



Department of Energy

**Ohio Field Office
Fernald Area Office**

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NOV 02 1998

DOE-0052-99

**Mr. Mark J. Epstein, Department Head
Resource Protection and Review
Ohio Historic Preservation Office
567 East Hudson Street
Columbus, Ohio 43211-1030**

Dear Mr. Epstein:

**HISTORIC AMERICAN ENGINEERING RECORD, CHICAGO, CINCINNATI, AND LOUISVILLE
TRESTLE (OKEANA TRESTLE) (CHESAPEAKE & OHIO RAILROAD BRIDGE)**

In accordance with the Memorandum of Agreement (MA) among the Department of Energy, Fernald Environmental Management Project (DOE-FEMP), the Advisory Council on Historic Preservation, and the Ohio Historic Preservation Office (OHPO), regarding Railroad Trestle Upgrades at the DOE-FEMP, signed August 18, 1997, a report developed and written according to Historic American Engineering Record (HAER) standards on the history of the Okeana Trestle is being submitted to the OHPO.

The above mentioned MA provides the Cultural Resource Coordinator at the DOE-FEMP site with the stipulations and requirements under which the undertaking on the Okeana Trestle, which is eligible for the National Register of Historic Places, may take place. The report includes the following as stated in the MA:

- **Photographs of the trestle in accordance with HAER standards**
- **Photographic copies of historic photographs in accordance with applicable copyright restrictions**
- **Historical information and a physical description of the trestle in the form of a narrative report**
- **An 8-1/2" x 11" site plan to show the location of the trestle within its setting.**

The report being submitted will help to preserve the history of the Okeana Trestle following its upgrade to support remediation activities at the DOE-FEMP site.

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Mr. Epstein

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Please direct any questions you may have to Ed Skintik at (513) 648-3151.

Sincerely,



David R. Kozlowski
Associate Director,
Office of Safety and Assessment

Enclosures

cc w/o enclosures:

D. Carr, FDF, MS52-2

M. Jewett, FDF, MS52-2

J. Schomaker, FDF, MS12

T. Walsh, FDF, MS65-2

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Chicago, Cincinnati, and Louisville Trestle
(Okeana Trestle)
Spanning Buck Run, East of S.R. 126
Okeana vicinity
Butler County
Ohio

HAER No. OH-120

PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

Historic American Engineering Record
National Park Service
Great Lakes Systems Office
1709 Jackson Street
Omaha, Nebraska 68102

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HISTORIC AMERICAN ENGINEERING SURVEY

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(Okeana Trestle)
Spanning Buck Run, East of S.R. 126
Okeana vicinity
Butler County
Ohio

HAER No. OH-120

Documentation: 13 photographs (1996, 1997, 1998)

Kimberly Starbuck, Photographer, October 1996 and September 1997, September 1998

OH-120-1	OVERALL VIEW OF TRESTLE, WEST SIDE
OH-120-2	TOP OF TRESTLE, SOUTH APPROACH, FACING NORTH
OH-120-3	DETAIL, CENTRAL SECTION OF FRAME TRESTLE, WEST SIDE
OH-120-4	DETAIL, FRAMED WOOD BENTS, SHOWING CROSS BRACING, WEST SIDE
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OH-120-6	DETAIL, BOTTOM OF EXTERIOR BATTER, WEST SIDE
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OH-120-8	DETAIL, STEEL TOWER (BENTS #3 AND #4), WEST SIDE
OH-120-9	DETAIL, BENT #5, FACING NORTHEAST
OH-120-10	SITUATION PLAN (DRAWING 10959), C & O RAILWAY COMPANY, CHIEF ENGINEER'S OFFICE, 1935
OH-120-11	STEEL PLAN, REBUILDING PORTION OF BRIDGE #270 (DRAWING NO. 10959-2), C & O RAILWAY COMPANY, CHIEF ENGINEER'S OFFICE, 1937

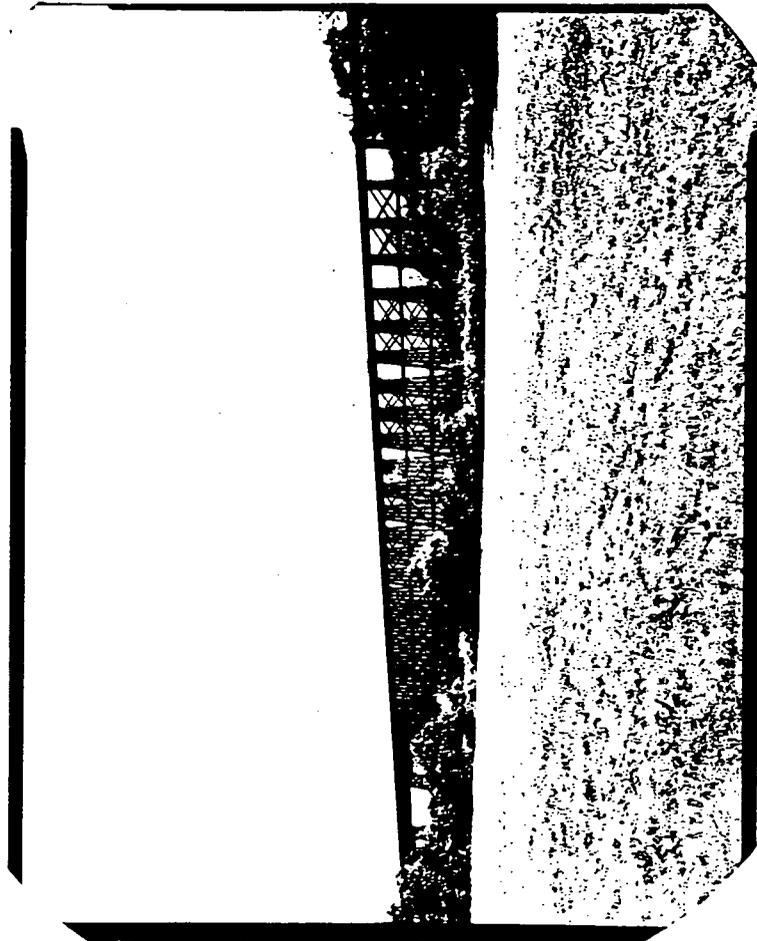
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- OH-120-12 STEEL DETAILS, REBUILDING PORTION OF BRIDGE #270
(DRAWING NO. 10959-3), C & O RAILWAY COMPANY, CHIEF
ENGINEER'S OFFICE, 1937
- OH-120-13 TIE PLAN, REBUILDING PORTION OF BRIDGE #270 (DRAWING
NO. 10959-4), C & O RAILWAY COMPANY, CHIEF ENGINEER'S
OFFICE, 1937

