

**Archaeological Resources Assessment for the proposed Vanguard Renewables Biodigester
Project, West Salisbury, Addison County, Vermont**

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Report No. 1158

September 28, 2018

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Project Description

Vanguard Renewables, with assistance from VHB, proposes the Vanguard Renewables Biodigester Project, West Salisbury, Addison County, Vermont (Figure 1). The proposed biodigester project will construct a biodigester facility on portions of a farm located immediately west of the intersection of Shard Villa Road and Pigeon Road W in Salisbury, Vermont. The proposed project will include the construction of a 5.3 mgal nutrient liquid storage tank, a stormwater treatment facility, two anaerobic digesters, various boilers and electrical facilities, a gas metering station, and other storage facilities (Figure 2).

The University of Vermont Consulting Archaeology Program conducted an Archaeological Resources Assessment (ARA) as part of the Section 248 permitting process and identified one area of was identified as sensitive for pre-Contact Native American archaeological sites.

Study Goal

The goal of an ARA (or “review”) is to identify portions of a specific project’s Area of Potential Effects (APE) that have the potential for containing pre-Contact and/or historic sites. An ARA is to be accomplished through a “background search” and a “field inspection” of the project area. For this study, reference materials were reviewed following established guidelines. Resources examined included the National Register of Historic Places (NRHP) files; the Historic Sites and Structures Survey; and the USGS master archaeological maps that accompany the Vermont Archaeological Inventory (VAI). Relevant town histories and nineteenth-century maps also were consulted. Based on the background research, general contexts were derived for pre-Contact and historic resources in the study area.

Archaeological Site Potential

No known pre-Contact Native American archaeological sites exist within the limits of the project parcel. The closest known archaeological site is VT-AD-292, which is located 165 m north of the northern limit of the project parcel. There a pre-Contact Native American site was identified by local avocational archaeologists. Information on what was found however, is not available in the Vermont Archaeological Inventory, except for the fact that artifacts found there are in a local, private artifact collection. Beyond this, several pre-Contact Native American sites are known from just over 1 km away to the west and southwest, associated with the Otter Creek drainage. The Otter Creek was a major inland thoroughfare during the pre-Contact era, as well as during the early historic period connecting the western slopes of the Green Mountains with Lake Champlain. Because the Otter Creek represents one of the southern-most inland routes from lake Champlain, and that it intersects areas of the Green Mountains that contain fine-grained quartzite, which was extensively used for Native American stone tool production, the Otter Creek and its various tributaries contain one of the highest concentrations of pre-Contact Native American sites anywhere in Vermont.

In regard to historic period resources, both the 1857 Wallings map (Figure 3) and the 1871 Beers map (Figure 4) show no structures within the limits of the proposed project area, except for the structure attributed to W.W. Doud, which represents the farm house that is still in existence today. As a result, there is no chance that any historic period archaeological sites will be impacted by the proposed project, since no historic period occupation occurred in the area of the proposed impacts.

Desk Review

As part of the desk review, the UVM CAP utilized the Vermont Division of Historic Preservation's (VDHP) predictive model for identifying pre-Contact Native American archaeological sites. The Vanguard Renewables Biodigester Project area scores 36 on the Predictive Model, due to its location within 90 m of a tributary of the Otter Creek (12), and on an outwash terrace along the Otter Creek valley (12), and along a natural travel corridor (12). In addition to the paper-based predictive model, the desk review uses a Geographical Information System (GIS) developed jointly by the UVM CAP, and its consultant Earth Analytic, Inc., which operationalizes the paper-based model. It does this by applying the VDHP's sensitivity criteria to all lands within the State of Vermont. In these maps, archaeological sensitivity is depicted by the presence of one or more overlapping factors, or types of archaeological sensitivity (i.e. proximity to water, etc.). The Vanguard Renewables Biodigester Project area is located in an area that contains seven sensitivity factors, which are: Drainage, Waterbody, Wetland, Stream-Water Confluence, Head-of-draw, Stream confluence, and Level Terrain (see Figure 1).

