North Platte River Bridge No. 1210
Chicago and North Western Railway
Milepost 601.11
Casper Vicinity
Natrona County
Wyoming

HAER No. WY-85

PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

HISTORIC AMERICAN ENGINEERING RECORD
Rocky Mountain System Support Office
National Park Service
P.O. Box 25287
Denver, Colorado 80225-0287

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HISTORIC AMERICAN ENGINEERING RECORD
NORTH PLATTE RIVER BRIDGE NO. 1210
CHICAGO AND NORTH WESTERN RAILWAY

I. INTRODUCTION

Location: T33N-R79W, Section 7, NE/NW/NE/SE
Milepost 601.11
Casper Vicinity
Natrona County
Wyoming

USGS Quad: Casper, Wyoming 7.5'

UTMS: 13/388920 mE/4743930 mN

Dates of Construction: 1929-1930

Present Owner: Union Pacific Railroad Company

Present Use: Railroad bridge

Significance: This bridge is a feature associated with the Chicago and North Western Railway, a National Register eligible linear district. The bridge is one of only two concrete and steel bridges on the Casper Branch. It is the longest at 418 feet and spans the North Platte River. It also served as a pedestrian bridge connecting the Standard Oil Refinery in Casper on the east bank with the residences of workers in Mills on the west bank.

Project Statement: The Union Pacific Railroad Company proposes to abandon the Casper Branch (Milepost 590.0 to 607.8), formerly the Chicago and North Western Railway. Component materials, including this bridge, will probably be razed and salvaged. The approved mitigation plan for this National Register eligible property consists of Historic American Engineering Record (HAER) recordation.

Historian: Robert Rosenberg
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November 1998

II. HISTORY: CHICAGO AND NORTH WESTERN RAILWAY

The North Platte River Valley in eastcentral Wyoming Territory was one of three prime routes considered for the building of the first transcontinental railroad. It had already served as the route for thousands of emigrants bound for California, Oregon, and Utah on the Oregon Trail since the 1840s. However, a more southerly route was selected by Chief Engineer Grenville Dodge because it was somewhat shorter and also passed through areas of known coal deposits. The Union Pacific Railroad was built through Wyoming Territory along this southerly route in 1867-1868, and in 1869 it was joined with the Central Pacific Railroad, which had been built eastward from California. As a result, population growth and economic development in the territory initially occurred along the Union Pacific mainline. Northeastern Wyoming Territory and the North Platte River Valley were linked to rail service only via a system of rough, slow north-south wagon roads, and economic and political development of that region languished.

The completion of the railroad did serve to spur the establishment of the cattle industry south of the North Platte River. Then, after the Treaty of 1876 removed the Native Americans from northeastern Wyoming Territory, cattlemen expanded their operations north of the North Platte River to the vast grasslands of the Powder River Basin. However, the region remained only sparsely settled well into the 1880s, with a small number of large far-flung open range cattle operations spread across this portion of the territory.

Numerous railroads had transcontinental ambitions in the 1870s and 1880s and gradually expanded westward across the Great Plains. The Chicago and North Western Railway Company was organized on June 7, 1859, in Illinois and Wisconsin, with William Butler Ogden as President. As the name implied, the early goals of this railroad were to expand from Chicago to the north and to the west. Through mergers and acquisitions, the Chicago and North Western was successful in building west to Council Bluffs, Iowa, by 1867, thus securing the lucrative contract for hauling the majority of supplies for the building of the Union Pacific Railroad. With the assistance of John I. Blair, an independent railroad speculator who acquired strategically located but weaker railroad lines, the Chicago and North Western was able to gradually expand westward across Iowa and Nebraska to Wyoming Territory.[1]

The Chicago and North Western Railway, like many of its competitors during the pioneering days of railroading, realized that western expansion was imperative to inhibit other railroads from building into and effectively controlling new regions. From 1881 to 1887, the number of miles of railroad track in operation in the United States nearly doubled. The Chicago and North Western envisioned a

transcontinental route connected to existing western lines, such as the Oregon Pacific or the Central Pacific. As a result, competing railroads built through long stretches of generally unsettled land, luring emigrants and creating towns along the line to make their operations profitable.

Joining the frenzy of westward expansion, the Fremont, Elkhorn, and Missouri Valley Railway (owned by John I. Blair and leased by him to Chicago and North Western) laid track across central Nebraska in the 1870s. After gold was discovered in the Black Hills and the strikes proved of lasting significance, the Fremont, Elkhorn, and Missouri Valley Railway built into the region in 1886. That same year, the Wyoming Central Railway, a subsidiary of the Fremont, Elkhorn, and Missouri Valley Railway (and therefore another subsidiary of the Chicago and North Western), was organized in Wyoming Territory. The Wyoming Central Railway was organized because under territorial laws, it was illegal for a corporation to own or build a railroad in Wyoming unless it had been organized in the territory. The subsidiary was established in order to "extend its railroad westward along the valley of the North Platte and Sweetwater through the counties of Albany, Carbon, Sweetwater, and Uinta, and thence to the eastern boundary of Utah Territory..."[2] The railway also claimed that it would build a branch line north to Montana Territory. Railroad officials stated that the new line would be built west to connect with the Central Pacific Railroad at Corinne, Utah, to create a transcontinental route to the Pacific.[3]

The new line branched off from the existing line at Chadron, Nebraska, and ran seventy-seven miles west to the site of Douglas, Wyoming. The tracks reached Wyoming Territory in late June 1886. Other new towns were created along the line as grading and track laying continued. Lusk, Wyoming, and Crawford, Nebraska, were officially laid out by the railroad in July. Tracks were laid at the rate of about two miles per day, with the grading crews well ahead of the track-laying crews. The tracks reached the new Lusk townsite on July 17, 1886, and daily trains began running from Chadron to Lusk.

Track-laying crews pushed on rapidly toward Douglas. Railroad officials decided to make Douglas the end of track for that year and laid out the town in June 1886 ahead of the arrival of the tracks. Meanwhile, a temporary tent town grew up at the mouth of Antelope Creek in anticipation of the arrival of the railroad. Residents of the tent town and those at the site of old Fort Fetterman moved to the new site when Douglas was officially opened.[4] In addition to the towns of Lusk and Douglas, several stations were located along the line through what would become Niobrara and Converse counties, including Van Tassell, Node, Manville, Keeline, Shawnee, Lost Springs, Orin, and Irvine.

The Chicago and North Western, the force behind railroad expansion into Wyoming, continued to extend its lines westward along the North Platte River Valley, the most favorable route from an engineering standpoint as well as for future settlement and exploitation of the region along the mainline. In 1887, the Wyoming Central laid track westward from Douglas up the North Platte River Valley for a distance of twenty-nine miles to Deer Creek, and the new town of Glenrock was established. The following year, an additional 24.7 miles of track reached the site of Casper. Between Casper and Glenrock, the stations of Parkerton, Big Muddy, Pearson, Strouds, and Evansville were eventually created. Parkerton and Big Muddy were associated with the Big Muddy Oil Field established in 1916. Strouds was named after Joshua Strouds, an early homesteader who settled there in 1884. Evansville was established in 1922 as a company town for the Texas Company's oil refinery and was named for another early homesteader, W.T. Evans.[5]

In June 1888, the Chicago and North Western reached Casper, which had evolved from ferry crossing and frontier military post on the Oregon Trail. In 1847 the Mormons erected a commercial ferry and later a toll bridge to transport the emigrants and their wagons across the North Platte River. It also became the site of a stage stop, a Pony Express station, and a telegraph station along the major transcontinental link. In 1858, the military established Platte Bridge Station, later known as Fort Caspar, a two-company post established to protect the Oregon Trail. Following the Plains Indian Wars of the late 1860s and early 1870s and the negotiation of the Treaty of 1876, the region was opened to non-Indian settlement.

