Archaeological Resources Assessment for the Proposed Dugway Road Improvements, Richmond, Chittenden County, Vermont

Submitted to:

Town of Richmond
203 Bridge Street
Richmond, Vermont 05477

Submitted by:

John G. Crock, Ph.D. and Kate Kenny

Consulting Archaeology Program
University of Vermont
111 Delehanty Hall
180 Colchester Ave
Burlington, VT 05405

September, 2020
UVM CAP Report No. 1280

Archaeological Resources Assessment for the Proposed Dugway Road Improvements, Richmond, Chittenden County, Vermont

Project Description and Study Goal

The Town of Richmond proposes to repair a section of Dugway Road in Richmond, Chittenden County, Vermont (Figure 1). A portion of the roadway, which runs along the Huntington River between Jonesville and Huntington, collapsed in the area of the Huntington Gorge during a storm on October 31, 2019 (Figure 2). The road has been closed since that time. The proposed repairs will be funded, in large part, by the Federal Emergency Management Agency (FEMA). As a result of the federal funding, the project is subject to review under Section 106 of the National Historic Preservation Act, as amended. This review includes an evaluation of the project's potential to impact significant cultural resources. An Archaeological Resources Assessment is presented here to comply with the permit review process.

The project's Area of Potential Effect (APE) includes an approximately 85 m long (280 ft) section of Dugway Road just below Huntington Gorge and a separate, 21 m x 21 m (70 ft x 70 ft) staging area located approximately 50 m (164 ft) east of the project area on Dugway Road. Project plans include anchoring a retaining wall for the repaired section into bedrock at the base of the slump, building the wall and backfilling it to restore the roadway, in addition to resetting the riverside guardrail and installing a new drainage catchment and culvert (Figure 3). The majority of construction activity will occur within the footprint of the original roadway and existing roadside ditching on the interior, landside margin of the road. A new culvert is proposed on the eastern end of the construction portion of the project area to divert drainage from the uphill, landside portion of the project area downstream into an existing drainage system (see Figure 3). Finally, the project APE also includes the small staging area located on separate, private property where project activities will include stockpiling and accessing materials for the project on top of temporary surface of geotextile fabric and fill.

Environmental Setting

The project area falls within the physiographic subdivision of Vermont known as the Green Mountain zone, recognized as a region of rugged slopes, glacial till, and narrow river and stream valleys. The Huntington River is one of the many smaller tributaries that feed larger river basins and combine to make up the overall Champlain Basin drainage. As a primary artery within the Winooski River Sub-Basin, the main stem of the Huntington River is approximately 32 km (20 mi) long and drains an area roughly 174 km^2, or 67 mi^2 (Jacobs 1950, Thomas and Florentin 1999).

Perhaps the most important influence upon the geological, hydrological, and topographic structure of the general project area was the Laurentide glacier. The Laurentide Ice Sheet overlaid much of the Northeastern United States for thousands of years until its retreat at the conclusion of the Pleistocene epoch. Based on a reassessment of deglaciation using combined C^{14}, paleomagnetic and varve chronological data, Ridge (2003) and Ridge et al. (1999) suggest that glacial ice completely receded from northeastern North America (barring isolated remnants in Northern Maine) by sometime before 13,400 cal yr B.P. (Richard and Occhietti 2005). Ridge et al. (1999) specifically assign a date range of 13,700-13,400 cal yr B.P. to regional ice retreat

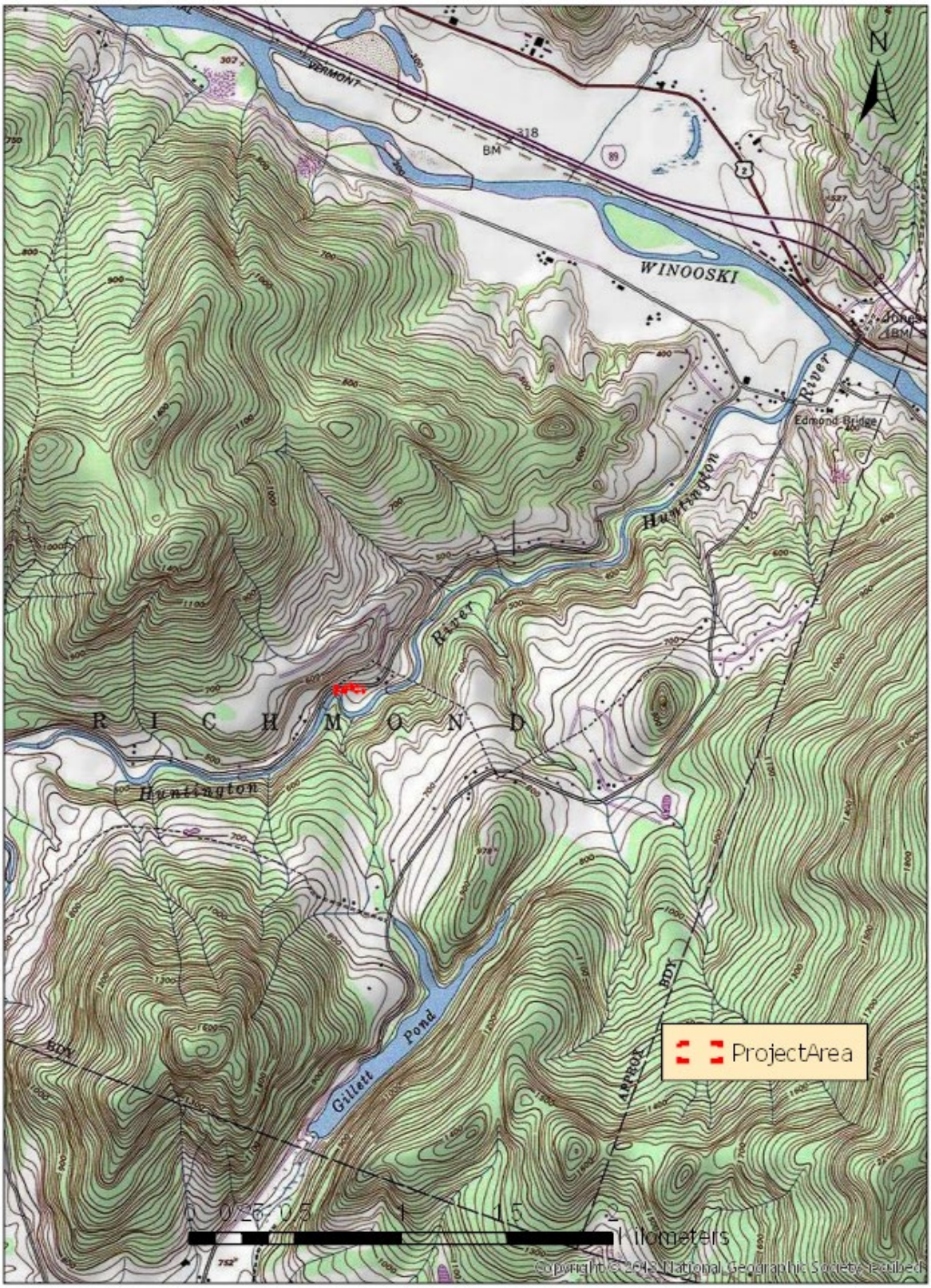

Figure 1. USGS map showing the location of the Dugway Road Improvement Project, Richmond, Vermont.

