

MINNESOTA DEPARTMENT OF TRANSPORTATION
BRIDGE 9103
Carrying U.S. Highway 63 over U.S. Highway 61
Red Wing
Goodhue County
Minnesota

HAER No. MN-127

PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

HISTORIC AMERICAN ENGINEERING RECORD
National Park Service
Midwest Regional Office
601 Riverfront Drive
Omaha, NE 68102

HISTORIC AMERICAN ENGINEERING RECORD

INDEX TO PHOTOGRAPHS

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Daniel R. Pratt, Photographer, September 2015.

Scale stick in photographs is 4 feet long.

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- MN-127-09 VIEW OF BRIDGE 9103 EAST FASCIA, RAILING, AND LIGHT, LOOKING SOUTH.
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- MN-127-14 VIEW OF BRIDGE 9103 DECK UNDERSIDE, PIER 1, AND SOUTH ABUTMENT, LOOKING SOUTHEAST ACROSS ENTRANCE DRIVE TO EAST SIDE OF RED WING SHOE COMPANY.

Bridge 9103 construction plan sheets were prepared by Alfred Benesch & Associates, Consulting Engineers, Chicago, Illinois. Unless otherwise noted, all sheets were approved July 3, 1958.

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HAER No. MN-127-09



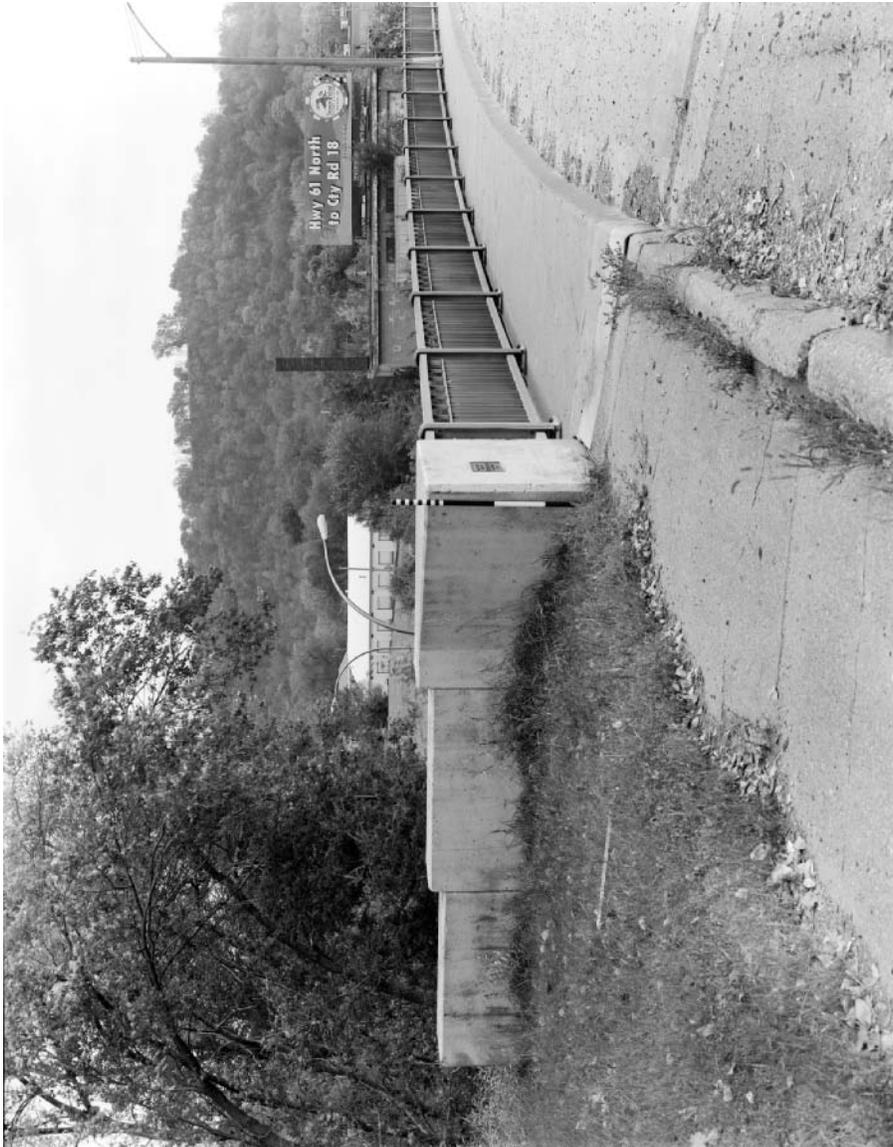
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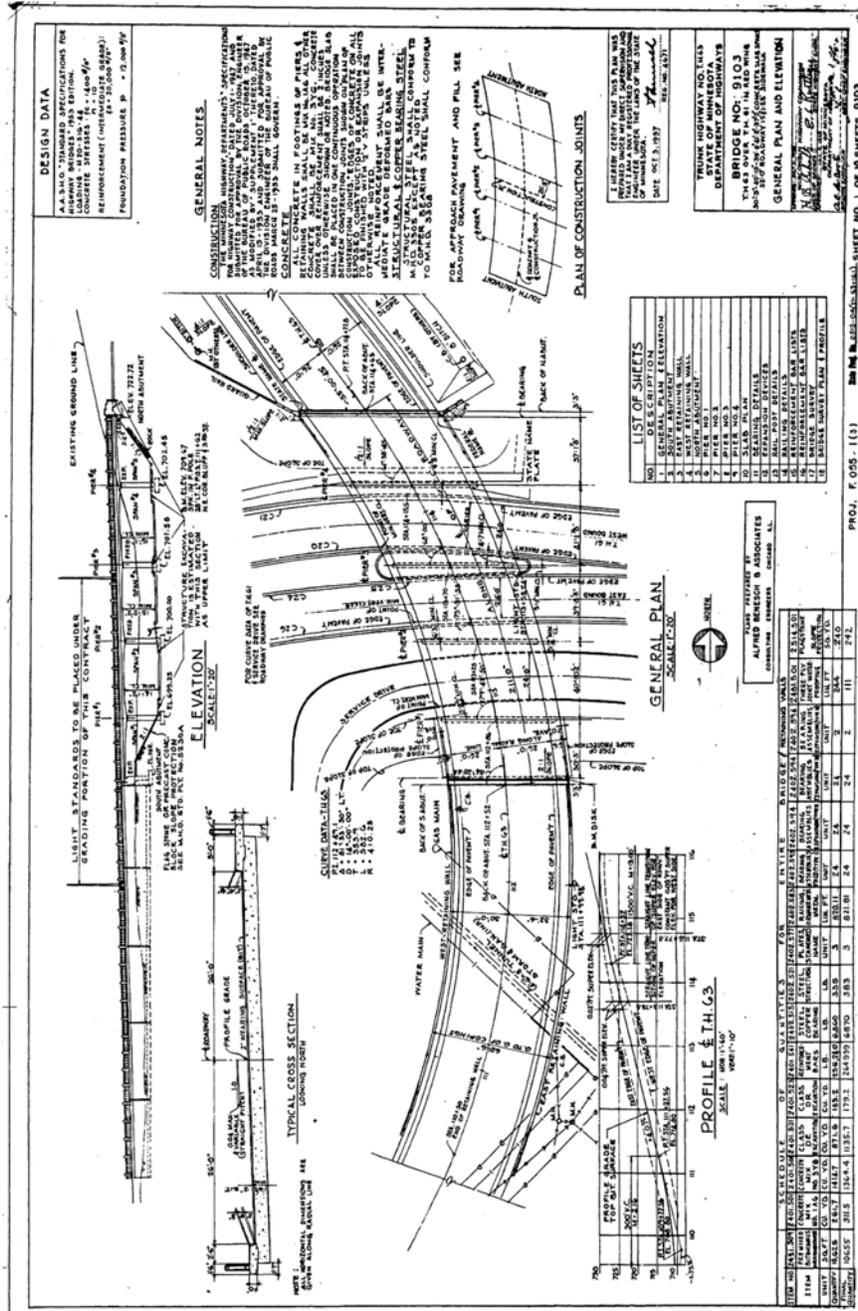
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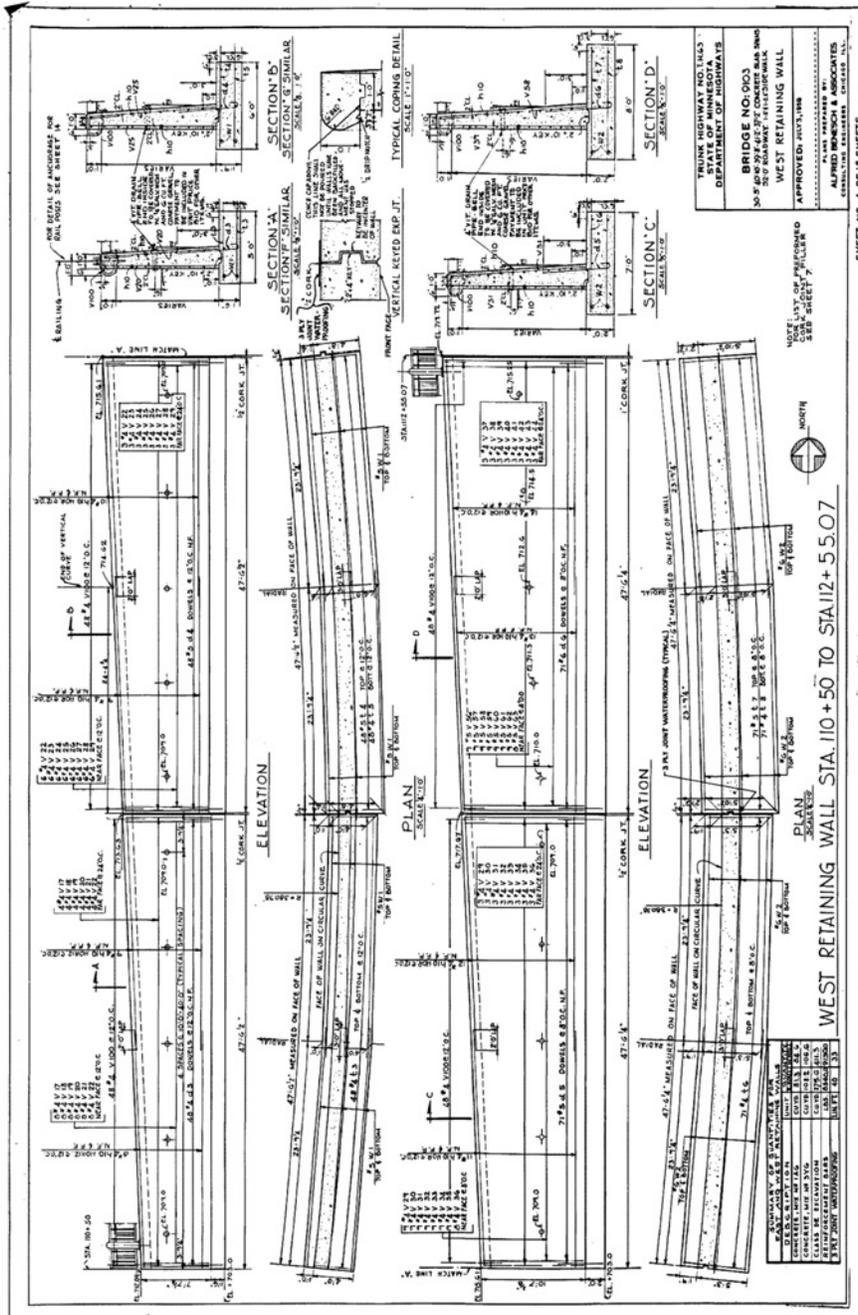


