

SEPTEMBER 2020

PHASE IB ARCHAEOLOGICAL
& ARCHITECTURAL SURVEY
OF THE PROPOSED GRAVEL
PIT SOLAR PROJECT IN EAST
WINDSOR, CONNECTICUT

PREPARED FOR:

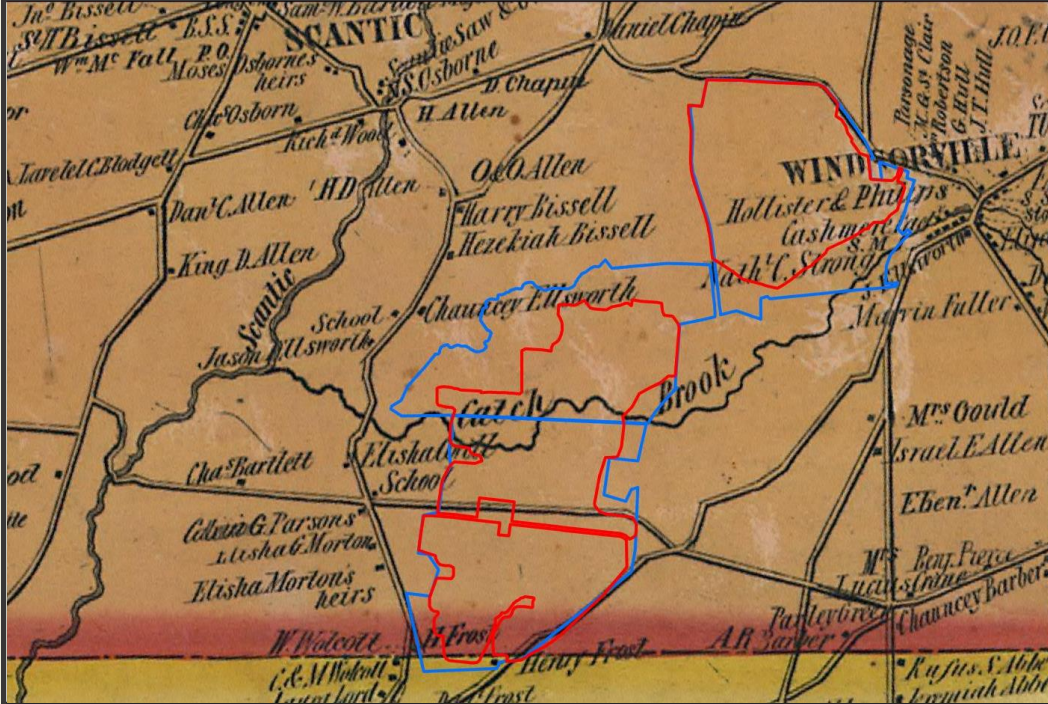


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ABSTRACT

This report presents the results of a Phase IB archaeological and architectural survey for the proposed Gravel Pits Solar I, LLC; Gravel Pits Solar II, LLC; Gravel Pit Solar III LLC; and Gravel Pit Solar IV, LLC (collectively Gravel Pit Solar) Project in East Windsor, Connecticut. The proposed project will include the development of a 120 megawatt (MW) alternating current (AC) ground-mounted solar photovoltaic system. The 485 acre Project Site is situated on portions of eight parcels of land, totaling approximately 737 acres; it is located near Apothecaries Hall Road, Plantation Road, Wapping Road, and Windsorville Road in the East Windsor, Connecticut. Heritage Consultants, LLC completed a Phase IA cultural resources assessment survey of the area in March of 2020. The results of the Phase IA survey indicated that a total of 238.9 acres of land within the Project Site retained moderate sensitivity for intact archaeological deposits. The 238.9 acres of land was divided between forested areas and agricultural fields. A total of nine forested areas were deemed archaeologically sensitive, and it was recommended that the nine areas be subjected to Phase IB cultural resources reconnaissance survey using a systematic subsurface testing regime. In addition, 12 agricultural fields were also deemed archaeologically sensitive, and it was recommended that they be subjected to systematic pedestrian survey augmented by limited shovel testing where artifacts were surface collected.

The Phase IB archaeological survey was completed by in June of 2020. A total of 389 of 474 planned shovel tests (82 percent) were excavated throughout the project area. A total of four archaeological loci were identified. A single locus was identified in Test Area 2 and designated Locus 2-1. Two loci were identified in Pedestrian Survey Area 7 and designated Locus PSA-7-1 and Locus PSA-7-2, respectively. Finally, the fourth locus was identified within Pedestrian Survey Area 10 and was designated Locus PSA-10-1. No cultural features or soil anomalies were identified in association with the four loci, and the components could not be assigned a specific date or cultural affiliation due to the absence of temporally diagnostic artifacts. All four loci were assessed as not significant applying the National Register of Historic Places (NRHP) criteria for evaluation (36 CFR 60.4 [a-d]). No impacts to archaeological resources are expected by the construction of the proposed solar facility, and no additional archaeological examination of the Project area is recommended.

The architectural survey portion of the investigation revealed that the Project Site also contained historic residences, tobacco sheds, English style barns, ancillary farm buildings, a standing water tower, and a dilapidated water tower. Some of these structures, including six of the tobacco sheds and three other buildings, will not be impacted directly by the Project. In addition, the extant water tower in the area will not be directly impacted by the Project. The historic structures located within and immediately adjacent to the Project Site retain a high level of integrity, are of importance to the historic agricultural landscape, and are dwindling types of resources according to the Connecticut State Historic Preservation Office (CT-SHPO). Given its massive size, age, and cohesiveness, it is the opinion of Heritage that the Markowski Farm site may be eligible for listing in the NRHP. This determination, however, will have to be made by the CT-SHPO.

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CHAPTER I

INTRODUCTION

This report presents the results of a Phase IB cultural archaeological and architectural survey of the proposed Gravel Pits Solar Project (GPS or Project) in East Windsor, Connecticut (Figure 1). Vanasse Hangen Brustlin (VHB) requested that Heritage Consultants, LLC (Heritage) complete the Phase IB survey as part of the planning process for the proposed Project, which will be built on approximately 485 acres (Project Site) situated on portions of eight parcels, totaling approximately 737 acres. The Project Site is located near Apothecaries Hall Road, Plantation Road, Wapping Road, and Windsorville Road in the Town of East Windsor, Connecticut. The Project Site is surrounded by parcels of land that have varied uses, including a golf course, landfill, solar generation, housing development, an electrical transmission corridor and wooded areas. Heritage completed this Phase IB investigation on behalf of VHB in July of 2020. All work associated with this project was performed in accordance with the *Environmental Review Primer for Connecticut's Archaeological Resources* (Poirier 1987) promulgated by the Connecticut State Historic Preservation Office (CT-SHPO).

Project Description and Methods Overview

Gravel Pit Solar proposed the Project in response to the New England Clean Energy request for proposals solicited by the Connecticut Department of Energy and Environmental Protection (CT DEEP), Eversource Energy, National Grid, and Unitil. The Project consists of a 120 megawatt (MW)-alternating current (AC) solar power generating facility and will be built within an approximately 485 acre area zoned as agricultural, manufacturing, and residential use; the area is currently managed for mining operations and agricultural production.

The Project will include the installation of a mix of tracker and fixed solar photovoltaic panels, panel racking, inverter skids, a collector substation and switchyard, gravel site roads, fencing, and stormwater management features. Site roads will be approximately 15-foot wide and will provide access to equipment and safety fencing. The panels will connect to direct buried cross-linked polyethylene cables that will connect the panel arrays to inverter skids. The panel array will connect to the substation and interconnect to the existing Eversource Transmission corridor via a new switchyard. The facility perimeter will be surrounded by a 7-foot-high agricultural type fence to provide security and for rural esthetic purposes. The Project substation and switchyard will be enclosed by an 8-foot chain link fence with barbed wire.

Generally, the Project will conform to existing surface grades. Within the fence line, where steep slopes are present, grading will be required to achieve maximum slopes of 15 percent. Limited grading will be necessary around the Project perimeter to meet existing grades. Proposed array foundations will be driven piles, either H-piles or pre-drilled concrete. Gravel electrical inverter skids will be placed on piles with gravel aprons. Direct buried cable will be trenched in approximately 3 to 4 feet below grade. Outside of the fence, an approximately 100-foot-wide zone around the east, west, and south sides will be cleared of vegetation and managed to prevent panel shading during the operation life of the Project.

Heritage completed a Phase IA cultural resources assessment survey of the Project Site in March of 2020. That study consisted of a contextual overview of the region's prehistory, history, and natural setting (e.g., soils, ecology, hydrology, etc.), a literature search to identify and discuss previously completed cultural resources surveys and previously recorded cultural resources in the region

encompassing the Project Site, a review of historic maps and aerial imagery depicting the Project area in order to identify potential historic resources and/or areas of past disturbance, a pedestrian survey and photo-documentation of the Project area in order to determine its archaeological sensitivity, photo-documentation and examination of historic standing structures within the Project area and preparation of a detailed report.

The results of the Phase IA survey determined that a total of 238.9 acres of land within the Project Site retained a moderate sensitivity for archaeological deposits within a mixture of wooded areas and plowed fields. Heritage recommended that the archaeologically sensitive wooded areas be subjected to Phase IB archaeological survey using a subsurface testing regime characterized by the excavation of shovel tests measuring 50 x 50 cm (19.7 x 19.7 in) in size at 15 meter (49.2 foot) intervals along survey transects spaced 15 meters (49.2 feet) apart. A total of nine wooded areas were identified were designated as "Test Areas" and numbered 1 through 9. It was also recommended that a total of 12 agricultural fields also be subjected to Phase IB cultural resources reconnaissance survey through a modified field approach using pedestrian survey augmented by limited shovel testing. The pedestrian survey of the agricultural fields was completed by spacing archaeologists 5 meters (16.4 feet) apart in a straight line and having them traverse each field while visually inspecting the surface for the presence of artifacts. If no artifacts were identified on the surface, then no additional fieldwork was conducted. However, if cultural materials were identified on the surface then shovel tests were excavated at 7.5 meters (25.6 feet) intervals throughout the area around each identified artifact. These 12 agricultural fields were designated as "Pedestrian Survey Areas" and numbered 1 through 12.