Figure 2. Photograph of the Dugway Road slope failure and project area, facing east (8/4/20).

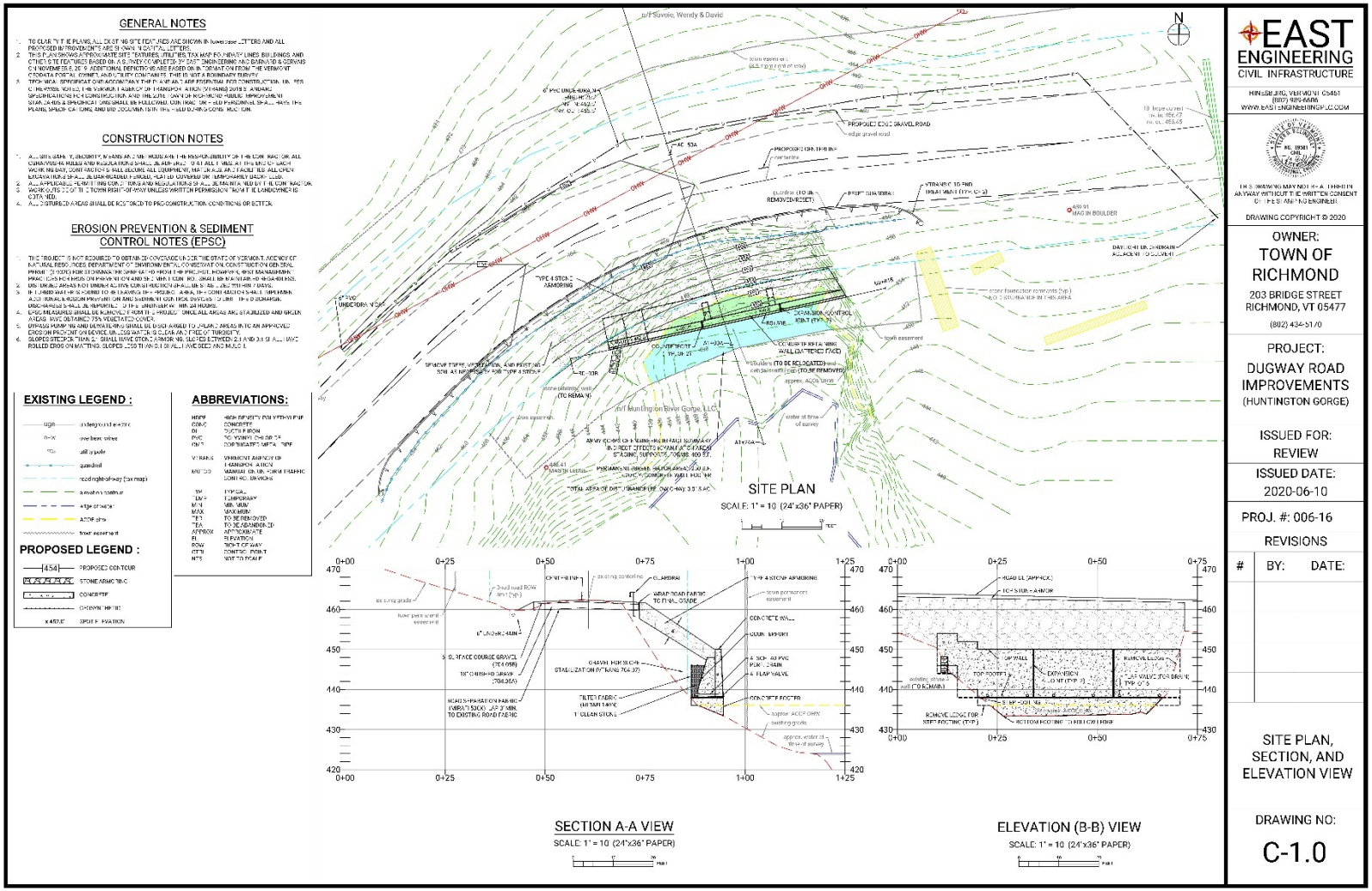

Figure 3. Project map showing the proposed plan for the Richmond Dugway Road Improvement project.

beyond the international boundary line on the basis of varves at Enosberg Falls in the Missisquoi River Valley (Dyke et al. 2003). As the Laurentide Ice Sheet receded north and out of the Champlain Basin, meltwater carved valleys, such as the Huntington River Valley, and glacial Lake Vermont began to form. Ultimately, glacial retreat, ablation, or processes related to it, shaped much of the topography of the Green Mountains, including the project area and the Champlain lowland below (Robinson et al. 1992). Surficial sediments in the Huntington Valley and specifically the project area are a product of these processes and include glaciolacustrine clays deposited by Lake Vermont and till by retreating glaciers. Soils in the specific project area are classified as Adams fine sandy loam, 30-50% slopes, which include a combination of eroded and redeposited sediments.

The Huntington River's catchment can produce high volume, high velocity events during spring thaw and storm events. At Huntington Gorge and the project area, the river is forced through a narrow, eroded passage sculpted by millennia of water flow. The full force of the river's water power is focused in this section, making it susceptible to major water events, but also attractive for the historic harnessing of water power for local industry as discussed below.

Archaeological Sensitivity for Pre-Contact Native American Sites

Native people entered what is now Vermont soon after the retreat of the glacier, sometime around 12,500 years before present. While to date no Paleoindian sites have been discovered within the Huntington River Valley, there are sites from this period within the broader Winooski River drainage, and in locations accessible via passages near the headwaters of the Huntington River, including within the Mad River Valley, and on the western side of the mountains around Bristol Pond (Crock and Robinson 2012). Based on the locations of the earliest sites, and those in the millennia afterward, the river corridors leading into and out of the Champlain Valley were critically important travel corridors for Native Americans and an integral part of their settlement system.

The closest recorded sites to the project area include three upstream and two downstream of the project area. The highest elevation site is located above Huntington Center approximately 15.5 km (9.6 miles) upstream from the project area. This Native American site, designated VT-CH-1146 in the Vermont Archaeological Inventory (VAI), yielded evidence of stone tool manufacture and/or refurbishment and cooking activities. One fragment of clay pottery also was recovered which minimally dates the site to the Late Woodland Period ca. 1000 – 400 cal yr B.P (Fletcher and Crock 2016).

Site VT-CH-839 is located in the village of Huntington and was found in advance of subdivision development (Thomas and Florentin 1999). No temporally diagnostic artifacts were recovered from this site so it cannot be assigned to a specific time period during the pre-Contact era. Another site of indeterminate age was identified in eroding bank of floodplain near where the river turns east not far from the western end of Dugway Road. Site VT-CH-871 was recorded based on possible Native American hearth feature noted in the riverbank.

The most substantial and significant site in the Huntington River Valley was recorded approximately 3.5 km (2.2 miles) downstream from the project area, close to the confluence of the Huntington River and the Winooski River. The site, VT-CH-619 was discovered during the Jonesville Bridge replacement project (Thomas et al. 1995). This site includes more substantial

habitation remains than the site upstream, preserved buried under stratified flood deposits. Like the upstream site VT-CH-1146, the major component of site VCT-CH-619 also includes a period of clay pottery manufacture which, along with radiocarbon dates places the main occupation of the site during the Late Woodland period, ca. 400-1,000 years B.P. Slightly farther downstream, closer to the confluence, site VT-CH-627 was identified in deeply buried layers of the floodplain.

