Broadway Bridge (Twentieth Avenue North Bridge)
Spanning the Mississippi River at Broadway Street
Minneapolis
Hennepin County
Minnesota

HAER No. MN-2

PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

Historic American Engineering Record
Rocky Mountain Regional Office
National Park Service
Department of the Interior
P.O. Box 25287
Denver, Colorado 80225

HISTORIC AMERICAN ENGINEERING RECORD

Broadway Bridge (Twentieth Avenue North Bridge)

HAER No. MN-2

Location:	Spanning the Mississippi River at Broadway Street Minneapolis, Hennepin County, Minnesota UTM: A 15.4982640.478420 B 15.4982660.478200 Quad: Minneapolis South
Date of Construction:	1887-1888 (Modified in 1914 and 1950-1951)
Present Owner:	Hennepin County Hennepin County Government Center Minneapolis, Minnesota
Present Use:	Vehicular and pedestrian bridge, to be replaced by a new vehicular and pedestrian bridge. Projected date of removal is Spring 1985. One of the four spans is to be retained and serve as a vehicular and pedestrian bridge at a site located approximately one mile down river.
Significance:	The Broadway Bridge was a four-span, wrought iron and steel, high through Pratt truss and was one of two known remaining decorative truss bridges in Minnesota. The bridge was fabricated by the King Iron and Bridge Company of Cleveland, Ohio.
Historian:	Bill Jensen, Van Doren-Hazard-Stallings, December 1984
Transmitted by:	Jean P. Yearby, HAER, 1985

II. HISTORY

A. NEED FOR THE BRIDGE

"Whenever a few men get together in a doggery and decide they want a bridge, they get it" (Col. W.S. King, Minneapolis businessman; Minneapolis Journal, 31 January 1887).

Between the years 1880 and 1895, a period regarded by some as the "Boom Era" or "Golden Age" of Minneapolis, the city's population more than quadrupled reaching 192,833.[1] The initial development of Minneapolis occurred along the Mississippi River at Saint Anthony Falls which supplied the water power needs of the early lumber industry. By the mid-1880s, expansion of the grain milling industry near the falls caused the northward migration of the lumber companies along the low river banks. In 1882, the bridging of the Mississippi River at Plymouth Avenue, which lay 1/2 mile north of the falls, stimulated commercial activity (especially sawmills and lumber yards) in the area and created demand for a new bridge at Twentieth Avenue North, 1/2 mile upstream from the Plymouth Bridge.[2] The Twentieth Avenue North Bridge represented a middle stage of the "Boom Era"; this era, by 1895, generated the construction of seven traffic bridges and six railroad bridges.[3]

The first petition to the Minneapolis City Council for a bridge at Twentieth Avenue North was presented by citizens from North and Northeast Minneapolis on 3 September 1884.[4] By October of 1886, the city council was faced with requests for bridges spanning the Mississippi at Twentieth Avenue North, Franklin Avenue, Lake Street, and Sixth Avenue South. At this time, four highway bridges crossed the Mississippi in Minneapolis; these were the suspension bridge at Hennepin Avenue, the Plymouth Bridge, the Tenth Avenue South Bridge and the Washington Avenue Bridge.[5] The suspension bridge at Hennepin Avenue was in the process of being replaced by a steel arch bridge on which construction had recently begun. In November 1886, editorials in the

Minneapolis Tribune and the Minneapolis Journal (two of the city's daily newspapers) took note of the rising public pressure; leading the Tribune to state on 28 November that "There must be [a bridge] at Twentieth Avenue North or in that neighborhood. The judicious building of bridges increases the prosperity of the city, adds to the taxable wealth by its effects upon property, and amounts simply to an excellent public investment."

In December of 1886, the Minneapolis City Council instructed City Engineer, Andrew Rinker, to prepare an estimate of materials and costs for a pedestrian and vehicular iron truss bridge to be located at Twentieth Avenue North. His estimate, including costs for substruction (substructure) and superstructure, was submitted 14 December 1886 to the Committee on Roads and Bridges (Appendix A). After a discussion of the cost difference between 36, 38, and 40-foot roadway widths (a 38-foot roadway would increase the cost about $8,000 and a 40-foot roadway about $10,000), the committee recommended that the city council approve the 36-foot wide bridge with the 36-foot wide roadway.

On 15 December, the Tribune noted "The two extremes of the city [represented by Twentieth Avenue and Franklin Avenue] demanded bridges" and that while North Minneapolis would look out for its own interests, the bridge at Franklin Avenue could be threatened by a demand for a bridge located at Sixth Avenue South near the milling district in the center of the city.

After endorsing the committee's recommendation on the 16th, the city council directed the Committee on Legislation to prepare a bill for passage by the State Legislature authorizing the issue of $100,000 in municipal bonds for bridge construction. The City of Minneapolis was limited to 5 percent indebtedness, and bond issues were authorized by the Legislature.

Andrew Rinker, in the 1 January 1887 Tribune, stated "In 1887, chances are that a very large amount of bridging will be done in addition to the

steel arch. There are at least three important bridge projects which will take shape during the present month: Sixth Avenue South, Twentieth Avenue North and Franklin Avenue."

Construction of the Franklin Avenue Bridge and Twentieth Avenue North Bridge was also approved, and a bill authorizing bonds for both structures was sent to the legislature in early January where it was quickly approved and signed by the governor. The Tribune wrote on the 14th that "This will settle the bridge question for one Legislature at least." It did not settle the question for the city council and for opponents of the bridges.

Three bridges were to have bonds issued at the same time for a total of $390,000. These were Twentieth Avenue North ($100,000), Franklin Avenue ($110,000), and steel arch ($180,000).

The city council authorized Rinker to advertise for bids on the substructure of the Twentieth Avenue Bridge and for the superstructure of the steel arch on 13 January. On 18 January, opponents of the Twentieth Avenue and Franklin Avenue bridges, led by Col. W.S. King and the Board of Trade (a group of prominent Minneapolis businessmen who were urging the construction of a bridge at Sixth Avenue), began what appeared to be an action to delay the two bridges by requesting that the Tenth Avenue Bridge be repaired before any new bridges were built.[6] Mayor Albert Ames lent his support to the group at least indirectly by saying "There was no question but what the bridges were important and would add much to the city"; but he felt that the laying of watermains and their assessment was more important.[7] The stated concern of the mayor and the Board of Trade was that the proposed projects by city departments would not stay within the 5 percent limit of indebtedness.

