NPS Form 10-900-a
(8-86)

OMB Approval No. 1024-0018

United States Department of the Interior
National Park Service

National Register of Historic Places Continuation Sheet

Section number _____ Page _____

SUPPLEMENTARY LISTING RECORD

NRIS Reference Number: 90001490 **Date Listed:** 10/11/90

Quechee Gorge Bridge	Windsor	VT
Property Name	**County**	**State**

Metal, Truss, Masonry, and Concrete Bridges in Vermont MPS
Multiple Name

This property is listed in the National Register of Historic Places in accordance with the attached nomination documentation subject to the following exceptions, exclusions, or amendments, notwithstanding the National Park Service certification included in the nomination documentation.

for Beth L. Savage 10-11-90
Signature of the Keeper **Date of Action**

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Amended Items in Nomination:

8. Statement of Significance: Period of Significance

The significant dates, 1911 and 1933, are intended as the period of significance as well.

This information was confirmed with Elsa Gilbertson, VTSHPO, by telephone.

DISTRIBUTION:
National Register property file
Nominating Authority (without attachment)

NPS Form 10-900
(Rev. 8-86)

OMB No. 1024-0018

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NATIONAL REGISTER

United States Department of the Interior
National Park Service

National Register of Historic Places Registration Form

This form is for use in nominating or requesting determinations of eligibility for individual properties or districts. See instructions in *Guidelines for Completing National Register Forms* (National Register Bulletin 16). Complete each item by marking "x" in the appropriate box or by entering the requested information. If an item does not apply to the property being documented, enter "N/A" for "not applicable." For functions, styles, materials, and areas of significance, enter only the categories and subcategories listed in the instructions. For additional space use continuation sheets (Form 10-900a). Type all entries.

1. Name of Property

historic name Quechee Gorge Bridge

other names/site number

2. Location

street & number US Route 4 over Quechee Gorge N/A not for publication

city, town Hartford N/A vicinity

state Vermont code VT county Windsor code 027 zip code 05774

3. Classification

Ownership of Property	Category of Property	Number of Resources within Property	
		Contributing	Noncontributing
☐ private	☐ building(s)		buildings
☐ public-local	☐ district		sites
☒ public-State	☐ site	1	structures
☐ public-Federal	☒ structure		objects
	☐ object	1	Total

Name of related multiple property listing:
Metal Truss, Masonry, and Concrete Bridges in Vermont

Number of contributing resources previously listed in the National Register 0

4. State/Federal Agency Certification

As the designated authority under the National Historic Preservation Act of 1966, as amended, I hereby certify that this ☒ nomination ☐ request for determination of eligibility meets the documentation standards for registering properties in the National Register of Historic Places and meets the procedural and professional requirements set forth in 36 CFR Part 60. In my opinion, the property ☒ meets ☐ does not meet the National Register criteria. ☐ See continuation sheet.

S. HPO

Signature of certifying official — Date: August 22, 1990

Vermont

State or Federal agency and bureau

In my opinion, the property ☐ meets ☐ does not meet the National Register criteria. ☐ See continuation sheet.

Signature of commenting or other official — Date

State or Federal agency and bureau

5. National Park Service Certification

I, hereby, certify that this property is:

☒ entered in the National Register.
☐ See continuation sheet.
☐ determined eligible for the National Register. ☐ See continuation sheet.
☐ determined not eligible for the National Register.
☐ removed from the National Register.
☐ other, (explain:) _____

Beth L. Savage — 10-11-90

for Signature of the Keeper — Date of Action

6. Function or Use

Historic Functions (enter categories from instructions)

Transportation

Current Functions (enter categories from instructions)

Transportation

7. Description

Architectural Classification
(enter categories from instructions)

other: metal deck truss bridge

Materials (enter categories from instructions)

foundation concrete
walls
roof
other steel

Describe present and historic physical appearance.

See continuation sheet for text.