While it is interesting to note that both of the recorded sites within the drainage that have yielded dates are both attributable to a more recent period of Native American history, the corridor was undoubtedly used earlier. The three undated sites indeed may have been occupied during earlier periods. The lack of earlier sites also likely is due more to a lack of systematic survey, and erosion of sites on the margins of the high energy waterway than a lack of use and settlement. Additional, as yet unrecorded sites likely exist within the valley.

In terms of the specific project area, the slope failure along dugway road, and the immediately adjacent workspace required for its repair does not include any previously undisturbed, natural landforms. The entire work area is comprised of the existing and remaining portion of Dugway Road, the failed slope, the exposed bedrock at the base of the slope just below Huntington Gorge, and the steep terrain that borders the inside of the roadway. As a result, none of this portion of the project's APE is considered archaeologically sensitive for pre-Contact Native American sites.

The portion of the project APE selected for use as a staging area to the east of the primary project does include a habitable, likely intact, natural landform, however. Based on the VDHP's Environmental Predictive Model for Locating pre-Contact Archaeological Sites, the area scores a 70 given its proximity to the gorge and tributary streams (Appendix 1). The area also is highlighted in a digital version of the predictive model, due to its habitability factors including proximity to the river, "falls" at the gorge, stream confluences nearby and level terrain (Figure 4). A field inspection of this area indicates it may have been used as an approach or yard, associated with the location of the historic mill once located between the road slip and the staging area. More recently it falls within/adjacent to an area used for horse pasture. Soil coring revealed a compact fine sandy loam with a moderately well-defined dark yellow brown A horizon reflective of pasturage, overlying lighter B/C horizon sediments. As a result, this portion of the project area is sensitive for the pre-Contact Native American archaeological sites and an archaeological Phase I Survey is recommended in this area to determine the presence or absence of sites prior to use of the parcel for staging.

Archaeological Sensitivity for Historic Era Sites

The project area has seen almost constant activity since initial European settlement in the region. The constriction and falls at Huntington Gorge was attractive early on for saw and grist mills and later hydroelectric power generation. Similar to the storm that caused the present damage to Dugway Road, the Huntington River is known historically for damaging flood events, including at the gorge and project area mill site. A list of notable floods involving the Huntington River watershed include, but is not limited to, those of July 26, 1830 (major flood); early July 1858 (freshet); October 3, 1869 (tropical storm); March 1-3, 1896 (spring freshet); June 15, 1902 (cloud burst); November 3, 1927 (major flood); September 21, 1938 (hurricane); June 1, 1952 (storm); August 9, 1976 (Hurricane Belle); August 26, 2011 (Hurricane Irene), July 3, 2013 (localized storm), and October 31, 2019 (regional storm that caused the current road damage).

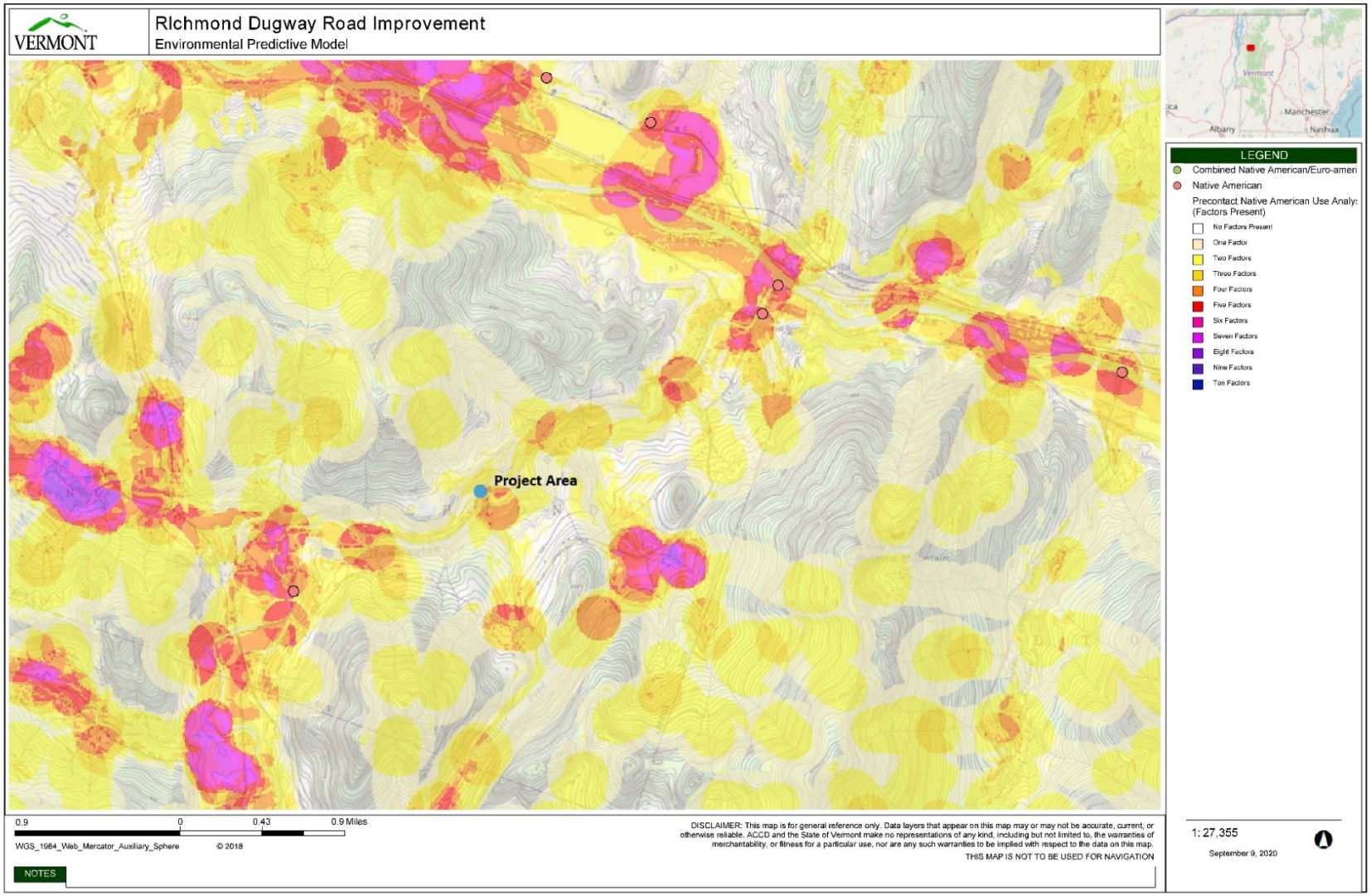

Figure 4. USGS topographic map with an overlay of pre-Contact era Native American habitability factors, the location of the project area and previously recorded archaeological sites. Note the overlapping factors near the project area (near level terrain, falls, tributary streams).

One previously recorded historic archaeological site, numbered VT-CH-1202 in the VAI, encompasses the history of water-powered industry in and immediately adjacent to the project area. Structural remains associated with this site, and likely related to the most recent historic facility, are located in the small wooded area, between the road slump and the proposed staging area, with a minor feature exposed at the base of the road slump as well.

