Docket No. _____
Exh. TDI-KBH-2

TECHNICAL REPORT

PHASE IA ARCHAEOLOGICAL RECONNAISSANCE SURVEY
NEW ENGLAND CLEAN POWER LINK PROJECT – OVERLAND PORTION

Windsor, Rutland, and Grand Isle Counties, Vermont

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MANAGEMENT ABSTRACT

PAL has completed a Phase IA archaeological reconnaissance survey of the proposed TDI-NE Clean Power Link Project (Project) in Grand Isle, Rutland, and Windsor counties, Vermont. The Project is a high voltage direct current (HVDC) electric transmission line that will provide electricity generated by renewable energy sources in Canada to the New England electric grid. The line will run from the Canadian border at Alburgh, Vermont, to Ludlow, Vermont, along underwater and underground routes. The approximately 56 miles terrestrial portion of the transmission line will consist of two 5-inch diameter cables buried approximately four feet underground within existing public (state and town) road rights-of-way (ROWs). The cables will be installed within a railroad ROW for approximately 3.5 miles in the town of Shrewsbury and Wallingford. Very short sections of the route at the Lake Champlain entry and exit points in Alburgh and Benson and at the converter site in Ludlow will be located on private land that is owned or controlled by TDI-NE. The goals of the archaeological reconnaissance survey were to 1) delineate a recommended direct effect APE for the Project, 2) to inventory previously recorded archaeological sites within the Project, 3) identify areas of archaeological sensitivity that could contain sites potentially eligible for listing in the State or National Register of Historic Places, and 4) provide recommendations for additional archaeological work based on the results of the sensitivity assessment.

PAL recommends a direct effect APE for the terrestrial component of the Project as the maximum ROW widths from the centerline of town roads in Alburgh, Benson, Fair Haven, and Ludlow; the ROW maintained by the Vermont Agency of Transportation (VTrans) for Vermont Routes 22A, 100, and 103, and US Routes 4 and 7; and the ROW maintained by the Green Mountain Railroad Corporation along an approximately 3-mile mile portion of track in Shrewsbury and Wallingford. Five work parcels are proposed as part of the Project to accommodate directional drill entry and exit locations and the converter station construction and also are recommended as part of the direct effect APE. These work parcels consist of the 14.5-acre Converter Station Site and 27-acre Stowell parcels in Ludlow, the 4.6-acre Florence Parcel in Alburgh, and the 9.9-acre and 12.35-acre Stony Point Road parcels (Benson Parcel 1 and Benson Parcel 2) in Benson. The work parcels also may be used for temporary storage areas during Project construction. Additional construction access routes and staging areas where archaeological assessment may be needed also will be included in the direct effect APE once TDI-NE has identified those locations. The Phase IA survey identified archaeologically sensitive and testable areas along approximately 11.6 linear miles (21%) of the Project and in four of the five proposed work parcels. The survey also identified three previously recorded pre-contact sites, one previously recorded post-contact site, and four Field-Identified Archaeological Resources consisting of nineteenth-century residential and outbuilding foundation remains.

PAL recommends Phase IB archaeological survey for those portions of the Project assessed as archaeologically sensitive and subject to project related impacts. The goal of the Phase IB survey will be to locate, identify and, to the extent possible, evaluate previously recorded and unrecorded archaeological sites within archaeologically sensitive areas identified during the Phase IA survey. TDI-NE will consult with the Vermont Division for Historic Preservation/State Historic Preservation Office on the results of the Phase IA survey and the proposed Phase IB subsurface testing methodology. The results of the Phase IB survey will be used to assist TDI-NE in cultural resource compliance obligations for the Project under state and federal law. The proposed Phase IB survey methodology has been developed by reference to the Phase IA survey results and conforms to the Secretary of the Interior's *Standards and Guidelines for Archeology and Historic Preservation*; Section 106 of the National Historic Preservation Act of 1966, as amended, and related regulations (36 CFR 800); and the guidelines provided in the VDHP/SHPO's *Guidelines for Conducting Archaeology in Vermont and Appendices* (VDHP 2007).

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CHAPTER ONE

INTRODUCTION

Project Description

Champlain VT, LLC, d/b/a TDI-New England (TDI-NE) is proposing the New England Clean Power Link Project (NECPL or Project) (Figures 1-1, 1-2). The NECPL is a high voltage direct current (HVDC) electric transmission line that will provide electricity generated by renewable energy sources in Canada to the New England electric grid. The line will run from the Canadian border at Alburgh, Vermont, to Ludlow, Vermont, along underwater and underground routes. The transmission line will comprise two approximately 5-inch diameter cables – one positively charged and the other negatively charged – and will be solid-state dielectric and thus contain no fluids or gases. The nominal operating voltage of the line will be approximately 300 to 320 kV, and the system will be capable of delivering 1,000 megawatts (MW) of electricity.

The proposed underwater portion of the transmission line, approximately 98 miles in length, will be buried to a target depth of 3-4 feet in the bed of Lake Champlain except at water depths of greater than 150 feet where the cables will be placed on the bottom and self-burial of the cables in sediment will occur. In areas where there are obstacles to burial (e.g. existing infrastructure, bedrock), protective coverings will be installed. The overland portion of the transmission line, approximately 56 miles in length, will be buried approximately four feet underground within existing public (state and town) road rights-of-way (ROWs) (Table 1-1; Figure 1-3). The cables will be installed within a railroad ROW for approximately 3.5 miles in the town of Shrewsbury and Wallingford. Very short sections of the route at the Lake Champlain entry and exit points in Alburgh and Benson and at the converter site in Ludlow will be located on private land that is owned or controlled by TDI-NE. In Ludlow, the HVDC line will terminate at a converter station that will convert the electrical power from direct current (DC) to alternating current (AC). An underground AC transmission line will then run to the existing 345 kV Coolidge Substation in Cavendish, Vermont located approximately 0.3 miles to the south that is owned and operated by the Vermont Electric Power Company (VELCO).

Authority

The Project requires approvals and permits from federal, state, and local entities. The primary permitting requirement at the federal level is from the United States Department of Energy (DOE). Consequently, the Project will be reviewed under Section 106 of the National Historic Preservation Act of 1966, as amended (36 CFR 800); DOE will act as the lead federal agency for all Section 106 consultation and compliance obligations. TDI-NE also is required to file for a certificate of public good under Vermont Section 248 that requires companies to obtain approval from the Public Service Board (Board) before beginning site preparation or construction of electric transmission facilities, electric generation facilities, and certain gas pipelines within the state.

Table 1-1. New England Clean Power Link Project Terrestrial Mileage by Town.

Town	County	Mileage
Alburgh	Grand Isle	0.46
Benson	Rutland	7.56
West Haven	Rutland	2.92
Fair Haven	Rutland	3.85
Castleton	Rutland	7.07
Ira	Rutland	1.18
West Rutland	Rutland	4.40
Rutland	Rutland	3.17
Clarendon	Rutland	4.26
Shrewsbury	Rutland	4.34
Wallingford	Rutland	2.20
Mount Holly	Rutland	7.68
Ludlow	Windsor	7.05
Total		**56.12**

Scope of Survey

PAL conducted a Phase IA archaeological reconnaissance survey of the terrestrial portion of the Project. As per the Vermont State Historic Preservation Officer's (VTSHPO) *Guidelines for Conducting Archeology in Vermont & Appendices* (2007 Section 7.4), Phase IA archaeological reconnaissance surveys are intended for large projects with multiple alignments; projects with single, wide planning corridors; projects in complex contexts; master plans; and other special circumstances. The Phase IA survey consisted of archival research and field survey designed to identify recorded sites and areas of archaeological sensitivity within the Project. The results of the Phase IA survey, including archaeological site and sensitivity maps (GIS format), are intended to assist TDI-NE in developing an appropriate Phase IB survey methodology for archaeologically sensitive portions of the Project that meets the VTSHPO's requirements for archaeological surveys. PAL has also completed a separate Architectural Reconnaissance Survey report for the Project.

The Phase IA survey was conducted in accordance with the Vermont Division for Historic Preservation/State Historic Preservation Office's (VDHP/SHPO's) *Guidelines for Conducting Archeology in Vermont* (2007). The Phase IA survey meets the Secretary of the Interior's *Standards and Guidelines for Archeology and Historic Preservation* and Section 106 of the National Historic Preservation Act of 1966, as amended, and related regulations (36 CFR 800). PAL's scope of work for the Phase I survey, including the recommended Area of Potential Effect (see following section), was reviewed and approved by Scott Dillon (Survey Archaeologist, VDHP) via email on April 21, 2014.

Area of Potential Effect

The Area of Potential Effect (APE) is defined in Section 106 of the National Historic Preservation Act as the "geographic area or areas within which an undertaking may directly or indirectly cause changes in the character of or use of historic properties, if any such properties exist" (36 CFR 800.1[d]). Typically there are multiple APEs, since effects to historic properties can be caused by either a physical taking (direct effects) or by the introduction of environmental impacts (indirect effects). The direct effect APE is the geographic area in which properties would be affected by construction activities, including a property taking or physical modification of a historic property.

PAL recommends a direct effect APE for the approximately 56-mile long terrestrial component of the Project as the maximum ROW widths from the centerline of town roads in Alburgh, Benson, Fair Haven, and Ludlow; the ROW maintained by the Vermont Agency of Transportation (VTrans) for Vermont Routes 22A, 100, and 103, and US Routes 4 and 7; and the ROW maintained by the Green Mountain Railroad Corporation along an approximately 3-mile mile portion of track in Shrewsbury and Wallingford. Five work parcels are proposed as part of the Project to accommodate directional drill entry and exit locations and the converter station construction and also are recommended as part of the direct effect APE. These work parcels consist of the 14.5-acre Converter Station Site and 27-acre Stowell parcels in Ludlow, the 4.6-acre Florence Parcel in Alburgh, and the 9.9-acre and 12.35-acre Stony Point Road parcels (Benson Parcel 1 and Benson Parcel 2) in Benson. The work parcels also may be used for temporary storage areas during Project construction. Additional construction access routes and staging areas where archaeological assessment may be needed also will be included in the direct effect APE once TDI-NE has identified those locations.

Project Personnel

PAL personnel for the Phase IA survey were Kristen Heitert (senior historical archaeologist/principal investigator), Geraldine Baldwin (project archaeologist), and Melissa Wales (archaeologist).

Disposition of Project Materials

All documentation generated as part of the Phase IA survey (e.g., field recording forms, maps, GIS data, and photographs) is in temporary curation at PAL, 26 Main Street, Pawtucket, Rhode Island. The permanent curation of these materials will be the subject of consultation among the DOE, TDI-NE, VTSHPO, VTrans, the Green Mountain Railroad Corporation, and PAL.

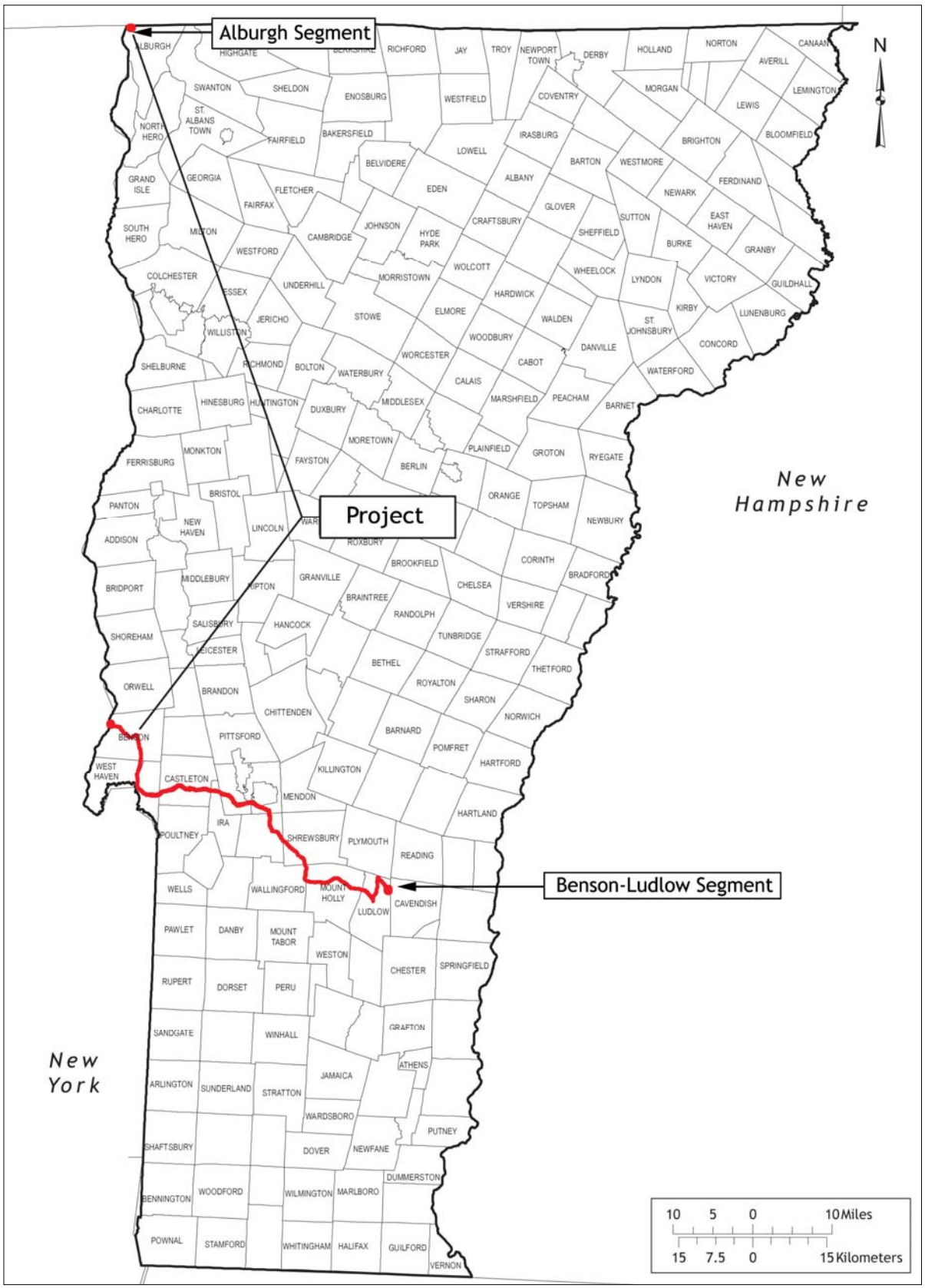

Figure 1-1. Map of Vermont showing the location of the New England Clean Power Link Project.

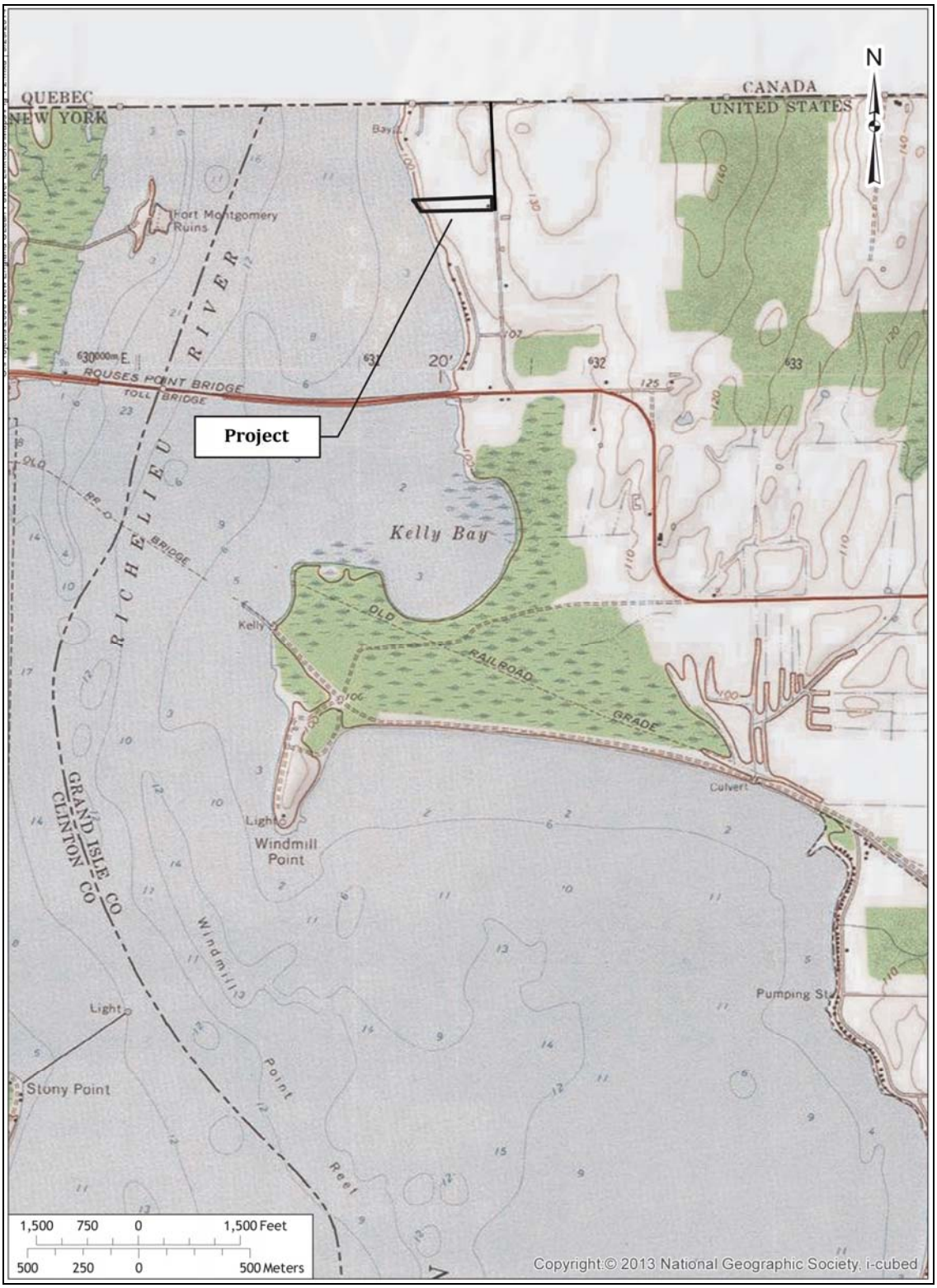

Figure 1-2. Location of the New England Clean Power Link Project on the Rouses Point USGS topographic quadrangle, 7.5 minute series.

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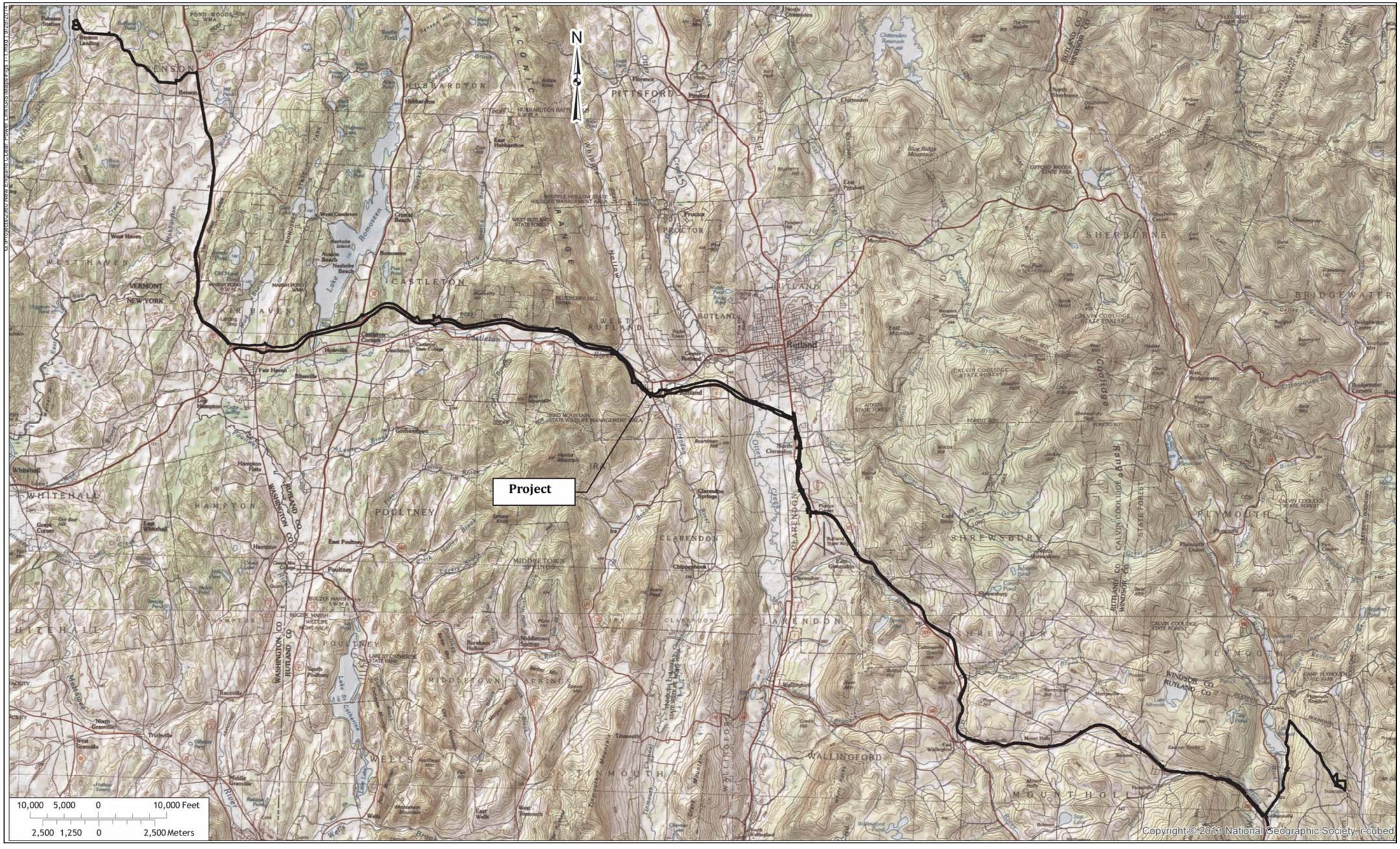

Figure 1-3. Location of the New England Clean Power Link Project on the Benson, Poultney, West Rutland, Rutland, Mount Holly, and Ludlow USGS topographic quadrangles, 7.5 minute series.

CHAPTER TWO

RESEARCH DESIGN AND FIELDWORK METHODS

The goals of the Phase IA archaeological reconnaissance survey of the Project were 1) to inventory previously recorded archaeological sites within the Project, 2) identify areas of archaeological sensitivity that could contain sites potentially eligible for listing in the State or National registers, and 3) provide recommendations for additional archaeological investigations based on the results of the sensitivity assessment and the proposed Project's impacts. To accomplish these objectives, two research strategies were used:

- archival research, including a review of state archaeological site files and secondary historical literature and maps; and
- field investigations, consisting of a "walkover" assessment survey and limited auger coring of Project and proposed work parcels.

The archival research and walkover survey provided the information necessary to develop environmental and historic contexts for the Project and develop a predictive model for archaeological sensitivity. Archaeological sensitivity is defined as the likelihood for belowground cultural resources to be present and is based on the following:

- geographical, functional, and temporal characteristics of previously identified cultural resources in the Project and its vicinity; and
- local and regional environmental data reviewed in conjunction with existing Project conditions documented during the walkover survey, and archival research about the Project's land use history.

Significance and Historic Contexts

The different phases of archaeological investigation (reconnaissance survey, intensive [locational] survey, site examination, and data recovery) reflect preservation planning standards for the identification, evaluation, registration, and treatment of archaeological resources (National Park Service [NPS] 1983). An essential component of this planning structure is the identification of archaeological and traditional cultural properties that are eligible for inclusion in the National Register of Historic Places (National Register), the official federal list of properties that have been studied and found worthy of preservation. Archaeological properties can be a district, site, building, structure, or object, but are most often sites and districts (Little et al. 2000). Traditional cultural properties are defined generally as ones that are eligible for inclusion in the National Register because of their association with cultural practices or beliefs of a living community that (a) are rooted in that community's history, and (b) are important in maintaining the continuing cultural identity of the community (Parker and King 1998). The results of professional surveys and consultation with Native American or other ethnic communities are used to make recommendations about the significance and eligibility of archaeological and traditional cultural properties.

An archaeological property may be pre-contact, post-contact, or contain components from both periods. Pre-contact (or what is often termed "prehistoric") archaeology focuses on the remains of indigenous American societies as they existed before substantial contact with Europeans and the resulting written

records (Little et al. 2000). In accordance with the NPS guidelines, "pre-contact" is used, unless directly quoting materials that use "prehistoric." There is no single year that marks the transition from pre-contact to post-contact.

Post-contact (or what is often termed "historical") archaeology is the archaeology of sites and structures dating from time periods since significant contact between Native Americans and Europeans. Documentary records and oral traditions can be used to better understand these properties and their inhabitants (Little et al. 2000). Again, for reasons of consistency with the NPS guidelines, "post-contact" is used when referring to archaeology of this period, unless directly quoting materials that use "historical."

The NPS has established four criteria for listing significant properties in the National Register (36 CFR 60). The criteria are broadly defined to include the wide range of properties that are significant in American history, architecture, archaeology, engineering, and culture. The quality of significance may be present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association. The criteria (Criteria A–D) allow for the listing of properties

A. that are associated with events that have made a significant contribution to the broad patterns of our history; or
B. that are associated with the lives of persons significant in our past; or
C. that embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
D. that have yielded, or may be likely to yield, information important to prehistory or history.

Archaeological and traditional cultural properties can be determined eligible for listing in the National Register under all four criteria (Little et al. 2000; Parker and King 1998). Significance under any of these criteria is determined by the kind of data contained in the property, the relative importance of research topics that could be addressed by the data, whether these data are unique or redundant, and the current state of knowledge relating to the research topic(s). A defensible argument must establish that a property "has important legitimate associations and/or information value based upon existing knowledge and interpretations that have been made, evaluated, and accepted" (McManamon 1990:15).

Another critical component in assessing the significance of a historic property is an evaluation of its integrity. Historic properties either retain integrity (i.e., convey their significance) or they do not. The National Register criteria recognize seven aspects or qualities that, in various combinations, define integrity:

- location, the place where the historic property was constructed or the place where the historic event occurred;
- design, the combination of elements that create the form, plan, space, structure, and style of a property;
- setting, the physical environment of a historic property;
- materials, the physical elements that were combined or deposited during a particular period of time and in a particular pattern or configuration to form a historic property;
- workmanship, the physical evidence of the crafts of a particular culture or people during any given period in history or prehistory;

- feeling, a property's expression of the aesthetic or historic sense of a particular period of time; and
- association, the direct link between an important historic event or person and a historic property.

To retain historic integrity, a property will possess several, and usually most, of these qualities. The retention of specific aspects of integrity is paramount for a property to convey its significance. Determining which of these aspects or qualities are most important to a particular property requires knowing why, where, and when the property is significant (NPS 2002).

The criteria are applied in relation to the historic contexts of the resources as follows:

> A historic context is a body of thematically, geographically, and temporally linked information. For an archaeological property, the historic context is the analytical framework within which the property's importance can be understood and to which an archaeological study is likely to contribute important information (Little et al. 2000).

For traditional cultural properties, a historic context is further defined as follows:

> A historic context is an organization of available information about, among other things, the cultural history of the area to be investigated, that identifies "the broad patterns of development in an area that may be represented by historic properties" (48 FR 44717). The traditions and lifeways of a planning area may represent such "broad patterns," so information about them should be used as a basis for historic context development. Based on federal standards and guidelines, groups that may ascribe traditional cultural values to an area's historic properties should be contacted and asked to assist in organizing information on the area (Parker and King 1998).

The formulation of historic contexts is a logical first step in the design of an archaeological investigation and is crucial to the evaluation of archaeological and traditional cultural properties in the absence of a comprehensive survey of a region (NPS 1983:9). Historic contexts provide an organizational framework that groups information about related historic properties based on a theme, geographic limits, and chronological periods. A historic context should identify gaps in data and knowledge to help determine what significant information may be obtained from the resource. Each historic context is related to the developmental history of an area, region, or theme (e.g., agriculture, transportation, and waterpower), and identifies the significant patterns of which a particular resource may be an element. Only those contexts important to understanding and justifying the significance of the property need be discussed.

Historic contexts are developed by

- identifying the concept, time period, and geographic limits for the context;
- collecting and assessing existing information about these time periods;
- identifying locational patterns and current conditions of the associated property types;
- synthesizing the information in a written narrative; and
- identifying information needs.

"Property types" are groupings of individual sites or properties based on common physical and associative characteristics. They serve to link the concepts presented in the historic contexts with properties illustrating those ideas (NPS 1983, 48 FR 44719).

The following research contexts have been developed to organize the data relating to the archaeological sensitivity of the Project:

1. Pre-contact and Contact Native American land use and settlement in the Champlain Lowlands, Taconic Mountains, Vermont Valley, and Green Mountains physiographic regions, circa (ca.) 11,000 to 300 years before present (B.P.); and

2. Post-contact land use and settlement patterns in Grand Isle, Windsor, and Rutland counties, Vermont, ca. A.D. 1760 to present.

Archaeological Sensitivity Assessment – Predictive Modeling

The development of predictive models for locating archaeological resources has become an increasingly important aspect of cultural resource management (CRM) planning. The general regional predictive model considers various criteria to rank the potential for a project to contain archaeological sites. The criteria are proximity of recorded and documented sites, local land use history, environmental data, and existing conditions. The project is then stratified into zones of expected archaeological sensitivity to guide future land management and planning activities. The Project was assigned either archaeologically sensitive (moderate and high rankings combined) or archaeologically non-sensitive.

Environmental Predictive Model (EPM)

The VDHP formulated the EPM to locate pre-contact/contact sites within the state. Derived largely from Thomas and Doughtery's predictive site location model (1985 - see discussion below), individual environmental variables are grouped by class (rivers and streams, wetlands, etc.) and then assigned a positive or negative numerical ranking. Using this score sheet, an area can be sensitized by determining the presence/absence of the specific variables, combining the associated scores, and comparing the total score to a predetermined valuation scale; a score of less than 32 is assessed as archaeologically non-sensitive and a score of 32 or greater is considered archaeologically sensitive. While this method is necessarily broad in scope and must be refined through careful field inspection, it does provide a preliminary indication of the archaeological sensitivity of an area. (Appendix A contains the EPM scoring sheets used for the Project.)

The EPM does not consider the potential for post-contact sites. This potential was preliminarily assessed using historical maps, general environmental conditions, and landscape disturbances as observed or inferred through recent aerial imagery.

Pre-Contact Period Archaeological Sensitivity

Archaeologists have documented nearly 12,000 years of pre-contact Native American occupation of the region, and oral traditions of some contemporary tribes tell of a 50,000-year cultural legacy. Assessing the pre-contact archaeological sensitivity of a project is based on the review of past and present environmental characteristics, known site locations, and regional cultural/settlement patterns and diagnostic artifact sequences.