As part of the current investigation, Heritage architectural historians also visited the Project Site and recorded all historic standing structures located within proposed areas of impact, as well as near the boundaries of the development area. During the field visit, pedestrian survey was completed, and all historic buildings were recorded and photographed. The historic buildings were then assessed and ranked as to their condition and level of historical integrity. The ranking scheme included the following: Level 1 buildings were those considered to retain the highest level of originality and integrity; Level 2 buildings were those that had some of their original historic fabric altered, but still retained overall good integrity; and Level 3 buildings were those considered to be highly altered, were in an advanced state of decay, and/or retain little, if any, historical integrity. In addition, all of the historic buildings were depicted on a 2019 aerial image of the area and color coded as follows: Level 1 buildings were shown in red; Level 2 buildings were depicted in yellow; and Level 3 buildings were labeled in green. Finally, the buildings on the tobacco farm were assessed collectively applying the National Register of Historic Places (NRHP) criteria for evaluation (36 CFR 60.4 [a-d]).

Project Results and Management Recommendations Overview

Heritage conducted a review of historic maps and aerial images of the Project area, files maintained by the CT-SHPO, as well as pedestrian survey of the development area failed to detect any previously identified archaeological sites or National/State Register of Historic Places properties within 1.6 km (1 mi) mile of the project area. This is likely due to a lack of professional surveys in this area rather than an actual absence of cultural resources.

Heritage also conducted analysis of both historic maps and aerial images of the project area and combined that data with the results of the pedestrian survey to stratify the project area into zones of no/low and/or moderate archaeological sensitivity. It was determined that portions of the project area contain low slopes and well-drained soils and that portions of the Project area have the potential to contain intact archaeological deposits. As a result, Phase IB archaeological survey was recommended

prior to construction of the proposed solar facility and the results of the Phase IB survey are discussed presented briefly below.

During the archaeological survey effort, a total of 389 of 474 planned shovel tests (82 percent) were excavated throughout the previously identified moderate sensitivity areas. This resulted in the identification of four non-site cultural resources loci. A single locus was identified in Test Area 2 and designated Locus 2-1, while two loci were identified in Pedestrian Survey Area 7 and designated Locus PSA-7-1 and Locus PSA-7-2, respectively. Finally, the fourth locus was identified within Pedestrian Survey Area 10 and was designated Locus PSA-10-1. Except for Locus PSA-7-2, each of these consisted of a single prehistoric artifact. Locus PSA-7-2 yielded a single 1 historic period kaolin pipe stem fragment. Despite delineation testing throughout each locus, no additional artifacts, cultural features, or soil anomalies were identified; thus, the loci could not be assigned a specific date or cultural affiliation due to the absence of temporally diagnostic artifacts. All four loci were assessed as not significant applying the NRHP criteria for evaluation (36 CFR 60.4 [a-d]). No adverse impacts to archaeological resources are expected by the construction of the proposed solar facility, and no additional archaeological examination of the Project area is recommended.

Architectural survey of the Project Site revealed that it contained an operational, large-scale tobacco farming complex known as the Markowski Farm, one of the few such facilities remaining in Connecticut. The Markowski Farm is characterized by open areas punctuated by tobacco sheds along the periphery of the tobacco fields. The historic buildings identified during the architectural survey, included 28 tobacco sheds, two dormitory buildings, three houses, five English barns, a standing water tower, and a dilapidated water tower. Of these, the standing water tower, a barn converted into a dormitory, and a pole barn will not be impacted directly by the Project. The results of the architectural survey indicate that the historic buildings, structures, and landscapes associated with the Markowski Farm represent one of the last large-scale shade tent tobacco production facilities remaining in the Connecticut River valley. Despite some minor modern infill, the farm complex remains largely unchanged and intact. Given its massive size, age, and cohesiveness, it is the opinion of Heritage that the Markowski Farm site may be eligible for listing in the applying Criteria A and C the NRHP criteria for evaluation (36 CFR-60.4 [a-d]). This determination, however, will have to be made by the State Historic Preservation Office.

Project Personnel

Heritage Personnel who contributed to the project include Mr. David R. George, M.A., R.P.A. (Co-Principal Investigator); Ms. Stacey Vairo, M.F.S. (Co-Principal Investigator); Ms. Renée Petruzelli, M.A., R.P.A. (Project Archaeologist); Mr. Michael Forino, M.A., (Project Architectural Historian); Mr. Cory Atkinson, M.A., (Field Director); Mr. Stephen Anderson, B.A., (Geographic Information Specialist); Dr. Kristen Keegan PhD., (Senior Historian); and Ms. Elizabeth Correia, M.A. (Laboratory Supervisor).

CHAPTER II

NATURAL SETTING

Introduction

This chapter provides a brief overview of the natural setting of the region containing the Project Site in East Windsor, Connecticut. Previous archaeological research has documented that specific environmental factors can be associated with both prehistoric and historic period site selection. These include general ecological conditions, as well as types of fresh water sources present, degree of slopes, and soils situated within a given study area. The remainder of this chapter provides a brief overview of the ecology, hydrological resources, and soils present within the study area and the larger region in general.

Ecoregions of Connecticut

Throughout the Pleistocene and Holocene Periods, Connecticut has undergone numerous environmental changes. Variations in climate, geology, and physiography have led to the “regionalization” of Connecticut’s modern environment. It is clear, for example, that the northwestern portion of the state has different natural characteristics than the coastline. Recognizing this fact, Dowhan and Craig (1976), as part of their study of the distribution of rare and endangered species in Connecticut, subdivided the state into various ecoregions. Dowhan and Craig (1976:27) defined an ecoregion as:

“an area characterized by a distinctive pattern of landscapes and regional climate as expressed by the vegetation composition and pattern, and the presence or absence of certain indicator species and species groups. Each ecoregion has a similar interrelationship between landforms, local climate, soil profiles, and plant and animal communities. Furthermore, the pattern of development of plant communities (chronosequences and toposequences) and of soil profile is similar in similar physiographic sites. Ecoregions are thus natural divisions of land, climate, and biota.”

Dowhan and Craig defined nine major ecoregions for the State of Connecticut. They are based on regional diversity in plant and animal indicator species (Dowhan and Craig 1976). Only one of the ecoregions is germane to the current investigation: North-Central Lowlands Ecoregion. A summary of this ecoregion is presented below. It is followed by a discussion of the hydrology and soils found in and adjacent to the Project area.

North-Central Lowlands Ecoregion

The North-Central Lowlands ecoregion consists of a broad valley located between 40.2 and 80.5 km (25 and 50 mi) to the north of Long Island Sound (Dowhan and Craig 1976). It is characterized by extensive floodplains, backwater swamps, and lowland areas situated near large rivers and tributaries. Physiography in this region is composed of a series of north-trending ridge systems, the easternmost of which is referred to as the Bolton Range (Bell 1985:45). These ridge systems comprise portions of the terraces that overlook the larger rivers such as the Connecticut and Farmington Rivers. The bedrock of the region is composed of Triassic sandstone, interspersed with exceptionally durable basalt or “traprock” (Bell 1985). Soils found in the upland portion of this ecoregion are developed on red, sandy to clayey glacial till, while those soils situated nearest to the rivers are situated on widespread deposits of stratified sand, gravel, silt, and alluvium resulting from the impoundment of glacial Lake Hitchcock.

Hydrology in the Vicinity of the Project Site

The Project Site is situated within a region that contains to several sources of freshwater, including Pecks Brook, Ketch Brook, Spring Glen Brook, and Windsorville Pond, as well as unnamed streams, ponds, and wetlands. These freshwater sources may have served as resource extraction areas for Native American and historic populations. Previously completed archaeological investigations in Connecticut have demonstrated that streams, rivers, and wetlands were focal points for prehistoric occupations because they provided access to transportation routes, sources of freshwater, and abundant faunal and floral resources.

Soils Comprising the Project Site

Soil formation is the direct result of the interaction of many variables, including climate, vegetation, parent material, time, and organisms present (Gerrard 1981). Once archaeological deposits are buried within the soil, they are subject to various diagenic and taphonomic processes. Different classes of artifacts may be preferentially protected, or unaffected by these processes, whereas others may deteriorate rapidly. Cyclical wetting and drying, freezing, and thawing, and compression can accelerate chemically and mechanically the decay processes for animal bones, shells, lithics, ceramics, and plant remains. Lithic and ceramic artifacts are largely unaffected by soil pH, whereas animal bones and shells decay more quickly in acidic soils. In contrast, acidic soils enhance the preservation of charred plant remains.

A review of the soils within the Project Site is presented below. The Project Site is characterized by the presence of five major soil types: Agawam, Haven, Enfield, Manchester, and Udorthent soils (Figure 2). A review of the first four of these soils shows that they consist of well drained sandy loams; they are the types of soils that are typically correlated with prehistoric and historic use and occupation. Descriptive profiles for each soil type are presented below; they were gathered from the National Resources Conservation Service. The final soil type, Udorthents, are typical of areas that have been largely disturbed in the past and no longer retain archaeological sensitivity

Agawam Soils (Soil Code 29):

A typical profile associated with Agawam soils is as follows: **Ap**--0 to 11 in; dark grayish brown (10YR 4/2) fine sandy loam; light brownish gray (10YR 6/2) dry; weak medium and coarse subangular blocky structure; very friable; common fine and medium roots; strongly acid; abrupt smooth boundary; **Bw1**--11 to 16 in; dark yellowish brown (10YR 4/4) fine sandy loam; weak medium and coarse subangular blocky structure; very friable; common fine and medium roots; strongly acid; abrupt smooth boundary; **Bw2**--16 to 26 in; light olive brown (2.5Y 5/4) fine sandy loam; weak medium subangular blocky structure; very friable; common fine and medium roots; strongly acid; clear smooth boundary; **2C1**--26 to 45 in; olive(5Y 5/3) loamy fine sand; massive; very friable; few fine roots; strongly acid; clear smooth boundary; **2C2**--45 to 55 in; olive brown (2.5Y 4/4) loamy fine sand; massive; very friable; strongly acid; abrupt smooth boundary; and **2C3**--55 to 65 in; olive (5Y 5/3) loamy sand; single grain; loose; strongly acid.