Field Inspection

A field inspection of the project area was carried out on September 24 and 27, 2018 by Charles Knight, Assistant Director of the UVM CAP. Knight walked the entire project parcel. The parcel centers around a small intermittent stream, which trends from the northeast corner of the parcel to the southwest corner, and feeds the large artificial pond in the center of the parcel. A proposed 5.3 mgal nutrient liquid storage tank is proposed in the eastern end of the project parcel, southeast of the pond (see Figure 2). This area is marked by sloped inner banks that enter the small intermittent stream, and then levels out to the south (Figures 5-7). The level field adjacent to the stream is the principal location of the nutrient liquid storage tank and potential stormwater treatment facility. Soil cores taken in this area indicate intact, dense Vergennes clay throughout. Considering the relative levelness of this portion of the project parcel and proximity to this small tributary of the Otter Creek, the level portion of the landform is considered archaeologically sensitive. The northern banks of this drainage, which loosely correspond to the access road and edge of the residential yard and calk pens to the north, also is archaeologically sensitive, and is the location of a proposed gas metering station.

The area to the south of the central pond, and to its immediate southwest, where a potential stormwater treatment facility is proposed is marked by slope, both north and south trending (Figure 8). In addition, the soils in this area are likely disturbed, since large cobbles were seen throughout the surface area (Figure 9). The area of the proposed Biogas upgrader, the office building and the Hydrolyzer, all in the western half of the parcel (see Figure 10), has been heavily disturbed (Figure 11). The area farther west, in the woods beyond this major disturbance, and

where the Anaerobic Digesters are proposed, is entirely ledge (Figure 12). Little to no soil development was identified in that wooded area, and therefore it is not archaeologically sensitive. Finally, the area to the far north, northwest of the existing South lagoon, where a proposed manure separation building is proposed, is disturbed. It is located in an area of several well-used dirt roads to various buildings and parts of the farm complex, that have seen some leveling. As a result, only two areas of archaeological sensitivity were identified, which consist of the northern and southern banks of an unnamed tributary of the Otter Creek, located in the eastern end of the project parcel (Figure 13).

Conclusions

Vanguard Renewables, with assistance from VHB, proposes the Vanguard Renewables Biodigester Project, West Salisbury, Addison County, Vermont. The UVM CAP conducted an Archaeological Resources Assessment of the proposed biodigester project and two areas of archaeological sensitivity were identified. The proposed nutrient liquid storage tank and stormwater treatment facility will be located just south of a small tributary of Otter Creek, where soils are intact. Likewise, the proposed location of the gas metering station, just north of this area likely contains intact soils. These are the only areas within the proposed project parcel that are intact, as all other areas have either been heavily disturbed or are in ledge. The eastern end of the project parcel would have been a suitable area for short, or long-term encampments by pre-Contact Native Americans associated with the unnamed drainage, and as a result the general area is archaeologically sensitive. A Phase I site identification survey, as part of the Section 248 permitting process is recommended in these sensitive areas if they cannot be avoided.

Thank you for working with us on this project. Please let me know if you have any questions or comments.

