department of the Interior
National Park Service

SEP 29 1989

NATIONAL REGISTER

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 Bridges No. L-5853 and 92247
other names/site number N/A

2. Location

street & number (see continuation sheet) N/A ☐ not for publication
city, town St. Paul N/A ☐ vicinity
state Minnesota code MN county Ramsey code 123 zip code 55103

3. Classification

Ownership of Property	Category of Property	Number of Resources within Property	
		Contributing	Noncontributing
☐ private	☐ building(s)		buildings
☒ public-local	☐ district		sites
☐ public-State	☐ site		structures
☐ public-Federal	☒ structure	2	objects
	☐ object		Total
		2	0

Name of related multiple property listing:
~~Reinforced-Concrete Highway Bridges~~ in Minn., 1900-1945

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.

Nina Archabal — 9/22/89

Signature of certifying official Nina M. Archabal — Date

State Historic Preservation Officer

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. ☐ 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:) _____

Entered ~~in the~~ National Register — 11/6/89

Signature of the Keeper — Date of Action

2. LOCATION

street & number: Bridge 92247 carries Lexington Avenue over former street railway right-of-way; Bridge L-5853 is a pedestrian bridge over the same former streetcar right-of-way.

6. Function or Use

Historic Functions (enter categories from instructions)

Transportation, road-related

Current Functions (enter categories from instructions)

Transportation, road-related

7. Description

Architectural Classification
(enter categories from instructions)

Other: Reinforced-concrete bridge

Materials (enter categories from instructions)

foundation

walls

roof

other reinforced concrete

Describe present and historic physical appearance.

☒ See continuation sheet

7. DESCRIPTION

Bridges No. L-5853 and No. 92247 span an abandoned, east-west, street railway right-of-way, and are located within the boundaries of Como Park, northwest of downtown St. Paul, Ramsey County, Minnesota. They are a short distance north of east-west Horton Avenue, which is the southern boundary of the south central part of the park. Bridge 92247 carries Lexington Avenue; pedestrian bridge L-5853 is approximately 50 yards east. Como is the city's major urban park. It was designed in the nineteenth century to encompass the wooded and grassy rolling hills around Lake Como.

Both bridges are Melan system, reinforced-concrete, barrel-arch bridges, aligned on north-south axes.

Bridge No. L-5853 is an three-span, open-spandrel bridge with an overall structure length of 88 feet, clear main-span arch of 50 feet, and flanking slab spans of 12 feet each. The out-out width is 17.5 feet, carrying a pedestrian walkway of 15 feet. The rise is 12.5 feet. The slab floor is carried by skew-back piers and the center portion of the arch ring; the flanking approaches span the spaces between the piers and abutments.

The reinforcement of L-5853 consists of five latticed Melan ribs in the arch ring and of Thacher bars in the skewback piers and floor slabs. In the floor slabs, 3/4-inch bars parallel to the bridge axis are placed 7 1/2 inches apart on the tension side. The bars in the piers are of the same diameter and have the same spacing, but are set vertically and on both sides of the pier. The floor slab retains the original cornice molding and the end posts, but the open-balustrade railing with separately cast, round balusters, intermediate posts, and hand-rails is gone.[1] Remnants of suspension brackets for the street railway catenary cables are attached to the arch soffit. The bridge has suffered some spalling, but the significant Melan-reinforced-concrete arch retains full integrity.

Architecturally, the bridge is designed in the Classical Revival style, as embodied largely in the railings. A contemporary description announced that it was "moulded into forms of architectural elegance."[2] A notable feature in the surface finish of the concrete. In order to avoid form marks on the exposed surfaces the forms were covered with patent wood laths, consisting of boards with parallel dove-tail grooves and ribs, which were plastered with a coat of cement mortar finished smooth. Before pouring the concrete the plaster lining was coated with boiled linseed oil. This expensive lining was used on all exposed surfaces, including the soffit of the arch.[3]

Bridge 92247 is a single-span, filled-spandrel, three-center-curve-intrados arch bridge, with an overall structure length of 53 feet, clear span of 38 feet, out-out width of 53 feet, carrying 36.4-foot roadway, with two 7-foot sidewalks. The rise is about 7.5 feet, with a vertical clearance beneath the arch soffit of 16 feet. The U-abutments are integral with the spandrel walls, and the arch is made monolithic with the abutment walls.[4]

Bridge 92247 is reinforced with 16 segmental I-beam Melan ribs, 5 inches deep and 38 inches apart on centers. The ends of the I-beams rest on 2 by 2-inch horizontal transverse

angles embedded in the abutment concrete. There webs are connected by horizontal tie-rods.