[x] See continuation sheet

Located in a wooded area of scattered residential, commercial, and agricultural buildings in the County of Windsor, Vermont, the Quechee Gorge bridge is the oldest standing steel arch bridge in Vermont. It is significant as an early example of steel-arch construction, as an impressive engineering challenge, and as the leading work of a prolific, regionally important bridge engineer. Designed for the Woodstock Railroad in 1911 by John W. Storrs and fabricated by the American Bridge Company of New York, the Quechee Gorge bridge is rare for its unusual design and construction method. Due to its relatively unaltered state, the bridge retains its integrity of location, setting, design, materials, workmanship, feeling, and association.

This large tri-span, spandrel-braced, deck arched bridge is 285' long, 41' wide, and sits 163' above the dramatic setting of the Ottauquechee River. As with virtually all of Vermont bridges built before the 1927 floor, the Quechee Gorge bridge has built-up members in various combinations of plates, channels, and angles, which are connected with rivets.

The Quechee Gorge bridge rests upon poured concrete footings. Interestingly, the bridge replaced an 1875 wooden truss bridge and the granite coursed-ashlar abutments are still visible behind these concrete footings. The bridge's center span is a three-hinged parabolic spandrel-braced arch, with ten Pratt truss panels. The ten panels of the center span combine to form a span of 188'. The remaining two spans are both 45' long and have plate-girder approach spans at either end. The upper chord of the bridge consists of a box girder with side channels and a latticed underside. The lower chord, a larger box girder built up of plates and angles, has a latticed underside. The end vertical is the same as the lower chord and the second vertical is a box girder with two latticed sides. The remaining verticals are I-section plate girders. The diagonals are made up of box girders with two sides latticed. The lattice-girder struts have lower cross-bracing and the first two interior cross-braces are built up T-sections.

The floor system contains large plate-girder (I-section) floor beams, two central plate-girder stringers with six outer I-beam stringers for a concrete slab floor, and angle-section cross-bracing. The I-beam stringers and concrete floor were added to the system in 1933 when the right-of-way was taken over by Route 4 and the bridge was converted for highway use. The bridge also contains sidewalks with a replaced railing, which runs on both sides of its floor. A builder's plate located on the structure states:

JOHN W. STORRS
CONSULTING ENGINEER

BUILT BY
AMERICAN BRIDGE COMPANY
OF
NEW YORK
1911

8. Statement of Significance

Certifying official has considered the significance of this property in relation to other properties:

☐ nationally ☒ statewide ☐ locally

Applicable National Register Criteria ☒ A ☐ B ☒ C ☐ D

Criteria Considerations (Exceptions) ☐ A ☐ B ☐ C ☐ D ☐ E ☐ F ☐ G

Areas of Significance (enter categories from instructions)	Period of Significance	Significant Dates
Engineering	1911	1911
Transportation		1933

Cultural Affiliation

N/A

Significant Person

N/A

Architect/Builder

American Bridge Company
Storrs, John W.

State significance of property, and justify criteria, criteria considerations, and areas and periods of significance noted above.

See continuation sheet for statement of significance.

☒ See continuation sheet

9. Major Bibliographical References

Hartford, Vermont. Vermont Historic Sites and Structures Survey, Survey # 1408-44. Vermont Division for Historic Preservation. Montpelier, VT.

☐ See continuation sheet

Previous documentation on file (NPS):
- ☐ preliminary determination of individual listing (36 CFR 67) has been requested
- ☐ previously listed in the National Register
- ☐ previously determined eligible by the National Register
- ☐ designated a National Historic Landmark
- ☐ recorded by Historic American Buildings Survey # _____
- ☐ recorded by Historic American Engineering Record # _____

Primary location of additional data:
- ☒ State historic preservation office
- ☒ Other State agency
- ☐ Federal agency
- ☐ Local government
- ☐ University
- ☐ Other

Specify repository: Agency of Transportation

10. Geographical Data

Acreage of property less than one acre

UTM References

	Zone	Easting	Northing
A	18	709000	4834680
B			
C			
D			

☐ See continuation sheet

Verbal Boundary Description

The boundary for this property is the bridge and its abutments. The bridge carries US Route 4 across the Ottauquechee River in the town of Hartford, Vermont at the UTM reference point: 18/709000/4834680. It is 278' in length and 41' in width.