However, it was not until the arrival of the railroad that the town of Casper was created. A temporary "tent town" had been established, but the railroad's Pioneer Townsite Company surveyed and platted the official townsite in the fall of 1888, just west of the tent town. The site was located on land owned by J.M. Carey and Brother, a large pioneer cattle outfit. Alternate town lots were owned by the railroad and the Careys and were offered at private sale.[6] The ranching-oriented town grew slowly at first, and the census counted only 544 people in 1890 and 883 by 1900. Natrona County was formed from a portion of Carbon County in 1888 and grew from a population of 1094 to 1785 during the 1890s.[7]

Meanwhile the Chicago and North Western was undergoing a change in leadership; in June 1887, Marvin Hughitt became the president of the railway. Hughitt was the Chicago and North Western's counterpart to James J. Hill (Northern Pacific) and Collis P. Huntington (Southern Pacific). He served as its president from 1887 to 1910, during which time he operated a "one-man road." From 1910 to 1925, he continued to serve as Chairman of the Board and thus effectively retained control of the railroad for a period of thirty-eight years.[8]

Hughitt entered the presidency at a critical time for the railroads. First, the Interstate Commerce Act of 1887 established "just and reasonable" rates for interstate rail carriers. Although this law ultimately proved difficult to enforce, the initial reaction of the railroads was pessimistic, and expansion programs were modified or postponed.[9] Coupled with the Financial Panic of 1893, this caused the Chicago and North Western to curtail track expansion in Wyoming until the early twentieth century. The sentiments of President Hughitt at this time are summed up by his statement to "...stick to our knitting, [and] develop this railroad in its present territory."[10]

The Fremont, Elkhorn, and Missouri Valley Railway and its subsidiary, the Wyoming Central, "leased lines" of the Chicago and North Western, were officially merged in 1902.[11] After a period of financial retrenchment, the Chicago and North Western expanded 148 miles west from Casper to Shoshoni and Riverton in 1905, taking advantage of the opening of 1,410,000 acres of the Wind River Indian Reservation to settlement. The line was extended to Lander in 1906. Further incentives for the track expansion were gold, copper, coal, and livestock in the region. The hugely inflated estimate of 200,000 people living on the new lands in the Wind River Valley was probably ample reason for the Chicago and North Western to build the extension. Later plans included a line extending to the vicinity of Yellowstone National Park via the Wind River and Dubois; however, this extension was never built.[12]

Commercial production of oil in the area in the 1910s and 1920s quickly changed the character of the Casper community and Natrona County. The great Salt Creek Oil Field, located about fifty miles north of Casper, was extensively developed after 1910. Casper was strategically located as the nearest railhead to the field, and it became the major oil shipping point. Refineries and tank farms were built at Casper, and a system of pipelines was laid connecting them to the field. The Midwest Refining Company and Standard Oil Company of Indiana invested heavily in the field and assured a bright future for Salt Creek. As a result of these developments, the City of Casper experienced an oil boom that began in 1913-1914 and continued well into the next decade. Casper quickly grew from 1600 people in 1905 to 4040 within ten years.[13] The major oil concerns established their headquarters in Casper, providing employment and injecting capital into the local economy. The population multiplied, and prosperity accelerated construction and community expansion. Casper experienced the typical western boom cycle of unprecedented growth followed by inevitable decline.

The Big Muddy Oil Field was discovered in 1916 on the south bank of the North Platte River about sixteen miles east of Casper and contributed to the region's oil boom. The Mutual Oil Company built a refinery on the west edge of Glenrock in 1917 to process the Big

Muddy oil. Mutual's interests in the field and refinery were acquired by the Continental Oil Company in the mid-1920s. The Midwest Refining Company (Standard Oil of Indiana) built a second refinery at Glenrock a short time later, and an oil pipeline was constructed to join the field to the refineries. Crude oil was stored in the Clayton tank farm, located on the north side of the North Platte River and operated by the Sinclair Pipe Line Company. Parkerton, established about five miles west of Glenrock in the Big Muddy Oil Field to house and serve the large work force, became a station on the Chicago and North Western line. Most of the oil in the field was piped east to the Continental and Standard Oil Refineries at Glenrock or to the refineries at Casper. The Big Muddy Oil Field became one of the ten largest fields in Wyoming. The railroad provided direct service to the refineries and oil field. As oil field production gradually declined, the Standard Refinery was shut down in the late 1940s, and the Continental Oil Refinery was closed in the mid-1950s.[14]

During this time period other railroads had continued their expansion into the region. Efficient transportation was essential to the settlement and economic development of the region. In 1913, the Chicago, Burlington, and Quincy Railroad (often referred to simply as the Burlington) built southward through Thermopolis and the Wind River Canyon and reached Casper from the west, paralleling a long stretch of the Chicago and North Western track. It continued eastward through Glenrock and Douglas to Orin Junction, where it rejoined the Burlington network to the south, thus forming a north-south linkage of the railroad system. In 1943, the Chicago and North Western line west of Casper was abandoned and salvaged; those trains then utilized the Burlington line by means of a consolidation agreement.[15]

In the early 1980s, in a joint effort with the Burlington Northern Railroad, the portion of the Chicago and North Western line from Shawnee on the west to Crandell on the east was reconstructed as part of a larger coal railroad line project to serve the large strip mines in the Powder River Basin. The light traffic that this portion of the line had been receiving for many years was replaced by heavy coal traffic.[16] The portion of the old Chicago and North Western line west from Orin to Sean Cohee was abandoned in about 1990.

The Chicago and North Western was merged with the Union Pacific in 1995, and the portion of the line now known as the Casper Branch begins on the east at Milepost 590.0, where the 1990 track abandonment ended. It continues west for a distance of 17.8 miles and ends at Milepost 607.8. The Union Pacific Railroad, the current owner, plans to abandon the line and salvage its component materials including the bridges. Certain portions of the line may be utilized for a "trail to rails" program for public use and interpretation, in which case the roadbed and some bridges would be preserved.

III. CONSTRUCTION OF NORTH PLATTE RIVER BRIDGE NO. 1210

Bridge No. 1210 was constructed by the Chicago and North Western Railway in 1929-1930 using standard plans drafted by its Office of Engineer of Bridges and adapted to this particular location. This steel and concrete bridge replaced the original timber pile trestle bridge that was constructed in 1905 when the railroad expanded westward from Casper into the Wind River Valley.

This 418-foot bridge spanning the North Platte River represents a major engineering achievement. Construction of the new bridge began in late fall 1929 and was completed in February 1930.[17] It appears from the extant bridge plans that the length of the span necessitated adding one 40' deck plate girder span on the east end. Otherwise, the bridge would have followed a more standardized plan of increasing length by 75' increments. As a result, the North Platte River Bridge consisted of five 75' deck plate girder spans and one 40' deck plate girder span; the latter was narrower in profile (6'3" high versus 8'1/4"), thereby creating a visual and physical gap in the "low steel" line of the overall bridge profile.[18] This is a good example of adapting existing standardized bridge plans to conform to the particular location.