According to several local historians, John Preston, formerly of Bradford, Vermont, first developed this mill seat in the early 19th century (Rann 1886:661, 848; Riggs 2007:35-36). Most published histories give the date of the construction of a grist mill at this site as 1801 or 1802 (*Burlington Free Press* August 15, 1913; Rann 1886:662). However, the actual date of this development is not entirely clear. According to Rann, John Preston moved to Bolton in 1792-3 and built the mill in Richmond in 1806 (Rann 1886:848). According to Riggs, Preston moved to Richmond ca. 1793 and purchased land on the Huntington River in June of 1806 (Riggs 2007:35-6). At any rate, Preston reportedly sold the property in 1808 to Samuel Hinkson (Riggs 2007:36). Samuel Hinkson sold the mill to Truman Averil in 1812 (Riggs 2007:36-37). The town land records indicate that Averil definitely owned a grist mill at this time (Riggs 2007:37). In a parallel development, in 1814, Truman Averil sold some land near this site to Samuel Fletcher and James Judson "for carding wool and dressing cloth" (Riggs 2007:37). The clothier's works, built ca. 1815, were destroyed by fire in 1819, but was "afterwards rebuilt by Daniel Fisk" (Rann 1886:661-662; Riggs 2007:37). According to a source quoted by Riggs: James H. Judson, Roswell B. Staples, and Daniel Fisk were cloth dressers near the "Preston mill place" (Riggs 2007:37).

The grist mill was eventually acquired by John Preston's son, Noah Preston, probably between 1830 and 1840 (Rann 1886:662; U.S. Census 1830, 1840; Walling 1857). On the Walling map of 1857, the site is marked as the "Saw & Grist Mill" of "N. Preston" (Walling 1857)(Figure 5). According to available records, Noah Preston (1791-1859) of Richmond was, indeed, a miller by trade (U.S. Census 1840, 1850; *Vermont Vital Records 1720-1908*). In 1858, during a freak freshet: "the saw mill and grist mill of Mr. N. Preston was carried away" (*Burlington Weekly Free Press* July 9, 1858; Riggs 2007:36-40; *Watchman* July 9, 1858). Preston immediately rebuilt. When Noah Preston died in 1859, his 90 acre farm with the gristmill and dwelling house on it was valued at $2000 (*Vermont Wills and Probate Records 1749-1999*). In 1860, the mill was rented to John Preston (*Vermont Wills and Probate Records 1749-1999*). Shortly afterwards (probably in 1861), John Hapgood acquired the property (Rann 1886:662). In 1862, a spring freshet severely affected parts of Richmond. At the time, it was reported that: "the grist-mill of John Hapgood is left high and dry on top of a ledge—the river making a new channel on the west side of it. His damage by the flood will amount to $1,000 or more" (*Daily Home Journal* April 25, 1862). After John Hapgood left, the grist mill property was reportedly run by Daniel Preston "for some time" (Rann 1886:662).

The Beers map of 1869 indicates that the grist mill was then occupied by "S. Robinson," (Beers 1869)(Figure 6). Samuel Robinson bought the old grist mill in 1868 and was joined five years later in business by his son, Ransom J. Robinson (Rann 1886:662; Riggs 2007:36). Samuel Robinson (1810-1900) was a son of Isaac Robinson of Stamford, Vermont (*Vermont Vital Records 1720-1908*). After apparently spending time in Canada, Samuel Robinson "lived many years on the road leading from Jonesville to Huntington" (*Burlington Clipper* October 20,

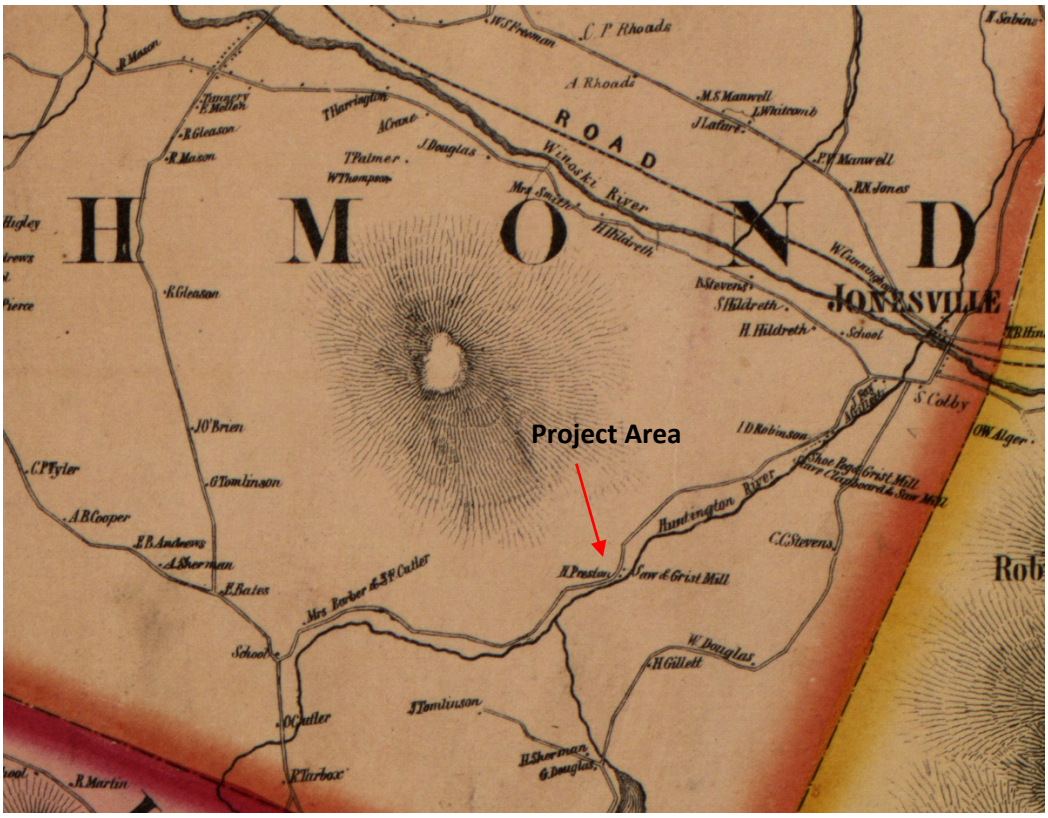

Figure 5. Walling Map (1857) showing the location of the project area, labeled "N. Preston Saw and Grist Mill."

