1. NAME OF PROPERTY

Historic Name: Brown Bridge

Other Name/Site Number: Cold River Bridge

2. LOCATION

Street & Number: Spanning Cold River at Upper Cold River Road Not for publication:

City/Town: Shrewsbury Vicinity:

State: Vermont County: Rutland Code: 021 Zip Code: 05738

3. CLASSIFICATION

Ownership of Property	Category of Property
Private:	Building(s):
Public-Local: X	District:
Public-State:	Site:
Public-Federal:	Structure: X
	Object:

Number of Resources within Property

Contributing		Noncontributing
buildings		buildings
sites		sites
structures	1	structures
objects		objects
Total	1	Total

Number of Contributing Resources Previously Listed in the National Register: 1

Name of Related Multiple Property Listing: *Covered Bridges NHL Context Study*

Designated a National Historic Landmark by the Secretary of the Interior August 25, 2014

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.

Signature of Certifying Official Date

State or Federal Agency and Bureau

In my opinion, the property ____ meets ____ does not meet the National Register criteria.

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
___ Determined eligible for the National Register
___ Determined not eligible for the National Register
___ Removed from the National Register
___ Other (explain)

Signature of Keeper Date of Action

6. FUNCTION OR USE

Historic: Transportation Sub: road-related (vehicular bridge)

Current: Transportation Sub: road-related (vehicular bridge)

7. DESCRIPTION

ARCHITECTURAL CLASSIFICATION: Other: Town lattice truss covered bridge

MATERIALS:

Foundation: stone
Walls: wood
Roof: slate
Other:

Describe Present and Historic Physical Appearance.

Built in 1880, Brown Bridge is an exceptionally fine example of nineteenth-century covered bridge construction and an outstanding example of a Town lattice truss, one of the most significant American timber truss types. The structure is nationally significant under NHL Criterion 4, as a property that embodies the distinguishing characteristics of an architectural type specimen exceptionally valuable for a study of a period, style, or method of construction and under NHL Theme VI, Expanding Science and Technology, under the area of Technological Applications. Patented by New Haven, Connecticut architect Ithiel Town in 1820, the Town lattice truss was a revolutionary design that utilized sawn planks arranged in the form of a lattice and fastened together with treenails (wood pegs). It was the first bridge truss type to largely eliminate the need for joinery, and thus made timber bridges more economical to build. Approximately 110 historic (pre-1955) Town lattice truss covered bridges survive in the United States, with some of the finest examples located in Vermont. Brown Bridge is also notable as the best surviving example of the work of Nichols M. Powers, a prolific New England covered bridge builder.[1] The bridge's unusual slate roof and the northwest abutment, which includes a huge natural boulder, illustrate now nineteenth-century builders made use of indigenous materials. Located on a rural road, Brown Bridge has required few repairs during its lifetime; thus, it retains an unusually high degree of structural integrity. Until the road was closed in August 2011 following Tropical Storm Irene, it carried local traffic. Brown Bridge was listed in the National Register of Historic Places in 1974 and recorded by the Historic American Engineering Record in 2002. Of the approximately 690 historic (pre-1955) covered bridges

[1] The builder's name is inconsistently recorded in primary sources. The 1880 Federal census and Clarendon vital records show the builder's name as Nicholas, while other sources, including his gravestone (Riverside Cemetery, Ira, Vermont) and his will (Rutland County Probate Records, Rutland, Vermont) indicate that his name was Nichols. The latter name is used in this document, based primarily on the builder's signature on his will. For further discussion, see: Richards Sanders Allen, "Notes on Nichols Montgomery Powers for Mr. Bearse," unpublished typescript, 15 May 1981 (National Society for the Preservation of Covered Bridges Archives, Penacook, New Hampshire); and Joseph D. Conwill, HAER No. VT-28: Brown Bridge (Washington, DC: Historic American Engineering Record, 2002).

surviving in the United States, Brown Bridge stands out as an exceptionally fine example of covered bridge construction and preservation.[2]

Setting

Amid the rolling hills of central Vermont, Brown Bridge is located in the northwest corner of the town of Shrewsbury, approximately five miles southeast of the City of Rutland and three miles east of the village of North Clarendon. Shrewsbury, Vermont is mostly forest today, although the area was extensively farmed and supported dairying and lumbering in the nineteenth century. The Cold River rises in the Green Mountains near North Shrewsbury and flows thirteen miles in a northwesterly direction to North Clarendon, where it empties into Otter Creek, which drains into Lake Champlain. Upper Cold River Road, which is a town-maintained, narrow gravel road, has been one of the main transportation corridors in the Town of Shrewsbury since the late-eighteenth or early-nineteenth century. Brown Bridge carries Upper Cold River Road across Cold River in a narrow ravine between Bald Mountain, Round Hill, and Shrewsbury Peak, which are part of the Coolidge Range of the Green Mountains. The Appalachian Trail crosses this road approximately three miles southeast of the bridge.

Description

Brown Bridge is a single-span Town lattice through truss covered wood bridge supported by stone masonry abutments. The northwest abutment is sited on a big boulder with a small amount of stonework on top. The southeast abutment is random-coursed, dry-laid stone with a small amount of mortared stonework on top. The abutments have concrete caps and backwalls, which were probably added in 2002. The superstructure is 112'-2" long (not including the portal overhangs), 22'-8" deep (from the top of the roof ridge to the bottoms of the lower chords), and 18'-4" wide (to the outside faces of the trusses), with a roadway width of 13'-6" and a clear span of 101'-4".

The wood trusses were built on the Town lattice plan, which was patented in 1820 and 1835 by New Haven, Connecticut architect Ithiel Town. This type of truss was widely used in Vermont during the nineteenth century. The upper chords, both primary and secondary, are two pairs of nominal 3"x10" planks. The lower primary chords measure net 3"x11½", and the lower secondary chords measure net 3"x11". The increased size of the lower chords shows that Nichols Powers understood the increased stresses in the lower chord members.[3] The lattice web members are nominal 3"x10" planks (with some variations), secured with two 2"-diameter treenails (wood pegs) at each lattice joint, and with four treenails at each chord joint. Each truss is three diamonds high, measuring 14'-6" from the top of the upper chord to the bottom of the lower chord. There are vertical posts at the ends of the trusses consisting of two pairs of 3"x9¾" planks.

The lower chords rest on paired 7¾"x8" bolster beams set on the abutments. Transverse floor beams measuring 5¼"x11¼" are set on these chords, one at each diamond opening, and support a deck consisting of 2"x6" planks set on edge, with two running boards (each comprising five 3"x6" boards placed longitudinally) for a wearing surface. The floor system is not original and has presumably been replaced at least a few times since the bridge was built. The running boards were last replaced in 2011. Lower lateral bracing consists of 4¼"x5½" diagonal braces. Transverse metal tie rods were added between the lower chords at an unknown date.

[2] Approximately half of the 690 extant historic (pre-1955) covered bridges in the United States have been significantly altered, with much loss of historic fabric and character.

[3] Joseph D. Conwill, HAER No. VT-28: Brown Bridge (Washington, DC: Historic American Engineering Record, 2002): 5.

The upper lateral bracing is 5”x8” tie beams set on the primary upper chords, sway-braced by 4”x4” members acting on the secondary upper chords. 4”x8” cross-bracing connects the tie beams in each bay. The gable roof is supported on 3”x4½” rafters, spaced at 2’-0” on center, with their outer ends resting on the upper chord. The original slate roof installed in 1880 is largely intact, although there is some weather damaged slate and some evidence of patching.

The bridge exterior is spare and plain, with no architectural embellishments. The sides are weatherboarded with unpainted vertical boards, except for a small opening along the eaves. The portal openings are straight and square, with chamfered corners to protect the sway bracing. There are shelter panels inside each portal to protect the ends of the trusses. The bridge is posted for an eight-ton load limit and 11’-3” overhead clearance; the structure has been closed to traffic since August 2011.

Integrity

Brown Bridge clearly illustrates the character-defining features of the resource type. It has undergone few alterations or modifications since its construction, and retains an uncommonly high level of integrity, in location, setting, design, materials, workmanship, feeling, and association.