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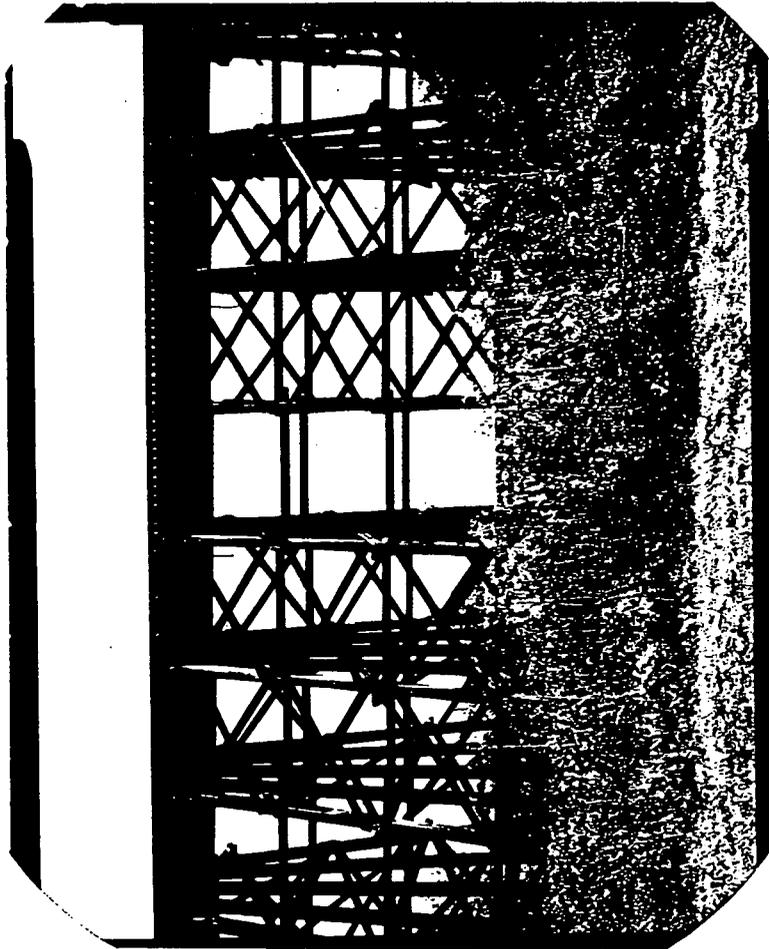
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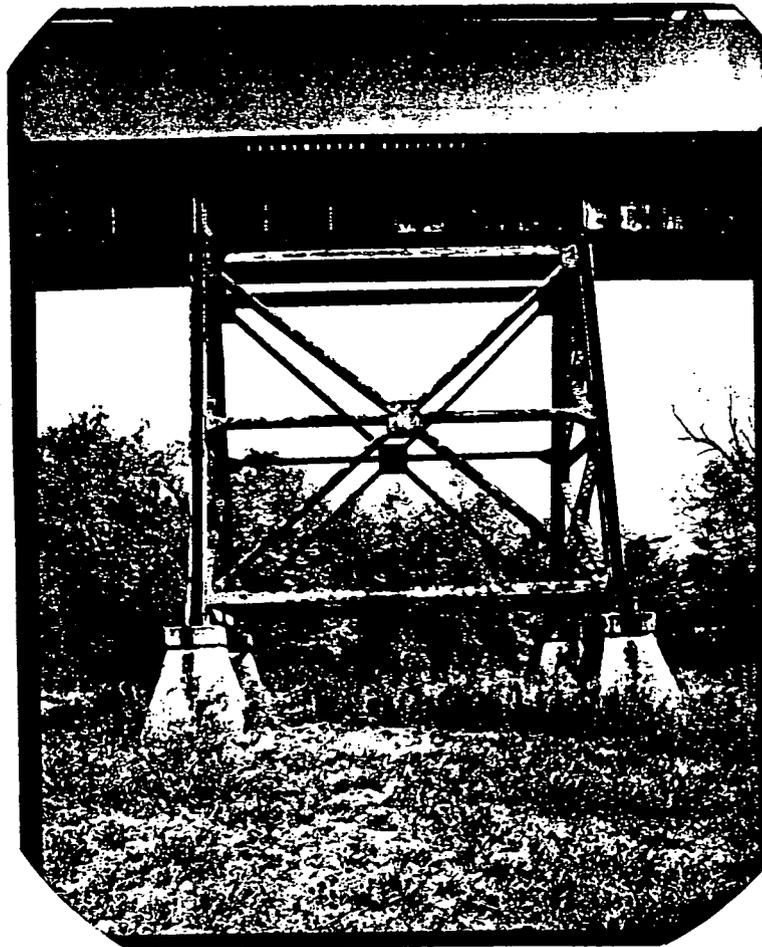


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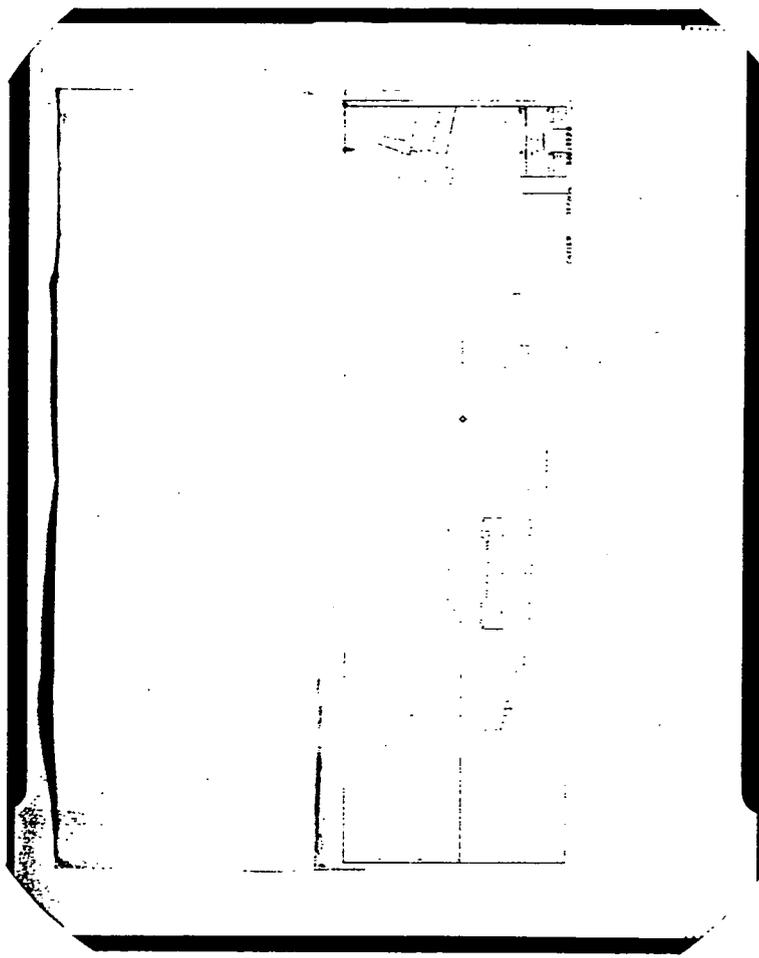