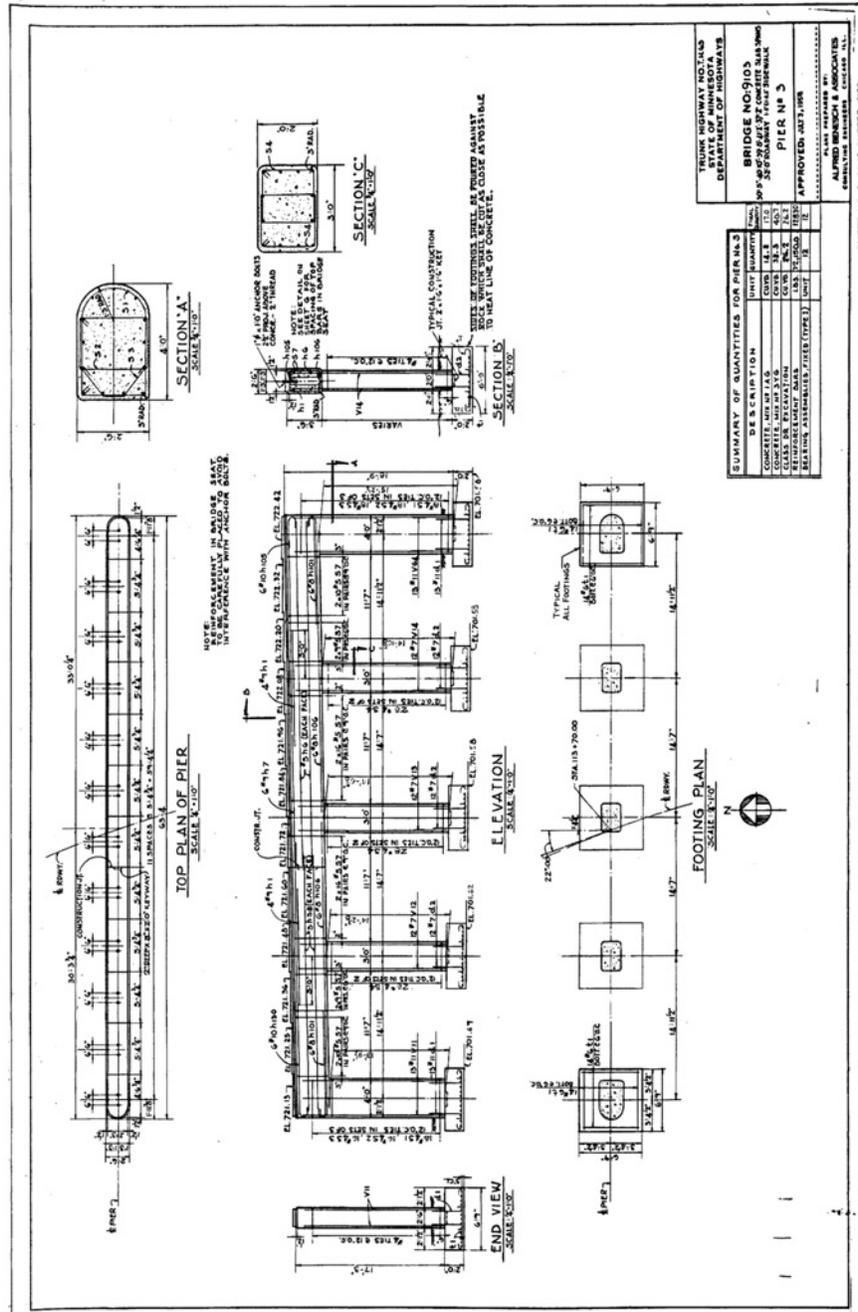
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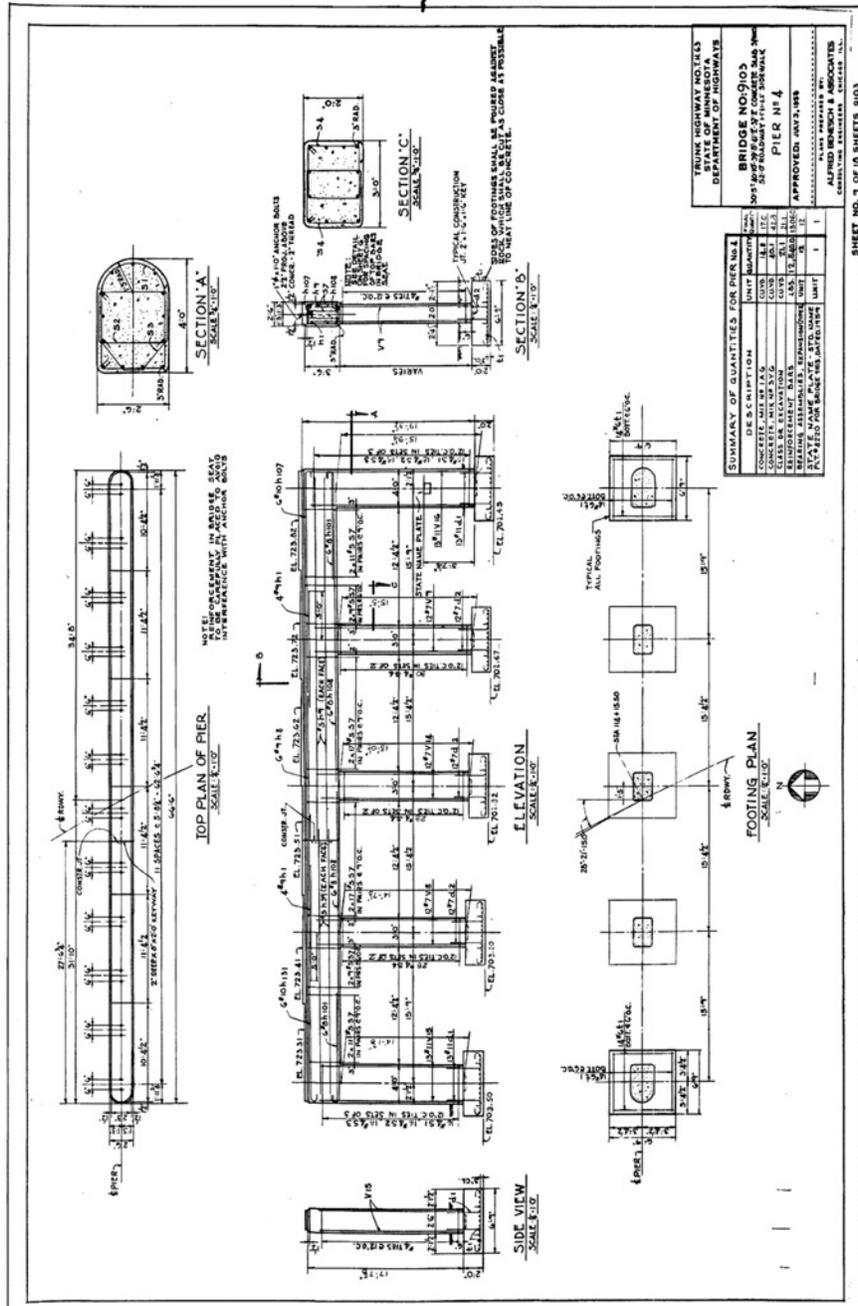
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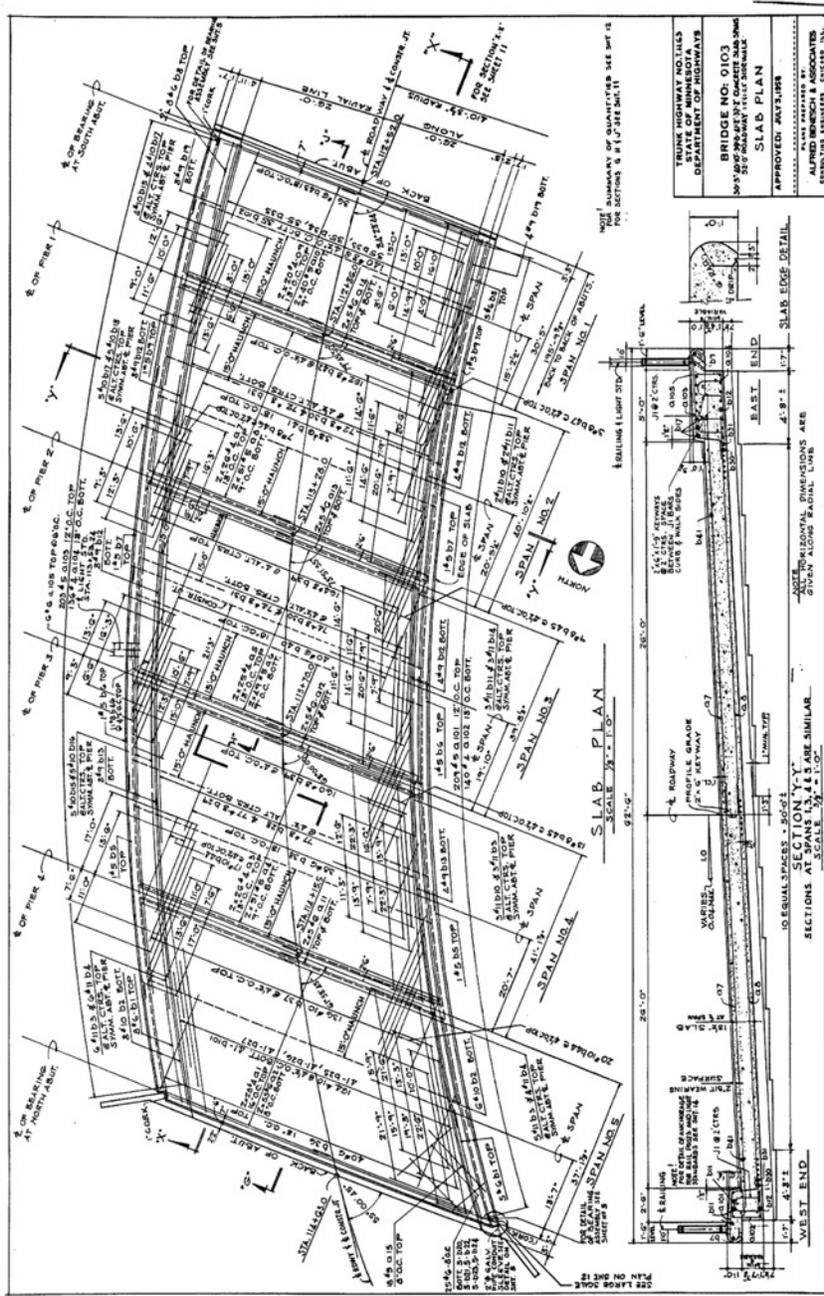