Brown Bridge is one of the finest surviving examples of a Town lattice truss, one of the most successful nineteenth-century bridge truss designs. The original trusses exhibit the distinctive features of this truss type: a series of overlapping diagonal planks fastened together with treenails (wood pins) to form a lattice web. All the essential load-bearing components of the structure are still intact. Brown Bridge was built on-site using local materials and traditional nineteenth-century construction methods. Locally-quarried stone was used for the abutments, and locally-milled lumber was used for the bridge’s wood components. The bridge’s slate roof represents a local tradition in this part of Vermont, where barns and houses can still be found with this roof covering. A few Rutland County covered bridges shared this feature, including Billings Bridge (1831-1952) of Rutland Town and Dean Bridge (1865-1986) of Brandon, but Brown Bridge is the only extant covered bridge in the United States with a slate roof.[4] The siding and flooring have been replaced over the years, most recently in 2002, but this is part of routine maintenance, and, since materials have been sympathetically replaced in kind, does not diminish the integrity of the structure. The fact that this structure has retained its historic appearance over time is a testament to the level of care and maintenance it has received.

Brown Bridge is uniquely suited to its site; in particular, the bridge was oriented to make use of a huge natural boulder on the river bank. The bridge has occupied the same site since its construction, and until very recently, it carried local vehicular traffic. The bridge’s picturesque rural setting possesses a high level of aesthetic integrity, and Brown Bridge retains the feeling of a nineteenth-century covered bridge.

Brown Bridge has required little more than routine maintenance since its construction. This is largely due to the fact that it is located on a rural road that has never carried heavy traffic. The bridge was repaired and re-sided in 2002. It received satisfactory inspection ratings until 2008, when a state inspection report noted some areas of decay and structural deficiencies. The bridge was subsequently slated for rehabilitation. In 2012, the Vermont Agency of Transportation received a grant from the National Historic Covered Bridge Preservation Program for the proposed rehabilitation; the project is currently in the planning phase. In August 2011, Brown Bridge sustained some minor damage during the flooding that followed Tropical Storm Irene; the Upper Cold River Road near the bridge has been closed to vehicular traffic since that storm.

[4] *Ibid.*: 4-5.

8. STATEMENT OF SIGNIFICANCE

Certifying official has considered the significance of this property in relation to other properties:
Nationally: X Statewide: _ Locally:

Applicable National Register Criteria:	A X B__ C X D__
Criteria Considerations (Exceptions):	A__ B__ C__ D__ E__ F__ G__
NHL Criteria:	4
NHL Theme(s):	V. Developing the American Economy 3. Transportation and Communications VI. Expanding Science and Technology 2. Technological Applications
Areas of Significance:	Transportation Engineering
Period(s) of Significance:	1880
Significant Dates:	1880
Significant Person(s):	N/A
Cultural Affiliation:	N/A
Architect/Builder:	Nichols M. Powers (1817-1897)
Historic Contexts:	*Covered Bridges NHL Context Study* XVII. Technology (Engineering and Innovation) B. Transportation

State Significance of Property, and Justify Criteria, Criteria Considerations, and Areas and Periods of Significance Noted Above.

Built in 1880, Brown Bridge is an exceptionally fine example of nineteenth-century covered bridge construction and an outstanding example of a Town lattice truss, one of the most significant American timber truss types. The structure is nationally significant under NHL Criterion 4, as a property that embodies the distinguishing characteristics of an architectural type specimen exceptionally valuable for a study of a period, style, or method of construction and under NHL Theme VI, Expanding Science and Technology, under the area of Technological Applications. Patented by New Haven, Connecticut architect Ithiel Town in 1820, the Town lattice truss was a revolutionary design that utilized sawn planks arranged in the form of a lattice and fastened together with treenails (wood pegs). It was the first bridge truss type to largely eliminate the need for joinery, and thus made timber bridges more economical to build. Approximately 110 historic (pre-1955) Town lattice truss covered bridges survive in the United States, with some of the finest examples located in Vermont. Brown Bridge is also notable as the best surviving example of the work of Nichols M. Powers, a prolific New England covered bridge builder. The bridge's unusual slate roof and the northwest abutment, which includes a huge natural boulder, illustrate now nineteenth-century builders made use of indigenous materials. Located on a rural road, Brown Bridge has required few repairs during its lifetime; thus, it retains an unusually high degree of structural integrity. Until the road was closed in August 2011 following Tropical Storm Irene, it carried local traffic. Brown Bridge was listed in the National Register of Historic Places in 1974 and recorded by the Historic American Engineering Record in 2002. Of the approximately 690 historic (pre-1955) covered bridges surviving in the United States, Brown Bridge stands out as an exceptionally fine example of covered bridge construction and preservation.

A discussion of the national significance of Brown Bridge is provided in the associated document, *Covered Bridges NHL Context Study*. The study establishes the history and evolution of the property type, and provides a preliminary assessment of the National Historic Landmark (NHL) eligibility of covered bridges that are considered by experts in the field to be the best representative examples of the surviving 690 historic (pre-1955) covered timber bridges in the United States. These properties were selected from the National Covered Bridges Recording Project (NCBRP), undertaken in 2002-2005 by the Historic American Engineering Record (HAER), which is administered by the Heritage Documentation Programs (HDP) Division of the National Park Service, United States Department of the Interior. The project was funded by the Federal Highway Administration's (FHWA) National Historic Covered Bridge Preservation Program (NHCBP), established in 2000 by Section 1224 of the Transportation Equity Act for the 21st Century (TEA21). Over the course of a multi-year project, HAER recorded 75 covered bridges throughout the United States. In 2010, each of these bridges was individually evaluated against National Historic Landmark criteria and a list compiled of twenty covered bridges that have high integrity and are significant as outstanding representative examples of their type, period, and method of construction. Secondary considerations for inclusion in this list were: historical significance, significance of the designer or builder, and aesthetics of the bridge and site.

Covered Bridges in the United States

Covered bridges are pre-eminently—although not exclusively—an American phenomenon. Nowhere else in the world were such impressive timber structures attempted, and nowhere else were they built in such large numbers.[5] Over the course of two centuries, covered bridges have played a significant role in American life, by

[5] According to the 7th edition of the *World Guide to Covered Bridges* (2009), there are approximately 1,500 extant historic (pre-1955) covered bridges in the world. More than half of these structures are located in North America. American scholars have recently become aware of large numbers of ancient covered bridges in China, but most were built for pedestrian traffic, and their construction techniques and reason for covering differ from the Western tradition.

facilitating settlement, transportation, and commerce. They also represent a period of remarkable achievement in civil engineering, during which bridge building evolved from an empirical craft to a science. At the height of covered bridge building, around 1870, there were well over 10,000 covered bridges in the United States.[6]

Timber bridges have been built in forested regions of the world for centuries.[7] Wood is an excellent material for building; it is strong, yet relatively lightweight and easy to work with. Since most species of wood suitable for structural applications deteriorate rapidly when exposed to the weather, European bridge builders quickly learned the value of covering wood bridges with roofs and siding to protect the underlying framework.[8]

Bridges were rare in Colonial America. Small streams were spanned with simple wood beams or stone slabs, and occasionally with stone arches, but with few exceptions, larger waterways had to be crossed by ford or ferry. Travel was hazardous and uncertain; delays and accidents were common. A few ambitious crossings were made with pontoons, or a series of simple beam spans supported on timber piles, but long-span bridges were generally not built in America until the volume of transportation justified the expenditure of material and labor.[9] Following the American Revolutionary War, the demand for roads and bridges, coupled with access to abundant forests, spurred the development of timber bridge design in the United States.

Internal improvements were a priority of the new nation. Roads, canals and bridges were desperately needed to expand commerce and unite the country. The Louisiana Purchase of 1803 doubled the land area of the United States and over the next half-century, settlement expanded west to the Pacific Ocean. Timber bridges were an ideal solution to America's many transportation hurdles and settlers built hundreds of them as they moved westward across the continent. They provided for safe, efficient and economical overland transportation that was essential to the new nation's growth.

In 1804-05, Timothy Palmer (1751-1821) built America's first covered bridge across the Schuylkill River at Philadelphia. By 1810, covered bridges were common in southern New England, southeastern New York, Pennsylvania and New Jersey. From this core area, covered bridges spread northward, southward and westward. In the 1820s, town and county governments began to specify covered bridges for construction on local roads. By 1830, covered bridges were commonplace at major river crossings in the eastern United States. The builders of timber bridges utilized readily available materials and common hand tools. Making use of patented truss designs, carpenters with basic woodworking ability could erect an average-sized covered bridge in a short time, usually within a few weeks.