All the exposed concrete surfaces, except the arch soffit, is faced with random-coursed ashlar Kettle River sandstone, including the abutment face beneath the spring line. The coping has a bush-hammered surface. Overall, the stylistic treatment and form of Bridge 92247 is basically Classical Revival.

1. Bridge L-5853 is described in the following: "Reinforced Concrete Arch Bridges, Como Park, St. Paul," in Engineering Record 50 (December 3, 1904): 648-49; "A Reinforced Concrete Foot-Bridge at Como Park, St. Paul, Minn.," in Engineering News 53 (April 6, 1905): 352; and Henry Grattan Tyrrell, Concrete Bridges and Culverts (Chicago: Myron C. Clark Publishing Co., 1909), pp. 163-66.

2. St. Paul Board of Park Commissioners, Fourteenth Annual Report [for] 1904 (St. Paul, 1905), p. 10.

3. See Engineering News, April 6, 1905, and Tyrrell, pp. 163-66.

4. Bridge 92247 is described in Engineering Record, December 3, 1904.

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)	Period of Significance	Significant Dates
~~Engineering~~	1904	~~1904~~

Cultural Affiliation: N/A

Significant Person: N/A

Architect/Builder: ~~Hewett, William S. & Co.~~ ~~Melan, Josef~~

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

☒ See continuation sheet

8. SIGNIFICANCE

Bridges 92247 and L-5853 in Como Park, St. Paul, Ramsey County, Minnesota, are significant under Criterion C in the area of engineering in the historic context of "Minnesota Reinforced-Concrete Highway Bridges, 1900-1945." Together they are outstanding, virtually unaltered, extremely early examples of reinforced-concrete arch bridges in Minnesota. Both built in 1904, they are tied as the second oldest known extant reinforced-concrete arch bridges with documented construction dates in Minnesota (the oldest is L-9328, built in 1900). They also are significant for employing the patented Melan reinforcing system. Finally, they are significant as the work of noted Minneapolis bridge-builder, William S. Hewett.

The I-beam, arch-reinforcing-system invented by the Viennese engineer Josef Melan, was patented in the United States in 1894 and the first Melan-system bridge was built in Rock Rapids, Iowa, that same year. The contractor who built that first Melan bridge was William S. Hewett & Company of Minneapolis.[1] Ten years later, William S. Hewett and Company was the contractor for bridges 92247 and L-5853 in St. Paul's Como Park.[2]

In 1902 the St. Paul City Railway (part of the Twin City Rapid Transit Co.) was permitted to reroute and double the Como Park single track of its Como-Harriet streetcar line, with the proviso that "its tracks were not to cross any permanent park road at the surface, but were to run under or over bridges constructed by the Company."[3]

The plans for Bridge 92247 were prepared December 19, 1902 and the section drawing indicates Melan reinforcement. The surviving single drawing for Bridge L-5853 is undated, but does indicate that it was prepared by William S. Hewett and Company using "System Melan Concrete-Steel Construction."[4]

During 1904 the street railway had designed and built two bridges in compliance with the policy: bridge 92247 was built to carry Lexington Avenue over the tracks, and bridge L-5853 was built to provide a pedestrian crossing for passengers at the new station to be built the next year at the bridges southeast corner.[5] The siting of the bridges was significant not only because of the location of the railway and station, but also because the city was developing this area at Lexington Parkway as a new and improved park entrance. By the end of 1906, the Board of Park Commissioners reported that "this beautiful section of the Park, heretofore isolated and neglected . . . because the Public could not reach it through any convenient and improved pleasure drive, is now brought into prominence and [a] stream of people [is now] using Lexington Parkway as a pleasure way for reaching the Park . . . ."[6]

Contractor William S. Hewett is significant as a major Minneapolis bridge builder from the 1890s until well into the twentieth century. He is further significant for his pioneering work in reinforced and pre-stressed concrete. Hewett probably became familiar with the Melan reinforcing system when he built the first American Melan bridge while he was doing general bridge construction in northwest Iowa. At the time he was an agent for

his uncle, Seth M. Hewett. In 1899 he formed his own William S. Hewett and Company, specializing in reinforced-concrete bridges, and it was this firm that built bridges 92247 and L-5853 in St. Paul in 1904. In 1907 he formed the Security Bridge Company and in 1913 Hewett Systems, after which he focused on the development of pre-stressed concrete.[7]

1. See William Mueser, "The Development of Reinforced Concrete Bridge Construction," in The Cornell Civil Engineer, 33 (May 1925): 161-65+

2. "Reinforced Concrete Arch Bridges, Como Park, St. Paul," in Engineering Record 50 (December 3, 1904): 648-49; "A Reinforced Concrete Foot-Bridge at Como Park, St. Paul, Minn.," in Engineering News 53 (April 6, 1905): 352.