In spite of the growing controversy, the city council authorized the proposals for municipal bonds and on 21 January awarded the contract for the substructure of the Twentieth Avenue Bridge. The Board of Trade's primary effect seemed to have been arousal of the city council and the

citizens of North and South Minneapolis against the board. On 25 January, the Tribune took the middle ground in stating that "The city's financial situation is good ....if [it is] necessary to curtail, don't build but one bridge this year besides the steel arch." The disputes about the bridges brought a letter to the Tribune that provided a description of the need for and the locale of the Twentieth Avenue North Bridge.

To the Editor of the Tribune,

Is there a bridge needed at Twentieth Avenue North? Col. King says "No"; the Board of Trade says "No." The city council before which the matter has been for two years says "Yes," with but one dissenting vote. If the gentlemen who oppose it knew the situation so thoroughly as do the residents of that section and the aldermen, I think they too would vote "Yes" with them. From Plymouth or Thirteenth Avenue North, the river bank is now pretty well lined with mills to Thirty-sixth Avenue North, or 24 blocks. This is nearly two miles. The largest sawmill in the state, and one of the largest in the Northwest, is now going in above the proposed bridge. Back of the manufactories lies in Highland Park, Forest Heights, Woodland and Fairmont Parks, Silver Lake and in other additions a large and rapidly growing population. On the east side of the river lies one as large if not larger, while numerous manufactories line the banks. The new bridge will form a direct highway between the two populous sections of the city and develop an important suburban business center along the whole length of the avenue. Not only this, but it will afford all the sawmills an opportunity to pile their lumber on the east side, which they will be compelled to do for want of room, owing to the rapid growth of the third ward. Again, it will furnish an outlet for the extensive stone quarries on the east side, and relieve to a large extent the Plymouth Avenue and suspension bridges from this travel. It will give the county trade a nearer and more direct route into the city and what is of more importance, afford Mr. Lowry an opportunity to connect his street car system and the North, East, and West side-a matter, which I understand he stands ready to do

as soon as the bridge is completed. It may be a matter of surprise to Col. W.S. King to learn that a three inch white oak plank is worn out in 18 months and has to be replaced on the Plymouth Avenue Bridge. I prophesy travel nearly as great over the Twentieth Avenue North Bridge when completed. With the Franklin Avenue Bridge I have nothing to do, but I imagine that ten persons will use the bridge on Twentieth Avenue North to where one will use it on Franklin Avenue South.

"North Side"[8]

At the February 4 city council meeting, the protests of the Board of Trade were ignored in a manner that offended the Tribune editorial writers. The result was that both the Tribune and the board endorsed the bridge at Twentieth Avenue while questioning the financial advisability of the one at Franklin Avenue. With one problem solved, the city council created another by instructing the city engineer to survey and make plans for the extension of Broadway Street from Main Street to Thirteenth Avenue Northeast, the eastern terminus of the bridge, "in order to have something definite for objections." The objections were not long in arriving. By the middle of March, the city council had abandoned the extension of Broadway after protests from the landowners in the area. The extension was fought frequently during the next three decades.

The financial problems which opponents of the bridges feared were at least partly realized by mid-summer of 1887. The Tribune reported on 30 July that the city council had discussed how to pull through the present financial stress caused by the "extravagant issuances of bonds for bridges" and the "foolish waste of money in day labor and eight hour sentimentalism." Even though these problems were to affect the financing of the Franklin Avenue Bridge, they apparently had no affect on the construction of the Twentieth Avenue North Bridge.

B. CONSTRUCTION CHRONOLOGY

A notice to contractors for bids for construction of the substructure of the Twentieth Avenue North Bridge was published in the 9 January 1887 edition of the Minneapolis Tribune. Four proposals were received on 21 January, and the contract was awarded to Arthur McMullen. McMullen, submitter of the lowest bid, proposed to furnish Mankato stone for $10.50 a yard, granite masonry for $24.50 a yard, and to do the excavating for $1.50 a cubic yard.[9] The bids were based on plans and specifications provided by the city engineer.

The notice to contractors requesting bids for the superstructure was issued on 15 February 1887, and bids were to be based on specifications supplied by the city engineer. Twelve bidders submitted proposals on 8 March. None of the bids was within $14,000 of Rinker's $85,000 estimate.[10] The bids were rejected, and the project was subsequently rebid on 17 March. The 11 companies submitting bids for the superstructure included several well known bridge builders: the Shiffler Bridge Company, Pittsburgh, Pennsylvania; the Wrought Iron Bridge Company, Canton, Ohio; and the King Iron Bridge and Manufacturing Company, Cleveland, Ohio. A list of companies and their proposals appears in Appendix B. Because of the differences in styles and prices between the proposals, they were referred to Andrew Rinker for his recommendation. The Morse Bridge Company was the low bidder and on 25 March, an article in the Minneapolis Journal reported that "If their contract was in accordance with the specifications, they will probably be the successful competitors; though it is hinted that a Minneapolis man has a good chance to get the contract." Instead, on 25 March, the contract for supervision and construction was awarded to the King Iron Bridge and Manufacturing Company of Cleveland, Ohio.

Work on the piers must have begun soon after the award of the substructure contract. The Tribune noted on 15 March "Work on the Twentieth Avenue North Bridge is progressing rapidly. Pier No. 1 is almost finished, and there are two courses of masonry in Pier No. 2.

Masonry has begun on Pier No. 3, and the foundation is almost laid for the east abutment." During the winter, the Mississippi was frozen over, and the builders apparently utilized this to ease construction. Reports in the Minneapolis newspapers indicate that the ice was still firm and unbroken in mid-April.

On 15 May 1887, the Tribune observed "The masonry work on the steel arch and the Twentieth Avenue North bridges will be completed soon." The approval of the working plans of the Twentieth Avenue North Bridge was noted by the Tribune on the 4th of June.