In Vermont, Peter Thomas used the environmental variables of proximity to water, landform, slope, and aspect to calculate the likelihood of finding pre-contact resources within a project area. Using these criteria, and factoring in the effects of erosion and post-contact development and disturbance, Thomas proposed that there would be high archaeological sensitivity on floodplains, rolling uplands, lake plains and some delta complexes; moderate to high sensitivity in alluvial bottom lands; and low sensitivity on outwash plains, hilly uplands, and stream bottoms (Thomas and Dougherty 1985).

This model has been tested using large-scale surveys on the western side of the state in and around the Lake Champlain Basin, and is best suited to identifying sites within the Project in Alburgh, Benson, West Haven, Fair Haven, and Castleton. By using criteria similar to those used during the I-495 survey in Massachusetts (slope, aspect, and proximity to water sources) and a weighted sampling strategy, the *Archaeological Phase I Survey of the Vermont Section of the Champlain Pipeline Project* (Robinson et al. 1991, 1992) found a strong correlation between positive environmental characteristics as ranked by the VDHP model and more than 100 identified archaeological sites. More recently, data synthesized from nearly two decades of archaeological excavations for the Chittenden County Circumferential Highway (CCCH) Project have resulted in a comprehensive database of pre-contact settlement in the Winooski River valley ranging from the PaleoIndian to Woodland periods. The density, distribution, and temporal span of the sites identified as part of the CCCH survey provides additional support for the predicted correlation between floodplain/riverine environments and preferred pre-contact settlement systems (Skinas 1992; Thomas 2001; Thomas and Doherty 1985).

Upland environments in the central and eastern portions of the state have been considerably less well studied than the Champlain Basin. David Lacy has argued that the prevailing predictive model in which "topographic valleys are seen as distributional peaks, and topographic peaks are projected as archaeological valleys" has contributed to tautological conclusions about pre-contact settlement patterns, particularly as they apply to the Green Mountains. Adherence to the predictive model results in less testing of upland environments, which leads to the identification of fewer sites, which leads to the notion of less intensive exploitation of the uplands, which in turn reinforces the predictive model (Lacy 1994).

Lacy's research in the Green Mountains National Forest demonstrated the presence of a wide range of pre-contact occupations in this area in locations that would not typically be tested using standard archaeological sensitivity models. The identification of numerous Native American sites within the Green Mountain National Forest has enabled researchers to develop a reliable site locational model for that area that can be roughly extrapolated to the Taconic Mountains to the west.

The model relies on conventional site locational criteria (i.e., reasonably level, well-drained areas with access to freshwater; strategic travelways; unique landmarks; and/or rich natural resources), and a set of variables unique to the mountainous terrain. These include: 1) the elimination of elevation as a predictive factor in site location (e.g. mountains are high places); 2) the reduction of the size/scale of areas being considered to contain sites (e.g., half-acre spots are just as likely to contain interesting sites as extensive floodplains; 3) the diminution of soil types as an important indicator of site distributions; and 4) the selection of "hot spots" based on intuitive factors such as viewsheds and personal comfort. Using this strategy, Lacy was able to identify several prehistoric sites in the uplands of central Vermont (small lithic workshops, isolated biface find spots, and multi-acre high elevation encampments) and effectively dispelled the myth of the Green Mountains as an unused resource (Lacy 1994, 1999). This model, in combination with the general criteria provided on the EPM scoring sheet, is best suited to identifying sites within the Project in Ira, West Rutland, Rutland, Clarendon, Shrewsbury, Wallingford, Mount Holly, and Ludlow.

Contact Period Archaeological Sensitivity

The Contact Period comprises the years when European and Native American populations first began to interact with one another through exploration and trade, but predates most permanent European settlement of the region. This period varies from place to place, with the earlier dates associated with coastal environments and the later dates with inland locations. The Contact Period in Vermont commences with Champlain's 1609 "discovery" of the lake that now bears his name, and persists throughout the seventeenth century as more European inroads were made from west to east toward the Connecticut

River. While Contact Period sites usually are associated with Native American activity, they can also include sites such as trading posts that were occupied by Native and non-Native groups.

Post-Contact Period Archaeological Sensitivity

Like pre-contact sensitivity modeling, landscape and environmental characteristics are used to predict the types of post-contact archaeological sites likely to be present within a project area. Predictive locational attributes vary according to site type. Domestic and agrarian sites (e.g., houses and farms) are characteristically located near water sources, arable lands, and transportation networks. Industrial sites (e.g., mills, tanneries, forges, and blacksmith shops) established before the late nineteenth century are typically located close to waterpower sources and transportation networks. Commercial, public, and institutional sites (e.g., stores, taverns, inns, schools, and churches) are usually situated near settlement concentrations with access to local and regional road systems (Ritchie et al. 1988).

Written and cartographic documents aid in determining post-contact archaeological sensitivity. Historical maps are particularly useful for locating sites, determining a period of occupation, establishing the names of past owners, and providing indications of past use(s) of the property. Town histories often provide information, including previous functions, ownership, local socioeconomic conditions, and political evolution, which is used to develop a historic context and to assess the relative significance of a post-contact site.

Research

The development of a cultural context and a predictive model of expected property types and densities within the project area began with archival research, consisting of an examination of secondary documentary sources and the development of a preliminary desktop sensitivity assessment. The sources included written and cartographic documents relating both to past and present environmental conditions and to documented/recorded sites in the general area. The information contained in the following archival sources formed the basis of the preliminary sensitivity model for the Project and were an integral part of the archaeological investigations.

State Site Files, Artifact Collection Reports, and Town Reconnaissance Surveys

The state site files at the VDHP were reviewed to locate any known pre- and post-contact sites within or in proximity to the Project. The VDHP maintains an inventory of known archaeological site locations, catalogs of cultural material, and brief site summaries. The VDHP also has assembled a comprehensive survey of Vermont towns and compiled brief outlines of the towns' historical development.

Cultural Resource Management Reports

CRM survey reports for projects previously conducted within the Project and general vicinity were reviewed for relevant information concerning known archaeological sites, sensitivity models and assessments, and environmental and cultural contexts. These reports consist of Phase I archaeological investigations in Alburgh and Fairhaven (Hartgen Archaeological Associates, Inc. [HAA] 2007; Louis Berger & Associates, Inc. [LBA] 1997); a cultural resources survey of Lake Bomoseen and Phase II archaeological site evaluations along Route 30 in Castleton (Hight 1985.; Petersen and Petersen 1994); an archaeological and historical summary of the Ira Town Hall Site in Ira (Charles 1990); an archaeological reconnaissance survey and site evaluations for the Route 4 bypass in Rutland (Thomas et al. 1983); an archaeological reconnaissance survey in Wallingford (Thomas and Kochan 1987); an archaeological and historical summary of the Narrows Wildlife Management Area in West Haven (Scharoun et al. 2006); and

an archaeological resources assessment and Phase IB survey report in support of the Ascutney Substation and Line Upgrade Project from Weathersfield to Clarendon (Cherau et al. 2010).

Histories and Maps

Primary and secondary histories and historical maps and atlases were examined to assess changes in land use, to locate any documented structures, and to trace the development of transportation networks (an important variable in the location of post-contact archaeological sites). Town, county, state, and regional histories and historical maps and atlases were consulted to locate possible sites dating to this period within and close to the Project.

Environmental Studies

Bedrock and surficial geological studies provided information about the region's physical structure and about geological resources near the Project. The United States Department of Agriculture-Natural Resources Conservation Service Web Soil Survey (USDA-NRCS 2014) supplied information about soil types and surficial deposits within the Project and the general categories of flora and fauna that these soil types support. Studies of past and present environmental settings in Vermont also were consulted.

Desktop Sensitivity Assessment

Before initiating field survey, PAL completed a preliminary desktop archaeological sensitivity assessment of the Project. The desktop assessment was performed using ArcGIS Explorer and consisted of the geo-referenced Project overlaid with several data layers consisting of:

- USGS topographic quadrangles
- Aerial imagery current as of July 2004
- National Wetland Inventory (NWI) wetlands
- USDA soils
- Contours
- Surficial and bedrock geology
- VDHP-inventoried archaeological site locations
- 1869 and 1871 Beers maps
- Road and railroad alignments

This information was reviewed and synthesized to develop color-coded field maps identifying segments of the Project as archaeologically sensitive or non-sensitive, based in part on the criteria provided on the EPM scoring sheet.

Field Survey

The field survey of the Project was conducted from June 9–27, 2014. The purpose of the field survey was to ground truth and refine the results of the desktop archaeological sensitivity assessment as provided on the field maps, and to collect information about existing conditions along the Project. Because the Project follows existing roadways, the initial assessment consisted of a driveover from Ludlow to Benson to familiarize the PAL archaeologists with the overall Project alignment and to scout out safe parking locations; given its minimal length and comparatively remote location, the Alburgh segment of the Project was completed as a one-day effort separate from the initial driveover of the Benson to Ludlow segments.

Following the driveover, PAL archaeologists conducted a pedestrian survey of the Project. For recording purposes and to maintain consistency with the overall Project mapping conventions, the Project was broken-down into tenth-mile segments beginning at the 0.0-mile post at the Canadian border in Alburgh and ending at the 153.0 mile post in Ludlow. The length of the pedestrian survey segments varied according to topography, so that a segment crossing through a particular topographical feature (e.g., slopes, wetland, modern disturbance, and open farmland) was recorded using the tenth-M.P. at the beginning and end of the feature.

Close visual inspection of the Project was performed to identify surface indications of pre-contact and post-contact resources such as artifact scatters, exposed hearth/pit features, building foundations, wells, and stone walls. Project sections containing or in proximity to previously recorded pre- and post-contact sites were specifically targeted for visual inspection. The present physical condition of the Project was recorded on field maps with a particular emphasis on those locations at variance with the preliminary desktop sensitivity assessment. Typically recorded environmental variables consisted of soil and vegetation types; primary and secondary drainages; well-drained terraces and benches; floodplains and wetlands; the extent of previous and ongoing natural disturbances (e.g., erosion and tree falls); and the extent of artificial disturbances (e.g., residential, commercial, and industrial development, railroads, and gravel quarries).

Archaeological sites identified within the Project were recorded on the field maps and using a handheld GPS unit with sub-meter accuracy. Digital photographs were taken of all identified sites and of each surveyed segment of the corridor. To supplement the inspection of existing conditions, 23-inch Hoffer auger cores were used to test soil integrity, especially in those areas where previous ground disturbance was suspected or in those locations with questionable archaeological sensitivity. The locations of previously identified sites within the Project were re-visited as part of the field survey to document current conditions and to identify, to the extent possible, natural or man-made threats to the resources.

CHAPTER THREE

ENVIRONMENTAL CONTEXT

The terrestrial portion of the Project lies in south-central and extreme northwest Vermont, and traverses 13 towns, 4 physiographic regions, 5 drainage basins, and dozens of soil series (Tables 3-1, 3-2). Given this diversity of environmental contexts, the following discussion is organized by physiographic region and includes relevant bedrock, soil, vegetation, and water resources.

Table 3-1. Summary Environmental Contexts for the Project.

Town	Physiographic Province	Drainage Basin
Alburgh	Champlain (Vermont) Lowland	Northern Lake Champlain
Benson	Champlain (Vermont) Lowland	Southern Lake Champlain/Poultney-Mettawee River
West Haven	Champlain (Vermont) Lowland	Poultney-Mettawee River
Fair Haven	Champlain (Vermont) Lowland	Poultney-Mettawee River
Castleton	Champlain (Vermont) Lowland/Taconic Mountains	Poultney-Mettawee River
Ira	Taconic Mountains	Poultney-Mettawee River
West Rutland	Taconic Mountains/Vermont Valley	Poultney-Mettawee River/Otter Creek
Rutland	Vermont Valley	Otter Creek
Clarendon	Vermont Valley	Otter Creek
Shrewsbury	Green Mountains	Otter Creek
Wallingford	Green Mountains	Otter Creek
Mount Holly	Green Mountains	Otter Creek/Black River
Ludlow	Green Mountains	Black River

Champlain (Vermont) Lowland

The towns of Alburgh, Benson, West Haven, Fair Haven, and the eastern side of Castleton lie within the Champlain (Vermont) Lowland physiographic region (Figure 3-1; see Table 3-1). Low, warm, and comparatively dry, the region contains excellent agricultural soils and is known as the "banana belt" of Vermont. The underlying bedrock is some of the oldest in the Northeast and consists of carbonate-rich rocks, including crystalline limestone, marble, dolomite, and shales formed during the Ordovician Period (Doll 1961; Thompson and Sorenson 2000:13).

The surficial geology of the Champlain Valley is the product of millennia of glacial and hydrologic activity. Following the retreat of the Laurentide ice sheet roughly 13,500 years ago, the valley hills were scoured bare and covered with a thick mantle of till, while the glacial meltwaters formed Glacial Lake Vermont. Isostatic rebound and rising sea levels resulted in the inundation of the freshwater lake by seawater and the formation of the Champlain Sea. Both waterbodies were significantly larger than modern-day Lake Champlain and were fed and drained by a network of rivers and streams carrying enormous loads of silt, sand, clay, and gravel. These materials formed the lake and sea bottoms and, with

Table 3-2. Soils by town within the Project.

Town	Soil Series within Project
Alburgh	Amenia silt loam, 0 to 3 percent slopes
	Amenia silt loam, 3 to 8 percent slopes
	Kendaia silt loam, 0 to 3 percent slopes
	Kendaia silt loam, 3 to 8 percent slopes
Benson	Belgrade silt loam, 3 to 8 percent slopes
	Bomoseen and Pittstown soils, 15 to 25 percent slopes
	Bomoseen and Pittstown soils, 2 to 8 percent slopes
	Bomoseen and Pittstown soils, 8 to 15 percent slopes
	Farmington-Galway-Galoo complex, 25 to 50 percent slopes, very rocky
	Farmington-Galway-Galoo complex, 5 to 25 percent slopes, very rocky
	Galway-Nellis-Farmington complex, 3 to 8 percent slopes
	Georgia and Amenia soils, 3 to 8 percent slopes
	Georgia and Amenia soils, 8 to 15 percent slopes
	Kingsbury silty clay loam, 0 to 3 percent slopes
	Kingsbury silty clay loam, 3 to 8 percent slopes
	Linwood muck
	Livingston silty clay loam
	Livingston silty clay loam, frequently flooded
	Macomber-Taconic complex, 15 to 25 percent slopes, rocky
	Macomber-Taconic complex, 8 to 15 percent slopes, rocky
	Pits-Dumps complex
	Taconic-Hubbardton-Macomber complex, 25 to 80 percent slopes, very rocky
	Taconic-Hubbardton complex, 8 to 25 percent slopes, very rocky
	Taconic-Macomber complex, 8 to 25 percent slopes, very rocky
	Vergennes clay, 15 to 25 percent slopes
	Vergennes clay, 25 to 50 percent slopes
	Vergennes clay, 3 to 8 percent slopes
	Vergennes clay, 8 to 15 percent slopes
	Water
Castleton	Belgrade silt loam, 3 to 8 percent slopes
	Bomoseen and Pittstown soils, 2 to 8 percent slopes
	Bomoseen and Pittstown soils, 3 to 8 percent slopes, very stony
	Bomoseen and Pittstown soils, 8 to 15 percent slopes
	Bomoseen and Pittstown soils, 8 to 15 percent slopes, very stony
	Deerfield loamy sand, 0 to 4 percent slopes
	Dutchess silt loam, 15 to 25 percent slopes, very stony
	Dutchess silt loam, 25 to 60 percent slopes, very stony
	Eldridge fine sandy loam, 3 to 8 percent slopes

Town	Soil Series within Project
Castleton	Fredon gravelly loam, 0 to 3 percent slopes
	Hartland silt loam, 3 to 8 percent slopes
	Limerick silt loam
	Macomber-Dutchess complex, 3 to 8 percent slopes
	Macomber-Taconic complex, 15 to 25 percent slopes, rocky
	Macomber-Taconic complex, 25 to 80 percent slopes, rocky
	Macomber-Taconic complex, 8 to 15 percent slopes, rocky
	Pinnebog muck
	Pits-Dumps complex
	Raynham silt loam, 0 to 4 percent slopes
	Saco mucky silt loam
	Scarboro muck
	Taconic-Hubbardton-Macomber complex, 25 to 80 percent slopes, very rocky
	Taconic-Hubbardton complex, 8 to 25 percent slopes, very rocky
	Taconic-Macomber complex, 8 to 25 percent slopes, very rocky
	Teel silt loam, sandy substratum
	Tioga fine sandy loam
	Udorthents loamy
	Walpole fine sandy loam, 0 to 5 percent slopes
	Warwick-Quonset complex, 3 to 8 percent slopes
	Warwick-Quonset complex, 8 to 15 percent slopes
	Water
	Windsor loamy sand, 3 to 8 percent slopes
	Windsor loamy sand, 8 to 15 percent slopes
Clarendon	Adrian muck
	Belgrade silt loam, 3 to 8 percent slopes
	Castile gravelly fine sandy loam, 0 to 3 percent slopes
	Deerfield loamy sand, 0 to 4 percent slopes
	Enosburg loamy fine sand
	Farmington-Galway-Galoo complex, 5 to 25 percent slopes, very rocky
	Georgia and Amenia soils, 3 to 8 percent slopes
	Georgia and Amenia soils, 3 to 8 percent slopes, very stony
	Hartland silt loam, 3 to 8 percent slopes
	Hinckley gravelly loamy fine sand, 0 to 8 percent slopes
	Hinckley gravelly loamy fine sand, 15 to 25 percent slopes
	Hinckley gravelly loamy fine sand, 25 to 40 percent slopes
	Massena silt loam, 0 to 8 percent slopes, very stony
	Paxton fine sandy loam, 2 to 8 percent slopes
	Paxton fine sandy loam, 2 to 8 percent slopes, very stony
	Paxton fine sandy loam, 25 to 35 percent slopes, very stony

Town	Soil Series within Project
Clarendon	Paxton fine sandy loam, 8 to 15 percent slopes
	Paxton fine sandy loam, 8 to 15 percent slopes, very stony
	Raynham silt loam, 0 to 4 percent slopes
	Sudbury fine sandy loam, 3 to 8 percent slopes
	Udifluvents and Fluvaquents, nearly level
	Udipsamments, nearly level
	Water
	Windsor loamy sand, 15 to 25 percent slopes
	Windsor loamy sand, 3 to 8 percent slopes
Fair Haven	Belgrade silt loam, 3 to 8 percent slopes
	Bomoseen and Pittstown soils, 8 to 15 percent slopes
	Bomoseen and Pittstown soils, 8 to 15 percent slopes, very stony
	Canandaigua silt loam
	Deerfield loamy sand, 0 to 4 percent slopes
	Dutchess silt loam, 15 to 25 percent slopes, very stony
	Dutchess silt loam, 8 to 15 percent slopes, very stony
	Eldridge fine sandy loam, 3 to 8 percent slopes
	Elmridge sandy loam, 0 to 3 percent slopes
	Enosburg loamy fine sand
	Farmington-Galway-Galoo complex, 25 to 50 percent slopes, very rocky
	Galway-Nellis-Farmington complex, 3 to 8 percent slopes
	Kingsbury silty clay loam, 0 to 3 percent slopes
	Kingsbury silty clay loam, 3 to 8 percent slopes
	Limerick silt loam
	Macomber-Dutchess complex, 3 to 8 percent slopes
	Pits-Dumps complex
	Taconic-Hubbardton-Macomber complex, 25 to 80 percent slopes, very rocky
	Taconic-Hubbardton complex, 8 to 25 percent slopes, very rocky
	Taconic-Macomber complex, 8 to 25 percent slopes, very rocky
	Vergennes clay, 15 to 25 percent slopes
	Vergennes clay, 25 to 50 percent slopes
	Vergennes clay, 3 to 8 percent slopes
	Vergennes clay, 8 to 15 percent slopes
	Walpole fine sandy loam, 0 to 5 percent slopes
	Windsor loamy sand, 15 to 25 percent slopes
	Windsor loamy sand, 3 to 8 percent slopes
Ira	Dutchess silt loam, 15 to 25 percent slopes, very stony
	Dutchess silt loam, 25 to 60 percent slopes, very stony
	Limerick silt loam
	Macomber-Taconic complex, 15 to 25 percent slopes, rocky

Town	Soil Series within Project
Ira	Macomber-Taconic complex, 25 to 80 percent slopes, rocky
	Macomber-Taconic complex, 8 to 15 percent slopes, rocky
	Saco mucky silt loam
	Warwick-Quonset complex, 15 to 25 percent slopes
	Warwick-Quonset complex, 8 to 15 percent slopes
Ludlow	Berkshire-Tunbridge complex, 15 to 35 percent slopes, very stony
	Berkshire-Tunbridge complex, 35 to 50 percent slopes, very stony
	Berkshire-Tunbridge complex, 8 to 15 percent slopes, very stony
	Berkshire and Monadnock fine sandy loams, 15 to 25 percent slopes
	Berkshire and Monadnock fine sandy loams, 15 to 35 percent slopes, very stony
	Berkshire and Monadnock fine sandy loams, 3 to 8 percent slopes
	Berkshire and Monadnock fine sandy loams, 35 to 60 percent slopes, very stony
	Berkshire and Monadnock fine sandy loams, 8 to 15 percent slopes
	Berkshire and Monadnock fine sandy loams, 8 to 15 percent slopes, very stony
	Cabot loam, 0 to 8 percent slopes
	Cabot loam, 0 to 8 percent slopes, very stony
	Colton fine sandy loam, 15 to 25 percent slopes
	Colton fine sandy loam, 3 to 8 percent slopes
	Colton fine sandy loam, 8 to 15 percent slopes
	Croghan and Sheepscot fine sandy loams, 0 to 8 percent slopes
	Peru, Skerry, and Colonel soils, 15 to 35 percent slopes, very stony
	Peru, Skerry, and Colonel soils, 3 to 8 percent slopes
	Peru, Skerry, and Colonel soils, 3 to 8 percent slopes, very stony
	Peru, Skerry, and Colonel soils, 8 to 15 percent slopes
	Rumney fine sandy loam, 0 to 2 percent slopes, frequently flooded
	Tunbridge-Lyman complex, 15 to 35 percent slopes, very rocky
	Tunbridge-Lyman complex, 3 to 8 percent slopes, rocky
	Tunbridge-Lyman complex, 8 to 15 percent slopes, rocky
	Tunbridge-Lyman complex, 8 to 15 percent slopes, very rocky
	Water
Mount Holly	Adams loamy fine sand, 8 to 15 percent slopes
	Cabot gravelly fine sandy loam, 0 to 8 percent slopes, very stony
	Castile gravelly fine sandy loam, 0 to 3 percent slopes
	Colton-Duxbury complex, 25 to 50 percent slopes, very stony
	Colton-Duxbury complex, 8 to 15 percent slopes
	Colton-Duxbury complex, 8 to 15 percent slopes, very stony
	Duxbury-Colton complex, 2 to 8 percent slopes
	Hartland silt loam, 15 to 25 percent slopes
	Lyman-Tunbridge-Rock outcrop complex, 35 to 60 percent slopes, very stony

Town	Soil Series within Project
Mount Holly	Lyme fine sandy loam, 2 to 8 percent slopes, very stony
	Lyme fine sandy loam, 8 to 15 percent slopes, very stony
	Marlow fine sandy loam, 15 to 35 percent slopes, very stony
	Marlow fine sandy loam, 3 to 8 percent slopes
	Marlow fine sandy loam, 3 to 8 percent slopes
	Marlow fine sandy loam, 8 to 15 percent slopes
	Marlow fine sandy loam, 8 to 15 percent slopes, very stony
	Pawling silt loam
	Peacham muck, 0 to 8 percent slopes
	Peru gravelly fine sandy loam, 15 to 25 percent slopes, very stony
	Peru gravelly fine sandy loam, 3 to 8 percent slopes, very stony
	Peru gravelly fine sandy loam, 8 to 15 percent slopes
	Peru gravelly fine sandy loam, 8 to 15 percent slopes, very stony
	Rippowam fine sandy loam
	Sheepscot fine sandy loam, 2 to 8 percent slopes
	Sudbury fine sandy loam, 3 to 8 percent slopes
	Tunbridge-Berkshire complex, 15 to 35 percent slopes, rocky
	Tunbridge-Berkshire complex, 35 to 60 percent slopes, rocky
	Tunbridge-Berkshire complex, 8 to 15 percent slopes, rocky
	Udifluvents and Fluvaquents, nearly level
	Udipsamments, nearly level
	Water
	Windsor loamy sand, 15 to 25 percent slopes
	Windsor loamy sand, 3 to 8 percent slopes
Rutland	Belgrade silt loam, 0 to 3 percent slopes
	Belgrade silt loam, 3 to 8 percent slopes
	Canandaigua silt loam
	Deerfield loamy sand, 0 to 4 percent slopes
	Deerfield loamy sand, 0 to 4 percent slopes
	Eldridge fine sandy loam, 0 to 3 percent slopes
	Eldridge fine sandy loam, 3 to 8 percent slopes
	Georgia and Amenia soils, 3 to 8 percent slopes
	Georgia and Amenia soils, 3 to 8 percent slopes, very stony
	Georgia and Amenia soils, 8 to 15 percent slopes
	Georgia and Amenia soils, 8 to 15 percent slopes, very stony
	Hamlin silt loam
	Linwood muck
	Middlebury loam
	Ninigret fine sandy loam, 0 to 4 percent slopes
	Paxton fine sandy loam, 15 to 25 percent slopes, very stony

Town	Soil Series within Project
Rutland	Paxton fine sandy loam, 2 to 8 percent slopes
	Paxton fine sandy loam, 25 to 35 percent slopes, very stony
	Paxton fine sandy loam, 8 to 15 percent slopes
	Paxton fine sandy loam, 8 to 15 percent slopes, very stony
	Pinnebog muck
	Raynham silt loam, 0 to 4 percent slopes
	Saco mucky silt loam
	Teel silt loam, sandy substratum
	Tioga fine sandy loam
	Water
Shrewsbury	Belgrade silt loam, 3 to 8 percent slopes
	Berkshire gravelly fine sandy loam, 8 to 15 percent slopes
	Deerfield loamy sand, 0 to 4 percent slopes
	Hartland silt loam, 15 to 25 percent slopes
	Hartland silt loam, 3 to 8 percent slopes
	Hartland silt loam, 8 to 15 percent slopes
	Hinckley gravelly loamy fine sand, 0 to 8 percent slopes
	Hinckley gravelly loamy fine sand, 25 to 40 percent slopes
	Lyman-Tunbridge-Rock outcrop complex, 35 to 60 percent slopes, very stony
	Paxton fine sandy loam, 15 to 25 percent slopes, very stony
	Paxton fine sandy loam, 8 to 15 percent slopes
	Sheepscot fine sandy loam, 2 to 8 percent slopes
	Sudbury fine sandy loam, 0 to 3 percent slopes
	Sudbury fine sandy loam, 3 to 8 percent slopes
	Sunapee fine sandy loam, 8 to 15 percent slopes, very stony
	Tunbridge-Berkshire complex, 35 to 60 percent slopes, rocky
	Udifluvents and Fluvaquents, nearly level
	Water
	Windsor loamy sand, 15 to 25 percent slopes
	Windsor loamy sand, 8 to 15 percent slopes
Wallingford	Belgrade silt loam, 3 to 8 percent slopes
	Castile gravelly fine sandy loam, 0 to 3 percent slopes
	Hartland silt loam, 15 to 25 percent slopes
	Sheepscot fine sandy loam, 2 to 8 percent slopes
	Sudbury fine sandy loam, 0 to 3 percent slopes
	Sudbury fine sandy loam, 3 to 8 percent slopes
	Sunapee fine sandy loam, 35 to 50 percent slopes, very stony
	Udifluvents and Fluvaquents, nearly level
	Water
West Haven	Dutchess silt loam, 8 to 15 percent slopes, very stony

Town	Soil Series within Project
West Haven	Farmington-Galway-Galoo complex, 25 to 50 percent slopes, very rocky
	Farmington-Galway-Galoo complex, 5 to 25 percent slopes, very rocky
	Kingsbury silty clay loam, 0 to 3 percent slopes
	Kingsbury silty clay loam, 3 to 8 percent slopes
	Livingston silty clay loam
	Macomber-Dutchess complex, 3 to 8 percent slopes
	Taconic-Hubbardton-Macomber complex, 25 to 80 percent slopes, very rocky
	Taconic-Hubbardton complex, 8 to 25 percent slopes, very rocky
	Taconic-Macomber complex, 8 to 25 percent slopes, very rocky
	Vergennes clay, 25 to 50 percent slopes
	Vergennes clay, 3 to 8 percent slopes
	Vergennes clay, 8 to 15 percent slopes
	Water
West Rutland	Canandaigua silt loam
	Dutchess silt loam, 15 to 25 percent slopes, very stony
	Dutchess silt loam, 25 to 60 percent slopes, very stony
	Dutchess silt loam, 8 to 15 percent slopes, very stony
	Galway-Nellis-Farmington complex, 15 to 25 percent slopes, rocky
	Georgia and Amenia soils, 3 to 8 percent slopes, very stony
	Georgia and Amenia soils, 8 to 15 percent slopes, very stony
	Macomber-Taconic complex, 15 to 25 percent slopes, rocky
	Macomber-Taconic complex, 25 to 80 percent slopes, rocky
	Macomber-Taconic complex, 8 to 15 percent slopes, rocky
	Paxton fine sandy loam, 2 to 8 percent slopes
	Paxton fine sandy loam, 25 to 35 percent slopes, very stony
	Paxton fine sandy loam, 8 to 15 percent slopes, very stony
	Pits-Dumps complex
	Quonset-Warwick complex, 25 to 45 percent slopes
	Saco mucky silt loam
	Stockbridge gravelly silt loam, 15 to 25 percent slopes, very stony
	Stockbridge gravelly silt loam, 8 to 15 percent slopes
	Stockbridge gravelly silt loam, 8 to 15 percent slopes, very stony
	Taconic-Macomber complex, 8 to 25 percent slopes, very rocky
	Udipsamments, nearly level
	Wappinger silt loam
	Warwick-Quonset complex, 0 to 3 percent slopes
	Warwick-Quonset complex, 15 to 25 percent slopes
	Warwick-Quonset complex, 3 to 8 percent slopes
	Warwick-Quonset complex, 8 to 15 percent slopes

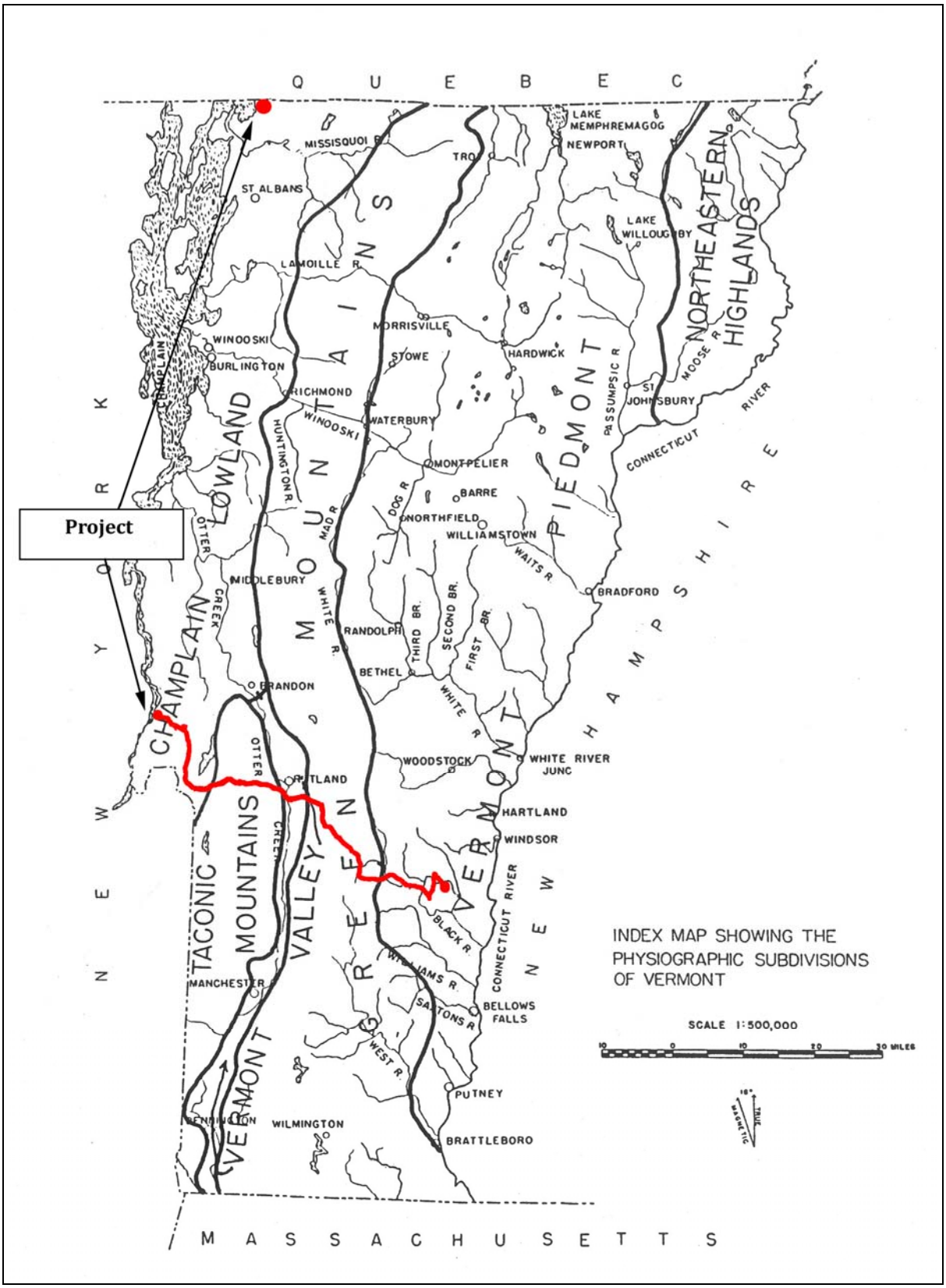

Figure 3-1. Physiographic regions of Vermont showing the Project.

the contraction of the ancient shorelines, were exposed to form the modern landscape of gently rolling sandy hills, flat clayplains, and upland elevation lake and sea sands. Elevations within the region range from 95 feet above sea level (ft asl) at the lake's edge to 1,800 ft asl in the foothills of eastern Franklin and Chittenden counties.