3. St. Paul Board of Park Commissioners, Twelfth Annual Report [for] 1902 (St. Paul: Pioneer Press Co., 1903), p. 51; and Annual Report. 1903 (St. Paul: n.p., n.d.), pp. 7-8.

4. See "Proposed Arch Bridge for Como Park, St. Paul" (Dec. 19, 1902), engineering drawing for bridge 92247, one sheet in microfiche reproduction, ; and Wm. S. Hewett & Co., "Como Park Foot Bridge" (n.d.), engineering drawing for bridge L-5853, one sheet in microfiche reproduction; copies in St. Paul Department of Public Works, Bridge Division.

5. St. Paul Board of Park Commissioners, Annual Report for 1904, p. 18; Fifteenth Annual Report [for] 1905 (St. Paul: Minnesota Typographic Co., 1906), p. 70.

6. St. Paul Board of Park Commissioners, Sixteenth Annual Report [for] 1906 (St. Paul: Pioneer Press, 1907), p. 14.

7. See Mueser, "The Development of Reinforced Concrete Bridge Construction"; and Fredric L. Quivik, "Montana's Minneapolis Bridge Builders," IA: The Journal of the Society for Industrial Archeology 54 (1905): 35-54.

9. Major Bibliographical References

[X] 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:

- [X] State historic preservation office
- [ ] Other State agency
- [ ] Federal agency
- [ ] Local government
- [ ] University
- [ ] Other

Specify repository: _____

10. Geographical Data

Acreage of property ~~less than one acre~~

UTM References

	Zone	Easting	Northing
A	15	488 465	4 980 340
B			
C			
D			

[X] See continuation sheet

UTMs are retyped on a continuation sheet

Verbal Boundary Description

Beginning at the northeasternmost point (corner of railing) of Bridge No. 92247; thence east to the northwesternmost point (corner of endpost) of Bridge No. L-5853; thence around the north, east, and south edges of L-5853 to the southwesternmost point of L-5853; thence west to the southeasternmost corner of 92247; thence around the south, west, and north edges of 92247 to the point of beginning. The nominated property defines a polygon measuring approximately 150 feet east-west by 100 feet north-south.

[ ] See continuation sheet

Boundary Justification

Based on field measurements and on the "Bridge Location Map" of the St. Paul Department of Public Works, the boundaries are designed to enclose the total bridge superstructure, total substructure, and all other integral abutment and approach elements of Bridges No. 92247 and No. L-5853.

[ ] See continuation sheet

11. Form Prepared By

name/title Dr. Robert M. Frame III, Historical Consultant

organization _____ date August 15, 1988

street & number 202 McBoal Street telephone 612-227-9531

city or town St. Paul state MN zip code 55102

9. MAJOR BIBLIOGRAPHIC REFERENCES

Hewett, William S. & Co. "Como Park Foot Bridge." N.d. Engineering drawing for bridge L-5853, one sheet in microfiche reproduction. Copy in St. Paul Department of Public Works, Bridge Division.

Mueser, William. "The Development of Reinforced Concrete Bridge Construction." The Cornell Civil Engineer, 33 (May 1925): 161-65+.

"Proposed Arch Bridge for Como Park, St. Paul." December 19, 1902. Engineering drawing for bridge 92247, one sheet in microfiche reproduction. Copy in St. Paul Department of Public Works, Bridge Division.

Quivik, Fredric L. "Montana's Minneapolis Bridge Builders." IA: The Journal of the Society for Industrial Archeology 54 (1905): 35-54.

"Reinforced Concrete Arch Bridges, Como Park, St. Paul." Engineering Record 50 (December 3, 1904): 648-49.

"A Reinforced Concrete Foot-Bridge at Como Park, St. Paul, Minn." Engineering News 53 (April 6, 1905): 352.

St. Paul. Board of Park Commissioners. Twelfth Annual Report [for] 1902. St. Paul: Pioneer Press Co., 1903.

---. Annual Report. 1903. St. Paul: n.p., n.d.

---. Fourteenth Annual Report [for] 1904. St. Paul, 1905.

---. Fifteenth Annual Report [for] 1905. St. Paul: Minnesota Typographic Co., 1906.

---. Sixteenth Annual Report [for] 1906. St. Paul: Pioneer Press, 1907.

Tyrrell, Henry Grattan. Concrete Bridges and Culverts. Chicago: Myron C. Clark Publishing Co., 1909.

UTM References

A Zone: 15
Easting: 488465
Northing: 4980340

United States Department of the Interior
National Park Service

National Register of Historic Places Continuation Sheet

BRIDGES NO. L-5853 AND NO. 92247
St. Paul, Ramsey Co., Minnesota

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10. GEOGRAPHICAL DATA

Boundary Sketch Map