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**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 for individual properties and districts. See instructions in *How to Complete the National Register of Historic Places Registration Form* (National Register Bulletin 16A). Complete each item by marking "x" in the appropriate box or by entering the information requested. If any item does not apply to the property being documented, enter "N/A" for "not applicable." For functions, architectural classification, materials, and areas of significance, enter only categories and subcategories from the instructions. Place additional entries and narrative items on continuation sheets (NPS Form 10-900a). Use a typewriter, word processor, or computer, to complete all items.

**1. Name of Property**

historic name: Bridge 6

other names/site number: Railroad Street Bridge

**2. Location**

street & number: Railroad Street (Town Highway 2) not for publication N/A

city or town: Johnson vicinity: N/A

state: Vermont code: VT county: Lamoille code: 015 zip code: 05656

**3. State/Federal Agency Certification**

As the designated authority under the National Historic Preservation Act, 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. I recommend that this property be considered significant  nationally  statewide  locally. (See continuation sheet for additional comments.)

Suzanne C. Jamet, National Register Specialist 11-7-07  
Signature of certifying official Date

Vermont State Historic Preservation Office  
State or Federal Agency or Tribal government

In my opinion, the property  meets  does not meet the National Register criteria. (See continuation sheet for additional comments.)

\_\_\_\_\_  
Signature of commenting official or other official and title Date

\_\_\_\_\_  
State or Federal agency and bureau

**4. 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): \_\_\_\_\_

*for*  
 Signature of the Keeper \_\_\_\_\_ Date of Action \_\_\_\_\_  
Edson H. Beall 12-20-07  
 \_\_\_\_\_  
 \_\_\_\_\_

**5. Classification**

**Ownership of Property:** (Check as many boxes as apply)

- private
- public-local
- public-state
- public-Federal

**Number of Resources Within Property:**

	Contributing	Noncontributing
buildings:	___	___
districts:	___	___
sites:	___	___
structures:	<u>1</u>	___
objects:	___	___
total:	<u>1</u>	___

**Category of Property:** (Check only one box)

- building(s)
- district
- site(s)
- structure(s)
- object(s)

**Number of Contributing Resources Previously Listed in the National Register:** 0

**Name of Related Multiple Property Listing:** Metal Truss, Masonry, and Concrete Bridges in Vermont  
 (Enter "N/A" if property is not part of a multiple property listing.)

**6. Function or Use**

**Historic Functions:** (Enter categories and subcategories from instructions)

Category:	Subcategory:
<u>Transportation</u>	<u>Road-related</u>
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

**Current Functions:** (Enter categories and subcategories from instructions)

Category:	Subcategory:
<u>Transportation</u>	<u>Road-related</u>
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

**7. Description**

**Architectural Classification:** (Enter categories from instructions)

\_\_\_\_\_  
\_\_\_\_\_  
other: Pratt through truss

**Materials:** (Enter categories from instructions)

foundation: concrete abutments  
roof: \_\_\_\_\_  
walls: \_\_\_\_\_  
other: steel structural elements

**Narrative Description:** (Describe the historic and current condition of the property on one or more continuation sheets.)  
See continuation sheet.

**8. Statement of Significance**

**Applicable National Register Criteria:**

(Mark "X" in one or more boxes for the criteria qualifying the property for National Register listing)

- A. Property is associated with events that have made a significant contribution to the broad patterns of our history.
- B. Property is associated with the lives of persons significant in our past.
- C. Property embodies the distinctive characteristics of a type, period, or method of construction or represents the work of a master, or possesses high artistic values, or represents a significant and distinguishable entity whose components lack individual distinction.
- D. Property has yielded, or is likely to yield, information important in prehistory or history.

**Criteria Considerations:**

(Mark "X" in all the boxes that apply.)

- A. Owned by a religious institution or used for religious purposes.
- B. Removed from its original location.
- C. A birthplace or a grave.
- D. A cemetery.
- E. A reconstructed building, object, or structure.
- F. A commemorative property.
- G. Less than 50 years of age or achieved significance with the past 50 years.

**Areas of Significance:** (Enter categories from instructions)

Transportation  
Engineering  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Period of Significance:**

1928-1955  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Significant Person:** (Complete if Criterion B is marked above)

N/A  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Significant Dates:**

1928  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Cultural Affiliation:**  
N/A  
\_\_\_\_\_  
\_\_\_\_\_

**Architect / Builder:**  
Bethlehem Steel Company  
\_\_\_\_\_  
\_\_\_\_\_

**Narrative Statement of Significance:**  
(Explain the significance of the property on one or more continuation sheets.) See continuation sheet.