The most difficult engineering feature of the North Platte River Bridge was the substructure. Test bores prior to construction determined the substrata of the river bed. Test piles were also driven at strategic points. The depth of "hard rock" varied from the east bank to the west bank, affecting the design of the abutments and piers. As a result, Abutment No. 7 on the west bank is a total of 30'3" high, while Abutment No. 1 on the east bank is a total of 20'3" high. Although the base of concrete piers Nos. 3 through 6 were at the same depth, each pier rested on a total of 35 foundation piles that had been driven into the riverbed at varying depths to reach hard rock and then cut off one foot above the bottom concrete line in each pier. Thus, from west to east across the river bed, the average pile cutoff height varied accordingly: Pier No. 6 was 8 feet; Pier No. 5 was 12'6"; Pier No. 4 was 10'10"; Pier No. 3 was 10'4"; and Pier No. 2 was 11'5". Altogether, a total of 170 foundation piles (5 piles were omitted from Pier No. 3) were driven for the North Platte River Bridge. The east bank of the river was also laid with stone riprap to retard water erosion. In addition, steel sheet piling was used to protect Abutment No. 1 from undercutting.[19]

The North Platte River Bridge was only one component of an extensive program of line improvement by the Chicago and North Western in Wyoming from the early 1920s to 1930. In addition to replacing the North Platte River Bridge, the railway replaced its 70-pound rails with 90-pound rails and reballasted the roadbed, starting at the eastern border of Wyoming in 1930.[20]

The North Platte River Bridge not only represents a significant engineering achievement but also the commitment of the Chicago and North Western Railway to the region as well as its importance to the economy of the State of Wyoming. Casper directly benefitted by the fact that the Chicago and North Western maintained a division headquarters and extensive repair shops there with a total work force of about six hundred. In the fall of 1923, the North-South Railroad branch was completed from the Chicago and North Western line west of Casper to Midwest and the Salt Creek Oil Fields. As a result, Casper was directly connected by rail to this important oil field. Because of this link, the Chicago and North Western rail facilities at Casper were improved to include a $54,000 brick fireproof 10-stall roundhouse, a new 95-foot electrical turntable, and the laying of eight miles of tracks that increased the capacity of the freight yard from 470 cars to 1,046 cars. A new brick freight house was also constructed at this time at a cost of $17,000.[21]

It is likely that the completion of the North-South Railroad branch to the Salt Creek Oil Fields and the resulting increased freight traffic were contributing factors in the replacement of the North Platte River Bridge, which was crossed by all of the increased traffic. Furthermore, the Standard Oil Refinery constructed at the east end of the North Platte River Bridge in 1913 was one of the largest refineries of its type in the United States. When completed in 1914, it could process 25,000 barrels of oil per day from the Salt Creek Field.[22] The refinery soon became one of the largest employers in the City of Casper, and many of the employees resided in the City of Mills on the opposite side of the North Platte River. The bridge was constructed with a walkway and handrails and thus also served as a pedestrian bridge for workers. The Standard Oil Refinery continued to be a major employer and significant economic force in the City of Casper until abandonment in the 1980s.

IV. PHYSICAL DESCRIPTION

Bridge No. 1210 over the North Platte River at Milepost 601.11 is a steel truss deck plate girder bridge that is 418.02 feet long between the faces of the concrete abutments. The basic bridge components consist of five 75' steel truss deck plate girders and one 40' steel truss deck plate girder. The 75' girders were manufactured by the American Bridge Company in 1930. The 40' girder was manufactured by the Clinton Bridge Works in 1929. (The nameplates are still on the girders.) The 40' girder is located at the east end of the bridge between the concrete abutment and the first concrete pier. The 75' girders are 8' high and 9'7" wide. The 40' girder is 4'6" high and the same width.[23]

The girders rest on two steel bridge seats on the top of each pier. Each of the five concrete piers is 33'3" high and 25'8" x 16'6" at the base. The piers are tapered and pointed on the upstream and downstream ends to reduce water resistance. The upstream edge has a 15'6" steel rail implanted to retard water erosion and damage to the concrete. Each pier is anchored by 35 wooden piles driven into the streambed at an average depth of about 11.5 feet. The west concrete abutment is 30'3" high, 20 feet wide at the top, and canted so as to have a sloping wingwall on each side that is 6'4" wide and 24'-9-1/2" long. About half of the abutment is below ground level. The west end of the existing roadbed is built up and filled where the original timber piles once elevated the roadbed. The eastern abutment is similar in construction but is only 20'3" high and is protected by steel sheet piles on the water side. The east bank of the river is protected from erosion by riprap both upstream and downstream from the bridge.[24]

The deck of the bridge is open and consists of closely spaced wooden ties 10" x 10" x 12' long. Every sixth tie was 16' long to anchor the boards for a pedestrian walkway that had hand rails on both sides. After the walkway was no longer used, the long ties were shortened to match the rest, and the walkway and handrails were removed. The deck also has an inner set of steel rails for safety and stability.[25] The bridge remains in good condition with little deterioration of the exposed concrete and the steel trusses and wooden ties also appear to be in good condition.

V. ENDNOTES

1. Robert J. Casey and W.A.S. Douglas, *Pioneer Railroad, The Story of the Chicago and North Western System* (New York: McGraw-Hill Book Company, 1948), p. 126.

2. *The Democratic Leader*, Cheyenne, Wyoming, 20 March 1886.

3. *The Democratic Leader*, Cheyenne, Wyoming, 13 June 1886.

4. *The Democratic Leader*, Cheyenne, Wyoming, 19 January, 24 March, 11 May, 16 June, 17 July, 24 July, 13 August 1886.

5. Douglas Kullen, *Historical Background Study for the Orin to Sean Cohee Railroad Line Abandonment, Converse and Natrona Counties, Wyoming* (Glen Ellyn, Illinois: Patrick Engineering, Inc.; report prepared for Chicago & North Western Transportation Company, Chicago, Illinois, 1990) pp. 14-15.

6. Alfred James Mokler, *History of Natrona County, Wyoming, 1888-1922* (Chicago, Illinois: R.R. Donnelley & Sons Company, 1923), pp. 47, 116.

7. Office of the Secretary of State of Wyoming, *The Census of the State of Wyoming, 1915*.

8. Casey and Douglas, *Pioneer Railroad*, pp. 137-138.

9. Richard C. Overton, *Burlington Route: A History of the Burlington Lines* (New York: Alfred A. Knopf, 1965) pp. 204-214.

10. E.M. Lewis, *Chicago and North Western RY. and the Projected West Coast Extension, 1904-1906* (MSS #914, typed manuscript dated 1964; Wyoming State Archives, Cheyenne, WYO.), p. 4.

11. Casey and Douglas, *Pioneer Railroad*, p. 224.

12. E.M. Lewis, *Chicago and North Western RY.*, p. 5.

13. *Census of the State of Wyoming, 1915*.

14. Paul Biggs and Ralph H. Espach, "Petroleum and Natural Gas Fields in Wyoming," *United States Department of the Interior Bureau of Mines Bulletin No. 582* (Washington, D.C.: U.S. Government Printing Office, 1960), pp. 29, 32; Ralph H. Espach abd H. Dale Nichols, "Petroleum and Natural-Gas Fields of Wyoming," *U.S. Department of the Interior Bureau of Mines Bulletin No. 418* (Washington, D.C.: U.S. Government Printing Office, 1941), pp. 14-15; D.W. Greenburg, "Converse County's Magnificent Resources" *Midwest Review* 7 (August 1926) No. 8, pp. 50-52; Wyoming Pioneer Association, *Pages from Converse County's Past* (Casper, Wyoming: Wyoming Historical Press, 1986), pp. 689-692.

15. Kullen, *Historical Background Study*, p. 2; T.A. Larson, *History of Wyoming* (Lincoln: University of Nebraska Press, 1978), pp. 340, 483.

16. Idem; Letter dated April 14, 1980, from William E. Loftus, Associate Administrator for Federal Assistance, Department of Transportation, Washington, D.C., to Jan L. Wilson, Director, Wyoming Recreation Commission, Cheyenne, Wyoming.

17. *Casper Tribune-Herald*, Casper, Wyoming, 2 March and 13 April 1930; Steve Kurtz, *Separate and Distinct: A History of the Town of Mills, Wyoming* (Missouri: Walsworth Publishing Co., 1986).

18. Office of the Engineer of Bridges, *C.&N.W.Ry., Wyoming Division, Bridge No. 1210, 1-1/2 Miles West of Casper, WYO. over North Platte River, Drawing Nos. 18328 and 18354, Superstructure*.

19. Office of the Engineer of Bridges, *C.&N.W.Ry., Wyoming Division, Bridge No. 1210, 1-1/2 Miles West of Casper, WYO. over North Platte River, Drawing No. 18091, Substructure*.

20. *Casper Tribune-Herald*, Casper, Wyoming, 2 March and 13 April 1930.