Haven Soils (Soil Code 32):

A typical profile associated with Haven soils is as follows: **Oi**--0 to 2 in (0 to 5 cm); slightly decomposed plant material derived from loose pine needles, leaves and twigs. **Oa**-- 2 to 3 in (5 to 8 cm); black (5YR 2/1) highly decomposed plant material; **A**--3 to 6 in (8 to 15 cm); dark grayish brown (10YR 4/2) loam; weak fine and medium granular structure; friable; many fine and coarse roots; very strongly acid; abrupt smooth boundary; **Bw1**-- 6 to 13 in (15 to 33 cm); brown (7.5YR 4/4) loam; weak fine and medium subangular blocky structure; friable; common fine roots; many fine pores; very strongly acid; clear wavy

boundary; **Bw2**-- 13 to 22 in (33 to 56 cm); strong brown (7.5YR 5/6) loam; weak fine and medium subangular blocky structure; friable; common fine roots; many fine pores; 5 percent fine gravel; very strongly acid; gradual wavy boundary; **BC**-- 22 to 31 in (56 to 79 cm); yellowish brown (10YR 5/6) gravelly loam; weak medium and fine subangular blocky structure; friable; few fine roots; common fine pores; 20 percent fine gravel; very strongly acid; clear wavy boundary; **2C**-- 31 to 65 in (79 to 165 cm); yellowish brown (10YR 5/4) to brownish yellow (10YR 6/6) stratified gravelly sand; single grained; loose; 30 percent fine gravel; very strongly acid.

Enfield Soils (Soil Code 32):

A typical profile associated with Enfield soils is as follows: **Ap**--0 to 7 in; dark grayish brown (10YR 4/2) silt loam; moderate fine granular structure; friable; many very fine and fine roots; 5 percent fine gravel; strongly acid; abrupt smooth boundary; **Bw1**--7 to 16 in; strong brown (7.5YR 5/6) silt loam; weak medium subangular blocky structure; friable; common very fine and many fine roots; 5 percent fine gravel; strongly acid; clear wavy boundary; **Bw2**--16 to 25 in; light olive brown (2.5Y 5/4) silt loam; weak medium subangular blocky structure; friable, few very fine and common fine roots; 5 percent fine gravel; strongly acid; abrupt wavy boundary;--25 to 60 in; brown (10YR 5/3) very gravelly sand; single grain; loose; stratified; 45 percent gravel and 5 percent cobbles; strongly acid.

Manchester Soils (Soil Code 37):

A typical profile associated with Manchester soils is as follows: **Ap**--0 to 9 in; dark brown (7.5YR 3/2) gravelly sandy loam; weak medium granular structure; very friable; many fine and common medium roots; 20 percent gravel; strongly acid; clear smooth boundary; **Bw**--9 to 18 in; reddish brown (5YR 4/3) gravelly loamy sand; very weak fine and medium granular structure; very friable; few fine roots; 25 percent gravel; strongly acid; clear wavy boundary; and **C**--18 to 65 in; reddish brown (5YR 4/4) very gravelly sand; single grain; loose; 50 percent gravel; very strongly acid.

Udorthent Soils (Soil Code 305):

Udorthent soils occur within cuts (road, railroad, etc.), spoil piles, landfills, and gravel pits. The slope ranges from 0 to 25 percent and the runoff class is medium. The depth to a restrictive feature is greater than 60 in. The drainage class is moderately well drained. Areas characterized by Udorthent soils are largely disturbed by cutting, smoothing, filling, or large-scale excavations. They do not retain archaeological sensitivity.

Summary

The natural setting of the area containing the proposed GPS is common throughout the North-Central Lowlands ecoregion. Streams and rivers of this area empty into the Connecticut River, which in turn, drains into the Long Island Sound. Further, the landscape in general is dominated by sandy loamy soil types with some wetland soils intermixed. In addition, low slopes dominate the region. In general, the region was well suited to Native American occupation throughout the prehistoric era. This portion of East Windsor was also used throughout the historic era, as evidenced by the presence of numerous historic residences, barns, outbuildings, and agricultural fields throughout the region; thus, archaeological deposits dating from the prehistoric and historic era may be expected near or within the proposed Project area.

CHAPTER III

PREHISTORIC SETTING

Introduction

Prior to the late 1970s and early 1980s, few systematic archaeological surveys of large portions of the state of Connecticut had been undertaken. Rather, the prehistory of the region was studied at the site level. Sites chosen for excavation were highly visible and located in the coastal zone, e.g., shell middens, and Connecticut River Valley. As a result, a skewed interpretation of the prehistory of Connecticut was developed. It was suggested that the upland portions of the state, i.e., the northeastern and northwestern hills ecoregions, were little used and rarely occupied by prehistoric Native Americans, while the coastal zone, i.e., the eastern and western coastal and the southeastern and southwestern hills ecoregions, were the focus of settlements and exploitation in the prehistoric era. This interpretation remained unchallenged until the 1970s and 1980s when several town-wide and regional archaeological studies were completed. These investigations led to the creation of several archaeological phases that subsequently were applied to understand the prehistory of Connecticut. The remainder of this chapter provides an overview of the prehistoric setting of the region.

Paleo-Indian Period (12,000 to 10,000 Before Present [B.P.])

The earliest inhabitants of the area encompassing the State of Connecticut, who have been referred to as Paleo-Indians, arrived in the area by ca., 12,000 B.P. (Gramly and Funk 1990; Snow 1980). Due to the presence of large Pleistocene mammals at that time and the ubiquity of large fluted projectile points in archaeological deposits of this age, Paleo-Indians often have been described as big-game hunters (Ritchie and Funk 1973; Snow 1980); however, as discussed below, it is more likely that they hunted a broad spectrum of animals.

While there have been numerous surface finds of Paleo-Indian projectile points throughout the State of Connecticut, only two sites, the Templeton Site (6-LF-21) in Washington, Connecticut and the Hidden Creek Site (72-163) in Ledyard, Connecticut, have been studied in detail and dated using the radiocarbon method (Jones 1997; Moeller 1980). The Templeton Site (6-LF-21) is in Washington, Connecticut and was occupied between 10,490 and 9,890 years ago (Moeller 1980). In addition to a single large and two small fluted points, the Templeton Site produced a stone tool assemblage consisting of graters, drills, core fragments, scrapers, and channel flakes, which indicates that the full range of stone tool production and maintenance took place at the site (Moeller 1980). Moreover, the use of both local and non-local raw materials was documented in the recovered tool assemblage, suggesting that not only did the site's occupants spend some time in the area, but they also had access to distant stone sources, the use of which likely occurred during movement from region to region.

The only other Paleo-Indian site studied in detail in Connecticut is the Hidden Creek Site (72-163) (Jones 1997). The Hidden Creek Site is situated on the southeastern margin of the Great Cedar Swamp on the Mashantucket Pequot Reservation in Ledyard, Connecticut. While excavation of the Hidden Creek Site produced evidence of Terminal Archaic and Woodland Period components (see below) in the upper soil horizons, the lower levels of the site yielded artifacts dating from the Paleo-Indian era. Recovered Paleo-Indian artifacts included broken bifaces, side-scrapers, a fluted preform, graters, and end-scrapers. Based on the types and number of tools present, Jones (1997:77) has hypothesized that the Hidden Creek Site represented a short-term occupation, and that separate stone tool reduction and rejuvenation areas were present.

While archaeological evidence for Paleo-Indian occupation is scarce in Connecticut, it, combined with data from the West Athens Road and King's Road Site in the Hudson drainage and the Davis and Potts Sites in northern New York, supports the hypothesis that there was human occupation of the area not long after ca. 12,000 B.P. (Snow 1980). Further, site types currently known suggest that the Paleo-Indian settlement pattern was characterized by a high degree of mobility, with groups moving from region to region in search of seasonally abundant food resources, as well as for the procurement of high-quality raw materials from which to fashion stone tools.

Archaic Period (10,000 to 2,700 B.P.)

The Archaic Period, which succeeded the Paleo-Indian Period, began by ca., 10,000 B.P. (Ritchie and Funk 1973; Snow 1980), and it has been divided into three subperiods: Early Archaic (10,000 to 8,000 B.P.), Middle Archaic (8,000 to 6,000 B.P.), and Late Archaic (6,000 to 3,400 B.P.). These periods were devised to describe all non-farming, non-ceramic producing populations in the area. Regional archeologists recently have recognized a final "transitional" Archaic Period, the Terminal Archaic Period (3,400-2,700 B.P.), which was meant to describe those groups that existed just prior to the onset of the Woodland Period and the widespread adoption of ceramics into the toolkit (Snow 1980; McBride 1984; Pfeiffer 1984, 1990; Witthoft 1949, 1953).

Early Archaic Period (10,000 to 8,000 B.P.)

To date, few Early Archaic sites have been identified in southern New England. As a result, researchers such as Fitting (1968) and Ritchie (1969), have suggested a lack of these sites likely is tied to cultural discontinuity between the Early Archaic and preceding Paleo-Indian Period, as well as a population decrease from earlier times. However, with continued identification of Early Archaic sites in the region, and the recognition of the problems of preservation, it is difficult to maintain the discontinuity hypothesis (Curran and Dincauze 1977; Snow 1980).

Like their Paleo-Indian predecessors, Early Archaic sites tend to be small and produce few artifacts, most of which are not temporally diagnostic. While Early Archaic sites in other portions the United States are represented by projectile points of the Kirk series (Ritchie and Funk 1973) and by Kanawha types (Coe 1964), sites of this age in southern New England are recognized on the basis of a series of ill-defined bifurcate-based projectile points. These projectile points are identified by the presence of their characteristic bifurcated base, and they generally are made from high quality raw materials. Moreover, finds of these projectile points have rarely been in stratified contexts. Rather, they occur commonly either as surface expressions or intermixed with artifacts representative of later periods. Early Archaic occupations, such as the Dill Farm Site and Sites 6LF64 and 6LF70 in Litchfield County, an area represented by camps that were relocated periodically to take advantage of seasonally available resources (McBride 1984; Pfeiffer 1986). In this sense, a foraging type of settlement pattern was employed during the Early Archaic Period.