Charles Knight, Ph.D.
Assistant Director

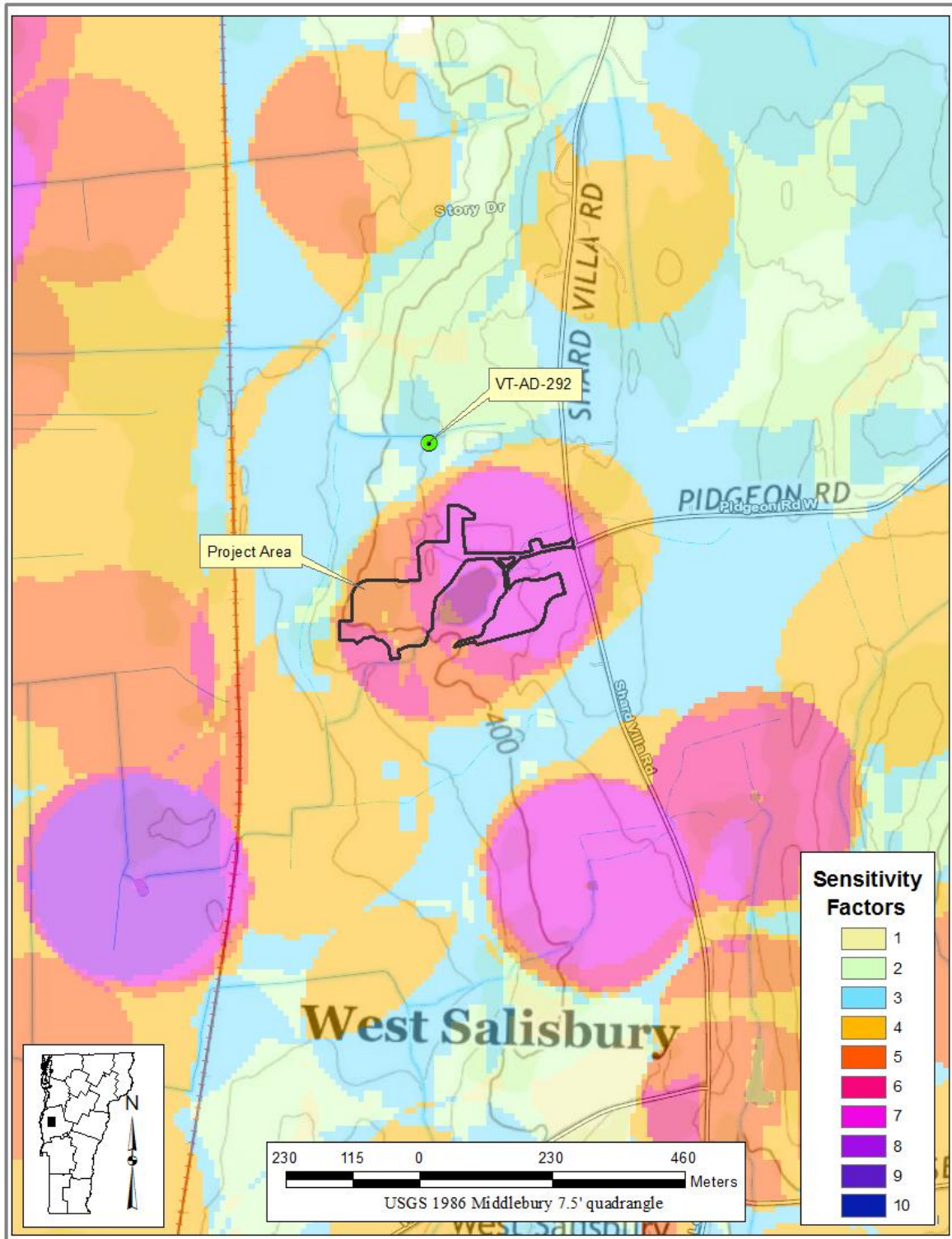


Figure 1. Map showing the location of the proposed Vanguard Renewables Biodigester Project, in relation to archaeological sensitivity factors, West Salisbury, Addison County, Vermont.