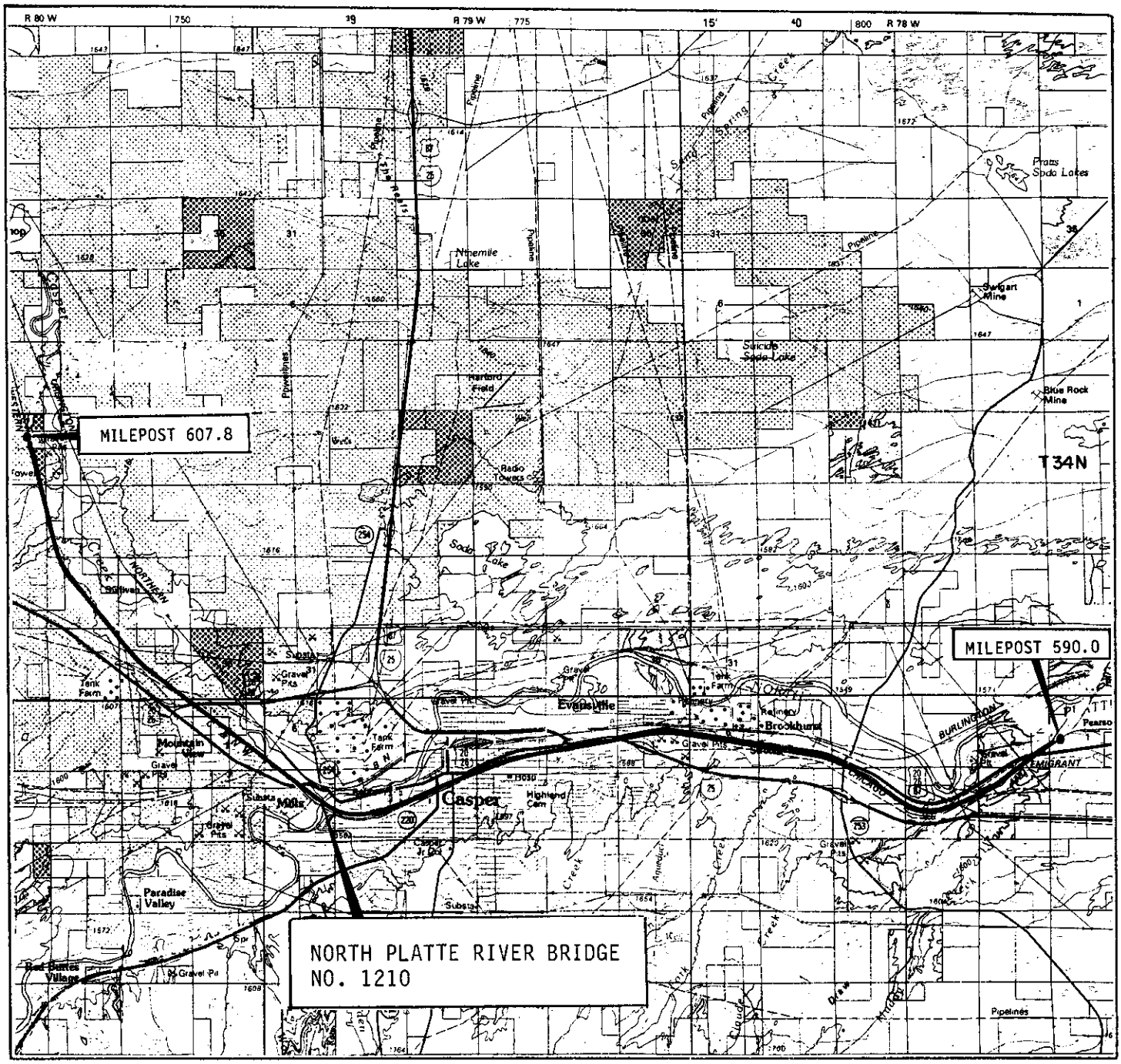
21. *Casper Daily Tribune*, Industrial Addition, Casper, Wyoming, 3 February 1924.

22. Wyoming Recreation Commission, *Wyoming: A Guide to Historic Sites* (Basin, Wyoming: Big Horn Book Company, 1976), p. 165.

23. Office of the Engineer of Bridges, *C.& N.W.Ry., Wyoming Division, Bridge No. 1210, 1-1/2 Miles West of Casper, WYO. over North Platte River, Drawing Nos. 18328 and 18354, Superstructure.*

24. Office of the Engineer of Bridges, *C.& N.W.Ry., Wyoming Division, Bridge No. 1210, 1-1/2 Miles West of Casper, WYO. over North Platte River, Drawing No. 18091, Substructure.*

25. Ibid.



Map showing the location of North Platte River Bridge No. 1210, located on the Union Pacific, Casper Branch (formerly Chicago and North Western).

CHICAGO AND NORTH WESTERN
RAILROAD STONE CULVERT
Railroad Milepost 514.23
Keeline Vicinity
Niobrara County
Wyoming

HAER No. WY-53

PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

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Rocky Mountain Regional Office
National Park Service
Department of the Interior
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HISTORIC AMERICAN ENGINEERING RECORD
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Chicago and North Western Railroad
Stone Culvert
Railroad Milepost 514.23
Keeline Vicinity
Niobrara County
Wyoming

HAER No. WY-53

Documentation: 5 exterior photographs (1991)
16 data pages (1992)

Richard Collier, photographer, August 1991

WY-53-1 Stone arch culvert, south facade, distant view to north

WY-53-2 Stone arch culvert with railroad tracks, view to east-northeast

WY-53-3 Stone arch culvert, south facade, close view to north

WY-53-4 Stone arch culvert, south facade, view to northwest

WY-53-5 Close up of stone arch culvert, south facade and keystone ("1901, CAB"), view to north

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HISTORIC AMERICAN ENGINEERING RECORD
CHICAGO AND NORTH WESTERN RAILROAD STONE CULVERT
HAER No. WY-53

I. INTRODUCTION

Location:	SE/SE/NE/NW/SW Section 10, T32N-R67W Milepost 514.23 on Chicago and North Western Railroad Right-of-way Niobrara County, Wyoming
USGS Quad:	Lost Springs, Wyoming 7.5' (1970)
UTMS:	Zone 13/509170 mE 4733980 mN
Date of Construction:	1901
Present Owner:	Chicago and North Western Transportation Company
Present Use:	Still in use as culvert
Significance:	The stone culvert was constructed by the Chicago and North Western Railroad in 1901 and is a distinctive example of short-span stone construction using local materials. Although alterations have been made to the north end of the culvert, the south end remains intact and is the facade that is visible to the general public from U.S. Route 18-20.
Project Statement:	The stone culvert represents a safety hazard due to structural deficiencies and increased rail traffic. The stone culvert will be replaced by inserting a steel culvert and covering the old structure with fill. The approved mitigation plan for this structure consists of Historic American Engineering Record (HAER) documentation.

Historian:

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November 1992

II. HISTORY

The Study Area is located in the southern portion of the Powder River Basin of southcentral Wyoming in what now comprises Niobrara and Converse counties. The Powder River Basin is located north of the North Platte River and did not initially lure Euro-Americans for development or settlement. Its resources and attributes were subtle and were recognized and utilized first by the American Indian. In fact, the area became a part of the last real stronghold of the Sioux, Cheyenne, and Arapahoe and was the scene of pitched battles between the U.S. Army and the indigenous Native Americans for control of the region for the last decades of the nineteenth century.

Following a series of large scale military expeditions into the region in 1876, a treaty was drafted in which the Indians ceded the Black Hills and all lands west. Thus, by the spring of 1877, northeastern Wyoming Territory had been "cleared" for white settlement, and most of the indigenous tribes were confined to formal reservations outside of Wyoming.

The Powder River Basin was bordered on the south by the North Platte River, the waterway paralleled by the Oregon Trail. Despite the fact that thousands of emigrants passed along the North Platte River corridor in the 1840s and 1850s, their destinations continued to be the more attractive lands in California, Oregon, and the Salt Lake Valley. [1]

During the mid-1850s, the strains on the existing overland route became an important factor in stimulating the building of a transcontinental railroad. All transportation west of the Missouri River was by wagon, and both stagecoach and covered wagon travel were subject to the constant danger of Indian raids. Furthermore, the length of time involved in western emigration and freight deliveries via wagon trains was a deterrent to western development.