Middle Archaic Period (8,000 to 6,000 B.P.)

By the onset of the Middle Archaic Period, essentially modern deciduous forests had developed in the region (Davis 1969). It is at this time that increased numbers and types of sites are noted in Connecticut (McBride 1984). The most well-known Middle Archaic site in New England is the Neville Site, which is in Manchester, New Hampshire and studied by Dincauze (1976). Careful analysis of the Neville Site indicated that the Middle Archaic occupation dated from between ca., 7,700 and 6,000 years ago. In fact, Dincauze (1976) obtained several radiocarbon dates from the Middle Archaic component of the Neville Site. The dates, associated with the then-newly named Neville type projectile point, ranged from 7,740 \pm 280 and 7,015 \pm 160 B.P. (Dincauze 1976).

In addition to Neville points, Dincauze (1976) described two other projectile points styles that are attributed to the Middle Archaic Period: Stark and Merrimac projectile points. While no absolute dates were recovered from deposits that yielded Stark points, the Merrimac type dated from 5,910±180 B.P. Dincauze argued that both the Neville and later Merrimac and Stark occupations were established to take advantage of the excellent fishing that the falls situated adjacent to the site area would have afforded Native American groups. Thus, based on the available archaeological evidence, the Middle Archaic Period is characterized by continued increases in diversification of tool types and resources exploited, as well as by sophisticated changes in the settlement pattern to include different site types, including both base camps and task-specific sites (McBride 1984:96)

Late Archaic Period (6,000 to 3,700 B.P.)

The Late Archaic Period in southern New England is divided into two major cultural traditions that appear to have coexisted. They include the Laurentian and Narrow-Stemmed Traditions (Funk 1976; McBride 1984; Ritchie 1969a and b). Artifacts assigned to the Laurentian Tradition include ground stone axes, adzes, gouges, ulus (semi-lunar knives), pestles, atlatl weights, and scrapers. The diagnostic projectile point forms of this time period in southern New England include the Brewerton Eared-Notched, Brewerton Eared and Brewerton Side-Notched varieties (McBride 1984; Ritchie 1969a; Thompson 1969). In general, the stone tool assemblage of the Laurentian Tradition is characterized by flint, felsite, rhyolite, and quartzite, while quartz was largely avoided for stone tool production.

In terms of settlement and subsistence patterns, archaeological evidence in southern New England suggests that Laurentian Tradition populations consisted of groups of mobile hunter-gatherers. While a few large Laurentian Tradition occupations have been studied, sites of this age generally encompass less than 500 m² (5,383 ft²). These base camps reflect frequent movements by small groups of people in search of seasonally abundant resources. The overall settlement pattern of the Laurentian Tradition was dispersed in nature, with base camps located in a wide range of microenvironments, including riverine as well as upland zones (McBride 1978, 1984:252). Finally, subsistence strategies of Laurentian Tradition focused on hunting and gathering of wild plants and animals from multiple ecozones.

The second Late Archaic tradition, known as the Narrow-Stemmed Tradition, is unlike the Laurentian Tradition, and it likely represents a different cultural adaptation. The Narrow-Stemmed tradition is recognized by the presence of quartz and quartzite narrow stemmed projectile points, triangular quartz Squibnocket projectile points, and a bipolar lithic reduction strategy (McBride 1984). Other tools found in Narrow-Stemmed Tradition artifact assemblages include choppers, adzes, pestles, antler and bone projectile points, harpoons, awls, and notched atlatl weights. Many of these tools, notably the projectile points and pestles, indicate a subsistence pattern dominated by hunting and fishing, as well the collection of a wide range of plant foods (McBride 1984; Snow 1980:228).

The Terminal Archaic Period (3,700 to 2,700 B.P.)

The Terminal Archaic, which lasted from ca., 3,700 to 2,700 BP, is perhaps the most interesting, yet confusing of the Archaic Periods in southern New England prehistory. Originally termed the "Transitional Archaic" by Witthoft (1953) and recognized by the introduction of technological innovations, e.g., broadspear projectile points and soapstone bowls, the Terminal Archaic has long posed problems for regional archeologists. While the Narrow-Stemmed Tradition persisted through the Terminal Archaic and into the Early Woodland Period, the Terminal Archaic is coeval with what appears to be a different technological adaptation, the Susquehanna Tradition (McBride 1984; Ritchie 1969b). The Susquehanna Tradition is recognized in southern New England by the presence of a new stone tool industry that was based on the use of high-quality raw materials for stone tool production and a settlement pattern

different from the “coeval” Narrow-Stemmed Tradition.

The Susquehanna Tradition is based on the classification of several Broadspear projectile point types and associated artifacts. There are several local sequences within the tradition, and they are based on projectile point type chronology. Temporally diagnostic projectile points of these sequences include the Snook Kill, Susquehanna Broadspear, Mansion Inn, and Orient Fishtail types (Lavin 1984; McBride 1984; Pfeiffer 1984). The initial portion of the Terminal Archaic Period (ca., 3,700-3,200 BP) is characterized by the presence of Snook Kill and Susquehanna Broadspear projectile points, while the latter Terminal Archaic (3,200-2,700 BP) is distinguished by the use of Orient Fishtail projectile points (McBride 1984:119; Ritchie 1971).

In addition, it was during the late Terminal Archaic period that interior cord marked, grit tempered, thick walled ceramics with conoidal (pointed) bases made their initial appearance in the Native American toolkit. These are the first ceramics in the region, and they are named Vinette I (Ritchie 1969a; Snow 1980:242); this type of ceramic vessel appears with much more frequency during the ensuing Early Woodland Period. In addition, the adoption and widespread use of soapstone bowls, as well as the implementation of subterranean storage, suggests that Terminal Archaic groups were characterized by reduced mobility and longer-term use of established occupation sites (Snow 1980:250).

Finally, while settlement patterns appeared to have changed, Terminal Archaic subsistence patterns were analogous to earlier patterns. The subsistence pattern still was diffuse in nature, and it was scheduled carefully. Typical food remains recovered from sites of this period consist of fragments of white-tailed deer, beaver, turtle, fish, and various small mammals. Botanical remains recovered from the site area consisted of *Chenopodium* sp., hickory, butternut, and walnut (Pagoulatos 1988:81). Such diversity in food remains suggests at least minimal use of a wide range of microenvironments for subsistence purposes.

Woodland Period (2,700 to 350 B.P.)

Traditionally, the advent of the Woodland Period in southern New England has been associated with the introduction of pottery; however, as mentioned above, early dates associated with pottery now suggest the presence of Vinette I ceramics appeared toward the end of the preceding Terminal Archaic Period (Ritchie 1969a; McBride 1984). Like the Archaic Period, the Woodland Period has been divided into three subperiods: Early, Middle, and Late Woodland. The various subperiods are discussed below.

Early Woodland Period (ca., 2,700 to 2,000 B.P.)

The Early Woodland Period of the northeastern United States dates from ca., 2,700 to 2,000 B.P., and it has been thought to have been characterized by the advent of farming, the initial use of ceramic vessels, and increasingly complex burial ceremonialism (Griffin 1967; Ritchie 1969a and 1969b; Snow 1980). In the Northeast, the earliest ceramics of the Early Woodland Period are thick walled, cord marked on both the interior and exterior, and possess grit temper.

Careful archaeological investigations of Early Woodland sites in southern New England have resulted in the recovery of narrow stemmed projectile points in association with ceramic sherds and subsistence remains, including specimens of White-tailed deer, soft and hard-shell clams, and oyster shells (Lavin and Salwen: 1983; McBride 1984:296-297; Pope 1952). McBride (1984) has argued that the combination of the subsistence remains and the recognition of multiple superimposed cultural features at various sites indicates that Early Woodland Period settlement patterns were characterized by multiple re-use of the same sites on a seasonal basis by small co-residential groups.

Middle Woodland Period (2,000 to 1,200 B.P.)

The Middle Woodland Period is marked by an increase in the number of ceramic types and forms utilized (Lizee 1994a), as well as an increase in the amount of exotic lithic raw material used in stone tool manufacture (McBride 1984). The latter suggests that regional exchange networks were established, and that they were used to supply local populations with necessary raw materials (McBride 1984; Snow 1980). The Middle Woodland Period is represented archaeologically by narrow stemmed and Jack's Reef projectile points; increased amounts of exotic raw materials in recovered lithic assemblages, including chert, argillite, jasper, and hornfels; and conoidal ceramic vessels decorated with dentate stamping. Ceramic types indicative of the Middle Woodland Period includes Linear Dentate, Rocker Dentate, Windsor Cord Marked, Windsor Brushed, Windsor Plain, and Hollister Stamped (Lizee 1994a:200).

In terms of settlement patterns, the Middle Woodland Period is characterized by the occupation of village sites by large co-residential groups that utilized native plant and animal species for food and raw materials in tool making (George 1997). These sites were the principal place of occupation, and they were positioned close to major river valleys, tidal marshes, estuaries, and the coastline, all of which would have supplied an abundance of plant and animal resources (McBride 1984:309). In addition to villages, numerous temporary and task-specific sites were utilized in the surrounding upland areas, as well as in closer ecozones such as wetlands, estuaries, and floodplains. The use of temporary and task-specific sites to support large village populations indicates that the Middle Woodland Period was characterized by a resource acquisition strategy that can best be termed as logistical collection (McBride 1984:310).

Late Woodland Period (ca., 1,200 to 350 B.P.)

The Late Woodland Period in southern New England dates from ca., 1,200 to 350 B.P., and it is characterized by the earliest evidence for the use of corn in the lower Connecticut River Valley (Bendremer 1993; Bendremer and Dewar 1993; Bendremer et al. 1991; George 1997; McBride 1984); an increase in the frequency of exchange of non-local lithics (Feder 1984; George and Tryon 1996; McBride 1984; Lavin 1984); increased variability in ceramic form, function, surface treatment, and decoration (Lavin 1980, 1986, 1987; Lizee 1994a, 1994b); and a continuation of a trend towards larger, more permanent settlements in riverine, estuarine, and coastal ecozones (Dincauze 1974; McBride 1984; Snow 1980).