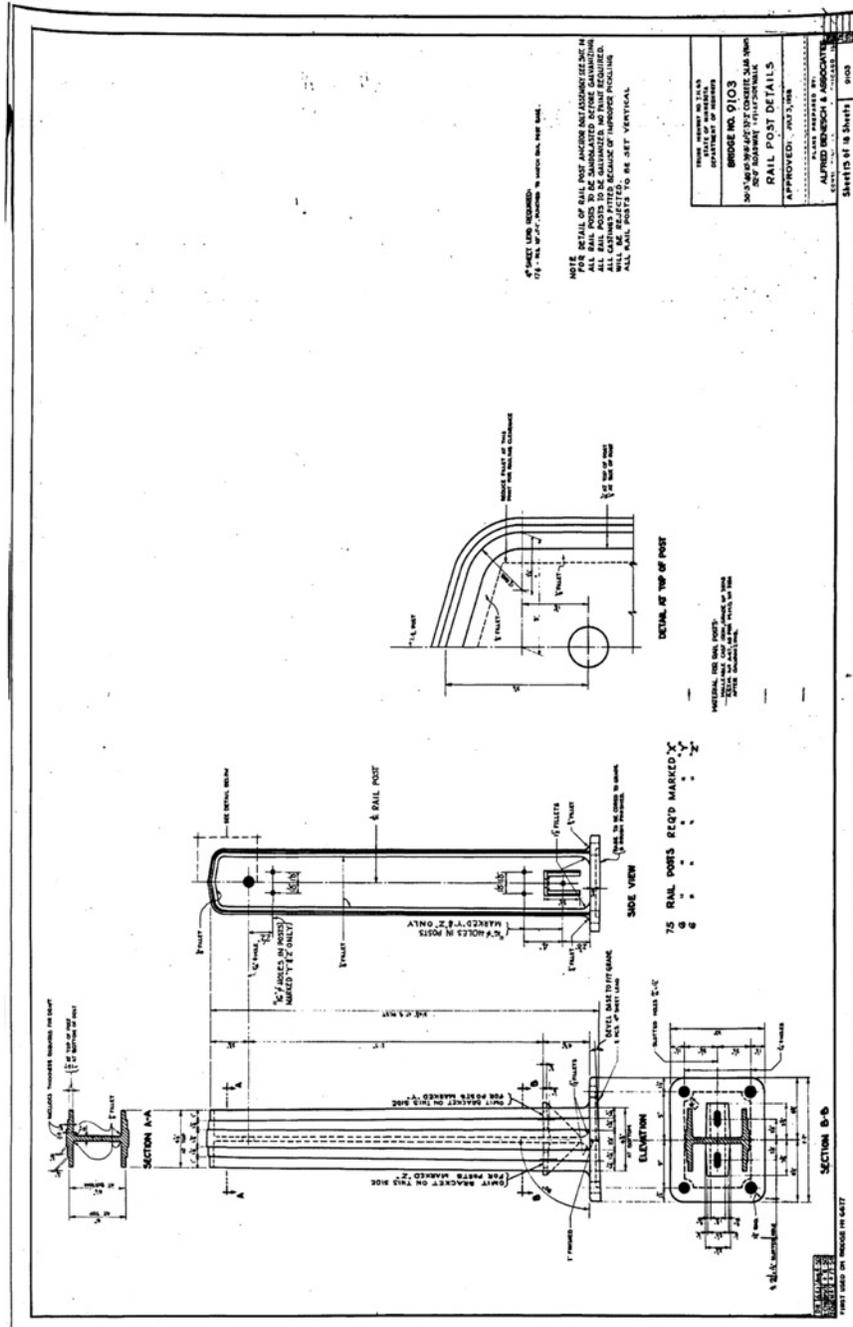
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REINFORCEMENT BAR LISTS

NO. REINFORCED	SECTION						
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TRUNK HIGHWAY NO. 14.43
DEPARTMENT OF HIGHWAYS
BRIDGE NO. 9103
REINFORCEMENT BAR LISTS
APPROVED: [Signature]

ALFRED BRUNSCH & ASSOCIATES
CONSULTING ENGINEERS, MINNEAPOLIS, MINN.

SHEET NO. 16 OF 18 SHEETS 3103

TYPE I

TYPE II

TYPE III

TYPE 50

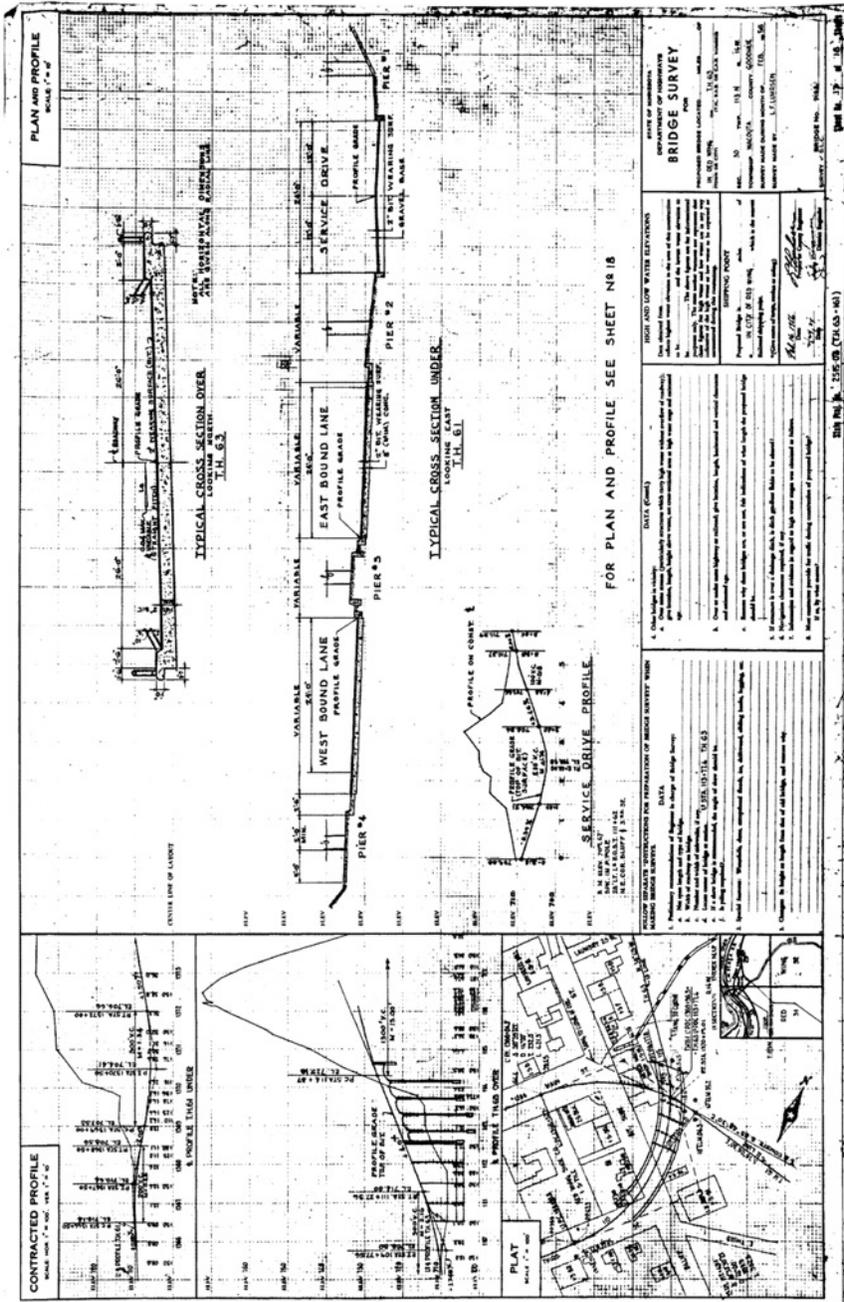
TYPE 51

TYPE 52

NOTE: ALL BAR DIMENSIONS ARE OUT TO OUT. DIMENSIONS OMITTED ARE ZERO.

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HAER No. MN-127-31



HISTORIC AMERICAN ENGINEERING RECORD

MINNESOTA DEPARTMENT OF TRANSPORTATION BRIDGE 9103

HAER No. MN-127

- Location:** U.S. Highway 63 over U.S. Highway 61, Red Wing, Goodhue County, Minnesota.
- The bridge is located at latitude: 44d 34m 4.5s, longitude: -92d 31m 53.2s. The coordinate represents the center of the structure. This coordinate was obtained on May 27, 2016, by plotting the bridge location on the Minnesota Department of Transportation's Right-of-Way Mapping and Monitoring interactive online mapping site. The accuracy of the coordinate is +/- 5 meters. The coordinate datum is North American Datum 1983. The bridge location has no restriction on release to the public.
- Present Owner:** Minnesota Department of Transportation (MnDOT)
- Present Use:** Grade-separation bridge carrying U.S. Highway 63 over U.S. Highway 61 and serving as the approach bridge to the Eisenhower Bridge (MnDOT Bridge 9040) over the Mississippi River.
- Significance:** MnDOT Bridge 9103 consists of a 211'-long, continuous concrete slab span bridge with an integral 220'-long southern approach structure. The bridge and approach were built in 1960 for the Minnesota Department of Highways. The property is eligible for the National Register of Historic Places under Criterion C (design and construction) in the area of Engineering. It was determined eligible for the National Register as part of a statewide evaluation of 1955-70 highway bridges in Minnesota completed in 2011 by Mead and Hunt for MnDOT.¹ (The study is summarized later in this narrative.) The boundary of the

¹ Mead and Hunt, *Final Evaluation Report and Historic Context: Minnesota Bridges, 1955-1970* (prepared for Minnesota Department of Transportation, March 2011).