In 1853 a bill was passed to appropriate funds for exploring different routes for a railway to the Pacific. Surveys of five main routes and various alternatives were conducted by the Corps of Engineers between 1853 and 1856. The outbreak of the Civil War emphasized the need to link the Trans-Mississippi West with the rest of the Union and aid military mobility. The possibility of a southern alignment, which may have been the shortest and least expensive, was precluded by the secession of the southern states. [2] During

this era, the federal government had already financed a large number of railroad projects east of the Mississippi due to the dominant theme of "Manifest Destiny" that influenced governmental decisions. Therefore, as soon as the South seceded from the Union, it became possible to secure passage of the Pacific Railway Act of 1862. The railroad would link the Union to the Pacific (hence the name Union Pacific), and without the representation from the southern interests a more northerly route was assured. [3]

The Act authorized the construction of the railroad and appropriated funds for its financing. The construction was carried out by two subsidized corporations, the Union Pacific to build west from Council Bluffs, Iowa, and the Central Pacific to build east from Sacramento, California. Actual railroad construction began in earnest after the close of the Civil War. [4]

It originally seemed likely that the existing Oregon Trail route with its gentle grades would be used by the first transcontinental railroad. However, for the segment in Wyoming Territory, Chief Engineer Grenville Dodge chose a more southerly route that closely paralleled the Overland Trail, and the major towns of Cheyenne, Laramie, Rawlins, and Rock Springs were created along the mainline as the Union Pacific built through the region in 1867 and 1868. The two railroads joined at the appointed location at Promontory Point, Utah, and the famous golden spike was driven on May 10, 1869.

Ironically, Wyoming Territory's first railroad was conceived to link the continent, much like the Oregon Trail, and settlement of the intervening territory was only a secondary consideration. Thus, northeastern Wyoming Territory and the North Platte River Valley remained far from rail service and were linked only via a system of rough, time consuming north-south wagon roads. As a result, economic and political development of the region was retarded, and the population of the Wyoming Territory was concentrated in the towns along the Union Pacific Railroad.

The completion of the railroad spurred the establishment of the cattle industry south of the North Platte in the late 1860s and early 1870s. After the Treaty of 1876 removed the Native Americans from northeastern Wyoming Territory, these cattlemen expanded their operations north of the North Platte River to occupy the vast grasslands of the Powder River Basin.

Fort Fetterman, a military post created near the junction of the Bozeman Trail and the Oregon Trail in 1867, became the

center of a flurry of settlement, with numerous cattle ranches locating along the principal drainages in the area between 1877 and 1882. [5] After its abandonment by the military in 1882, Fort Fetterman became the site of Fetterman City, which was established by the local residents. When the railroad began to expand into the region, this raw frontier settlement hoped that it would build through the community; however, this did not occur, because the railroad could not guarantee clear title to land it sold on a military reservation. Instead, the railroad selected a new site several miles southeast of Fetterman City and named it Douglas.

The Fremont, Elkhorn, and Missouri Valley Railway (FE&MV) had been gradually expanding its lines across central Nebraska in the 1870s. After gold was discovered in the Black Hills and the strikes proved of lasting significance, the FE&MV built into the region by 1886. That same year, the Wyoming Central Railway, a subsidiary of the Fremont, Elkhorn, and Missouri Valley Railway, was organized in Wyoming Territory in order to "extend its railroad westward along the valley of the North Platte and Sweetwater through the counties of Albany, Carbon, Sweetwater, and Uinta, and thence to the eastern boundary of Utah Territory..." [6] The railway also stated that it would build a branch line north to Montana Territory. Railroad officials stated that the new line would be built west to connect with the Central Pacific Railroad at Corinne, Utah, to create a transcontinental route to the Pacific. [7]

The new line branched off from the existing line at Chadron, Nebraska, and ran seventy-seven miles west to the site of Douglas, Wyoming. Douglas was laid out by railroad officials in June ahead of the arrival of tracks. However, town lots were not sold until the tracks arrived at the site. Meanwhile, a temporary tent town grew up at the mouth of Antelope Creek in anticipation of the railroad's arrival. Residents of the tent town and at the site of old Fort Fetterman moved to the new site when Douglas officially opened. [8]

Although survey and grading crews had been in the field between Chadron and Douglas, the tracks did not reach Wyoming Territory until late June 1886. Other new towns were created along the line as grading and track laying continued. Over-anxious speculators started building the town of Lusk, but miscalculated the exact location of the final right-of-way, and were forced to move about three miles. Lusk and Crawford, Nebraska, thirty-five miles to the east, were officially laid out by the railroad in July. Tracks were laid by the crews at a rate of about two miles a day, with the grading crews well

ahead of the track-laying crews. The tracks reached the new Lusk townsite on July 17, 1886, and daily trains began running from Chadron to Lusk.

Meanwhile the track-laying crews pushed on rapidly toward Douglas. Railroad officials decided to make Douglas the end of tracks for that year, and they authorized the sale of town lots there for August 31. [9] In addition to the towns of Lusk and Douglas, several stations were located along the line by the railroad through what would become Niobrara and Converse counties, including Van Tassell, Node, Manville, Keeline, Shawnee, Lost Springs (two miles west of the stone culvert), Orin, and Irvine. Tracks reached Douglas by late September 1886.

The Chicago and North Western Railway Company was the force behind the railroad expansion into Wyoming. The Fremont, Elkhorn, and Missouri Valley Railway and its subsidiary, the Wyoming Central, were actually "leased lines" of the Chicago and North Western; in 1902 the lines were officially merged. [10]

The Chicago and North Western Railway Company was first organized on June 7, 1859, in Illinois and Wisconsin, with William Butler Ogden as President. As the name implies, the early goals of this railroad were to expand from Chicago to the north and to the west. Through mergers and acquisitions, the Chicago and North Western was successful in building west across Illinois to Council Bluffs, Iowa, by 1867, thus securing the lucrative contract for hauling the majority of the supplies for the building of the Union Pacific Railroad. With the assistance of John I. Blair, an independent railroad speculator who acquired strategically located but weaker railroad lines, the Chicago and North Western was able to gradually expand westward across Iowa and Nebraska to Wyoming Territory. In fact, it was Blair who originally owned the Fremont, Elkhorn, and Missouri Valley Railway and later leased it to the Chicago and North Western. [11]

The Chicago and North Western Railway, like many of its competitors during the pioneering days of railroading, realized that western expansion was imperative to inhibit other railroads from building into and effectively controlling new regions. From 1881 to 1887, the number of miles of railroad track in operation in the United States nearly doubled. The Chicago and North Western undoubtedly envisioned building a transcontinental route by connecting with existing western lines, such as the Oregon Pacific or the Central Pacific. As a result, the competing railroads built through

long stretches of generally unsettled land, luring emigrants to the region and creating towns along the line to make the operation profitable. Some coal deposits were known to exist along the new Chicago and North Western line in Wyoming Territory, such as at Glenrock, and others were found during extensive surveys of the line. For example, the Lost Spring coal fields (now abandoned) were serviced by a short branch line built from the mainline. [12]

The Chicago and North Western continued to extend its lines westward along the North Platte River Valley, the most favorable route from an engineering standpoint as well as for future settlement and exploitation of the region along the mainline. In 1887, the Wyoming Central expanded westward from Douglas up the North Platte River Valley for a distance of twenty nine miles to Deer Creek, and the new town of Glenrock was established. The following year, the Wyoming Central built an additional 24.7 miles of track up the North Platte to the site of Casper.