☐ See continuation sheet

Boundary Justification

The boundary includes all the land historically associated with this bridge.

☐ See continuation sheet

11. Form Prepared By

name/title Nadine Miller
organization UVM Historic Preservation Program date April 20, 1990
street & number Wheeler House, UVM telephone (802) 656-3180
city or town Burlington state Vermont zip code 05405

★U.S.GPO:1988-0-223-918

As part of a multiple property submission, the Quechee Gorge bridge is being nominated under the historic context "Metal Truss, Masonry, and Concrete Bridges in Vermont". The property type is metal truss bridges. This bridge clearly meets the registration requirements for this property type. It is historically significant under National Register Criterion A for contribution to the broad patterns of our transportation history since it was built as a railroad bridge during the height of railroad transportation and then, in 1933, was incorporated into a highway bridge due to increased automobile traffic on Vermont's roadways. The bridge is architecturally significant under National Register Criterion C for embodying the types, forms, and methods of engineering and constuction asociated with bridge building in Vermont in the 19th and 20th centuries. It is also associated with the work of a master bridge builder, John W. Storrs. The bridge is intact with an identifiable truss system. The truss system is functioning, and the structure retains its integrity of location, setting, design, materials, workmanship, feeling, and association.

The Quechee Gorge bridge, which crosses the Ottauquechee River in Hartford, is significant as an early example of steel-arch construction, as an impressive engineering challenge, and as the leading work of a prolific, regionally important bridge engineer, John W. Storrs. Although a few steel arches had been built in America in the 1880's and 1890's, they did not become common until the first decades of the twentieth century, and then only for special circumstances. Now that the 1905 Bellows Falls Bridge has been demolished, this span ranks as Vermont's oldest steel arch. It is also the only spandrel-braced arch. Unlike the rib arches of bridges over the Connecticut River, the spandrel-braced arch uses trusswork in the area between the roadway and the ribs, in effect, making the whole web into part of the arch. The design was especially well-suited to situations such as this where the crossing had to be made high above a rocky gorge. By utilizing an arch, the abutments could be made lower than a comparable deck truss, and more importantly, could be erected without falsework. Although the method of erection of this bridge is not known, steel arches typically were constructed with the ribs cantilevered out over the river and held in place by stay cables. Thus, this bridge could have been erected without first building 163' of falsework precariously perched in the gorge below.

The bridge was built in 1911 to carry the tracks of the Woodstock Railroad over the gorge and replaced an 1875 wooden truss bridge which was less suited for heavyweight, twentieth century locomotives. In 1933, the right of way was taken over for U.S. Route 4, and the bridge was converted for highway use. This procedure chiefly required adding stringers and a concrete deck to the system.

The fabricator of the Quechee Gorge bridge was the American Bridge Company. The firm, whose parent company was U.S. Steel, was the most prolific bridge fabricator in Vermont before, during, and after the 1927 flood. John W. Storrs was the chief designer of the bridge and was not associated with the company.

At the time John W. Storrs designed this bridge, he was employed as a bridge engineer for the Boston and Maine Railroad. He also worked as an independent consultant for others, including the Woodstock and Montpelier and Wells River Railroads. Around 1909 his son, Edward, associated with him and by 1915 the firm, known as Storrs and Storrs, was doing a large business in northern New England. The firm also designed a Connecticut River bridge in Brattleboro, as well as a granite bridge in Barre which are both still standing. The Quechee Gorge bridge appears to be the largest and most sophisticated bridge Storrs designed.

PROPERTY OWNER

State of Vermont
Agency of Transportation
Montpelier, VT 05602

Attn: William Sargent