Lake Champlain constitutes the major drainage and watershed for the Champlain (Vermont) Lowland region. The lake is 120 miles long and flows north from Whitehall, New York, to the Richilieu River in Quebec, Canada, draining an area of 8,234 square miles in Vermont (56 percent), New York (37 percent), and Canada (7 percent). Several major sub-basins are incorporated within the drainage, one of which is the Poultney-Mettawee basin in the towns of West Haven, Fair Haven, and Castleton (Lake Champlain Basin Program [LCBP] 2014). The Poultney River crosscuts the Project, as does its largest and most important tributary, the Castleton River.

The valley geology, topography, and drainage have resulted in a biophysical profile more similar to that of the St. Lawrence Valley and Great Lakes lowlands to the west than to the Green Mountains or Vermont Piedmont. Before European contact, the Vermont Clayplain Forest, a mixed deciduous and hardwood canopy growing in post-Pleistocene clay and silt soils, dominated the valley. The rich, arable soils that dominated this matrix community,[1] however, were quickly and nearly entirely exploited for farming purposes, so that very few examples of it remain intact. The most widespread matrix community in the Champlain Valley today is the Northern Hardwood Forest, which is characterized by a canopy of beech, yellow birch, and sugar maple and a moderately well-developed shrub layer that includes mostly striped maple, hobblebush and shadbush (Thompson and Sorenson 2000).

Taconic Mountains

The town of Ira, the eastern side of West Rutland, and the western side of Castleton lie within the Taconic Mountains physiographic region (see Table 3-1). The Taconic Mountains extend beyond southwestern Vermont into eastern New York and western Massachusetts and Connecticut, with most of the range occurring outside of Vermont. Elevations within the region vary dramatically from very high spots such as Mount Equinox at 3,882 ft asl to very low spots like the base of the Great Ledge in Fair Haven at 500 ft asl. The northern part of the region near Castleton comprises low hills with minimal elevation variation.

The underlying bedrock comprises metamorphosed mudstones that originated in Cambrian and Ordovician periods that were later thrust westward during the Taconic Orogeny to overlay Ordovician limestones, including slate, phyllite, and schist. The famous, brightly colored slates form a linear band that stretches from Lake Bomoseen south to Granville, New York, and beyond. Younger limestones and marbles are visible at lower elevations in the region and are the source of some of the finest marble in the world. The region contains significant postglacial deposits of kame gravel and valley bottom deposits such as lake and alluvial sediments (Doll 1961; Thompson and Sorenson 2000:30).

The soft lime bedrock of the region allows for abundant waterflow within the Poultney-Mettawee basin that over the millennia has carved caves and underground streams that emerge at the surface as freshwater springs. These steady sources of clean water have been a draw to pre- and post-contact populations alike, and have long been used (and coveted) by beer makers and water bottlers.

The vegetation of the Taconic Mountains has a variable vegetation profile that reflects its variable topography. Dry Oak Woodlands, interspersed with shagbark, bitternut, and pignut hickory, are common in the higher, drier elevations, while the Northern Hardwood Forest is dominant in better-watered

[1] A matrix community is a natural community that dominates the landscape and forms the background in which other smaller-scale communities occur (Thompson and Sorenson 2000:22).

locations and middle elevations. Montane Spruce-Fir Forest can be found at the highest elevations, and wetlands are common in the low valleys, along with White Pine-Red Oak-Black Oak Forest on kame gravels.

While the Taconic Mountains themselves are largely unpopulated because of steep slopes and rocky soils, the valleys have provided and continue to provide fertile agricultural lands and good travel corridors. The lower elevations of the mountains made excellent sheep pasture during the agricultural boom of the nineteenth century, and the wooded hillsides have been timbered for generations. The western edge of the mountains has provided a steady supply of slate for billiard tables, chalkboards, roofs, and gravestones since the mid-nineteenth century, but the expense of quarrying and shipping and the waste precipitated by the industry led to the abandonment of nearly all of the old quarries; many of these sites are either overgrown with trees, or survive as huge piles of waste slate or deep, water-filled quarry holes. (Thompson and Sorenson 2000:29–32).

Vermont Valley

The towns of Rutland and Clarendon and the western side of West Rutland lie within the Vermont Valley physiographic region (see Table 3-1). The Vermont Valley is a narrow break between the Taconic Mountains to the west and the Green Mountains to the east, and is only five miles across at it widest point and less than one mile across at its narrowest point. It is a steep-sided, north–south trending valley lined with gravel terraces and dotted with low hills, including some well-preserved eskers, derived from glacial deposits.

Geologically, the Vermont Valley has little in common with its two neighboring physiographic regions, but is more similar to the Champlain Lowlands where limestone and related rocks are common. Like the Champlain Lowlands, the bedrock of the Vermont Valley dates to the Ordovician Period with much of the limestone having been metamorphosed into marble. The Valley is famous for this marble, which is mined for building stone and for gravestones, road building material, and use in the paper-making industry.

The Vermont Valley acts as a watershed divide, separating the Otter Creek and Batten Kill rivers by only a few hundred feet before the former flows north into Lake Champlain and the latter flows south to Long Island Sound and the Atlantic Ocean. The Project is contained within the Otter Creek basin. The hydrology of the region also is characterized by the tendency of surface streams to "disappear" by dropping through fissures in the soft limestone and marble or by percolating into the coarse gravel that lines the sides of the valley. In both instances, the water often reappears as springs or seeps at lower elevations.

Because the Vermont Valley was extensively developed during the post-contact period, little remains of its natural forest. The original forests near the valley bottom likely were very rich in soil fertility and species diversity. On the gravel terraces, white pine and hemlock were probably common; white pines serve as excellent markers for gravel soils on the modern landscape. It is likely that oak, sugar maple, and hickory were common as well. As a drainage basin divide, the Valley contains extensive wetlands, especially in its northern reaches along Otter Creek.

Green Mountains (Southern Portion)

The towns of Shrewsbury, Wallingford, Mount Holly, and Ludlow lie within the southern portion of the Green Mountain physiographic region. Elevations range from about 1,000 ft above mean sea level (amsl) along the Cold River and Mill Creek valleys to a high of 2,150 ft amsl on Sawyer Rocks in Mount Holly. The underlying bedrock in this region is predominately composed of metamorphic green schists and

gneisses formed during the Middle Proterozoic Era. Most of the region is overlain by thick deposits of glacial till, but bedrock outcrops are common.

Unlike some of the higher peaks in the Green Mountains where there are vestiges of the boreal forest, the vegetation in this region is typical of the upland Eastern deciduous forest and is dominated by sugar maple, beech, yellow birch, spruce, and balsam fir. With a short growing season, cold winters, and high precipitation, the Green Mountains region is poorly suited for intensive agriculture. Historical land use traditionally has focused on lumbering and pasturage.

The Green Mountains drain primarily to the east into the Connecticut River through several principal waterways: the White, Ottauquechee, Mill, Black, Williams, Saxtons, and West rivers. In the northwestern corner of the region, mountain tributary streams feed into Otter Creek, which drains into Lake Champlain. A major watershed divide occurs in the town of Mount Holly; waters to the east of this flow into the Black River and eventually make their way to the Connecticut River. Because of the watershed's comparatively flat topography, wetlands in the form of conifer swamps and beaver meadows are very common. Natural ponds are generally small and scattered.

The forests and wetlands of the high elevations and plateau best characterize the southern portion of the Green Mountains physiographic region. On the plateaus, Northern Hardwood Forests dominate the upland landscape, although Mesic Reel Oak-Northern Hardwood forests are present on some south-facing slopes, especially on the lower eastern foothills of the region. Hemlock Forests and Hemlock Swamps are also present in the lower elevations, generally below 1,800 ft asl.

CHAPTER FOUR

CULTURAL CONTEXT

Academic archaeological research, combined with the results of CRM studies, document nearly 12,000 years of human occupation in the northeastern United States. This chapter is an overview of the pre- and post-contact history of Vermont in general and of the Project in particular and provides a framework for predicting and interpreting archaeological resources in the Project. Additional sources include synthetic pre-contact cultural histories, town histories, maps, and atlases.

PaleoIndian Period (9500–7000 B.C.)

Archaeological evidence suggests that possibly as early as 9,300 B.C., before the Champlain Sea transformed into Lake Champlain, the first human populations began to enter the subarctic environment of extreme northern New England. Available food resources in this harsh environment would have included lichen, moss, and low-growing scrub growth, and megafauna such as elk, caribou, and mastodon. Settlement strategies during the PaleoIndian Period are poorly understood; because of the range of variability at identified sites, large base camps, small residential camps, and very small, task-specific loci have been advanced as the primary settlement models.

The best-known site in Vermont dating to the late PaleoIndian Period is the Reagan Site (Table 4-1). Theroughly 2-acre site is located in East Highgate on a sandy bluff overlooking the Missisquoi River valley, and contains a diverse artifact assemblage including diagnostic Plano fluted points, knives, scrapers, gravers, hammer and anvil stones, and chipping debris. Lithic classes include chert, rhyolite, basalt, quartzite, jasper, soapstone, and talc, some of which derive from non-local sources and suggest fairly extensive movement of the site occupants across the landscape (Haviland and Power 1994).

Early Archaic Period (7000–5500 B.C.)

During the Early Archaic Period, dry, warm summers and dry, cold winters encouraged the spread of pine-dominated forest, but also precipitated the decline of the megafauna populations. In their place, smaller prey such as deer and bear and a broader range of riverine, estuarine, and plant resources emerged. The lithic technology of this period reflects this shift to a more diversified subsistence strategy. Corner-notched, stemmed, and bifurcate-based points serve as the diagnostic artifact class, but in general, biface-dominated assemblages are rare. A non-bifacial tool kit, including beaked unifacial edge tools, cores, and flakes, has been proposed as an alternative diagnostic marker. Settlement strategies remain speculative, but small residential groups organized for seasonal foraging and larger, more settled bands are believed to represent the basic settlement models (Ritchie 1969; Robinson et al. 1992).

The John's Bridge Site (VT-FR-69) on the Missisquoi River in Swanton is one of the better known Early Archaic sites in the state. Dating to about 5,900 B.C., the small site contained five deep pits, a huge assemblage of chert, quartzite, and quartz chipping debris, and a large collection of tools including Swanton Corner-Notched points that serve as the diagnostic tool form for the period (Skinas 1992; Thomas and Robinson 1980).

Table 4-1. Pre-Contact Cultural Chronology for Vermont.

Period	Temporal Range	Diagnostic Projectile Point Types	Cultural Aspects	Representative Sites
PaleoIndian	9500–7000 B.C.	• Bull Brook • Neponset • Crowfield • Holcombe	Heavy subsistence reliance on migratory game animals/megafauna by small bands of hunter-gatherers with a specialized lithic technology. Local and exotic lithics are used for tool making, suggesting a high level of mobility.	• Reagan
Early Archaic	7000–5500 B.C.	• Swanton Corner-Notched • Bifurcate base	Few documented sites, possibly because of problems with archaeological recognition and/or low archaeological visibility. This period represents a transition from specialized hunting strategies to the beginnings of more generalized hunting and gathering as an adaptation to moderating environmental conditions. Predominance of expedient tools and near exclusive use of local lithic sources suggests a more settled lifestyle.	• John's Bridge • Bessette 2, 3
Middle Archaic	5500–4000 B.C.	• Neville • Neville Variant • Stark	Informal expedient tools dominate lithic assemblages. Increased precipitation and the emergence of the mast forest likely precipitated an increased subsistence reliance on deer. Very few sites have been identified for this period, but those that have suggest an orientation toward lakes, ponds, and rivers with an emphasis on seasonal rounds.	• Auclair
Late Archaic	4000–900 B.C.	• Brewerton • Vosburg • Lamoka • Bare Island • Atlantic • Snook Kill	Number of identified sites increases dramatically, suggesting a substantial population increase. Subsistence and settlement patterns and lithic technology becomes increasingly diverse and elaborate resulting in the subdivision of the period into three periods: Laurentian, Narrow Point, and Susquehanna. Soapstone vessels come into use and low-fired pottery makes its first appearance during the latter centuries. Burial ceremonialism became exceptionally elaborate and complex during this period, including the Glacial Kame Burials. An unusual burial complex was identified on Isle La Motte at the northern extent of Lake Champlain. Referred to as Glacial Kame burials, the interments, discovered during graveling operations, comprised the cremated and ochre-stained remains of six individuals.	• Highgate Converter Station
Early Woodland	900–100 B.C.	• Adena • Meadowood	Cooler, wetter environmental conditions lower the biotic carrying capacity of woodland environments, and human populations respond by more heavily exploiting rivers, lakes, and ponds. Low-fired Vinette I pottery becomes increasingly common, and there is an increase in the use of exotic, non-local lithic materials, indicating an elaboration of trade networks. In light of the paucity of domestic sites, the period is defined largely on the basis of mortuary data.	• Canaan Bridge • Boucher (mortuary complex)
Middle Woodland	100 B.C.–A.D. 1050	• Jack's Reef Corner Notched • Fox Creek	Identified sites tended to be aggregated within the Lake Champlain and Connecticut River valleys. A hypothesized population increase appears to have led to a more diffuse hunting and gathering strategy with an increased exploitation of the uplands. Pottery styles also become more diverse. The period is subdivided into four phases including the Winooski (100 B.C.–A.D. 300), Fox Creek (A.D. 300–500), Intervale (A.D. 500–800), and Colchester (A.D. 800–1050).	• Winooski • Intervale
Late Woodland	A.D. 1050–ca. 1550	• Levanna	A period of continuity and innovation in which lithic technologies underwent very little change, while the adoption of horticulture dramatically altered the social and cultural landscape. Settlement patterns became markedly more sedentary and residential groups became larger. Large village sites have been identified along the major river corridors, although small residential and task-specific sites are still more common.	• Skitchewaug

Middle Archaic Period (5500–4000 B.C.)

The Middle Archaic saw a shift from the dry conditions of the preceding period to a climate characterized by significant increases in precipitation, perhaps as much as 25–30 percent higher than current levels. Vegetation patterns also shifted in response to the increased rainfall as the pine-dominated landscape gave way to a mast forest of deciduous oak, beech, sugar maple, elm, and ash, with smaller numbers of hemlock and white pine. Bear, wolf, otter, and wild turkey also emerged in greater numbers, while comparatively smaller populations of moose, elk, and caribou populations persisted in the spruce-fir northern hardwood forests.

The period is defined by three stemmed projectile points: Neville, Neville Variant, and Stark. These points often are found in association with steep-bitted scrapers, flake knives, perforators, adzes, axes, and choppers. Heavy woodworking tools also are common and suggest the manufacture of dugout canoes. Like the Early Archaic, informal tools dominate many Middle Archaic assemblages. Settlement and subsistence patterns are difficult to infer because of the extremely limited database. To date, only six sites have been identified in Vermont on the basis of Stark or Neville points. These sites were identified along the shores of Lakes Bomoseen and Champlain and at the Auclair Site (VT-CH-3) near the outlet of Shelburne Pond, and indicate a settlement orientation toward ponds, lakes, and rivers with a subsistence strategy based on seasonal rounds.

Late Archaic Period (4000–900 B.C.)

Environmental conditions during most of the Late Archaic Period are characterized by drier and warmer conditions with a significant decrease in precipitation. During this period, oak, pine, and beech reached their full extent, and wetlands became more abundant along river margins. Animal communities remained essentially the same as the preceding period, but it is likely that deer became even more plentiful. Settlement patterns reflect a more intensive use of marginal uplands and upland ridges, as well as minor stream valleys in the lowlands. By 1000 B.C., however, the climate became markedly cooler and wetter with a concomitant decline in many animal species. Based on archaeological evidence or, more properly, lack of evidence, upland areas seem to have been used less and less until by roughly 800 B.C. that ecological niche was virtually abandoned.

Late Archaic sites are far more common than sites dating to earlier periods and are characterized by a diversification in lithic technology that has allowed for the identification of three distinct traditions. The Laurentian tradition (3600–2400 B.C.) is characterized by broad side-notched points with ground bases such as Otter Creek, Brewerton side- and corner-notched, and Vosburg points. The Narrow Point tradition (2400–1600 B.C.) is distinguished by relatively long and narrow bladed projectile points, often made of quartz, and includes Lamoka, Bare Island, Wading River, Sylvan side-notched, Sylvan Stemmed, and Normanskill points. Diagnostic materials for the Susquehanna or "Broadspear" tradition (1800–800 B.C.) include large, broad-bladed stemmed points (Atlantic, Snook Kill, Perkiomen, Genessee, and Susquehanna Broad) as well as smaller "fishtail" points with expanding stems (Orient Fishtail). Flat-bottomed, lug-handled soapstone vessels also appear during this period, and there is evidence that some of the earliest fired ceramics, or Vinette 1 pottery, may date to this time as well. The Highgate Converter Station Site (VT-FR-61), identified along on the Missisquoi River in Highgate, dates to this "Transitional" tradition (Thomas and Dillon 1985).

Early Woodland Period (900–100 B.C.)

Climatic conditions and settlement and subsistence patterns during the Early Woodland Period remained essentially the same as those of the Late Archaic Period after 1000 B.C. Group sizes are assumed to have been relatively small (perhaps 30–50 people) and in some cases splintered into even smaller residential

camps of 5–15 individuals. Diagnostic cultural material includes stemmed and side-notched Adena and Meadowood projectile points. Lithic assemblages for this period comprise a high percentage of "exotic" lithic materials, including Munsungen cherts from northern Maine, and speak to an expansion and elaboration of long-distance trade networks. Low-fired Vinette I pottery also becomes much more common in the archaeological record during this time.

Evidence for Early Woodland occupations is limited. The Canaan Bridge Site (VT-ES-2) provides the most detailed data about the period from a residential context on the Connecticut River. Located close to the Canadian border, the site was occupied repeatedly and yielded several shallow hearths, Vinette I pottery fragments, a red chert Meadowood point, chert flakes and knives, grinding stones and slabs, and a fragment of a highly polished ground-stone pendant. Overall artifact densities were low, but the predominance of exotic cherts reinforces the expansion of trade networks during this period (Bolian and Gengras 1991).

Middle Woodland Period (100 B.C.– A.D. 1050)

Beginning about 150 B.C., the climate stabilized, as the previously damp and cold environment gave way to generally drier and warmer conditions. There are more sites dating to this period than the preceding period, but they are aggregated almost exclusively in the Champlain and Connecticut River valleys. This concentrated population expansion may have overtaxed the subsistence resources of the changing environment and led to a more diffuse hunting and gathering strategy that led to a return to a more intensive exploitation of the uplands.

The Middle Woodland Period in Vermont has been fairly well documented by several excavations in the Champlain Lowland, and the diversity of sites has led to the creation of four cultural phases: the Winooski (100 B.C.– A.D. 300), Fox Creek (A.D. 300–500), Intervale (A.D. 500–800), and Colchester (A.D. 800–1050). These phases tend to overlap, if not coincide with, one another and reflect regional variation on a basic adaptive suite. Jack's Reef Corner-Notched projectile points are diagnostic of the period, although Levanna and Jack's Reef pentagonal points also are common. Raw material types are derived from local and non-local sources, and pottery styles diversify to include grit-tempered, coil-built vessels with a stamped, incised, and dentate decoration (Petersen 1977, 1980, 1992; Petersen and Power 1985; Petersen and Toney 2000).

Late Woodland Period (A.D. 1050–1600)

The Late Woodland Period was one of continuity and innovation during which lithic technologies remained largely static while the development of horticulture dramatically altered the social and cultural landscape for Native American communities. Villages comprising small hamlets emerged along major river valley corridors in a trend that likely reflects the desirability of floodplain environments for farming. Settlement patterns became markedly more sedentary from A.D. 1100–1450, and residential groups became larger. The intensive occupation of horticultural camps, however, did not preclude the continuance of seasonal camps: small residential camps are the most common Late Woodland site type in Vermont. Levanna points are the diagnostic marker for the period and were commonly manufactured from locally available stone. Tool assemblages comprise a narrow range of preforms, scrapers, drills, and expedient flake tools.

The multicomponent Skitchewaug Site in Springfield, located along the western bank of the Connecticut River, has provided some of the most informative data about the period. The site yielded carbonized maize, beans, and kernels dating as early as A.D. 1100 and contained the deeply buried remains of two semi-subterranean pit structures. These wide oval structures are visible as a series of superimposed living floors separated by sterile flood deposits; Housepit 1 appears to have been occupied as many as 14 times

and was peppered with deep storage and refuse pit features. Comprising basin- and bell-shaped forms, at least one of the identified storage pits contained evidence of having been lined with grass, and all of the excavated storage pits contained carbonized maize, beans, and squash (Heckenberger et al. 1992).

Contact Period

The Western Abenaki were the dominant native group in Vermont at the time of European contact, although the area now comprising Grand Isle County was disputed territory between Algonquin and Iroquois groups at the time of Champlain's first voyage. Valuable allies to the French in their struggle against the English for dominion in northern New England, the Abenaki waged pitched battles against the Mohawk for control of the lucrative fur trade up and down the Connecticut and St. Lawrence rivers (Aldrich 1891; Day 1978; Haviland and Power 1994).

Because of their inland location and the long shadow cast by their Iroquoian neighbors to the west, little is known about the Vermont Abenaki during the Contact Period. The population of the Western Abenaki from Lake Champlain east to the White Mountains and from southern Quebec to a line running generally east from Fort Ticonderoga is estimated to have been more than 10,000 as early as A.D. 1600. It is assumed that Late Woodland settlement and subsistence patterns were continued during this period, but that disease and warfare likely precipitated a shift in survival strategies (Day 1978). It is likely, however, that the Abenaki family band survived the historical disruptions of disease, trade, and warfare and remained the principal community unit throughout the Contact and Post-Contact periods (Baker et al. 2002:9; Calloway 1990; Day 1978).

One of the major documented shifts in settlement practices during the seventeenth century was the establishment of French Jesuit missions along the Connecticut River in the east, near Lake Champlain, and along the St. Lawrence and Hudson rivers to the west. The establishment of these "permanent" Catholic settlements did not preclude the continuance of seasonal rounds among the resident Native groups, nor did they guarantee Catholic conversion. They did, however, provide shelter, food, and farming opportunities, and a central meeting place for Abenaki families displaced by war and disease (Calloway 1990).

The strategy of withdrawal and consolidation following periods of war or population disruption led to conflicting reports about the Abenaki presence in northwestern Vermont. Often groups would retreat to the "hinterlands" of the uplands bordering the Green Mountains or migrate north to Canada in the face of environmental or social stressors, only to return several months or years later to resume their traditional patterns of seasonal subsistence rounds. This pattern continued well into the late eighteenth century; as late as 1783, local residents on Grand Isle reported that many Abenaki continued to winter on Stave Island near South Hero (Callum et al. 1999; Hemenway 1871).

Known and Potential Pre-Contact/Contact Period Resources

Three pre-contact archaeological sites have been recorded within the Project, all of which were identified during survey work conducted for the Route 4 Bypass Project (Table 4-2). Two of the sites comprised isolated projectile points and low-density lithic scatters that were not assigned temporal affiliations or were provisionally dated from the Middle Archaic to Early Woodland periods. **FS-RU-21**, located in the Project east of Otter Creek in Rutland, was identified on the basis of a single Middle Archaic Stark-like projectile point found on the surface of an alluvial ridge adjacent to wetland. No other cultural material was recovered in testing around the projectile point, and it is likely that the point was a hunting loss or was discarded during transient movement through the area.

Table 4-2. Pre-Contact/Contact Archeological Sites Identified within the Project.

PAL Map Sheet #	Site #	Site Name	Town	County	Watershed	Cultural Affiliation	Site Type	National Register Status
15	VT-RU-0082	Wright Roberts Cabin	West Rutland	Rutland	Otter Creek	Middle Woodland	Two lithic workshops	Unevaluated
17	FS-RU-0021	Unassigned	Rutland	Rutland	Otter Creek	Middle Archaic	Isolated find-projectile point	Unevaluated
17	VT-RU-0081	VT-RU-81	Rutland	Rutland	Otter Creek	Late Woodland	Camp site	Ineligible

A more substantial camp site, **VT-RU-81**, was located in a floodplain on the east side of Otter Creek squarely within the proposed highway corridor. The Middle–Late Woodland site consisted of two distinct but limited artifact clusters (Locus 1 and 2) and a small number of chert and quartzite flakes scattered in peripheral areas. No cultural features were identified, and nineteenth- and twentieth-century plowing had severely compromised the vertical integrity of the site. While the site illustrates the use of the Otter Creek floodplain during the Woodland period, its limited information potential precluded its National Register eligibility.

A Late Woodland component identified at the **Wright Roberts Cabin Site (VT-RU-82)** consisted of at least three discrete stone toolmaking areas, associated projectile points, a scraper, fine-tempered pottery likely dating to the fifteenth and sixteenth centuries, and one possible pit feature. Despite historic period landscape disturbances, the site integrity was assessed as good and was recommended as significant for its ability to contribute substantive information about late pre-contact settlement of the Otter Creek watershed, and about the relationship between the upper Hudson Valley and lower Otter Creek interaction sphere. The site also straddled the presumed historical boundary of the Mahican and Western Abenaki hunting territories with the potential to provide information about the degree of interaction between New York and Vermont Native American populations during the seventeenth century (Thomas et al. 1983).

While the pre-contact archaeological site inventory for the Project is very limited, the low number of identified sites more likely reflect a lack of systematic testing that a real absence of sites. To better contextualize the pre-contact archeological potential, a larger geographic area extending 0.5 mile from either side of the centerline of the proposed cable alignment was used to capture a sample of identified pre-contact sites in proximity to the Project (Table 4-3). Along most of its length, the larger study area is topographically analogous to the conditions within the proposed cable corridor and provides a reasonable comparative database for predicting and interpreting pre-contact cultural resources within the Project.

Within the larger 0.5-mile study area, eight additional pre-contact sites are recorded, including four find spots (FS-RU-0020 and -0022-0024) identified as part of the Route 4 Bypass Project. Bomoseen 2 (VT-RU-0050) is identified as the site of a Late Archaic/Early Woodland Native American village on the south shore of Lake Bomoseen in Castleton. Local resident Ryland Benford surface collected and excavated in the area during the 1930s and 1940s, uncovering what he identified as a village, burial ground and a substantial cultural material assemblage including a Fulton turkey tail projectile point dated in New York to about 3000 B.P. (Ritchie 1969:76). A nineteenth-century source identifies the area as "Historic Period Indian village," although no professional excavations or analysis of the existing artifact collection have been undertaken to confirm that attribution (Smith and Rann 1886).

A significant cluster of PaleoIndian sites is recorded in the town of Ludlow. One of these sites, the Okemo PaleoIndian Site (VT-WN-0289), is located within 0.5 mile of the Project on a glacial ice-contact terrace southwest of Branch Brook, a major tributary of the Black River. The site is dated to the early PaleoIndian Period (circa [ca.] 10,000 to 11,000 years ago) based on the recovery of a fluted projectile point and distinctive red Munsungan chert. VT-WN-0289 also contained a notched oblique scraper made of quartzite that may have been heat-treated to produce a sufficiently workable piece of stone; the scraper is stylistically similar to scrapers found at other PaleoIndian sites in Vermont. VT-WN-0289 was determined eligible for listing in the National Register of Historic Places and was listed in the Vermont State Register of Historic Places in 2007 along with a neighboring PaleoIndian site, VT-WN-0273 (Robinson et al. 2004:35; VDHP site files).