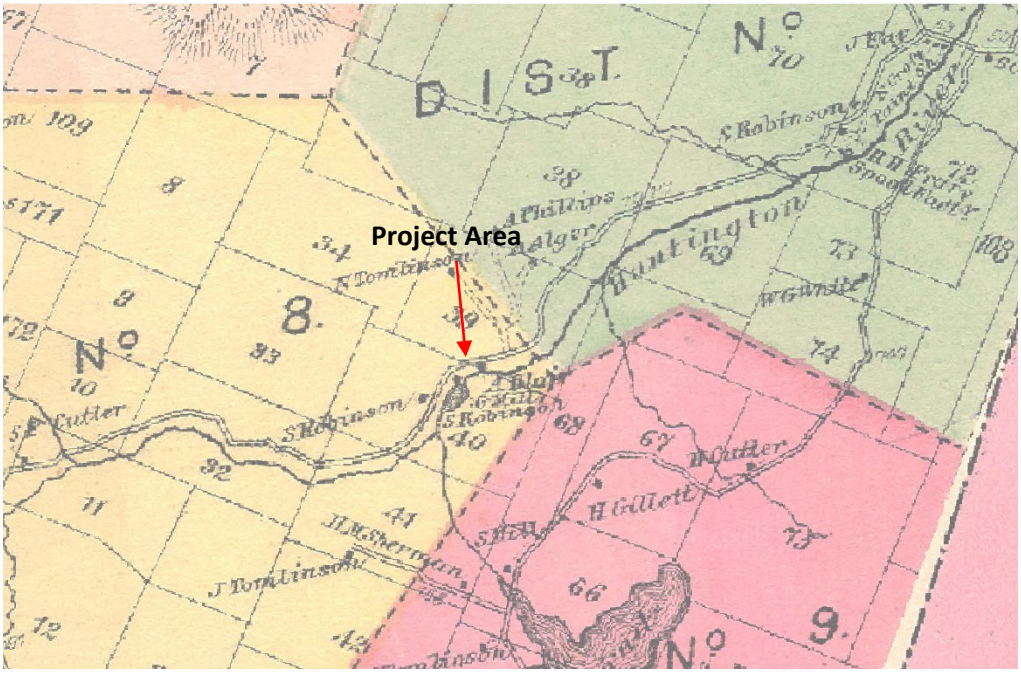

Figure 6. Beers Map (1869) showing the location of the project area, labeled "S. Robinson Grist Mill."

1900). It appears that he expanded the old grist mill's capabilities to include wood turning and cider pressing. While living in Richmond, Samuel Robinson was variously listed as a miller and as a cooper (U.S. Census 1870, 1880, 1900). Period descriptions indicate that this mill included a wood turning shop, where clothespins, spokes, and handles for files and ice picks were made, as well as the custom flour and gristmill, and a cider mill (Child 1882:250, 373; Rann 1886:662; Riggs 2007:36). In ca. 1882, it was said that this mill used "twenty cords of wood per month in their turning shop" and made twenty-five barrels of cider a day during the season" (Child 1882:250, 373). In ca. 1886, it was noted that the Robinson "spoke factory turns out about 1,400,000 spokes a year while about 400 barrels of cider are manufactured every year" (Rann 1886:662; Riggs 2007:38). The Robinson's mill continued to operate as late as the 1890s (Riggs 2007:35-36)(Figure 7). Ransom J. Robinson (1849-1905) was born in Stanbridge, Canada (*Vermont Vital Records 1720-1908*). As a resident of Richmond, he was variously described as carpenter and as a wood turner (U.S. Census 1870, 1880, 1900).

In the spring of 1896, it was reported that the "Huntington River was the highest . . . that it has been for 25 years" and that "considerable damage has been done to Ransom Robin's [sic] mill, just how much cannot be estimated until the water goes down" (*Burlington Clipper* March 5, 1896). Around this time, Ransom Robinson was "induced by the Baker Underwear Company to put in some 25 sewing machines at the Robinson mill on Huntington River" (*Burlington Weekly Free Press* December 14, 1905; Riggs 2007:38). Eventually, early in 1900, Ransom Robinson sold the property to the "Baker Underwear Company [J.S. Baker of Peekskill and I.H. Goodwin of New York City], who retained R.J. Robinson in its employ" (*Burlington Clipper* April 28, 1900 and October 20, 1900; *Burlington Weekly Free Press* December 14, 1905). Although the Baker Underwear Company moved their machines to a new premises on Millet Street in the village of Richmond, they pressed forward their plans to develop the hydroelectric potential at the "Robinson power on the Huntington River" to run their factory (*Burlington Clipper* April 28, 1900; *Burlington Weekly Free Press* December 14, 1905; Riggs 2007:38). In May of 1900, it was reported that the Underwear Company had taken: "the first steps toward developing the electric power . . . when several photographs of the Huntington River falls were taken for the use of the engineers" (*The Earth* May 19, 1900). In October of 1902, it was reported that "the new dam across Huntington River at Robinson's mill is about completed. The timbers at the bottom are bolted to the bedrock across the stream, and cemented by the best cement that can be obtained. A new foot bridge is built over the chasm 30 feet below" (*Burlington Weekly Free Press* October 2, 1902).

On August 4, 1902, a group of men from Richmond formed the Richmond Light & Power Company for the purpose of generating and distributing electricity more generally to the local area (Riggs 2007:38-41). This group included: Dr. B.J. Andrews (president; also superintendant of Mary Fletcher Hospital); Ralph E. Jones (vice president; also the postmaster); Albert T. Stevens (treasurer; also a farmer); I.H. Goodwin (manager; also manager of the Richmond underwear factory); Almon "Allie" Hall (an insurance agent); and Edward A. Rhoades (a farmer). In the fall of 1902, the company converted the old grist mill on the Huntington River into a hydroelectric plant (RLR 14:222; 14:232; Riggs 2007:38-41).