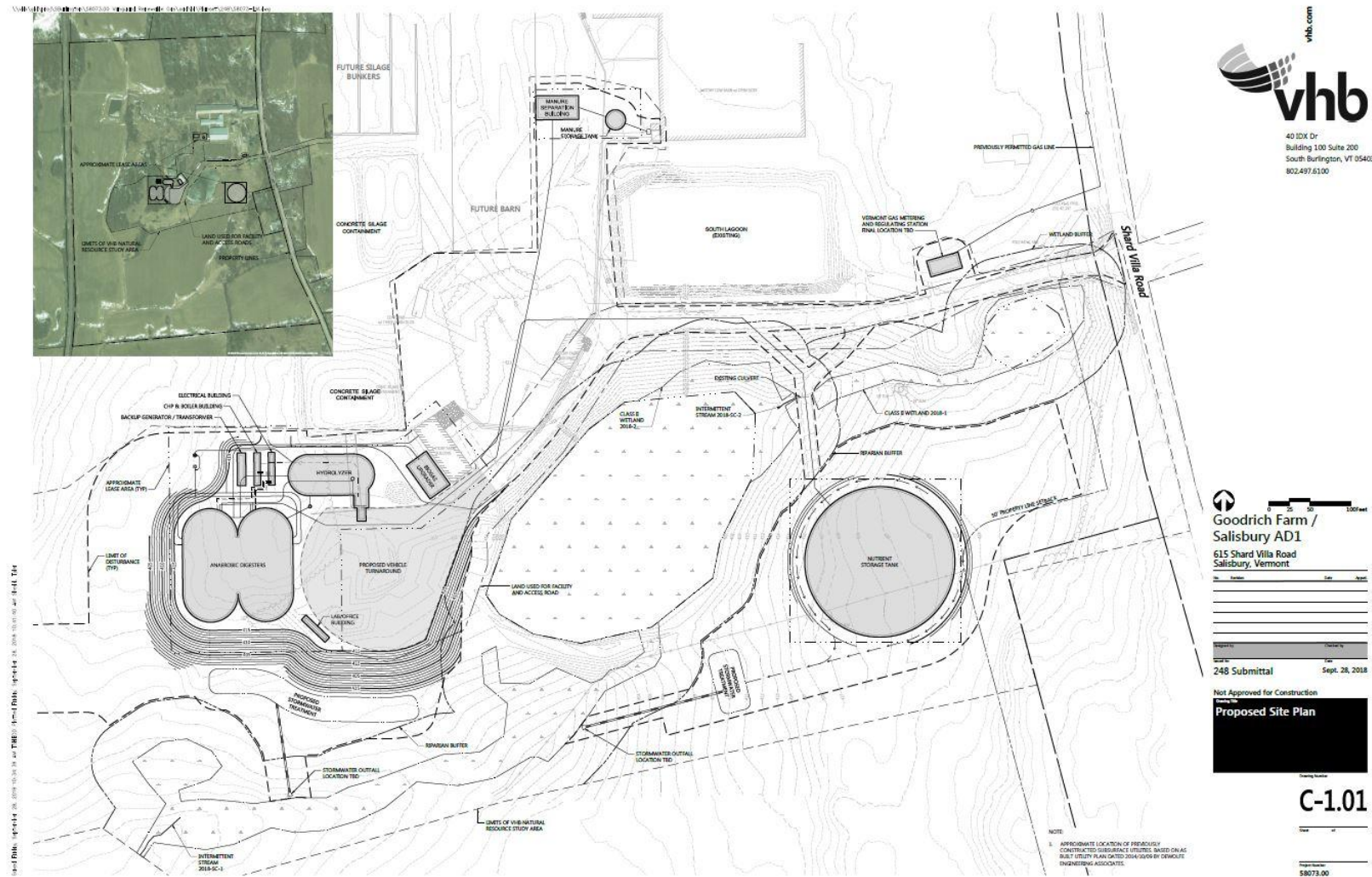


Figure 2. Schematic layout of Segment 1 of the proposed Vanguard Renewables Biodigester Project, West Salisbury, Addison County, Vermont.

