CONRAIL PORT PERRY BRIDGE
Spanning the Monongahela River
Port Perry
Allegheny County
Pennsylvania

HAER NO. PA-300

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PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

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HISTORIC AMERICAN ENGINEERING RECORD
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HISTORIC AMERICAN ENGINEERING RECORD

CONRAIL PORT PERRY BRIDGE

HAER No. PA-300

Location: Spanning the Monongahela River, Port Perry, Allegheny County, Pennsylvania

Date of Construction: Foundation - 1872-1874
Span - 1903-04

Builder: Foundation - Pittsburgh, Virginia and Charleston Railway
Span - Pennsylvania Railroad Company

Current Owner: CONRAIL

Present Use: Railroad bridge

Significance: The Port Perry Bridge is a typical example of an early twentieth-century, pin-connected railroad bridge. It was designed by the prolific Engineering Department of Pennsylvania Railroad.

Project Information: The Monongahela River Recording Project is part of the Historic American Engineering Record (HAER), a long-range program to document historically significant engineering, industrial and transportation sites in the United States. A division of the National Park Service, U.S. Department of the Interior, the HAER program is administered by the Historic American Buildings Survey/Historic American Engineering Record, Blaine Cliver, Chief. Documentation of the Conrail Port Perry Bridge was sponsored by the U.S. Army Corps of Engineers, Pittsburgh District (Fraser Gensler, Conrad Weiser, Planning Division). Assistance was provided by Conrail and the Union Railroad.

The field work, drawings, historical reports and photographs were prepared under the direction of Eric N. DeLony, Chief of HAER, and Dr. Dean Herrin, Project Leader. The recording team consisted of Christopher H. Marston, HAER Architect and Project Supervisor, Jonathan Gill (ICOMOS/Ironbridge

Institute, U.K.), and Sean T. Blaire (Cal Poly-San Luis Obispo), Architectural Technicians. Formal photography was done by Jet Lowe. Dr. Frances Robb served as project historian. Michael Bennett and Lisa Pfueller Davidson edited and prepared this documentation for transmittal to the Library of Congress.

Additional Monongahela River projects were conducted as part of this 1994 Army Corps of Engineers documentation. See HAER No. PA-385, Monogahela Navigation Company Lock & Dam No. 7; HAER No. 299, Monogahela Lock & Dam No. 7; and HAER No. 304, Lower Monongahela River Public Improvements for additional information. Also, HAER No.'s PA-390 to PA-400 are individual site reports related to the Lower Monongahela River Public Improvements project. A video, "River Mile 85, Mon Lock 7," was also produced as part of the overall documentation (copies are in the possession of the U.S. Army Corps of Engineers, Pittsburgh District, Planning Division).

The rivers of Pittsburgh - the Monongahela, Allegheny and Ohio - have been central to the economic growth of the region. From the earliest years traders and settlers used the rivers as a means to access the interior western lands of the United States. Later, the rivers were used to ship produce, coal, coke, gravel and steel to markets. In spite of these benefits, the rivers also acted as transportation barriers. As important as the rivers have been, bridges have had an equally significant role in the development of the area. This was particularly true with the arrival of the railroad. Unable to use ferries to cross rivers, the railroad companies had to build bridges across the rivers. The Pennsylvania Railroad (PRR), one of the five trunk, or main, lines to operate in Pittsburgh, constructed numerous bridges in the area. The Port Perry Bridge, located near the mouth of Turtle Creek in Allegheny County, Pennsylvania, was one of these spans.

In the early years of the Pennsylvania Railroad, constructing the line to Pittsburgh was the primary goal. The railroad, like its competitors, wanted to provide a link between the eastern seaboard and the western waters of the Ohio River. When the PRR reached Pittsburgh in 1852 this goal was accomplished. By the 1870s, the situation had changed considerably, with Pittsburgh no longer just an end terminus but rather the beginning of the western connection. Pittsburgh became an organizational starting point, and all PRR lines built into the midwest dispersed out from Pittsburgh. Although trade from the city was still important, the tracks in the city became increasingly more crowded. Furthermore, traffic was limited and slowed by the tunnel through Grant's Hill in the city. In 1871 the directors of the PRR announced their plan to build new tracks and a bridge to detour trains from the Pittsburgh bottleneck. The solution created by the directors at this time was to connect two small lines of the PRR system, the Pittsburgh, Virginia and Charleston and the Port Perry branches.[1]

As one of the first great rail systems in the United States, the organization of the PRR was complex and constantly changing. In addition to the mainline, from Philadelphia to Pittsburgh, the company owned or controlled

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[1]Pennsylvania Railroad Company, Annual Report, 1871, printed in George H. Burgsss and Miles C. Kennedy, Centennial History of the Pennsylvania Railroad Company 1846-1946 (Philadelphia: The Pennsylvania Railroad Company, 1949), 119.

other railroads and branch lines operating under different names. The Pittsburgh, Virginia and Charleston Railroad (PV&C) was one of these controlled lines.