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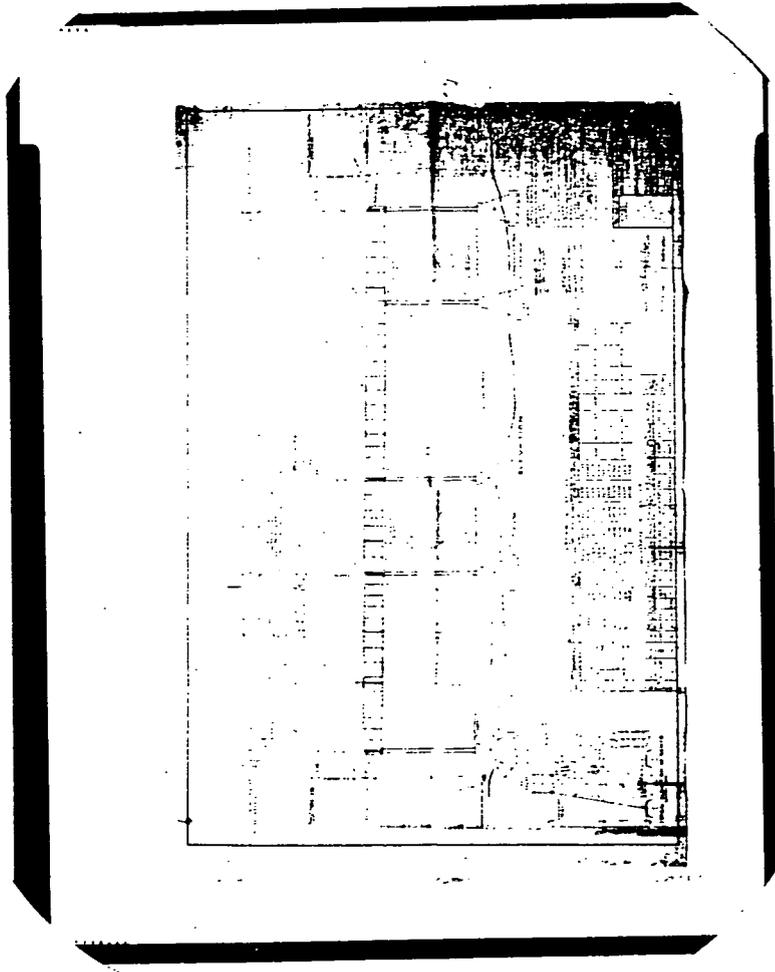


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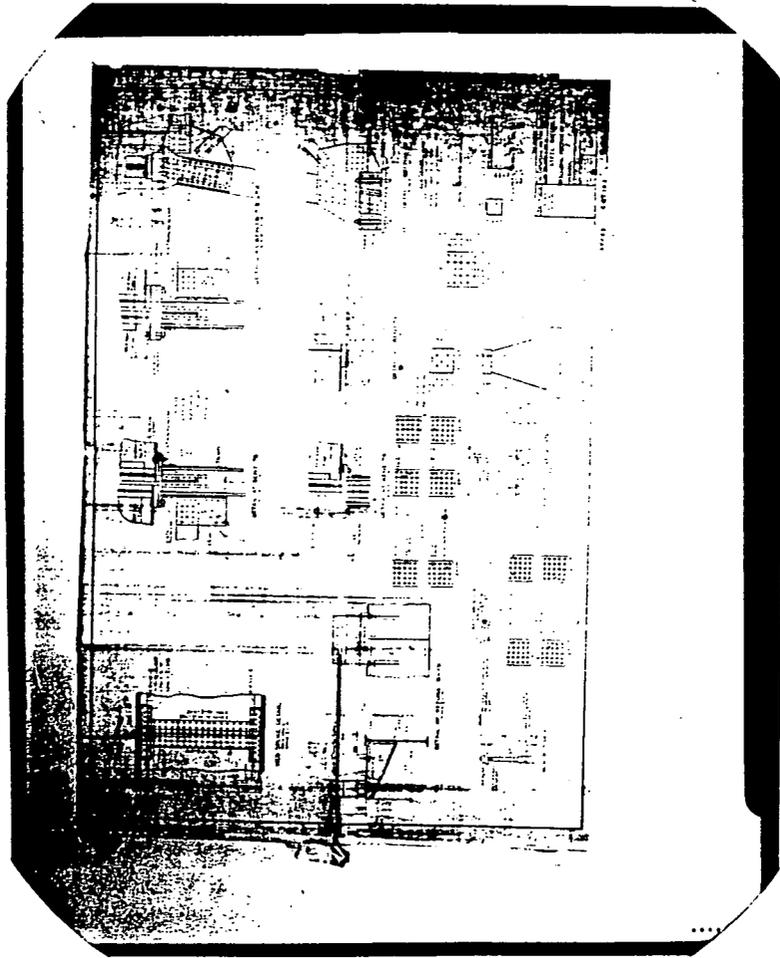


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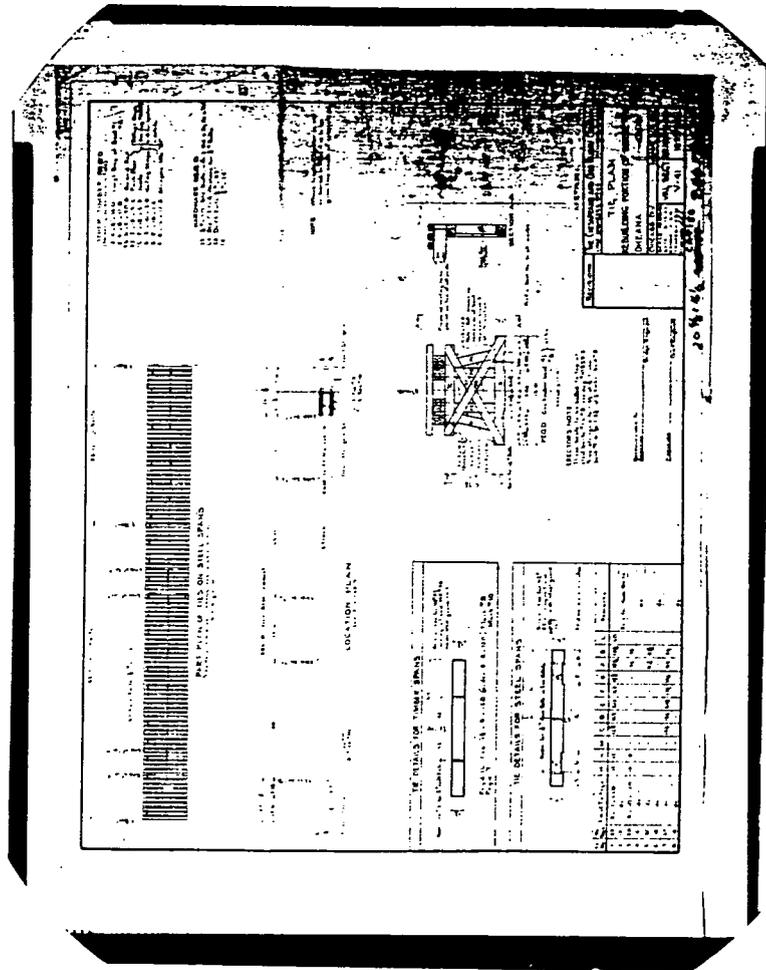