Responding to a possible delay in the delivery of iron and steel for the bridge, the Tribune, in a 3 August editorial titled "The Iron and Steel Industries," said that even though "contracts for the superstructure of the three [bridges] were let a long time ago; none of the contracts for the steel and iron will be filled for many weeks from the date fixed by contract for delivery." This delay was blamed on a high demand for iron and steel in the United States. Nevertheless, the same paper was to report on the 19th of August that "The iron for the Twentieth Avenue North Bridge which by terms of the contract is to be delivered before September 15th is according to the advice from Cleveland, almost ready for shipment" and on the 9th of September, that "The Minneapolis inspecting engineer at Pittsburgh reports that 16 cars of material for the Twentieth Avenue North Bridge will soon arrive in Minneapolis." The inspecting engineer was probably G.W. Ferris who was in Pittsburgh to inspect steel for the steel arch bridge.[11]

The date of arrival of the iron in Minneapolis and the beginning of construction of the trusses was not found in the extant copies of the Tribune and Journal. After the iron arrived, the trusses were assembled from prefabricated parts and then put in place. The Tribune wrote on 15 November "The second span of the Twentieth Avenue North Bridge was swung yesterday morning. The other two spans will be put in by the middle of next month." Also noted on the 19th was that material for the bridge, including 1,577,000 pounds of iron, had arrived and that the structure

was fast approaching completion. That the last span would be swung on the 26th of November was duly mentioned by the paper. November also saw the publication of the notice to contractors for proposals for paving the bridge with cedar blocks based on specifications provided by the city engineer.

The paving contract for the bridge was awarded to G.E. Whittier who was the lowest bidder of the seven firms submitting proposals on 1 December. He proposed to construct the roadway of cedar blocks over Douglas fir planks supported by stringers and floor beams with pine planking at $.88 per square yard.[12] The grading of the approaches was carried out by the City of Minneapolis.[13]

The Tribune reported that the iron in the Twentieth Avenue North Bridge would all be in place on the 23rd of December. On 4 January 1888, the Tribune stated that the bridge was finished with the exception of the paving which would be done in a few days. This assessment was confirmed by the Minneapolis Chronicle (a weekly newspaper published in North Minneapolis) in an article published on 7 January. The Chronicle concluded that the west end of the bridge would require 10 to 12 feet of fill and that the cold weather was slowing the work. The Chronicle went on to say that "The lack of a bridge is not felt very perceptibly...as good crossing is afforded by the ice." On 21 January, the Chronicle said that the filling of the approaches was progressing rapidly in spite of the difficulties of moving frozen earth at temperatures of "40 to 50 degrees below zero."

An opening date for the Twentieth Avenue North Bridge has not been found. On 15 February 1888, the Tribune observed that while the approaches to the bridge were not quite completed, they were far enough advanced so that the bridge was open to travel. The Chronicle, on 31 March, reported "There is a good deal of travel over the new bridge at Twentieth Avenue North."

C. LOCATION AND THE SUBSEQUENT NAME CHANGE

When completed, the Twentieth Avenue North Bridge spanned the Mississippi River connecting Twentieth Avenue North on the west bank with Thirteenth Avenue Northeast on the east bank (BB-Drawing 1). As mentioned above, the immediate vicinity of the bridge contained a number of activities relating to the lumber industry. An 1892 atlas showed the locations of planing mills, sawmills, iron works, and a boiler works almost all of which were located on the west side of the river. The east bank of the river, south of the bridge, was called out as a wharf. The atlas also indicated the extensive system of railroad tracks which were located within 1/4 mile of the west end of the bridge.[14]

The date of resolution of the controversy surrounding the extension of Broadway from Main Street to the east end of the bridge was not determined. Maps located in the Annual Report of the City Engineer showed Broadway as not extended in 1919 and as extended in 1920. The name of Twentieth Avenue North was changed to West Broadway which prompted the redesignation of the the bridge from the Twentieth Avenue North Bridge to the Broadway Bridge. The Broadway Bridge was the designation employed by the owner, Hennepin County.

III THE BRIDGE

A. DESCRIPTION

The piers and abutments were constructed of Mankato limestone and had granite blocks located under the bearing points of the trusses. Icebreaker edges were constructed as part of the upriver side of the piers. These edges were faced with granite and were sharply pointed to facilitate the movement of ice floes past the piers.

The Broadway Bridge consisted of four high through Pratt trusses, 196 feet 10 inches long from centerline of bearing to centerline of bearing, with horizontal top chords, seven panels, and inclined end post/batter

braces. The total length of the bridge was 805 feet. Pin connections were used to connect the major structural members, a system that generally simplified and speeded erection. The bridge contained wrought iron and steel. Laboratory testing found the vertical members of the trusses to be of wrought iron, and it is believed that the cross beams supporting the roadway were of steel. Truss height from the centerline of the lower chord to the centerline of the upper chord was 37 feet 6 inches. The roadway was 36 feet in width with 6-foot wide sidewalks on each side. Channels, cover plates, and lacing bars were riveted together to fashion the inclined end post/batter braces, the upper chords, and the built-up vertical members. The lower chords, diagonals, and hip verticals were double rectangular eye bars, die forged. An intersecting system of channels and rectangular bars provided a diagonally braced frame for sway bracing and portals connecting the upper chords of the trusses and for the longitudinal bracing connecting the sway braces midway between the trusses (BB-Drawing 2).

Sidewalk railings were made from channels and rectangular bars organized in a pattern that recalled the diagonals and verticals of the sway bracing and portals. A modified fleur-de-lis scrollwork was located above the entrance portals at the east and west ends of the span, and each truss was fitted with lantern-like finials at the end points of the upper chords. Plaques were located over the entrance portals and bore the following inscription:

1887
Built By
King Iron Bridge Company
Cleveland, Ohio
Andrew Rinker, City Engineer

The Pratt truss design utilized for the Broadway Bridge was of a type commonly used for bridges built during the 1880's. Notable for its use of ornament, the bridge was "one of only two known remaining decorated truss bridges in Minnesota and the only decorated truss bridge in the

metropolitan area."[15] The early 1888 completion date of the Broadway Bridge preceded, by several months, the completion of the bridge at Hennepin Avenue and made it the oldest reamaining highway bridge in Minneapolis. Construction of the Broadway Bridge may have been a factor in the location and growth of the Grain Belt Brewery complex (no-longer operating). Deemed eligible for nomination to the National Register of Historic Places, the brewery was located approximately 1/4 mile east of the bridge and contains some buildings of an era and ornamentation style similar to the Broadway Bridge. The above factors helped determine that the Broadway Bridge was eligible for nomination to the National Register of Historic Places.