The PV&C was incorporated by the Pennsylvania legislature in 1867 as the Monongahela Valley Railroad Company, but its name was subsequently changed to the Pittsburgh, Virginia and Charleston Railroad in 1870. From the beginning, the PRR owned a substantial amount of corporate stock of PV&C. This was not an unusual case for the PRR. In fact, it was typical for the PRR to form an independent company on paper, although stock control was held by the PRR. The subsidiary firm then built the line, and soon after, it was leased to the PRR.[2]

The PV&C was a perfect example of this type of operation by the PRR. The first thirty miles of track were built between the Birmingham south side neighborhood of Pittsburgh to Monongahela City in 1873. Built alongside the west bank of the Monongahela River, the PV&C passed through Homestead and in 1881 the line had reached West Brownsville. From here a line, the Redstone Branch, was built into the Klondike region of the Connellsville coal territory, and then into Uniontown.[3]

Another small line in the PRR in the Monongahela Valley was the Port Perry line. Unlike the PV&C, this line was built by the PRR and operated as a branch line. The Port Perry Branch, which received its name from the old town at its terminus on the Monongahela River, was only 1.32 miles long.[4]

Connection between the Port Perry line and the PV&C was made at the Port Perry Bridge, 11.7 miles above Pittsburgh, four hundred feet downstream from Lock and Dam No. 2. This bridge provided an important link in the PRR system as it allowed traffic traveling westward on the mainline to switch

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[2]Roger B. Saylor, The Railroads of Pennsylvania (State College, PA: Bureau of Business Research, College of Business Administration, The Pennsylvania State University, 1964), 121.

[3]William Bender Wilson, History of the Pennsylvania Railroad Company (Philadelphia: Henry T. Coates and Company, 1899), 216-217; Burgess and Kennedy, Centennial History of the Pennsylvania Railroad Company, 119-121, 428-429.

[4]Richard T. Wiley, Monongahela: The River and Its Region (Butler, PA: By the Author, 1937), 164.

to the Port Perry Branch and cross the Monongahela River before Pittsburgh, travel through the south side of the city, and connect with the PRR's Panhandle Division (also called the Pittsburgh, Cincinnati, and St. Louis Railroad) at South Duquesne. This route allowed traffic to by-pass the congestion of downtown Pittsburgh and miss the Grant's Hill Tunnel.[5]

One year after the 1871 announcement by the PRR directors, work on the Port Perry Bridge was begun. The bridge was built by the Pittsburgh, Virginia and Charleston Railway, under the supervision of P.F. Brendlinger, its resident engineer. Work for the nine-span bridge began in 1872, but the mud and gravel bottom of the river gave the builders great difficulty in building the foundation. Further delays were caused by the financial panic in 1873, but the bridge was finally finished in 1874. Sitting atop the masonry piers, the "double intersection triangular system" included braces at 45 degree angles from the "intermediate vertical stiffening members."[6]

Five years after the bridge was finished, the Pittsburgh, Virginia and Charleston Railway remained small. It included thirty miles of track (to W. Brownsville) with an additional 2.4 miles of second track running parallel to the first track and 3 miles of side track (dead end off-shoots of the main track). Traffic was carried by five locomotives. In 1879 the PV&C was officially leased to the PRR, and incorporated into the Monongahela Division.[7]

Divisions were an organizational means of dividing the massive PRR system into manageable sections. The Monongahela Division, created in 1879, was composed of numerous coal rail lines. It was, primarily, a local delivery system, delivering coal from the mines to coke or steel plants along the Monongahela River. The PV&C was the primary line of this division that extended up the left bank of the Monongahela

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[5]Pennsylvania Railroad Company, Annual Report, 1871, printed in Burgess and Kennedy, Centennial History of the Pennsylvania Railroad Company 1846-1946, 119.