National Register-eligible property includes both the bridge and its southern approach.

The property's National Register eligibility is based on two key factors:

Engineering Significance. Bridge 9103 is the only horizontally-curved, continuous concrete slab highway bridge from the period 1955-70 standing in Minnesota. In addition, the horizontal curve of 14 degrees is the greatest curvature for any extant highway bridge (of any structure type) in Minnesota from the 1955-70 period. At 211' long, Bridge 9103 is also exceptionally long for its structure type. The bridge's unusual curvature and length demonstrate a significant engineering response to the complex design issues created by transportation needs and the challenging site.²

Exceptional Aesthetic Qualities. Bridge 9103 is one of only four bridges identified by the statewide study of 1955-70 highway bridges as being eligible for the National Register for "high artistic value."³

Historian: Researched and written by Susan Granger of Gemini Research, December 2016.

Project Information: The documentation was prepared by Susan Granger and Scott Kelly of Gemini Research. The photographer was Daniel R. Pratt of ARCH3, LLC.

The documentation was prepared on behalf of the Minnesota Department of Transportation which is receiving Federal Aid Highway Program funds through the Federal Highway Administration (FHWA) to replace Bridge 9103, which is located on the U.S. Highway system. Removal of the bridge will have

² Mead and Hunt, *Final Evaluation*, 119, A-2.

³ Mead and Hunt, *Final Evaluation*, 120.

an adverse effect to historic properties under Section 106 of the National Historic Preservation Act of 1966 as amended. Preparation of this documentation was stipulated by a Section 106 Programmatic Agreement between the FHWA, the Minnesota State Historic Preservation Office, the Wisconsin State Historic Preservation Office, and the Advisory Council on Historic Preservation. The Programmatic Agreement was prepared in consultation with the Minnesota Department of Transportation, Wisconsin Department of Transportation, City of Red Wing, and Red Wing Heritage Preservation Commission, all of whom are also signatories.

Part I. Historical Information

A. Physical History:

1. **Date of Construction:** 1960
2. **Engineer:** Alfred Benesch and Associates (Chicago)

Bridge 9103 was designed by Alfred Benesch and Associates, then located at 10 South Wabash Avenue in Chicago. The engineering firm also designed the Eisenhower Bridge (Bridge 9040; completed in 1960) over the Mississippi River at Red Wing. Benesch and Associates was founded in 1946 by World War II veteran Alfred Benesch. The company initially worked in the Midwest and Northeast providing engineering services for factories, office towers, and public buildings. In the early 1950s Benesch and Associates began to design highway and railroad bridges. The firm designed several notable bridges in Chicago including a 4,000'-long, 42-span, plate-girder bridge built in the mid-1950s as part of Chicago's Skyway Toll Bridge system, and seven truss bridges completed in 1964-70. In the 1960s through 1980s, Benesch and Associates was engineer for several well-known residential skyscrapers on Lake Michigan in downtown Chicago. Alfred Benesch retired in 1971. The company is still based in Chicago.⁴

3. **Contractor:** Industrial Construction Division (Minneapolis) of Allied Structural Steel Company (headquartered in Hammond, Indiana); also known as Industrial Construction Company (Minneapolis).

The general contractor for Bridge 9103 was the Industrial Construction Division of Allied Structural Steel Company of Hammond, Indiana. The Industrial Construction Division was based in Minneapolis and was also known as Industrial Construction Company of Minneapolis.

Allied Structural Steel was formed in 1941 at the outset of World War II by three large steel companies: Clinton Bridge Works (later Clinton Bridge Corporation) of Clinton, Iowa; Gage Structural Steel of Chicago; and Midland

⁴ Frank A. Randall, rev. by John Randall, *History of the Development of Building Construction in Chicago* (Chicago: University of Illinois Press, 1999).

Structural Steel of Cicero, Illinois. Allied Structural Steel specialized in the fabrication of steel for bridges and large buildings. In the late 1950s Allied was one of the nation's leading steel fabricators, ranking third behind U.S. Steel Corporation and Bethlehem Steel Corporation. In 1960 Allied Structural Steel had plants in Chicago; Hammond, Indiana; Clinton, Iowa; and Knoxville, Tennessee.⁵

The construction arm of Allied Structural Steel was its Industrial Construction Division located at 9216 Grand Avenue in Minneapolis. The Industrial Construction Division, which also identified itself as Industrial Construction Company, was a major builder of bridges and other engineering structures nationwide. While the Division's work extended from Washington state to West Virginia, projects were concentrated in the Midwest.

The Industrial Construction Division built major bridges, including many truss structures, throughout the upper United States. The company also built large wharfs, industrial plants, and commercial and residential high-rise buildings, as well as post-1950 improvements to Chicago's rail rapid transit system.

Significant Minnesota bridges constructed by the Industrial Construction Division included Interstate 35W Bridge (1960) over the Minnesota River in Bloomington; Eisenhower Bridge (1960) over the Mississippi River at Red Wing; Interstate 35E (Lexington) Bridge (1963) over the Minnesota River in St. Paul; Washington Avenue Bridge (1963) over the Mississippi River in Minneapolis; Interstate 35W Bridge (1967) over the Mississippi River in Minneapolis; and Interstate 90 Bridge (1967) over the Mississippi River at Dresbach.⁶

⁵ Allied Structural Steel letterhead in Bridge 9103 Archive File, Minnesota Department of Transportation Records Center, St. Paul; "Allied Helps America Build," *Hammond Times*, Jan. 19, 1969; "Allied Structural Steel Predicts Good Year," *Hammond Times*, Jan. 19, 1969.

⁶ "Bridge Browser," HistoricBridges.Org website <<http://historicbridges.org/index.htm>>.

4. Steel Fabricator: Clinton Bridge Corporation Division (Clinton, Iowa) of Allied Structural Steel (headquartered in Hammond, Indiana).

Structural and copper-bearing steel were supplied by Allied Structural Steel's Clinton Bridge Corporation Division based in Clinton, Iowa.

The ornamental railing was fabricated by R.T.C. Milwaukee Iron Works of Milwaukee, Wisconsin. The bridge name plates were supplied by Crown Iron Works of Minneapolis.⁷

5. Original Plans and Construction:

Bridge 9103 is a curving, five-span, continuous concrete slab bridge on a 14-degree curve. The slab serves as both superstructure and deck. The bridge has an overall structural length of 211', measured along the centerline of the roadway. The longest span is 47'-6". Connected to the south end of the bridge is a 220'-long curving approach roadway that is supported on retained fill with cast-in-place concrete retaining walls. The bridge and southern approach were designed and built as a single project. They were completed in 1960.

Historical construction plans for Bridge 9103 and its southern approach comprise 18 sheets. The plans were prepared by Alfred Benesch and Associates. Most of the 18 sheets bear text indicating the plans were approved on July 3, 1958. Sheet 1, the General Plan and Elevation, was signed by Alfred Benesch on October 3, 1957. Sheet 17, entitled "Bridge Survey: Contracted Profile, Plat, and Plan and Profile," was signed by a Minnesota Department of Highways official on February 24, 1956. The original 18 plan sheets are believed to have been discarded by MnDOT. Electronic copies are held by the MnDOT Bridge Office, 3485 Hadley Avenue North, Oakdale, Minnesota. A 4" x 5" copy negative of each of the 18 plan sheets is included as part of this HAER documentation.

⁷ Miscellaneous Correspondence, Notes, and Construction Inspection Records in Bridge 9103 Archive File, Minnesota Department of Transportation Records Center, St. Paul.

6. Additions and Alterations:

Bridge 9103 and its southern approach have experienced only minor alterations. The property retains strong historic integrity in all seven categories cited in eligibility criteria for the National Register of Historic Places: location, design, setting, materials, workmanship, feeling, and association.

Alterations to the bridge and southern approach structure include:

The bridge was originally built with open joints at each end of the deck slab that were covered with $\frac{3}{4}$ "-thick steel plates in the roadway and $\frac{3}{8}$ "-thick steel plates at the raised sidewalks. In 1978 the open roadway joints were replaced with strip seal joints which remain in place today.

The lower surface of the bridge deck appears to have been painted with a thin coat of grayish white paint that has largely worn away. Some areas on the upper piers and abutments have evidence of paint overspray from this process.

The concrete roadway surfaces of Bridge 9103 and its southern approach were given a bituminous wearing course as part of the original construction. In 1978 the wearing course was changed to a $2\frac{1}{2}$ "-thick low-slump concrete overlay.

The steel "w-beam" guardrail that extend north and south from the west railing of the bridge and its southern approach may be a replacement of original steel guardrail.

Five streetlights within the boundary of the National Register-eligible property have been replaced with lights similar to those installed in 1960. Two other lights – mounted on the east railing of the bridge and southern approach – are believed to be original.

Beneath Bridge 9103, a low concrete traffic barrier was added at an unknown date to the north edge of Highway 61. The barrier extends from the bridge westward to Potter Street, a distance of about one block. For most of the way the barrier is topped by a simple metal fence painted black.

B. Historical Context:

Bridge 9103 and its southern approach were completed in 1960 as part of a large bridge and highway project that resulted in construction of a major Mississippi River bridge – the Eisenhower Bridge (Bridge 9040; also 1960) – and the realignment of U.S. Highway 61 in eastern Red Wing. Bridge 9103 was built to serve as the southern approach to the Eisenhower Bridge, as well as to create a safe grade-separated intersection for the new junction of U.S. Highway 63 and U.S. Highway 61 just south of the Eisenhower Bridge.⁸ Bridge 9103 carries U.S. Highway 63 over U.S. Highway 61 and over a service drive that accesses the shipping and parking facility of the Red Wing Shoe Company located just west of the bridge.⁹

Bridge 9103 (with its southern approach) and the Eisenhower Bridge were built as part of a massive effort to modernize the Minnesota trunk highway system in the first decades after World War II. This construction included the realignment and widening of nearly 100 miles of U.S. Highway 61 between the Minneapolis-St. Paul metropolitan area and La Crescent in southeastern Minnesota near La Crosse, Wisconsin.