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HISTORIC AMERICAN ENGINEERING RECORD
CHICAGO, CINCINNATI, AND LOUISVILLE TRESTLE
(Okeana Trestle)

I. INTRODUCTION

Location: Spanning Buck Run, East of S.R. 126
Okeana vicinity
Butler County
Ohio

Quad: Harrison, Ohio-Indiana

UTM: 16/692240/4559000

Date of Construction: 1903 (modified in 1935-1937)

Present Owner: CSX Railroad
500 Water Street
Jacksonville, Florida 32202

Present use: The wood bent supports and the 1935-1937 replacement steel portions were replaced in September 1997 with steel bents. The replacement was necessary to strengthen the railroad trestles along the railroad line as part of the Waste Pits Remedial Project of the U.S. Department of Energy, Fernald Environmental Management Project (DOE-FEMP).

Significance: The Okeana Trestle was built 1902-1903 by the Chicago, Cincinnati, and Louisville Railroad which built 41 trestles on their line from Cincinnati to Hammond, Indiana. With a length of 847 feet, the Okeana Trestle was one of the longest wood trestles in the state of Ohio.

Historians and Date: Rita Walsh, Adrienne Cowden, and Matthew Becher of Gray & Pape, Inc., October 1997.

II. HISTORY

The Chicago, Cincinnati, and Louisville Trestle, now currently owned by CSXT Railroad but commonly known as the Okeana Trestle, was constructed beginning in 1902 by the Cincinnati & Indiana Western Railroad, the Ohio counterpart of the Cincinnati, Richmond & Muncie (C, R & M) Railroad. This line, financed by the Indiana townships and communities through which it passed, was chartered in 1900 and built 180 miles of their road from the Ohio state line to North Judson, Indiana by 1902. In May 1902, the C, R & M was merged with the Chicago & Cincinnati Railroad company, which had been formed in January of that year to construct the 40 miles of road northwest of North Judson to Griffith, Indiana. This new company was given the same name as the earlier C, R & M Railroad. At the same time, the Cincinnati and Indiana Western (C & IW) was chartered to build 33 miles of line from the Indiana state border (where the original railroad line ended) into Cincinnati. The second C, R & M and the C & IW were merged one year later, in June 1903, to form the Chicago, Cincinnati, and Louisville Railroad (C, C & L).¹ An undated newspaper clipping from one of the Butler County newspapers, the *Hamilton Daily Republican News*, stated that the trestle was being completed by the C, C & L, which indicates the line was begun by the Cincinnati & Indiana Western, but finished by its successor.²

Construction of the Trestle

The C, R & M line began operating in 1901, with passengers bound for Cincinnati transferring in Cottage Grove, Indiana (on the border between Ohio and Indiana), to the tracks of the Cincinnati, Hamilton & Dayton (C, H, & D) Railroad. Because trackage rights for the C, R & M trains over the C, H, & D lines into Cincinnati were denied, William A. Bradford, the president of the C, R & M, decided to build his own line into the city. The new company, incorporated in Ohio, was named the Cincinnati & Indiana Western Railroad. Mr. Bradford hired A. L. Kuehn as his engineer to locate and construct the route into Cincinnati.³ The construction of the line utilized state-

of-the-art machines, including one which could lay steel girders across a river at a rate of one complete span a day; and a machine for track laying, which laid the ties on the bed and placed the rails automatically, with manual fastening of the rails to the ties.⁴

The name of the engineer responsible for the Okeana trestle is not known. The chief engineer of the C, C, & L railroad in 1904, the earliest annual report of the Commissioner of Railroads and Telegraphs which mentions the line, was H. L. Jackson of Cincinnati.⁵ Mr. Jackson had been the chief engineer of the C, R & M railroad. In the report for the following year, the chief engineer was C. A. Wilson of Cincinnati.⁶ Subsequent entries in the annual reports for this railroad line do not list a chief engineer.

The only older image found of the trestle, pictured in a photocopied newspaper article that is undated, showed the trestle under construction. Based on the photograph, it appears that the wood bents were erected from end to end in three tiers.⁷ Pilings for the structure were cut from the surrounding woods and according to Grover Nugent, one of the original construction workers, "square timbers were hauled by horse and wagon from Harrison".⁸ Harrison was the largest community in the vicinity, located to the south in Hamilton County, Ohio. Mr. Nugent, interviewed for a 1960 newspaper article, also described that "it was all hand work. We drove eight pilings in a row for each 14-foot span and then started upward from there".⁹ Rails were laid across the finished trestle in 1904, and the first train was said to have crossed the bridge on July 4 of that year.¹⁰

The trestle was one of 41 such structures on the C, C, & L line as compared to 7 iron or steel bridges also located on the line. At 842 feet in length, the Okeana Trestle was one of the longest of its kind ever constructed in Ohio.¹¹ It is very likely that the company planned to replace many of its trestles with steel bridges since by the turn of the century, the employment of wood trestles was generally discounted for permanent use on railroads or highways. The annual reports outlining the

activity of the C, C, & L, however, showed that the line was never profitable during the first decade of the twentieth century and was usually in receivership.

The Chicago, Cincinnati, and Louisville Railroad

The trestle was begun by the Cincinnati & Indiana Western Railroad, a short-lived company, which was consolidated with the Cincinnati, Richmond & Muncie Railroad into the Chicago, Cincinnati, and Louisville Railroad Company on June 1, 1903.¹² It was the C, C, & L which finished the line from Cincinnati through western Hamilton County and southwestern Butler county in Ohio, 35.5 miles of their total route. The annual report for 1905 indicated that 254 miles of the C, C, & L's projected 283 miles from Chicago to Cincinnati were in operation. At that time, the line was complete from Cincinnati to Griffith, Indiana, a short distance southeast of Hammond, Indiana, where it was finally completed.¹³

The C, C, & L was headquartered in Cincinnati from 1903 to 1906 but moved its main offices to Chicago by 1908. The company also had offices and business ties in Boston, New York, and Richmond, Indiana, between 1904 and 1910. Throughout this period, the company was guided by between 7 and 10 officers, which usually included a President and Vice-President, Secretary/Treasurer, Receiver, Auditor, General Superintendent, General Freight Agent, General Passenger Agent, and in its earliest years, a Chief Engineer. The C, C, & L could be characterized as a mid-sized regional operation employing about 1100 individuals in some capacity along the entire length of their line. Of this total, approximately 10 to 15 percent worked in Ohio.