[6]P.F. Brendlinger, "Foundations For River Bridge Piers," in Proceedings of Engineers' Society of Western Pennsylvania II (October 1882), 255-260; James Dredge, The Pennsylvania Railroad: Its Organization, Construction, and Management (New York: John Wiley and Sons, 1879), 60.

[7]Wilson, History of the Pennsylvania Railroad Company, 217; Burgess and Kennedy, Centennial History, 119.

River into the West Virginia coal fields to Fairmont, West Virginia. Other sections of the division included the Pittsburgh and White Hall line, the Peters Creek Branch, the Redstone Branch and the Port Perry Branch.[8]

The Port Perry line was always a small part of the division. In 1902 it had only 1.32 miles of first track, and an equal amount of second track. This double trackage indicates the heavy, constant use of the road with the growing coal trade in this period and its importance as a major link in the entire PRR transportation system.

By 1902 the demand for coal had spurred development of the Monongahela Division as a whole, and the tracks in the division had grown to 249.11 miles. Ninety-six miles were the first track, with an additional fifty-three miles of second track. In just five years, the division had exploded to 1,839 miles of first track, with total trackage of 4,995 miles.[9]

The Port Perry Bridge provided the link between the Port Perry Branch and the PV&C, both lines within the Monongahela Division of the PRR Company. The most important aspect of this link was allowing a detour passage around Pittsburgh's downtown. In order to accommodate the traffic, the PRR Company expanded and improved the tracks of the Monongahela Division. Part of this expansion included the replacement of the original Port Perry Bridge.

There was also a need to rebuild the bridge because of technological changes within the railroad industry, most notably regarding the locomotives. In 1880, the average locomotive weighed sixty-six tons. By 1905, most locomotives now weighed over one hundred sixty tons. Furthermore, since the 1880s there had been major advancements in American bridge design engineering techniques. In order to build a structure in the river the railroad company now needed to secure a permit from the Secretary of War, which was given in June 1902.[10]

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[8] Poor's Manual, (NY: American Bank Note, 1902), 648-649.

[9] Burgess and Kennedy, 428-429; Poor's Manual (1902), 649; Wilson, History of the Pennsylvania Railroad Company, 216-217.

[10] Llewellyn Nathaniel Edwards, A Record of History and Evolution of Early American Bridges (Orono, Maine: University Press, 1959), 132; J.A.L. Waddell, Bridge Engineering (NY: John Wiley and Sons, 1925), 30; "Monongahela

From its earliest years, the PRR Company had developed a reputation for its high quality of bridges and its pioneering use of iron in American bridges. Virtually all of the company's bridges were designed by its Engineering Department. Since the 1850s the department had been designing Pratt trusses, using a combination of cast and wrought iron for construction on the PRR.

Throughout the late nineteenth and early twentieth centuries, the Pratt truss, in various modifications, was the most common bridge built by American railroad companies. In the 1870s C.H. Parker modified the Pratt truss making the top chords polygonal. This design was called the Polygonal Chord Pratt, the Pratt Truss with Polygonal Top Chord or, most simply, the Parker Truss.[11]

The PRR Engineering Department, under the supervision of William H. Brown, designed a pin-connected Parker through-truss with a Warren deck truss, all made from steel, for the Port Perry bridge. Although riveted bridges were common in Europe, most American engineers still preferred pin-connected over riveting. A pin-connected bridge had several advantages. A pin-connected bridge could be made in the shop and shipped to the site easily. It was lighter, and required less skilled labor to construct the bridge. For all of these reasons, the pin-connected was cheaper than a riveted bridge. It was not until the late 1920s, with the invention of the pneumatic riveter, that riveted bridges gained favor among American engineers.[12]

Built upon the original piers, the bridge was double-tracked and had eleven sections, with a total span of 1,496 feet. The navigation channel maintained by the US Army Corps of Engineers passed through the eighth span of 409 feet, though this has a horizontal clearance of 393 feet. From its completion in 1904, the bridge has had one of the lowest clearance heights on the Monongahela River. Over the years this vertical clearance has been listed in federal documents

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River, W.VA. and PA.," 81st Cong., 1st sess. (1949) S. Doc, #100, 17.

