



The University of Vermont

September 25, 2019

Jake Clark  
Encore Renewable Energy  
110 Main Street, Suite 2E  
Burlington, VT 05401

**RE: End-of-field letter for the Phase I Site Identification Survey for the Proposed Bradford Solar Project, Bradford, Orange County, Vermont**

Dear Jake,

Attached, please find an End-of-field letter for the Phase I Site Identification Survey for the Proposed Bradford Solar Project, Bradford, Orange County, Vermont.

The results of the surface survey and excavation of two, 50, 50 x 50 cm test pits did not recover any archaeological artifacts or features. As a result, no sites were identified and the proposed project will have no impact on significant cultural resources. Therefore, no additional archaeological work is recommended.

Thank you for your interest in working with us on this project. Please feel free to contact me if you have any questions.

Sincerely,

Charles Knight, Ph.D.  
Assistant Director

**End of Field letter Report for the Archaeological Phase I Site Identification Survey for the  
Proposed Bradford Solar Project, Bradford, Orange County, Vermont**



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

**Report No. 1210**

**September 25, 2019**

**End of Field letter Report for the Archaeological Phase I Site Identification Survey for the  
Proposed Bradford Solar Project, Bradford, Orange County, Vermont**

**Prepared by:**

**Charles Knight, Ph.D.**

**Prepared for:**

**Jake Clark  
Encore Renewable Energy  
110 Main Street, Suite 2E  
Burlington, VT 05401**

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## **Introduction**

Bradford Solar, LLC., with assistance from Encore Renewable Energy proposes the Bradford Solar Project, Bradford, Orange County, Vermont (Figure 1). The proposed project will build a 500kW net-metered solar array on approximately 2 acres on property located off Waits River Road in Bradford, VT. The proposed project will consist of approximately 1,575 solar panels installed on fixed racking systems across approximately 2 acres. A network of string inverters will be dispersed across the solar array connected with underground cables installed in protective conduit. In addition, an Overhead line extension from nearby 3 phase power running East to West on Waits River Road. A 7-8 ft agricultural type perimeter fence will be installed to surround the solar array. Finally, access will be through the adjacent storage facility.

The Vermont Division for Historic Preservation reviewed the proposed project and determined that it would disturb archaeological sensitive landforms. As a result, they recommended a Phase I site identification survey as part of the Section 248 permitting process.

## **Environmental Background**

The proposed project's Area of Potential Effects (APE) is situated within an ancient glacial outwash terrace of the Connecticut River and the soils throughout the APE are classified as Agawam Fine Sandy Loam (USDA NRCS 2019). These soils are excessively drained and prone to erosion if exposed for long duration. The entire APE is located at an elevation of 60-80 m above mean sea level (197-262 ft a.m.s.l). At the time of the Phase I testing, the largest archaeological sensitive area was located in a field that had been recently plowed, while the smaller sensitive area was in open meadow.

The Connecticut River is the major hydrological feature within the general project area. The Connecticut River is the longest river in New England, at 660 km (410 miles), and one of the major north-south trending drainages in the northeast, connecting the border area of Quebec with the Long Island Sound and, ultimately, the Atlantic Ocean. Likewise, the Connecticut River is the receiving watershed east of the Green Mountains in Vermont, and therefore represents the eastern edge of a water-based transportation route connecting the Saint Lawrence seaway, via Lake Champlain and Vermont's inland rivers, with the Atlantic. The drainage area of its southerly flow is roughly 18,129 km<sup>2</sup> (7,000 mi<sup>2</sup>), and its watershed accounts for 41% of Vermont's total land area. The total elevation fall of the river is about 756 m (2,480 ft), the vast majority of the drop in its northerly most stretch of the river. The project area is located approximately 1.3 km (0.08 mi) southwest of the river.

Tributaries are common along the Connecticut River, and some are rather large and complex, such as the Waits River, which is the largest tributary in the local area and located 1 km to northeast of the project area. In fact, the project area lies 1 km south of the confluence of the Waits and Connecticut Rivers. Other major tributaries that feed into the Connecticut River include the Passumpsic River, the Wells, White, Williams, and West Rivers, As major

watercourses, the Waits and its tributaries acted for millennia as important Native American travel and communication corridors in eastern Vermont.

### **Phase I Field Methodology**

The Phase I site identification survey included a surface survey of the proposed array location, after it had been plowed, harrowed, and rain had fallen. In addition, the excavation of two, 50 x 50 cm (20 x 20 in) test pits at 5-m intervals along one 10-meter long transect, occurred in the location of the proposed access road.