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**9. Major Bibliographical References**

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**Bibliography:**  
(Cite the books, articles, and other sources used in preparing this form on one or more continuation sheets.) 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 for the National Register.
- \_\_\_\_ Designated a National Historic Landmark.
- \_\_\_\_ Recorded by Historic American Buildings Survey No. \_\_\_\_\_
- \_\_\_\_ Recorded by Historic American Engineering Record No. \_\_\_\_\_

**Primary Location of Additional Data:**

- \_\_\_\_ State Historic Preservation Office.
- Other state agency: Vermont Agency of Transportation
- \_\_\_\_ Federal agency.
- Local government.
- University.
- \_\_\_\_ Other. Name of repository: Vermont State Library

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**10. Geographical Data**

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**Acreage of Property:** Less than one

**UTM References** (Place additional UTM references on a continuation sheet). \_\_\_\_ See continuation sheet

	Zone	Easting	Northing		Zone	Easting	Northing
1.	<u>18</u>	<u>683636</u>	<u>4944717</u>	2.	____	____	____
3.	____	____	____	4.	____	____	____

**Verbal Boundary Description** (Describe the boundaries of the property on a continuation sheet.) See continuation sheet.

**Boundary Justification** (Explain why the boundaries were selected on a continuation sheet.) See continuation sheet

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**11. Form Prepared By**

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Name / Title: William J. Thrane, Intern, and Robert McCullough

Organization: Vermont Agency of Transportation, Historic Bridge Program Date: August, 2000; revised 2006

Street & Number: National Life Building, Drawer 33 Telephone: 802-828-3615

City or Town: Montpelier State: VT Zip Code: 05633-5001

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**12. Additional Documentation**

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Submit the following items with the completed form:

**Continuation Sheets**

**Maps**

- A USGS map (7.5 or 15 minute series) indicating the property's location.
- A sketch map for historic districts and properties having large acreage or numerous resources.

**Photographs**

- Representative black and white photographs of the property.

**Additional Items** (Check with the SHPO or FPO for any additional items)

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**13. Property Owner**

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(Complete this item at the request of the SHPO or FPO.)

Name / Title: Town of Johnson

Organization: \_\_\_\_\_ Date: \_\_\_\_\_

Street & Number: P.O. Box 383 Telephone: 802-635-2611

City or Town: Johnson State: VT Zip Code: 05656

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**Paperwork Reduction Act Statement:** This information is being collected for applications to the National Register of Historic Places to nominate properties for listing or determine eligibility for listing, to list properties, and to amend existing listings. Response to this request is required to obtain a benefit in accordance with the National Historic Preservation Act, as amended (16 U.S.C. 470 et seq.). A federal agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a valid OMB control number.

**Estimated Burden Statement:** Public reporting burden for this form is estimated to average 18.1 hours per response including the time for reviewing instructions, gathering and maintaining data, and completing and reviewing the form. Direct comments regarding this burden estimate or any aspect of this form to Keeper, National Register of Historic Places, 1849 "C" Street NW, Washington, DC 20240.

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National Park Service**

**NATIONAL REGISTER OF HISTORIC PLACES  
CONTINUATION SHEET**

Section 7 Page 1

Bridge 6  
Name of Property

Johnson, Lamoille County, Vermont

County and State

**Narrative Description**

Bridge 6, fabricated by the Bethlehem Steel Company in 1928, is a single-span Pratt through truss, and it carries Railroad Street (Town Highway 2) in Johnson across the Lamoille River. As its name suggests, Railroad Street connects the village center with a railroad corridor, lines initially chartered as the Vermont Division of the Portland and Ogdensburgh Railroad to connect the Maine coast with northern New York and Montreal. That rail corridor runs southerly of the Lamoille River in Johnson, and the bridge historically provided access to a depot and to industries once dependent on rail transportation. The bridge is currently being rehabilitated and retains a high degree of integrity in terms of location, design, setting, materials, workmanship, feeling and association. The structure will remain in continued highway use under the Vermont Historic Bridge Program's Preservation Plan for Metal Truss Bridges, and the town has enrolled Bridge 6 in that program, conveying a preservation easement for the bridge as part of that agreement. A plate attached to the structure confirms the bridge's date and fabricator.