Covered bridges were adapted to the needs of every type of transportation corridor, including turnpikes, canals and railroads and they facilitated the settlement of the United States for over a century. The rapid growth of the railroads in the mid-1800s—in particular, the increasing weight of locomotives and rolling stock—encouraged innovations and technical advancements in the design of timber truss bridges and was an important factor in the rise of civil engineering as a profession. All the major technological improvements in American truss bridge design occurred when wood was the building material of choice.

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[6] This is only a rough estimate of known covered bridges that existed c.1870. Initial data compiled by the "Covered Spans of Yesteryear Project," http://www.lostbridges.org, suggests that this figure may be too low.

[7] In 55 BC, Julius Caesar (100 BC-44 BC) built the earliest known timber bridge across the Rhine River.

[8] Several European covered bridges have survived for more than three centuries, while a few in the United States are nearing the two-century mark.

[9] The Great Bridge (1660) across the Charles River at Boston and the York River Bridge (1761) at York, Maine, were notable exceptions. The Great Bridge consisted of "*cribs of logs filled with stone and sunk in the river—hewn timber being laid across it.*" The York River Bridge was a timber pile bridge, which uses tree trunks or piles driven vertically into the river bed to provide a foundation for a series of simple beam spans.

By 1850, there were covered bridges in most settled regions of the United States.[10] Thereafter, the number of covered bridges continued to multiply until about 1870, by which time there were well over 10,000 covered bridges in the United States.[11] The golden era of covered bridge building lasted for about a century in most areas of the United States, and even longer in areas where timber was plentiful.[12]

Covered Bridges in Vermont

Vermont possesses more covered bridges per square mile than any other state. The first documented covered bridge in the state was built across the Missisquoi River at Highgate Falls in 1824.[13] During the nineteenth century, an estimated 700 covered bridges were built throughout the state.[14] Due to Vermont's rural nature, many of these bridges survived into the early twentieth century, but floods, fires and decay eventually took their toll. Between 1927 and 1940, the state's population of covered bridges decreased from approximately 600 to less than 200.[15] In 1973-74, the Vermont Division of Historic Sites (now, the Vermont Division for Historic Preservation) recognized eligible covered bridges in the state with individual listing in the National Register of Historic Places. Today, approximately 85 historic (pre-1955) covered bridges survive in the state; most are maintained by town highway departments.[16]

History of Brown Bridge[17]

Settlers first arrived in Shrewsbury in the 1780s, and there may have been a crossing (quite possibly a ford) at, or near, this site around that date. Later bridges were probably uncovered pile-and-beam or simple timber truss spans. The crossing consistently appears on mid-nineteenth century maps of Shrewsbury from 1821 on.[18]

Rodney Burditt operated a steam saw mill near this site in the late nineteenth century. The George Brown family, for whom the present bridge was named, moved from Clarendon to Shrewsbury sometime between 1870 and 1882.[19] Their house stood approximately 100 yards southeast of the bridge.[20] After several members of the Brown family died from diphtheria in 1893, town officials burned the Brown house to the ground.[21]

According to Shrewsbury *Annual Reports*, on October 12, 1878, Town Selectman Albert Knight (1836-1898) examined the then-existing Cold River Bridge. Presumably, he recommended that the town erect a new bridge

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[10] Fred Kniffen, "The American Covered Bridge," *The Geographic Review* 41 (1951): 119.

[11] Covered bridges once existed in 40 of the 50 states. No records have been found concerning covered bridges in Colorado, Florida, Idaho, Louisiana, New Mexico, North Dakota, Oklahoma, South Dakota and Utah. The reasons for this presumably vary from region to region, but probably include: absence of readily-available timber, absence of major river crossings, topography more suited to other types of bridges, late-period settlements and low population density.

[12] Covered bridge building ended in New England and the Midwest around 1925, and in the South around 1935. Covered bridges continued to be built in Oregon into the 1950s.

[13] Richard Sanders Allen, *Covered Bridges of the Northeast* (Brattleboro, Vermont: Stephen Greene Press, 1957): 50.

[14] Conwill, *Images of America: Vermont Covered Bridges* (Charleston, South Carolina: Arcadia Publishing, 2004): 7.

[15] Aldo Merusi, "Vermont's Covered Bridges," *The Vermonter* 46, no. 1 (January 1941): 22.

[16] This number does not include bridges that are replacements and completely reconstructed in the traditional style.

[17] Nineteenth-century town records consistently refer to this structure as "Cold River Bridge." "Brown Bridge" is a common name that dates to the 1880s and early 1890s, when farmer George Brown (1834-1893) and his family lived just southeast of the bridge. Most twentieth-century sources use the latter name.

[18] James Whitelaw, "Map of Vermont, 1821."

[19] George Brown was listed in the 1870 U.S. Federal Census for Clarendon, Vermont. He was subsequently listed as a farmer from Shrewsbury in Hamilton Child, *Gazetteer and Business Directory of Rutland County for 1881-82* (Syracuse, New York: Hamilton Child, 1881): 528.

[20] "Shrewsbury Mystery," *Rutland Daily Herald*, 18 April 1890: 3.

[21] Hance: 200; Town of Shrewsbury, Vermont, *Record of Births and Deaths, Vol. 7 (1883-1896)*: 16-20; Town of Shrewsbury, Vermont, *Town Proceedings, 1868-1946*: 200 and 202.

at the site. The present bridge was built in 1880 by Nichols M. Powers of nearby Clarendon.[22] Town records note expenses for the bridge as follows:

Geo. Streeter, laying stone[23]	7.00
R. Lloyd, laying stone[24]	4.50
F.M. Plumley, labor on stone work[25]	20.75
A. Knight, labor[26]	6.00
Chas. Gleason, labor[27]	4.37
N.M. Powers, 20 days' work[28]	72.45
D.M. White & Co., lumber and nails[29]	455.61
H.W. Wilcox for cash expended for labor and boarding help[30]	398.30
G.W. Chaplin, for slate and laying same[31]	109.39

Presumably, the bridge was accepted by the town selectmen following its completion in 1880, however, no written records were found in the town records concerning this. Brown Bridge has carried vehicular traffic since its construction in 1880 and has more recently become an historic landmark and tourist attraction.

In November 1927, Brown Bridge survived the floods that destroyed half of Vermont's covered bridges. The rapid disappearance of covered bridges from the landscape prompted writers, artists and antiquarians to begin capturing covered bridges on paper and canvas. In 1931, an etching of Brown Bridge by famed artist George Taylor Plowman (1869-1932) was published in Clara E. Wagemann's 1931 *Covered Bridges of New England*, one of the first books to look at covered bridges from a historical perspective.[32]

Brown Bridge was listed in the National Register of Historic Places in 1974. The structure was selected as one of thirty covered bridges in the United States to be recorded by the Historic American Engineering Record's National Covered Bridges Recording Project in 2002; it was one of twenty covered bridges included in the National Park Service's Covered Bridges NHL Context Study that was based on that HAER recording project.[33]

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[22] The 1880 Shrewsbury Town Report, which covers the period of February 15, 1879 to February 15, 1880, documents construction of the bridge. The 1880 construction date has been widely published and presumably came from Richard Sanders Allen's and C. Ernest Walker's mid-twentieth century interviews with Nichols Powers' grandson Gratz Powers (1872-1952); however, it is possible that the bridge was built in 1879, as the 1880 town report shows a payment of $1.80 to Albert Knight for obtaining roof slate on July 7, 1879.

[23] George R. Streeter (b.1823) is listed in Child's 1882 *Gazetteer* as an East Wallingford stone mason and farmer. [Child: 554.]

[24] Richard Lloyd (b.1830) is listed in Child's 1882 *Gazetteer* as a Shrewsbury stone mason and farmer. [*Ibid*.: 530.]

[25] Frank M. Plumley (b.1841) is listed in Child's 1882 *Gazetteer* as a North Shrewsbury lumberman and farmer. [*Ibid*.: 531.]

[26] Albert Knight (1836-1898) is listed in Child's 1882 *Gazetteer* as a Shrewsbury town Selectman and farmer. [*Ibid*.: 530.]

[27] Charles Gleason (1834-1917) is listed in Child's 1882 *Gazetteer* as a North Clarendon farmer. [*Ibid*.: 529.]

[28] Nichols M. Powers (1817-1897) is listed in Child's 1882 *Gazetteer* as a Clarendon farmer, cheese factory owner, and bridge builder. [*Ibid.*: 318.]