B. MODIFICATIONS

Two known major alterations were made to the bridge since its completion. Each alteration adapted to a different mode of transportation, and each attempted to improve vehicular travel. In 1914, the extension of streetcar transportation in Minneapolis caused tracks to be provided across the bridge. In order to carry the increased loads introduced by streetcars and automobiles, floor beams were strengthened by adding cover plates and additional stringers were placed under the streetcar tracks (BB-Drawing 3).

In 1950, the City of Minneapolis significantly altered the appearance of the river bridge. A desire for navigation on this section of the Mississippi necessitated the raising of the trusses and the removal, because of increased grades, of the streetcar tracks. The west abutment remained at its original elevation while the east span rested on a steel frame forming a new abutment at the raised east approach. The raised bridge was supported by a beam at the west pier and transverse trusses at the other two piers. Supporting beams and trusses rested on the original piers and on new supplementary concrete piers constructed at each end of the existing piers. New stringers were added under the outer portions of the roadway, and the bridge deck was replaced by an open grate steel deck

to reduce the dead load of the bridge (BB-Drawings 4 and 5). The raising of the east approach ended access to the bridge from Thirteenth Avenue Northeast.

C. OWNERSHIP AND FUTURE

The Broadway Bridge was owned and maintained by the City of Minneapolis until 7 February 1950. At that time, the bridge was designated as part of State-Aid Road 6 and ownership passed to Hennepin County. On 19 November 1957, the designation of State-Aid Road 6 was changed to County State-Aid Highway 66 (CSAH 66). Through an agreement with Hennepin County, the City of Minneapolis has continued to perform bridge maintenance.[16]

Study of the Broadway Bridge revealed limitations regarding its ability to safely handle the projected traffic volumes and loads. Severe deterioration of the truss members, stringers, floor beams and connections was found to have occurred.[17] Because of the magnitude and scale of renovation necessary, it was determined to replace the bridge with a new four-lane pedestrian and vehicular structure.

The aesthetic and technical significance of the Broadway Bridge resulted in the preservation of one span and the bridge's ornamental features. This span was relocated within the Saint Anthony Falls Historic District and carries Merriam Street across the back channel of the Mississippi River from Nicollet Island to the east bank contributing its features to the district whose growth had brought its creation.

IV. BIOGRAPHICAL MATERIAL

A. Frederick Whilhelm Cappelen (1858-1921)

Frederick Cappelen served as assistant city engineer for the City of Minneapolis during the construction of the Broadway Bridge. He was born on 21 October 1857, in Drammen, Norway, and was educated at the Technical

and Mining School in Oerebro, Sweden, and at the Royal Polytechicum in Dresden, Germany. Cappelen came to the United States in 1880 and worked for the Northern Pacific Railway until 1886.[18]

Andrew Rinker named Cappelen his assistant city engineer in 1886, a position he retained up to his appointment as city engineer in 1892. During his time with Rinker, Cappelen was referred to in the Minneapolis newspapers as being the bridge engineer and references were made to his designs for a number of railroad bridges in the city. An article in the "Minnesota Techno-Log" (Vol. VII, February 1927) credited him with the design of the steel arch bridge at Hennepin Avenue that was contemporary to the Broadway Bridge. He was also mentioned as inspecting the Tenth Avenue South Bridge. When the above is taken into consideration and combined with Rinker's other obligations, it can be suggested that the bridge engineering and preparation of estimates for the Broadway Bridge may have been, at least in part, Cappelen's responsibility. Frederick Cappelen's later term as city engineer (1912-1921) produced some renowned concrete arch bridges. His last bridge, completed in 1923, was the Franklin Avenue (Cappelen Memorial) Bridge which had a then record 400-foot concrete arch center span.

B. KING IRON BRIDGE AND MANUFACTURING COMPANY

The King Iron Bridge and Manufacturing was located in Cleveland, Ohio. King was a leading manufacturer of metal truss bridges and claimed to have the largest highway bridge works in the United States.[19] Construction of the Broadway Bridge fit the then common pattern of a bridge company acting as designer, fabricator, and builder.

King actively pursued bridge projects in the Minneapolis area during the 1880s. The company had submitted an unsuccessful bid for the construction of the superstructure of the steel arch bridge in 1887. During the summer of 1887, they were awarded the contract for the superstructure of the Franklin Avenue Bridge.

C. ANDREW RINKER (1849-19?)

"It is often a thankless task to be servant of the public. If you do a good thing or save money you never hear of it, but if you make a slip or spend a few dollars over an estimate you are set upon by a host of people who are too ignorant of the subject matter to find fault justly" (Andrew Rinker, City Engineer of Minneapolis; Minneapolis Journal, 6 January 1887).

"The city engineer is a very very careful and conservative man" (E.M. Johnson, Minneapolis Alderman; Minneapolis Tribune, 16 October 1886).

Andrew Rinker, the City Engineer of Minneapolis during the construction of the Broadway Bridge, was born on 15 April 1849 in Philadelphia, Pennsylvania. After graduating from high school, he entered the Ninth District Survey Office in Philadelphia. He was a draftsman in the Registry Bureau until June 1871 when he became assistant city engineer of Minneapolis. Rinker held that post until 1875 when he formed a partnership with George W. Cooley which lasted one year. In 1876, Rinker was in business for himself and in 1877, he was appointed city engineer. In 1893, he left office and formed the firm of Rinker and Hoff. He accepted the position of engineer, secretary, and treasurer of the Great Falls Water Power and Town Site Company in 1896 and served to October of 1902. Rinker's last term as City Engineer of Minneapolis commenced in January 1903 and ended in 1912.[20] After this time, he was listed as a consulting engineer by Minneapolis city directories.

A glimpse at some of Andrew Rinker's activities during the 1886 to 1888 period of the Broadway Bridge project offers an insight into the problems and responsibilities of a city engineer in an expanding city of the late 1880s. In addition to the bridges mentioned above, Rinker was directing the construction of a large sewer tunnel, numerous street projects, and a variety of projects to improve the water supply of Minneapolis. He also managed to become embroiled in several controversies questioning some of his decisions and his engineering ability. His term as city engineer

ended in April 1887, and the city council had to decide on his reappointment.