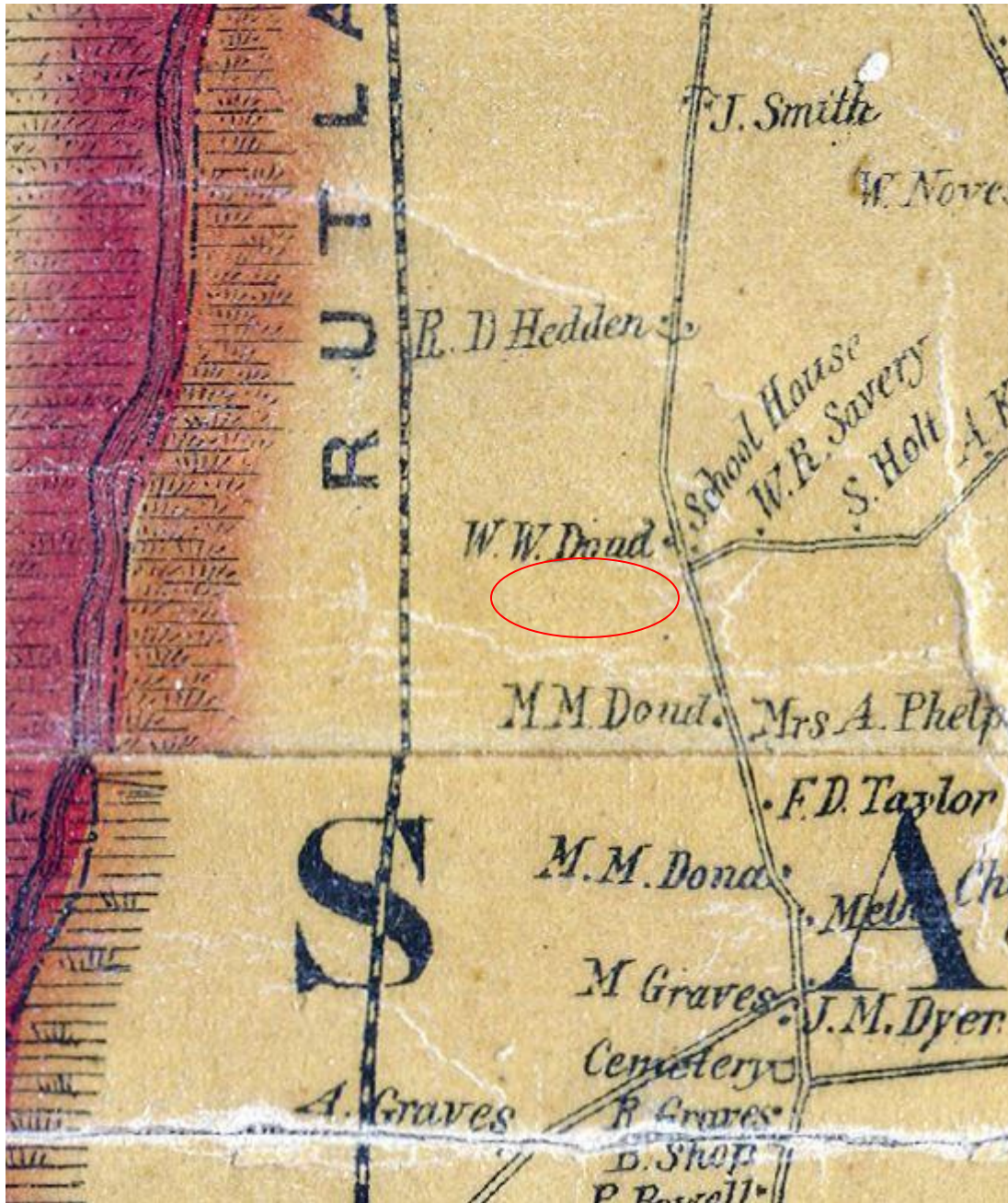


Figure 3. Historic 1857 Wallings map showing the location of the proposed Vanguard Renewables Biodigester Project, West Salisbury, Addison County, Vermont.