[29] D.M. White & Co. is listed in Child's *Gazetteer* (1882) as Rutland "manufacturers and dealers in lumber, shingles, lath, staves, flour, feed, Akron pipe, glass, sash, doors, blinds, etc." [*Ibid.*: 521.]

[30] Henry W. Wilcox (1842-1915) is listed in Child's *Gazetteer* (1882) as a North Clarendon farmer. [*Ibid*.: 533.] The name "H. Wilcox" appears a couple miles east of Cold River Bridge on Upper Cold River Road on Beers' 1869 map of Shrewsbury. Mr. Wilcox was apparently the town agent for the bridge-building project.

[31] George W. Chaplin, Jr. is listed in Child's *Gazetteer* (1882) as a Rutland-based "dealer in drugs, paints, oils, watches, jewelry, and roofing slate." [*Ibid.*: 432.]

[32] Clara E. Wagemann, *Covered Bridges of New England* (Rutland, Vermont: The Tuttle Company, 1931): 72-73.

[33] Lola Bennett, *Covered Bridges NHL Context Study* (Washington, DC: National Park Service, 2012): 32-41.

Brown Bridge remained in good condition throughout the twentieth century and has undergone repairs only a few times in its history. This is largely due to the fact that it is located on a rural road that has never carried heavy traffic. In 2002, the Wright Construction Company of Mt. Holly, Vermont replaced a few damaged planks and re-sided the bridge. The bridge received satisfactory inspection ratings until 2008, when a state inspection report noted areas of rot along the lower chords, as well as heavy vertical sag and considerable horizontal bowing of the trusses.[34] The bridge was subsequently slated for rehabilitation. In 2012, the Vermont Agency of Transportation received a grant from the National Historic Covered Bridge Preservation Program for a proposed rehabilitation of Brown Bridge; the project is currently in the planning phase. Plans are being prepared by the Vermont Agency of Transportation, in cooperation with the Vermont Historic Preservation Office and the Vermont Historic Bridges Program.

In August 2011, Brown Bridge sustained some minor damage during the flooding that followed Tropical Storm Irene; the flooding also washed out a portion of Upper Cold River Road at the bridge site. The Federal Emergency Management Agency (FEMA) assisted with immediate repairs to the bridge in late 2011-early 2012. The westerly section of Upper Cold River Road is currently closed to vehicular traffic.

Nichols M. Powers[35]

Nichols Montgomery Powers (1817-1897) was one of New England's premier covered bridge builders. Born in Pittsford, Vermont on August 30, 1817, Nichols Powers was one of thirteen children of Polly Carpenter Powers (1775-1863) and Richard Montgomery Powers (1775-1848), who was a builder and wheelwright. Nichols apprenticed under Pittsford bridge builder Abraham Owen (1790-1872) as a young man and built his first covered bridge at Pittsford Mills when he was just twenty years old. Over a career that spanned more than forty years, Powers built many bridges in Rutland County, Vermont, and had several significant contracts outside New England, including the Blenheim Bridge (1855) at North Blenheim, New York, and a huge railroad bridge (1866) across the mouth of the Susquehanna River between Perryville and Havre de Grace, Maryland. The Town lattice was his truss of choice, but Powers also experimented with other designs.[36]

In 1844, Nichols Powers married Loriett Fish (1823-1905) of Ira, Vermont, with whom he had four children: George (1847-1848), Russell (1847-1921), Helen (1848-1859), and Charles (1850-1880).[37] Powers lived in Pittsford until his marriage, when he moved to Ira. In 1858, the Powers family settled in Clarendon, where Nichols Powers worked a 375-acre farm and ran a cheese factory.[38] In the winter months, he sometimes built bridges. Charles Powers worked with his father on the Susquehanna railroad bridge and later took on other bridge building contracts. Brown Bridge was the last bridge Nichols Powers built. He died at his home in Clarendon on January 17, 1897 and is buried in Ira, Vermont.

Of the approximately twenty covered bridges attributed to Nichols Powers, four are still standing in Vermont. Unfortunately, Powers' masterpiece, the Blenheim Bridge (1855) in Schoharie County, New York—which was the longest single-span covered bridge in the United States up to the time of its destruction—was destroyed by

[34] Vermont Agency of Transportation, "Structure Inspection, Inventory and Appraisal Sheet: Shrewsbury, Bridge No. 00034," 9/19/2008.
[35] See footnote 1.
[36] The Pittsford Historical Society reportedly has a scale model of a new bridge framing system built by Nichols Powers.
[37] Genealogical information was obtained from town clerk's records in Pittsford, Ira, and Clarendon, Vermont.
[38] Child, *Gazetteer*: 318.

flooding from Tropical Storm Irene on August 28, 2011.[39] The following is a chronological list of known bridges built by Nichols Powers (surviving bridges are highlighted):[40]

BRIDGE	STREAM	TOWN	COUNTY	STATE	DATE	PARTNER	TYPE	STATUS
PITTSFORD MILLS	FURNACE BROOK	PITTSFORD	RUTLAND	VT	1837	ABRAHAM OWEN	TOWN	LOST 1931
MEAD	OTTER CREEK	PROCTOR	RUTLAND	VT	1840	ABRAHAM OWEN	TOWN	LOST 1950
GORHAM	OTTER CREEK	PITTSFORD	RUTLAND	VT	1842	ABRAHAM OWEN	TOWN	ALTERED
PARKER	COLD RIVER	CLARENDON	RUTLAND	VT	1845	MOSES CHAPLIN		LOST
LESTER	EAST CREEK	CLARENDON	RUTLAND	VT	1845		TOWN	LOST 1931
COOLEY	FURNACE BROOK	PITTSFORD	RUTLAND	VT	1849		TOWN	ALTERED
TWIN	EAST CREEK	RUTLAND	RUTLAND	VT	1849		TOWN	LOST 1947
TWIN	EAST CREEK	RUTLAND	RUTLAND	VT	1850		TOWN	MOVED
RAILROAD	CONNECTICUT	BELLOWS FALLS	WINDHAM	VT	1851			LOST
NORTH	COLD RIVER	NORTH	RUTLAND	VT	1852	TIMOTHY K.	TOWN	LOST 1927
SCHOHARIE CREEK	SCHOHARIE CREEK	SCHOHARIE	SCHOHARIE	NY	1854			LOST
BLENHEIM	SCHOHARIE CREEK	NORTH BLENHEIM	SCHOHARIE	NY	1855		LONG	LOST
RAILROAD	SUSQUEHANNA	HAVRE DE GRACE	HARFORD	MD	1866	CHARLES POWERS	HOWE	LOST
POWERS	MILL RIVER	CLARENDON	RUTLAND	VT	1869			LOST 1929
OTTER CREEK	OTTER CREEK	WALLINGFORD	RUTLAND	VT	1874			LOST
OLD '76	EAST CREEK	RUTLAND	RUTLAND	VT	1876		TOWN	LOST 1947
BROWN	COLD RIVER	SHREWSBURY	RUTLAND	VT	1880		TOWN	CLOSED

Ithiel Town and the Town Lattice Truss

Ithiel Town (1784-1844) was an influential American architect and the inventor of the Town lattice truss. As a young man, Town studied architecture under renowned architect Asher Benjamin (1773-1845) of Boston. From 1829 to 1835, Town was a partner of Alexander Jackson Davis (1803-1829), a major proponent of the Greek Revival style of architecture. Town & Davis designed churches, state capitols and other important buildings and structures on the eastern seaboard. Town also made a significant contribution to the field of engineering when he began building bridges. In 1818, he built North Carolina's first covered bridge across the Yadkin River near Salisbury.[41] In 1820 and again in 1835, Town patented a revolutionary truss that was one of the first attempts to largely eliminate joinery in timber bridges.[42] Town aggressively promoted his design and received patent royalties of $1 per running foot of bridge. As far as we know, Ithiel Town built only a few bridges himself and none of them survive.

The Town lattice truss design consisted of a rectangular frame connected by a diagonal grid of overlapping planks fastened together with treenails (wood pins) to form a lattice web. In 1821, Town published a pamphlet describing this design as, "the most simple, permanent, and economical, both in erecting and repairing," and emphasizing the necessity of a less expensive method of bridge construction as a solution to "the great and

[39] For more information on Blenheim Bridge, see: Lola Bennett, HAER No. NY-331: Blenheim Bridge (Washington, DC: Historic American Engineering Record, 2002).

