

UNITED STATES DEPARTMENT OF THE INTERIOR  
NATIONAL PARK SERVICE

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30

NATIONAL REGISTER OF HISTORIC PLACES  
INVENTORY -- NOMINATION FORM

SEE INSTRUCTIONS IN HOW TO COMPLETE NATIONAL REGISTER FORMS  
TYPE ALL ENTRIES -- COMPLETE APPLICABLE SECTIONS

1 NAME

HISTORIC

Kinzua Viaduct

AND/OR COMMON

USE THIS COPY  
FOR DUPLICATING

2 LOCATION

STREET & NUMBER

4.2 miles NE of Mt. Jewett

NOT FOR PUBLICATION

CITY, TOWN

Mt. Jewett

VICINITY OF

23

CONGRESSIONAL DISTRICT

STATE

Pennsylvania

CODE

42

COUNTY

McKean

CODE

083

3 CLASSIFICATION

CATEGORY	OWNERSHIP	STATUS	PRESENT USE
<input type="checkbox"/> DISTRICT	<input checked="" type="checkbox"/> PUBLIC	<input type="checkbox"/> OCCUPIED	<input type="checkbox"/> AGRICULTURE <input type="checkbox"/> MUSEUM
<input type="checkbox"/> BUILDING(S)	<input type="checkbox"/> PRIVATE	<input checked="" type="checkbox"/> UNOCCUPIED	<input type="checkbox"/> COMMERCIAL <input checked="" type="checkbox"/> PARK
<input checked="" type="checkbox"/> STRUCTURE	<input type="checkbox"/> BOTH	<input type="checkbox"/> WORK IN PROGRESS	<input type="checkbox"/> EDUCATIONAL <input type="checkbox"/> PRIVATE RESIDENCE
<input type="checkbox"/> SITE	<b>PUBLIC ACQUISITION</b>	<b>ACCESSIBLE</b>	<input type="checkbox"/> ENTERTAINMENT <input type="checkbox"/> RELIGIOUS
<input type="checkbox"/> OBJECT	<input type="checkbox"/> IN PROCESS	<input type="checkbox"/> YES: RESTRICTED	<input type="checkbox"/> GOVERNMENT <input type="checkbox"/> SCIENTIFIC
	<input type="checkbox"/> BEING CONSIDERED	<input checked="" type="checkbox"/> YES: UNRESTRICTED	<input type="checkbox"/> INDUSTRIAL <input type="checkbox"/> TRANSPORTATION
		<input type="checkbox"/> NO	<input type="checkbox"/> MILITARY <input type="checkbox"/> OTHER:

4 OWNER OF PROPERTY

NAME

Commonwealth of Pennsylvania, Bureau of State Parks

STREET & NUMBER

B-11 Evangelical Press Building

CITY, TOWN

Harrisburg

VICINITY OF

Pennsylvania

STATE

5 LOCATION OF LEGAL DESCRIPTION

COURTHOUSE,  
REGISTRY OF DEEDS, ETC.

McKean County Courthouse

STREET & NUMBER

CITY, TOWN

Smethport

STATE

Pennsylvania

6 REPRESENTATION IN EXISTING SURVEYS

TITLE

Erie Survey

DATE

1973

FEDERAL  STATE  COUNTY  LOCAL

DEPOSITORY FOR  
SURVEY RECORDS

Historic American Engineering Record

CITY, TOWN

Washington

STATE

D. C.

# 7 DESCRIPTION

CONDITION		CHECK ONE	CHECK ONE
<input type="checkbox"/> EXCELLENT	<input type="checkbox"/> DETERIORATED	<input type="checkbox"/> UNALTERED	<input checked="" type="checkbox"/> ORIGINAL SITE
<input type="checkbox"/> GOOD	<input type="checkbox"/> RUINS	<input checked="" type="checkbox"/> ALTERED	<input type="checkbox"/> MOVED DATE _____
<input checked="" type="checkbox"/> FAIR	<input type="checkbox"/> UNEXPOSED		

## DESCRIBE THE PRESENT AND ORIGINAL (IF KNOWN) PHYSICAL APPEARANCE

The original Kinzua viaduct was 301 feet in height and 2,033 feet in length. It consisted of twenty towers erected on sandstone footings and sunk as deep as 32 feet into the valley floor. Each tower had four main vertical members apparently made of six segment wrought iron columns of the type that the Phoenix Bridge Company made famous. The track was supported on lattice truss between the towers.