The recorded site inventory for this region suggests that Native American populations used the mountains of central Vermont for a variety of economic and strategic reasons from the earliest PaleoIndian Period through the Archaic and likely Woodland and Contact periods. These include the presence of lithic source

Table 4-3. Pre-Contact/Contact Archeological Sites Identified within 1/2-Mile of the Project.

PAL Map Sheet #	Site #	Site Name	Town	County	Watershed	Cultural Affiliation	Site Type	National Register Status
10	VT-RU-0050	Bomoseen 2	Castleton	Rutland	Otter Creek	Late Archaic/ Early Woodland	Possible village	Unevaluated
15	VT-RU-0082	Wrights Roberts Cabin	West Rutland	Rutland	Otter Creek	Late Woodland	Lithic workshop	Unevaluated
16	FS-RU-0014	Unassigned	West Rutland	Rutland	Otter Creek	Unknown	Isolated find-rectangular quartzite scraper	Unevaluated
17	FS-RU-0018	Unassigned	Rutland	Rutland	Otter Creek	Unknown	Isolated find-quartzite fire-cracked rock concentration	Unevaluated
17	FS-RU-0020	Unassigned	Rutland	Rutland	Otter Creek	Unknown	Isolated find-two quartz flakes	Unevaluated
17	FS-RU-0022	Unassigned	Rutland	Rutland	Otter Creek	Unknown	Isolated find-single chert flake and two fire-cracked rocks	Unevaluated
17	FS-RU-0023	Unassigned	Rutland	Rutland	Otter Creek	Early Woodland-Contact	Four isolated find spots: three low density lithic scatters and a Levanna point	Unevaluated
17	FS-RU-0024	Unassigned	Rutland	Rutland	Otter Creek	Unknown	Isolated find-bifacially worked chunk of black chert	Unevaluated
29	VT-WN-0262	Unassigned	Ludlow	Windsor	Black River	Unknown	Pre-contact camp site; Burned post-contact materials likely associated with former 19th-century road	Ineligible
29	VT-WN-0289	Okemo PaleoIndian Site	Ludlow	Windsor	Black River	PaleoIndian	Camp site	Eligible

areas; plentiful game in the form of deer, moose, bear, beaver, and turkey; nuts, berries, and other collectibles; significant travel routes connecting the Hudson and Champlain drainages to the Connecticut River valley and south; control nodes at the headwaters of streams and rivers contained within the mountains; possible refuge areas; and areas of possible ritual significance. The mountain ranges also have numerous passes connecting river drainages to the west and east (Lacy 1985, 1986).

The wide range of site types identified in the Green Mountain National Forest and surrounding areas suggests that occupation in the upland elevations does not necessarily duplicate that at lower elevations. Commonly occurring small sites may be pervasive and independent of elevation. However, the larger, more diverse sites found in the upland areas do not appear to be identical to large lowland sites. Site-specific analyses in a range of environments and elevations are needed before assumptions can be made regarding the similarity or dissimilarity of upland and lowland sites in the Green Mountain region. The documented presence of PaleoIndian occupation at the base of Okemo Mountain in Ludlow is a perfect example of the diversity of site range and date period(s) of occupation that could be present in what would have heretofore been considered marginal and low-density environmental settings.

The Champlain (Vermont) Lowlands and portions of the Vermont Valley, on the other hand, provide a more traditional environmental context for pre-contact and Contact period settlement. In his 1891 history of Franklin and Grand Isle counties, Lewis Cass Aldrich wrote, "There is probably not a farm in Grand Isle county but that will show some evidence of ancient occupation, and throughout Franklin County they are nearly as abundant" (Aldrich 1891:29). Archeological survey work in Alburgh and Castleton confirms this potential despite the lack of identified pre-contact or Contact period sites within 0.5 mile of the Project towns in the Champlain Lowlands region.

An archaeological survey for the South Alburgh Fire District #2 Water Supply Project identified eight pre-contact sites/components in an approximately 20-acre area just south of the Project's entry point into Lake Champlain. Three of those sites date to the late pre-contact/Contact period Saint Lawrence Iroquoian period, and two of the sites are Late Archaic and early Late Woodland occupations. While all of the sites were avoided through project re-engineering, their temporal sequence illustrates a pre-contact continuity of occupation at the upper reaches of Lake Champlain. The Bohannon Site (VT-GI-26/32) in East Alburgh on the shore of Lake Champlain also appears to be a Saint Lawrence Iroquoian village site containing many pit features, extensive floral and faunal remains, and indirect evidence of former longhouse structures (Petersen et al 2004: 109, 113). The Bohannon Site is the first well-documented archeological context for St. Lawrence Iroquoian deposits in the state, like the sites identified in South Alburgh, and illustrates a continuity of occupation in one of Vermont's most hospitable environmental contexts (HAA 2007).

The southern extent of the Champlain Lowlands in Fair Haven also contains evidence of pre-contact occupation, although not in or within ½ mile of the Project. A Phase I archaeological survey conducted for VTrans in support of a bridge reconstruction over the Poultney River identified a small Late Woodland residential or extractive camp designated the Wetherbee Site (VT-RU-0314). The site yielded chert and quartzite debitage, one utilized flake, and one Levanna projectile point, and may be part of a larger archaeological complex extending south (upstream) along the Castleton River for more than 240 meters (800 feet).

Post-Contact Period Background

The Project runs through 13 towns in Grand Isle, Rutland, and Windsor counties. For the most part, The Project follows existing road alignments, most of which date to the settlement of those towns. To provide a more targeted assessment of potential post-contact archaeological resources, the following historical

context for the Project provides a general history of the towns, followed by a more specific discussion of the known historical resources in the Project.

Grand Isle County

Grand Isle County consists primarily of a group of islands known collectively as the Champlain Islands, the largest of which are Isle La Motte, North Hero, and South Hero. The territory that now comprises Grand Isle County originally was a part of Charlotte County that had been set off from New York's Albany County. Vermont emerged as an independent political entity in 1779 and was divided into Bennington and Cumberland counties. The next several decades saw the two parent counties split and re-amalgamated into a mosaic of smaller counties. Vermont was admitted into the Union in March 1791, but it was not until 1802 that Grand Isle County was set off as a distinct political unit (Beers 1876; Hemenway 1871).

Alburgh

Alburgh, the only non-island town within Grand Isle County, belonged to the French crown throughout the seventeenth and early- to mid-eighteenth centuries through France's dominion in Canada. After the British conquest of Canada in 1759, all French territorial claims were transferred to the English crown. Ira Allen and 64 associates were granted title to the town in 1782, but almost immediately ran into strong resistance from the established settlers within the territory. After several contentious years in court, the original settlers were established as the rightful owners in 1792 under the organizing jurisdiction of the state. By that time the town was commonly known as Allenburgh, which eventually was contracted to the current Alburgh (Aldrich 1891; Duffy and Feeney 2000).

Constant and acrimonious land disputes throughout the late eighteenth century had a stultifying effect on the development of Alburgh, a condition that was further exacerbated by the War of 1812. After the war, however, Alburgh experienced a period of relative prosperity. From a tiny population of roughly 550 people in 1800 (up from 350 in 1791), the town increased to approximately 1,100 individuals by 1814. Previously unoccupied lands were brought under cultivation and several small villages were established including Alburgh Springs, Alburgh Center, and East Alburgh. By 1860, Alburg numbered 1,793 people, roughly one-third of the entire county's population.

Despite the abundance of water surrounding the town, the generally flat character of the landscape precluded the presence of streams or rivers suitable for milling industries. A small steam sawmill was erected in the west part of town in 1830, followed by a second in the center of town, but neither proved profitable or long lived. For the most part, agriculture formed the economic backbone of the town, with a particular emphasis on wheat, oat, corn, buckwheat, and potato crops (Hemenway 1871). While Alburgh lies on a peninsular landform, transportation and communication was conducted primarily through ferry passage as though it were an island. The primacy of ferry transport was supplanted in 1850 with the construction of the Vermont and Canada (Central Vermont) Railroad that connected Alburgh to the northern portion of New York State, the Connecticut River, and the major New England cities to the south and east. Alburgh Springs Depot, or East Alburgh, emerged as a small but vital village and provided a point of connection to Alburgh Springs, a resort community that sprang up around the "medicinal" mineral springs that dotted the landscape.

No detailed historical maps showing the portion of Alburgh through which the Project runs could be located during the background research. Given its remote location and distance from major settlement nodes, it is likely the area was sparsely settled throughout the post-contact period and used primarily for farming. Several extant nineteenth-century farmhouses in proximity to the Project underscore this

possibility, including the S. Mott House (0701-052) standing on the east side of the Florence Parcel fronting Bay Road (see discussion below).

Rutland and Windsor Counties

Rutland County was created from Bennington County in 1781. In keeping with the border disputes that characterized much of northern New England's eighteenth-century history, Vermont attempted to annex part of New York east of the Hudson River (the so-called West Union) in 1782. Settlers in the area favored Vermont's township form of government, and Vermont hoped to gain bargaining power through expansion. While New York did not lose control of the area, Rutland County included part of Charlotte County (now Washington County), New York, for almost seven months. Over the next century, Rutland County gained and loss territory and towns from the neighboring counties of Addison, Windsor, and Bennington counties until achieving its final form in 1895.

The twelve towns in the Project that lie within Rutland and Windsor counties originated as small hamlets or villages along the major river drainages that flow through the area. The rivers and streams were used to power various small-scale mills (gristmills and sawmills) and some larger factories (e.g., chair, cheese box, and toy factories). Cow and sheep grazing and potato crops were the most common agricultural pursuits, with many of the towns renowned for their cheese and butter products. Natural sources of limestone, granite, marble, copper ore, and clay were exploited by local residents during the nineteenth century. The Rutland and Burlington Railroad (Vermont Central) was built through the county in the 1840s and provided the transportation needed to promote the development and settlement of the towns. Most of the nineteenth-century industries have closed and the towns' economies are primarily tourist-related.

Benson

Benson was granted to 75 individual proprietors from Williamstown, Massachusetts in 1780. At the time the charter was granted, there was no road leading into the town, except the unfinished Crown Point Road (see discussion below). The first permanent settler in the town was Freetown, Massachusetts, native Walter Durfee, who in 1780 purchased the entire right of Isaac Clark, one of the original proprietors, and in 1782 built a "log-house" on what became known as the "Home Farm." Durfee was accompanied by Daniel Barber of Pittsfield, Massachusetts, who erected the first sawmills and gristmills in the town along the Hubbardton River.

The history of Benson, like that of most other Vermont communities, was one of slow but steady growth. The 1869 Beers map of the area illustrates fairly diffuse settlement with population nodes at Benson Center, Benson Landing, and Howard Hill (Figure 4-1). Benson Landing, a small hamlet on the shore of Lake Champlain, grew out of the lake commerce that assumed great importance immediately after the opening of the Champlain Canal in 1823. The landing was a center of considerable business for many years and included many stores, all of which appear to have been established south of the Project alignment. The Hubbardton River flowing through the eastern side of the town was a locus of milling activity during the late eighteenth and nineteenth centuries; the Project crosses the river at the southwest corner of the town, but no mills or businesses are depicted in that location on the 1869 map.

The Project in Benson as it follows North Lake Road from the Lake Champlain shoreline east to Route 22A and then south appears to adhere fairly closely to the nineteenth-century road configurations allowing for some degree of distortion introduced by the map projection. Historic properties along the Project route are almost exclusively residential.

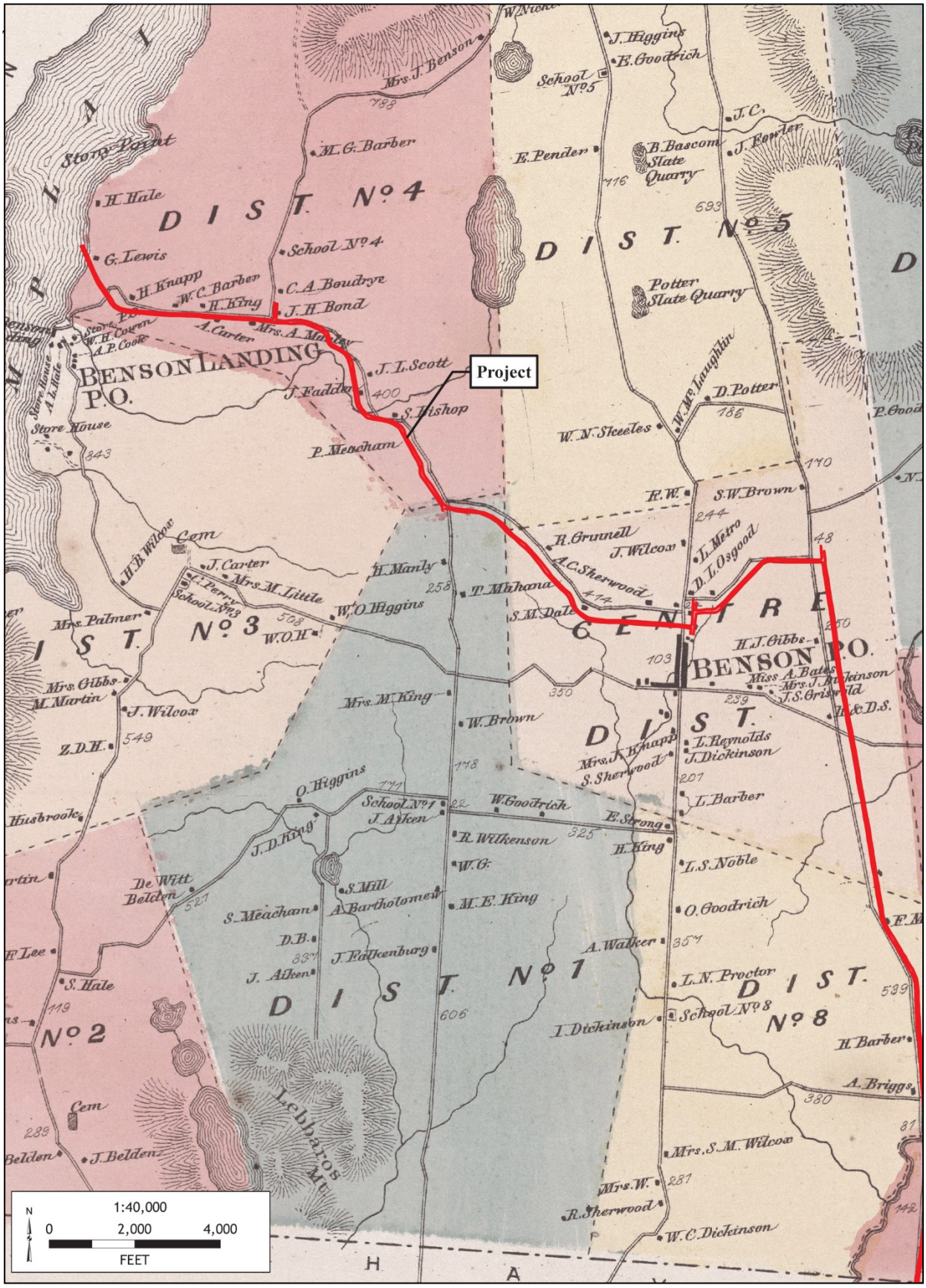

Figure 4-1. 1869 map of Benson showing the Project (source: Beers 1869a).

West Haven

West Haven originally was part of Fairhaven until it was split off and incorporated in 1792 with Elijah for the town and were the sites of some of the earliest small-scale milling activity that during the nineteenth century evolved into larger-scale wool and furniture manufactories. By the mid to late nineteenth century, West Haven had been divided into seven districts; each had its own school but shared two churches, one post office, one gristmill and two or three sawmills.

The Project runs along modern route 22A through the east edge of West Haven and aligns well with the historical road configuration (Figure 4-2). The 1869 Beers map of the area depicts the Project as very sparsely settled along most of its length until it reaches the town boundary with Fair Haven to the south. At this point, a cluster of structures, including more than a half dozen houses, School No. 1, and a tavern, is visible.

Fair Haven

Fair Haven was chartered on October 27, 1779, to Ebenezer Allen and 76 associates and was first settled the same year. The township originally included West Haven, which was set off on October 20, 1792. The post office at Fair Haven was established in 1797. In 1783, Colonel Matthew Lyon moved to Fair Haven and began building mills at the falls on the Castleton River. His enterprises included a gristmill, sawmill, papermill, a forge. This began Fair Haven's legacy as a small, prosperous mill town, which by 1859 included a marble mill, rolling mill, nail factory, papermill producing wall paper, three sawmills, a wagon shop, a machine shop, two blacksmith shops, and two shoe shops. The quarrying and manufacture of slate began in 1846. Fair Haven would develop extensive quarries for the stone, believed at the time to be inexhaustible, which was supplied to cities along the Atlantic coast and in the West. Some of it was made into the framed, book-sized writing slates that students of the time used. The Project runs through the center of Fairhaven along Routes 22A and 4 (Figure 4-3). Nineteenth-century maps show the area as primarily residential with a hotel depicted at the Fair Haven/West Haven town boundary.

Castleton

In the spring of 1767, some of Castleton's first settlers, Amos Bird and Noah Lee, arrived in Castleton from Salisbury, Connecticut; one of Castleton's most prominent landmarks, Birdseye Mountain, is named for Colonel Amos Bird. He had acquired 40 shares of land when the town was chartered and built a permanent residence there in the summer of 1769. More settlers followed, and by 1777 the town consisted of 17 families. Castleton assumed a notable role in the American Revolution as the site of Benedict Arnold's 1775 meeting with Ethan Allen and his Green Mountain Boys to plan an attack on Fort Ticonderoga; their successful capture of the fort was a holding action that lasted two years until the British launched a powerful sweep southward on Lake Champlain.

Following the war, Castleton continued to grow as an agricultural community. Farmers raised cattle, and then turned for a time to sheep. Sawmills and gristmills were the first industries established in town, and the first medical school in Vermont was chartered there in 1818. During the nineteenth century, the slate and marble industries thrived in and around Castleton, and the village of Hydeville flourished as a slate-quarrying and milling center and Lake Bomoseen became a thriving recreation destination. To exploit that commercial opportunity, Castleton constructed a trolley system from the center of the lake, and a bustling tourist economy dominated the town with hotels, restaurants, and storefronts. Between 1900 and 1940, several fires occurred in Castleton Village, Castleton Corners, Hydeville, and at the Bomoseen lakeside resorts. Despite the destruction of hotels and the original commercial and industrial areas of its villages, Castleton retains significant architectural integrity dating to the mid nineteenth

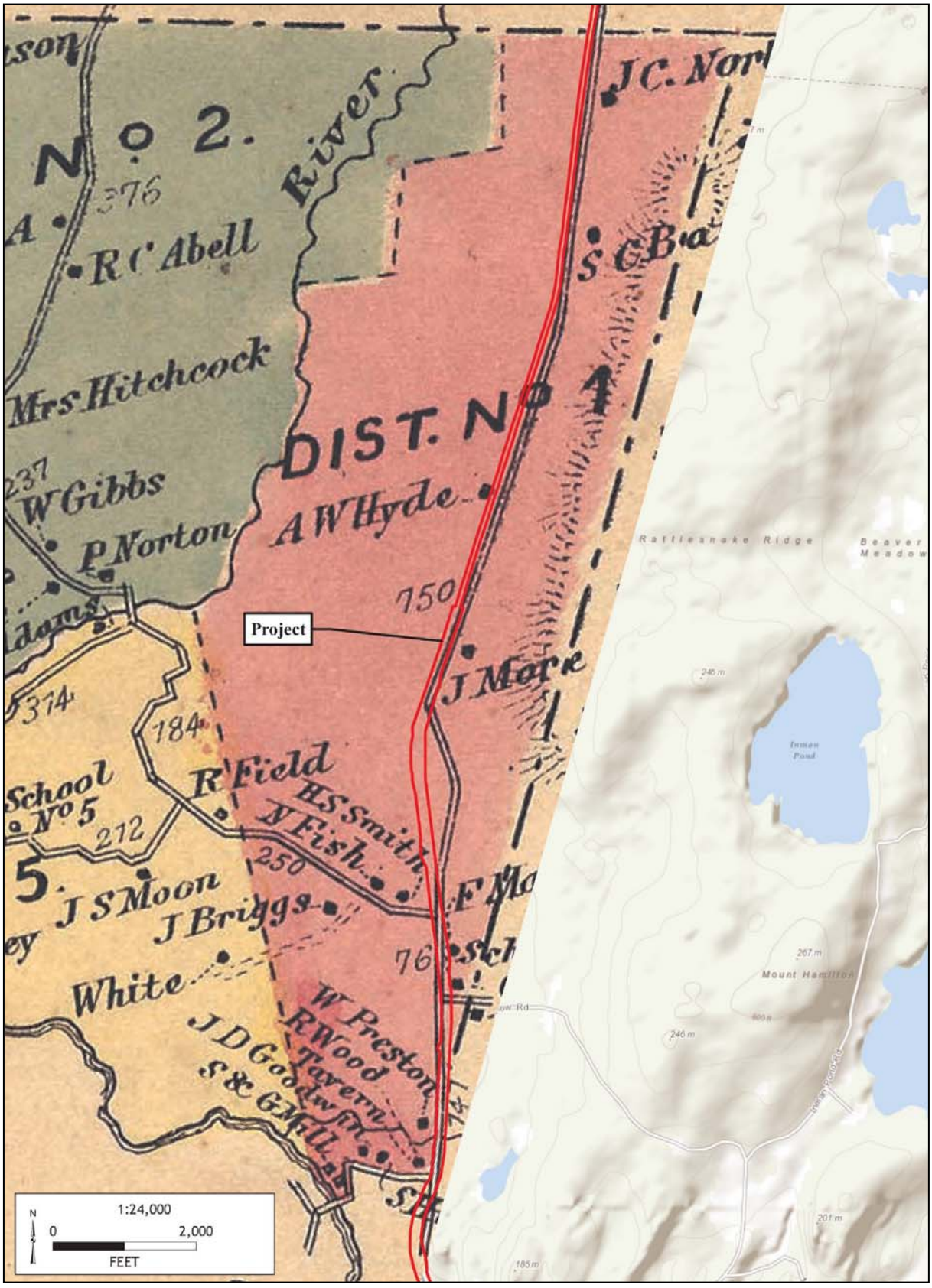

Figure 4-2. 1869 map of West Haven showing the Project (source: Beers 1869a).

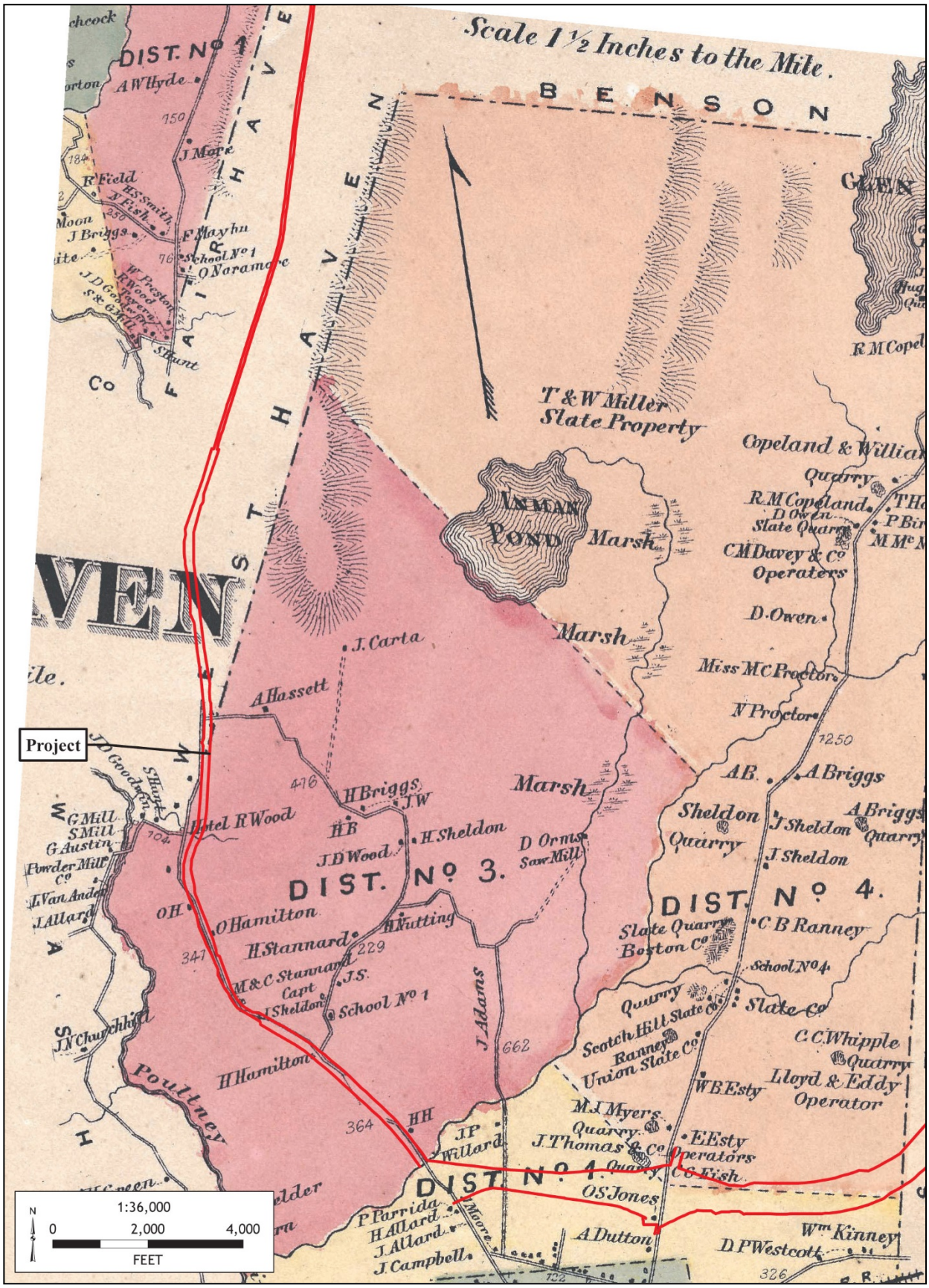

Figure 4-3. 1869 map of Fair Haven showing the Project (source: Beers 1869a).

century. Castleton's mile-long, tree-shaded Main Street with its array of Federal- and Greek-Revival style houses and public buildings, many by builder Thomas Royal Dake, has been listed almost in its entirety in the National Register.

The Project segment in Castleton runs along the modern alignment of Route 4, well north of the historical road alignment of what is now Route 4A (Figure 4-4). The 1869 Beers map of Castleton shows the area as very sparsely settled due in large part to the very steep and rugged topography. The Project runs by fewer than 10 residential structures as shown on the Beers map; although it makes several stream crossings, no mills or structures are illustrated in those locations.

Ira

Ira is a triangular tract of land about three miles broad at its widest part, and eight miles long, and is situated nearly in the central part of Rutland County. The original boundaries of the town have been changed twice; one part of the town was carved off to form Middletown in 1784, and a portion of Clarendon annexed to it in 1854. The original charter for the town was lost when the capitol at Montpelier burned in 1875, but it is believed to have been set off at the same time as most of the other towns in the county in 1761. Most of the town is dominated by the Taconic Range that has historically stymied agricultural pursuits, although some of the valleys provided excellent grazing. Unlike many of the other towns in the area, milling was never a prominent industry, because the local streams, while numerous, were not large enough to offer good mill privileges.

The Project in Ira runs immediately north and parallel to the railroad tracks at the edge of a steep-sided valley of the Taconic Range (Figure 4-5). No historic structures are depicted anywhere near the alignment on the 1869 Beers map of the town. With the inhospitable terrain it is unlikely that it was ever developed in any meaningful way, with the exception of the railroad.

Rutland and West Rutland

Rutland was chartered in 1761 by New Hampshire to John Murray and 63 other proprietors, none of whom ever re-located to the area. The permanent settlers hailed largely from Connecticut and western Massachusetts. Rutland, like most of Vermont during the late eighteenth century, was considered a frontier settlement. A segment of Crown Point Road ran through the town from north to south, and during the Revolutionary War the Vermont troops, or Green Mountain Boys, erected two small picket forts in the eastern part of the settlement and at the head of the falls at Otter Creek, known at that time as Mead's Falls (Coolidge and Mansfield 1859).

The construction of the railroads through Rutland beginning in 1851 was the single largest impetus to the town's development and set off a commercial boom dominated by the marble industry. In the early nineteenth century, small high-quality marble deposits were discovered in Rutland, and in the 1830s a large deposit of nearly solid marble was found in what is now West Rutland. By the 1840s, small firms had begun excavations, but marble quarries proved profitable only after the railroad arrived in 1851. The famous quarries of Carrara in Tuscany, Italy, grew largely unworkable because of their extreme depth, allowing Rutland to become one of the world's leading marble producers. This fueled enough growth and investment that in 1886 the center of town incorporated as Rutland village. Most of the town was split off as West Rutland and Proctor, which contained the bulk of the marble quarries. Rutland City was incorporated as Vermont's third city on November 18, 1892. Rutland and West Rutland also had a thriving agricultural economy and produced boots and shoes, clothing, firearms, and furniture.