[40] Allen, "Notes on Nichols Montgomery Powers for Mr. Bearse," 15 May 1981, NSPCB Archives, Penacook, New Hampshire. In addition to the bridges listed above, Powers also built a number of covered wooden railroad bridges on the Bennington & Rutland Railroad, and he may have had a hand in building the Mill Village Bridge north of Rutland over East Creek and the 1875 bridge over Poultney River at Poultney, Vermont.

[41] The Yadkin River Bridge was replaced sometime after the Civil War.

[42] Ithiel Town, United States Letters Patent No. 3169X, 28 January 1820.

increasing demand for wooden bridges in all parts of this extensive country."[43] This truss type was widely adopted for covered bridges, because the design largely eliminated the need for joinery, it utilized sawn planks instead of hewn timbers, and because it was entirely free from arch action, it could be erected on less massive (and therefore, less costly) abutments. The Town lattice system was used for timber bridges for over a century, and hundreds, if not thousands, of the type were built. There are approximately 110 extant historic (pre-1955) Town lattice covered bridges in the United States, primarily in the Northeast and South, with some of the finest examples located in Vermont.

[43] Town, A Description of Ithiel Town's Improvement in the Construction of Wood and Iron Bridges: Intended as a General System of Bridge-Building (New Haven, Connecticut: S. Converse, 1821): 3-4.

Chronology

1761 Shrewsbury chartered

1777 Vermont Republic founded

Capt. Lemuel White becomes Shrewsbury's first settler

1780s First major wave of settlement in Shrewsbury

1788 Cold River crossing (possibly a ford) indicated at, or near, this site on an early map of Shrewsbury

1784 Ithiel Town born in New Haven, Connecticut

1791 State of Vermont admitted to the Union

1805 America's first covered bridge completed at Philadelphia

1817 Nichols M. Powers born in Pittsford, Vermont

1820 Ithiel Town patents the Town lattice truss

1824 Vermont's first covered bridge built at Highgate Falls

1835 Ithiel Town obtains a second patent for the Town lattice truss

1837 Nichols M. Powers builds his first bridge at Pittsford Mills, Vermont

1844 Ithiel Town dies in New Haven, Connecticut

1880 Nichols M. Powers builds Brown Bridge in Shrewsbury, Vermont

1897 Nichols M. Powers dies in Clarendon, Vermont

1927 Brown Bridge survives flood that destroys half of Vermont's covered bridges

1931 Etching of Brown Bridge published in Clara E. Wagemann's *Covered Bridges of New England*

1974 Brown Bridge listed in the National Register of Historic Places

2002 Wright Construction Company of Mt. Holly, Vermont repairs Brown Bridge

Historic American Engineering Record records Brown Bridge

2008 Vermont Agency of Transportation inspection notes that bridge is in "less than satisfactory" condition

2011 Brown Bridge survives Tropical Storm Irene; Upper Cold River Road is washed out and closed to traffic

2012 Brown Bridge proposed for consideration as a National Historic Landmark

Vermont Agency of Transportation receives NHCBPP grant for restoration of Brown Bridge

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Previous Documentation on File (NPS):

__ Preliminary Determination of Individual Listing (36 CFR 67) has been requested.
_X_ Previously Listed in the National Register: Brown Covered Bridge [NRIS #VT-74000250, 1974]
__ Previously Determined Eligible by the National Register.
__ Designated a National Historic Landmark.
__ Recorded by Historic American Buildings Survey:
_X_ Recorded by Historic American Engineering Record: HAER No. VT-28

Primary Location of Additional Data:

_X_ State Historic Preservation Office
_X_ Other State Agency: Vermont Agency of Transportation, Montpelier, Vermont
__ Federal Agency
_X_ Local Government: Office of the Town Clerk, Shrewsbury, Vermont
__ University
__ Other (Specify Repository):

10. GEOGRAPHICAL DATA

Acreage of Property: Less than one acre

UTM References:	Zone	Easting	Northing
	18	668020	4825580

Verbal Boundary Description:

The property consists of the superstructure, housing, substructure, and approaches of Brown Bridge. Overall, the superstructure is approximately 115 feet long, 18 feet wide, and 23 feet deep; the abutments are approximately 6 feet high above the level of the river. The bridge, which is aligned on an east-west axis, carries Upper Cold River Road over Cold River in the northwest corner of Shrewsbury, Vermont.

Boundary Justification:

The boundary includes the essential components of the bridge: the superstructure, including the trusses, floor system and bracing systems; the housing, including the siding and roof; the substructure, including abutments, piers, and foundations; and the adjacent roadway approaches to the structure.

11. FORM PREPARED BY

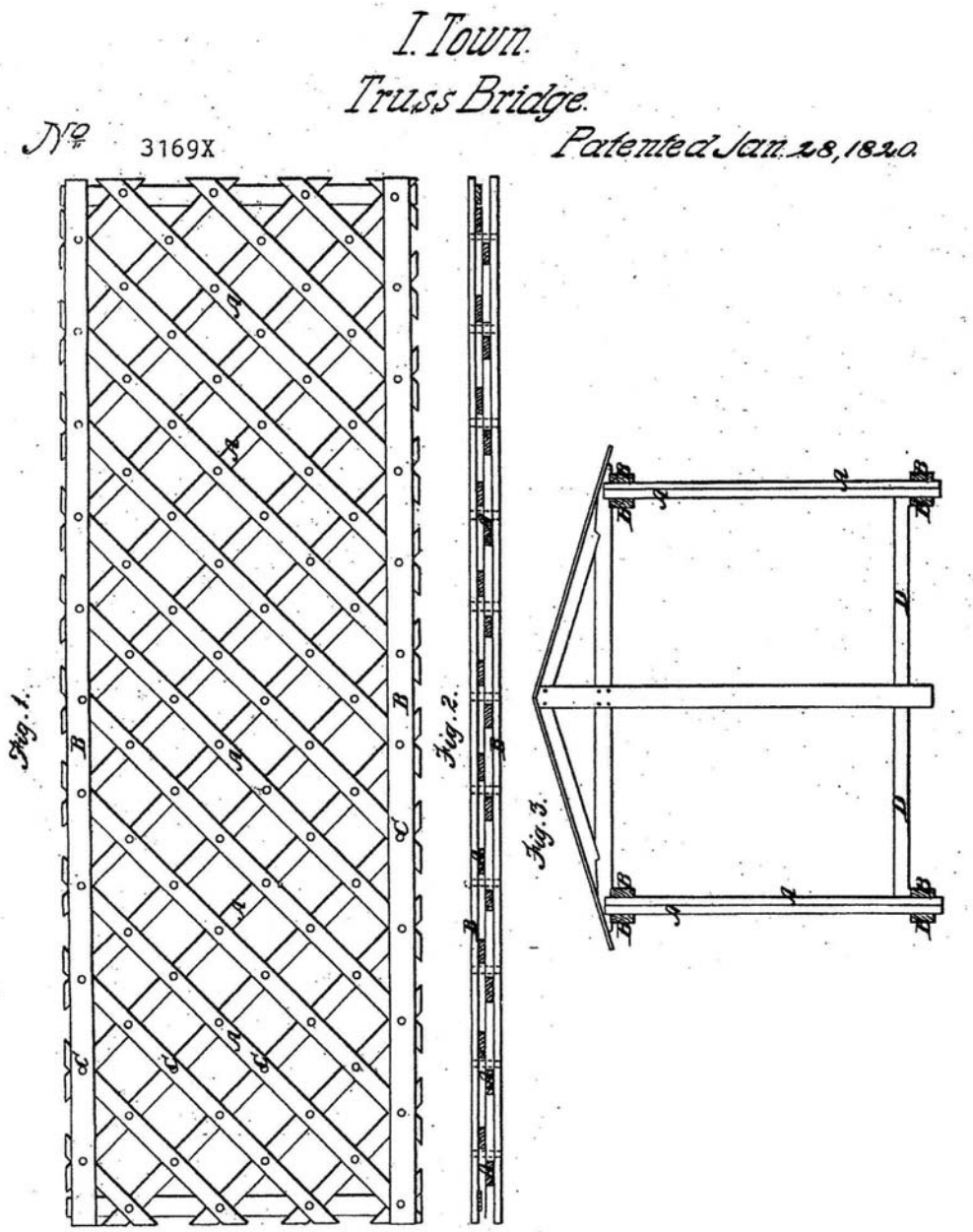
Name/Title: Lola Bennett, Historian
Heritage Documentation Programs
National Park Service
1201 I St. NW (2270)
Washington, DC 20005