The surface survey consisted of the field crew members walking along parallel transects within the plowed furrows spaced 1 m apart, scanning the ground for visible surface artifacts. When an artifact is identified it is flagged, and its location shot-in with a hand-held GPS unit. When its surface location has been recorded, it is then collected. Subsurface test pits are also excavated in areas of high surface artifact density, or when temporally diagnostic artifacts are identified on the surface or, in this case, in those areas that were not plowed at all, such as the access road alignment. All soils were excavated in arbitrary 10 cm (4 in) vertical levels with respect to the local soil stratigraphy and screened through 0.64 cm (1/4 in) mesh screens. A representative wall of each test pit was schematically drawn according to soil color, texture and standard UVM CAP nomenclature. Select walls of select test pits were photographed in digital color format. At the completion of excavation, each test pit was carefully back-filled and returned as close as possible to its original state. At a minimum, the location of the first and last test pits each transect were recorded with a handheld Global Positioning System (GPS) to ensure their accurate location on appropriate design plans and maps.

### **Phase I Results**

The plowed array area was surface inspected and no artifacts were identified on the surface at any point (Figure 3). After the surface survey, two test pits were excavated along Transect 1 within the limits of the proposed access road. Both test pits were negative. The soils encountered along Transect 1 include a Ap/fill layer to a depth of 20-38 cm (8-15 in) of dark gray silt loam, overlying either a A1 layer 18 cm (7 in) thick, or two 10 cm (4 in) thick B horizons (Appendix 1).

During the field survey, a local resident visited the field crew and mentioned that some years ago, large utility lines had been placed across the project field to service the near-by shopping plaza. The undulations of these utility trenches were still barely visible on the surface.

### **Conclusions and Recommendations**

The University of Vermont Consulting Archaeology Program (UVM CAP) conducted an archaeological Phase I site identification survey within the limits of the proposed Bradford Solar Project, Bradford, Orange County, Vermont. The Phase I consisted of a surface survey and subsurface testing of two, 50 x 50 cm test pits. No archaeological artifacts were identified on either the surface of the array location or in any of the test pits. As a result, no sites were

identified and the proposed project will have no impact on significant cultural resources. For this reason, the UVMCAP recommends no additional archaeological work as part of the ACT 248 permitting process.

Please feel free to contact us if you have questions regarding this study.

Sincerely,

A handwritten signature in black ink, appearing to read "Charles Knight". The signature is fluid and cursive, with a large, sweeping flourish at the end.