A 2011 cultural resources evaluation of highway bridges built in Minnesota in 1955-70 recommended that Bridge 9103 is eligible for the National Register of Historic Places for its exceptional engineering and outstanding aesthetics.¹⁰

Construction History

Both Bridge 9103 (and its southern approach) and the Eisenhower Bridge were completed in 1960. The same designers and builders worked on both structures. They were built with \$3.4 million in state and federal funds as a cooperative project of the Minnesota and Wisconsin state highway departments and the U.S. Bureau of Public Roads (now Federal Highway Administration). The Minnesota

⁸ Both Bridge 9103 (with southern approach) and the Eisenhower Bridge are slated for replacement in 2018-2020.

⁹ An excellent oblique aerial photo of the bridge, taken in 1960 by the St. Paul Pioneer Press, is archived at the Minnesota Historical Society (negative 50849; call number MG6 9 RW1 p42).

¹⁰ The study recommended the Eisenhower Bridge was ineligible for the National Register of Historic Places; Mead and Hunt, *Final Evaluation*.

legislature approved Minnesota's share of the funding in 1955. William C. Merritt was the Minnesota Department of Highways' Project Engineer for the undertaking.

The Eisenhower Bridge over the Mississippi River was preceded by a deteriorating 1895 truss bridge that state and local officials had been hoping to replace since before World War II. Planning for the new river bridge began in earnest in 1956 and the bridge was dedicated by sitting President Dwight D. Eisenhower on October 18, 1960. It had been named the Hiawatha Bridge – the Upper Mississippi River Valley was sometimes called the Hiawatha Valley – but was renamed the Eisenhower Bridge soon after the President's visit.

According to a March 1956 article in the Minnesota Department of Highways' publication *Minnesota Highways*:

The entire project, which will be approximately two miles long, consists of four bridges and about 8,000 feet of fill across Mud Lake [on the marshy Wisconsin side of the Mississippi River's main channel]. The bridges will include a highway separation over T.H. 61 [Bridge 9103], the structure over the main channel [the Eisenhower Bridge], a small bridge in the fill over Mud Lake, and the structure over the Wisconsin channel.¹¹

The design contract for the Eisenhower Bridge and Bridge 9103 was awarded in the spring of 1956 to the engineering firm Alfred Benesch and Associates of Chicago. Benesch's fee was \$112,110, according to *Minnesota Highways*.

Design work for Bridge 9103 occurred in 1956-58 with final plans approved on July 3, 1958. The preparation of shop drawings continued into 1959. The design process for Bridge 9103 involved numerous discussions between Benesch engineers and those of the Minnesota Department of Highways, as well as consultation with U.S. Bureau of Public Roads. It is interesting that, in a set of handwritten notes dated December 10, 1956, one Minnesota highway official writes: "Is [the] curved coping worth the extra cost of forms?"¹² In the end, the

¹¹ "New Red Wing Bridge," *Minnesota Highways*, March 1956.

¹² "New Red Wing Bridge" 1956; "Red Wing Br. 9103," handwritten notes by "R.K.R." dated Dec. 10, 1956, Bridge 9103 Archive File, Minnesota Department of Transportation Records Center, St. Paul. See also Miscellaneous Correspondence, Notes, and Construction Inspection Records in Bridge 9103 Archive File, Minnesota Department of Transportation Records Center, St. Paul.

curved coping on the edges of Bridge 9103 and its southern approach is one of the elements that makes the structure's aesthetic treatment so successful.

The general contractor for both Bridge 9103 and the Eisenhower Bridge was the Industrial Construction Division of Allied Structural Steel. The Industrial Construction Division was based in Minneapolis (and sometimes called Industrial Construction Company of Minneapolis), while Allied Structural Steel was headquartered in Hammond, Indiana. Industrial Construction's successful proposal for building the two bridges is dated July 24, 1958. The proposal indicates a cost estimate of about \$2.28 million.¹³

Leon Joyce Construction of Rochester began highway grading near the base of Barn Bluff in April 1958. Both Bridge 9103 and the Eisenhower Bridge were opened to traffic in October 1960. The accompanying realignment of U.S. Highway 61 that extended eastward from Bridge 9103 to the east Red Wing city limits opened to traffic in September 1963.

Bridge 9103 in the Context of Improvements to U.S. Highway 61

Bridge 9103, the Eisenhower Bridge, and associated highway improvements were built as part of an overarching post-World War II initiative to widen and improve U.S. Highway 61 in southeastern Minnesota between St. Paul and La Crescent. At La Crescent U.S. Highway 61 crosses the Mississippi River to La Crosse, Wisconsin.

The St. Paul to La Crescent stretch of Highway 61 was historically part of an important transportation artery linking Minneapolis-St. Paul with Chicago. South of Chicago, U.S. Highway 61 continued down the Mississippi River Valley to New Orleans, providing a critical north-south, mid-continental route.

Recreational travelers were historically a significant part of Highway 61's traffic. In Minnesota, the St. Paul to La Crescent segment provides stunning views of the Mississippi River and its bluffs. The segment was one of Minnesota's most popular scenic highways, especially among routes within easy reach of Twin Cities residents. Red Wing was the second-largest city on the route south of St. Paul.

¹³ Industrial Construction Company, Proposal for Construction of Bridge 9040 and Bridge 9103, July 24, 1958, in Bridge 9103 Archive File, Minnesota Department of Transportation Records Center, St. Paul.

Beginning in the mid-1910s the St. Paul to La Crescent segment was part of several "motor trails" or tourist highways that were named, signed, and promoted by automobile clubs, local business groups, and civic organizations. Tourist highway routes that followed Highway 61 through Red Wing included the National Parks Highway (named in 1917), the Yankee Doodle Highway (1918), the Mississippi Valley Highway, the Mississippi River Scenic Highway (1920), the Mississippi River Parkway (1938, later called the Great River Road), the Upper Mississippi River Scenic Drive (1940s), and the Hiawatha Pioneer Trail (1965).

After World War II recreational travel on Highway 61 south of St. Paul increased annually. In 1940 Red Wing was a charter member of the Hiawatha Valley Association, a tourism group that jointly promoted the region and operated until about 1969. Among the Association's marketing strategies was to advertise Highway 61 as the gateway to northern Minnesota for vacationers traveling to Minnesota from Illinois, Iowa, and nearby states.

The Great River Road, a well-known scenic route from New Orleans to the Mississippi River's headwaters in northern Minnesota, played a role in Highway 61's postwar popularity among tourists. The Great River Road was first conceived in 1938 as the Mississippi River Parkway. The scenic highway was to be planned, improved, and promoted as a multi-state effort. Planning and implementation were delayed by World War II but interest reemerged in the 1950s after Congress authorized federal planning studies. Minnesota's segments of the Great River Road – including Highway 61 – were first marked as such in the 1960s.¹⁴

By the late 1930s and 1940s U.S. Highway 61 was carrying so much traffic that the Minnesota Department of Highways planned to replace its bridges and widen the highway to four lanes the entire 120 miles from St. Paul to La Crescent. The first segments widened were short pieces in St. Paul and La Crescent that were rebuilt in 1937-41. Widening proceeded incrementally but was delayed by World War II and, immediately after the war, was inhibited by lack of funding as severe

¹⁴ *Great River Road in Minnesota* (St. Paul: Minnesota Highway Department, May 1969); Laurence J. Jung, *The Great River Road in Minnesota. Minnesota Outdoor Recreation Resources Commission (MORRC) Staff Report 12* (St. Paul: MORRC, 1965); "Mississippi River Parkway is Moving Toward Reality," *Minnesota Highways*, Oct. 1956.

transportation needs, including the new federal interstate highway system, competed for resources.¹⁵

Within Red Wing

Postwar improvements to U.S. Highway 61 within Red Wing included realignment and widening of the highway through much of the city, as well as construction of the Eisenhower Bridge and Bridge 9103. While the new river bridge was welcomed, much of the highway work was controversial.

West of downtown, residents felt that the city's west end commercial district (now the Old Main Street commercial area) would lose customers if the highway alignment were changed. In 1947-49 the Minnesota Department of Highways acquired nearly 50 houses in West Red Wing, graded a major hill, and filled part of a large swamp in preparation for the rerouting. In the summer of 1949 Red Wing citizens circulated a petition demanding the plans be abandoned and instead a bypass be built to route Highway 61 south and east of the center of the city. Despite contention, the project to realign Highway 61 and widen it to four lanes through West Red Wing was completed in October 1953.¹⁶

East of downtown, work to replace the 1895 truss bridge over the Mississippi River began in 1956. Rerouting Highway 61 from the east edge of downtown to the eastern city limits occurred in 1958-63. A September 1955 issue of the *Red Wing Daily Republican Eagle* featured a map of four possible routes for the realignment through East Red Wing.¹⁷ The chosen route was the northernmost, closest to Barn Bluff, the 325'-tall island mesa that was Red Wing's best-known landmark and a place of cultural significance for centuries. About 87 houses near the base of the bluff in East Red Wing were removed. The project also required demolition of a monumental public stairway built in 1929 up the west end of Barn Bluff that was said to be the longest outdoor stairway in Minnesota. The bridge

¹⁵ The arguments for widening U.S. Highway 61 were somewhat weakened with improvement of a new north-south route to the Twin Cities – via U.S. Highway 14 from Winona to Rochester and U.S. Highway 52 from Rochester to the Twin Cities – which drew truck traffic away from the river-hugging Highway 61.

¹⁶ Madeline Angell, *Red Wing, Minnesota: Saga of a River Town* (Minneapolis: Dillon Press, 1977), 350, 363; "Belt Line Around Red Wing Urged by Petitioners," *Winona Republican Herald*, July 25, 1949.