Date: 4 April 2014

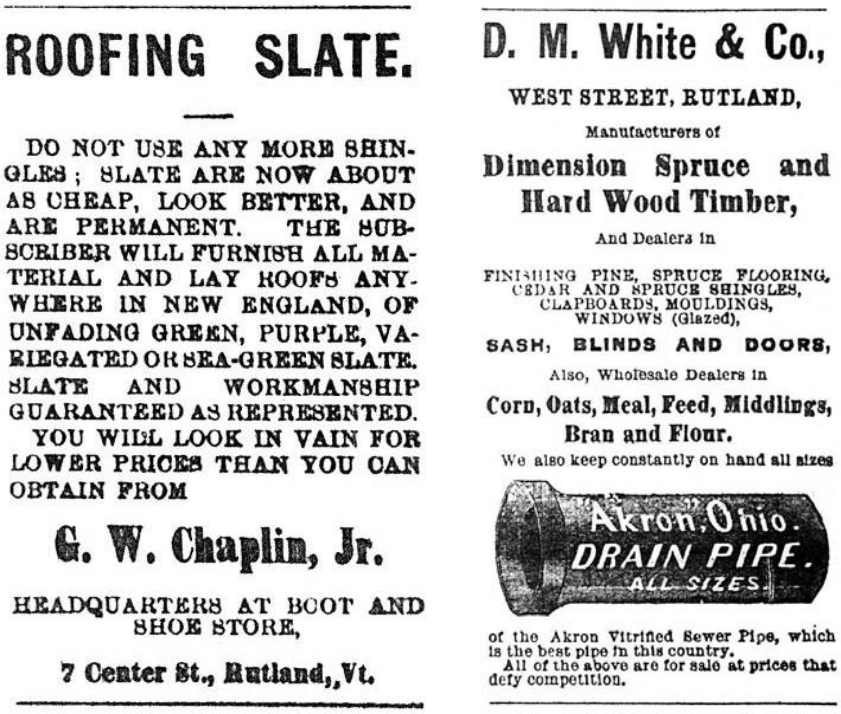
Edited by: Roger Reed and Christopher Marston
National Park Service
National Historic Landmarks Program
1849 C St. NW (2280)
Washington, DC 20240

Telephone: (202) 354-2278

NATIONAL HISTORIC LANDMARKS PROGRAM



Ithiel Town, United States Letters Patent No. 3169X, 28 January 1820.



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All of the above are for sale at prices that defy competition.

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BROWN BRIDGE. Northeast portal.
Photograph by Jet Lowe, 2004[HAER VT-28-1]



BROWN BRIDGE. Interior, northeast portal.
Photograph by Jet Lowe, 2004
[HAER VT-28-2]



BROWN BRIDGE. Connections, upper chord, north truss.
Photograph by Jet Lowe, 2004
[HAER VT-28-3]



BROWN BRIDGE. Lower chord details.
Photograph by Jet Lowe, 2004
[HAER VT-28-4]



BROWN BRIDGE. East abutment detail.
Photograph by Jet Lowe, 2004
[HAER VT-28-5]



BROWN BRIDGE. Southwest abutment detail from downstream.
Photograph by Jet Lowe, 2004
[HAER VT-28-6]



BROWN BRIDGE. View from downstream.
Photograph by Jet Lowe, 2004
[HAER VT-28-7]



BROWN BRIDGE. View from downstream.
Photograph by Jet Lowe, 2003
[HAER VT-28-8]

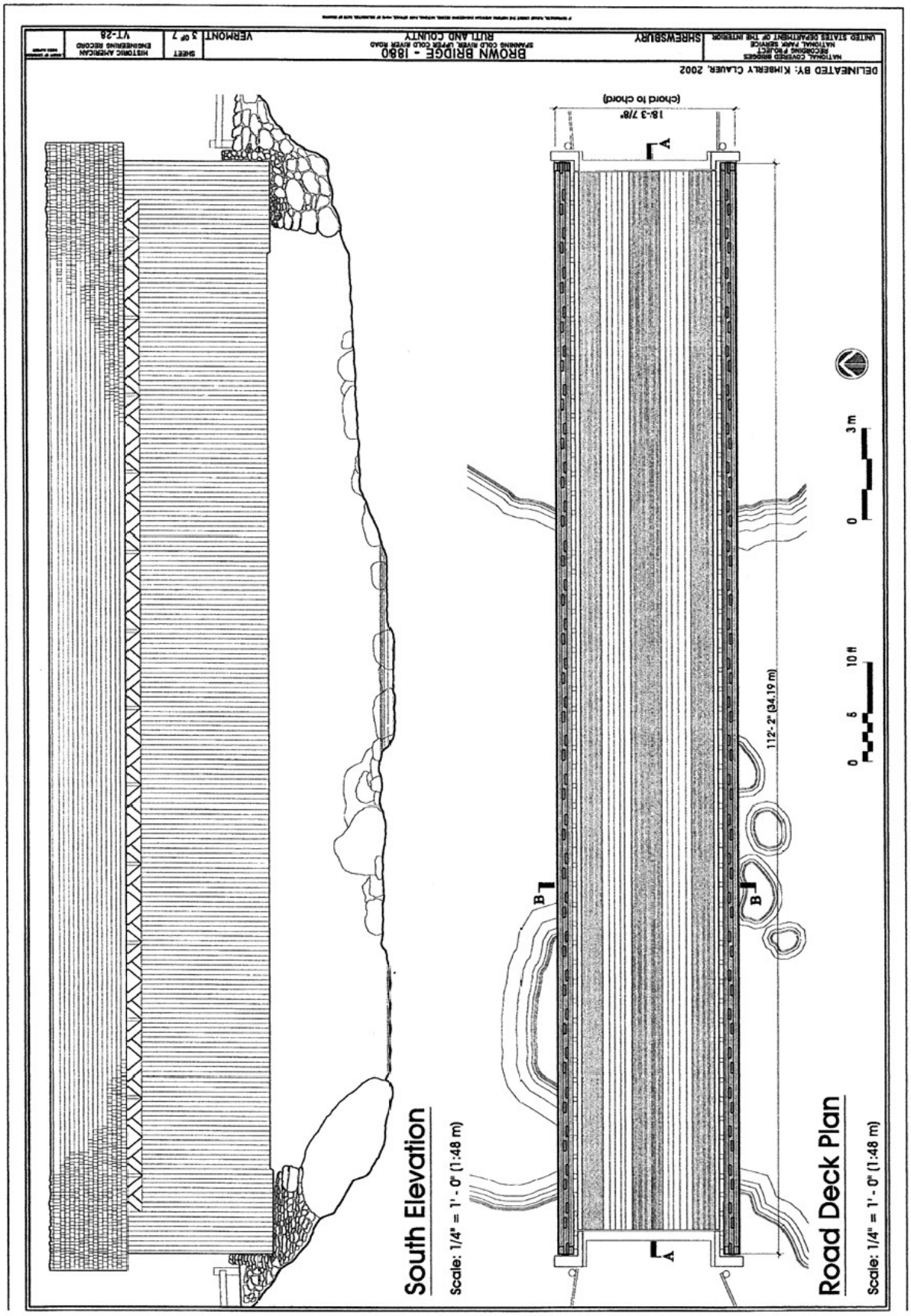
Built in 1880, Brown Bridge is one of the best-designed examples of the Town lattice truss, a widely used style of timber bridge framing. Built by Nicholas M. Powers, one of Vermont's most prolific bridge builders, Brown Bridge is located in the deep woods of Shrewsbury. Powers carefully sited the crossing at a huge erratic boulder, which serves as the northwest abutment. This decision reduced stonework expenses, allowing Powers the money to use slate for the roof as was tradition in this part of Vermont. The Town lattice was Powers' plan of choice and he was fond of saying that a stick of his favorite spruce timber was stronger than an equivalent weight of iron.