In June 1887, Marvin Hughitt became the President of the Chicago and North Western Railway. To his contemporaries, Hughitt became to the Chicago and North Western what James J. Hill was to the Northern Pacific and Collis P. Huntington was to the Southern Pacific. He served as its president from 1887 to 1910, during which time he operated a "one man road." From 1910 until 1925, he continued to serve as Chairman of the Board and thus effectively retained control of the railroad for a period of thirty-eight years. [13]

Hughitt entered the presidency at a critical time for the railroads. First, the Interstate Commerce Act of 1887 established "just and reasonable" rates for interstate rail carriers. Although this law ultimately proved difficult to enforce, the initial reaction of the railroads was pessimistic, and expansion programs were modified or postponed. [14] Coupled with the Financial Panic of 1893, this caused the Chicago and North Western Railway to curtail track expansion in Wyoming until the early twentieth century. The sentiments of President Hughitt at this time are summed up by his statement to "...stick to our knitting, [and] develop this railroad in its present territory." [15]

After a period of financial retrenchment, the Chicago and North Western expanded 148 miles west from Casper to Shoshoni and Riverton in 1905, taking advantage of the opening of 1,410,000 acres of the Wind River Indian Reservation to settlement. The line was extended to Lander in 1906. Further incentives for the track expansion were gold, copper, coal,

and livestock in the region. The rather inflated estimates of 200,000 people living on the new lands in the Wind River Valley was probably ample reason for the Chicago and North Western to build the extension. Early plans approved by the Board of Directors also show the line extending west to the Wyoming-Idaho border. These plans were later revised to a line extending to the vicinity of Yellowstone National Park via the Wind River and Dubois. However, these extensions were never built. [16]

The arrival of the railroad and the creation of the towns of Douglas, Glenrock, and other smaller railroad communities contributed to the rapid settlement and growth of the southern Powder River Basin and North Platte River Valley. The area was then part of Laramie and Albany counties, which extended the length of Wyoming from north to south. However, the county seats of Laramie and Cheyenne were located 150 to 200 miles to the south. As a result, Converse County was created on March 10, 1888, with Douglas as the county seat. The new county covered over 6,740 square miles and at this time also included Niobrara County, which did not become a separate county until 1911. [17]

Cattle and sheep ranching dominated the local economy of Converse County throughout the remainder of the nineteenth and early twentieth centuries. The oil industry became important to the economy of the region when the Big Muddy Oil Field was discovered in 1916 west of Glenrock along the south side of the North Platte River. The Continental Oil Company and the Midwest Refining Company, which operated in conjunction with the Merritt Oil Corporation, began to systematically develop the field. The Mutual Oil Company subsequently acquired the interests of the Merritt Oil Corporation and built a refinery on the west edge of Glenrock to process the Big Muddy oil. The Continental Oil Company acquired the Mutual Oil Company interests in the field and the refinery in the mid-1920s. A short time after the first refinery was built, the Midwest Refinery Company (Standard Oil Company of Indiana) built a second refinery at Glenrock. The Big Muddy Oil Field became one of the ten largest fields in Wyoming. The Chicago and North Western provided direct service to the refineries and oil field. [18]

The most intense period of settlement in Converse County occurred after the passage of the Stock Raising Homestead Act of 1916, under which a settler was able to file on 640 acres of land that had been classified as "stock-raising lands" by the Secretary of the Interior. Such lands were suitable only for grazing and the raising of forage crops, did not have any

timber, and could not be irrigated. [19] As a result, within six months after the law took effect, 712,000 acres of land in Converse County were filed upon. The railroad and the State of Wyoming also encouraged emigration to the arid, submarginal lands. The growth of the dry land farming movement coincided with the above factors to encourage settlement and farming on these unwatered lands. During this period of time, there was also increased immigration to the United States and an increasing scarcity of good cheap farming land. During the 1920s, the size of homesteads in Wyoming nearly doubled and the number of homesteads decreased, indicating a shift from cash crops to livestock raising. [20]

Agricultural prices began plummeting after 1920, and farmers preceded the rest of the nation into the Depression by using up their wartime profits on expansion instead of paying off their mortgages. [21] A series of severe droughts in 1930, 1931, 1934, 1936, and 1939 coincided with the worst years of the Great Depression. Failed homesteads were converted to grazing lands; some became part of the Thunder Basin National Grasslands, which now covers a large portion of northeastern Converse County. Finally, in 1934, the Taylor Grazing Act and two subsequent Executive Orders were passed that withdrew the remaining public domain from entry, thus virtually ending the homesteading era in this region.

Meanwhile, the railroads had continued their expansion into the region. Efficient transportation was essential to the settlement and economic development of the region. In 1913, the Chicago, Burlington, and Quincy (CB&Q) Railroad built southward through Thermopolis and the Wind River Canyon and reached Casper from the west, paralleling a long stretch of the Chicago and North Western track. It continued eastward through Glenrock and Douglas to Orin Junction, where it rejoined the CB&Q network to the south, thus forming a north-south linkage of the railroad system. In 1943, the Chicago and North Western line west of Casper was abandoned and salvaged, and their trains were run over the CB&Q line by means of a consolidation agreement. [22]

Finally in the early 1980s, in a joint effort with the Burlington Northern Railroad, the portion of the Chicago and North Western line from Shawnee on the west to Crandall on the east (including the location of the stone culvert) was reconstructed as part of a larger coal railroad line project to serve the large strip mines in the Powder River Basin. The light traffic that this portion of the line had been receiving for many years was replaced by heavy coal train traffic. [23]

III. CURRENT PHYSICAL DESCRIPTION

The stone culvert was constructed in 1901 as inscribed on the keystone. A local newspaper commented on May 2 that "a number of stone masons have been here the past week building culverts and repairing bridges for the railroad company." [24]

The stone culvert is located in an unnamed ephemeral drainage that flows into Lost Creek with low ridges to the north and south. At this point the Chicago and North Western Railroad tracks trend east-west, and the stone culvert runs nearly due north-south under the tracks and bed. U.S. Route 18-20 is located a short distance to the south in an area of fill so that the level of the highway surface is above the culvert.

The original stone culvert is sixty-seven feet long from the south to north face. It is constructed with quarried and shaped rectangular sandstone blocks with cement mortar. The south end of the culvert has flared end walls (12'3" long) that serve as retaining walls for fill. They are constructed with double rows of smaller sandstone blocks capped with larger stepped sandstone slabs. The north end of the structure was originally constructed in an identical manner. The culvert portion has a keystone arch that was originally eight feet high (now 7'8") and 6'1" wide. The interior is lined with mortared sandstone blocks that retain the arch shape throughout. The floor is flat and was originally lined with sandstone blocks. However, the blocks were covered with poured concrete sometime since 1979. Minor repairs have been made to the interior walls that are cracking and eroded. Some of the sandstone has fallen or sloughed off and disintegrates at the touch.

In the early 1980s, the north end of the culvert was totally reconstructed with a rectangular-shaped box of poured concrete that increased the total length of the structure by 44'6". It was built onto the original north face, which appears to be still intact. The box slopes downward in a northward direction from the original opening for a distance of 24'6" then levels out for the remainder of its length. The exposed end is composed of poured concrete wing walls and a concrete cap.

IV. ENDNOTES

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3. T.A. Larson, History of Wyoming (Lincoln: University of Nebraska Press, 1978):37.

4. Wesley S. Griswold, A Work of Giants (McGraw-Hill Book Company, Inc., 1962):62-75; Larson, History of Wyoming, pp. 37-38; U.S. Congress, House, "Letter from the Secretary of the Interior" (transmitting reports in relation to the Union Pacific Railroad). 43rd Cong., 1st sess., Vol. 9, House Executive Document No. 95 (Washington: U.S. Government Printing Office, 1873):6.

5. Markoff, Historical Overview of the Antelope Coal Field, pp. 36-40.

6. The Democratic Leader, Cheyenne, Wyoming, 3/20/1886.

7. The Democratic Leader, Cheyenne, Wyoming, 6/13/1886.

8. The Democratic Leader, Cheyenne, Wyoming, 1/19, 3/24, 5/11, 6/16/1886.

9. The Democratic Leader, Cheyenne, Wyoming, 7/17, 7/24, 8/13/1886.

10. Robert J. Casey and W.A.S. Douglas, Pioneer Railroad, The Story of the Chicago and North Western System (New York: McGraw-Hill Book Company, 1948):224.