As was common with small to mid-sized railroads at that time, the C, C, & L was in debt from the beginning. The company borrowed nearly \$6.7 million in 1900 at 4.5 - 5% interest, and had until 1953 to repay this amount.¹⁴ From 1904 to 1909, the company posted yearly losses ranging from \$74,000 to \$215,000. They did not post a profit until 1910, when the year-end net income was

listed as \$57,600 for the entire line.¹⁵ The 1904 through 1907 deficits are probably attributable to investments in construction costs.

Operations of the C, C, & L (1903-1910)

The Chicago, Cincinnati, and Louisville line primarily carried freight, which comprised about 75 percent of their yearly revenue between 1904 and 1910. In terms of materials transported, bituminous coal far outweighed any other commodity in tonnage, though large amounts of lumber, stone, and sand were also conveyed. By the end of 1904, the company had 27 locomotives and 535 cars in freight service, but only 8 engines and 25 cars dedicated to passenger service.¹⁶ That year was the only one where additions to these numbers were noted. Thereafter, their rolling stock remained fairly consistent.

The line connected several existing communities on the west side of Cincinnati in Hamilton County and southwestern Butler County. No other railroad lines had been constructed through the agriculturally-dominated areas of this route prior to this early twentieth century line. Traveling in a northwesterly direction out of the Eighth Street depot on the west side of Cincinnati's downtown, the trains stopped at Bridgetown, Dent, Miamitown, and Fernald in Hamilton County. The last named community of Fernald was platted in 1911 after the line was built and was soon the location of Steelcorp, a cement products manufacturing concern, and a flouring mill. The line passed through three established communities in Butler County: Shandon; Okeana; and Newkirk, close to the Indiana border. The line continued in a northwest path into Indiana with stops at the communities of Cottage Grove, Richmond, Williamsburg, Losantiville, Muncie, Jonesboro, Marion, Peru, Kewanna, North Judson, La Crosse, Griffith and Hammond.

Earlier Railroad Lines in Butler County

The C, C, & L was the last of the railroad lines built through Butler County and was the only one built in the twentieth century. Similar to many lines constructed in the early twentieth century, it served to link smaller agricultural communities which had been bypassed in the nineteenth century by the earlier railroads.

Within the context of railroad lines and their contributions to Butler County, the C, C, & L was of lesser importance than at least two of the seven other lines which traversed the county during the heyday of the railroad. The first railroad built through Butler County was the Cincinnati, Hamilton, and Dayton (C, H, & D) which was chartered in 1846.¹⁷ By 1851, this company was offering regular service between Cincinnati and Hamilton and merged with the Pere Marquette system by 1905. Between about 1865 and 1900, the C, H, & D incorporated several smaller Butler County companies, including the Eaton & Hamilton, Richmond & Miami, and Junction railroads.¹⁸ By 1905, the C, H, & D-Pere Marquette system controlled 60 miles of track in Butler County alone, and offered connections to major destinations in all directions.

The other major railroad in Butler County was the Cleveland, Columbus, Cincinnati, & Indianapolis, which was incorporated in 1870. This company, which was later known as the Big Four Railroad, passed through the eastern half of Butler County and served as a trunk line between Cincinnati and points east. By the 1970s, all of the lines operating in Butler County in 1900 had been taken out of service or were acquired by either the Penn Central, the Baltimore and Ohio, or the Chesapeake & Ohio.

Acquisition of the Line by Chesapeake & Ohio

By 1907, the C, C, & L had completed a railway from lower Eighth Street on the west side of Cincinnati to Hammond, Indiana, just 24 miles outside of Chicago.¹⁹ However, the planned connection to Louisville was never realized by this company. Perhaps because of an inability to turn a profit between 1903 and 1909, controlling interest of the C, C, & L was acquired at a foreclosure sale by the Chesapeake and Ohio on July 10, 1910.²⁰ The Cincinnati to Chicago line built by the C, C, & L constituted the longest stretch of track acquired by the Chesapeake and Ohio to that date. It permitted the C & O to provide freight service from points all along the eastern seaboard to Chicago, the largest commercial center in the Midwest.²¹

The Board of C & O considered the acquisition a "conservative and much needed expansion...amply warranted by the extraordinary growth during the past twenty years." The muckraking press considered it a monopoly, which forced the C & O railroad to establish separate charters for the railroad in each of the states it went through. The line was highly regarded because it connected the east coast with the Great Lakes and put the iron of the north into contact with coal supplies of several areas.²²

The C, C, & L line was reorganized as a separate subsidiary of C & O and renamed the Chesapeake and Ohio Railway of Indiana. Service into Chicago was arranged with the Hammond Belt; the Illinois, Chicago, & Alton Railway; and others. Ownership of trackage into Chicago was finally conveyed by deed to the C & O of Indiana in 1934, which one year earlier had been merged into the parent company as the Chicago Division.²³

Brief History of the C & O

The C & O was chartered in 1836 as the Louisa Railroad, and originally served as a connection between the Richmond, Fredericksburg & Potomac Railroad through Louisa County, Virginia. By 1850, the line stretched from Richmond to Jackson's River, 10 miles west of Covington, Virginia. The company was known as the Virginia Central Railroad Company by this time. The Chesapeake and Ohio name did not come into use until 1868, when Virginia and West Virginia agreed to combine the Virginia Central and the Covington & Ohio railroads into one entity, which offered service from Richmond, Virginia to Huntington, West Virginia. The company was sold under foreclosure in 1878 and renamed the Chesapeake and Ohio Railway Company.²⁴

By 1888, the C & O had established a connection into Cincinnati through acquisition of the Maysville & Big Sandy Railroad Company. Cincinnati remained its western terminal from 1888 until 1910. A northerly route was established in 1895 when the C & O gained access to the Big Four Railway by buying into the Louisville & Jeffersonville Bridge Company's railroad bridge at Jeffersonville, Indiana. The 1890 acquisition of the 230-mile long Richmond & Allegheny Railroad gave the C & O a route from the Ohio River to Newport News, Virginia. The company acquired major railroad lines in the twentieth century, most notably the Hocking Valley in 1930 and the Pere Marquette in 1947. The Chessie system, which was a merger of the C & O, the Baltimore & Ohio (B & O), and Western Maryland, occurred in 1972. A major merger in 1981 of this system with Seaboard System, which was a combination of the old Atlantic Coast Line; Seaboard; Louisville & Nashville; Clinchfield; and other smaller lines; led to the creation of CSX Transportation, then the third largest railroad in the United States.²⁵

Operations of the C & O (1910-present)

The C & O's prime commodity was coal, which was shipped on most of its lines, although only on a limited basis on the C, C, & L line. The Chicago Division line (the former C, C, & L route) was used for a short time for passenger service after the C & O acquisition in 1910 but was then switched to operating as a fast freight route between the main line at Cincinnati to the connections in Chicago until around 1950. A portion of the line in Indiana was reused for passenger service in the 1970s and 1980s by Amtrak for their main line into Chicago.²⁶

In 1951, a spur line was built from the main track north of Fernald near the Hamilton-Butler County line to link with the operations of the Department of Energy's Feed Materials Production Center. The facility produced uranium metals for both the U. S. Military Nuclear Weapons and Nuclear Power programs for almost 40 years. It appears that the spur was used mainly for bringing coal into the facility, although there has been limited railroad tank hauling out of the facility.