Bridge 6 is an archetypical Pratt truss, with a trapezoidal profile, single diagonals in all but the center panels, and counter-brace diagonals without supporting struts in those center panels. Original plans are dated January 27, 1928, and are signed by Arthur Bishop, the Vermont Highway Department's Bridge Engineer, and Hubert Sargent, Chief Engineer. The superstructure's clear span is 140 feet (center of bearing to center of bearing), achieved with seven panels, each panel 20 feet, and an overall width of 23 feet (center of truss to center of truss); truss depth is 22 feet 6 inches. Top chords are braced by lateral and diagonal members and by portal bracing. Plate-section floor beams and I-beam stringers support a reinforced concrete deck, originally eight inches in depth, with stringers placed 4 feet 9 inches apart and mounted on brackets attached to the floor beams. The superstructure stands on abutments of reinforced concrete. A sidewalk, slightly more than five feet in width, extends outward from the upstream or southerly truss and is supported by triangular, plate-section outriggers and I-beam stringers, which in turn support a reinforced concrete slab deck, originally slightly more than four inches in depth. As originally designed, hand railings with round pipe upper rails, angle-section bottom rails, and narrow rod spindles are mounted on the outside of the sidewalk and on the inside of the downstream truss; the latter railing is elevated on a concrete curb.

Bridge plans and shop drawings prepared by Bethlehem Steel Company, the latter dated March, 1928, show that top chords of the trusses are box girders with lattice undersides, and bottom chords are paired sets of angle sections with continuous stay plates. Center panel diagonals are paired angles with stay plates placed at 3-foot 6-inch intervals. All other verticals and diagonals are I-beams, revealing the shift from built-up girders to rolled beams that had begun to occur among bridge manufacturers by the time Bridge 19 was constructed. Lateral struts and bracing between the upper chords are paired angle sections joined by lattice bars. Portal struts are panels of crossed angles between top and bottom members of paired angles connected by lattice bars. The structure was designed to a two-lane, H-15 live load rating,

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CONTINUATION SHEET**

Section 7 Page 2

Bridge 6  
**Name of Property**  
Johnson, Lamoille County, Vermont  
**County and State**

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**Narrative Description (continued)**

according to the standard specifications for structural steel used in highway bridges, as contained in U.S.D.A. Bulletin No. 1259. At the time of its design, work and materials conformed to Standard Road and Bridge Specifications of the Vermont Department of Highways, 1926. The structure received a single shop coat of Dutch Boy red lead paint, a second identical coat in the field, and a final coat of graphite paint, all supplied by the Bethlehem Steel Company.

Bridge 6 was rehabilitated in 2006, and with its new coat of black paint the crossing appears much as it did in 1928. The trusses contain most of their original materials, and all replacement materials introduced during the rehabilitation match original materials in kind and dimension. Repairs to the trusses were confined to the upstream truss, which required replacement of five verticals and two diagonals, all in kind. Most of the additional work involved the floor system, which was fully replaced. Work included replacement of all floor beams and stringers with new beams and stringers fabricated with shear connectors; replacement of lateral bracing in the floor system with new angle sections; and replacement of all connections between stringers and floor beams and between floor beams and truss members. The concrete deck was replaced with high performance concrete, waterproof membrane, and bituminous wearing-pavement. Truss bearings were also replaced. Structural supports for the sidewalk were replaced in kind and a new concrete deck poured. The upstream and downstream railings were removed, repaired, cleaned, and painted. The upstream railing was returned to its original position on the outside of the sidewalk, and the downstream railing was attached to the upstream truss as part of the new sidewalk. A new channel guardrail was installed inside the downstream truss.

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CONTINUATION SHEET**

Section 8 Page 1

Bridge 6  
Name of Property  
Johnson, Lamoille County, Vermont  
County and State

**Statement of Significance**

Bridge 6 in Johnson is being nominated pursuant to the existing multiple property submission titled "Metal Truss, Masonry, and Concrete Bridges in Vermont," under the property type, "metal truss bridges," and the crossing clearly meets the registration requirements for this property type. The crossing is significant for its period of construction following the 1927 flood and for its representative Pratt through truss design, which became a frequently-used truss type for longer-span crossings rebuilt after the flood. Despite its fairly common design, Bridge 6 is one of only a small number of surviving Pratt through truss bridges remaining on Vermont's network of roads, and the structure establishes a very visible crossing in the village, linking a residential neighborhood with the southerly sector of the community that developed along the railroad. As along other important river corridors in Vermont, metal truss bridges are distinct landmarks, albeit increasingly scarce. By enrolling Bridge 6 in Vermont's Historic Bridge Program, the town of Johnson is participating in an effort to demonstrate the feasibility of using metal truss bridges for continued highway use, as well as the fiscal wisdom of rehabilitating and maintaining these structures.