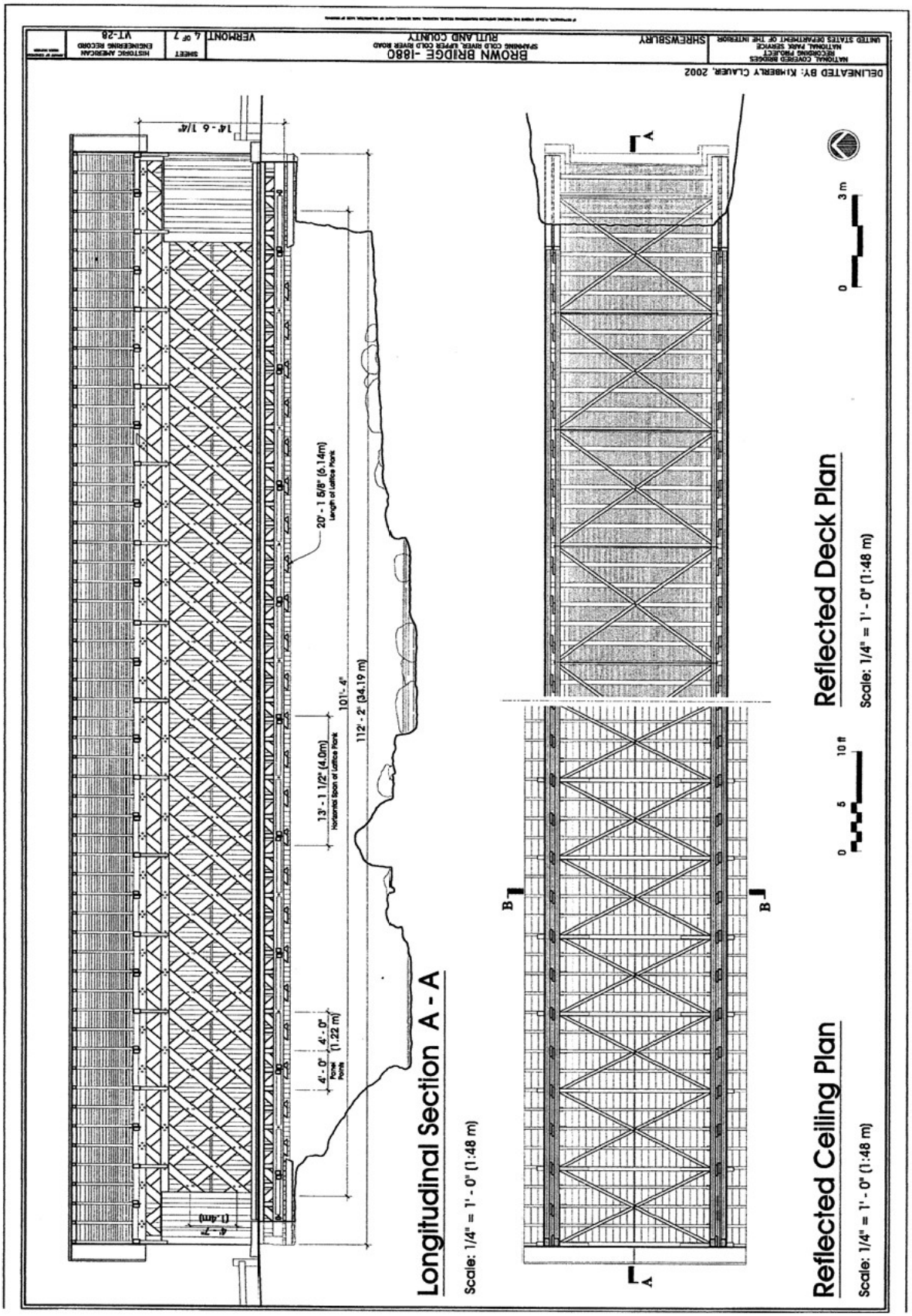
Ithiel Town (1784-1844) of New Haven, Connecticut, was a major figure in the history of bridge engineering, for he developed the first completely new idea in truss design: the Town lattice truss. Before the Town lattice, long span bridges were built using either arches, panel trusses, or a combination of both. All of these require large timbers and much custom joinery. The Town lattice used standard sawn planks in a repetitive pattern, which could be built at any length, and made continuous over piers for added strength. It did not require complicated joinery. There were no mortises and the truss was held together by large wooden pegs called treenails. The standard size of the timber members of the Town lattice truss made it possible for an experienced builder to construct a covered bridge in just three weeks. The original 1820 patent called for a single lattice, with simple chords at the top and bottom. Though strong, this design was subject to warping, leading Town to add secondary chords to correct this problem. This resulted in a revised patent in 1835. Instead of building bridges, Town promoted the use of his 'lattice mode' to other builders, which led to the Town lattice becoming a dominant style of covered bridges in New England and beyond.

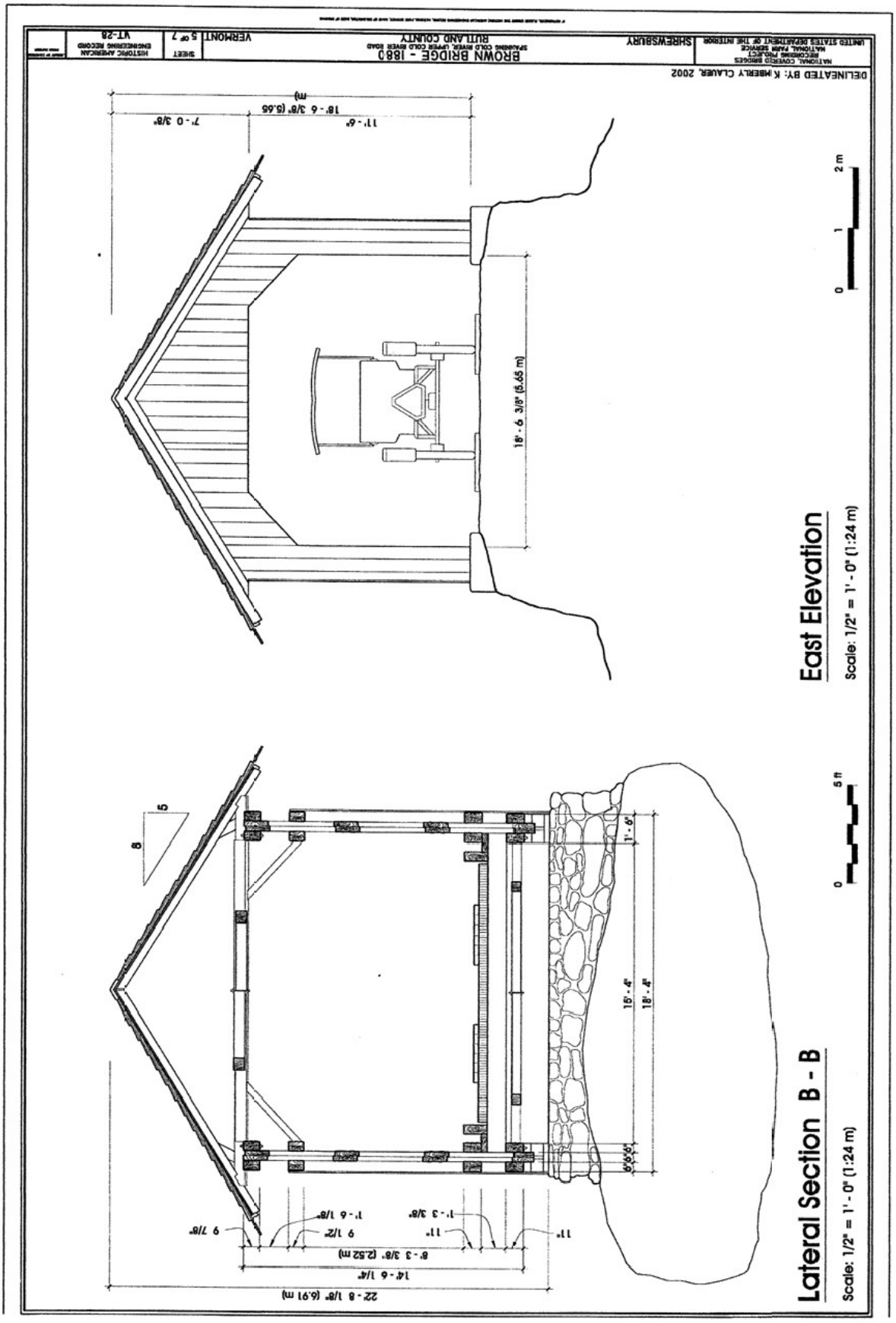
The Brown Bridge is significant because it is the last bridge that Nichols Powers built. With the unusual northwest boulder abutment it is noted that Powers paid close attention to the siting of the bridge.