11. Ibid., p. 126.

12. Douglas Kullen, Historical Background Study for the Orin to Sean Cohee Railroad Line Abandonment Converse and Natrona Counties Wyoming (Glen Ellyn, Illinois: Patrick Engineering, Inc.; report prepared for Chicago & North Western Transportation Company, Chicago, Illinois, 1990) pp. 10, 19-20.

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14. Richard C. Overton, Burlington Route: A History of the Burlington Lines. (New York: Alfred A. Knopf, 1965): 204-214.

15. E. M. Lewis, Chicago and North Western RY. and the Projected West Coast Extension, 1904-1906 (MSS #914, typed manuscript dated 1964; Historic Research and Publications Unit, Division of Parks and Cultural Resources, Wyoming Department of Commerce, Cheyenne):4.

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17. Markoff, Historical Overview of the Antelope Coal Field, p. 44.

18. Paul Biggs and Ralph H. Espach, Petroleum and Natural Gas Fields in Wyoming. U.S. Bureau of Mines Bulletin No. 582 (Washington: U.S. Government Printing Office, 1960):29-32; Ralph H. Espach and H. Dale Nichols, Petroleum and Natural-Gas Fields in Wyoming. U.S. Bureau of Mines Bulletin No. 418 (Washington: U.S. Government Printing Office, 1941):14; D.W. Greenburg, "Converse County's Magnificent Resources," Midwest Review 7 (August 1926) No. 8: 50-52.

19. Wyoming State Planning Board, Public Domain in Wyoming (Cheyenne: Wyoming State Planning Board, 1938):118.

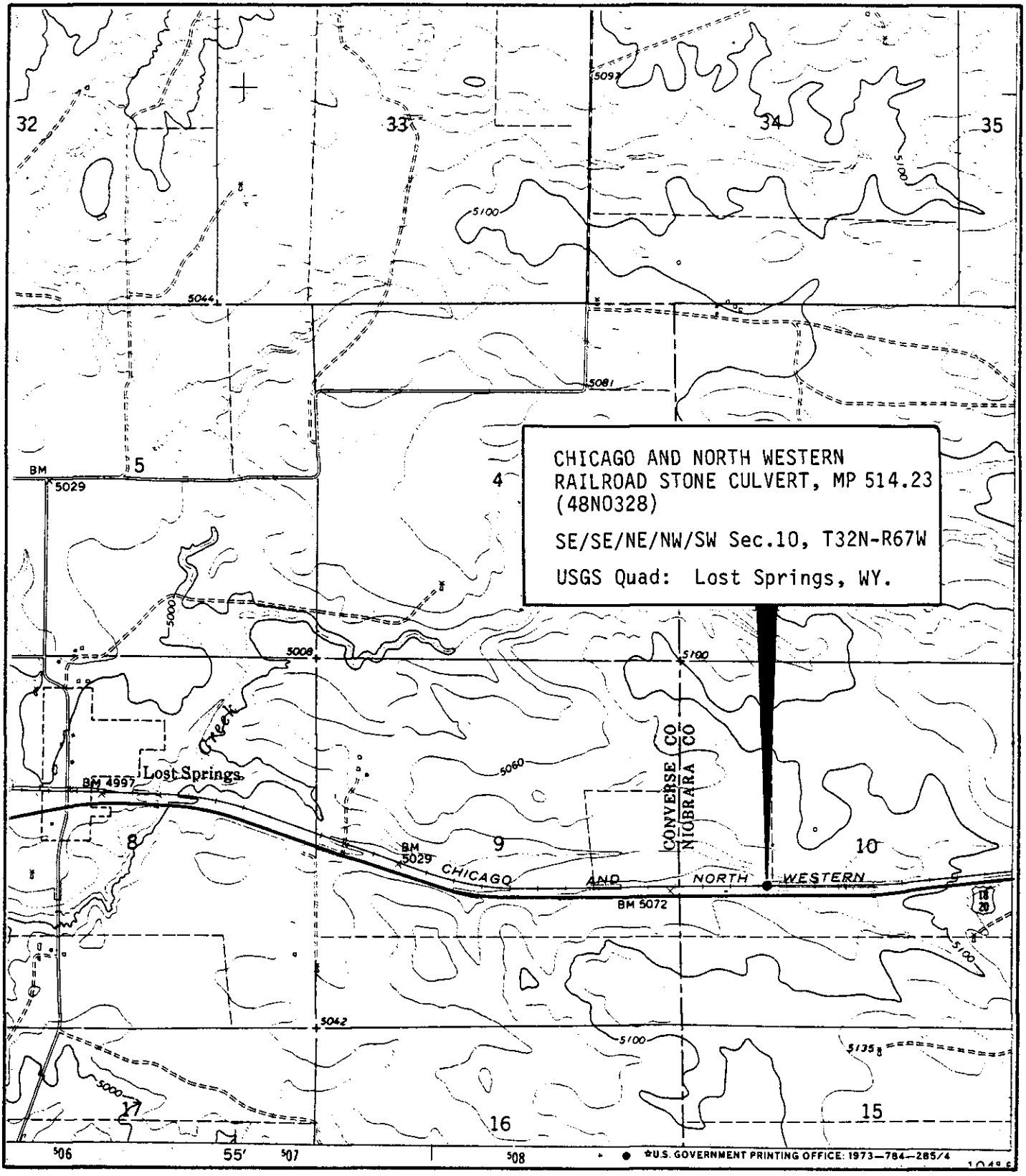
20. Janet LeCompte and Jane L. Anderson, History of Northern Campbell County and the Rawhide Mine Permit Area, Wyoming (Longmont, Colorado: Pioneer Archaeological Consultants; report prepared for Department of Environmental Quality, Land Quality Division, Cheyenne, Wyoming, 1982):D-2-132-33.

21. James C. Olsen, History of Nebraska (Lincoln: University of Nebraska Press, 1955):296.

22. Kullen, Historical Background Study, p. 2; Larson, History of Wyoming, pp. 340, 483.

23. Idem; Letter dated April 14, 1980, from William E. Loftus, Associate Administrator for Federal Assistance, Department of Transportation, Federal Railroad Administration, Washington, D.C., to Jan L. Wilson, Director, Wyoming Recreation Commission, Cheyenne, Wyoming.

24. Converse County Herald, Lusk, Wyoming, 5/2/1901. Note: According to Jack Mullen of the Chicago and North Western Transportation Company, Chicago, Illinois, the railroad no longer retains any historical records or plans concerning the stone culvert at milepost 514.23. A Historical Resource Report was written in 1980 by Madison Madison International of Cleveland, Ohio, concerning several keystone arch stone culverts between Van Tassell and Shawnee, Wyoming, and the Lusk Water Tower. However, no copies of that report have been retained or could be located by the Chicago and North Western Transportation Company, Madison Madison International, or the Wyoming SHPO.