Stone tool assemblages associated with Late Woodland occupations, especially village-sized sites, are functionally variable and they reflect plant and animal resource processing and consumption on a large scale. Finished stone tools recovered from Late Woodland sites include Levanna and Madison projectile points; drills; side-, end-, and thumbnail scrapers; mortars and pestles; nutting stones; netsinkers; and celts, adzes, axes, and digging tools. These tools were used in activities ranging from hide preparation to plant processing to the manufacture of canoes, bowls, and utensils, as well as other settlement and subsistence-related items (McBride 1984; Snow 1980). Finally, ceramic assemblages recovered from Late Woodland sites are as variable as the lithic assemblages. Ceramic types identified include Windsor Fabric Impressed, Windsor Brushed, Windsor Cord Marked, Windsor Plain, Clearview Stamped, Sebonac Stamped, Selden Island, Hollister Plain, Hollister Stamped, and Shantok Cove Incised (Lavin 1980, 1988a, 1988b; Lizee 1994a; Pope 1953; Rouse 1947; Salwen and Ottesen 1972; Smith 1947). These types are more diverse stylistically than their predecessors, with incision, shell stamping, punctuation, single point, linear dentate, rocker dentate stamping, and stamp and drag impressions common (Lizee 1994a:216).

Summary of Connecticut Prehistory

The prehistory of Connecticut spans from ca., 12,000 to 350 B.P., and it is characterized by numerous changes in tool types, subsistence patterns, and land use strategies. Much of the prehistoric era is characterized by local Native American groups who practiced a subsistence pattern based on a mixed economy of hunting and gathering wild plant and animal resources. It is not until the Late Woodland Period that incontrovertible evidence for the use of domesticated species is available. Further, settlement patterns throughout the prehistoric era shifted from seasonal occupations of small co-residential groups to large aggregations of people in riverine, estuarine, and coastal ecozones. In terms of the region containing the proposed Project area, a variety of prehistoric site types may be expected. These range from seasonal camps utilized by Archaic populations to temporary and task-specific sites of the Woodland era.

CHAPTER IV

HISTORIC OVERVIEW

Introduction

The Project Site encompasses approximately 485 acres spread across eight parcels of land. It is located in the southeastern portion of the town of East Windsor, which is situated in Hartford County, Connecticut. Ketch Brook flows from east to west through the Project Site and forms a boundary of several of the parcels, which are set back from the surrounding roads except in the northeastern area, where two of them follow Apothecaries Hall Road. An active railroad line also passes by several of the parcels from north to south. The remainder of this chapter provides a historical overview of the region, as well as data specific to the Project Site.

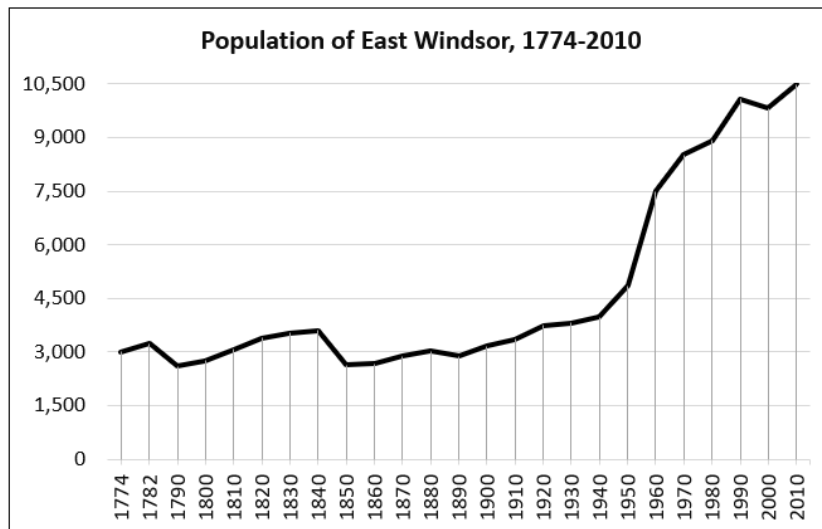
Native American History of East Windsor

East Windsor was formerly part of the town of Windsor and is also the parent town of South Windsor and Ellington. The Native Americans who lived in the Windsor area on the west bank of the Connecticut River were known to the colonists as the Poquonocks; a road and a village in Windsor still bear that name (Stiles 1891). The Native Americans who lived on the east side of the Connecticut River in the areas that included the present South Windsor were known to the colonists as the Podunks. Multiple Podunk villages were recorded along the bank of the river, and upland camps and seasonal villages have been found throughout the area. The primary Podunk village site during the contact period appears to have been situated beside the Connecticut River near the border between South Windsor and East Hartford (Goodwin 1886, 1879; Spiess 1937). These lands were claimed by the sachem Aramamet, under the English colonists' convenient understanding of land ownership by an individual sovereign; he also claimed parts of the future Hartford and Windsor lands on the river's west side (Stiles 1892). At the time of King Philip's War in 1675-1676, the Podunks were believed to be quite numerous, and to their misfortune they took the side of King Philip. Many of them fled from colonial retribution and the loss of their land, although a few nonetheless remained behind. The last mention of a Podunk Native American in the colonial records was in 1722, but local records mentioned small numbers as late as 1745 and even 1879 (Spiess 1937; Goodwin 1879; De Forest 1852).

History of the Town of East Windsor

Hartford County was one of the two earliest loci of colonial settlement in Connecticut (Hartford and New Haven), with three of its towns, including Windsor, Wethersfield, and Hartford dating from the early 1630s. The county extends south from the Massachusetts border and flanks the Connecticut River on both sides. The earliest colonial development of the region depended on the agricultural and transportation advantages of the river and its valley; areas further from the Connecticut River valley were colonized later and usually grew more slowly through the early nineteenth century. Thereafter, the main source of differentiation in Hartford County towns' development was, first, whether they had significant levels of industrialization, and, later, whether they had significant levels of suburbanization. East Windsor, located on the east bank of the Connecticut River, had the expected agricultural and transport advantages, with only modest early industrial development. Its suburbanization began early in the twentieth century, then increased exponentially later in the century. The following discussion outlines the history of East Windsor in more detail and discusses the presence or absence of historical resources in the vicinity of the Project Site.

As mentioned above, Windsor was one of three colonial communities planted near each other on the Connecticut River in the early 1630s, the others being Hartford and Wethersfield. Initially the Windsor colonists settled on the west side of the river, but eventually they claimed a wide area on both sides of it. Colonists began moving permanently to the eastern and northern Windsor territory in 1680, after King Philip's War (1675-1676) had reduced both their fears and the numbers of the Native Americans living there (Crofut 1937). The town's initial area was exceptionally large, and over time it was divided into the towns of East Windsor, South Windsor, Ellington, Windsor Locks, and part of Bloomfield (Barry 1985). Its population spread out across the landscape in search of agricultural land, cultivating the higher-quality areas first. According to a census taken in 1762, the whole town of Windsor had 4,019 residents. In 1768, the section on the east side of the Connecticut River became the separate town of East Windsor, and as of 1774, the new town of East Windsor had 2,999 residents, and then 3,237 residents as of 1782 (see the population chart below; Keegan 2012; Barry 1985). East Windsor (still including South Windsor) sent as many as 400 men to fight in the Revolutionary War; in addition, East Windsor contained a great deal of excellent agricultural land whose products must have fed many soldiers during the war. In 1786, the town of Ellington separated from East Windsor (Barry 1985; Tarbox 1886; Destler 1973).



During the first 50 years of the new United States, Windsor and its municipal offspring remained agricultural in economy, their populations slowly rising but staying below 4,000 people through 1840, when the census reported only 3,600 residents in East Windsor. In 1845, South Windsor was created out of East Windsor, and as of the 1850 federal census both towns had populations of under 3,000 people (Keegan 2012; see the population chart above). Interestingly, and perhaps significantly in terms of their economic history, East Windsor and South Windsor were entirely bypassed by the turnpike system that developed between ca., 1790 and 1850, under which private companies undertook to build and/or improve roads in order to speed the movement of people and goods. Often, though not always, the presence of such roads did indeed foster the development of commerce and industry (Wood 1919). It is likely that instead of turnpikes, the Connecticut River was used for commercial transport by residents of these towns. This river access also encouraged some early industrial development. As of the federal census of industry taken in 1850, East Windsor had 13 firms making products worth at least \$500.00 per year, two of them steam-operated textile manufacturers employing a total of 210 men and 115 women; the remainder employed between 21 people and one person, including three cigar-makers (U.S. Census 1850).

In the 1855 map of Hartford County, both roads adjacent to the project area (presently known as East Road, to the west, and Middle Road, to the north) were present (Figure 3). Although the small manufacturing village of Windsorville was situated not far to the west, the Project Site was situated in a rural zone. The map depicted two buildings labeled with the name Horatio Thrall within 152 m (500 ft) of the Project Site, one on the north side of Middle Road and one to the south of Middle Road and a short distance to the east of the Project Site. A third building, labeled with the name Julius Osborne associated with it, was mapped a little over 152 m (500 ft) to the south of the Project Site. The map of the town published in 1869 showed only one building labeled with the name "H. Thrall," located to the north of Middle Road. A building to the south of the Project Site was labeled with the name "J. Osborn," and a new building was depicted between it and the Project Site; it was labeled with the name "C. Clark" (Figure 4).