[11]Dredge, The Pennsylvania Railroad 53; David Plowden, Bridges: The Spans of North America (NY: The Viking Press, 1974), 96; Waddell, Bridge Engineering, 24, 469; Thomas Clark Shedd, Structural Design in Steel (NY: John Wiley and Sons, 1934), 52.

[12]Port Perry Bridge Drawings, Pennsylvania Railroad Drawings, CONRAIL Archives, Philadelphia, Pennsylvania; Edwards, A Record of History and Evolution of Early American Bridges, 104; Waddell, Bridge Engineering, 31.

as 45.6 feet or 49.1 feet, due to changes in the height and location of Dam No. 2. Although the Smithfield Bridge in Pittsburgh has the lowest vertical clearance of 42.5 feet, the height of the Port Perry Bridge made it one of the "bridges of controlling dimensions on the Monongahela River." With only 45.6 feet above the normal pool level, the Port Perry Bridge is already 1.4 feet below the minimum clearance of 47 feet established for the river.[13]

The Port Perry Bridge is an exemplary model of an early twentieth century American railroad bridge. Like most railroad bridges it was designed with strictly utilitarian purpose in mind and its design features were basic and cost-effective. Constructed of steel, the bridge used a modified Pratt truss with pin-connections, all favorite design features of the PRR and most other American railroad companies during this period.

More important than its design, however, was the connection the bridge made between the mainline of the PRR and the Monongahela Division, via the Port Perry branch line and the PV&C. The Port Perry bridge and the PV&C provided the PRR company its first by-pass of downtown Pittsburgh by its connection with its Panhandle Division (Pittsburgh, Cincinnati and St. Louis Railroad). However, it was not the only one developed by the PRR Company. In 1886, the PRR created the Ohio Connecting Railway Company, which built a by-pass for traffic west of the city, and a year later, the Brillant Cutoff Branch which connected the main line Pittsburgh Division with its northwestern lines, also by-passing downtown Pittsburgh.[14]

Throughout the nineteenth and early twentieth centuries, coal remained an important commodity carried by rail, and in this period the PRR carried more coal than any other railroad in the United States. In 1910, for example, coal accounted for 66 percent of all tonnage carried by the PRR. Therefore, the declining use of coal by industrial and domestic users, and increased competition from barge carriers, and other alternative transportation methods, all

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[13]"Monongahela River, W.VA. and PA.," 81st Cong., 1st sess.,(1949), S. Doc. #100, 9, 17; "Monongahela River, PA," 67th Cong., 2d sess., (1922), H. Doc. #288, 8; "Locks Nos. 4 and 6, Monongahela River, PA," 62d Cong., 3d sess (1913), H. Doc. #1217, 6.

[14]Burgess and Kennedy, Centennial History, 429; Citizens Committee on City Plan of Pittsburgh, Railroads of the Pittsburgh District (Pittsburgh: Municipal Planning Association, Citizens Committee on City Plan of Pittsburgh, 1923), 21.

had a negative impact on coal traffic of the PRR. Furthermore, the depletion of coal veins in the Monongahela Valley contributed to the declining importance of the Monongahela Division within the PRR.[15]

However, even after the 1968 merger between the PRR and the New York Central, the alternative route provided by the Port Perry Bridge and the PV&C track remained significant. Today, the Port Perry Bridge is owned and controlled by the Consolidated Rail Corporation (CONRAIL). Organized in 1976, this company operates a railroad in the northeastern and midwestern sections of the United States and Canada. As a freight carrier, CONRAIL had even less of a need to stop in Pittsburgh, so the Port Perry Bridge continues to be of great value to the company.[16] Furthermore, as CONRAIL studies and experiments with equipment changes, using taller, double-stacked container trains, the Port Perry bridge route continues to offer a detour around the height and speed restrictions of downtown Pittsburgh.

Ninety years after the construction of the Port Perry Bridge by the PRR interests, the bridge continues to hold a strategic spot in the rail line. As the US Army Corps of Engineers plans to upgrade the navigation system on the Monongahela River one of the biggest changes will be the raising of the pool level with the construction of New Dam No. 2. This change will raise the pool level five feet under the Port Perry Bridge. With one of the lowest clearances to begin with, the change in pool level will place the Port Perry Bridge under the height restrictions issued by the US Coast Guard. As a potential obstruction to navigation, the bridge will have to be modified.