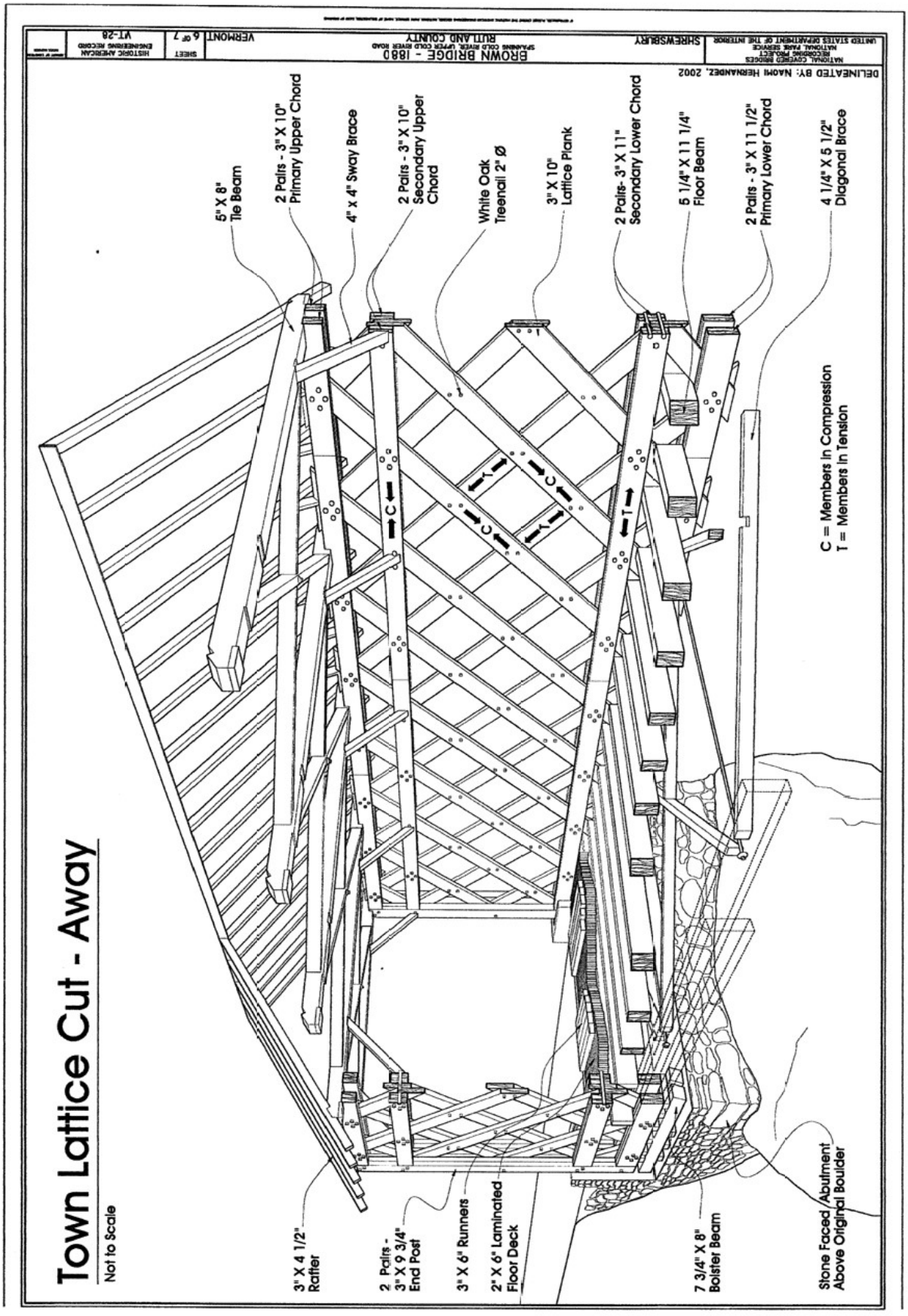
The National Covered Bridges Recording Project - Phase I was undertaken during the summer of 2002 and is part of the Historic American Engineering Record (HAER), a long-range program to document historically significant engineering and industrial works in the United States. HAER is administered by the Historic American Buildings Survey/Historic American Engineering Record (E. Blaine Cliver, Chief), a division of the National Park Service, U.S. Department of the Interior. The Federal Highway Administration funded the project. The Town of Shrewsbury, VT (Mike Stewart, Selectman) provided assistance at the Brown Bridge.

The field work, measured drawings, historical report, and photography were completed under the direction of Eric DeLony, Chief of HAER. Christopher Marston, Project Leader, and Richard O'Connor, HAER Senior Historian. The field team consisted of Field Supervisor Naomi Hernandez (Pratt Institute), Architects Kimberly Clauer (U. of Wisconsin-Milwaukee), Vuong Dang (U. of Arkansas), William Dickinson (U. of Pennsylvania), Dave Groff (U. of Maryland), and Charu Chaudhry (ICOMOS-India); Engineers Francesca da Porto (ICOMOS-Italy) and Dylan Lamar (U. of Arkansas); Historians Joseph Conwill (Rangeley, ME), Lola Bennett (Stow, MA), and Sarah Dangelas (U. of Maryland); Dr. Dario Gasparini, P.E. (Case Western Reserve U.), and Dr. Ben Schafer (Johns Hopkins U.), served as engineering consultants. Large-format photography was produced by Jet Lowe.


BROWN BRIDGE - 1880
SPANNING COLD RIVER, UPPER COLD RIVER ROAD
RUTLAND COUNTY
SHREWSBURY
VERMONT
SHEET 2 OF 7
HISTORIC AMERICAN ENGINEERING RECORD
VT-28
DELINEATED BY: KIMBERLY CLAUER, 2002
18'-3 7/8" (chord to chord)
112'-2" (34.19 m)
South Elevation
Scale: 1/4" = 1'- 0" (1:48 m)
Road Deck Plan
Scale: 1/4" = 1'- 0" (1:48 m)
A
B
0 3 m
0 5 10 ft


Longitudinal Section A - A
Scale: 1/4" = 1' - 0" (1:48 m)
Reflected Deck Plan
Scale: 1/4" = 1' - 0" (1:48 m)
Reflected Ceiling Plan
Scale: 1/4" = 1' - 0" (1:48 m)
112' - 2" (34.19 m)
101'-4"
20' - 1 5/8" (6.14m)
Length of Lattice Panel
13' - 1 1/2" (4.0m)
Horizontal Span of Lattice Panel
4' - 0" (1.22 m)
Panel Points
14' - 6 1/4"
BROWN BRIDGE -1880
SPANNING COLD BREEK LOWER COLD BREEK ROAD
RUTLAND COUNTY
VERMONT
SHEET 4 OF 7
HISTORIC AMERICAN ENGINEERING RECORD
VT-28
DELINEATED BY: KIMBERLY CLAUSER, 2002


DELINEATED BY: K.MBERLY CLAUER, 2002
BROWN BRIDGE - 1880
SPAULDING COLD BREEK LOWER COLD BREEK ROAD
RUTLAND COUNTY
SHREWSBURY
VERMONT
SHEET 5 OF 7
VT-28
East Elevation
Scale: 1/2" = 1' - 0" (1:24 m)
Lateral Section B - B
Scale: 1/2" = 1' - 0" (1:24 m)
18' - 6 3/8" (5.65 m)
22' - 8 1/8" (6.91 m)
14' - 6 1/4"
8' - 3 3/8" (2.52 m)


Town Lattice Cut - Away
Not to Scale
5" X 8" Tie Beam
2 Pairs - 3" X 10" Primary Upper Chord
4" x 4" Sway Brace
2 Pairs - 3" X 10" Secondary Upper Chord
White Oak Treenail 2" Ø
3" X 10" Lattice Plank
2 Pairs- 3" X 11" Secondary Lower Chord
5 1/4" X 11 1/4" Floor Beam
2 Pairs - 3" X 11 1/2" Primary Lower Chord
4 1/4" X 5 1/2" Diagonal Brace
C = Members in Compression
T = Members in Tension
3" X 4 1/2" Rafter
2 Pairs - 3" X 9 3/4" End Post
3" X 6" Runners
2" X 6" Laminated Floor Deck
7 3/4" X 8" Bolster Beam
Stone Faced Abutment Above Original Boulder
BROWN BRIDGE - 1880
SHREWSBURY
RUTLAND COUNTY
VERMONT
DELINEATED BY: NAOMI HERNANDEZ, 2002