The actual construction of the first viaduct began on May 10, 1882. Just ninety-four working days later (August 29, 1882) a crew of forty men had completed the highest railroad viaduct in the world. The new viaduct was 301 feet in height and 2,053 feet in length, and weighed 3,105,000 pounds.

One amazing feat in the construction of the original viaduct was that no scaffolding was used. A gin pole was used to erect the first tower. A wooden crane was constructed on top of the first tower and was used to build the second tower. This procedure was continued until all twenty towers were completed.

The base of each tower was constructed of quarried sand stone taken from the immediate area of the bridge. The footings of each tower rose as high as 16 feet above ground and 35 feet below ground. John C. Noades placed the stone work, which was joined to the iron works by one and one half inch bolts six to ten feet in length.

The vertical members of the supporting towers were flanged, wrought iron columns nine and three quarters inches in diameter spliced at every panel by inside sleeves. Strengthened by longitudinal and transverse horizontal lattice work struts, the legs were further stiffened by diagonal tie rods in the vertical, horizontal, and transverse planes of each panel. Additional supporting columns ascended vertically to the fifth story midway between the legs of the tallest towers. These columns were connected at each story by a tubular horizontal strut for further stiffness.

The supporting legs sloped inward transversely in the ratio of one to six. Towers were uniformly nine feet wide at the top. At the lowest point the tallest tower had a spread of 103 feet. Each tower had a span of 38½ feet. Towers were joined by 60 foot lattice work spans. When completed the weight of this original structure was 3,105,000 pounds. The cost of the original bridge was only 167,000 dollars.

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KINZUA VIADUCT

CONTINUATION SHEET

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The second and present Kinzua Viaduct is of identical overall dimensions with the first bridge. It was designed to accommodate double-headed "consolidation" locomotives with loads of 35,000 pounds per axle.

The first metal for the new bridge was placed on May 26, 1900. It took between 100 and 150 men four months working 10 hours a day to complete the bridge. This is a remarkable feat considering the equipment used, forest fires, political speeches, and strikes that hindered construction.

6,715,000 pounds of steel was used in place of 3,105,000 pounds of iron to reconstruct the viaduct. Construction of the new bridge was started at both ends of the old bridge, this was done by using two 180 foot timber trawlers, each a complete Howe Truss, 16 feet deep. These trawlers spanned three towers. The middle tower was demolished and reconstructed. Then the trawler was moved to effect the reconstruction of the next tower. It took one day to demolish the highest tower and its adjoining spans. It took only seven days to reconstruct this tower and its adjoining spans.

Supporting posts of the new structure were of channel and lattice construction and measured 24 by 30 inches. The top lattice truss work of the old structure was replaced by girders five and one half feet deep at the tower tops and six and one half feet deep in the spans between the towers. Thirty seven miles of rivet rods were used in putting the second viaduct together.

# 8 SIGNIFICANCE

PERIOD	AREAS OF SIGNIFICANCE -- CHECK AND JUSTIFY BELOW			
<input type="checkbox"/> PREHISTORIC	<input type="checkbox"/> ARCHEOLOGY-PREHISTORIC	<input type="checkbox"/> COMMUNITY PLANNING	<input type="checkbox"/> LANDSCAPE ARCHITECTURE	<input type="checkbox"/> RELIGION
<input type="checkbox"/> 1400-1499	<input type="checkbox"/> ARCHEOLOGY-HISTORIC	<input type="checkbox"/> CONSERVATION	<input type="checkbox"/> LAW	<input type="checkbox"/> SCIENCE
<input type="checkbox"/> 1500-1599	<input type="checkbox"/> AGRICULTURE	<input type="checkbox"/> ECONOMICS	<input type="checkbox"/> LITERATURE	<input type="checkbox"/> SCULPTURE
<input type="checkbox"/> 1600-1699	<input type="checkbox"/> ARCHITECTURE	<input type="checkbox"/> EDUCATION	<input type="checkbox"/> MILITARY	<input type="checkbox"/> SOCIAL/HUMANITARIAN
<input type="checkbox"/> 1700-1799	<input type="checkbox"/> ART	<input checked="" type="checkbox"/> ENGINEERING	<input type="checkbox"/> MUSIC	<input type="checkbox"/> THEATER
<input type="checkbox"/> 1800-1899	<input type="checkbox"/> COMMERCE	<input type="checkbox"/> EXPLORATION/SETTLEMENT	<input type="checkbox"/> PHILOSOPHY	<input checked="" type="checkbox"/> TRANSPORTATION
<input checked="" type="checkbox"/> 1900-	<input type="checkbox"/> COMMUNICATIONS	<input type="checkbox"/> INDUSTRY	<input type="checkbox"/> POLITICS/GOVERNMENT	<input type="checkbox"/> OTHER (SPECIFY)
		<input type="checkbox"/> INVENTION		