III. PHYSICAL DESCRIPTION OF TRESTLE AND SETTING

The Chicago, Cincinnati, and Louisville Railroad Bridge, or more commonly known as the Okeana Trestle, spans Buck Run east of State Route 126 and northeast of Okeana, a small town in Morgan Township in Butler County, Ohio. The structure spans a wide gorge in an isolated and rural area which includes large farmsteads and pastures. In contrast to the gorge basin, which is relatively flat, the surrounding terrain is characterized by sharp inclines and rolling hills. At its highest point, the superstructure of the Okeana Trestle rises 66' over Buck Run, tapering to less than 10' at either end, although the south end has a slightly higher elevation.

The Okeana Trestle stretches for a distance of approximately 847 feet and is comprised of 59 bents with concrete abutments at both ends. Fifty-four of these bents are framed wood and are

part of the original 1903 frame trestle. The remaining five bents are steel. Prior to 1960, the Okeana Trestle is known to have been rebuilt at least three times.²⁷ Sections of the creosote-soaked timbers caught on fire, while others cracked or split as the bridge settled. Any damaged wood members, however, were apparently replaced in-kind until a flood in the mid-1930s washed out a central section of the trestle over Buck Run. This central portion of the bridge was replaced by a 200-foot steel deck plate girder built between 1935 and 1937.

The choice to rebuild the damaged section of the Okeana Trestle with steel in the 1930s is not surprising. As early as 1908, structural engineers began to recommend that wood be used only for temporary construction or where steel and iron were comparatively expensive.²⁸ Less than a decade later, timber had become an antiquated and undesirable building material for bridges and trestles. The advent of cheap steel and the introduction of reinforced concrete contributed in part to this attitude. However, the shift away from timber construction can largely be attributed to the inherent limitations of wood. It was less durable than either steel or masonry. Timber structures had lower allowable stresses and could not be built in as long a span as steel. Finally, wood was also the least resistant to fire of all types of bridge construction. In order to preserve wood members, timbers were coated with creosote. But creosote, a distillate of either wood or coal tar, was highly flammable, and for railroad bridges in particular, a watchman had to be employed year-round to put out fires.

Early twentieth century bridge engineering texts and books indicate the original Okeana Trestle was a standard frame trestle design. General specifications state that timber trestle bridges could be used with spans of 10 feet to 25 feet, and on average, each span of the Okeana Trestle measured 14 feet in length.²⁹ Typically, each bent had four batters and one central post, with two intermediate sills visually dividing the bents into three sections between the cap and a lower sill. In addition, groups of three bents were connected by longitudinal struts and X braces. The wood members were connected with steel bolts or drift pins. Some of the bents had no lower sill and were

installed with five piles. Other bents had a lower sill which rested upon a row of four poured concrete pedestals. Bolts were used to anchor the bents to these footings. In 1937, the spaces between the pedestals were infilled with new concrete, presumably for increased stability.

The substructure of the central steel deck plate girder is comprised of five bents which support four spans. These spans alternate between 35 feet and 65 feet in length. The girders measure 7 feet, 6½ inches in height and are fabricated with webs of 7/16-inch thick plate. The top and bottom flanges are 16 inches by 9/16-inches by full-length cover plates attached with continuous 6-inch x 6-inch x 5/8-inch angles. The 65-foot spans have been further strengthened by two additional stacked cover plates measuring 16 inches wide and 9/16-inches thick. The second and third cover plates, which measure 45 feet and 34 feet in length respectively, are centered mid-span on the girder over a web splice. The girder webs are internally stiffened with 5-inch x 3½-inch x 7/16-inch angles connecting the top and bottom flanges; the ends of the girder webs are stiffened with 5-inch x 3½-inch x 13/16-inch angles.

The steel bents are sway-braced, and two sets of the bents have been braced longitudinally to form two towers. The fifth bent stands alone at the northern end of the steel girder. Each tower has four splayed main support columns, diagonally braced with laced pairs of steel channels. All of the tower members are connected by large riveted gusset plates. Both the tower and the single bent columns are anchored in poured concrete battered column pedestals which, for all but bent #2, are 14 feet, 6 inches in height. The column pedestal for bent #2 is 17 feet, 2 inches tall. Each pedestal bears on 25 creosoted wood piles extending 35 feet into the ground.

The wood ties on this trestle are 10 feet long and are centered on the stringers. For the steel spans, the ties are 9 inches wide by 11 inches deep, and they are bolted to the girders with ¾-inch diameter hook bolts at every fourth tie. For the timber spans, the ties are 8 inches wide by 7¾ inches deep; they have been attached to the girders with ¾-inch diameter drift bolts.