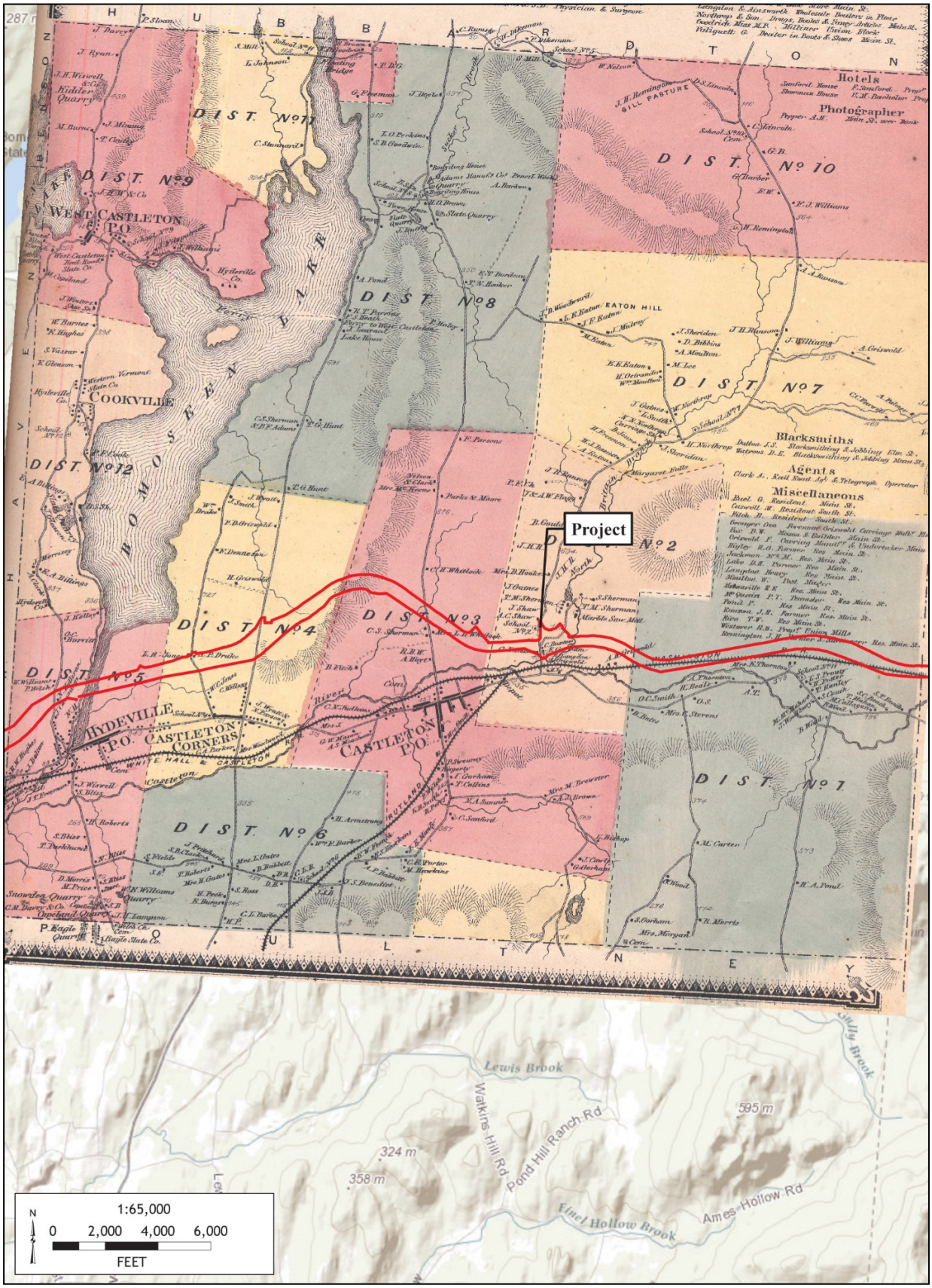

Figure 4-4. 1869 map of Castleton showing the Project (source: Beers 1869a).

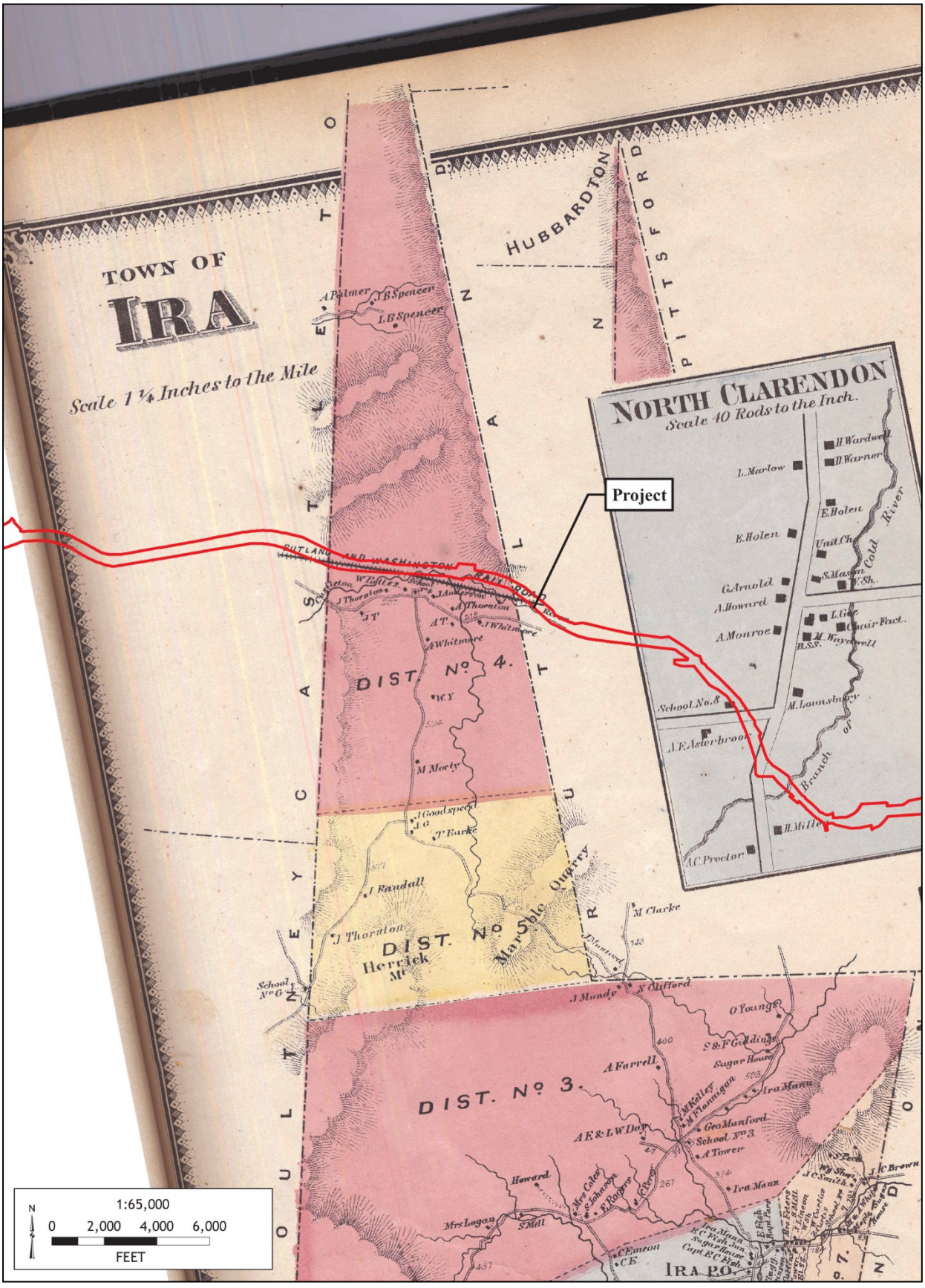

Figure 4-5. 1869 map of Ira showing the Project (source: Beers 1869a).

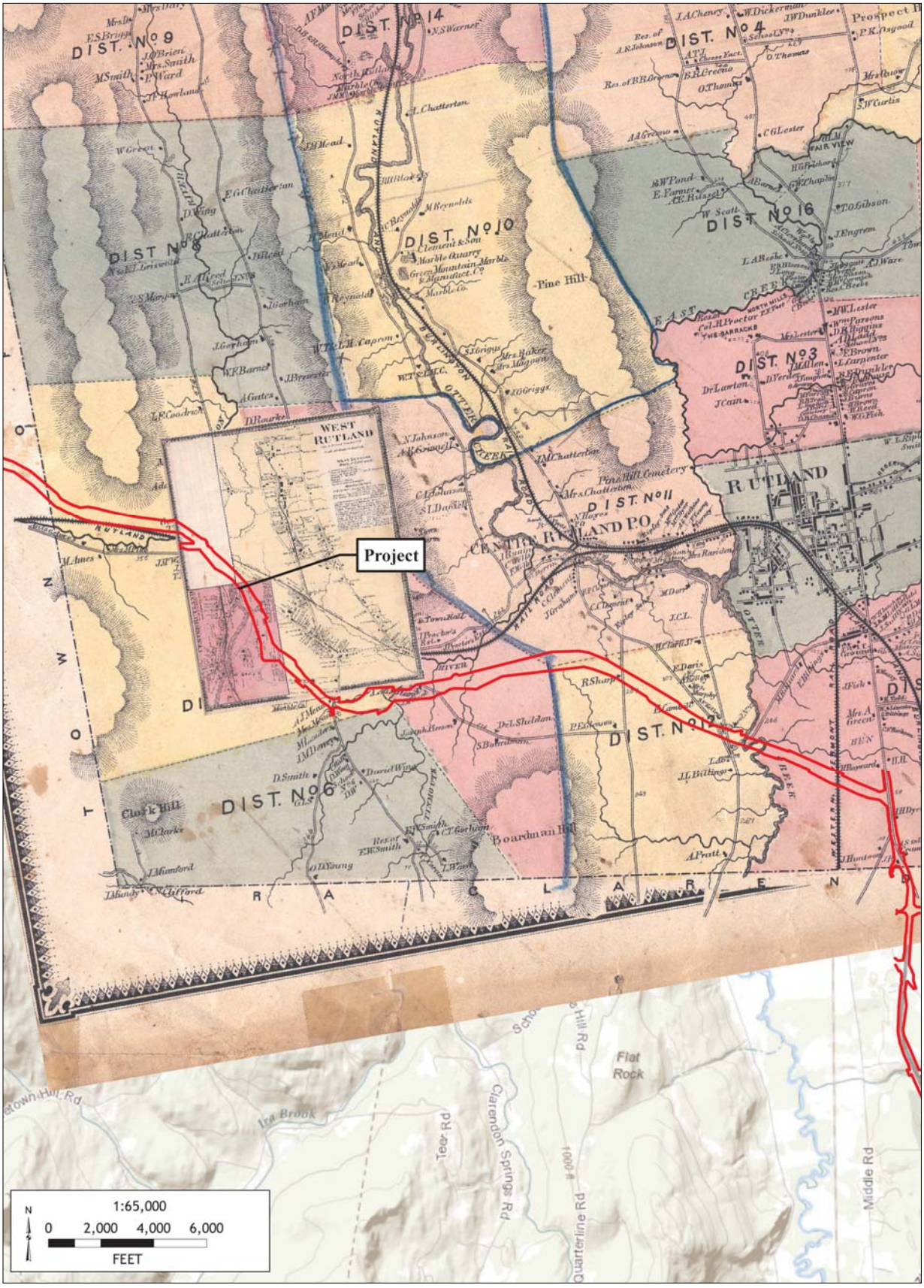

Figure 4-6. 1869 map of Rutland and West Rutland showing the Project (source: Beers 1869a).

With the exception of a short segment of Route 7 in the southeast corner of Rutland, the Project in Rutland and West Rutland runs along an almost entirely different alignment than the historical roads depicted on the 1869 Beers maps (Figure 4-6). The construction of the Route 4 Bypass during the 1980s tracks well south of the principal historical road and rail alignments through sparsely developed farmlands and areas of steep slope. The new alignment, however, does cut through the former American Marble Company in West Rutland.

Clarendon

Clarendon was charterd in 1761 and historically was an agricultural town comprising hamlets rather than full-scale villages. By the mid- to late nineteenth century, these hamlets including Clarendon Center, East Clarendon, North Clarendon, and Clarendon Springs had been divided into distinct school districts. Agricultural settlements were present along local roads and the river. North Clarendon contained a number of mill enterprises during the nineteenth and early twentieth centuries, including one of the largest manufacturing businesses in the town run by B. E. Horton in one large building. His factory complex reportedly housed a gristmill, sawmill, cider mill, shingle mill, cheese-box factory, and chair stock factory. Clarendon Springs to the far west was renowned for its curative springs, with a number of hotels and boardinghouses that operated during the nineteenth century. A marble deposit was exploited in the late nineteenth century about 0.5 mile south of the springs. W. F. Barnes ran the quarry operation with financial backing from capitalists in New York, Philadelphia, and Chicago (Hemenway 1877; Smith and Rann 1886).

As its runs along Routes 7 and 103 in Clarendon, the Project diverges rather sharply from the historical road alignments as depicted on the 1869 Beers map of the town (Figure 4-7). The one exception is the segment running through North Clarendon that roughly follows the historical road configuration and passes among residential structures, School No. 8, a Unitarian Church, and a chair factory sited on a north–south-running branch of the Cold River. The remainder of the alignment tracks along the extant roads in what were formerly largely undeveloped areas, with the exception of a heavily developed area associated with the railroad at the southeast corner of the town. The Project also cuts across several small tributary streams associated with Otter Creek, but no mills or structures are depicted at any of those crossings.

Shrewsbury

Shrewsbury, chartered in 1761, is located in the east-central part of Rutland County near the border with Windsor County. Shrewsbury Peak rises to 4,000 ft amsl. The western part of the town contains considerably fertile lands where potatoes, wheat, and oats were historically grown. Shrewsbury was also historically a noted dairy town renowned for its butter products (Hemenway 1877).

The Project passes through the southwest part of the town for approximately two miles along Route 103 before cutting north along the railroad line to bypass the village of Cuttingsville (Figure 4-8). Cuttingsville was an important stop along the Rutland and Burlington Railroad (Central Vermont Railroad) that followed the Mill River through the town from Clarendon on the northwest to Wallingford on the south. The village was named after Charles Cutting, who became the proprietor of the town's first mill sector along with its mercantile trade. Copperas Hill is located just north of the Project near Cuttingsville. It was here in the early 1800s that Amos Binney purchased mineral rights to natural iron sulfide ore to increase the production of his successful copperas works in Strafford (Orange County), Vermont (Smith and Rann 1886).

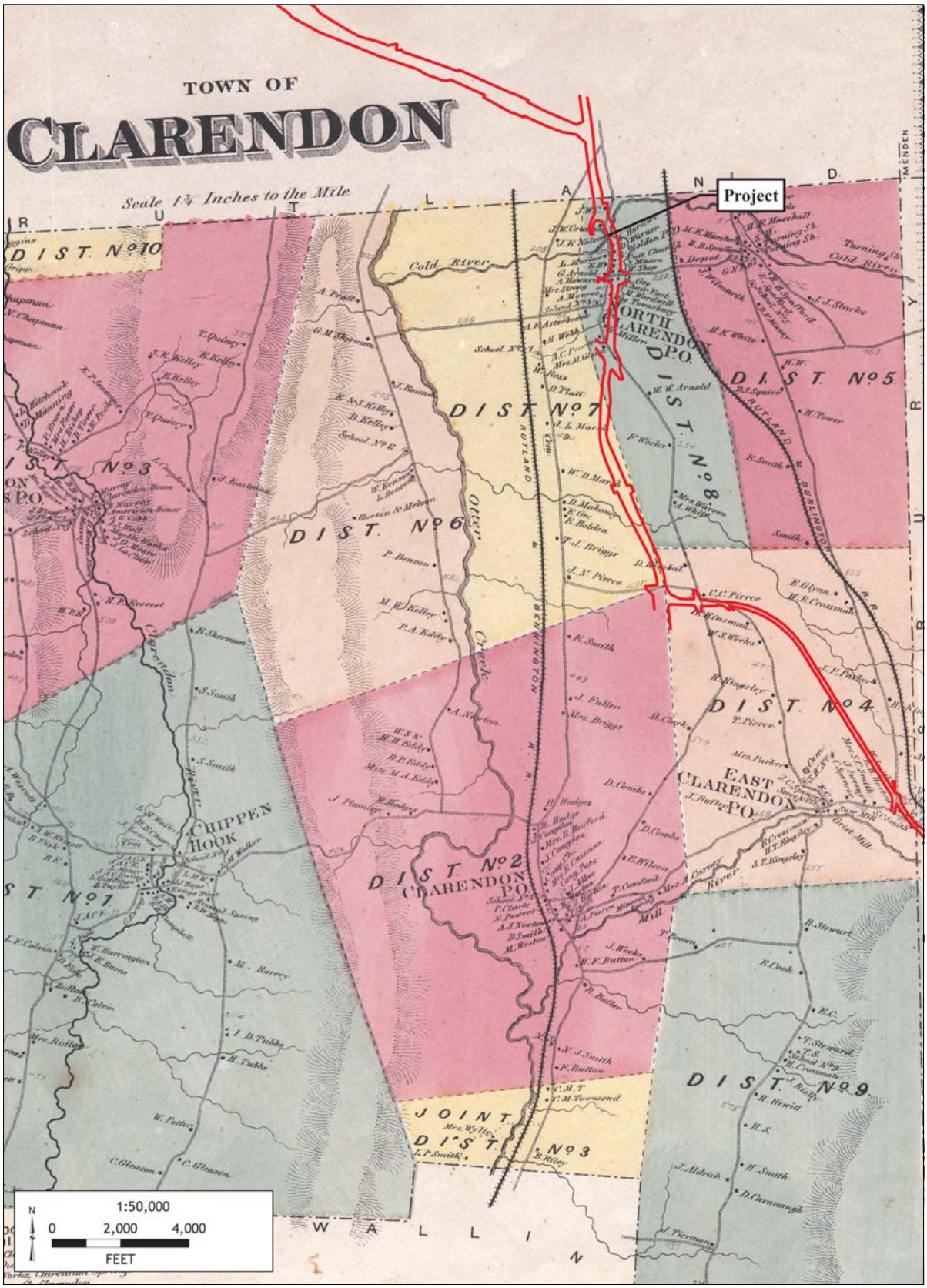

Figure 4-7. 1869 map of Clarendon showing the Project (source: Beers 1869a).

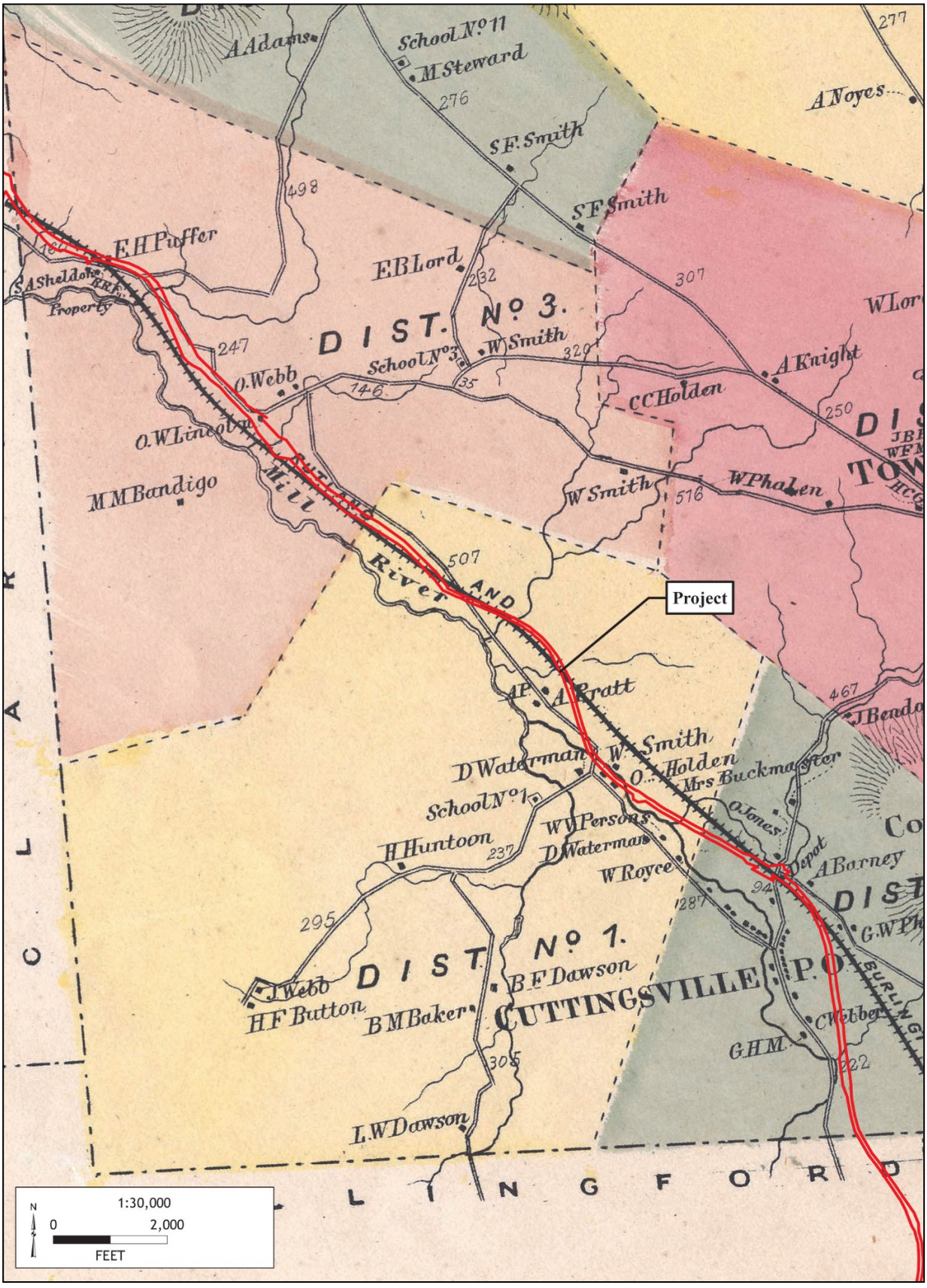

Figure 4-8. 1869 map of Shrewsbury showing the Project (source: Beers 1869a).

Wallingford

Wallingford was chartered by New Hampshire on November 27, 1761, and a subsequent charter was obtained from the New York government. The first proprietors' meeting was held September 12, 1772, in Wallingford, Connecticut (from which place the town was named), and it was voted that 100 acres be laid out for each proprietor. The first permanent occupant of Wallingford was George Scott, described as "a squatter…very lazy and shiftless, and his cross-eyed wife, Lois, and his daughters, Grace and Sarah, were worthy of him. He was supported by the town the last years of his life" (Smith and Rann 1886:833). Scott was joined in 1773 by Abraham Jackson of Cornwall, Connecticut, who settled with his family and was the first who possessed legal title to the lands he occupied. Unlike Scott, Jackson is described as "an estimable man, accustomed to discharge all his duties promptly and faithfully" (Smith and Rann 1886:833).

The town encompasses several different villages, the oldest of which is Wallingford, although business was carried out in South Wallingford since the earliest settlement. Before 1814, Ebenezer Towner was producing potash in an ashery, and there were a number of distilleries, taverns, gristmills, sawmills, and tanneries, scattered throughout the villages that took advantage of the abundant waterpower supplied by Otter Creek and its network of streams. Despite these commercial activities, as late as 1820 there was scarcely a large enough collection of residential dwellings in Wallingford to justify its status as a town. The population slowly increased throughout the nineteenth century, but overall population density remained fairly low.

The Project cuts through the northeast corner of the town through the village of East Wallingford along Route 103 (Figure 4-9). East Wallingford was established around 1834 by I. R. Fuller, a New Hampshire native. At the time of his arrival, there was no village but only two dwellings. Joel Constanton began operating a sawmill in 1834 on the Mill River at the site of an older mill privilege (ca. 1812). As the village grew, a hotel, tannery, rough stock chair factory, carriage factory, water works, and dry goods and general store were opened by the third quarter of the nineteenth century, making East Wallingford the most prosperous village in the town. The town farm, comprising about 140 acres, was located about a mile west of East Wallingford. The modern road, running along the east side of the Mill River, is well aligned with the historical road and passes through an area formerly containing primarily residential structures, School Nos. 12 and 13, and what was likely the home of Joel Constanton. The Hantoon & Gleason Tannery also is depicted on the 1869 Beers map east of the Project, although it appears to be associated with a smaller tributary stream rather than Mill River itself.

Mount Holly

Mount Holly, chartered in 1792, lies in the southeast corner of Rutland County along the boundary with the Windsor County towns of Ludlow and Weston. It is situated in a shallow basin of the Green Mountains, historically known as the best place for crossing the mountain range south of Montpelier. The limited arable lands were historically used for growing potatoes and grass for livestock (cows and sheep). The town is renowned for its butter and cheese products, and in 1840 it led the county in cheese production. Most of the town's numerous stone walls were built for cow and sheep grazing. The town's potatoes, beef, pork, butter, cheese, lumber, and livestock were historically exported by rail to Boston and other regional markets (Smith and Rann 1886; Hemenway 1877).

The largest of the town's historic hamlets or villages was Mechanicsville (today Belmont) in the central part of the town east of the Mill River. In the mid- to late nineteenth century, Mechanicsville contained a tannery, a toy manufactory, and a chair stock factory. Tarbellesville, about one mile west, was known for its lumber mills, cheese factory, and rake factory. Bowlville, about two miles west of the Mount Holly railroad station, was known for its wooden bowl factory and cheese factory. The Rutland and Burlington

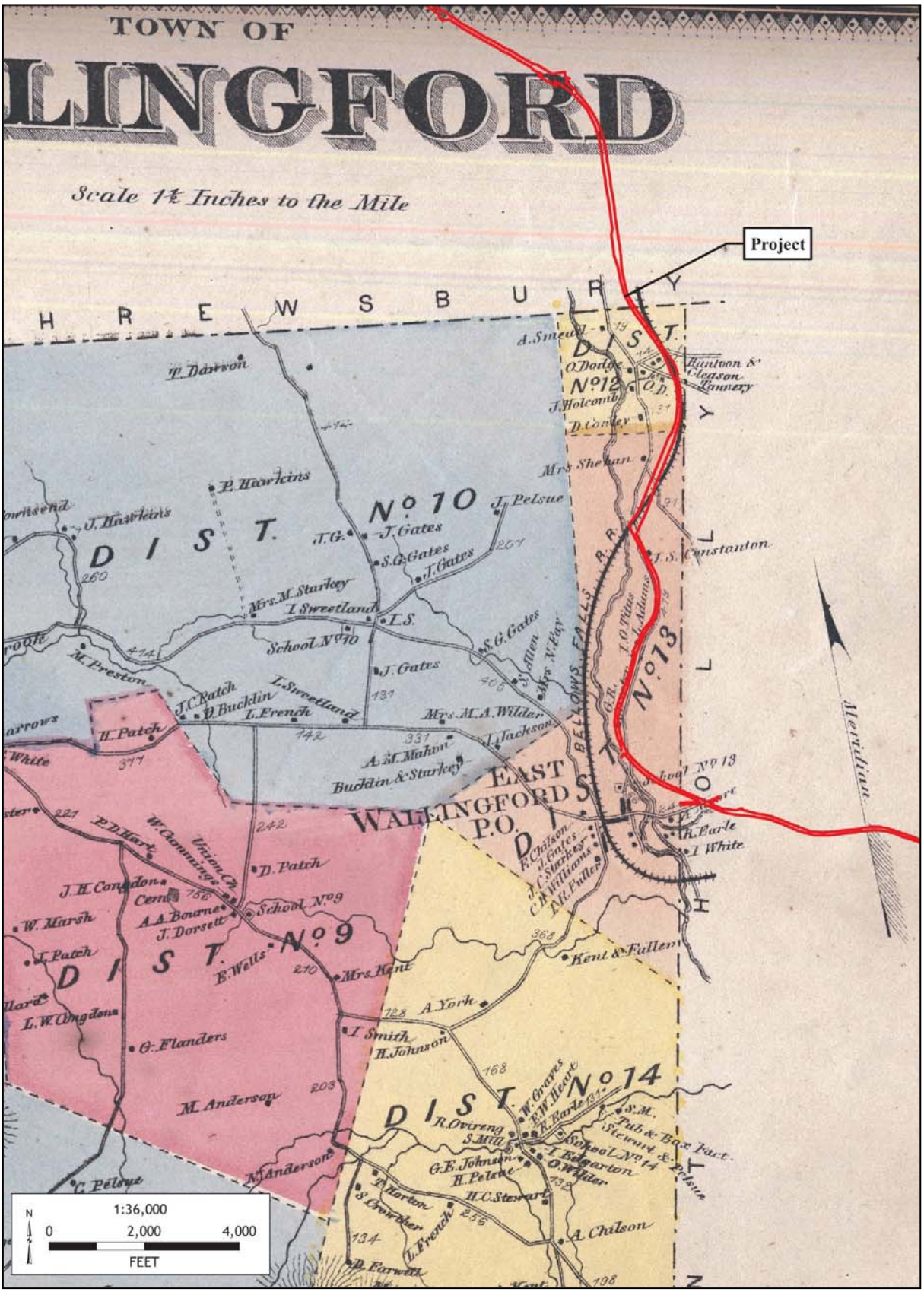

Figure 4-9. 1869 map of Wallingford showing the Project (source: Beers 1869a).

Railroad (Central Vermont Railroad) arrived in 1849 and divided the town in two, with a town hall maintained on each side.

As it passes through the center of Mount Holly, much of the Project runs along a comparatively new section of Route 103 that bypasses the historical road configurations to the south as depicted on the 1869 Beers map (Figure 4-10). Much of the land is shown as undeveloped at that time, although several residential structures are depicted that suggest the presence of farms. The east and west segments of the Project, however, cleave fairly closely to the historical road alignment; the western end is still fairly sparsely developed, but the west end runs through the densely settled village of Healdville, weaving among residential structures and School No. 10. Mount Holly encompasses a complex tributary network associated with the Black River to the east that enabled the thriving nineteenth-century, waterpowered commercial enterprises summarized above; no mill structures, however, are depicted on any of the many river and stream crossings that the Project traverses through the town.

Ludlow

Ludlow, chartered in 1761, is located in the southwest corner of Windsor County. Ludlow contains the Ludlow Mountains that form the eastern foot of the Green Mountain range. This high elevation divided the eastern and western (known as Jackson's Gore) portions of the original grant. Mount Holly was set apart from the western grant in 1792 and became part of Rutland County. The Black River flows through the town to the village of Ludlow and crosses east into Cavendish; the West Branch River enters from the west in Mount Holly and empties into the Black River in a level valley containing rich farmland. The Rutland and Burlington Railroad (Central Vermont) traversed the town from Cavendish up the Black River Valley and passed through an elevation of land called the "Hogback" near the village (center) of Ludlow. Other transportation corridors included the Green Mountain Turnpike, the first road through the town, laid out in 1794 with three toll gates privately controlled by local settlers.

The Project tracks an erratic path through the northern portion of the town, but appears to adhere fairly closely to the historical road alignments that are now Routes 103 and 100 North (Figure 4-11). While the north portion of Ludlow was historically used for farming, the Project passes through the dense settlement of Grahamville. Grahamville was a small collection of dwellings located on the west bank of the Black River, about two miles north of Ludlow village. In 1849, Asahel Miller and William Graham formed a co-partnership, and built the Ludlow Woolen Mills, impounding Lake Rescue to create a larger and more reliable source of waterpower. They continued business until 1855, when they were forced to stop because of financial difficulties. The mill was subsequently run by Joshua Ward, and also by John Bentley, under whose ownership it was destroyed by fire. A smaller mill was in use on the site during the last decade of the nineteenth century. Several saw and knife shops, taking advantage of the steep slopes and abundant waterpower provided by the Black River, also were located in proximity to the Project. The Project runs west of the former mill complex and passes through the many residential structures that made up the surrounding village. The northern- and eastern-most segments of the Project in Ludlow pass through widely dispersed farmsteads and School No. 6 near the town border with Cavendish (Aldrich and Holmes 1891).