That Rinker did not select the low bidder to construct the superstructure of the Broadway Bridge was not unusual. A letter to the Journal on 8 October 1886, in reference to the steel arch bridge, criticized the city engineer for not properly advertising for bids for the construction of the center pier. The writer asked "Have Coolidge and Company a corner on pneumatic casings or is our city engineer so deficient of ability to construct a cofferdam for the center pier of the steel arch bridge. How long will the city agree to pay for the city engineer's experimenting?" Rinker responded to later criticism of the center piers' construction through an article appearing in the 15 January Tribune. The construction of the superstructure of the steel arch bridge did not go to the lowest bidder but was given to Horace E. Horton of Rochester, Minnesota, under the condition that the shop work be done by the Keystone Bridge Company of Pittsburgh. The contract was awarded after Rinker made a lengthy presentation to the city council on the differences between the plans submitted.

In March of 1887, the election of new aldermen changed the city council from a Republican to a Democratic majority. A 9 March editorial in the Tribune titled "The Unseemly Scramble" observed that "Even the city engineer, who is a pronounced Democrat, but who has committed the offense of being so industrious, faithful, and generally competent as to have retained for a long time the confidence and support of Republican councils is threatened." Rinker came before the council to deny an article in the Journal to the effect that he had favored certain companies to the disadvantage of the city. The other applicant for the position of city engineer was Frederick Cappelen, Rinker's assistant. Rinker was reappointed after several recommendations from various aldermen.

In June of 1887, Rinker weathered charges brought before the council that accused him of using unburnt brick in the city's sewers, hiring

incompetent assistants, and violating city ordinances. That Andrew Rinker served as city engineer for over 25 years is a tribute to his political acumen.

V. FOOTNOTES

1. Kane, Lucile M. and Ominsky, Alan, Twin Cities: A Pictorial History of Saint Paul and Minneapolis, p. 81.

2. Atwater, Isaac, ed., History of the City of Minneapolis, Vol. 1, p. 352.

3. Ibid., p. 354.

4. City of Minneapolis, City Council Proceedings, 3 September 1884.

5. Minneapolis Tribune, 1 January 1887.

6. Minneapolis Journal, 19 January 1887.

7. Tribune, 21 January 1887.

8. Ibid., 4 February 1887.

9. Ibid., 22 January 1887.

10. Ibid., 8 March 1887.
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11. Tribune, 24 September 1887.

12. Ibid., 1 November 1887.

13. City Council Proceedings, 1 December 1887.

14. Foote, C.M., Atlas of the City of Minneapolis, Plates 7 and 22.

15. Minnesota Historical Society, 28 September 1981: letter to Van Doren Hazard Stallings.

16. City Council Proceedings, 7 February 1950.

17. Van Doren Hazard Stallings, Preliminary Case Report and Section 4(f) Statement, pp. 9-12.

18. Marquis, Albert Nelson, ed., The Book of Minnesotans, pp. 76-77.

19. Simmons, David A., "The King Iron Bridge and Manufacturing Company," Society for Industrial Engineering 8 (1979), p. 6.

20. Hudson, Horace B., ed., A Half Century of Minneapolis, p. 506; Neill, Edward D., History of Hennepin County, p. 619.

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C. NEWSPAPERS

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Minneapolis Journal, 4 December 1886.
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_____, 8 " "
_____, 10 " "
_____, 9 April "
_____, 10 " "
_____, 13 " "
_____, 27 " "
_____, 6 May "
_____, 22 " "
_____, 3 June "
_____, 4 " "
_____, 30 July "
_____, 2 September "
_____, 13 October "
_____, 16 " "

Minneapolis Tribune, 27 November 1887.
_____, 9 December "
_____, 25 January 1888.
_____, 3 February "

c. Location

Minneapolis Chronicle, 24 January 1888.

Minneapolis Tribune, 1 April 1887.
_____, 11 " "
_____, 25 August "
_____, 27 " "
_____, 9 November "
_____, 3 December "

2. OTHER BRIDGES

Minneapolis Journal, 20 November 1886.
_____, 25 " "
_____, 13 December "
_____, 15 " "
_____, 3 January 1887.
_____, 20 " "
_____, 10 February "
_____, 28 March "
_____, 21 April "

Minneapolis Tribune, 6 November 1886.
_____, 12 December "
_____, 5 January 1887.
_____, 8 " "
_____, 22 " "
_____, 5 March "
_____, 29 " "

Minneapolis Tribune, 21 April 1887.
_____, 2 June "
_____, 17 " "
_____, 30 " "
_____, 8 July "
_____, 17 September "
_____, 24 " "
_____, 6 December "

3. Modifications

Minneapolis Journal,"City to Strengthen Bridge," 12 March 1914.

Minneapolis Star, "New Broadway Bridge to Have 'Grated' Deck," 6 June 1950.

_____, "Broadway Bridge Progress," 6 February 1951.

_____, "Broadway Span Open Friday," 8 July 1951.

Minneapolis Tribune, "Workmen Start Job of Elevating Broadway Bridge," 4 April 1950.

_____, "Up in the Air," 22 November 1950.

_____, "Broadway Bridge Grilled," 2 March 1951.

_____, "Broadway Bridge Will Open Friday After 16-Month Shutdown," 15 July 1951.

Gentlemen--In accordance with the direction of the Honorable City Council, I herewith submit an estimate of the cost of constructing a bridge across the Mississippi River connecting 20th Avenue North and 13th Avenue Northeast. The structure as estimated upon is as follows: An iron pratt truss, four spans of 200 feet each, having a roadway 36 feet in width in the clear, and two sidewalks six feet each in clear. A sketch showing cross section of river, number, and location of piers and abutments and cross section of superstructure of bridge is herewith submitted. The estimated cost is as follows, to wit:

Superstructure	
880 tons of iron at $80.00 per ton	$ 70,400.00
3,200 sq. yds. of cedar paving on roadway at 75 cents per sq. yd.	2,400.00
Substruction	
Masonry in piers and abutments 1,074 cu. yds. limestone masonry at $12.00	$ 12,888.00
45 cu. yds. of granite in starlings at $30.00 per cu. yd.	1,350.00
120 cu.yds. of rip rap at $2.00	240.00
6,670 lin. ft. of piling at 35 cents per ft.	2,334.00
5,400 ft. B.M. lumber in caisson at $25.00 per M.....	1,350.00
	$ 90,962.50
Add 10 percent for contingencies	9,096.25
	$100,058.75