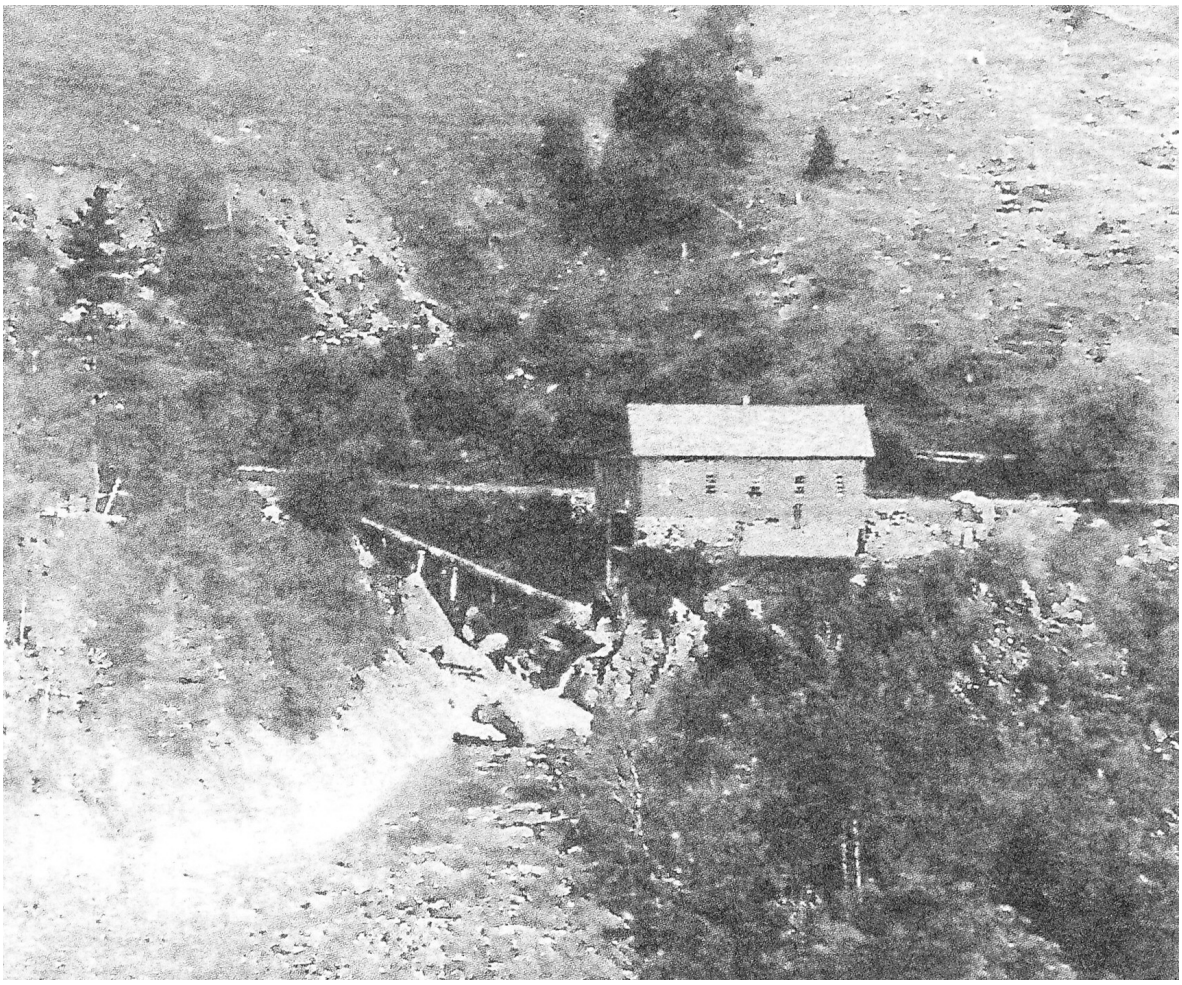

Figure 7. Photgraph ca. 1890s showing the Robinson Mill before expansion and conversion to a hydroelectric plant, and possibly after storm damage in 1896 (from Riggs 2007, courtesy of the Richmond Historical Society).

The plant utilized a fall of 43 ft, developed about 50 horsepower, and powered a 100KW generator (RLR 14:222; 14:232; Tucker 1986:86; *Vermont Watchman* December 1, 1910)(Figure 8). At the same time, the company enhanced Gillett Pond to serve as an auxiliary storage reservoir. The Burlington Weekly Free Press of October 23, 1902, reported that: "the wire and poles of the Richmond Power & Light Company [sic] are here and the poles are being set. The dam at Robinson's mill is completed. The dam at the Gillett Pond 90 feet long is built of stone and cement on the bed rock [sic], and is half done. This pond is a mile long and some 20 rods wide, and is half a mile from Huntington River, where it empties a short distance above the new dam" (Burlington Weekly Free Press October 23, 1902). However, it was soon noted that: the plant had "no auxiliary steam power, and during low water can run only a few hours per day" (*Burlington Free Press* December 3, 1910). The insufficiency of water continued to be a problem despite the fact the company also owned the reservoir at Gillette Pond.

Unfortunately for the Richmond Light & Power Company, they had located their works on a tributary river, which had a small upstream drainage area that provided only a limited water supply (Tucker 1986:85). The regulating dam at the outlet of Gillett Pond, while "helpful . . . could provide only a limited amount of additional water" (Tucker 1986:87-88). Eric R. Britain, who once worked for the Richmond Light & Power Company, recalled:

"when the man on duty saw that the level of water at the headgate was steadily dropping, he left the plant to take care of itself, and headed for the pond, by lantern light if at night. At the pond he would open the gate as much as he thought necessary, and hurry back to the plant. . . . Usually his judgment as to how much to open the gate was good, but if it hadn't been, another hurried trip to the pond was called for" (Britain 1965).

In January of 1911, it was reported that "the Richmond Light & Power Company have repaired the break in their machinery but are having some trouble now with their dam. Lights were on for a time Tuesday evening" (*Bristol Herald* January 19, 1911). Not long after this, the Richmond Light & Power Company ceased the generation of electricity at this site. It is unclear precisely when the Richmond Light and Power building was demolished. No structures are visible at the location on the 1948 USGS Huntington Quadrangle topographic map or the 1962 aerial photo (USGS; VCGI.vermont.gov). Since ownership by the Light and Power Company, the mill and powerplant site has changed owners a number of times. Presently, the gorge and adjacent property are owned by the Richmond Land Trust.

Along with the property's industrial history and the natural magnificence of the gorge, in the late 20th and early 21st century, the property also has had an unfortunate association with accidental drownings and other tragic events. The river's narrow passage through rock and the hydraulic energy that attracted early millers and powered the first hydroelectric plant in Richmond also has attracted swimmers, unfazed by the danger associated with the intensity of the focused current at the Gorge. Both the property's industrial history and more recent history of fatality are memorialized on a historic marker erected in 1995 adjacent to the project area by the Vermont Division for Historic Preservation in 1995 (accd.vermont.gov).

Field inspections of the project area indicates that there are foundation remains associated with the mill/powerplant building outside the project APE in the wooded parcel immediately adjacent to the project area. In addition, a stone masonry feature is exposed at the base of the western side of the road slump (Figure 9). The area around the foundation remains should be considered archaeologically sensitive given its potential to preserve evidence of the industrial and possibly residential use of the property dating from the early nineteenth to early twentieth century. The mill foundation features have been mapped by project engineers and are depicted on project plans (see Figure 3). In addition, the area within the APE of the proposed staging area also should be considered archaeologically sensitive for historic site deposits given its close proximity and related approach to the mill location(s).

Figure 8. Photograph of the Richmond Light and Power hydroelectric plant at Huntington Gorge ca. 1905 (from Turner and Low 2015 where author's note that the image is courtesy of Ed Neuert). Note project area lies to the left of the building.

Figure 9. Stone masonry feature at the base of the Dugway Road slump, likely the remains of a penstock support dating to the use of the adjacent property by the early twentieth century Richmond Light and Power hydroelectric plant.

The masonry feature preserved at the base of the road slump is not considered significant, however. The feature likely is an abutment for the mill penstock which angled down from the west. The stone abutment apparently was constructed around 1902 when the former Robinson Mill was converted into a hydroelectric plant by Richmond Light and Power. The feature is visible in a historic photo of the power plant (Figure 10). Evidence of the smaller abutment depicted in the photo farther east, closer to the mill, was not immediately apparent.

Figure 10. Close-up of historic photograph of the Richmond Light and Power hydroelectric plant at Huntington Gorge shown in Figure 8 (from Turner and Low 2015 where author's note that the image is courtesy of Ed Neuert). Note penstock abutment at left which is visible at the base of the current Dugway Road slump. Evidence of the smaller abutment at center is not immediately apparent.

The stone abutments appear to have replaced earlier supports, likely destroyed by flooding, that were spaced differently and made of different material, as evidenced by an earlier historic photo of the penstock near its connection to the mill turbine (see Figure 7; Figure 11).