Horatio Thrall (1791-1869) was a farmer born in Ellington. He moved to East Windsor after 1850 and eventually died in South Windsor. He was a member of a Thrall Family that had been in Hartford County since the seventeenth century. Horatio married Sibyl Clark (ca., 1800-1878/1879) in East Windsor. Of their eight children, seven lived to adulthood; sons Norman, Reuben, Edwin, and Moses stayed in East Windsor, and Russell and Carlos moved to Ellington and became locally prominent (Cutter 1913:2:904). The federal census of 1850 listed Horatio as residing in East Windsor at the age 58 and owning a farm worth \$5,000.00. His household consisted of his wife "Sybal" (aged 52) and three sons and one daughter ranging in age from 8 to 22 years. The family's neighbors, including Charles Clark and Julius Osborn, were also middle-aged, but with smaller families and owned farms valued at \$2,000.00 each. According to the agricultural census taken in 1850, the Thrall Family owned 50 acres of improved land, one horse, three milch cows (from which they produced butter and cheese), two teams of oxen, and 17 sheep. Only some of their neighbors also kept sheep; the Clark and Osborn Families did not. The Thrall Family grew corn, oats, hay, and potatoes, and their two closest neighbors also grew rye. None of the three families grew tobacco, although the census return shows that many East Windsor families did (United States Census 1850a, 1850b). In the 1860 census, the Thrall Family had four unmarried sons at home, aged between 18 and 29. Neither they nor the Clarks, who had two live-in servants in their household, gave a value for their farm; the Osborn family was not listed (United States Census 1860).

In the 1870 census, the widowed Sybil Thrall was listed as owning \$2,910.00 in real estate and \$2,400.00 in personal estate. Her unmarried son Reuben (age 40) worked as a house carpenter and claimed \$1,500.00 in personal estate. Her son Moses (age 37) had married his wife Adelaide (age 28) and they had one young son. Moses reported owning \$4,000.00 in real estate and \$1,111.00 in personal estate, indicating that he had secured ownership of much of the family farm. According to the census return, Sybil's son Edwin Thrall and his young family lived a few doors away.

According to the 1870 agricultural census, almost every farmer in East Windsor was growing tobacco by that time, including both Moses and Edwin Thrall (United States Census 1870a, 1870b). Moses and Adelaide Thrall were still in East Windsor in the 1880 census, with three children and a boarding farm laborer, although it is less clear that they were still living at or near the project area. The agricultural schedule showed that their farm included 60 tilled acres (24 ha), 18 acres (7 ha) of woodland, and 25 acres (10 ha) of mown meadow. Like their neighbors, they grew tobacco, grains, and hay, and produced butter and eggs from their animals (United States Census 1880a, 1880b). These agricultural patterns suggest a mix of cash-crop and subsistence farming and appears to have been typical of the town's farmers.

This shift to tobacco-growing was consistent with the report that by the 1890s, East Windsor's agricultural emphasis had shifted from food and feed crops such as rye, corn, and hay to the growing of tobacco. The distilleries that once made use of the local rye crop had all closed. Windsorville, previously known as Ketch Mills, had previously had a gin distillery that burned down in the 1840s; it was replaced by a woolen textile mill (Stiles 1891:745-746). It is not certain when nineteenth-century railroad service came to East Windsor and South Windsor, and no railroad was depicted on the 1869 map (Baker & Tilden). In 1880, the Connecticut Central Railroad, a 20 mile long track extending from East Hartford to South Windsor and up to Springfield, Massachusetts, was leased by the New York & New England Railroad; the same line had also been leased in 1876 by the Connecticut Valley Railroad (Turner and Jacobus 1989). However, its population effects in East Windsor appear to have been limited. As the population chart above shows, East Windsor had 3,158 residents as of 1900 and 4,859 residents as of 1950 (Keegan 2012). While this shows a continuing growth trend during the first half of the twentieth century, it was still relatively slow. In terms of the local economy, these nineteenth and twentieth century towns were, and to some extent still are, focused on agriculture. According to a 1932 assessment of the towns' economic activity, East Windsor's main industries included only agriculture and textiles (Connecticut 1932). The "agriculture" category certainly included tobacco, though it was not specifically mentioned.

Tobacco growing in Connecticut originated in the colonial era. Although it was not the overwhelmingly important activity that it was in more southern colonies, it became an important cash crop in the Connecticut River valley by ca., 1700. In 1810, cigar making began at East Windsor and Suffield, and by 1830 a new way of curing tobacco for cigar wrappers called "sweating" was discovered by an East Windsor company. After that, all or most of the industry shifted to producing for cigars, and high profit margins encouraged farmers to try their hand at growing it from the Housatonic valley to New Haven and as far north as Vermont and Maine. By the late nineteenth century, competition and overproduction had brought about a gradual decrease of acreage, until only the "best lands in the immediate vicinity of the Connecticut River continued to be used" (McDonald 1936:5, 14). An improvement in tobacco production that occurred in 1896 was the development of a method for growing "shade tobacco." It consisted simply of building light cloth tents on poles over the plants. This protected the crops of the sun's harmful rays and caused the tobacco leaves to take on a more attractive color. This technique spread rapidly throughout the market and resulted in significant increases in the grower's profit base (McDonald 1936).

The 1934 aerial photo showing the Project Site seems to have been taken at a point in time when the tobacco shade tents were not in place (Figure 5). On and around the Project Site, however, there were a half-dozen of the long, narrow tobacco drying sheds, which were normally placed in tobacco fields. Because of its setback from Middle Road, two tobacco sheds were only partly within the northern end of the Project Site. The image also shows that a small house or barn was within the Project Site. The historic Horatio Thrall farmstead was present on the north side of Middle Road; to the south, the historic Charles Clark farmstead was also still there, as was the Julius Osborn farmstead a little further to the south. The entirety of the Project Site was cleared fields, except for what was possibly a wide ditch along its northeastern edge. In fact, most of the vicinity was cleared fields, with some areas of woods, especially along the course of the stream. In aerial photos, the presence or absence of tobacco tenting varies depending on the season and on whether a given field was being left fallow. The 1941 and 1951 aerials show how much the locations of farm outbuildings could change (Figures 6 and 7).

After 1950, although East Windsor witnessed further substantial population increases beginning from that year 1950, its population only reached 10,482 residents as of 2010 (Keegan 2012). Some of this

growth may be related to the construction of Interstate 91 since the section on the east side of the river opened in 1959 (Oglesby 2014). During the later twentieth and early twenty-first centuries, East Windsor saw modest industrial development. In 2018, 9.6 percent of its 7,032 jobs were associated with the manufacturing sector; a far larger proportion, approximately 20 percent, were in a sector identified in an economic profile document as “Administrative and Waste Service.” As of 2014, the town’s largest employers were in retail, health care, auto sales, farming, and metal working, suggesting a very mixed economy (CERC 2019). The town’s 2016 planning document, like many of its era for similar towns, called for the continuing improvement of certain focused areas of commercial and industrial development, as well as village areas. At the same time, it also displayed a preference for the support of low-density residential and agricultural uses in most of the town’s area, and the preservation of open space and cultural and historical resources. The location of the Project Site, in the southeasternmost section of the town, were within the large area designed as rural residential (East Windsor 2016).

The appearance of the Project Site in the 1963 aerial photo is consistent with this modest population growth: all the fields and barns were still present, and there was only a small amount of new housing development in the area. The cleared utility corridor, however, had been substantially widened by the middle of the twentieth century (Figure 8). By the time of the 2016 aerial photo, more housing and some solar centers had been built in the vicinity of the Project Site. The Project Site itself, however, remained largely undeveloped, except that the use of some of the fields and wooded areas had been turned to sand and gravel operations. A few agricultural fields, striped with the marks of tobacco tenting poles, remained. It appears, however, that the sites of the three tobacco barns mentioned above had been severely impacted by this agricultural activity. In addition, an access road and a parking area for trucks and trailers had been placed in the easternmost parcel (Figures 9 and 10). These impacts, being set back from the roads, seem likely to have remained invisible to passers-by, allowing the ground-view appearance of the area to remain apparently undisturbed.

Conclusions

The documentary record indicates that most of the Project Site contains historic structures and farm fields associated with tobacco production. This complex, known as the Markowski Farm, has roots that extend back to the beginning of the twentieth century, if not earlier. This complex of barns, buildings, and fields is large in scale and unusual in type, as most historic farms in Connecticut have been either abandoned or developed. Thus, the Markowski Farm may be viewed as a historical landscape, the development of which should be undertaken carefully to preserve the historical fabric of the area.

CHAPTER V

PREVIOUS INVESTIGATIONS

Introduction

This chapter presents an overview of previous archaeological research completed within the vicinity of the Project area in East Windsor, Connecticut. This discussion provides the comparative data necessary for assessing the results of the current Phase IB cultural resources assessment survey, and it ensures that the potential impacts to all previously recorded cultural resources located within and adjacent to the Project area are taken into consideration. Specifically, this chapter reviews previously identified archaeological sites and National/State Register of Historic Places properties situated in the study region. The discussions presented below are based on information currently on file at the Connecticut State Historic Preservation Office (CT-SHPO) in Hartford, Connecticut. In addition, the electronic site files maintained by Heritage also were examined during this investigation. Both the quantity and quality of the information contained in the original cultural resources survey reports and State of Connecticut archaeological site forms are reflected below.

Previously Recorded Archaeological Sites and National/State Register of Historic Places Properties/Districts in the Vicinity of the Project Site

A review of data currently on file at the CT-SHPO, as well as the electronic site files maintained by Heritage, did not reveal any previously identified archaeological sites or National/State Register of Historic Places properties situated within 1.6 km (1 mi) of the Project Site (Figures 11 and 12). Although no archaeological sites have been previously identified in the region, the natural setting discussed in Chapter II suggests Native Americans may have once inhabited the area, and that prehistoric archaeological sites may yet be discovered within the Project area. In addition, the larger project region has been in use as agricultural land since East Windsor's settlement and there may be archaeological evidence of occupation in the Project area that may predate the establishment of the current farming operation. These types of resources likely have not been identified within the study region and the Project Site due to a lack of professional archaeological and historical surveys.

CHAPTER VI

METHODS

Introduction

This chapter describes the research design and field methodology used to complete the Phase IB archaeological and architectural surveys for the proposed Project in East Windsor, Connecticut. In addition, the location and point-of-contact for the facility at which all cultural material, drawings, maps, photos, and field notes generated during survey will be curated is provided below.