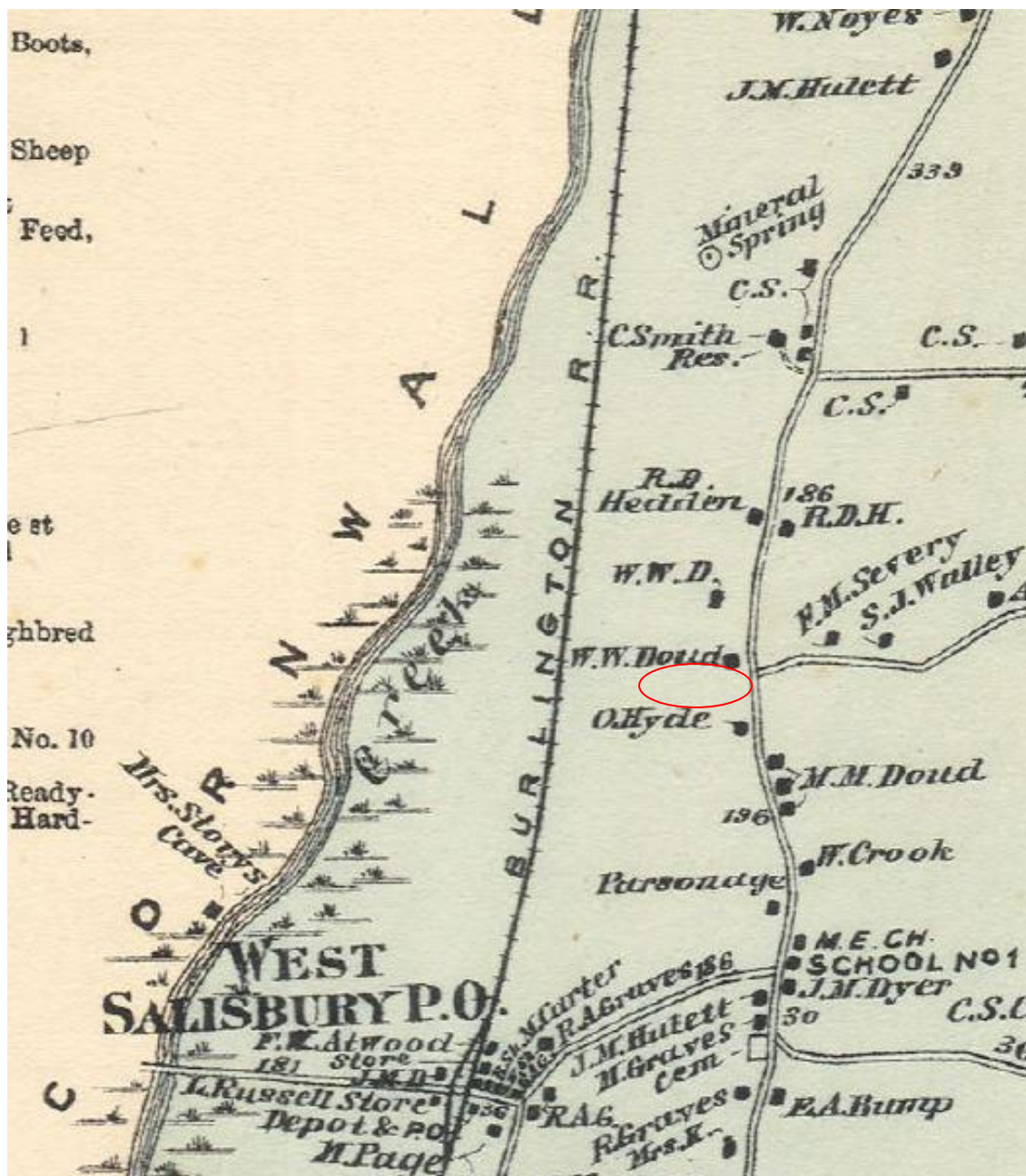


Figure 4. Historic 1857 Wallings map showing the location of the proposed Vanguard Renewables Biodigester Project, West Salisbury, Addison County, Vermont.



a



b

Figure 5. Photos looking north (a), and west (b) in the area of the proposed Nutrient Liquid Storage Tank for the proposed Vanguard Renewables Biodigester Project, West Salisbury, Addison County, Vermont.



a



b

Figure 6. Photos looking northeast across the drainage (a) and northeast, but farther south at the location of the Nutrient Liquid Storage Tank for the proposed Vanguard Renewables Biodigester Project, West Salisbury, Addison County, Vermont.



a



b

Figure 7. Photos looking south across the drainage (a), and east across the south bank of the drainage in the area of the proposed Nutrient Liquid Storage Tank for the proposed Vanguard Renewables Biodigester Project, West Salisbury, Addison County, Vermont.



a



b

Figure 8. Photos looking northwest (a) and west (b) across the southern edge of the proposed Vanguard Renewables Biodigester Project, West Salisbury, Addison County, Vermont.



a



b

Figure 9. Photos looking east (a & b) southwest of the large pond in the middle of the proposed Vanguard Renewables Biodigester Project, West Salisbury, Addison County, Vermont.



a



b

Figure 10. Photos looking east towards the large pond and rocky surface (a), and northwest at the truck turnaround area and large rubbish dump (b) for the proposed Vanguard Renewables Biodigester Project, West Salisbury, Addison County, Vermont.



a



b

Figure 11. Photos looking west from the corner of the 2-story farm building (a), and farther west at the location of the proposed Hydrolyzer for the proposed Vanguard Renewables Biodigester Project, West Salisbury, Addison County, Vermont.



a



b

Figure 12. Photos looking south (a) and east (b) at the ledge throughout the location of the proposed anaerobic digesters in the western edge of the parcel for the proposed Vanguard Renewables Biodigester Project, West Salisbury, Addison County, Vermont.