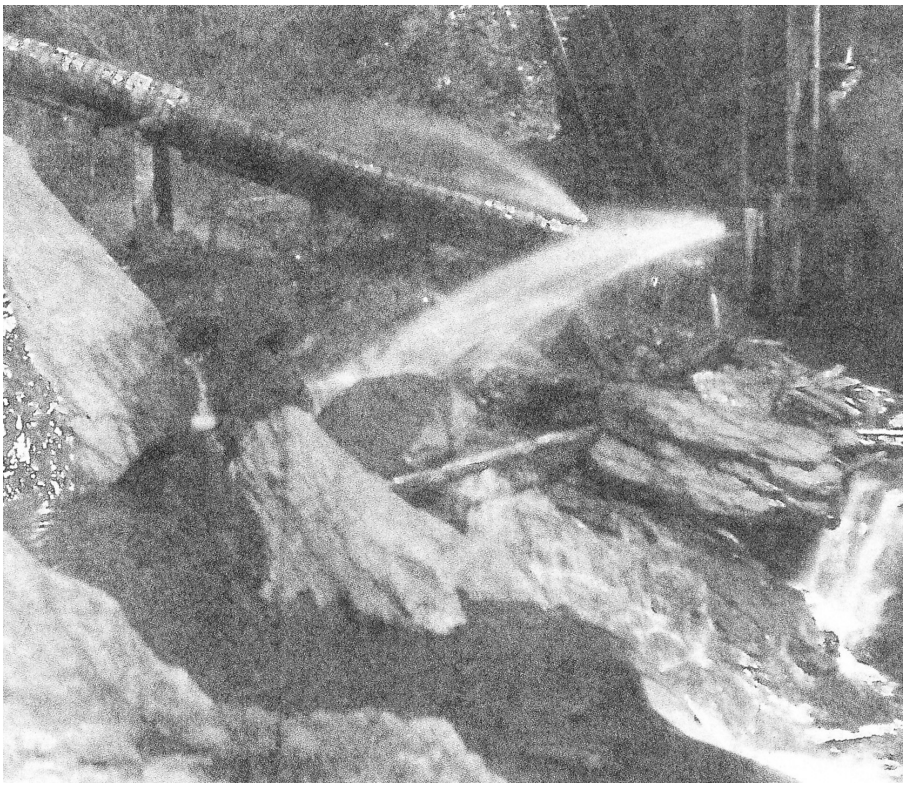

Figure 11. Historic ca. 1890s(?) photo of the Robinson (?) mill penstock at Huntington Gorge. Note the supports for the penstock 896 (from Riggs 2007, courtesy of the Richmond Historical Society).

Conclusions and Recommendations

The majority of the Dugway Road Improvement project's APE is not archaeologically sensitive as it almost exclusively includes area within the original road alignment proposed for repair. The anchoring of a new retaining wall into bedrock at the base of the road slope, the restoration of the roadway, drainage work and guardrail emplacement will have no effect on significant cultural resources. The one historic feature noted in this area is interpreted as a masonry abutment used support the penstock for the hydroelectric plant that functioned at the site at the beginning of the 20th century. While proposed construction activities may avoid and/or incorporate this feature into the new construction, it is not considered significant enough to warrant preservation if engineering design and construction activity require its removal or burial within the new fill prism.

Archaeologically sensitive area was identified adjacent to the project area where mill foundation remains are preserved, and in the APE of the proposed project's staging area farther east on Dugway Road (Figure 12). The area of the mill foundations are preserved is outside of the project APE. The staging area APE is sensitive for pre-Contact era Native American sites, as well as historic sites possibly associated with the location of the mill(s). We recommend that an archaeological Phase I Survey be conducted in the area of the project's proposed staging area to

determine the presence or absence of significant archaeological resources prior to the use of the area during project construction.

Figure 12. Aerial photo showing the Dugway Road Improvement project ‘s Area of Potential Effect (dotted red), the location of historic foundations and penstock abutment (yellow) and the archaeologically sensitive area located adjacent to the project and within the APE of the staging area (dotted yellow).

References Cited

Beers, F.W.
1869 Richmond. In: *The Atlas of Chittenden County, Vermont*. F.W. Beers, New York, New York.

Bristol Herald (Bristol, Vermont)
1911 January 19, "Richmond." p. 6

Britain, E.R.
1965 The Richmond Light and Power Co. Manuscript: Richmond Historical Society, Richmond, Vermont.

Burlington Clipper (Burlington, Vermont)
1896 March 5, "Jonesville." p. 8.
1900 April 28, "New Industry for Richmond." p. 8.
1900 October 20, "Samuel Robison, a long-time resident of Richmond . . ." p. 5.

Burlington Daily News (Burlington, Vermont)
1910 December 2, "Undeveloped Water Privileges At Many Points On The Winooski." p. 7.

Burlington Free Press (Burlington, Vermont)
1910 December 3, "Vermont Water Power." p. 11.
1913 August 15, "Richmond Begins Old Home Week." p. 2.

Burlington Weekly Free Press (Burlington, Vermont)
1858 July 9, "The Freshet." p. 2.
1902 October 2, "Richmond." p. 3.
1905 December 14, "Richmond." p. 2.

Child, Hamilton
1882 *Gazetteer and Business Directory of Chittenden County, Vermont, for 1882-1883*. The Journal Office, Syracuse, New York.

Crock, John G. and Francis "Jess" Robinson
2012 Maritime Mountaineers: Paleoindian Settlement Patterns on the West Coast of New England. In *Late Pleistocene Archaeology and Ecology in the Far Northeast,* edited by Claude Chapdelaine, pp. 43-76. Texas A&M University Press.

Daily Home Journal (Montpelier, Vermont)
1862 April 25, "The Freshet in Richmond." p. 3.

Dyke, Arthur S., D. Giroux and L. Robertson
2003 Deglaciation of North America. Geological Survey of Canada, Open File 1574. http://ess.nrcan.ca2002_2006/rcvcc/j27/1_1_e.php.

The Earth (Burlington, Vermont)
1900 May 19, "Richmond News." p. 5.

Fletcher, Andrew and John G. Crock
2016 *Archaeological Phase I Site Identification of VT-CH-1146 within the Proposed Huntington Bf 0211(32) Bridge Replacement Project In Huntington, Chittenden County, Vermont*. University of Vermont Consulting Archaeology Program Report 955.

Johnson, John
n.d. *Williston, Huntington, Richmond and Gores.* John Johnson Collection, Oversize Maps and Surveys; Folder 6, Map 58; Manuscript on File: Special Collections, Bailey-Howe Library, University of Vermont, Burlington, Vermont.

Rann, W.S.
1886 *History of Chittenden County Vermont, With Illustrations and Biographical Sketches of Some of its Prominent Men and Pioneers*. D. Mason & Co., Publishers, Syracuse, New York.

Richmond (Town of) Land Records [RLR]
Various Years. *Richmond Land Records*. Manuscript on file: Richmond Town Clerk Office, Richmond, Vermont.

Richard, Pierre J. H., and Serge Occhitetti
2005 C^{14} Chronology for Ice Retreat and Inception of Champlain Sea in the St. Lawrence Lowlands, Canada. *Quaternary Research* 63:353-358.

Ridge, John C.
2003 The Last Deglaciation of the Northeastern United States: A Combined Varve, Paleomagnetic, and Calibrated ^{14}C Chronology. In *Geoarchaeology of Landscapes in the Glaciated Northeast*, edited by David L. Cremeens and John P. Hart, pp. 15-45. New York State Museum, Bulletin 497, Albany.