SPECIFIC DATES

BUILDER/ARCHITECT

## STATEMENT OF SIGNIFICANCE

In 1880 the New York, Lake Erie and Western Coal and Railroad under the presidency of General Thomas L. Kane embarked on a program of expansion into the rich coal, timber, and oil lands of McKean County. The only major obstacle along the route south from Bradford was the Kinzua Gorge. The size of this valley was such that an additional eight miles of track would have been needed to descend along the canyon wall to the valley floor and back again maintaining acceptable grades.

The railroad elected to span the gorge with a viaduct even though no bridge of this magnitude had been attempted up to this time. The largest similar structure in the country, the Portage Bridge over the Genesee, was less than half as large.

It is not clear how many bridge builders were considered, but in the end Anthony Bonzano of the Clarke Reeves Division of the Phoenixville Bridge Company was selected.

The actual construction of the first viaduct began on May 10, 1882. Just ninety-four working days later (August 29, 1882) a crew of forty men had completed the highest railroad viaduct in the world. The new viaduct was 301 feet in height and 2,053 feet in length, and weighed 3,105,000 pounds.

One amazing feat in the construction of the original viaduct was that no scaffolding was used. A gin pole was used to erect the first tower. A wooden crane was constructed on top of the first tower and was used to build the second tower. This procedure was continued until all twenty towers were completed.

Many people have the erroneous idea that the original bridge consisted of wooden construction. This impression came from the pole like appearance of the Phoenix Columns. The only wood on the original bridge consisted of the ties, the walkways, and the guard rails. The bridge was very flexible and would vibrate with the passing of a train. It is said that even wind would start the bridge to vibrate. The speed limit on the original bridge was 5 miles per hour.

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On May 14, 1900, it became necessary to replace the original bridge with a more substantial structure. The old structure began to develop defects and the weight of railroad cars and locomotives began to increase. Traffic over the old bridge was abandoned on May 14, 1900, and the first old metal was removed on May 24, 1900.