Research Design

The current Phase IB archaeological survey was designed to identify all prehistoric and historic cultural resources located within the previously identified moderate sensitivity areas, while the architectural survey considered the entirety of the Project Site and immediately adjacent areas. Fieldwork for this undertaking was comprehensive in nature and project planning considered the distribution of archaeological and architectural resources located near the Project Site, as well as an assessment of the natural qualities of the development area. The archaeological methods used to complete this investigation were designed to provide complete and thorough coverage of all portions of the moderate sensitivity areas. This part of the undertaking entailed pedestrian survey, systematic subsurface testing, detailed mapping, and photo-documentation. As discussed in more detail below, the fieldwork for the architectural survey involved pedestrian survey, photo-documentation, and mapping.

Archaeological Field Methods

Following the completion of background research, the moderate sensitivity areas previously identified during the Phase IA cultural resources assessment survey were subjected to a Phase IB archaeological survey utilizing pedestrian survey, photo-documentation, GPS recordation, and systematic shovel testing. The field strategy was designed such that all moderate sensitivity areas were examined visually and photo documented. The pedestrian survey portion of this investigation included visual reconnaissance of the moderate sensitivity areas scheduled for impacts by the proposed solar project, as well as photo-documentation of them. The results of the Phase IA survey determined that a total of 238.9 acres of land within the Project Site retained moderate sensitivity for intact archaeological deposits. This area divided between forested areas and agricultural fields.

The forested portions of the Project Site that were determined to retain moderate archaeological sensitivity were subjected to systematic subsurface testing during the Phase IB archaeological survey. A total of nine areas were designated as “Test Areas” and numbered 1 through 9 (Figure 13; Sheet 1 and Photos 1 and 2 and 4 through 7). The Phase IB subsurface testing strategy of these areas was completed by excavating shovel tests measuring 50 x 50 cm (19.7 x 19.7 in) in size at 15 m (49.2 ft) intervals along survey transects spaced 15 m (49.2 ft) apart. The 12 agricultural fields deemed archaeologically sensitive were subjected to a modified Phase IB archaeological survey that consisted of pedestrian survey augmented by limited shovel testing where artifacts were surface collected. These 12 areas were designated as “Pedestrian Survey Areas” and numbered 1 through 12 (Figure 13; Sheet 1 and Photos 8 through 15). The pedestrian survey of the agricultural fields was completed by spacing archaeologists 5 m (16.4 ft) apart in a straight line and having them traverse each field while visually inspecting the surface for the presence of artifacts. If no artifacts were identified on the surface, then no additional fieldwork was conducted. However, if cultural materials were identified on the surface, then delineation shovel tests were excavated at 7.5 and 15 m (24.6 and 49.2 ft) intervals in the cardinal directions around

the location of each findspot. This approach has been undertaken on similar projects in the region and it has proven effective for determining whether intact archaeological sites exist within agricultural fields.

During the Phase IB survey, each shovel test measured 50 x 50 cm (19.7 x 19.7 in) in size and each was excavated until the glacially derived C-Horizon was encountered or until large buried objects (e.g., boulders) prevented further excavation. Each shovel test was excavated in 10-centimeter (3.9 inch) arbitrary levels within natural strata, and the fill from each level was screened separately. Soil matrix was screened through 0.635 cm (0.25 in) hardware cloth and examined visually for cultural material. Soil characteristics were recorded in the field using Munsell Soil Color Charts and standard soils nomenclature. Each shovel test was backfilled after it was recorded.

Architectural Field Methods

Following completion of background historical review and examination of historic maps and aerial images, two of Heritage's architectural historians visited the Project Site to document identified historic resources. The fieldwork consisted of photo-documenting each historic building on the exterior and interior to the greatest extent possible. The photographic effort included capturing overview photos of the building, as well as structural and design details such as foundation types, framing systems, doors, windows, and architectural details. The latter included decorative elements on houses and functional elements on other buildings (e.g., hinges, latches, eaves, etc.). Upon completion of the photographic effort, architectural historian recorded each building's dimension, including length, width, and height where possible. Each building was then identified on an excerpt of the 2019 aerial image showing the Markowski Farm area.

The historic buildings were then assessed and ranked as to their condition and level of historical integrity. The ranking scheme included the following: Level 1 buildings were those considered to retain the highest level of originality and integrity; Level 2 buildings were those that had some of their original historic fabric altered, but still retained good integrity; and Level 3 buildings were those considered to be highly altered, were in an advanced state of decay, and/or retain little, if any, historical integrity. In addition, all of the historic buildings were depicted on a 2019 aerial image of the area and color coded as follows: Level 1 buildings were shown in red; Level 2 buildings were depicted in yellow; and Level 3 buildings were labeled in green. Finally, the buildings on the tobacco farm were assessed collectively applying the NRHP criteria for evaluation (36 CFR 60.4 [a-d]).

Curation

Following the completion and acceptance of the Final Report of Investigations, all cultural material, drawings, maps, photos, and field notes will be curated with:

Dr. Sarah Sportman
Office of Connecticut State Archaeology
Box U-1023
University of Connecticut
Storrs, Connecticut 06269

CHAPTER VII

RESULTS OF ARCHAEOLOGICAL SURVEY & MANAGEMENT RECOMMENDATIONS

Introduction

This chapter presents the results of the Phase IB archaeological survey of the proposed GPS in East Windsor, Connecticut. The goals of the investigation included completion of the following tasks: 1) a contextual overview of the region’s prehistory, history, and natural setting (e.g., soils, ecology, hydrology, etc.); 2) a literature search to identify and discuss previously recorded cultural resources in the region encompassing the Project Site; 3) a review of readily available historic maps and aerial imagery depicting the Project Site in order to identify potential historic resources and/or areas of past disturbance; 4) pedestrian survey and photo-documentation of the Project area; and 5) subsurface examination of the moderate archaeologically sensitive areas identified during the previously completed Phase IA cultural resources assessment survey (Heritage Consultants, LLC 2020).

All fieldwork associated with the current Phase IB survey was performed in accordance with the *Environmental Review Primer for Connecticut’s Archaeological Resources*, which is promulgated by the CT-SHPO (Poirier 1987). Field methods employed during the current investigation consisted of pedestrian survey, mapping, photo-documentation, and subsurface testing throughout the previously identified moderate sensitivity areas. The results of the archaeological survey are discussed below.

Results of Phase IB Archaeological Survey

During the Phase IB archaeological survey, 389 of 474 (82 percent) planned shovel tests were excavated throughout the forested test areas and open field pedestrian survey areas. The planned but unexcavated shovel tests fell within areas of steep slopes, wet soils, or previous disturbances. As seen in Table 1 below, Test Areas 1 and 3 through 9, as well as Pedestrian Survey Areas 1 through 6, 8, 9, 11, and 12, failed to produce evidence of archaeological resources. These areas are not discussed further below. Phase IB survey of the remainder of the test areas and pedestrian survey areas resulted in the identification of a total of four archaeological loci. A single locus was identified in Test Area 2, two loci were identified in Pedestrian Survey Area 7, and one locus was identified in Pedestrian Area 10 (Table 1). These areas and loci are discussed below.

Table 1. Survey Areas, Numbers of Shovel Test, and Results.

Project Item	Transect Numbers	Number of Shovel Test Pits Excavated	Number of Shovel Test Pits Planned	Number of Shovel Test Pits Not Excavated	Reason for Unexcavated Shovel Test Pits	Results
Test Area 1	12	99	143	44	Slopes/Disturbance	No cultural materials or features identified
Test Area 2	5	24	24	0	-	Locus 2-1
Test Area 3	3	15	20	5	Slopes/Disturbance	No cultural materials or features identified
Test Area 4	10	18	23	5	Slopes/Disturbance	No cultural materials or features identified

Table 1. Survey Areas, Numbers of Shovel Test, and Results, continued.

Project Item	Transect Numbers	Number of Shovel Test Pits Excavated	Number of Shovel Test Pits Planned	Number of Shovel Test Pits Not Excavated	Reason for Unexcavated Shovel Test Pits	Results
Test Area 5	5	14	20	6	Slopes/Disturbance	No cultural materials or features identified
Test Area 6	7	50	57	7	Slopes	No cultural materials or features identified
Test Area 7	10	43	43	0	-	No cultural materials or features identified
Test Area 8	3	18	21	3	Slopes	No cultural materials or features identified
Test Area 9	4	19	21	2	Slope	No cultural materials or features identified
Pedestrian Survey Area 1	-	-	-	-	-	No cultural materials or features identified
Pedestrian Survey Area 2	-	-	-	-	-	No cultural materials or features identified
Pedestrian Survey Area 3	-	-	-	-	-	No cultural materials or features identified
Pedestrian Survey Area 4	-	-	-	-	-	No cultural materials or features identified
Pedestrian Survey Area 5	-	-	-	-	-	No cultural materials or features identified
Pedestrian Survey Area 6	-	-	-	-	-	No cultural materials or features identified
Pedestrian Survey Area 7	0	16	16	0	-	Locus PSA-7-1 Locus PSA-7-2
Pedestrian Survey Area 8	-	-	-	-	-	No cultural materials or features identified
Pedestrian Survey Area 9	-	-	-	-	-	No cultural materials or features identified
Pedestrian Survey Area 10	0	8	8	0	-	Locus PSA-10-1
Pedestrian Survey Area 11	-	-	-	-	-	No cultural materials or features identified
Pedestrian Survey Area 12	-	-	-	-	-	No cultural materials or features identified

Test Area 2

Test Area 2 was located in forested area in the southeastern portion of the northern parcel of the Project Site (Table 1; Figure 13; Sheets 1 and 3; Photo 2) This survey area was positioned on relatively flat landform at an elevation of approximately 66 m (217 ft) National Geodetic Vertical Datum (NGVD). Test Area 2 It encompasses 1.04 acres of land and measures 80 x 65 meters (262.5 x 213.3 feet) in area. At the time of the survey, vegetation in the area consisted of second growth forest.