Charles Knight, Ph.D.  
Assistant Director

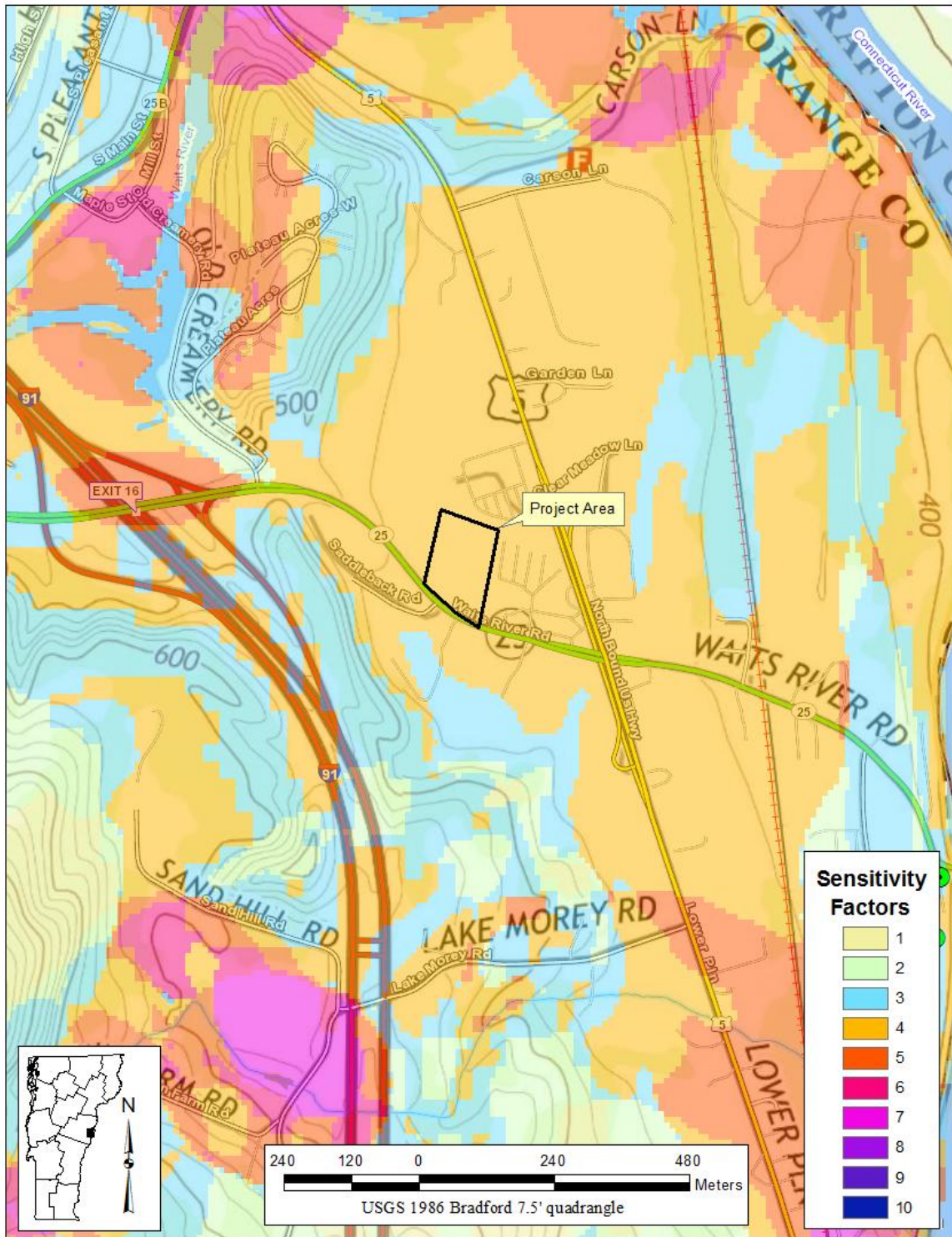


Figure 1. Map showing the location of the proposed Bradford Solar Project, in relation to archaeological sensitivity factors and known archaeological sites, Bradford, Orange County, Vermont.



Figure 2. Map showing the location and extent of the proposed Bradford Solar Project, Bradford, Orange County, Vermont.



Figure 3. Map showing the limits of the plowing and the Phase I surface survey and excavations for the proposed Bradford Solar Project, Bradford, Orange County, Vermont



<b>Project:</b> <i>Bundled Solar</i>	<b>Supervisor:</b> <i>GAM</i>	<b>Test Pit:</b> <i>TR1 TP1</i>
<b>Site:</b>	<b>Excavators:</b> <i>KMK AJO</i>	<b>Feat #:</b> <b>Mesh:</b> <i>1/4"</i>
<b>Area and/or Locus:</b>	<b>PN Block:</b> <i>100's</i>	<b>Date:</b> <i>9/17/19</i>

0 cmbs	Ground Surface	PN #	Artifacts	Soil Descriptions
10		<i>100</i>	<i>NAR</i>	<i>AP 10YR/3<sup>5</sup> DK BR F.S. COAR</i>
20	<i>AP Fill 20cmBS</i>			
30				<i>B1 2.5Y<sup>5</sup>/4 LTOL BR F.S. MED S.</i>
40	<i>B1 40cmBS</i>			
50	<i>B2 50cmBS</i>			<i>B2 2.5Y<sup>5</sup>/3 LTOL BR MED SAND</i>
60	<i>///</i>			
70	<i>///</i>			
80	<i>NOT EX</i>			
90				
100				
110				
120				
130				
140				
150				

Wall:  *N*

Architectural Debris	<b>ARCT</b>	Lithic Debitage	<b>LDEB</b>	Miscellaneous	<b>MISC</b>
Bone	<b>BONE</b>	Lithic FCR	<b>LFCR</b>	Manufacturing Scrap	<b>MSHB</b>
Ceramic European	<b>CERM</b>	Lithic Tool Flaked	<b>LTFL</b>	Other	<b>OTHR</b>
Feature Soil	<b>FEAS</b>	Lithic Tool Ground	<b>LTGR</b>	Native American Pottery	<b>PTRY</b>
Floral Remains	<b>FLOR</b>	Lithic Unmodified	<b>LUNM</b>	Shell	<b>SHEL</b>
Glass	<b>GLAS</b>	Metal	<b>METL</b>	Other Soil	<b>SOIL</b>

*Provide comments on (1) Artifacts (2) Soil inclusions, staining, and mottling (3) Disturbances and context (4) Test Pit Location*

**Comments:** *Pit TR1 TP1 located South of proposed solar array and approx 10 meters East of storage units fence. No Pottery or Ls Recovered*  
*- South East corner of test pit revealed old water line excavation & fill*