Known and Potential Post-Contact Resources

Only one previously recorded post-contact archaeological site is contained within the Project (Table 4-4). **Wright Robert's Cabin (VT-RU-0082)** is an archaeological site in West Rutland that was identified during the Route 4 Bypass Project. The site consists of structural remains, probable features, and cultural artifacts associated with an assumed log house that was built ca. 1770 by Wright Roberts, one of the first settlers of Rutland. It was probably inhabited by Roberts and then by Roberts' widow and her second husband, Solomon Purdy. The cabin appears to have burned in situ with the surviving structural

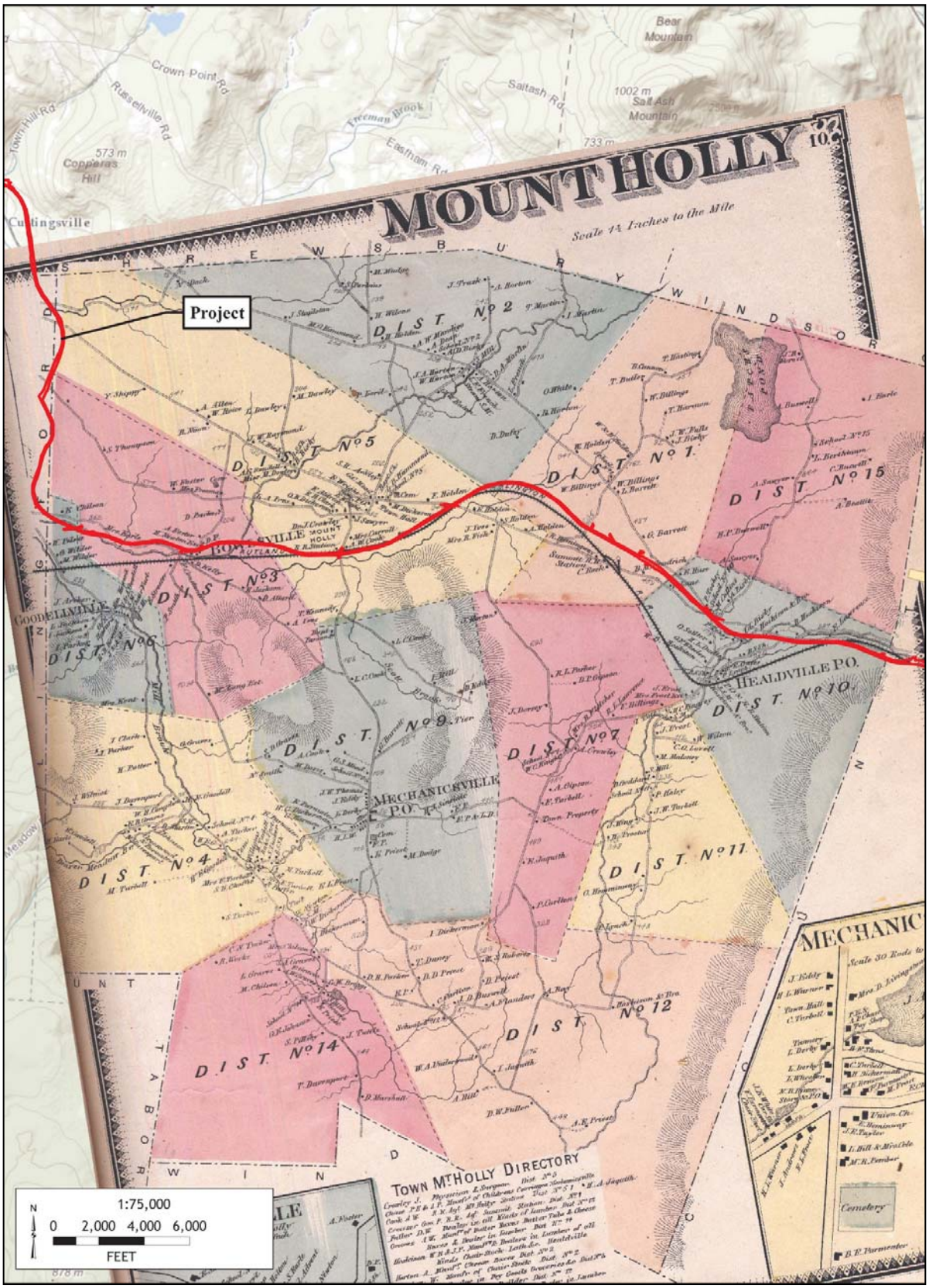

Figure 4-10. 1869 map of Mount Holly showing the Project (source: Beers 1869a).

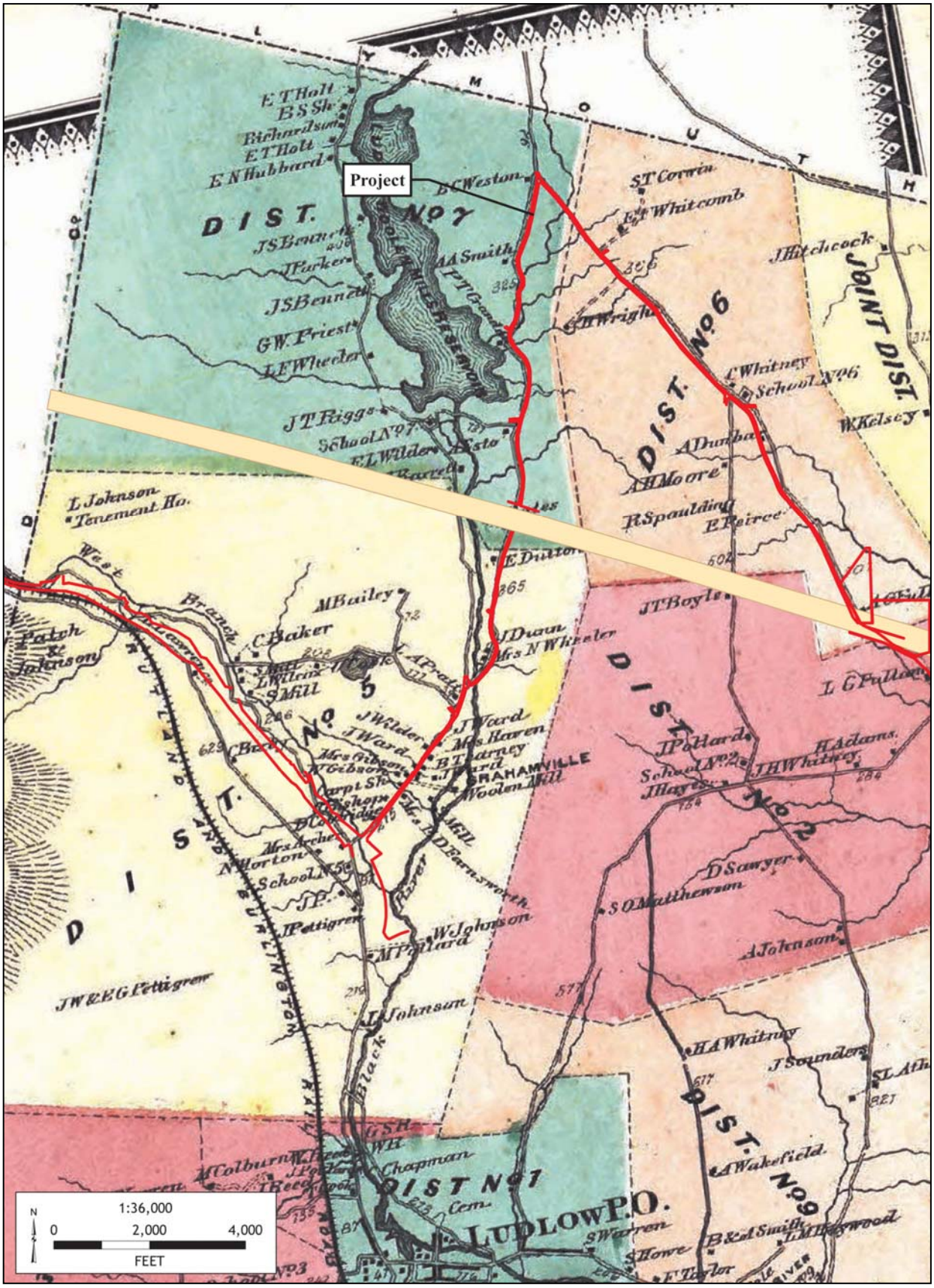

Figure 4-11. 1869 map of Ludlow showing the Project (source: Beers 1869b).

Table 4-4. Post-Contact Archeological Sites Identified within the Project.

PAL Map Sheet #	Site #	Site Name	Town(s)	County(s)	Date	Site Type	National Register Status
15	VT-RU-0082	Wright Roberts Cabin	West Rutland	Rutland	18th century	Cabin built by Wright Roberts, one of Rutland's earliest settlers	Unevaluated

components comprising small building pegs, sill stones, several handwrought roofing nails, and a thick layer of charcoal and ash associated with an eighteenth-century land surface. The recovered cultural material assemblage presented a solid eighteenth-century profile and included glazed redware, salt-glazed stoneware, Delftware, a gun flint, brass buttons, a pewter button, kaolin pipe fragments, handwrought nails, and the copper tongue from a shoe buckle; no intrusive nineteenth-century materials were recovered (Thomas et al. 1983).

The width of the Project across most of its route is very narrow and is unlikely to capture any meaningful domestic, architectural, or landscape deposits associated with extant or map-identified historic properties; in most instances, the Project captures just a sliver of the front yards of the historic houses along its path. While most of the road alignments followed by the Project date to the earliest settlements of the various towns, centuries of road maintenance and improvements and the continual development and re-development of the surrounding parcels have likely compromised the integrity of any potential post-contact archaeological resources. This is especially true for the identification of eighteenth-century resources such as that identified at the Wright Roberts Cabin which often present ephemeral archaeological signatures at best.

Post-contact resources that may be expected include re-deposited domestic refuse that may be associated with adjacent historic structures and, possibly, evidence of historical road improvements. In either case, the deposits are unlikely to yield significant new or substantive information about the general or particular historical development of the area. The proposed development parcels in Alburgh, Benson, and Ludlow are exceptions, as they encompass much larger parcels with the potential to contain substantive data about the historical use of those parcels.

The intersection of the Project with portions of the **Crown Point Road** is another exception. The Crown Point Road was originally constructed as an approximately 80-mile long military road that connected Fort Crown Point on Lake Champlain, New York, to Fort Number 4 at Charlestown, New Hampshire. Construction of the Crown Point Road began in 1759 under the direction of General Jeffrey Amherst after his capture of the French forts at Ticonderoga and Crown Point during the French and Indian War. Portions of the road were graded, trees were cut, stumps removed, bridges and causeways constructed, and corduroy sections were laid in swampy areas. Colonial troops used this road in the 1760 campaign to transport troops with supplies, munitions, cattle and sheep for the support of the army at Crown Point (Crown Point Road Association [CPRA] 2009).The Crown Point Road continued to serve as a military road during the American Revolution, and then was used as a primary transportation route for settlers moving into northern Vermont. The use of the road declined as a newer network of stage routes, post roads, and turnpikes was constructed. In 1797, the Vermont Legislature issued a charter for the Green Mountain Turnpike Company, officially marking the end of the importance of the Crown Point Road (Callum and Sloma 2006; CPRA 2009). It was abandoned by the mid-nineteenth century and was only marked as a dotted line on nineteenth-century maps of the towns it originally traversed.

The exact location of much of the original Crown Point Road is unknown. The general route is well documented, but the specific locations of individual road segments through the towns are speculative at best. Much of the road is known to have disappeared completely, either reclaimed by forest growth, plowed under, or bulldozed for nineteenth- and twentieth-century constructions. A few short stretches of the road are reportedly still in use as town roads (CPRA 2009). Any evidence of this road, including buried and compacted soil horizons with demonstrably eighteenth-century materials, would provide critical information about its alignment and construction methods.

The Crown Point Road, also referred to as the #4 Road, intersects the Project at three locations:

- Ludlow in the Grahamsville Historic District just north of the intersection of Route 100 North and Route 103 between M.P. 148.2 and 148.3;
- Clarendon on Route 103 at the Clarendon/Shrewsbury town line at M.P. 132.4 ; and
- Rutland immediately west of the intersection of Dorr Road and Route 4.

CHAPTER FIVE

RESULTS

This chapter presents the results of the Phase IA archaeological survey of the New England Clean Power Link Project. For project planning and management purposes, TDI-NE has divided the Project by tenth-Mile Posts (M.P.) beginning at M.P. 0.0 in Alburgh where the transmission cable crosses into the United States from Canada and ending at M.P. 153.7 in Ludlow at the location of the proposed Ludlow Converter Station. To maintain consistency, PAL uses these same Mile Post designations, by town, in discussing the archaeological sensitivity of the Project. The length of each segment is based on the topographical setting covered by that portion of the Project. Each segment description provides a summary of the prevailing environmental conditions followed by the sensitivity assessment based on the predictive models discussed in Chapters 2 and 4.

Appendix A contains the archaeological sensitivity maps for the Project coded as archaeologically sensitive, archaeologically non-sensitive, or previously surveyed. The maps also depict the locations of all known/recorded sites and field-identified archaeological resources within the Project; the field-identified resources also are provided in Table 5-1. Appendix B contains the EPM scoring sheets used to determine the likelihood for pre-contact sites.

Table 5-1. Field-Identified Archaeological Resources within the Project.

Field-Identified Archaeological Resource #	Town	M.P.	Description
1	Alburgh	0.3-0.4	Jumble of stones - possible foundation remains
2	Ludlow	149.250	Mid to late 19th-century E. Dutton House - drylaid fieldstone foundation
3	Ludlow	149.4	Mid to late 19th-century Erastus Gates House - drylaid fieldstone foundation, well, and outbuilding
4	Ludlow	150.8	Mid to late 19th-century B.C. Weston House - drylaid fieldstone foundation

M.P. 0.0–0.5 – Alburgh – Florence Parcel

The Project begins at the intersection of Bay and Line roads in Alburgh (M.P. 0.0) where the transmission cable is slated to enter the United States from Canada. The approximately 2/10-mile segment from that intersection to the Florence Parcel (55 Bay Road) is bounded on either side by tree lines opening to wide agricultural fields; a large farm is located on the west side of the road at the border crossing (Photograph 5-1). Soils along this segment consist of Amenia silt loams (3–8% slopes).

The Florence Parcel consists of a roughly 4.6-acre parcel that slopes gently from Bay Road to the Lake Champlain shoreline where the cable enters Lake Champlain at M.P. 0.5. The soils in the Florence Parcel

Photograph 5-1. Looking toward Line Road from the Florence Parcel (55 Bay Road), view north.

consist of Amenia and Kendaia silt loams (3–8% slopes). The S. Mott House (0701-052) fronts Bay Road looking toward the east, and is surrounded by maintained lawn and an open field to the west (Photographs 5-2, 5-3). A jumble of cut stone overgrown with vegetation—possibly a former foundation—was identified immediately behind the house and designated Field-Identified Archaeological Resource 1 (Photograph 5-4; see Table 5-1). The portion of the field between M.P. 0.4 and 0.5 marks a transition from a higher and drier landform and lower and wetter conditions on the approach to the lake shoreline. Phragmides and standing water were observed at the 0.5 M.P. at the north edge of the parcel, and an auger core in that location revealed saturated soils indicating wetland conditions.

The presence of the S. Mott House within the Florence Parcel, the identification of a possible foundation feature, and a working farm on the east side of Bay Road at the Canadian border suggest that this Project segment is sensitive for post-contact resources associated with the agricultural and residential use of the area during the later nineteenth and twentieth centuries. The EPM scoring sheet identifies this Project segment as being situated in a geographic zone with four environmental factors favorable for predicting the presence of pre-contact sites, including include proximity to Lake Champlain and its associated wetlands and its location on a natural travel corridor on an elevated landform within the boundaries of the former Champlain Sea. The EPM generated a numerical sensitivity score of +80, which is considered archaeologically sensitive (Appendix A – Map Sheet 1; Appendix B).

Photograph 5-2. S. Mott House (0701-052), view west.

Photograph 5-3. Looking from the S. Mott House toward open field and Lake Champlain, view west.

Photograph 5-4. Possible foundation remains (Field-identified Archaeological Resource 1) located in the yard immediately west of the S. Mott House, view north-northeast.

M.P. 98.1–98.3 – Benson – Benson Parcels 1 and 2

The transmission cable exits Lake Champlain between M.P. 98.1 and 98.2 in Benson and continues its terrestrial route through Benson Parcel 1 and Benson Parcel 2 (approximately 10 acres combined). Benson Parcel 1 contains two modern residential structures, although one of the houses appears to have been abandoned mid-construction. The soils in both parcels consist of Vergennes clay (8–15 % slopes). The landscape in the eastern side of both parcels and the southern edge of Benson Parcel 1 consists of maintained yard space, open fields, and cedar and spruce woodland growth on relatively level terrain (Photographs 5-5, 5-6, 5-7). The field immediately above the abandoned building in Benson Parcel 1 appears to have been heavily disturbed by tree clearing and house construction activities (Photograph 5-8).

A natural north-to-south trending break in the landform is marked by cedar and spruce forest growth with the terrain sloping at a progressively greater angle steeply to the west toward Lake Champlain (Photographs 5-9, 5-10). A steep ravine/drainage with bedrock outcrops divides Benson Parcel 1 nearly in half from east to west (Photograph 5-11), and a second northeast to southwest-trending drainage marks the western tree line of Benson Parcel 2. The ravines are bordered by slightly more level, wooded terrace formations projecting like fingers toward the lake (Photograph 5-12).

Photograph 5-5. Typical yard space in Benson Parcel 1 in eastern third of parcel, view southeast.

Photograph 5-6. Open field in eastern third of Benson Parcel 2, view west.

Photograph 5-7. Grassy strip between tree line and Stony Point Road, Benson Parcel 2, view north.

Photograph 5-8. Disturbed area between unfinished house and Stony Point Road, Benson Parcel 1, view west.

Photograph 5-9. Looking from Benson Parcel 1 toward Lake Champlain showing fairly level terrain before a natural break in the landform marking a steeper slope to the water, view west.

Photograph 5-10. Cedar and spruce growth on the sloped hillside leading down toward Lake Champlain in the western two-thirds of Benson Parcels 1 and 2, view north.

Photograph 5-11. Ravine/natural drainage with bedrock outcrops in Benson Parcel 1 looking upslope, view southeast.

Photograph 5-12. Lightly-wooded terrace projecting toward Lake Champlain, view west.

Photograph 5-13. Remain of modern hunting/fishing shack, Benson Parcel 2, view east.

The remains of two modern hunting/fishing shacks, one with an aluminum door, was identified on the slope in Benson Parcel 2; much of the surrounding area is littered with trash, suggesting continuous use over several decades (Photograph 5-13). Sandy soils and substantial erosion along the slope face were noted in Benson Parcel 2 (Photograph 5-14) and the shoreline below was characterized by exposed bedrock, scrub vegetation, and flood snags (Photograph 5-15). A two-story stone structure was noted outside of the parcel boundary to the north, but its date and function are unknown (Photograph 5-16).

Benson Parcels 1 and 2 comprise a somewhat marginal landscape. While the nineteenth-century map of the area shows scattered residential development, the structures in proximity to the Benson Parcels are located on the east side of what is now Stony Point Road on the flatter and more arable lands, indicating a low probability for post-contact resources within the Project itself. The EPM scoring sheet identifies the Benson Parcels as being situated in a geographic zone with two environmental factors favorable for predicting the presence of pre-contact sites: proximity to Lake Champlain and their location within the boundaries of the former Champlain Sea. The EPM generated a numerical sensitivity score of +44, which is considered archaeologically sensitive; that sensitivity, however, excludes the areas of steep slope that characterize much of the western portion of the parcels (Appendix A – Map Sheet 2; Appendix B).

M.P. 98.3–99.4 – Benson

The Project continues east along unpaved West Lake Road in Benson through primarily level, open farmland broken by occasional deciduous woodland stands (Photographs 5-17, 5-18). Five soil series are captured between these M.P.: Vergennes clay (3–8% slopes), Farmington-Galway-Galoo complex (5–25% slopes), Galway-Neils-Farmington complex (3-8% slopes), Belgrade silt loams (3–8%

Photograph 5-14. Semi-circular erosion pattern along slope face, Benson Parcel 2, view south.

Photograph 5-15. Lake Champlain shoreline, Benson Parcel 2, view northwest.

Photograph 5-16. Two-story stone structure located just north and outside of the Benson Parcel 2 property boundary, view north.

Photograph 5-17. M.P. 98.96 looking west down West Lake Road.

Photograph 5-18. M.P. 99.1 looking east down West Lake Road.

slopes), and Bomoseen and Pittstown soils (2–8% slopes). A sprawling farm lines either side of the road between M.P. 98.8 and 99.0. A few areas of modest slope occur between M.P. 98.6 and 98.7 and 99.1 and 99.2, and a bedrock outcrop also was noted adjacent to the south edge of the Project at M.P. 99. A small wetland lies on the south side of the road at M.P. 99.4 (Photograph 5-19). The intersection of West Lake and Frazier Hill roads provides an example of the typical Project conditions in this location (Photograph 5-20).

Several historic houses were noted adjacent to but outside the Project consisting of the A. Carter House (M.P. 99.0), the A. Manley House (M.P. 99.1–99.2), and the J. H. Bond House (intersection of West Lake and Frazier Hill roads. Of these three nineteenth-century houses, only the A. Manley House is extant (Photograph 5-21).

Topographically, the Project segment traverses a broad landform bounded on all sides by slope and two draws to the northwest and southeast feeding into Lake Champlain. This near-shoreline location combined with its proximity to Benson Landing and the depiction of several houses on the 1869 Beers map indicates that this Project segment is sensitive for post-contact resources associated with the agricultural use of the area during the nineteenth century. The EPM scoring sheet identifies this Project segment as being situated in a geographic zone with several favorable environmental factors consisting primarily of proximity to wetlands, ponds, and stream confluences. The EPM generated a numerical sensitivity score of +34, which is considered archaeologically sensitive for pre-contact resources (Appendix A – Map Sheet 2; Appendix B).

Photograph 5-19. M.P. 99.4 looking west with small wetland at base of slope to the south.

Photograph 5-20. Intersection of West Lake and Frazier Hill roads, M.P. 99.2–99.3, looking west.

Photograph 5-21. A. Manley House, M.P. 99.2, looking west.

M.P. 99.4–99.6 – Benson

The terrain between M.P. 99.4 and 99.6 comprises a narrow corridor between steeply sloped hillsides. The soils between these M.P. consist of Vergennes clay (15–25% slopes), Farmington-Galway-Galoo complex (5–25% slopes), and the frequently flooded Livingston silty clay loam. The toe of the slope has been visibly cut to accommodate the road (Photograph 5-22), and no structures are identified within that segment on historical maps.

The EPM scoring sheet identifies this Project segment as being situated in a favorable geographic zone adjacent to streams and stream confluences, but these factors are negated by excessive slope and substantial disturbance associated with the road construction. The EPM generated a numerical sensitivity score of -54, which is considered archaeologically non-sensitive for pre-contact resources (Appendix A – Map Sheet 2; Appendix B).

M.P. 99.6–99.8 – Benson

The landscape between M.P. 99.6 and 99.8 traverses comparatively level terrain and is bracketed on either side by stream crossings. The soils between these M.P. consist of Vergennes clay (8–15% slopes).While no historic structures are depicted on the 1869 Beers map, the EPM scoring sheet identifies this Project segment as being situated in a favorable geographic zone in proximity to stream and stream confluences. The EPM generated a numerical sensitivity score of +36, which is considered archaeologically sensitive for pre-contact resources (Appendix A – Map Sheet 2; Appendix B).

Photograph 5-22. M.P. 99.4–99.6 showing slope cut, view west.

M.P. 99.8–101.350 – Benson

This Project segment runs along North/West Lake Road and Old North Lake Road in Benson through a varied terrain of steep slopes and small wooded terraces, wetlands, and small feeder streams; Strong Swamp lies approximately 160 meters south of M.P. 101.1, which itself is crosscut by a small stream feeding the wetland. Bedrock ledge/outcrops were identified at several locations along the segment including very prominently between M.P. 100.0 and 101.1.The soils within this segment primarily consist of the Taconic-Macomber/Macomber-Taconic complexes (8 to 25% slopes, very rocky).

Several houses are depicted adjacent in this Project segment on the 1869 Beers map; no structural evidence of these residential structures was identified in the field. In some instances, including to the J. S. Dale House between M.P. 101.3 and 101.4, the homes appear to have been completely destroyed by modern constructions. The positioning of these former historic resources some distance from the existing ROS combined with the fairly narrow width of the ROW suggests a low potential for the identification of potentially significant post-contact resources.

On cursory review, the pre-contact potential of this segment would appear to be fairly promising. The EPM scoring sheet identifies this Project segment as being situated in a favorable geographic zone for its position adjacent to wetlands and wetland stream crossings, but the steep slope immediately surrounding those topographic features combined with historic period disturbances effectively preclude any meaningful archaeological sensitivity. The EPM generated a numerical sensitivity score of -40, which is considered archaeologically non-sensitive for pre-contact resources (Appendix A – Map Sheets 2–3; Appendix B).

M.P. 101.350 – 101.8 – Benson

From M.P. 101.35 to 101.8, the Project continues its path along Old North Lake Road to the intersection with Stage Road. The soils along this segment consist of primarily Bomoseen and Pittstown soils (8–15% slopes) that are moderately well-drained soils formed on till plains and drumlins. The Benton Village Historic District (VDHP #) lies immediately to the south but outside of the Project in this location. Several historic homes surround the intersection including the A.C. Sherwood House as depicted north of the alignment on the 1869 Beers map at M.P. 101.6 (Photograph 5-23).

This Project segment runs across a series of stepped terraces bisected by drainage and overlooking Strong Swamp to the west. The EPM scoring sheet identifies this Project segment as being situated in a geographic zone with four environmental factors favorable for predicting the presence of pre-contact sites. These include proximity to wetlands and a permanent stream, location near the head of a draw, and its likely function as a natural travel corridor. The EPM generated a numerical sensitivity score of +38, which is considered archaeologically sensitive (Appendix A – Map Sheet 3; Appendix B).

Photograph 5-23. View south from Old Lake Road at M.P. 101.7.

M.P. 101.8 – 101.940 – Benson

This Project segment runs north along Stage Road then cuts east to join Hulett Hill Road (Photograph 5-24). The soils along this stretch consist of the Georgia and Amenia series and the Bomoseen and Pittstown series with slopes ranging from 8–15 percent. The east side of Stage Road and the south side of Hulett Hill Road slope up rather sharply. Two historic structures are depicted on the 1869 Beers map adjacent but outside of the Project including an unnamed structure at the northwest corner of Old North

Photograph 5-24. Intersection of Stage and Hulett Hill roads, view south.

Lake and Stage roads and the D. L. Osgood House at the northeast corner of Stage and Hulett roads. The unnamed structure does not appear to have survived modern development along the roadside, but the dilapidated D.L. Osgood House still stands (Photograph 5-25). The level of modern disturbance in the portion of the Project in proximity to the house, however, likely precludes any sensitivity for post-contact resources associated with the property. The EPM generated a numerical sensitivity score of -32, which is considered archaeologically non-sensitive (Appendix A – Map Sheet 3; Appendix B).

M.P. 101.950 –102.05 – Benson

This Project segment cuts along a narrow but level terrace between the toe of a shallow slope to the northwest and a small natural pond to the southeast (Photograph 5-26). No historic structures are depicted in this location. The constituent soils consist of the very rocky Taconic-Macomber series (3–8% slopes). Despite the relatively poor soil profile, the EPM scoring sheet identifies this Project segment as being situated in a geographic zone with three environmental factors favorable for predicting the presence of pre-contact sites. These include proximity to a permanent stream and pond, and the confluence of those two features. The EPM generated a numerical sensitivity score of +36, which is considered archaeologically sensitive (Appendix A – Map Sheet 3; Appendix B).

Photograph 5-25. View north toward the D.L. Osgood House from intersection of Stage and Hulett Hill roads.

Photograph 5-26. View east along Hulett Hill Road with the pond visible at the left side of the frame.

M.P. 102.05 –102.375 – Benson

This Project segment runs along sloped terrain distant from any water sources through rocky Taconic-Macomber soils at its west end and more favorable but very steeply sloped Bomoseen and Pittstown soils at its east end. The EPM scoring sheet for this portion of the Project generated a numerical sensitivity score of 0, which is considered archaeologically non-sensitive (Appendix A – Map Sheet 4; Appendix B).

M.P. 102.375 – 104.350 – Benson

The nearly two-mile stretch of the Project along Route 22A between M.P. 102.375 and 104.35 passes through broad, level farmland consisting primarily of Vergennes clay (3–15% slopes) (Photograph 5-27). The Hubbardton River's drainage network of brooks and streams cross the Project at M.P. 102.6 and between 103.5 and 103.6, and the alignment passes through Mountain View Stock Farm between M.P. 103.0 and 103.3. Only three named residential structures are identified on either side of the road on the 1869 Beers map. This pattern mimics the current use of the landscape and suggests that the area has been used for agricultural purposes for well over 100 years.

Photograph 5-27. Representative Project conditions between M.P. 102.375 – 104.35 from M.P. 103.85, view south.

The EPM scoring sheet identifies this Project segment as being situated in a geographic zone with four environmental factors favorable for predicting the presence of pre-contact sites. These include proximity to wetlands and permanent and intermittent streams, and its likely function as a natural travel corridor. The EPM generated a numerical sensitivity score of +38, which is considered archaeologically sensitive (Appendix A – Map Sheets 4–5; Appendix B).

M.P. 104.350 – 104.6 - Benson

At M.P. 104.35, there is a break in the slope as Route 22A passes across the toe of a slope through low-lying swamp terrain to M.P. 104.6. No historic structures are depicted in this location and the EPM scoring sheet for this segment generated a numerical sensitivity score of 0, which is considered archaeologically non-sensitive (Appendix A – Map Sheet 5; Appendix B).

M.P. 104.6 –105.1 – Benson

Beginning at M.P. 104.6, the topography shifts back to the same general conditions that characterize the terrain between M.P. 102.375 – 104.35 as the Project runs south to its crossing at the Hubbardton River. The Beers map illustrates two historic structures adjacent to the west side of the Project: the H. Barber House at M.P. 104.7 and the A. Briggs House between M.P. 104.9 and 105.0 (Photographs 5-28, 5-29).

The EPM scoring sheet identifies this Project segment as being situated in a geographic zone with five environmental factors favorable for predicting the presence of pre-contact sites. These include proximity to a river, wetlands, and ponds, its location on a major floodplain/alluvial terrace, and its likely function as a natural travel corridor. The EPM generated a numerical sensitivity score of +68, which is considered archaeologically sensitive (Appendix A – Map Sheet 5; Appendix B).

M.P. 105.1 – 105.275 – Benson

As the Project crosses the Hubbardton River from M.P. 105.1 to 105.27, the topography drops slightly into an expansive wetland bracketing both sides of the river. While the topography is relatively level, the inundated soils comprising Kingsbury silty clay loams. No historic structures are depicted along this Project segment, and the EPM scoring sheet generated a numerical sensitivity score of +24, which is considered archaeologically non-sensitive (Appendix A – Map Sheet 5; Appendix B).