CHICAGO AND NORTH WESTERN
RAILROAD STONE CULVERT, MP 514.23
(48NO328)
SE/SE/NE/NW/SW Sec.10, T32N-R67W
USGS Quad: Lost Springs, WY.
Lost Springs
CHICAGO AND NORTH WESTERN
CONVERSE CO
NIOBRARA CO
BM 5029
BM 4997
BM 5072
32
33
34
35
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4
8
9
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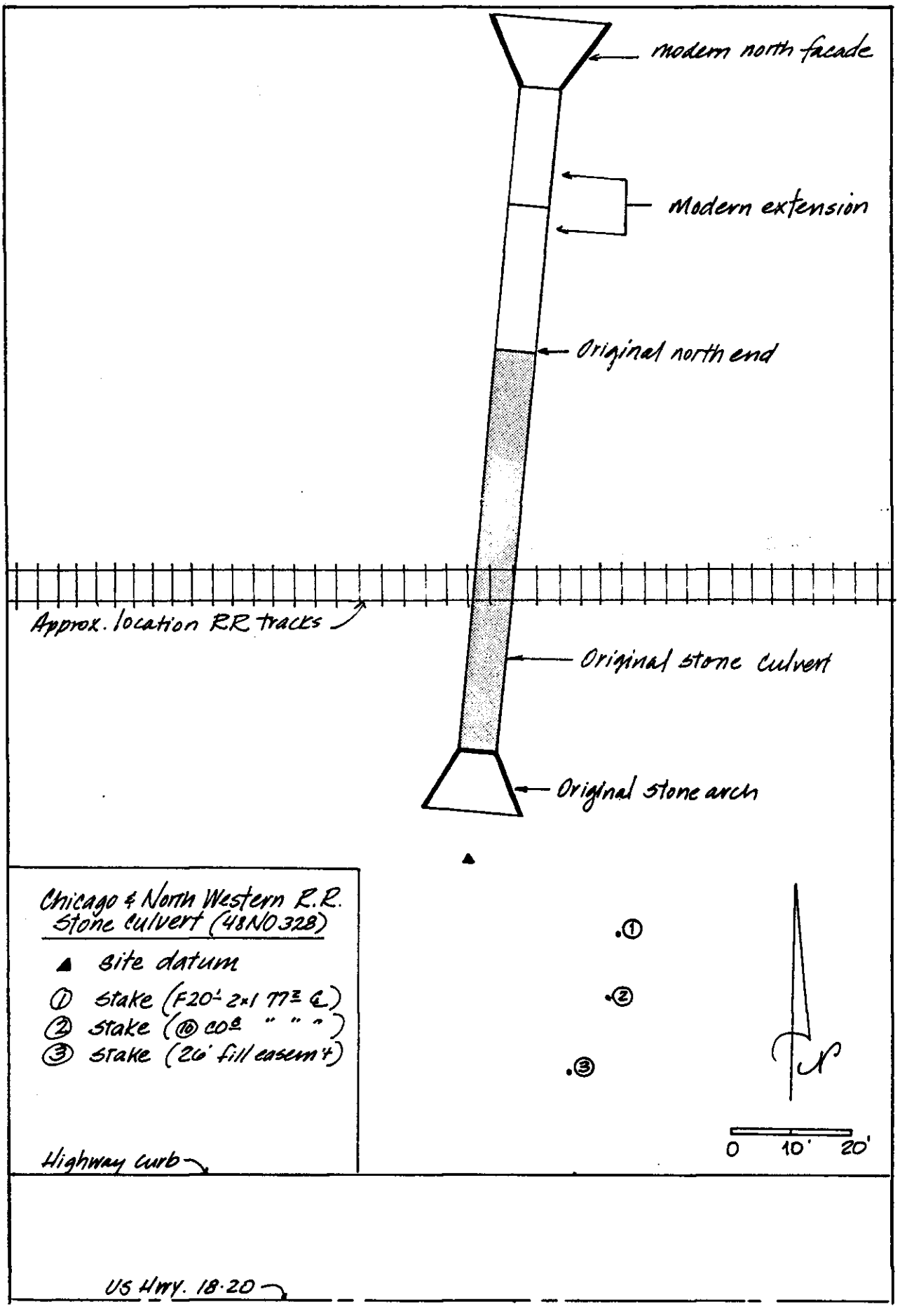
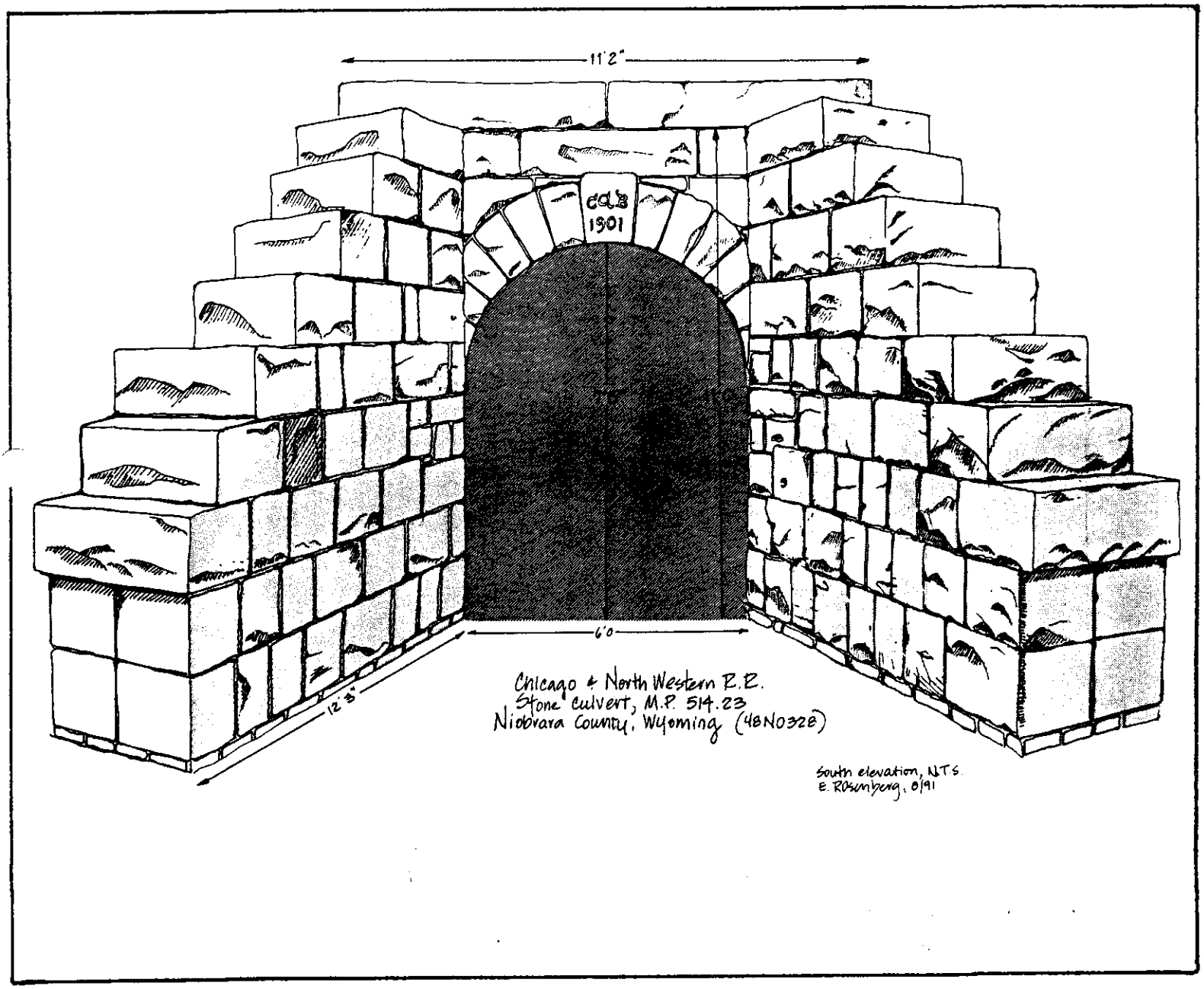
16
15
17
5044
5081
5097
5100
5008
5060
5042
5000
5135
506
55'
507
508
U.S. GOVERNMENT PRINTING OFFICE: 1973—784—285/4


modern north facade
Modern extension
Original north end
Approx. location RR tracks
Original stone culvert
Original stone arch
Chicago & North Western R.R.
Stone Culvert (48NO328)
▲ Site datum
① Stake (F20'-2×1 77° ℄)
② Stake (⑩ CO" " " ")
③ Stake (26' fill easem't)
Highway curb
US Hwy. 18-20
0 10' 20'



Chicago & North Western R.R.
Stone Culvert, M.P. 514.23
Niobrara County, Wyoming (48NO328)

South elevation, N.T.S.
E. Rosenberg, 8/91