Respectfully submitted,

ANDREW RINKER
City Engineer

FROM THE CITY COUNCIL PROCEEDINGS 14 DECEMBER 1880

APPENDIX A

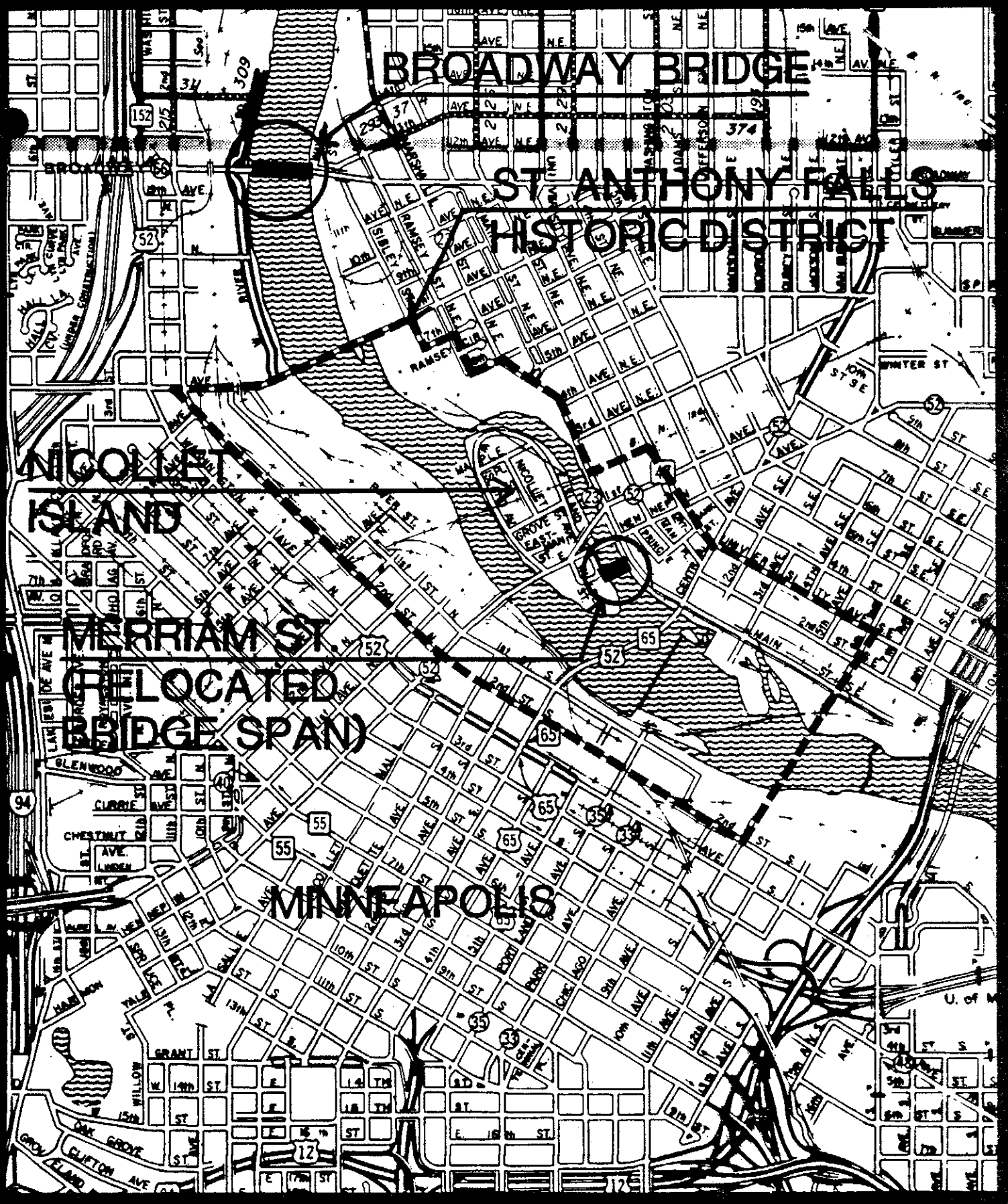
SCHEDULE of proposals received for building superstructure to 20th Avenue North Bridge:

Names of Bidders	Amount
Keepers & Riddell, Plan No. 1	$ 89,300.00
Keepers & Riddell, Plan No. 2	85,200.00
S.M. Hewitt, Plan No. 1	100,000.00
S.M. Hewitt, Plan No. 2	94,000.00
A. Gottleib, Plan No. 1 A	91,788.00
A. Gottleib, Plan No. 1 B	88,074.00
A. Gottleib, Plan No. 2 A	95,124.00
A. Gottleib, Plan No. 2 B	92,000.00
C.P. Jones	88,000.00
King Bridge Company	84,500.00
Chicago Forge & Bolt Co., Plan No. 1	93,600.00
Chicago Forge & Bolt Co., Plan No. 2	94,500.00
Shiffler Bridge Company, Plan No. 1	93,000.00
Shiffler Bridge Company, Plan No. 2	91,500.00
Shiffler Bridge Company, Plan No. 3	90,500.00
Wrought Iron Bridge Co., Plan A	93,000.00
Wrought Iron Bridge Co., Plan A 1	93,700.00
Wrought Iron Bridge Co., Plan A 2	89,400.00
Wrought Iron Bridge Co., Plan B	91,650.00
Wrought Iron Bridge Co., Plan B 1	92,350.00
Wrought Iron Bridge Co., Plan B 2	88,050.00
Morse Bridge Company	82,671.00
W.G. Coolidge & Company	85,940.00
Horace E. Horton	86,994.00

Referred to the Committees on Roads and Bridges.