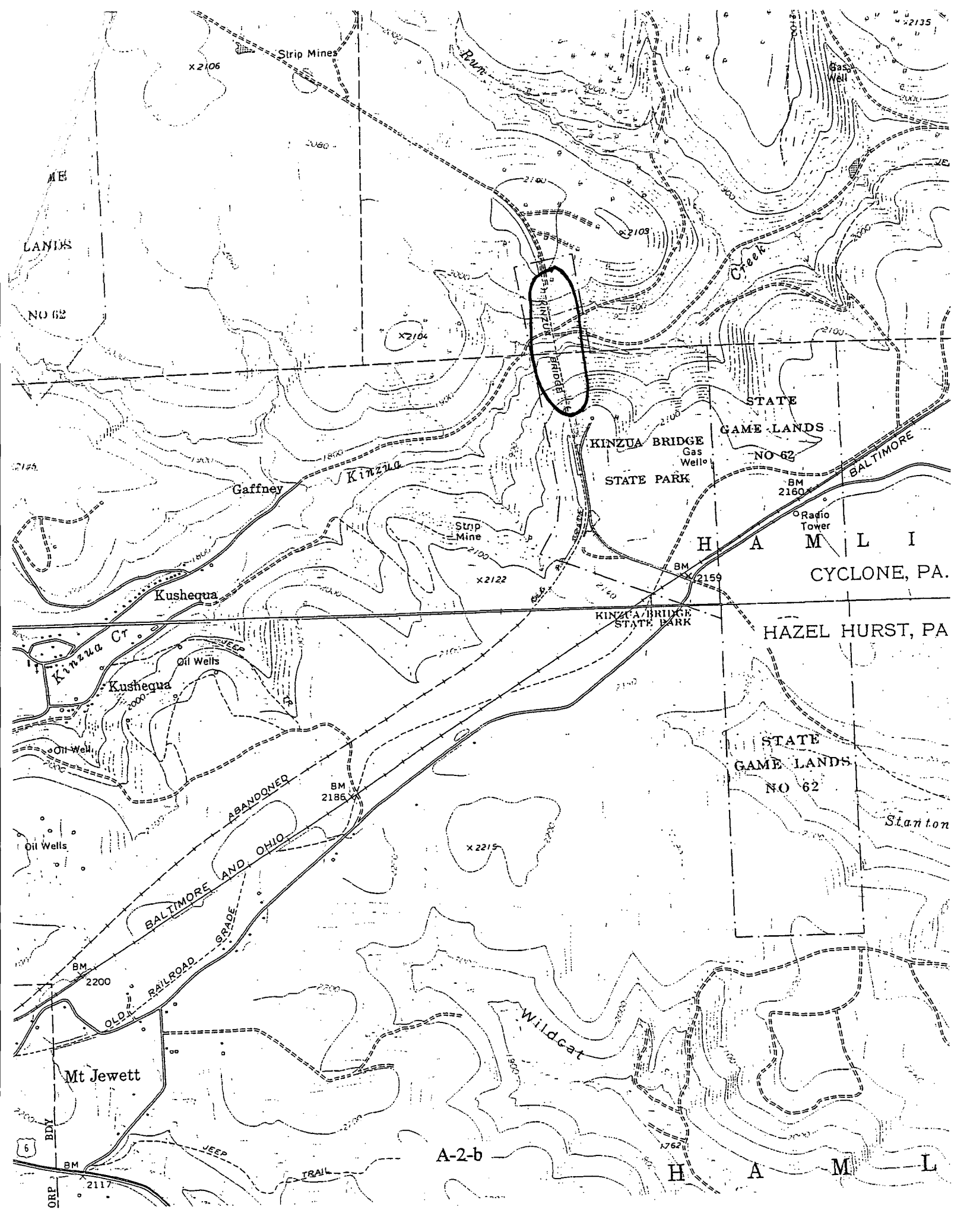
An engineer by the name of Octave Chanute, after whom the U.S. Army Air Field in Illinois was named, designed the bridge to withstand a pressure of 50 pounds, per square foot when unloaded and 30 pounds per square foot when loaded. The last new girder was set in place September 6, 1900; and traffic resumed over the bridge on September 25, 1900.

The Kinzua Bridge is the second highest on the North American Continent. It is surpassed in height only by the Pecos Valley Viaduct, which spans the Columbia River in Texas (362' in height). Two other bridges in the world surpass the Kinzua Bridge in height; the Loa Viaduct in Chile (336½' in height), and the Gokteik Viaduct in Burma, India (335' in height).

The Erie Railroads last excursion to the bridge was on June 21, 1959 and later that year the structure was sold to the Kovalschick Salvage Company of Indiana, Pennsylvania.

The bridge was acquired by the state as the center-piece for a park in 1963.





Strip Mines

x2106

ME  
LANDS  
NO 62

x2104

x2135

STATE  
GAME LANDS  
NO 62

KINZUA BRIDGE  
Gas Well

STATE PARK

BM  
2160

Radio  
Tower

H A M L I

CYCLONE, PA.

Gaffney

Kinzua

Strip  
Mine

x2122

KINZUA BRIDGE  
STATE PARK

BM  
2159

HAZEL HURST, PA

Kushequa

Kushequa

Oil Wells

Kinzua Cr.

STATE  
GAME LANDS  
NO 62

Stanton

ABANDONED  
BALTIMORE AND OHIO  
RAILROAD GRADE

BM  
2186

x2215

BM  
2200

Mt Jewett

Wildcat

A-2-b

H A M L

6

BDY  
ORP

BM  
2117

JEOP

TRAIL