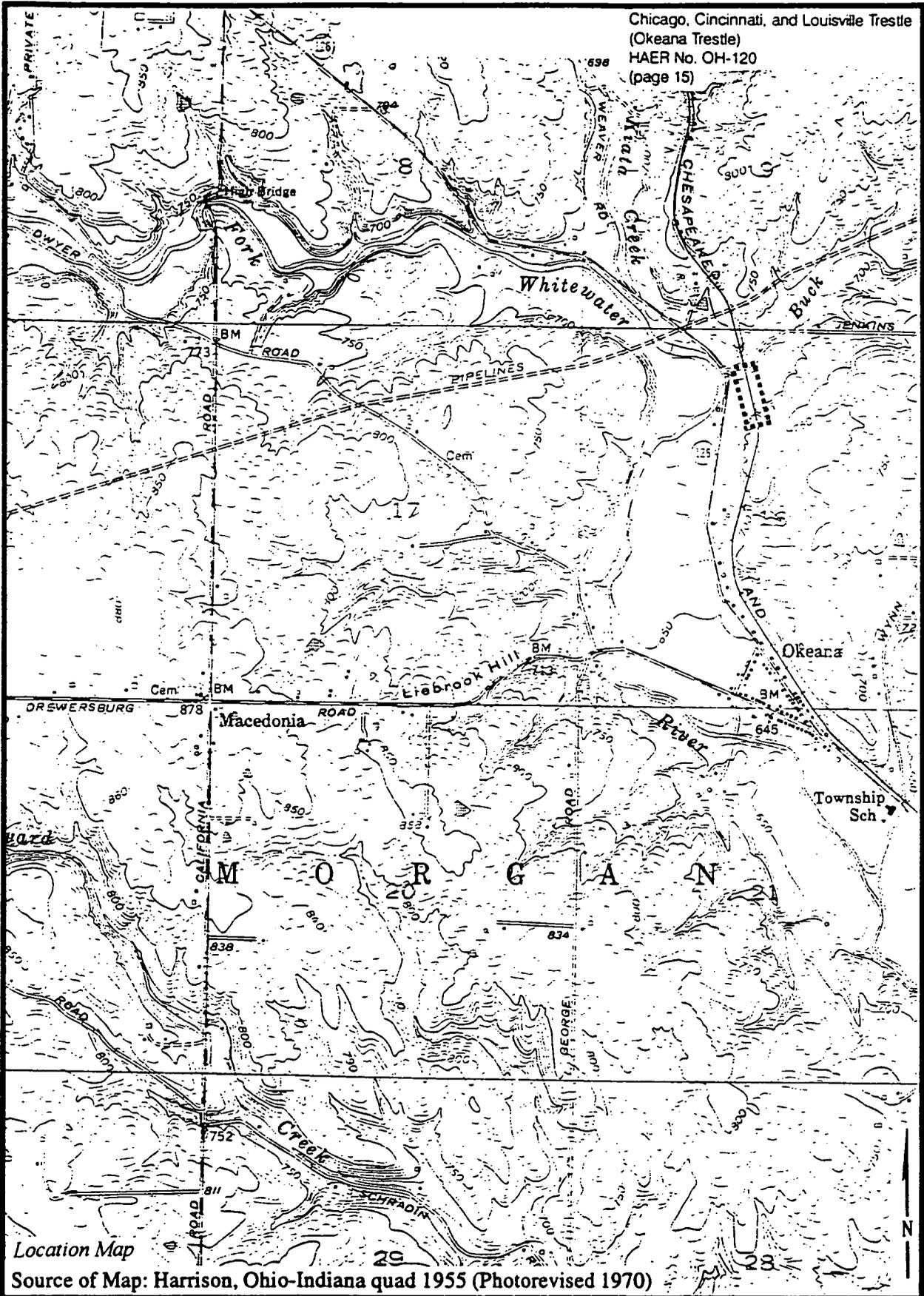
Four refugee bays, two on the north and the south elevations, extend out from the plate girder portion of the trestle. Each refugee bay is 6 feet wide with a 2 foot by 10 inch floor. At one time, these platforms also had a 1½-inch galvanized steel pipe railing.

IV. ENDNOTES

1. The Palladium-Item, Richmond, Indiana, newspaper clipping entitled "Indiana Townships Helped Finance Construction of C. R. And M. Line", February 11, 1954.
2. Hamilton Daily Republican News, undated (c. 1903) newspaper clipping entitled "Structure Built by C., C., & L".
3. The Palladium-Item, Richmond, Indiana, newspaper clipping entitled "Denied Trackage Rights by Ohio Line, C. R. & M. Decided to Build Its Own", undated.
4. The Palladium-Item, Richmond, Indiana, newspaper clipping entitled "Use of Machines Roused Interest Locally in Building Of Railroad", undated.
5. Morris, C. L., *Thirty-seventh Annual Report of the Commissioner of Railroads and Telegraphs to the Governor of the State of Ohio for the Year 1904*, p. 195.
6. Morris, C. L., *Thirty-eighth Annual Report of the Commissioner of Railroads and Telegraphs to the Governor of the State of Ohio for the Year 1905*, p. 197.
7. Hamilton Daily Republican News, undated (c. 1903) newspaper clipping entitled "Structure Built by C, C, & L".
8. Hamilton Times Star, 13 May 1960.
9. Ibid.
10. Ibid.
11. Ibid.
12. Morris, C. L., *Thirty-eighth Annual Report of the Commissioner of Railroads and Telegraphs to the Governor of the State of Ohio for the Year 1905*, p. 132.
13. Ibid.
14. Morris, C. L., *Thirty-seventh Annual Report of the Commissioner of Railroads and Telegraphs to the Governor of the State of Ohio for the Year 1904*, Table C.
15. Railroad Commission of Ohio, *Report of the Railroad Commission of Ohio to Governor of the State of Ohio for 1910*, Table E.

16. Morris, C. L., *Thirty-seventh Annual Report of the Commissioner of Railroads and Telegraphs to the Governor of the State of Ohio for the Year 1904.*
17. Bartlow, Bert S., *Centennial History of Butler County, Ohio*, p. 108-109.
18. *Ibid.*, p. 110-111.
19. Turner, Charles W., *Chessie's Road.*, p. 158.
20. *Ibid.*
21. *Ibid.*, p. 159.
22. *Ibid.*, p. 159.
23. *Ibid.*, p. 158.
24. Chesapeake and Ohio Lines, *Official Industrial and Freight Shippers Guide, Chesapeake and Ohio Lines., 1912-1913*, p. 50
25. Chesapeake and Ohio Historical Society, Membership brochure.
26. Turner, Charles W., Dixon, Thomas W. Jr., and Huddleston, Eugene L., *Chessie's Road*, 2nd edition, p. 18-19.
27. Hamilton Times Star, 13 May 1960.
28. Ketchum, Milo S., *The Design of Highway Bridges*, p. 389.
29. Ketchum, Milo S., *The Design of Highway Bridges of Steel, Timber and Concrete*, p. 268.