M.P. 105.275 – 105.975 – Benson/West Haven

As the Project enters West Haven from Benson, the topography once again becomes level as it passes through expansive farmland comprising Vergennes clay (Photograph 5-30). Several farms are shown as dotting the landscape on either side of the road on the 1869 Beers maps of both town including the Mrs. A. Cramer House that still stands at the intersection of Route 22A and East Road (Photograph 5-31). The north portion of the segment overlooks the expansive wetland at the Hubbardton River crossing, and the central portion passes over a branch of that river.

The EPM scoring sheet identifies this Project segment as being situated in a geographic zone with three environmental factors favorable for predicting the presence of pre-contact sites. These include proximity to a river and wetlands, and its location on a major floodplain/alluvial terrace, and its likely function as a natural travel corridor. The EPM generated a numerical sensitivity score of +56, which is considered archaeologically sensitive (Appendix A – Map Sheets 5–6; Appendix B).

Photograph 5-28. H Barber House, M.P. 104.7, view west.

Photograph 5-29. A Briggs House, M.P. 104.9–105.0, view west.

Photograph 5-30. View south from intersection of Route 22A and East Road, M.P. 105.675.

Photograph 5-31. Mrs. A. Cramer House at the intersection of Route 22A and East Road, M.P. 105.675, view east.

M.P. 105.975 – 106.5 – West Haven

While topographically similar to the preceding segment, the terrain between M.P. 105.975 and 106.75 runs along the toe of "The Great Ledge" in West Haven, a steeply sloped landform that marks the eastern boundary between West Haven and Fair Haven. Constant run-off from the ledge into the Vergennes clay and Kingsbury silty loams that make up the soils in that area has resulted in water-logged conditions that mitigate against appreciable archaeological sensitivity. The lack of historic period development along this stretch as depicted on the 1869 Beers map and as reflected on the current landscape seems to underscore that idea. The EPM scoring sheet generated a numerical sensitivity score of +24, which is considered archaeologically non-sensitive (Appendix A – Map Sheet 6; Appendix B).

M.P. 106.5 – 107.6 – West Haven

This Project segment shift west away from The Great Ledge to run through better-drained, more level terrain comprising Vergennes clay, Kingsbury silty loams, and a small pocket of Livingston silty clay loam. The project crosses two branches of the Poultney River that marks the town boundary and passes by the A.W. Hyde House and farm, depicted on the 1869 Beers map between M.P. 106.9 and 107.0 (Photograph 5-32). Beginning at M.P. 107.3, the ROW expands to capture more acreage as it runs past a large farm complex between M.P. 107.3 and 107.4 and a freshwater pond on the east side of the Project in the same location.

The EPM scoring sheet identifies this Project segment as being situated in a geographic zone with three environmental factors favorable for predicting the presence of pre-contact sites. These include proximity to a river, pond, and wetlands, and its likely function as a natural travel corridor. The EPM generated a numerical sensitivity score of +48, which is considered archaeologically sensitive (Appendix A – Map Sheet 6; Appendix B).

M.P. 107.6 – 109.6 – West Haven/Fair Haven

This Project segment runs through uneven steeply sloped terrain consisting of the Farmington-Galway-Galoo series (5–50% slopes), Vergennes clay, and Kingsbury silty clay loam. From M.P. 107.7, Route 22A diverges from its original alignment cutting through bedrock before re-joining the historic road alignment at between M.P. 108.1 and 108.2 (Photograph 5-33). South of the intersection of Route 22A and Main Road, the road slopes especially steeply downward toward a perennial stream to the west (Photograph 5-34).

The segment crosses the town boundary between West Haven and Fair Haven. The 1869 Beers map depicts School No. 1 at the intersection of Route 22A and Sheldon Road and a cluster of houses and farms north of the intersection of Route 22A and an unnamed spur road at M.P. 108.8. The is no evidence of the former school house on the landscape, and the ground slope in its former location suggests the building was demolished and cleared during an earlier road maintenance or construction episode.

Photograph 5-32. Representative conditions between M.P. 106.5 – 107.6 with the A.W. Hyde House and farm visible to the right of the frame, view south.

Photograph 5-33. Bedrock cut at M.P. 107.7, view east.

Photograph 5-34. Intersection of Route 22A and Main Road, M.P. 108.1, view south.

Continuing south along Route 22A, the Project passes through bedrock cuts, steeply sloped terrain, and low-lying marshy terrain concentrated at the foothills of Mt. Hamilton to the east (Photograph 5-35, 5-36). Several historic homes remain standing on either side of the Project, but are set back sufficiently far from the ROW to diminish the possibility of identifying substantive deposits within the Project associated with their historical occupations. The EPM scoring sheet generated a numerical sensitivity score of -12, which is considered archaeologically non-sensitive (Appendix A – Map Sheets 6–8; Appendix B).

M.P. 109.6 – 110.275 – Fair Haven

This Project segment presents a complex picture of archaeologically sensitive and non-sensitive locations based primarily on micro-topographical conditions. The Project expands beginning at M.P. 109.6 and crosses an unevenly sloping terrain as it cuts across a number of wetlands and stream crossings associated with the Poultney River to the west. The archaeologically sensitive areas include the north side of the Project alignment on either side of the Route 22A and Troubles End Lane intersection at M.P. 109.7 with an EPM score of +48 (Photograph 5-37); the north side of the Project alignment on either side of the Route 22A and Sheldon Road intersection at M.P. 109.9 with an EPM score of +36 (Photograph 5-38); and the south side of the Project alignment between M.P. 109.9 and 110.2 with an EPM score of +48 (Photograph 5-39). All three segments share the favorable environmental characteristics of proximity to rivers, streams, wetlands, and ponds, and level terrain associated with the Vergennes clay soil series (3–8% slopes). The intervening Project segments are either too steeply sloped, have been artificially cut, comprise ledge outcrops, or pass through low-lying wetland conditions to be considered archaeologically sensitive (Appendix A – Map Sheet 8; Appendix B).

Photograph 5-35. View northeast from M.P. 108.75 showing steeply sloped terrain.

Photograph 5-36. View southeast from M.P. 109.2 showing steeply sloped terrain.

Photograph 5-37. West side of Troubles End Lane, M.P. 109.7, view west.

Photograph 5-38. Intersection of Route 22A and Sheldon Road, M.P. 109.9, view west/northwest.

Photograph 5-39. South side of Route 22A immediately south of M.P. 109.9, view south.

M.P. 110.275 – 110.575 – Fair Haven

This Project segment covers the last section of Route 22A before it joins with Route 4. The level terrain along this stretch consists of primarily Kingsbury silty clay loams (3–8% slopes). The area immediately adjacent to the road is steeply sloped to either side but then levels out at the base of the slopes within the ROW (Photograph 5-40). The eastern end of the this Project segment overlooks Mud Brook and its shrub and emergent wetlands and a small pond; it is unclear whether the pond is a natural landscape feature or a product of the re-configuration of Route 4. Several historic residential structures are depicted on either side of the road on the 1869 Beers map, but there was no indication of those buildings in the field.

The EPM scoring sheet identifies this Project segment as being situated in a geographic zone with three environmental factors favorable for predicting the presence of pre-contact sites. These include proximity to a river, pond, and wetlands, and the confluence of a river with a pond feature. The EPM generated a numerical sensitivity score of +48, which is considered archaeologically sensitive (Appendix A – Map Sheet 8; Appendix B).

M.P. 110.575 – 111.2 – Fair Haven

M.P. 110.575 is located at a Route 4 interchange with Route 22A. The areas between the eastbound and westbound lanes are characterized by deep, artificial swales, and the northern and southern edges of the ROW are steeply sloped to wetlands (Photographs 5-41, 5-42, 5-43). Several historic structures are shown in this area on the 1869 Beers map but appear to have been completely destroyed as part of the highway construction. Planted windrows along the edges of the ROW on this portion of the

Photograph 5-40. Project at M.P. 110.45 looking north along Route 22A.

Photograph 5-41. View west from Airport Road between eastbound and southbound lanes of Route 4, M.P. 110.9.

Photograph 5-42. Wetlands at base of Route 4 ROW, view west.

Photograph 5-43. Representative view of uneven terrain and emergent wetland conditions between the eastbound and westbound lanes of Route 4.

Project strongly suggest that the ground has been substantially disturbed throughout the width of the ROW.

The EPM scoring sheet identifies this Project segment as being situated in a geographic zone with three environmental factors favorable for predicting the presence of pre-contact sites including proximity to a river and wetlands. The degree of slope and landscape disturbance, however, negates those positive factors for an EPM-generated numerical sensitivity score of -40, which is considered archaeologically non-sensitive (Appendix A – Map Sheets 8–9; Appendix B).

M.P. 111.2 – 111.5 – Fair Haven

The Project enters what appears to be intact, naturally-treed terrain along the north and south sides of Route 4 between M.P. 111.1 and 111.5. The divider between the two lanes remains artificially excavated as a steep swale with emergent wetland conditions, but the forested area look comparatively untouched. Historic period development was limited to the north side of the original road alignment as depicted on the 1869 Beers map, and it probable that those structures, which in all likelihood were located in what is now the swale between the eastbound and westbound lanes, were completely destroyed during the road construction. The ROW north and south of the highway, however, exhibits more mature woodland conditions and the potential for intact soils. The EPM scoring sheets for the Project segment north and south of Route 4 generated a numerical sensitivity score of +36, which is considered archaeologically sensitive (Appendix A – Map Sheet 9; Appendix B).

M.P. 111.5 – 113.1 – Fair Haven/Castleton

The Project between M.P. 111.5 and M.P. 112.8 captures two Route 4 highway interchanges and a substantially disturbed terrain. The areas between the eastbound and westbound lanes are characterized by deep, artificial swales, and the northern and southern edges of many portions of the ROW are steeply sloped to wetlands. Planted windrows along portions of the ROW in this Project segment strongly suggest that the ground has been substantially disturbed throughout. The Project between M.P. 112.4 and 112.7 traverses a substantial ledge outcrop, much of which was blasted out as evidenced by a stone spoil pile visible off the ROW north of the highway (Photographs 5-44, 5-45). Several historic structures are shown in this area on the 1869 Beers map but appear to have been completely destroyed as part of the highway construction. As the Project approaches the southern outlet of Lake Bomoseen, the ledge outcrops continue and the topography drops sharply before crossing the water; the landform has clearly been cut and graded and, even in its undisturbed state, the presence of very rocky Taconic-Hubbardton-Macomber soils with 25–80 percent slopes effectively precludes substantial pre- or post-contact usage (Photograph 5-46). No historic period lake crossings are depicted in this location.

One exception to these generally unfavorable environmental conditions can be found along the north side of Route 4 between M.P. 112.1 and 112.35. This area comprises what appears to be a comparatively undisturbed field crosscut by a stream and bounded by a wetland and pond to the north. The EPM-generated score for this Project segment is +48, which is considered archaeologically sensitive. For the remainder of this segment, the EPM scoring sheet identifies three environmental factors favorable for predicting the presence of pre-contact sites including proximity to a river, wetlands, and ponds. The degree of slope and landscape disturbance, however, negates those positive factors for an EPM-generated

Photograph 5-44. Route 4 looking west from M.P. 113.0 showing ledge outcrop.

Photograph 5-45. Ledge spoil pile generated during Route 4 construction.

Photograph 5-46. Intersection of Creek Road and Route 4 at the shore of Lake Bomoseen looking upslope to the west.

numerical sensitivity score of -28, which is considered archaeologically non-sensitive (Appendix A – Map Sheets 9–10; Appendix B).

M.P. 113.1 – 113.5 – Castleton

This Project segment located immediately west of Lake Bomoseen's southern outlet comprises level terrain in proximity to Lake Bomoseen, expansive wetlands, and outlet streams leading out the lake. The soils consist of Deerfield loamy sands (0–3% slopes). Like the preceding section of Route 4, the median between the east- and westbound lanes has been excavated out, but the terrain north and south of the road appears reasonably intact. No historic structures are depicted along the Project segment on the 1869 Beers map.

The EPM scoring sheet identifies this Project segment as being situated in a geographic zone with three environmental factors favorable for predicting the presence of pre-contact sites including proximity to a river, pond, and wetlands. The degree of slope and landscape disturbance, however, negates those positive factors for an EPM-generated numerical sensitivity score of +36, which is considered archaeologically sensitive (Appendix A – Map Sheet 10; Appendix B).

M.P. 113.5 – 115.6 – Castleton

Beginning at M.P. 113.5, there is an abrupt break in the topography and from that point east the ground slopes up to M.P. 114.0 before sloping down again to M.P. 114.3 to crosscut wetland complex and then rising steeply again between 114.7 and 115.2. The median strip has been excavated out along many portions of the alignment, and the soils are alternately sloped, wet, and rocky or a combination of all three. While the streams and wetlands surrounding the ROW in this location would seem to provide favorable conditions for pre-contact use, the distance to those features when compared to other areas immediately to the north and south likely proved more attractive settlement spots. The EPM score for the majority of the Project along this segment is 0, which is archaeologically non-sensitive. An exception to this is the portion of the median between M.P. 113.8 and 114.25. Unlike other parts of the median, it appears to have been left largely untouched and survives as a level terrace comprising Deerfield and Eldridge sandy loams overlooking a wetland to the east; the EPM score for this portion of the segment is +32, which is considered archaeologically sensitive (Photograph 5-47; Appendix A – Map Sheets 10–11; Appendix B). The proposed cable alignment, however, runs north of Route 4 in this location and does not enter the median.

Only two historic structures are depicted along the length of this entire segment on the 1869 Beers: the L. H. Jones House and the A. P. Drake House map at the intersection of Drake Road and Route 4 eastbound. No evidence of either structure was visible in the field, and the steep slope cut at the edge of the ROW suggests they were likely destroyed during the highway construction.

M.P. 115.6 – 116.0 – Castleton

This Project segment cuts through open agricultural fields crosscut with a number of stream and consisting Belgrade silt loams (3–8% slopes) (Photograph 5-48). A large natural wetland lies north of the eastern extent of the segment and two stream confluences occur immediately north and south of the Project between M.P. 115.7 and 115.8. This combination of factors has led to an EPM score of +36, which is considered archaeologically sensitive (Appendix A – Map Sheet 11; Appendix B). No historic period structures, however, are depicted in this portion of the ROW.

M.P. 116.0 – 118.4 – Castleton

This Project segment cuts along the base of the steeply sloped foothills of the north–south-trending Taconic Range, much of which has been blasted to allow for the road construction (Photograph 5-49). While the confluence of the North and Castleton rivers occurs south of M.P. 116.5, it lies well outside of the Project as does the associated floodplain. The many steep drainages flowing off the mountain pool at the base of the foothills creating wetland conditions, and the associated soil series consists almost entirely of the Macomber-Taconic complex (25–80% slopes). The Project parallels the extant railroad line (Photograph 5-50) between M.P. 117.5 and 118.4 where it hugs the toe of the slope.

The only historic structures depicted along this portion of the Project were located at M.P. 116.7 in the current location of the Route 4/East Hubbardton Road interchange (Photograph 5-51). No evidence of those structures remains on the landscape, suggesting that they were destroyed during the construction

Photograph 5-47. Intact landform in the median strip between M.P. 113.8 and 114.0, view southwest.

Photograph 5-48. View south from the intersection of North Road and Route 4, M.P. 115.8.

Photograph 5-49.View west along Route 4 eastbound from M.P. 117.95 showing steep road cut and exposed bedrock.

Photograph 5-50. Railroad tracks running south and adjacent to Project between M.P. 117.5 and 118.4, view south.

Photograph 5-51. General conditions within the Route 4/East Hubbardton Road interchange, view west.

of the highway (Photograph 5-52). The interchange is characterized by engineered slopes (Photograph 5-53), shallow ledge in the north portion and blasted bedrock outcrops in the south portion (Photograph 5-54).

The EPM scoring sheet identifies this Project segment as being situated in a geographic zone with several environmental factors favorable for predicting the presence of pre-contact sites including proximity to a river, river/stream confluence, and wetlands. The excessive slope and landscape disturbance associated with the highway construction, however, negates those positive factors for an EPM-generated numerical sensitivity score of -28, which is considered archaeologically non-sensitive (Appendix A – Map Sheets 11–12; Appendix B).

M.P. 118.4 –119.05 – Castleton

This Project segment captures a favorable micro-topographical environment within an otherwise inhospitable landscape (Photograph 5-55, 5-56). The segment runs along the base of draw that bisects the adjacent foothills creating a gently watered terrace overlooking a pond that appears to have been truncated by the rail line to the south. The constituent soils are the Warwick-Quonset complex (3—8% slopes). No historic period structures are located within this portion of the Project, but a modern quarrying operation is located immediately south (but outside) of it. The EPM scoring sheet identifies this Project segment as being situated in a geographic zone with several environmental factors favorable for

Photograph 5-52. Former location of the historic structure cluster within the Route 4/East Hubbardton Road interchange, view east.

Photograph 5-53. Engineered slopes within the Route 4/East Hubbardton Road interchange, view west-northwest.

Photograph 5-54. Blasted bedrock in southern portion of Route 4/East Hubbardton Road interchange, view north.

Photograph 5-55. View northeast from south of M.P. 118.4 toward M.P. 118.5.

Photograph 5-56. View west down the center of the Project from M.P. 118.9.

predicting the presence of pre-contact sites including proximity to a river, ponds, and wetlands. The EPM generated a numerical sensitivity score of +48, which is considered archaeologically sensitive (Appendix A – Map Sheets 12–13; Appendix B).

M.P. 119.05 – 123.7 – Castleton/Ira/West Rutland

Like the terrain between M.P. 118.4 –119.05, this Project segment cuts along the base of the steeply sloped foothills of the north–south-trending Taconic Range, much of which has been blasted to make room for the highway or heavily manipulated to create highway rest areas (Photographs 5-57, 5-58). Most of the south edge of the Project is characterized by wetlands created by the Castleton River to the south or from run-off from the foothills to the north (Photograph 5-59); in all instances, the Project misses the more promising floodplain to follow its course along the narrow toe slope. The Project runs adjacent to the extant rail line from M.P. 119.1 to 120.15, enters Ira between M.P. 119.4 and 119.5, enters West Rutland between M.P. 120.6 and 120.7, and crosses the Castleton River at M.P. 122.0. The river crossing itself traverses a floodplain environment, which marks the interchange for modern Route 4 and its original alignment designated Route 4A, has been heavily disturbed by road construction (Photograph 5-60) (Appendix A – Map Sheets 13–15; Appendix B).

No historic period structures are depicted along this Project segment. An interchange between M.P. 123.6 and 123.7 exhibits similar topographic conditions as the area where the Wrights Roberts Cabin (VT-RU-0082) was identified during the Route 4 Bypass survey (see below). That survey, however, was conducted in advance of the highway construction, and it is unlikely that such an ephemeral archaeological signature would survive such substantial landscape disturbance associated with the interchange construction.

Photograph 5-57. View west from north side of Project at M.P. 119.9.

Photograph 5-58. Heavily manipulated landscape within eastern portion of the highway rest area at M.P. 120.1, view east.

Photograph 5-59. View north from Route 4A showing the wetlands along the south edge of the Project.

Photograph 5-60. View northeast from Route 4A toward disturbance associated with the Route 4/Route 4A interchange.

Two locations sensitive for pre-contact resources have been identified in Ira at the West Rutland town border. The first location comprises the eastern two-thirds of the Route 4 highway rest area at M.P. 120.2 on the north side of the Project (Photographs 5-61, 5-62), and the second location is located on the south side of the Project between M.P. 120.25 and 120.55 adjacent to the Castleton River (Photograph 5-63). Both locations share the common favorable environmental factors of comparatively level terrain, proximity to wetlands, the Castleton River and its associated feeder streams, and river/stream confluences for an EPM-generated score of +48, which is considered archaeologically sensitive (Appendix A – Map Sheets 13–14; Appendix B). The rest area location shows some evidence of artificial contouring, but not enough to preclude its pre-contact potential.

M.P. 123.7 –127.7 – West Rutland/Rutland

This four-mile Project segment was previously surveyed as part of the Route 4 Bypass Project and, as such, is not subject to additional survey as part of this project (see Thomas et al. 1983 for detailed survey results). The survey identified three sites within the ROW: the Wrights Roberts Cabin (VT-RU-0082) located north of M.P. 123.9; VT-RU-0081 located south of Route 4 between M.P. 126.9 and 127; and FS-RU-0021 located south of Route 4 southeast of M.P. 127.1 (see Table 4-2). As part of the current survey, this Project segment was re-visited to document existing conditions.

The terrain between M.P. 123.7 –127.7 has been heavily cut and graded along its length as part of the highway construction (Photographs 5-64, 5-65, 5-66). The original sensitivity assessment excluded nearly all of the central section of the Project segment as archaeological sensitivity in view of its steep slope, and lack of reliable water or wetland resources. Perhaps more importantly, the central portion of the Project segment between M.P. 123.7 and 127.7 is bracketed on either end by far more favorable floodplain and terrace environments associated with the Clarendon River in the east and Otter Creek in the west that would have largely precluded settlement in the marginal upland terrain. The location of the Wrights Roberts Cabin Site is currently in an overgrown clearing (Photograph 5-67), and the former locations of VT-RU-0081 and FS-RU-0021 are sited along tree lines bordering open agricultural fields and Otter Creek to the south. No surface evidence of any of the sites or the associated archaeological testing used to find the sites was visible in the field.

M.P. 127.7 –128.2 – Rutland/Clarendon

Beginning at M.P. 127.8, the Project turns south off of Route 4 to follow Route 7. This part of the Project is commercially developed along both sides of Route 7. There is ample evidence of artificial landscape contouring, utility and drainage installations, and cut slopes to indicate that any post-contact period resources that may have been within the Project, including the H.H. Dyer House between M.P. 127.9 and 128.0, have been destroyed (Photographs 5-68, 5-69, 5-70).

The pre-contact profile is similarly compromised; while the segment passes primarily through Paxton fine sandy loams (2–8 % slopes), the lack of water and wetland resources diminishes the desirability of the area as a settlement location, particularly in consideration of the proximity of the Cold River and its associated floodplains less than ¼ mile to the south. The EPM-generated score of +12, which is considered archaeologically non-sensitive (Appendix A – Map Sheet 18; Appendix B).

Photograph 5-61. Eastern two-thirds of Route 4 highway rest area at M.P. 120.2, view east.

Photograph 5-62. Eastern two-thirds of Route 4 highway rest area at M.P. 120.2 showing some evidence of artificial contouring, view east.

Photograph 5-63. South side of Project between M.P. 120.25 and 120.55, view east.

Photograph 5-64. View east from north side of Project down Route 4, M.P. 125.0.

Photograph 5-65. View west from north side of Project down Route 4, M.P. 124.1 showing wetlands and secondary disturbance growth.

Photograph 5-66. View east from north side of Project showing east- and westbound lanes of Route 4, M.P. 125.7.

Photograph 5-67. View toward former location of the Wrights Roberts Cabin (VT-RU-0082), view northeast.

Photograph 5-68. View east from the south side of the Project at Dyer Road (M.P. 127.9) looking toward the Rote 7 and Route 4 intersection.

Photograph 5-69. View east between M.P. 128.0 and 128.1 showing roadside disturbance within the Project.

Photograph 5-70. View west from intersection of Middle Road and Route 7 at M.P. 128.05 showing drainage installations within south side of Project.

M.P. 128.2 – 128.6 – Clarendon

The length of the Project between M.P. 128.2 – 128.6 spans the floodplains on either side of the Cold River. This segment of Route 7 diverges well to the east of the original alignment of the Ethan Allen Highway (Route 7B) and its cluster of historic buildings, a condition that suggests comparatively favorable conditions for the survival of pre-contact resources. The 1869 Beers map of the town, however, depicts no historic resources along this portion of the Project.

The EPM scoring sheet identifies this Project segment as being situated in a geographic zone with three environmental factors favorable for predicting the presence of pre-contact sites. These include proximity to a river and ponds and location on a floodplain. The EPM generated a numerical sensitivity score of +56, which is considered archaeologically sensitive (Appendix A – Map Sheet 18; Appendix B).

Subsurface testing is recommended for this Project segment.

M.P. 128.6 – 128.95 – Clarendon

In this Project segment, Route 7 continues to follow a separate but parallel path to the original alignment of Ethan Allen Highway (Route 7B) through an undulating piece of terrain largely absent of any environmental factors predictive of pre-contact settlement, the EPM-generated score for this portion of the Project is 0, which is archaeologically non-sensitive (Appendix A – Map Sheet 18; Appendix B). No historic period resources are depicted in this portion of the Project on the 1869 Beers map.

No subsurface testing is recommended for this Project segment.

M.P. 128.95 – 129.2 – Clarendon

The terrain between M.P. 128.95 and 129.2 encompasses a level, comparatively undisturbed landscape bordered by a small stream and pond along the west of the Project and an expansive wetland complex east of the junction of Route 7 and the Ethan Allen Highway (Route 7B) (Photographs 5-71, 5-72, 5-73).The soils consist of Paxton fine sandy loam (2–8% slopes). The EPM scoring sheet identifies this Project segment as being situated in a geographic zone with three environmental factors favorable for predicting the presence of pre-contact sites. These include proximity to a river and ponds and location on a floodplain. The EPM generated a numerical sensitivity score of +36, which is considered archaeologically sensitive (Appendix A – Map Sheets 18–19; Appendix B).

In addition to its pre-contact sensitivity, the 1869 Beers map depicts the Mrs. M. Glinn House west of M.P. 129.0. Unlike other historic resources along the Project route that are mostly clipped by the ROW, the former Glinn property is contained within more expansive acreage with the potential to contain structural, landscape, or artifact deposits associated with the nineteenth-century occupation of the area. No evidence of the former house is visible on the extant landscape (Photograph 5-74).

Subsurface testing is recommended for this Project segment.

M.P. 129.2 – 130.5 – Clarendon

The 1.3-mile long Project segment between M.P. 129.2 – 130.5 spans level, well-drained, and fairly unremarkable glacial moraine topography with no single confluence of favorable environmental factors. The Project does cross a small stream between M.P. 129.8 and 129.9, but slopes steeply

Photograph 5-71. View west along Route 7B toward Route 7 north of M.P. 129.1.

Photograph 5-72. View southwest to Route 7/7B intersection, M.P. 129.1.

Photograph 5-73. View northwest across the intersection of Routes 7 and 7B, M.P. 129.05.

Photograph 5-74. View northeast toward former location of the Mrs. M. Glinn House, M.P. 129.0.

in that location with more favorable access points located to the east and west outside of the Project boundaries. The EPM scoring sheet identifies this Project segment as being situated in a geographic zone with two environmental factors favorable for predicting the presence of pre-contact sites. These consist of proximity to a stream and wetlands. The EPM generated a numerical sensitivity score of +24, which is considered archaeologically non-sensitive (Appendix A – Map Sheet 19; Appendix B). Moreover, this portion of Route 7 diverges substantially to the east of the historic road alignment through an area that is shown with no historic period development of the 1869 Beers map.

M.P. 130.5 – 131.5 – Clarendon

The beginning of this segment at M.P. 130.5 marks the Project's eastward turn off of Route 7 to Route 103. Peirce's Corner, roughly 1/10 to the east, marks the intersection of Routes 103 and 7B. While portions of this part of the Project traverse kame terrace geology, wetlands, and stream crossings, the road disturbance within the narrow ROW largely precludes its archaeological sensitivity (Photograph 5-75). The EPM score for this segment is -4, which is archaeologically non-sensitive (Appendix A – Map Sheet 19–20; Appendix B). Like the preceding sections of Route 7, this portion of Route 103 diverges substantially to the east of the historic road alignment through an area shown as empty of historic structures on the 1869 Beers map.

M.P. 131.5 – 132.250 – Clarendon

This Project segment crosses through a more developed section of Route 103, but one that is less obviously disturbed than the preceding section. It crosses through kame terrace landforms, open fields, lightly wooded terraces, and a complex network of wetlands and streams associated with Otter Creek to the west (Photographs 5-76, 5-77, 5-78). The EPM scoring sheet identifies this Project segment as being situated in a geographic zone with three environmental factors favorable for predicting the presence of pre-contact sites. These include proximity to a river and ponds and location on a floodplain. The EPM generated a numerical sensitivity score of +50, which is considered archaeologically sensitive (Appendix A – Map Sheet 20; Appendix B).

The Project passes behind the extant East Clarendon train station at M.P. 132.2 and a cluster of historic structures as depicted on the 1869 Beers map. Given the amount of modern road reconfiguration and residential development in this portion of the Project, however, it is unlikely evidence of those historic, non-extant resources have survived.

M.P. 132.250 – 134.0 – Clarendon/Shrewsbury

This Project segment winds through extremely steep slope as it crosses the border between Clarendon and Shrewsbury and tracks along the extant rail line (Photographs 5-79, 5-80). From M.P. 132.3, the Project tracks south of the rail line, crosses to the north between M.P. 132.7 and 132.8 at Clarendon Gorge above the Mill River, and crosses again to the south between M.P. 134.3 and 134.4. The Project cuts through bedrock outcrops, filled slope, and low-lying wetlands. A parking lot for the Appalachian Trail is located on the south side of Route 103 at M.P. 132.7; the surrounding landscape comprises wetlands and steeply sloped terrain to the river. While several streams and wetlands

Photograph 5-75. View west along Route 103 from M.P. 131.3.

Photograph 5-76. View south along the north side of Route 103 between M.P. 131.8 and 131.9.

Photograph 5-77. View south along the south side of Route 103 inside tree line between M.P. 131.5 and 131.6.

Photograph 5-78. View south along the south side of Route 103 between M.P. 131.7 and 131.8.

Photograph 5-79. View west form M.P. 132.7 showing cut landscape and railroad crossing.

Photograph 5-80. ROW slope at M.P. 132.3, view southeast.

bound this Project segment to the north and south, the presence of level (or more level) terrain with identical environmental characteristics to the south and west likely would have shifted settlement preferences out of the Project to the adjacent terraces. The EPM generated a numerical sensitivity score of -6, which is considered archaeologically non-sensitive (Appendix A – Map Sheets 20–21; Appendix B).

Several modern and historic structures line the edges of this Project segment, but the slopes within the adjacent narrow ROW have been modified to such an extent to preclude the identification of any substantive associated deposits.