FROM THE CITY COUNCIL PROCEEDINGS 18 MARCH 1887

APPENDIX B

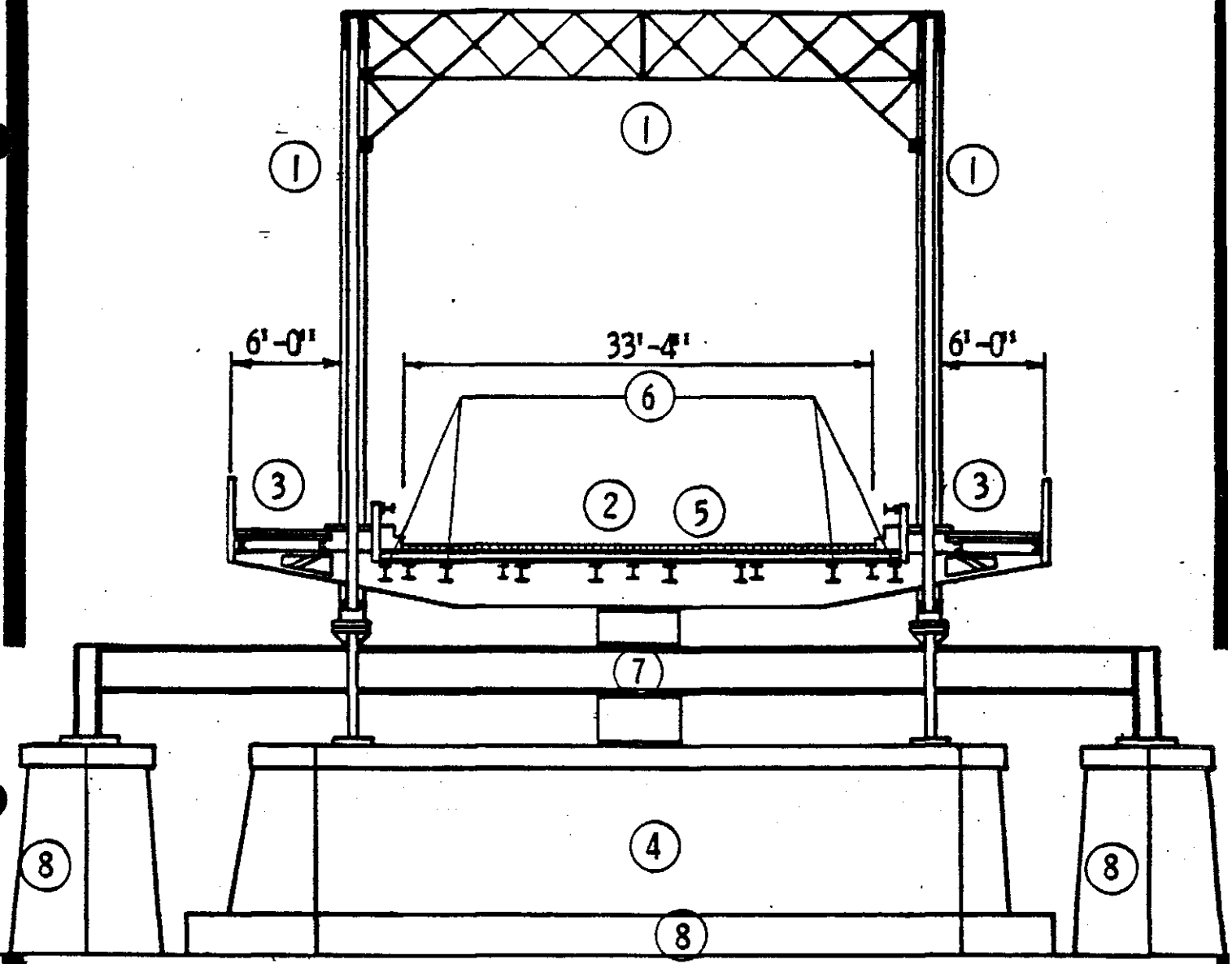


(BB-DRAWING 1) LOCATION MAP

SCALE

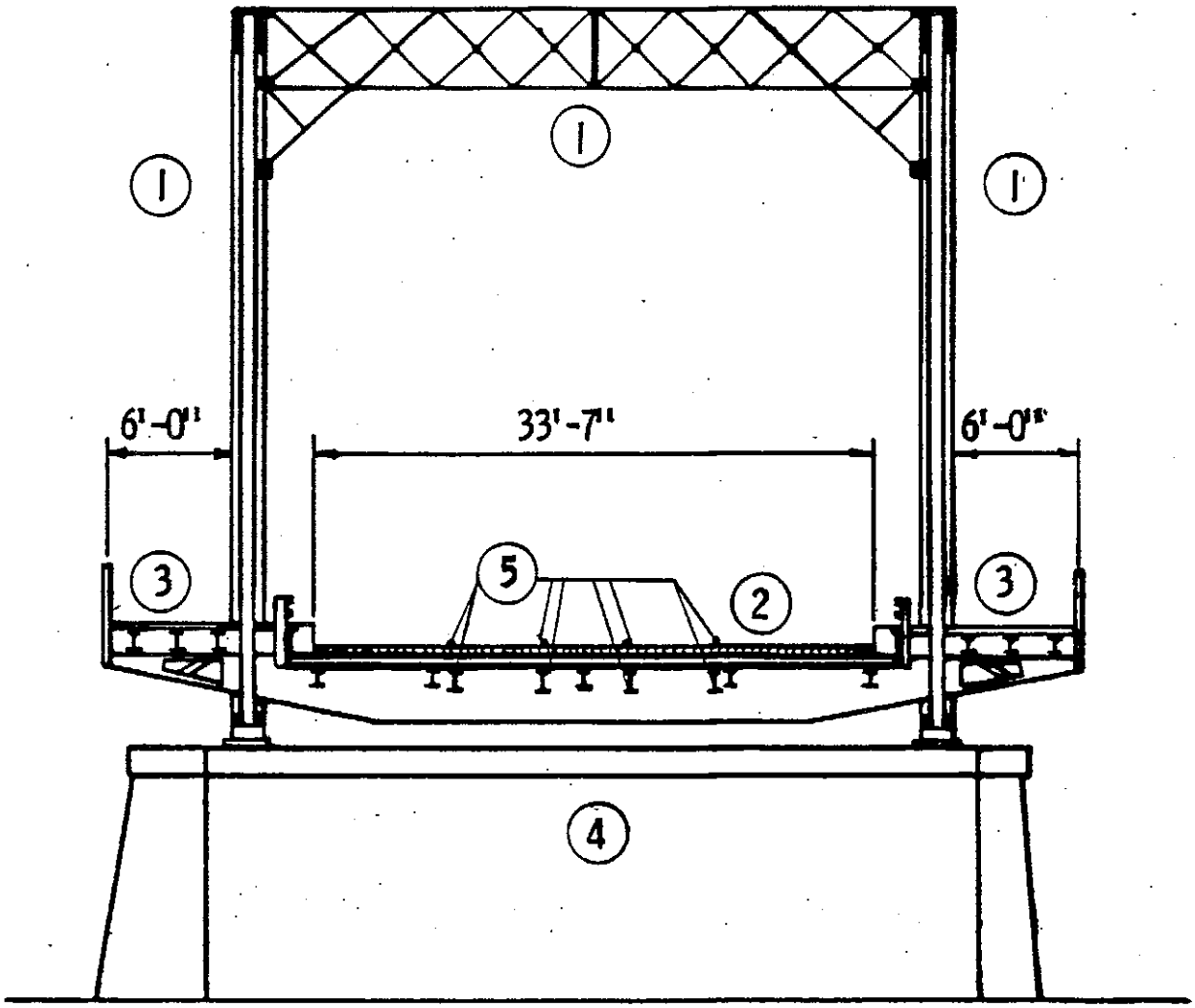
1600' 0 1600' 3200'