In 1871 the directors of the PRR Company announced their plan to build new tracks and bridge to detour trains through the bottleneck of Pittsburgh. Since the construction of the original bridge in 1874, the Port Perry Bridge has been a critical component of this alternative route. Despite major changes in the railroad industry and reduced coal traffic, this route itself continues to play a crucial role in the local railroad infrastructure. Avoiding the traffic restrictions and restraints of the City of Pittsburgh is as

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[15]John F. Stover, The Life and Decline of the American Railroad (NY: Oxford University Press, 1970),236, 258-259; John Moody, Moody's Analyses of Railroad Investments (NY: Analyses Publishing Company, 1912), 420.

[16]John F. Stover, The Life and Decline of the American Railroad (New York: Oxford University Press, 1970), 236, 258-259, 284; Moody's Transportation Manual (New York: Moody's Investor Service, 1992), 418.

significant today as it was one hundred years ago. The Port Perry Bridge, an archetypal early twentieth century American railroad bridge, continues to provide this service as it carries trains over the waters of the Monongahela River.

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ADDENDUM TO:
CONRAIL PORT PERRY BRIDGE
(Pennsylvania Railroad Port Perry Bridge)
Spanning Monongahela River
Port Perry
Allegheny County
Pennsylvania

HAER PA-300
HAER PA,2-POPER,1-

PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

FIELD RECORDS

HISTORIC AMERICAN ENGINEERING RECORD
NORTHEAST REGIONAL OFFICE
National Park Service
U.S. Department of the Interior
U.S. Custom House, 3rd Floor
200 Chestnut Street
Philadelphia, PA 19106

ADDENDUM TO:
HISTORIC AMERICAN ENGINEERING RECORD

CONRAIL PORT PERRY BRIDGE
(Pennsylvania Railroad Port Perry Bridge)

HAER PA-300

This is an addendum to a 12-page report completed in 1994 and transmitted to the Library of Congress.

The record has been amended to include the historic name of Pennsylvania Railroad Port Perry Bridge as the secondary name.

The Port Perry Bridge was originally documented by the Historic American Engineering Record (HAER) in 1994. The Pittsburgh District of the U.S. Army Corps of Engineers (USACE) requested this addendum as a mitigation measure. The bridge had to be raised to maintain minimum clearance beneath the navigation span after raising the navigation pool from el. 718.7 to 723.7 feet (National Geodetic Vertical Datum). The primary purpose behind this addendum is to focus on the bridge's substructure, most of which dates to the 1872-1874 construction of the original Port Perry Bridge. The substructure was not documented in any detail as part of the original HAER documentation. Additionally, as part of the mitigation, the bridge's current owner, the Norfolk Southern Corporation, provided access to all the Port Perry Bridge drawings in its possession, which are included in the field records accompanying this documentation.

As noted in the 1994 documentation, the Pittsburgh, Virginia & Charleston Railway (PV&C) constructed the original Port Perry Bridge between 1872 and 1874. The Pennsylvania Railroad (PRR) replaced the entire superstructure and a portion of the substructure in 1903. The new superstructure was built by the Pencoyd Plant of the American Bridge Company. For the most part, the original substructure was reused, but some modifications were necessary. The original main span over the shipping channel was a double intersection Warren through truss. The replacement main span was a much longer Parker through truss, equal to the distance spanned by both the original main span as well as the approach span to its south. The new, longer channel span required the removal of two piers: the pier supporting the south ends of the original main span, which also supported the north end of the approach span (Pier 8), and the pier supporting the south end of the approach span (Pier 7). The latter was replaced by a single new pier (Pier 7), which supported the south end of the new channel span. The replacement of two piers by one pier resulted in a renumbering of the 1874 Piers 9, 10, and 11 to Piers 8, 9, and 10. As a result, the piers supporting the navigation span changed from Piers 8 and 9 (1874) to Piers 7 and 8 (1903).