Ridge, John C., Mark R. Besonen, Marc Brochu, Sarah L. Brown, Jamie W. Callahan, Glen J. Cook, Robert S. Nicholson and Nathaniel J. Toll
1999 Varve, Paleomagnetic, and ^{14}C Chronologies for Late Pleistocene Events in New Hampshire and Vermont (U.S.A.). *Géographie physique et Quaternaire* 53(1):79-106.

Riggs, Harriett Wheatley
2007 *Richmond, Vermont: A History of More than 200 Years.* Richmond Historical Society. Queen City Printers Inc., Burlington, Vermont.

Robinson, Brian S., Thomas R. Buchanan, Ellen R. Cowie, Weatherbee R. Dorshow, and Catherine A. Quinn
1992 *Archaeological Phase I Survey of the Vermont Segment of the Champlain Pipeline Project (FERC Docket No. CP98-646-000), 2 Vol.* University of Maine at Farmington Archaeology Research Center.

Thomas, Peter A., and Robert Florentin
1999 *Phase I Site Identification Survey for Sheldon Subdivision, Huntington, Chittenden County, Vermont.* Report #232. University of Vermont Consulting Archaeology Program, Burlington.

Thomas, Peter A., Bob Sloma, Nanny Carder, and Robert Florentin
1995 *Archaeological Site Identification, Evaluation, and Mitigation of VT-CH-619, Richmond TH07, Richmond, Vermont*. Report 135. University of Vermont Consulting Archaeology Program, Burlington.

Tucker, Robert Gardner
1986 *Hydroelectric Power and the Development of the Utility Industry in Vermont: A Study in Historical Geography*. Master Thesis University of Vermont, Burlington, Vermont.

Turner, Martha and Bob Low
2015 History Space: The Power and Beauty of Richmond's Gillett Pond. *Burlington Free Press* 1/2/15.

United States Census Bureau [U.S. Census]
1830 United States Federal Census. Database and Digital Image. Ancestry.com Operations Inc. Provo, Utah. *Ancestry.com.* www.http://ancestry.com : 2011. From National Archives microfilm publication M19.

1840 United States Federal Census. Database and Digital Image. Ancestry.com Operations Inc. Provo, Utah. *Ancestry.com.* www.http://ancestry.com : 2011. From National Archives microfilm publication M704.

1850 United States Federal Census. Database and Digital Image. Ancestry.com Operations Inc. Provo, Utah. *Ancestry.com.* www.http://ancestry.com : 2011. From National Archives microfilm publication M432.

1870 United States Federal Census. Database and Digital Image. Ancestry.com Operations Inc. Provo, Utah. *Ancestry.com.* www.http://ancestry.com : 2011. From National Archives microfilm publication M593.

1880 United States Federal Census. Database and Digital Image. Ancestry.com Operations Inc. Provo, Utah. *Ancestry.com.* www.http://ancestry.com : 2011. From National Archives microfilm publication T9.

1900 United States Federal Census. Database and Digital Image. Ancestry.com Operations Inc. Provo, Utah. *Ancestry.com.* www.http://ancestry.com : 2011. From National Archives microfilm publication T623.

Vermont Vital Records 1720-1908.

Various years. *Vermont Vital Records 1720-1908*. Database on-line. Ancestry.com Operations Inc., Provo, Utah. *Ancestry.com.* www.http://ancestry.com : 2011. From Microfilmed original documents of the Vermont Secretary of State, Montpelier, Vermont.

Vermont Wills and Probate Records 1749-1999
ca. 1861 Estate of Noah Preston, Richmond, Chittenden County, Vermont. Accessed online. Database and Digital Images. Vermont Wills and Probate Records 1749-1999. Ancestry.com Operations Inc. Provo, Utah. *Ancestry.com.* www.http://ancestry.com : 2011. From Microfilmed original documents of the Chittenden County Estate Files Box 16, Files #1859-1883; as preserved by the Vermont Secretary of State, Montpelier, Vermont.

Walling, H.F.
1857 *Map of Chittenden County, Vermont*. Baker & Tilden & Co., New York, New York.

Watchman (Montpelier, Vermont)
1858 July 9, "The Rain." p. 3.

VERMONT DIVISION FOR HISTORIC PRESERVATION

Environmental Predictive Model for Locating Pre-contact Archaeological Sites

Project Name Richmond Dugway Road **County** Chittenden **Town** Richmond
DHP No. **Map No.** **Staff Init.** **Date** 8/26/20

Additional Information

Environmental Variable	Proximity	Value	Assigned Score
A. RIVERS and STREAMS (EXISTING or RELICT):			
1) Distance to River or Permanent Stream (measured from top of bank)	0- 90 m 90- 180 m	12 6	12
2) Distance to Intermittent Stream	0- 90 m 90-180 m	8 4	
3) Confluence of River/River or River/Stream	0-90 m 90 –180 m	12 6	6
4) Confluence of Intermittent Streams	0 – 90 m 90 – 180 m	8 4	
5) Falls or Rapids	0 – 90 m 90 – 180 m	8 4	8
6) Head of Draw	0 – 90 m 90 – 180 m	8 4	
7) Major Floodplain/Alluvial Terrace		32	
8) Knoll or swamp island		32	
9) Stable Riverine Island		32	
B. LAKES and PONDS (EXISTING or RELICT):			
10) Distance to Pond or Lake	0- 90 m 90 -180 m	12 6	
11) Confluence of River or Stream	0-90 m 90 –180 m	12 6	
12) Lake Cove/Peninsula/Head of Bay		12	
C. WETLANDS:			
13) Distance to Wetland (wetland > one acre in size)	0- 90 m 90 -180 m	12 6	
14) Knoll or swamp island		32	
D. VALLEY EDGE and GLACIAL LAND FORMS:			
15) High elevated landform such as Knoll Top/Ridge Crest/ Promontory		12	
16) Valley edge features such as Kame/Outwash Terrace**		12	

17) Marine/Lake Delta Complex**		12	
18) Champlain Sea or Glacial Lake Shore Line**		32	
E. OTHER ENVIRONMENTAL FACTORS:			
19) Caves /Rockshelters		32	
20) ☑ Natural Travel Corridor ☐ Sole or important access to another drainage ☐ Drainage divide		12	12
21) Existing or Relict Spring	0 – 90 m 90 – 180 m	8 4	
22) Potential or Apparent Prehistoric Quarry for stone procurement	0 – 180 m	32	
23)) Special Environmental or Natural Area, such as Milton acquifer, mountain top, etc. (these may be historic or prehistoric sacred or traditional site locations and prehistoric site types as well)		32	32
F. OTHER HIGH SENSITIVITY FACTORS:			
24) High Likelihood of Burials		32	
25) High Recorded Site Density		32	
26) High likelihood of containing significant site based on recorded or archival data or oral tradition		32	
G. NEGATIVE FACTORS:			
27) Excessive Slope (>15%) or Steep Erosional Slope (>20)		- 32	
28) Previously disturbed land as evaluated by a qualified archeological professional or engineer based on coring, earlier as-built plans, or obvious surface evidence (such as a gravel pit)		- 32	
**** refer to 1970 Surficial Geological Map of Vermont**			
		Total Score:	70
Other Comments :			
0- 31 = Archeologically Non- Sensitive **32+ = Archeologically Sensitive**			