¹⁷ "Which Way? Problem of Rerouting U.S. 61 Though East End," *Red Wing Daily Republican Eagle*, Sept. 28, 1955.

and highway project also necessitated removal of sizable portions of Barn Bluff itself. (See Figures 4, 5, and 8.) Beginning in the spring of 1958 massive amounts of rock and earth were removed from the bluff's west end and south flank and hauled to the Wisconsin end of the project to be used as fill. In May of 1959 during the road and bridge construction, a huge piece of Barn Bluff's towering "Indian head" rock formation tumbled to the ground, damaging railroad boxcars and a nearby industrial structure and ending hopes that the popular attraction could remain in place. U.S. Highway 61 through East Red Wing, rerouted and widened to four lanes, was officially opened in September 1963.¹⁸

Elsewhere in the St. Paul to La Crescent Segment

Most widening of Highway 61 from St. Paul southward occurred between 1947 and the mid-1960s. Today only two significant stretches of the highway south of St. Paul are not four lanes wide. They are an 11-mile segment from Hastings southward, and a 27-mile segment from the eastern edge of Red Wing to the western edge of Wabasha.¹⁹

During the two decades after World War II, traffic volume on Highway 61 increased as the economy recovered from the Depression and war, as the use of long-haul trucks increased, and as automobile ownership and recreational travel skyrocketed. By 1948 Highway 61 through Red Wing – characterized as "one of the main routes between the Twin Cities and Chicago" – carried considerable through-truck traffic including multiple-axled commercial vehicles. In June 1948 commercial trucks represented more than 18% of vehicles passing through Red Wing on Highway 61.²⁰

¹⁸ Jack Ladner, "Barn Bluff Looks Pretty Ragged Around the Edges These Days," *Red Wing Daily Republican Eagle*, May 1, 1958; Jack Ladner, "Red Wing May Lose Famed Indian Head; Called Hazard," *Red Wing Daily Republican Eagle*, May 19, 1959; "No Traces Remain of Old Landmark," *Red Wing Daily Republican Eagle*, May 21, 1960; "Safety Measures Taken in Removing Indian Head From Bluff Explained," *Red Wing Daily Republican Eagle*, July 8, 1961; "T.H. [Trunk Highway] 61 Opening," *Minnesota Highways*, Aug. 1963.

¹⁹ The 27-mile Red Wing to Wabasha segment was regraded in 1952-1954. This roadbed was intended to serve as half of a four-lane divided highway segment but the second half was never built and the 27-mile segment remains two lanes.

²⁰ *Red Wing Traffic Survey* (Highway Planning Survey, Minnesota Department of Highways and U.S. Bureau of Public Roads, 1948).

In July of 1960 the Minnesota Department of Highways reported that traffic on the segment of U.S. Highway 61 between Red Wing and La Crescent was continuing to increase significantly. That summer the department measured a one-year traffic volume increase of more than 16% near Red Wing and more than 20% near La Crescent.²¹

Major postwar improvements to Highway 61 south of St. Paul included:

- 1947 – Red Wing, begin realignment and four-lane widening in West Red Wing
- 1949 – St. Paul to Newport, widening to four lanes
- 1951 – Hastings, completion of new Mississippi River bridge
- 1952 – Red Wing to La Crosse, survey for widening to four lanes
- 1952 – Minnesota City to Winona, begin four-lane widening, downtown bypass
- 1953 – Red Wing, end realignment and four-lane widening in West Red Wing
- 1953 – Red Wing to Lake City, completion of one half of a planned four-lane
- 1955 – Red Wing, state funding secured for new Eisenhower Bridge
- 1957 – Minnesota City to Winona, end four-lane widening, downtown bypass
- 1958 – St. Paul to Hastings, last segments widened to four lanes
- 1958 – Winona to Dakota, completion of four-lane widening
- 1960 – Red Wing, completion of Eisenhower Bridge and Bridge 9103
- 1963 – Red Wing, end realignment and four-lane widening in East Red Wing
- 1964 – Dakota to La Crescent, widening to four lanes
- 1965 – Minneiska and Whitman, widening to four lanes

Postwar Improvements to Minnesota Trunk Highways Statewide

In the final report of the statewide evaluation of postwar Minnesota highway bridges described later in this narrative, historians from Mead and Hunt summarized the unprecedented highway and bridge construction that took place in Minnesota in the two decades after World War II. Bridge 9103 in Red Wing was part of this massive investment and exemplifies the expressway-like design that characterized much of the new infrastructure.

²¹ "1960 Highway 61 Traffic Volume Shows Increase," *Winona Daily News*, July 22, 1960.

According to Mead and Hunt:

Early efforts to upgrade portions of the trunk highway system to expressway standards began in the late 1940s and early 1950s in the Twin Cities area, as the MHD [Minnesota Highway Department] prepared to provide for urban arterial thoroughfares and expressways as part of the Federal-Aid Highway Act of 1944. Early projects included the gradual upgrading of TH [Trunk Highway] 12 to four-lane divided roadways with grade separations. Work on trunk highway grade separations proceeded slowly and was limited primarily to the Twin Cities metropolitan area until 1956-1957.

Passage of the 1956 [transportation funding] amendment to the state constitution provided a flood of new funding [supplementing the federal dollars] for repair and construction of Minnesota's municipal, county, and state trunk highways, with counties and municipalities becoming the most direct beneficiaries of the revised formula. The MHD wasted no time taking advantage of the new dollars. Even before the amendment was approved by voters, the department announced plans to proceed with a \$66 million road and bridge construction program, an undertaking that *Minnesota Highways* described as 'a record shattering' effort representing the 'biggest twelve-month's contract' in the state's history. Among other things, the program would enable the highway department to improve 530 miles of state trunk highways and to construct 41 new bridges, including 22 grade separations and 19 stream crossings on this system. The combination of robust revenues from state user fees, the availability of unprecedented amounts of federal funding, and the willingness of the state legislature to issue bonds for road and bridge improvements enabled the MHD to build dozens of new bridges each year between 1956 and 1970.

Some of the largest projects completed between 1956 and 1970 were efforts to modernize the state's trunk highways by incorporating many of the same controlled-access highway design principles that were being used for the Interstates. By the mid-1950s traffic congestion was becoming a significant problem not only in the Twin Cities and Duluth, but also in the areas surrounding a number of regional centers in greater Minnesota. During this period a number of projects were undertaken to smooth the flow of traffic in and between these cities by transforming major trunk highway routes into 'expressways,' with features including double traffic lanes

divided by medians, limited access, and grade separations. A number of other projects were undertaken to help the long-neglected trunk highway system meet the requirements of increasingly heavy, high speed, and high-volume vehicle traffic. Roads were realigned to remove dangerous curves and made broader and smoother with new paving and shoulders, while hundreds of bridges were replaced or substantially rebuilt. The number of grade separations on trunk highways increased substantially during the subject period. In the 1956-1958 biennium, plans for 55 grade separations were completed and 42 contracts were let; in the 1958-1960 biennium, plans were completed for 167 highway grade separations and 107 contracts were let.

Moreover, the MHD's efforts to upgrade trunk highway routes are visible just by reviewing their departmental publication, *Minnesota Highways*, from the period. Numerous cover images and articles [in the MHD's *Minnesota Highways*] were devoted to interchanges and grade separations along trunk highway expressway projects. Projects such as the 'four-laning' of TH 169 near Hibbing and again between Le Sueur and St. Peter, and construction of a new interchange between TH 7 and TH 29 in Montevideo, generated a considerable amount of new work for MHD bridge designers. In addition to designing grade separation structures to accommodate the upgraded trunk highways, MHD engineers also supervised the design and construction of a number of river bridges on trunk highways between 1956 and 1970, including a new inter-state bridge carrying US/TH 2 across the Red River at East Grand Forks (Bridge 9090). On October 18, 1960, President Eisenhower was on hand for the dedication of the \$1.6 million Hiawatha Bridge (Bridge 9040) that carried US/TH 63 across the Mississippi River between Red Wing, Minnesota, and Hager City, Wisconsin.²²

Bridge 9103's Significance Among Minnesota Highway Bridges Built 1955-70

Bridge 9103 was determined eligible for the National Register of Historic Places as part of a statewide evaluation of highway bridges built in 1955-70 that was completed in 2011 by Mead and Hunt for MnDOT in cooperation with the Minnesota State Historic Preservation Office. Mead and Hunt evaluated the individual National Register eligibility of more than 1,940 state-owned bridges as

²² Mead and Hunt, *Final Evaluation*, 41-42; see this report for more contextual information.

part of the project. After developing historic context information and analyzing basic MnDOT data on the bridges, Mead and Hunt conducted an initial screening and determined that approximately 194 of the bridges merited field survey and historical research to assess their National Register eligibility. The remaining bridges in the pool (approximately 1,740) were recommended ineligible for the National Register.²³

After conducting further study on the approximately 194 bridges, Mead and Hunt recommended that 8 bridges were individually eligible for the National Register under Criterion A. The areas of significance were Transportation, Social History, Conservation, and/or Community Planning and Development. The study recommended that 29 bridges – including Bridge 9103 in Red Wing – were individually eligible under Criterion C; the area of significance was Engineering. (Several additional bridges were identified as being within historic districts.) Some of the 194 bridges were flagged as requiring further research. The rest of the approximately 194 bridges were recommended ineligible for the National Register.²⁴

According to Mead and Hunt, the bridges eligible under Criterion C were significant because of “distinctive characteristics of a type, period, or method of construction” and/or “high artistic value.” Bridge 9103 was cited as being significant for both.

Mead and Hunt explained that bridges significant because of “distinctive characteristics of a type, period, or method of construction” generally represented an uncommon structure type; or represented the evolution or transition of a structure type; or expressed significant individuality or variation of features. Examples of significant individuality or variation of features included extreme skew and use of all-welded girders. Examples also included bridges like Bridge 9103 that exhibited a unique combination of engineering features that demonstrated engineering responses to particular site challenges.²⁵

²³ Mead and Hunt, *Final Evaluation*, 101-103. The historic contexts are described in the report. The survey and evaluation of 1955-1970 bridges was preceded by a series of studies over several years that evaluated the National Register eligibility of pre-1955 bridges for MnDOT and the State Historic Preservation Office. Mead and Hunt’s *Final Evaluation* report provides a summary of these earlier studies.

²⁴ Mead and Hunt, *Final Evaluation*, 117-120. The Eisenhower Bridge (Bridge 9040) was among the bridges recommended ineligible for the National Register by the study.

²⁵ Mead and Hunt, *Final Evaluation*, 109, 119-120. The report notes that bridges with common structure types were evaluated in comparison to the entire population of highway bridges in Minnesota, not just those built in 1955-70.