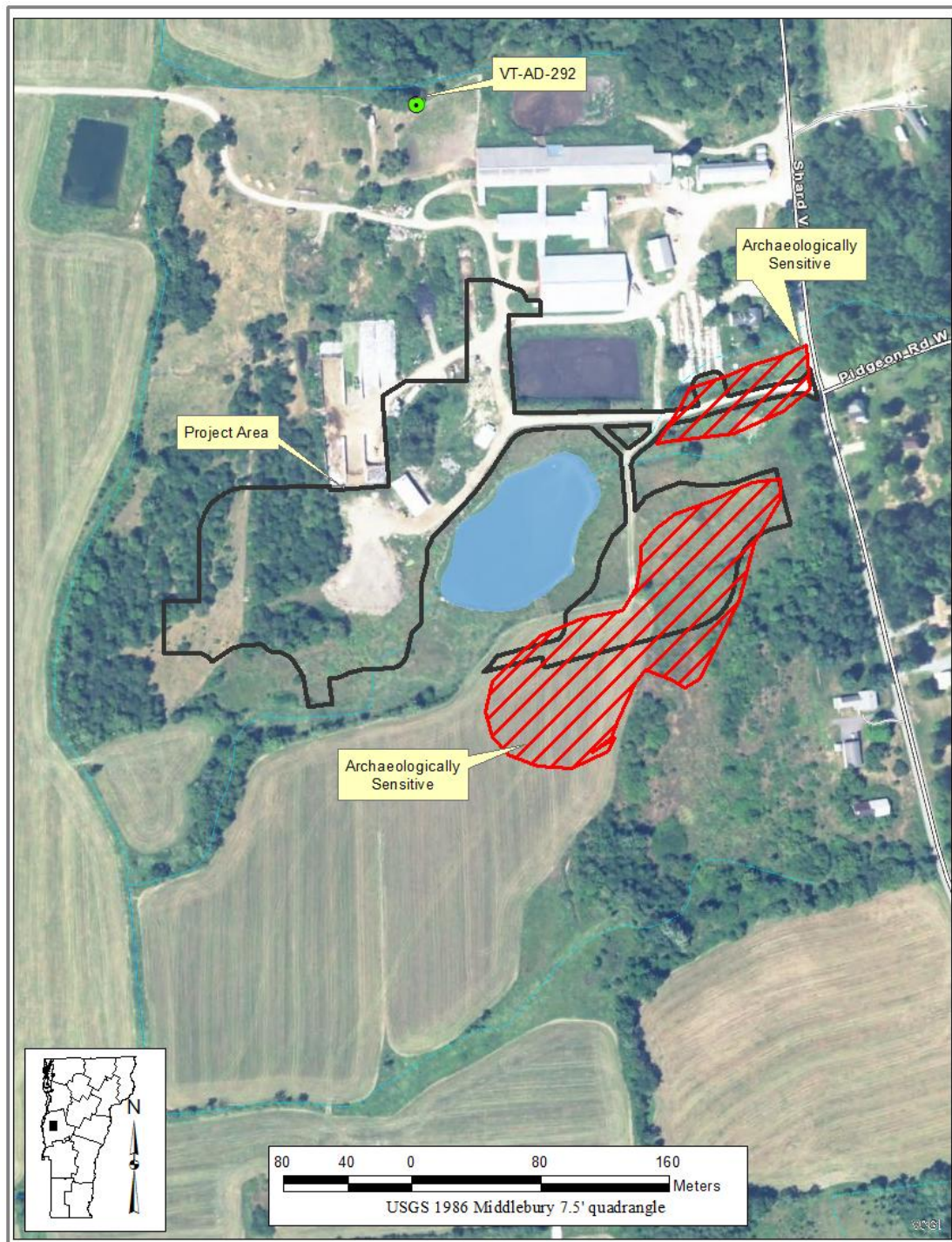


Figure 13. Map showing the location of the archaeologically sensitive portions of the proposed Vanguard Renewables Biodigester Project, West Salisbury, Addison County, Vermont.