The bridge was erected in 1928 during the aftermath of the 1927 flood, an event that destroyed more than 1200 bridges of all types throughout the state. This devastation resulted in a dramatic public rebuilding campaign, marking one of Vermont's most important periods of bridge and highway construction, and metal truss bridges played a key role in that rebuilding drive. Bonds authorized by the state legislature generated funding for this enormous undertaking, but federal assistance had also become available by then. The state's bridge department expanded in size, and engineers emphasized standard building methods for different types of bridges to reduce costs and speed the process. Efforts to develop standard designs had begun in Vermont after World War I, part of a broader, national trend that emerged as state highway departments sought federal funding, contingent on approval of plans or written specifications. Although a process for developing standard plans had already begun to take shape in Vermont, the flood nevertheless furnished a powerful, added incentive to produce standard designs, and the practice became a principal component of all bridge-building programs in Vermont soon after the flood. This reliance on standard designs also forced increasing dependence on review by state and federal engineers, once a matter left to the complete discretion of towns.

During the flood reconstruction, engineers assigned specific types of bridges uniformly according to each crossing's length. Steel truss bridges became available in increments of 10 feet for spans shorter than 100 feet; 20 feet for longer bridges. Pratt through trusses became standard for structures between 100 and 160 feet, and Parker trusses were typically specified for greater lengths. Most bridges built after the flood were 21 feet wide, and only a few structures were individually designed for specific sites. The appearance of truss bridges also changed, becoming more stout. Rolled I-beams requiring no assembly often were used as verticals and diagonals in truss webs, and the size of these steel components distinguished bridges erected after 1927 from earlier, more lightly-built spans. Improvements in rolling mills and steel alloys



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**NATIONAL REGISTER OF HISTORIC PLACES  
CONTINUATION SHEET**

Section 8 Page 2

Bridge 6  
Name of Property  
Johnson, Lamoille County, Vermont  
County and State

**Statement of Significance (continued)**

made production of these larger, stronger I-beams economical. Bridge 6 shows several of these advances in steel manufacturing, notably the rolled beams used as verticals and diagonals in the truss webs. Its rivet-assembled girders contain greater breadth than those of earlier truss types, as well.

Although reinforced-concrete slab and T-beam bridges dominated the construction of new bridges during the 1920s and early 1930s in Vermont, span lengths for these structures were limited, and metal truss bridges thus continued to be built in substantial numbers. Two companies, United States Steel Corporation and Bethlehem Steel Corporation, became the country's largest manufacturers of steel, and these rival firms both supplied materials for Vermont bridges. Bethlehem Steel, based in the Lehigh Valley of eastern Pennsylvania, traces its origins to 1857 and to the manufacture of iron for railroad rails, first under the name Saucona Iron Works. A few years later, the firm took the name of the city, Bethlehem, in which its iron works were located. In 1901, Charles Schwab, one of the founders of U.S. Steel, acquired control of the Bethlehem concern and, with Joseph Wharton, reorganized the company in 1904 as the Bethlehem Steel Corporation. Diversification in ordnance products, mining, and shipbuilding followed, and as the company expanded, it acquired plants at numerous locations throughout the country. Its Bethlehem works, however, gained prominence following introduction of the revolutionary Grey rolling mill and production of the country's first wide-flange steel beams. These innovations placed Bethlehem in the fore of the construction industry, and it supplied steel for many of America's most important buildings. The steel for Bridge 6 came from the company's fabrication and erection shops at Bethlehem, and shop drawings were assigned to the Croll squad and were completed by March, 1928. Truss members were assembled in the shop, holes for field connections reamed and drilled, and members match-marked. Floor beams and stringer connections were subpunched and reamed to a metal templet. Ring Construction Company assembled the bridge in the field.