In a discussion of bridges found significant for “high artistic value,” Mead and Hunt explained that, during the period 1955-70, most Minnesota highway bridges were utilitarian in form. Bridge aesthetics were generally not emphasized or considered a priority by bridge owners. Mead and Hunt noted that, in order for a bridge from the period to be eligible for the National Register for high artistic value, “The addition of any one architectural element such as a decorative railing is not adequate” and that the “overall design and form” of the bridge “must reflect aesthetic design intent.” The study recommended only four highway bridges built statewide in 1955-70 to be significant for high artistic value, one of which is Bridge 9103 in Red Wing.²⁶

²⁶ Mead and Hunt, *Final Evaluation*, 111, 120.

Part II. Structural/Design Information

A. General Statement:

1. Character:

Bridge 9103 is a curving, five-span, continuous concrete slab on a 14-degree curve. The slab serves as both superstructure and deck. The bridge has an overall structural length of 211', measured along the centerline of the roadway. Connected to the south end is a 220'-long curving approach roadway that is supported on retained fill with cast-in-place concrete retaining walls. The bridge and approach were designed as a single composition. The bridge and southern approach create a strong Modernist form, while the railings represent a transition to Modern design from the Art Deco influences of the 1930s and 1940s.

The long, curved, rising form of Bridge 9103 and its southern approach and its Modernist design achieved the project's transportation goals as well as providing a safe and handsome approach to a major Mississippi River crossing and a gateway to downtown Red Wing.

Bridge 9103's character-defining features²⁷ include, but are not limited to:

- the 211'-long, 14-degree-curved, continuous concrete slab
- the 220'-long southern approach structure, comprehensively designed and built with the bridge
- the elements that contribute to the property's Mid-Century Modern design and other aspects of its aesthetics. These elements include:
 - o a long, continuous curved form created by the bridge superstructure and southern approach
 - o smooth concrete surfaces that emphasize the lean, sculptural design
 - o a slim deck slab formed with shallow haunched arches over each span which maximize vertical clearance while making the slab appear slender and light
 - o the approach roadway's smoothly-surfaced vertical retaining walls

²⁷ Character-defining features are prominent or distinctive qualities or elements of a historic property that contribute significantly to its physical character and historic integrity and significance.

- o elegant curved coping along the bridge fascia and approach walls which emphasizes the long horizontal curve and visually slims the deck
- o distinctive piers, comprised of five evenly-spaced columns, that resemble flat panels with rectilinear cut-outs; the pier ends are rounded to echo the curved coping and to smoothly meet the shallow arches of the haunched slab
- o ornamental railing, continuous on both bridge and southern approach, that emphasizes the length and shape of the horizontal curve and contributes to the structure's visual slenderness; the railing's unpainted metal surface and thin members create a light, open, almost translucent effect when viewed from many angles
- the bridge's dramatic setting at the base of Barn Bluff and adjacent to the Eisenhower Bridge and downtown Red Wing

2. Condition of Fabric:

A 2011-2013 MnDOT study exploring the potential for rehabilitating Bridge 9103 included a detailed condition assessment. The information below is drawn from that assessment. Overall, engineers deemed the bridge and its southern approach to be in fair condition.²⁸

Substructure. The bridge piers have minor cracks in the columns and pier caps. The abutments have vertical cracks and some delaminated concrete. The slope paving adjacent to the north abutment has significant settlement in some areas.

On Pier 1, active corrosion with minor section loss is present on 2 of the 12 bearings. On Piers 2 and 3 the bearings are in satisfactory condition with little or no deterioration. On Pier 4 the bearings are in satisfactory condition. On the abutments, the bearings have active corrosion and minor section loss.

Deck Slab. The concrete deck slab varies in thickness from 18.5" at midspan to 27" over the piers. Testing in 2011 indicated a high level of chloride content throughout the slab. Chloride saturation results from applying deicing

²⁸ HDR Engineering and Gemini Research, *Bridge 9103 Rehabilitation Study: Final Report, Red Wing, Minnesota* (submitted to the Minnesota Department of Transportation, Aug. 2013). The report contains a large amount of detailed information on the condition of the bridge and its southern approach. Information for this "Condition of Fabric" summary is particularly drawn from pages 13-19 of the report.

salts to the roadway over many decades and is a significant factor in the deterioration of concrete and reinforcing steel.

The top of the concrete slab in the northbound lane displays structural cracks with delamination of the concrete. The cracks appear to go completely through the depth of the slab. The bottom surface of the slab has substantial areas of delaminated and deteriorating concrete and exposed reinforcing steel. The deterioration is concentrated near the longitudinal construction joint along the centerline of the bridge. There are numerous spalls, some of which are 2' deep or greater. In areas where the spalls are deepest, the bottom layer of longitudinal reinforcing steel is no longer bonded to the concrete.

Section loss of between 24% and 44% was measured in the main reinforcing steel in many locations in the slab. Some longitudinal steel bars are corroded through. Several feet of both longitudinal and transverse steel bars are missing.

The outside edges of the slab have numerous cracks. The cracks show leaching and efflorescence. On the west edge of the slab there are two spalls and a scrape over eastbound Highway 61 that appear to have been caused by impacts from a tall vehicle traveling under the bridge.

Southern Approach. The southern approach's cast-in-place retaining walls exhibit some minor cracks and spalls.

Railing. The galvanizing on the steel surface of the ornamental railings on both the bridge and southern approach shows areas of light corrosion. The railings have been struck by vehicles in several locations. For example, there is damage to railing spindles in at least 5 places on the east railing and at least 13 places on the west railing.

Sidewalks. The sidewalks show minor cracking and signs of settling.

Lighting. The light standards are in fair condition.

B. Description:

Bridge 9103 is a 211'-long, five-span, continuous concrete slab bridge with an adjacent 220'-long southern approach roadway. Together the bridge and southern approach curve from Red Wing's Third Street northward to align with the Eisenhower Bridge which crosses the Mississippi River. Bridge 9103 and its southern approach lift traffic up to the elevation of the river bridge, as well as separating roadway grades by carrying U.S. Highway 63 over U.S. Highway 61. Highway 61 is known as Main Street west of the bridge. (See Figures 1 through 3.) The entrance drive to the Red Wing Shoe Company's shipping and parking area passes under the bridge's Span 2. (See Figures 2, 5, and 7.)

Both Bridge 9103 and the southern approach structure have an out-to-out width of 62'-6".

The bridge's five spans are numbered from south to north in this narrative. The longest span, Span 4, is 47'-6" long, measured along the centerline of the roadway. The length of the five spans is as follows: 34'-0" (Span 1); 45'-6" (Span 2); 42'-0" (Span 3); 47'-6" (Span 4); and 42'-0" (Span 5).

Bridge 9103 has a constant 4% vertical grade and a 14-degree horizontal curve.

The vertical clearance from the bottom of the deck to the top of the roadway is about 15'-6" over U.S. Highway 61 eastbound, 16'-3" over U.S. Highway 61 westbound, and 14'-6" over the service drive to the Red Wing Shoe Company.

Substructure. Bridge 9103's substructure includes four reinforced concrete piers and two abutments. The piers resemble flat Modernist panels with rectilinear cut-outs. Each pier has five rectangular columns on square spread footings. The exterior columns are 2'-6" by 4'-0" in cross section while the interior columns are 2'-0" by 3'-0". The outer ends of the exterior columns are rounded. The pier caps are 3'-6" deep with rounded ends that are flush with the rounded ends of the exterior columns.

The abutments are also made of reinforced concrete. The south abutment is a high parapet abutment supported on a spread footing keyed into rock. The north abutment is a low parapet abutment with the stem bearing directly on rock. The south abutment has retaining walls that are part of the southern approach

structure. The north abutment has flared wing walls approximately 14' long. The wing walls project above the bridge deck.

The concrete surface of the piers and abutments retains imprints from the original construction forms. The concrete is unpainted except on the portion of the wing walls that projects above the bridge deck where the concrete has been given a fairly recent coat of grayish white paint.

Each of the abutments and piers has 12 equally-spaced bearings. The devices are fixed bearings on Piers 2 and 3 and expansion bearings on Piers 1 and 4 and the abutments.

Each abutment wing wall at the north end of the bridge has a metal bridge identification plate. The plate at the northeast corner of the bridge reads: "Federal Aid Project PAP-055-1-3 Minnesota 1960." The plate at the northwest corner reads: "Minnesota Highway Dept. Bridge No. 9103 1960."

Beneath the bridge, the slopes adjacent to the abutments are paved with square precast concrete blocks to protect against erosion.

Deck Slab. The bridge superstructure consists of a five-span parabolically-haunched, 211'-long, continuous concrete slab that varies in thickness (i.e., depth) from 18.5" at midspan to 27" over the piers. The slab has a longitudinal construction joint along the centerline that is visible on the underside.

The slab is designed with a variable superelevation with a maximum slope of 4%.

Along the bridge fascia is a distinctive curved coping that continues along the edges of the southern approach structure.

The main reinforcing in the slab runs longitudinally along the curve. The reinforcing is composed of #8 steel bars (i.e., 1" diameter) in the bottom of the slab and #8 or #10 bars (1" and 1.25" diameter) in the top of the slab over the piers. The transverse reinforcing is made of #5 bars ($\frac{5}{8}$ " diameter) in the bottom of the slab and #4 bars ($\frac{1}{2}$ " diameter) in the top of the slab. The steel bars are uncoated –

that is, unlike much of the reinforcing steel used today, they have no protective coating against corrosion.²⁹

The concrete surface of the bottom of the slab retains imprints from the original construction forms. The bottom surface appears to have been painted with a thin coat of grayish white paint that has largely worn away. The concrete surface of the bridge fascia and coping is smooth and unpainted.

Southern Approach. The 220'-long southern approach structure consists of earthen fill that is retained by a pair of smooth cast-in-place concrete retaining walls on spread footings. The exposed height of the retaining walls is about 6' near the bridge's south abutment, about 8' in the middle, and about 1' near the south end of the approach structure.

The southern approach has curved coping, sidewalks, and railings that are continuous with those of the bridge.

The retaining walls' concrete surface retains imprints from the original construction forms. The surface of the curved coping is smooth.

Railing. The ornamental railing on the bridge and southern approach is made of galvanized steel. The railing has 39"-tall posts with Art Deco-inspired fluting that arches upward to form a shallow point at the top of each post. Each railing panel is about 8' long with a rectangular handrail at the top and a geometric pattern of slender vertical members. The bridge railing is a variation of a standard Minnesota Department of Highways design used elsewhere on portions of U.S. Highway 61 in Red Wing that were rebuilt after World War II.. The U.S. Highway 61 bridge completed in 1951 (now razed) in the city of Hastings, about 20 miles north of Red Wing, had another version of this railing.