Changes were also made at the south (Duquesne) end of the bridge. The original Port Perry Bridge had three double intersection Warren approach spans over the Union Railroad. In constructing the new bridge, the first, or southernmost, approach span was removed and filled in. This meant that what had been the location of the first pier of the 1872-1874 bridge became the location of the south abutment of the new bridge. The next two approach spans were also removed and replaced with two deck girder

spans. The shallower deck girder spans were undoubtedly placed to provide greater clearance for the Union Railroad's rolling stock. The PRR constructed a new pier to support the midpoint of the girder bridges. This new pier, temporarily named Pier 1-1/2, became known as Pier 1 since the original Pier 1 became the new abutment. Consequently, when completed in 1903, the Port Perry Bridge had a substructure of two abutments and eleven piers. From south to north (that is, from the Duquesne to the Port Perry side) the piers were labeled Piers 1 through 10.[1]

All substructure elements, whether constructed in 1873 or 1902, were built of stone. The south abutment of the 1902 structure was built in 1873 as Pier 1; a stone addition was made to it in 1902 in the conversion from a pier to an abutment. Piers 2, 3, 4, 5, 6, 8, 9, and 10 plus the bridge's north abutment were also built in 1873. Piers 2, 3, 5, 8, and 10 were noted as having stone additions placed in 1902, perhaps as repairs but most likely to raise their heights and provide greater clearance over the river and the railroads that occupied both banks of the stream. Piers 3 and 5, according to the drawing, were partially rebuilt in 1907. Piers 1 and 7 date to 1902 and were tied to the reconfiguration of the main and south approach spans. Pier 8, the north pier of the main span, had a concrete buttress added to its inside face in 1931.[2]

Piers 1 through 7 were built to a similar design, while Piers 8 and 9, the piers for the main span, were larger and had different designs. Piers 1 through 7 had pointed noses on the upstream end but were rounded on the downstream face. Pier 8, which supported the south end of the original channel span, had a similar design but was much larger. Pier 9, the north support for the original and current channel span (Pier 8 today due to the renumbering), was rounded at each end. Piers 10 and 11, land-based piers, were rectangular in design.[3]

Fieldwork in September 2009 revealed that a number of piers had been repaired. Pier 8 had a concrete buttress added in 1931. The most extensive repairs were made to Pier 2. The nose and back of the pier were faced with concrete, and the upper portion was banded with steel bands. The repairs were made in 1938 by the Fort Pitt Bridge Works, a Pittsburgh bridge fabricator.[4]

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[1] No. 54, Bridge over Monongahela River, Port Perry Branch, Monongahela Division-Penna. R.R., May 24, 1902, Sheet 1 of 2, Pennsylvania Railroad Drawing MF183824-F1. All drawings held by Norfolk Southern Corporation; No. 54, Bridge over Monongahela River, Port Perry Branch, Monongahela Division-Penna. R.R., May 24, 1902, Sheet 2 of 2, Pennsylvania Railroad Drawing MF183824-F2.

[2] Pennsylvania Railroad Central Region, Monongahela Div., Port Perry Br., Bridge No. 10.19 over the Monongahela River, Soundings Taken April 1, 1936, Office of Engr. of Bridges and Buildings, April 3, 1936, Pittsburgh PA., revisions 2/28/40, Pennsylvania Railroad Division MF183823; Pennsylvania Railroad Central Region, Monongahela Div., Port Perry Br., Bridge No. 10.19 over the Monongahela River, Soundings Taken April 1, 1936, Office of Engr. of Bridges and Buildings, April 3, 1936, Pittsburgh Pa., revisions 2/28/40, Pennsylvania Railroad MF183823; and No. 8094, Agreement Plan, Location of Proposed New Pier, Port Perry Bridge, Union R.R. and Monongahela River, Port Perry Bridge, P.R.R. Monongahela Division, Phila., July 30, 1902, Pennsylvania Railroad Drawing MF183821.

[3] No. 8012, P.V. & C. Ry, Port Perry Bridge, Plan and Elevation of Piers 1 to 9 Inclusive, 6-20-02, Pennsylvania Railroad Drawing MF184268; and Plan, P.V. & C.R.R., Showing Bridge Seats on Piers of the Port Perry Bridge over the Monongahela River, Jan. 18th, 1902, Pennsylvania Railroad Drawing MF191821.

[4] The Pennsylvania Railroad, Central Region, Pittsburgh Div., Port Perry Br., Bridge No. 10.19 over Monongahela River, Thomson, Proposed Buttress for Pier No. 8, Pennsylvania Railroad Drawing MF183846; The Pennsylvania Railroad, Central Region, Monongahela Division, Port Perry Branch, Bridge No. 10.19 over Monongahela River, 0.23 Mi. E. of Thomson, PA, Repairs to Pier No. 2, Office of Master Carpenter, Pittsburgh, PA., July 18, 1938, Pennsylvania Railroad Drawing MF183833.