The crossing of the Lamoille River on what is today known as Railroad Street preceded arrival of the railroad in Johnson. Both the H. F. Walling atlas of 1859 and the F.W. Beers atlas of 1878 show a bridge at that location, part of a road network leading southerly to the town of Stowe. A cemetery adjoins the railroad as well. Local histories confirm the loss of a covered bridge at this site during the 1927 flood. However, inauguration of rail service in 1876 marked the beginning of an important period in the town's history and is directly related to the growing importance of that crossing and the small industrial district that developed nearby. The Vermont Division of the Portland and Ogdensburgh Railroad was part of a complicated scheme to provide east-west rail service across the northern tier of Vermont. The project was conceived by Horace Fairbanks in three separate parts: The Essex County Railroad from St. Johnsbury to Lunenburg on the Vermont border with New Hampshire; the Montpelier and St. Johnsbury Railroad connecting those two cities; and the Lamoille Valley Railroad connecting Swanton to Danville. Scant interest in the route materialized in Montpelier, but promoters were astute enough to recognize the need to provide connections to other major centers such as Portland, Maine, whose citizens had long desired a

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CONTINUATION SHEET**

Section 8 Page 3

Bridge 6  
Name of Property

Johnson, Lamoille County, Vermont  
County and State

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**Statement of Significance (continued)**

connection to Montreal. The Vermont group sought to capitalize on this opportunity, but the history of the road became one of economic struggle and corporate maneuvering. Although construction of the railroad from St. Johnsbury had reached Johnson by 1874, expenses forced the line into receivership soon after service began, and it reemerged in 1878 as the St. Johnsbury and Lake Champlain Railroad.

For several decades, the line provided valuable freight and passenger service, stimulating industrial, commercial, and agricultural growth in many communities along its route, including Johnson, all the while succumbing to corporate stratagems. The route became part of the Boston and Maine network, but when revenues began to decline during the 1920s and 1930s, the parent company initiated bankruptcy proceedings for its subsidiary. The line reemerged in 1944 as the St. Johnsbury and Lamoille County Railroad, which continued to operate until 1955 when the road was sold to a group of its major shippers, including the Eastern Magnesia Talc Company of Johnson. A year later, however, the U.S. Postal Service terminated a profitable mail contract, and passenger service ended in 1956, as well. In 1973 the state of Vermont purchased the right of way and its operating systems, and in 1978, a new company, the Lamoille Valley Railroad unsuccessfully attempted to restore service under a leasing agreement. With closure of the railroad, important businesses in Johnson and elsewhere began to decline, and the once active industrial zone served by Bridge 6 also has deteriorated.

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CONTINUATION SHEET**

Section 9 Page 1

Bridge 6  
Name of Property

Johnson, Lamoille County, Vermont

County and State

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**Major Bibliographic References**

Beers, F.W. Atlas of Lamoille and Orleans Counties, Vermont. 1878. Syracuse, New York: 1878.

Bethlehem Steel Company, "Railroad Street Bridge over Lamoille River, Johnson, Vt." Shop drawings dated March 6, 1928. Montpelier: Vermont Agency of Transportation, Project Development Division.

Jones, Robert. Railroads of Vermont. Shelburne, Vermont: New England Press, 1993.

Oread Literary Club. History of the Town of Johnson, Vermont. 1784-1907. Burlington, Vermont: Free Press Printing Co., 1907.

Roth, Matt and Bruce Clouette, "Vermont Historic Bridge Survey," LA-14. Typewritten survey available at the Vermont Division for Historic Preservation, Montpelier, Vt.

Smalley, Margaret T., Ethel S. Hill, et al, eds. History of Johnson Vermont. Essex Junction, Vermont: 1962.

Vermont Agency of Transportation, "Proposed Improvement Bridge Project, Town of Johnson, County of Lamoille," Project Number BHO 1448 (18), dated August 1, 2005. Montpelier: Vermont Agency of Transportation, Project Development Division.

Vermont Highway Department, "Plan of Superstructure Railroad St. Bridge over Lamoille River Johnson, Vt.," dated January 27, 1928. Montpelier: Vermont Agency of Transportation, Project Development Division.

Wallings, H. F. Atlas of Lamoille, Orleans, and Essex Counties, Vermont. 1859.

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CONTINUATION SHEET**

Sections 10 & 12 Page 1

Bridge 6  
**Name of Property**

Johnson, Lamoille County, Vermont  
**County and State**

**Section 10: Geographical Data**

**Verbal Boundary Description**

The boundary of the property is the bridge and its abutments. The bridge carries Railroad Street (Town Highway 2) across the Lamoille River in Johnson.

**Boundary Justification**

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

**Section 12: Photograph Labels**

The following information is the same for all photographs:

Name of Property: Bridge 6  
Location: Johnson, Lamoille County, Vermont  
Credit: Robert McCullough  
Date: June, 2007  
Negatives: Filed at the Vermont Division for Historic Preservation

Photograph No. 1: View looking northeast  
Photograph No. 2: View looking southwest