M.P. 134.0 – 137.5 – Shrewsbury/Wallingford

Beginning at M.P. 134.3, the Project shifts northeast off Route 103 to follow the Rutland (now Green Mountain) Railroad ROW for roughly 3.3 miles north of the railroad track. The line's history begins with the Champlain and Connecticut River Railroad Company, which was incorporated on November 1, 1843, to build a railroad between Bellows Falls and Burlington. The Rutland-Burlington line was completed in 1849, and was re-organized in 1867 as the Rutland Railroad. Large portions of the railroad were washed out in the catastrophic floods of 1927, but were subsequently rebuilt. The railroad went into a period of steady decline after that time, however, as labor issues and the loss of industry in the northeastern United States combined to decrease its importance to the regional economy. Most of the Rutland Railroad trackage in Vermont was acquired by the state in 1963 and subsequently leased to the Vermont Railway (1964) and Green Mountain Railroad (1965) start-up companies. Both railroads continue in operation today as part of the Vermont Rail System.

The track follows the steeply sloped foot of Copperas and Roger hills, bypassing the Village of Cuttingsville to the west. The rugged terrain and steep slope generally precludes pre-contact archaeological sensitivity along this portion of the Project with the exception of three segments between approximately M.P. 134.0–134.8, M.P. 135.2–135.750, and M.P. 136.4–136.850. In all three locations, the terrain is comparatively level and crosscut by two unnamed streams and Freeman Brook that feed into the Mill River (Photographs 5-81, 5-82, 5-83) (Appendix A – Map Sheets 21–23; Appendix B).

A comparison of the 1869 Beers map with current USGS topographic maps and aerial photography indicates that much of the railroad line along this segment was destroyed and rebuilt after the 1927 floods; two nineteenth-century structures are depicted immediately adjacent and south of the re-built line between M.P. 135.1–135.3, but likely were destroyed during the flood and subsequent railroad re-alignment. A depot structure is depicted on the 1869 map on north side of the track where is crosses the intersection of Shunpike and Town Hill roads. While no depot structure is extant, that section of track appears to follow its original alignment and may retain some post-contact archaeological sensitivity for the building (see Photograph 5-82). Several extant railroad-related structures were identified along this Project segment consisting of a stone arch culvert at M.P. 134.6 (Photograph 5-84); a stone arch culvert west of Tower Hill Road (Photograph 5-85); a bridge deck at Freeman Brook (Photograph 5-86); and an iron trestle bridge over the Mill River at the southern terminus of the segment (Photograph 5-87). All four structures cross steeply sloped, rocky, wet terrain and are more properly considered architectural, rather than archaeological, resources. A power line crosses the Project from east to west at M.P. 134.7; the cut for the power line provides a good illustration of the slope that characterizes this Project segment (Photograph 5-88).

Photograph 5-81. View southwest down railroad track from M.P. 134.0.

Photograph 5-82.View east down railroad track from its intersection with Tower Hill Road.

Photograph 5-83. View southwest down railroad track from its intersection with Freeman Brook Road.

Photograph 5-84. Stone arch culvert at unnamed tributary to the Mill River at M.P. 134.6.

Photograph 5-85. Stone arch culvert at unnamed tributary to the Mill River west of Town Hill Road.

Photograph 5-86. Rail deck at Freeman Brook.

Photograph 5-87. Iron- trestle bridge over Freeman Brook at M.P. 137.5.

M.P. 137.5 – 137.675 – Wallingford

This Project segment runs through a steep and narrow valley formed by Hateful Hill to the west and Roger Hill to the east. It roughly parallels the north side of Mill River across its length, and crosses the railroad tracks at M.P. 137.6. The EPM-generated score for this segment is -10, which is considered archaeologically non-sensitive for pre-contact resources (Appendix A – Map Sheet 23–24; Appendix B).

M.P. 137.675 – 137.875 – Wallingford

From M.P. 137.675 to M.P. 137.875, the terrain once again levels out for a small stretch along a terrace landform comprising Sheenscot fine sandy loams (2–8% slopes). The EPM scoring sheet identifies this Project segment as being situated in a geographic zone with several environmental factors favorable for predicting the presence of pre-contact sites. These consist of its location on a floodplain in proximity to a river and wetlands, its position on a kame outwash terrace, and its likely use as a natural travel corridor. The EPM generated a numerical sensitivity score of +51, which is considered archaeologically sensitive (Appendix A – Map Sheet 24 Appendix B).

Two structures, the I.O. Titus and L. Adams houses, are depicted on the 1869 Beers map adjacent to the west side of the Project at M.P. 137.8. No evidence of either structure is visible on the current landscape; it is anticipated that testing in that general location may yield domestic debris in stratigraphically compromised contexts.

Photograph 5-88. Power line cut at M.P. 137.4, view northeast.

M.P. 137.875 – 138.575 – Wallingford/Mount Holly

This Project segment traverses a long stretch of alternately eroded, cut, and filled roadside contexts hemmed in by modern commercial development. Between M.P. 137.9 and 138.1, the Project runs along steeply sloped, heavily eroded river embankment. From M.P. 138.1 to 138.4, the terrain levels out along the narrow floodplain comprising Castile gravelly fine sandy loam (0–3% slopes) before constricting again to M.P. 138.625. While the floodplain context would typically be assigned high pre-contact sensitivity, the portions captured within the Project have been significantly cut and filled (Photographs 5-89, 5-90). The EPM scoring sheet identifies this Project segment as being situated in a geographic zone with several environmental factors favorable for predicting the presence of pre-contact sites. These consist of its location on a floodplain in proximity to a river and wetlands, its position on a floodplain and kame outwash terrace, and its likely use as a natural travel corridor. The degree of natural and artificial slope, however, effectively negates those positive factors. The EPM generated a numerical sensitivity score of +16, which is considered archaeologically non-sensitive (Appendix A – Map Sheet 24; Appendix B). The G.R. Streeper House is shown adjacent to the west side of the Project at M.P. 138.1, but no evidence of that structure is visible on the current landscape.

Photograph 5-89. View north from M.P. 138.2 showing typical road slope.

Photograph 5-90. View south from M.P. 138.2 showing typical road slope.

M.P. 138.575 – 139.125 – Mount Holly

The Project segment heading east from the Wallingford/Mount Holly town border runs along fairly level floodplain terrain at the base of Robert Hill through Peru gravelly fine sandy loams (8–15% slopes).
The current road alignment diverges to the north of the historic road alignment that formerly ran closer to the Hubbardton River; an abandoned road segment is illustrated in that location on the topographic map and confirmed by a review of the Mount Holly 1869 Beers map. While this divergence suggests lower archaeological sensitivity for post-contact resources, the EPM scoring sheet identifies this Project segment as being situated in a geographic zone with several environmental factors favorable for predicting the presence of pre-contact sites. These consist of proximity to a river, ponds, and wetlands. The EPM generated a numerical sensitivity score of +36, which is considered archaeologically sensitive (Appendix A – Map Sheet 24; Appendix B).

M.P. 139.125 – 139.325 – Mount Holly

This Project segment cuts through steeply sloped terrain at the base of Roger Hill north of the historic road alignment. No historic structures are depicted along this portion of the Project and the EPM-generated score is -20, which is archaeologically non-sensitive (Appendix A – Map Sheet 24; Appendix B).

M.P. 139.325 – 139.7 – Mount Holly

This Project segment runs through the Village of Bowlsville. While much of the Project south of Route 103 tracks through sloped, wetland contexts, the area north of Route 103 follows more level, open terrain (Photograph 5-91). The EPM scoring sheet identifies this Project segment as being situated in a geographic zone with several environmental factors favorable for predicting the presence of pre-contact sites. These consist of proximity to a river and river/stream confluence and wetlands The EPM generated a numerical sensitivity score of +36, which is considered archaeologically sensitive (Appendix A – Map Sheet 24; Appendix B).

M.P. 139.7 – 142.175 – Mount Holly

Beginning at M.P. 139.7, the Project runs across a sloped, disturbed landscape that has been cut, filled, and graded to accommodate surface road and railroad construction for an EPM-generated score of -16, which is considered archaeologically non-sensitive (Appendix A – Map Sheets 24–26; Appendix B).

From M.P. 139.7 to 140.8, the Project has been cut and graded along the foothills of Mount Holly (Photographs 5-92, 5-93), and from M.P. 140.8 to 142.175 the Project hugs the north side of the railroad. An expansive wetland complex fed by Branch Brook to the south and mountain stream run-off to the north runs south of the railroad line (Photograph 5-94), but there are no associated terraces or benches to create a more attractive settlement location to exploit those resources. It is important to note that this segment of Route 103 does not correspond with any historic road alignments and as such possesses generally low post-contact archaeological potential. The Mount Holly railroad station stands at the southwest corner of Route 103 and Hortonville Road at M.P. 141.9, but is too far removed from the Project to contribute any potential resources (Photograph 5-95).

Photograph 5-91. View east along Route 103 from M.P. 139.7.

Photograph 5-92. View west from M.P. 140.2 showing steeply sloped terrain on either side of Route 103.

Photograph 5-93. View northwest from M.P. 140.9 showing typical road cut.

Photograph 5-94. View south/southeast from M.P. 141.9 showing expansive wetland complex south of the Project.

Photograph 5-95. View southwest toward Mount Holly railroad station from M.P. 140.9.

M.P. 142.175 – 143.8 – Mount Holly

The Project follows Route 103 along its non-historic alignment to M.P. 143.8 north of the railroad tracks, the landscape becomes more level and better drained as the Branch Brook valley widens slightly (Photograph 5-96). The EPM scoring sheet identifies this Project segment as being situated in a geographic zone with several environmental factors favorable for predicting the presence of pre-contact sites. These consist of proximity to a permanent stream and stream confluence, wetlands, ponds, and heads of draws. The EPM generated a numerical sensitivity score of +56, which is considered archaeologically sensitive (Appendix A – Map Sheets 26–27; Appendix B).

Several spatially discrete areas of cut, ditched, steeply sloped and graded terrain were identified along this segment including: the south side of the Project between M.P. 142.875 and 143.050; the north side of the Project between M.P. 143.050 and 143.175; the south side of the Project between M.P. 143.125 and 143.250; the north side of the Project between M.P. 143.7 and 143.8; and the north side of the Project between M.P. 143.375 and 143.5 (Photograph 5-97). With the exception of these archaeologically non-sensitive locations, the remainder of the Project appears to retain sufficient landscape integrity to warrant its positive EPM score. The non-historic alignment of this Project segment and fairly narrow ROW largely precludes its post-contact archaeological sensitivity.

Photograph 5-96 View east along Route 103 from M.P. 142.7.

Photograph 5-97. View east along Route 103 from M.P. 143.7 showing drainage swale cut along the north side of the Project.

M.P. 143.8 – 145.1 – Mount Holly

The Project continues its path along the non-historic alignment of Route 103 through the steeply sloped terrain of the western base of Mount Holly. This segment is uniformly cut, graded, and disturbed along its length that, when combined with the degree of slope, results in an EPM-generated score of -16, which is considered archaeologically non-sensitive (Appendix A – Map Sheet 27; Appendix B) (Photographs 5-98, 5-99). A cemetery was identified adjacent to an outside the north side of the Project at M.P. 145.075; the road cut marking the south edge of the cemetery provides an indication of how much disturbance has occurred in that location (Photographs 5-100, 5-101).

M.P. 145.1 – 145.4 – Mount Holly

This Project segment continues its non-historic alignment, but opens onto level terrain surrounding both banks of Branch Brook (Photograph 5-102). Modern residences have been constructed along the north portion of the Project, and a construction company is located on the south side of Project immediately west of M.P. 145.2. The modern constructions are set back sufficiently far from the ROW to comparatively undisturbed ground along both sides of Route 103. The EPM scoring sheet identifies this Project segment as being situated in a geographic zone with several environmental factors favorable for predicting the presence of pre-contact sites. These consist of proximity to a permanent stream and stream confluence, wetlands, and ponds. The EPM generated a numerical sensitivity score of +48, which is considered archaeologically sensitive (Appendix A – Map Sheets 27; Appendix B).

M.P. 145.4 – 147.3 – Mount Holly/Ludlow

This portion of the Project runs through steeply sloped valley between Ludlow Mountain to the south and Mount Holly to the north. Buttermilk Falls is located immediately north of the Project between M.P.146.3 and 146.4. As with most of Route 103 in Mount Holly, the Project does not follow the historic road alignment but tracks closely to the low-lying and disturbed railroad tracks from M.P. 145.5 to 146.8 before shifting slightly north. The EPM scoring sheet identifies this Project segment as being situated in a geographic zone with three environmental factors favorable for predicting the presence of pre-contact sites. These consist of proximity to a permanent stream and stream confluence and falls, all of which are negated by the excessive slope. The EPM generated a numerical sensitivity score of 0, which is considered archaeologically non-sensitive (Appendix A – Map Sheets 27–28; Appendix B).

M.P. 147.3 – 147.7 – Ludlow

The segment of the Project passes through a particularly sensitive landscape for its proximity to the Okemo Paleoindian Site (VT-WN-0289), located approximately 202 one-tenth mile southwest of M.P. 147.6. The landform south of the Project comprises an open terrace consisting of Colton fine sandy loams (3–8% slopes) overlooking the confluence of Broad and Coleman Brooks to the east and a 3-acre wetland to the south. A commercial gravel pit is located immediately northeast of the Project, but appears not to have had a substantial impact to the Project itself. Road reconfiguration along the north side of the Project at M.P. 147.6 at the intersection of Buttermilk Falls Road and Route 103,

Photograph 5-98. View east along Route 103 from M.P. 144.5.

Photograph 5-99. View west along Route 103 from M.P. 145.1.

Photograph 5-100. View north (upslope) toward historic cemetery at M.P. 145.1.

Photograph 5-101. Route 103 road cut adjacent to historic cemetery at M.P. 145.1, view east.

Photograph 5-102. View west along Route 103 from M.P. 145.0.

however, does appear to have had a more negative effect (Photographs 5-103, 5-104). On-going road construction at that intersection corroborated that disturbance assessment by exposing rocky, sandy fills soils (Photograph 5-105).

With the exception of the discrete disturbance identified on the north side of the Project at M.P. 147.6, the EPM scoring sheet identifies this Project segment as being situated in a geographic zone with several environmental factors favorable for predicting the presence of pre-contact sites. These consist of its location on a kame terrace in proximity to permanent stream and stream confluences, and its proximity to a highly significant Paleoindian site. The EPM generated a numerical sensitivity score of +68, which is considered archaeologically sensitive (Appendix A – Map Sheets 28–29; Appendix B).

The C. Bixby House is depicted on the 1869 Beers map of Ludlow on the south side of the Project at M.P. 147.4. While no evidence of the structure was visible in the field, the Project is sufficiently wide at this mile maker to permit more expansive subsurface testing with the potential to identify architectural and landscape features associated with that historic occupation.

M.P. 147.7 – 147.9 – Ludlow

The Project segment between M.P. 147.7 and 147.9 runs parallel to Branch Brook to the north within a comparatively wide ROW measuring, on average, 150 ft from either road edge. The terrain is fairly level, and although there has likely been some disturbance associated with road construction and maintenance activities, the landscape beyond the immediate road edge has the potential to contain intact soils. The EPM scoring sheet identifies this Project segment as being situated in a geographic zone with several

Photograph 5-103. Intersection of Buttermilk Falls Road and Route 103 at M.P. 147.6, view north, showing landscape disturbance.

Photograph 5-104. Intersection of Okemo Ridge Road and Route 103 at M.P. 147.6, view west, showing landscape disturbance.

Photograph 5-105. View south along Route 103 showing disturbed soils at intersection of Okemo Ridge Road.

environmental factors favorable for predicting the presence of pre-contact sites. These consist of its location on a kame terrace in proximity to permanent stream and stream confluences. The EPM generated a numerical sensitivity score of +36, which is considered archaeologically sensitive (Appendix A – Map Sheet 29; Appendix B).

The Mrs. Archer House is depicted on the 1869 Beers map of Ludlow on the south side of the Project between M.P. 147.8 and 147.9. While no evidence of the structure was visible in the field, the Project is sufficiently wide between these mile makers to permit more expansive subsurface testing with the potential to identify architectural and landscape features associated with that historic occupation.

M.P. 147.9 – 147.950 – Ludlow

At M.P. 148.2, the Project ends its run along Route 103 and takes a sharp turn to the north to follow Route 100N through the Grahamsville Historic District. The Project segment between M.P. 147.9 and 147.950 captures an open, heavily vegetated portion of the landscape at the northeast corner of the intersection of Route 100N and Route 103, and the last segment of Broad Brook before it exits the Project alignment (Photograph 5-106). The EPM scoring sheet identifies this Project segment as being situated in a geographic zone with several environmental factors favorable for predicting the presence of pre-contact sites. These consist of its location on a kame terrace in proximity to permanent stream and wetlands. The EPM generated a numerical sensitivity score of +36, which is considered archaeologically sensitive for pre-contact sites (Appendix A – Map Sheet 29; Appendix B). No historic structures are depicted on the 1869 Beers map in this Project segment.

Photograph 5-106. View east from M.P. 147.9 looking toward archaeologically sensitive area at the corner of Route 103 and Route 100N.

M.P. 147.950 – 149.4 – Ludlow

The Project alignment along Route 100N passes north through the Grahamsville Historic District (1410-111) and then bears east over the Black River onto the partially paved East Lake Road. Along this length, the landscape comprises a broad floodplain associated with the Black River; the soils within the floodplain consist of Colton fine sandy loam (3–8% slopes). In addition to passing through the Grahamsville Historic District, three additional historic resources are located in proximity to this Project segment. VT-WN-0262, a pre-contact camp site and abandoned road segment, and the Grahamsville Industrial Complex (VT-WN-0125) are located on the opposite side of the Black River between M.P. 148.1 and 148.2. The Lakeside Saw Shop (1410-130) still stands north and west of the intersection of Route 100N and East Lake Road (Photograph 5-107). At M.P. 149.2, a dry-laid fieldstone foundation was identified within on the western side of the Project and designated Field-Identified Archaeological Resource 2. A review of the 1869 Beers map suggests this may be the remains of the E. Dutton House (Photographs 5-108, 5-109; see Table 5-1). A second foundation, previously recorded during a transmission line survey, was identified at M.P. 149.4 on the west side of the Project and designated Field-Identified Archaeological Resource 3. Visible remains include a rectangular cellar hole with dry-laid stone walls and a partially enclosed aboveground addition or outbuilding immediately to the south, a circular cinder block well, and a cinder block pump house containing remnant plumbing. Based on a review of the 1869 Beers map, this is likely the former house of Erastus Gates (Cherau et al. 2010). The survival of these foundations, in contrast to most of the rest of the Project, is likely attributable to the comparatively low levels of modern development and road improvements.

Photograph 5-107. Lakeside Saw Shop, M.P. 148.775.

Photograph 5-108. Field-identified Archaeological Resource 2 – E. Dutton foundation, M.P. 149.250, view north.

Photograph 5-109. Field-identified Archaeological Resource 2 – E. Dutton north foundation, M.P. 149.250, view north.

The EPM scoring sheet identifies this Project segment as being situated in a geographic zone with several environmental factors favorable for predicting the presence of pre-contact sites. These consist of its location on a kame terrace and major floodplain in proximity to a river and wetlands. The EPM generated a numerical sensitivity score of +68, which is considered archaeologically sensitive for pre-contact sites (Appendix A – Map Sheets 29–30; Appendix B). This positive pre-contact sensitivity combined with the previously recorded and field-identified post-contact resources suggests that this Project segment has good archaeological potential.

M.P. 149.4 – 150.0 – Ludlow

This segment of the Project runs along the toe of a steeply pitched hillside overlooking Lake Rescue to the west. Several streams feed off the slope to the Project in this location creating wet conditions. No historic structures are depicted along this stretch, and the EPM scoring sheet provided a numerical ranking of -20, which is considered archaeologically non-sensitive (Appendix A – Map Sheet 30; Appendix B).

M.P. 150.0 – 150.9 – Ludlow

This Project segment follows East Lake Road north to its wishbone intersection with Pettiner Hill Road at which point it turns sharply south. The terrain along this segment traverses somewhat steep slope to M.P. 150.4, levels out to an open terrace to M.P. 150.7, and then climbs again to M.P. 150.9. Several structures are depicted along the segment on the 1869 Beers map including the P.T. Grandall House at on the west side of the Project at M.P. 150.0, the A.A. Smith House at M.P. 150.4 on the west side of the Project, and the B.C. Weston House on the south side of the intersection of East Lake and Pettiner Hill roads at M.P. 150.7. Foundation remains likely associated with the Weston House were identified outside but adjacent to the Project and were designated Field-Identified Archaeological Resource 4 (Photographs 5-110). While evidence of the other two structures was not immediately visible in the field, the identification of substantial foundation remains associated with other nineteenth-century structures along East Lake Road to the south suggest the strong potential for the survival of structural or landscape features associated with these occupations within the Project.

The pre-contact sensitivity is limited to the Project segment between M.P. 150.3 and 150.7. The EPM scoring sheet identifies this segment as being situated in a geographic zone with several environmental factors favorable for predicting the presence of pre-contact sites. These consist of its location near the head of a draw and in proximity to a stream, stream confluence, and wetlands. The EPM generated a numerical sensitivity score of +44, which is considered archaeologically sensitive for pre-contact sites (Appendix A – Map Sheet 30; Appendix B).

M.P. 150.9 – 151.7 – Ludlow

This Project segment traverses steeply sloped terrain No historic structures are depicted in proximity to this segment on the 1869 Beers map, and the EPM-generated numerical score is -20, which is considered archaeologically non-sensitive for pre-contact sites (Appendix A – Map Sheet 30; Appendix B).

M.P. 151.7 –152.350 – Ludlow

From M.P. 151.7 south, the landscape open to a series of east-facing terraces containing a large wetland and smaller stream crossing (Photograph 5-111). Several structures are depicted along the segment on the 1869 Beers map including the E. Gates House at M.P. 151.7 on the west side of the Project, the C. Whitney House on the east side of the Project between M.P. 151.9 and 152.0, and the district schoolhouse at the intersection of North Hill Pent Road and North Hill Road at M.P. 152.0. While evidence of these structures was not immediately visible in the field, the identification of substantial foundation remains associated with other nineteenth-century structures along East Lake Road and the north portion of Pettiner Hill Road to the south suggest the strong potential for the survival of structural or landscape features associated with these occupations within the Project.

The EPM scoring sheet, however, identifies this segment as being situated in a geographic zone with only two environmental factors favorable for predicting the presence of pre-contact sites. These consist of its proximity to wetlands and a permanent stream. The EPM generated a numerical sensitivity score of +24, which is considered archaeologically non-sensitive for pre-contact sites (Appendix A – Map Sheet 31; Appendix B).

Photograph 5-110. South wall of the B.C. Weston foundation - Field-identified Archaeological Resource 4, view north, M.P. 150.8.

Photograph 5-111. View south across wetlands along Pettiner Hill Road from M.P. 151.8.

M.P. 152.350 – 153.0 – Ludlow

The final segment of the Project to its termination point at the Ludlow Converter Station parcels runs along moderately sloped terrain with no distinguishing environmental characteristics that would likely have encouraged pre-contact settlement. The EPM scoring sheet identifies this segment as being situated in a geographic zone with only one environmental factor favorable for predicting the presence of pre-contact sites. This consists of its proximity to a permanent stream. The EPM generated a numerical sensitivity score of +12, which is considered archaeologically non-sensitive for pre-contact sites (Appendix A – Map Sheet 31; Appendix B). The lack of historic structures along this segment also suggests low post-contact archaeological sensitivity.

M.P. 152.8 –153.225 –Converter Station Site and Stowell Parcels – Ludlow

The proposed location for the converter station comprises two contiguous parcels consisting of the 14-acre Converter Station Site Parcel and 27-acre Stowell Parcel. The soils within these development parcels consist of the rocky Tunbridge-Lyman complex (8–15% slopes). The terrain is sloped and cross-cut with logging roads, several of which contained pools of standing water (Photograph 5-112). A power line easement cuts through the southern edge of the Stowell parcel through a low-lying wet area adjacent to a perennial stream (Photograph 5-113), and two stone walls were identified at the eastern and western ends of the parcels. The EPM generated a numerical sensitivity score for most of the Converter Station and Stowell parcels is +12, which is considered archaeologically non-sensitive for pre-contact sites (Appendix A – Map Sheet 31; Appendix B).

The Converter Station Site Parcel does contain an extant farmhouse building listed in the State Register as the A. G. Fullam Farm (1410-73), bounded by a stone wall along the roadside and an open grassy field and kettle hole to the west (Photographs 5-114, 5-115, 5-116). This part of the Project is considered sensitive for post-contact structural and landscape features associated with the historic occupation of the A. G. Fullam Farm. The kettle hole feature also has the potential to have been a draw for pre-contact populations in an otherwise unremarkable upland environment.

Subsurface testing is recommended for the 7.7-acre archaeologically sensitive portion of the Converter Station Site Parcel adjacent to Nelson Road between M.P. 152.8 and 152.950. No subsurface testing is recommended for the remainder of the Converter Station Site Parcel or the Stowell Parcel.

Photograph 5-112. Old logging road filled with standing water in Stowell Parcel.

Photograph 5-113. Power line ROW cutting across southern edge of Stowell Parcel, view west.

Photograph 5-114. A.G. Fullam Farm (1410-7), Converter Station Site Parcel, M.P. 152.950, view north.

Photograph 5-115. Grassy field west of the A.G. Fullam Farm, Converter Station Site Parcel, view northwest.

Photograph 5-116. Kettle hole northwest of the A.G. Fullam Farm, Converter Station Site Parcel, view north.

CHAPTER SIX

CONCLUSIONS AND RECOMMENDED PHASE IB ARCHAEOLOGICAL SURVEY

PAL has completed a Phase IA archaeological reconnaissance survey and developed a Phase IB Scope of Work for the New England Clean Power Link Project in Grand Isle, Rutland, and Windsor counties, Vermont. The Phase IA survey encompassed the approximately 56-mile-long terrestrial portion of the Project and five proposed work parcels: the 14-acre Converter Station Site and 27-acre Stowell parcels in Ludlow, the 4.6-acre Florence Parcel in Alburgh, and the 9.9-acre and 12.35-acre Stony Point Road parcels in Benson. The purpose of the survey was to delineate a recommended direct effect APE for direct effects for the Project and to identify areas within that APE with the potential to contain potentially significant pre- and post-contact archaeological resources.

Sensitivity Assessment

The Phase IA survey identified archaeologically sensitive and testable areas along approximately 11.6 linear miles (21%) of the Project and in four of the five proposed work parcels (Table 6-1).

Table 6-1. Summary of the Archaeological Sensitivity of the Project

Archaeological Sensitivity	Length (in miles)	Percentage
Sensitive	11.55	20.59%
Non-Sensitive	36.34	64.76%
Previously Surveyed	8.22	14.65%
Total	56.12	100.00%

Phase IB Archaeological Survey

PAL recommends Phase IB archaeological survey for those portions of the Project assessed as archaeologically sensitive and subject to project related impacts. The goal of the Phase IB survey will be to locate, identify and, to the extent possible, evaluate previously recorded and unrecorded archaeological sites within archaeologically sensitive areas identified during the Phase IA survey. TDI-NE will consult with the VDHP/SHPO on the results of the Phase IA survey and the proposed Phase IB subsurface testing methodology. The results of the Phase IB survey will be used to assist TDI-NE in cultural resource compliance obligations for the Project under state and federal law. The proposed Phase IB survey methodology has been developed by reference to the Phase IA survey results and conforms to the Secretary of the Interior's *Standards and Guidelines for Archeology and Historic Preservation*; Section 106 of the National Historic Preservation Act of 1966, as amended, and related regulations (36 CFR 800); and the guidelines provided in the VDHP/SHPO's *Guidelines for Conducting Archaeology in Vermont and Appendices* (VDHP 2007).

Subsurface Testing

To provide maximum flexibility for TDI-NE's use of the Project during cable line construction staging and installation activities, the entire Project alignment has been sensitized. This approach will allow TDI-NE to move the cable, if feasible, from archaeologically sensitive to archaeologically non-sensitive segments of the ROW before the initiation of Project activities. For the purposes of subsurface testing, however, only those locations assessed as archaeologically sensitive and subject to Project-related impacts are proposed for Phase IB archaeological survey. In those instances where the cable is proposed to run down the centerline of an existing road, no subsurface is testing is proposed.

PAL recommends that archaeologically sensitive Project segments be tested using judgmental test pit transects with each transect consisting of 50-x-50-centimeter (cm) test pits spaced at 10-meter (m) intervals with discretionary field adjustments to accommodate more or less favorable micro-environmental conditions. In those locations where more than one transect is required, the transects should be offset from one another to provide adequate testing coverage. Individual test pits or transects will be used to test locations of known or Field-Identified Archaeological Resources (see Table 5-1). For example, five test pits will be used to assess a foundation/cellar hole: one test pit along the exterior of each wall and one test pit in the center of the foundation. The testing at historic site locations will be used to collect stratigraphic data and artifact assemblages that would provide information about date range(s) of occupation, function(s), and site integrity. Test pit arrays will be used to investigate any potentially significant cultural deposits identified during testing. Each array will contain four test pits placed at 2.5- and 5-m intervals in each of the cardinal directions from the test pit containing the deposit.

In the proposed Project work parcels, PAL recommends a combination of 30-x-30-m sampling blocks and offset linear transect testing. Each 30-x-30-m block contains thirteen 50-x-50-cm test pits arranged in a staggered grid pattern. Sampling blocks of this size have a 50 percent likelihood of intercepting pre-contact sites that are less than 10 m in diameter and have a 100 percent likelihood of intercepting sites that are at least 30 m in diameter. *EVALSTP* and *PLACESTP* statistical computer programs were used in this evaluation (Kintigh 1987, 1992). Linear transect testing, with 50-x-50-cm test pits spaced at 10-m intervals, will used in areas too small or narrow to accommodate block testing. Given the respective sizes and non-linear configurations of the Project work parcels, the combination of block and transect testing is recommended as a reasonable sampling approach for identifying potential pre- and post-contact resources.

All test pits will be excavated by shovel in arbitrary 10-cm levels to sterile glacial subsoils or 100 cm below surface, whichever comes first. All excavated soil will be screened through ¼-inch hardware cloth and any remaining cultural material will be bagged and labeled with provenience information. Soil horizons/profiles will be recorded for each test pit. Digital photographs will be taken of the Project with a specific focus on those areas targeted for subsurface testing and Field-Identified Archaeological Resources. Test pit soil profiles will be photographed if they contain potentially significant cultural features, soil anomalies, and/or structural remains.

Laboratory Processing and Analyses

Any cultural materials collected during the Phase IB survey will be returned to PAL's laboratory for processing and analyses, to include the following:

- cleaning, identification, and cataloging of any recovered cultural materials;
- preliminary analysis of spatial distributions of cultural materials; and
- map and graphics production.

Work Products

Following completion of the fieldwork and laboratory analyses, a technical report will be prepared that follows the guidelines established by the National Park Service in the *Recovery of Scientific, Prehistoric, Historic, and Archaeological Data* (36 CFR Part 66, Appendix A) and by the VDHP. The draft report will be submitted to TDI-NE and the VDHP for review and comment. The final report will include VDHP archaeological site forms, as needed, and all associated GIS data.

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