Roadway and Sidewalks. Both Bridge 9103 and the southern approach accommodate a 52'-wide roadway, a 2'-6" raised sidewalk on the west side, and a 5'-0' raised sidewalk on the east side. The raised sidewalks create approximately 8"-tall curbs. The 52'-wide roadway (U.S. Highway 63) is today marked with pavement paint for two 12'-wide travel lanes and two 14'-wide shoulders.

²⁹ HDR Engineering and Gemini Research, 9.

Beneath the bridge, U.S. Highway 61 consists of two 12'-wide westbound lanes under Span 4, two 12'-wide eastbound lanes under Span 3, and a 24'-wide service drive under Span 2. The service drive's function is to provide the sole access to the shipping and parking area of the Red Wing Shoe Company located adjacent to the bridge. U.S. Highway 61 beneath the bridge has narrow shoulders (ranging from 0' to 4' wide) and no sidewalks. A median separates the west- and eastbound lanes of U.S. Highway 61 east and west of the bridge. The median is narrow and paved with concrete east of the bridge. It is somewhat wider and planted with turf west of the bridge.

The posted speed limit is 30 miles per hour on both highways.

Lighting. Seven metal streetlights are located within the boundary of the National Register-eligible property. All seven lights are believed to be in their original positions, per historic photos. (See Figures 4 through 8.) Two of the seven are located on the bridge and its southern approach; both are integrated into the east railing. These two standards are believed to be original and have straight poles with separate arms that support the fixtures. The design resembles a standard Minnesota Department of Highways streetlight used elsewhere in the state. The remaining five light poles, all replacements, are located on southbound Highway 63 off the north end of the bridge; on northbound Highway 63 off the southern approach; on west Highway 61 west and east of the bridge; and on eastbound Highway 61 west of the bridge. These lights comprise a single curved pole, rather than a pole with a separate arm at the top. They also represent a standard Minnesota Department of Highways design. All seven light poles have cobra-head fixtures. The fixtures are modern replacements that resemble the original fixtures seen in historic photos.

C. Site Information:

The bridge has a dramatic setting near the Mississippi River at the base of Red Wing's highest summit, Barn Bluff, which forms part of the Mississippi River's banks. The bridge is located at the junction of U.S. Highway 63 and U.S. Highway 61 at the east edge of downtown Red Wing. The bridge is about 350' south of the Eisenhower Bridge (Bridge 9040) which crosses the Mississippi River between Red Wing and Hager City, Wisconsin.

In order to fulfill its transportation functions within a challenging setting, Bridge 9103 has a constant 4% vertical grade and a 14-degree horizontal curve. The slab has a variable superelevation with a maximum slope of 4%.

The most visually substantive landscaping within the boundary of the National Register-eligible property is a group of mature spruce trees on the grassy slope west of the bridge's south abutment. Historic photos suggest the spruce were planted in the 1970s or later. Also within the boundary is a line of deciduous and evergreen shrubs that curves along the base of the east side of the southern approach structure. The shrubs may have been planted in the 1990s.

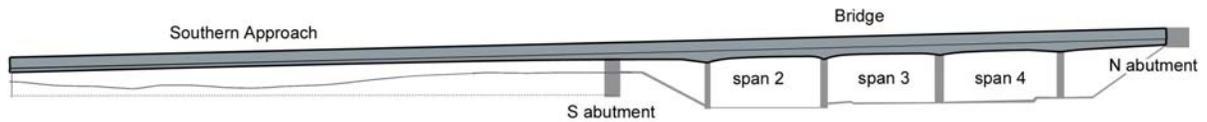


Figure 1. Bridge 9103 consists of a 211'-long, five-span, continuous concrete slab bridge with an integral 220'-long southern approach structure. U.S. Highway 63 travels on top of the bridge and approach (see Figure 2). Passing beneath Span 2 is the driveway to the Red Wing Shoe Company shipping and parking area. Passing beneath Spans 3 and 4 are the east- and westbound lanes, respectively, of U.S. Highway 61 (sketch by Gemini Research).

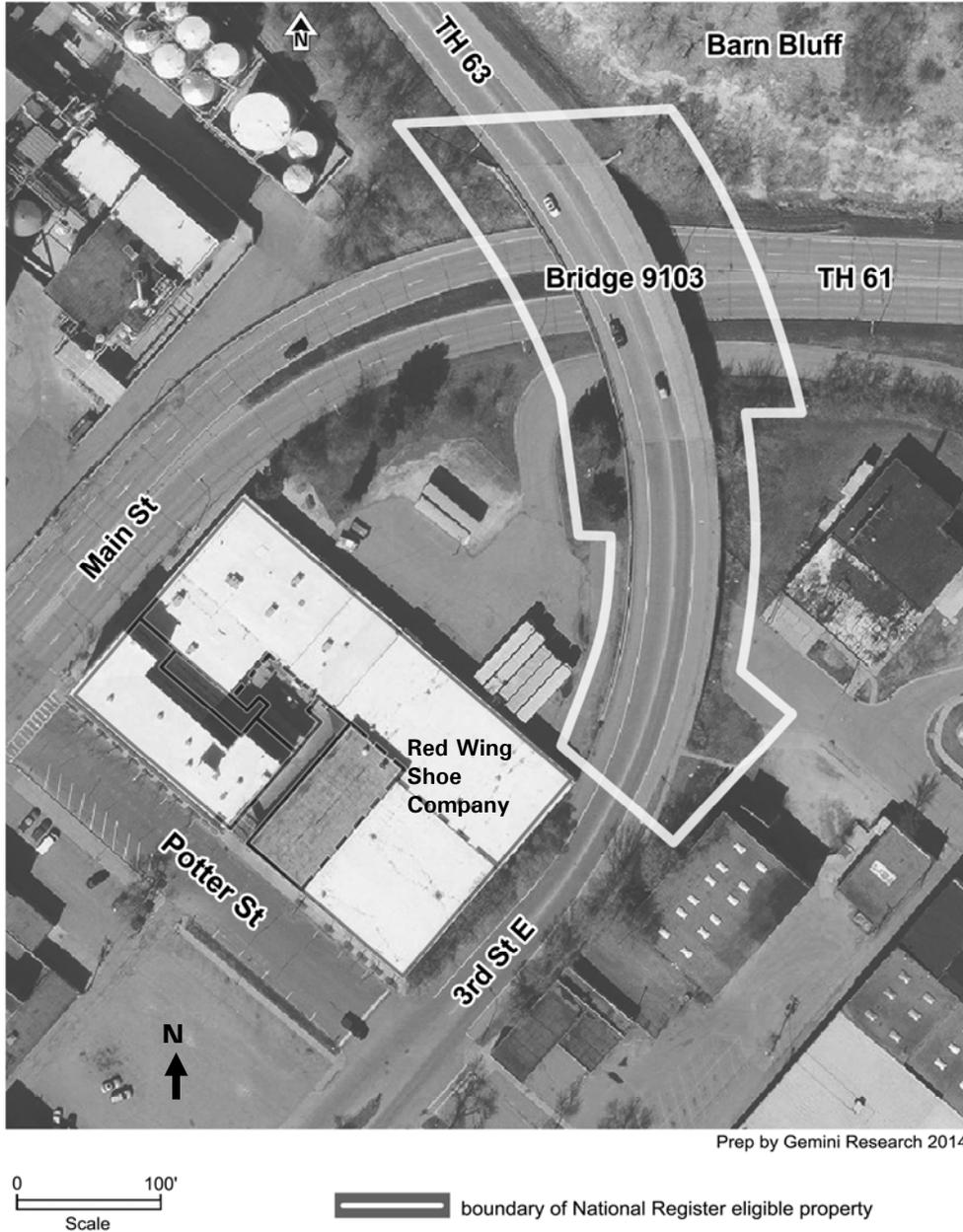


Figure 2. An aerial view showing the boundary of the National Register-eligible property (sketch by Gemini Research).



Figure 3. Bridge 9103 is in the center of the photo with a large truck in the northbound lane of U.S. Highway 63. The bridge leads to the Eisenhower Bridge (note steel trusses) over the Mississippi River's main channel. Bridge 9103 also serves as a grade separation structure carrying U.S. Highway 63 over U.S. Highway 61. The marshy Wisconsin side of the Mississippi River is visible in the distance. Barn Bluff is at right. The houses at lower right are part of the East Red Wing residential neighborhood. The buildings and structures at left comprise the east edge of downtown Red Wing (facing northwest from Sorin's Bluff; 2011 photo by Gemini Research).



Figure 4. Bridge 9103 in 1964, facing northeast. At upper left is the north abutment and its northwest wing wall. In the foreground are the westbound lanes of U.S. Highway 61 which pass beneath Span 4. Scars on Barn Bluff show some of the extensive rock removal required for the large road and bridge construction project (1964 photo by Minnesota Department of Highways).



Figure 5. Bridge 9103 in 1964, facing northeast. In the foreground is eastbound U.S. Highway 61 which passes beneath Span 3. At the right edge of the photo is the narrow entrance drive to the east side of the Red Wing Shoe Company which passes beneath Span 2 (1964 photo by Minnesota Department of Highways).



Figure 6. Bridge 9103 in 1964, facing southeast. U.S. Highway 63 travels on top of the bridge. At upper left is Sorin's Bluff, another of the dramatic Mississippi River landforms that dominate the Red Wing landscape (1964 photo by Minnesota Department of Highways).



Figure 7. A 1972 view of the bridge, facing northwest. The entrance drive to the Red Wing Shoe Company, which passes beneath Span 2, is at lower left. In the distance are industrial plants on the banks of the Mississippi River in the eastern part of downtown Red Wing (1972 photo by Minnesota Department of Highways).



Figure 8. The bridge and its southern approach structure in 1972, facing north (1972 photo by Minnesota Department of Highways).

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The corporate records of Alfred Benesch and Associates of Chicago were not explored. The records of the Minnesota Department of Highways (now Minnesota Department of Transportation) at the Minnesota Historical Society in St. Paul comprise hundreds of boxes. Research in this collection was not exhaustive and the records likely contain additional information about Bridge 9103, the larger bridge and highway construction project of which it was a part, and improvements to U.S. Highway 61 within the context of postwar highway and bridge construction in Minnesota.