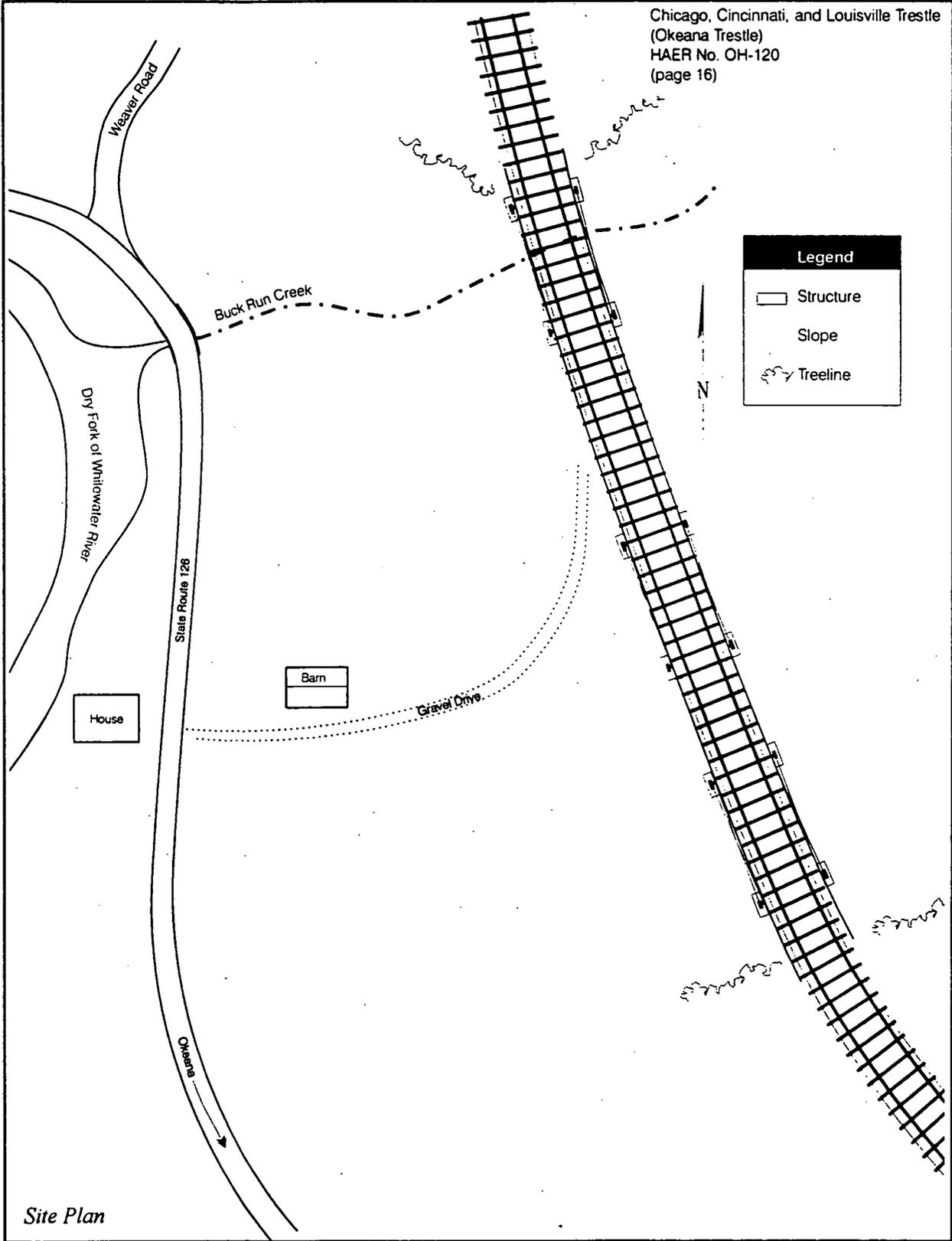
Chicago, Cincinnati, and Louisville Trestle
(Okeana Trestle)
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Location Map

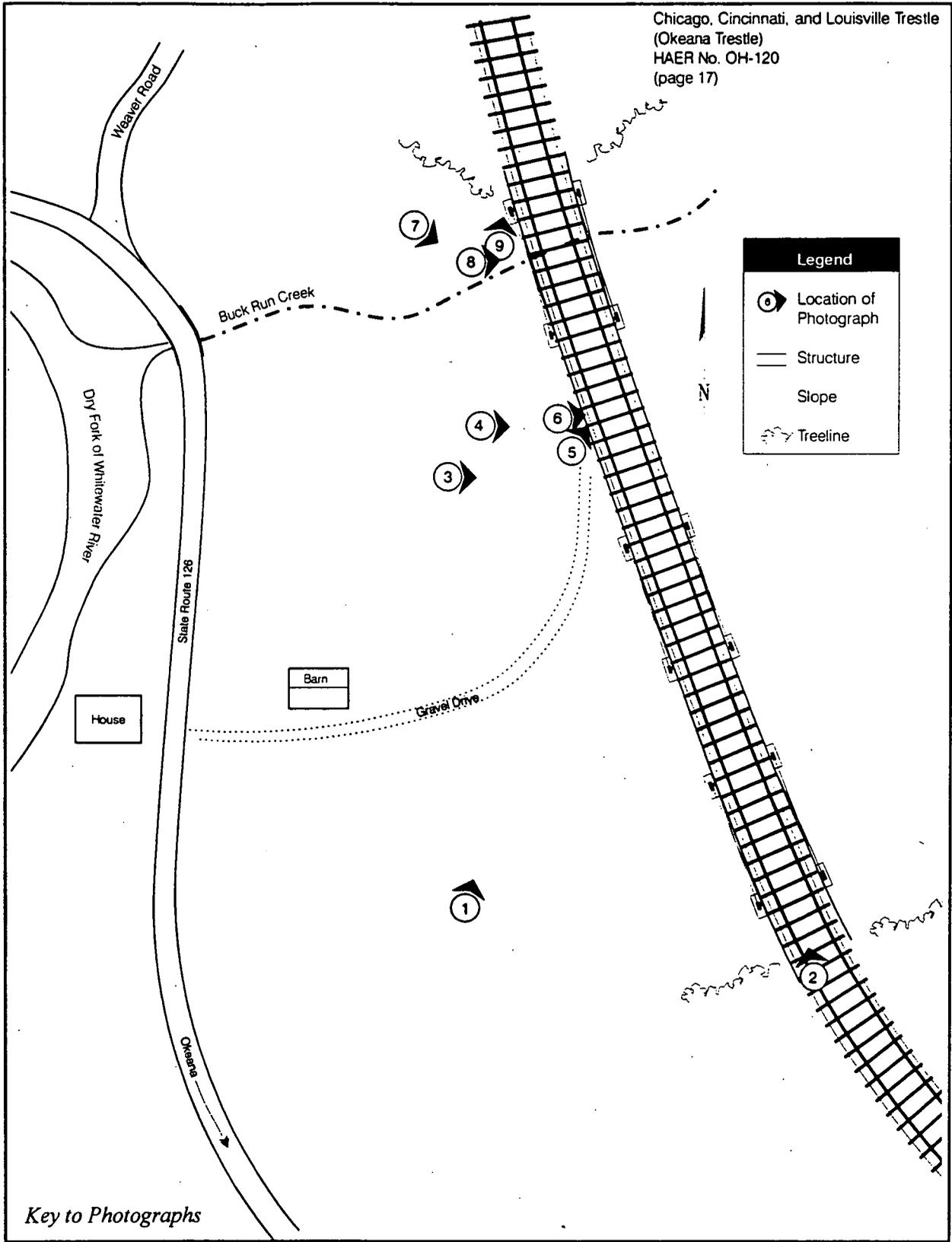
Source of Map: Harrison, Ohio-Indiana quad 1955 (Photorevised 1970)

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Site Plan

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Key to Photographs

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