N



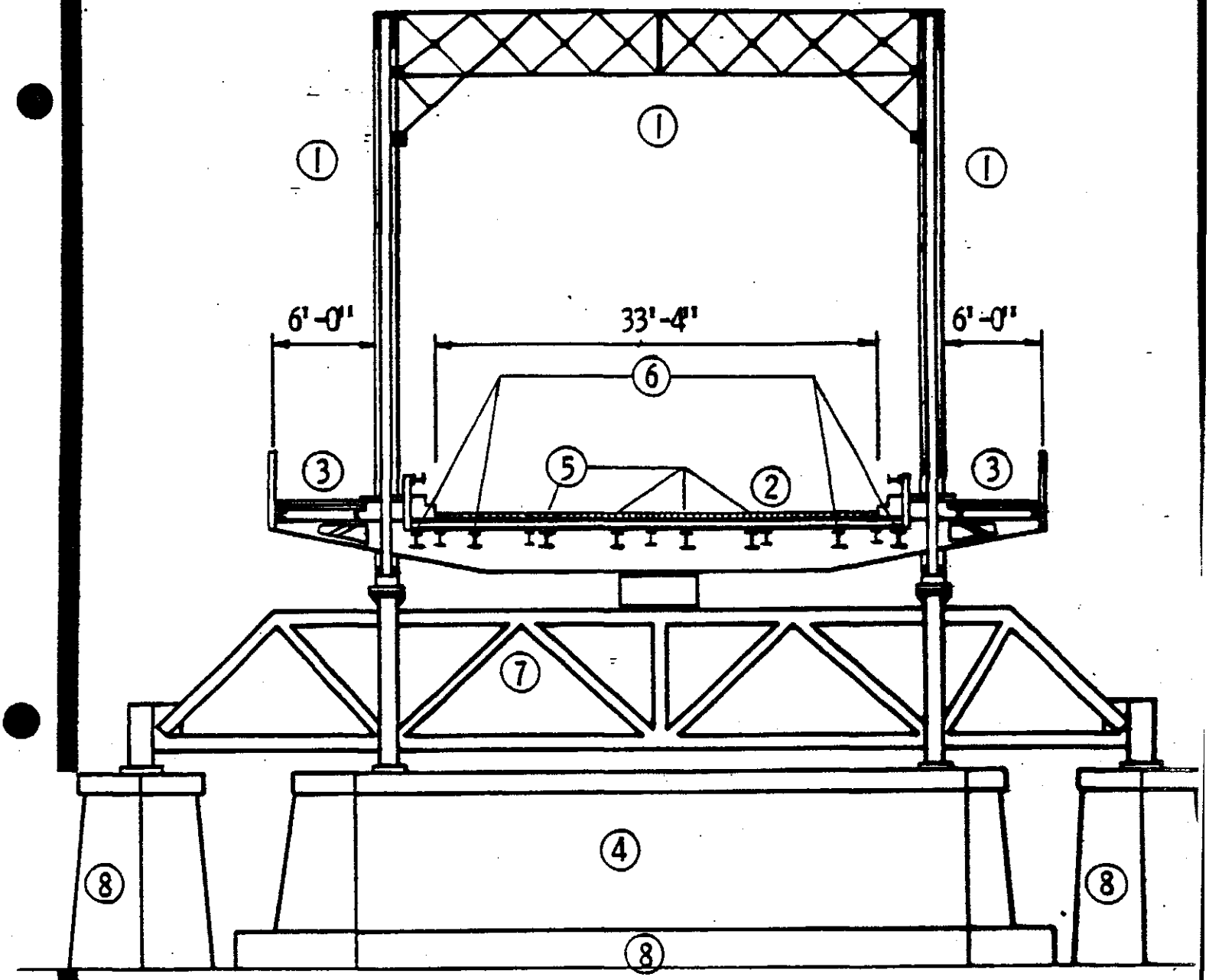
1. ORIGINAL TRUSSES
2. ORIGINAL PLANK DECK REPLACED BY OPEN STEEL DECK
3. ORIGINAL PLANK SIDEWALKS REPLACED BY CONCRETE SLAB SIDEWALKS
4. ORIGINAL PIER 1
5. STREET CAR TRACKS REMOVED
6. NEW STRINGERS ADDED
7. GIRDER SUPPORTING RAISED BRIDGE
8. NEW PIER ADDITIONS

(BB-DRAWING 4)
CROSS SECTION 1951-1985
RAISED BRIDGE & FLOOR RECONSTRUCTION



1. ORIGINAL TRUSSES
2. ORIGINAL ROADWAY DECK
3. ORIGINAL SIDEWALKS
4. PIERS 1, 2, AND 3
5. STREET CAR TRACKS AND STRINGERS ADDED UNDER STREET CAR TRACKS

(BB-DRAWING 3)
CROSS SECTION 1914-1951
FLOOR RECONSTRUCTION



④ ORIGINAL PIERS 2 AND 3

(BB-DRAWING 5)
CROSS SECTION 1951-1985
RAISED BRIDGE & FLOOR RECONSTRUCTION

MINNEAPOLIS SOUTH QUADRANGLE

MINNESOTA-HENNEPIN CO.

7.5 MINUTE SERIES (TOPOGRAPHIC)

NE/4 MINNEAPOLIS 15' QUADRANGLE

7374 II SW (NEW BRIGHTON)