A typical shovel test excavated within Test Area 2 exhibited three soil horizons in profile and extended to a depth of 66 cmbs (26 inbs). The A-Horizon consisted of a layer of brown (10YR 3/4) silty sand that extended from 0 to 28 cmbs (0 to 11 inbs). The underlying B-Horizon reached from 28 to 56 cmbs (11 to

22 inbs) and it was characterized as a deposit of yellowish brown (10YR 5/4) fine sandy silt. Finally, the glacially derived C-Horizon was classified as a deposit of reddish yellow (7.5YR 6/8) fine to medium sand that was excavated to a terminal depth of 66 cmbs (26 inbs).

The subsurface testing strategy for this area included the excavation of shovel tests measuring 50 x 50 cm (19.7 x 19.7 in) in size at 15 meter (49.2 foot) intervals along survey transects spaced 15 meters (49.2 feet) apart. A total of 19 of 19 planned shovel tests (100 percent) and four additional delineation shovel tests were excavated along five transects extending across Test Area 2. This effort resulted in the identification of Locus 2-1, which is described below.

Locus 2-1

As seen in Figure 13; Sheet 2, this non-site archaeological locus was identified within the northwestern quadrant of Test Area 2, which was forested at the time of survey. Of the 19 planned shovel tests excavated through Test Area 2, one shovel test (Shovel Test 2 along Survey Transect 4; Table 1) yielded a single prehistoric period artifact. Laboratory analysis revealed the artifact was an argillite preform; it was collected from the A-Horizon at a depth of 10 to 20 cmbs (3.9 to 7.9 inbs). This area was designated as Locus 2-1 (Figure 13; Sheet 3 and Photo 2). Upon identification of the preform, Heritage personnel excavated four delineation shovel tests (Shovel Tests 2N, 2S, 2E and 2W) around the original findspot at 7.5 m (24.6 ft) intervals in the cardinal directions. Despite the field effort, no other cultural materials, soil anomalies, or features were identified within the Locus 2-1 area. Due to the low density nature of archaeological deposits and the lack of associated cultural features, as well as research potential, Locus 2-1 was assessed as not eligible for listing on the NHRP applying the criteria for evaluation (36 CFR 60.4 [a-d]). No additional examination of Locus 2-1 is recommended prior to construction.

Pedestrian Survey Area 7

Pedestrian Survey Area 7, which as characterized as an active agricultural field, was situated in the western portion of the central parcel of the Project Site (Figure 13; Sheets 1, 9, and 10; Photo 12). This area consisted of a relatively flat landform situated an approximate elevation of 52 m (171 ft) NGVD. This area encompassed approximately 14 acres of land and measured 250.5 x 227 m (822 x 745 ft) in size. At the time of the survey, vegetation in the area consisted of agricultural fields.

Phase IB survey of Pedestrian Survey Area 7 involved the spacing of archaeologists 5 m (16.4 ft) apart and having them traverse the field while visually inspecting the surface for the presence of artifacts. The pedestrian survey effort resulted in the collection of two artifacts from surface in Pedestrian Survey Area 7. These two areas were designated as Locus PSA-7-1 and Locus PSA-7-2. Once identified, PSA-7-1 and Locus PSA-7-2 were subjected to subsurface testing to determine whether they contained intact archaeological deposits. These two loci are discussed below.

Locus PSA-7-1

Locus PSA-7-1 was identified in the northeastern corner of Pedestrian Survey Area 7 (Figure 13; Sheet 9 and Photo 12; Table). A single quartz secondary thinning flake was collected during the pedestrian survey effort of this area and it was given the designation of Surface Find 1. Upon identification of this artifact, Heritage field personnel excavated eight delineation shovel tests in the cardinal directions around the location of the quartz flake. They were spaced 7.5 and 15 m (24.6 and 49.2 feet) from the original findspot (Figure 13; Sheet 9). A typical shovel test in Locus PSA-7-1 area exhibited three soil horizons in profile and extended to a depth of 67 cmbs (26.4 inbs). The Ap-Horizon (plow zone) consisted of a layer of dark yellowish brown (10YR 4/6) fine sand that extended from 0 to 43 cmbs (0 to 17 inbs). The underlying B-Horizon reached from 43 to 52 cmbs (17 to 20.5 inbs) and it was

characterized as a deposit of yellowish brown (10YR 6/4) fine sand. Finally, the glacially derived C-Horizon was classified as a deposit of reddish brown (5YR 4/3) medium sand that was excavated to a terminal depth of 67 cmbs (26.4 inbs).

The delineation shovel tests throughout the PSA-7-1 area were labeled as Shovel Tests 1N-7.5, 1S-7.5, 1E-7.5 1W-7.5, 1N-15, 1S-15, 1E-15 and 1W-15. Despite this field effort, no additional artifacts, soil anomalies, or evidence of cultural features was identified within the Locus PSA-7-1 area. Due to the absence of substantial archaeological deposits, associated cultural features, and research potential, Locus PSA-7-1 was assessed as not eligible for listing on the NHRP applying the criteria for evaluation (36 CFR 60.4 [a-d]). No additional examination of Locus PSA-7-1 is recommended prior to construction.

Locus PSA-7-2

Locus PSA-7-2 was identified in the southwestern corner of Pedestrian Survey Area 7 (Figure 13; Sheet 10 and Photo 12; Table 1). Pedestrian survey of this area resulted in the collection of a single eighteenth/early nineteenth century kaolin pipe stem fragment with an associated mouthpiece; it was designated as Surface Find 2 and later recorded as Locus PSA-7-2 (Figure 13; Sheet 10; Photo 12). Once this artifact was collected, Heritage field personnel excavated eight delineation shovel tests in the cardinal directions around the location of kaolin pipe stem fragment. They were spaced 7.5 and 15 m (24.6 and 49.2 feet) from the original findspot (Figure 13; Sheet 9). A typical shovel test in the Locus PSA-7-2 area exhibited three soil horizons in profile and extended to a depth of 70 cmbs (28 inbs). The Ap-Horizon (plow zone) consisted of a layer of dark yellowish brown (10YR 4/6) fine sand that extended from 0 to 40 cmbs (0 to 16 inbs). The underlying B-Horizon reached from 40 to 55 cmbs (16 to 22 inbs) and it was characterized as a deposit of yellowish brown (10YR 6/4) fine sand. Finally, the glacially derived C-Horizon was classified as a deposit of reddish brown (5YR 4/3) medium sand that was excavated to a terminal depth of 67 cmbs (28 inbs).

The delineation shovel tests excavated throughout the PSA-7-2 area were labeled as Shovel Tests 1N-7.5, 1S-7.5, 1E-7.5 1W-7.5, 1N-15, 1S-15, 1E-15 and 1W-15. Despite this field effort, no additional artifacts, soil anomalies, or evidence of cultural features was identified within Locus PSA-7-2. Due to the absence substantial archaeological deposits, associated cultural features, and research potential, Locus PSA-7-2 was assessed as not eligible for listing on the NRHP applying the criteria for evaluation (36 CFR 60.4 [a-d]). No additional examination of Locus PSA-7-1 is recommended prior to construction.

Pedestrian Survey Area 10

Pedestrian Survey Area 10, which also was located within an agricultural field, was situated the eastern portion of the southern parcel of the Project Site (Figure 13; Sheets 1 and 11; Photo 16) This area consisted of a relatively flat landform that was positioned at an elevation of approximately 52 m (171 ft) NGVD. It encompassed approximately 36.1 acres and measured approximately 700 x 300 m (2297 x 984.3 ft) in size. Phase IB survey of Pedestrian Survey Area 10 involved the spacing of archaeologists 5 m (16.4 ft) apart and having them traverse the field while visually inspecting the surface for the presence of artifacts. A single quartz flake was identified on the surface in Pedestrian Survey Area 10, and this area was recorded as Locus PSA-10-1. It is discussed below.

Locus PSA-10-1

Locus PSA-10-1 was identified in the northwestern corner of Pedestrian Survey Area 10 (Figure 13; Sheet 1 and 11; Photo 14; Table 1). As mentioned above, a single quartz secondary thinning flake was collected from the surface of Pedestrian Survey Area 10. Once this artifact was collected, Heritage field personnel excavated eight delineation shovel tests in the cardinal directions around the location of the quartz

flake. They were spaced 7.5 and 15 m (49.2 ft) from the original findspot (Figure 13; Sheet 9). The delineation shovel tests excavated throughout the PSA-7-2 area were labeled as Shovel Tests 1N-7.5, 1S-7.5, 1E-7.5, 1W-7.5, 1N-15, 1S-15, 1E-15 and 1W-15.

A typical shovel test in the Locus PSA-10-2 area exhibited three soil horizons in profile and extended to a depth of 70 cmbs (28 inbs). The Ap-Horizon (plow zone) consisted of a layer of dark yellowish brown (10YR 4/6) fine sand that extended from 0 to 35 cmbs (0 to 14 inbs). The underlying B-Horizon reached from 35 to 60 cmbs (14 to 24 inbs) and it was characterized as a deposit of yellowish brown (10YR 6/4) fine sand. Finally, the glacially derived C-Horizon was classified as a deposit of reddish brown (5YR 4/3) medium sand that was excavated to a terminal depth of 75 cmbs (30 inbs).

Despite this field effort, no additional artifacts, soil anomalies, or evidence of cultural features was identified within Locus PSA-10-1. Due to the absence of substantial archaeological deposits, associated cultural features, and research potential, Locus PSA-10-1 was assessed as not eligible for listing on the NHRP applying the criteria for evaluation (36 CFR 60.4 [a-d]). No additional examination of Locus PSA-10-1 is recommended prior to construction.

Management Recommendations

No cultural features or soil anomalies were identified in association with Locus 2-1, Locus PSA-7-1, Locus PSA-7-2, or Locus PSA-10-1. Due to the low density of artifacts and associated features, the components identified could not be assigned a specific date or cultural affiliation. The loci identified during the Phase IB cultural reconnaissance survey of the proposed Project Site were assessed as not significant applying the NHRP criteria for evaluation (36 CFR 60.4 [a-d]). No impacts to cultural resources are expected by the construction of the solar facility, and no additional archaeological examination of the Project Site is recommended.

CHAPTER VIII

RESULTS OF ARCHITECTURAL SURVEY & MANAGEMENT RECOMMENDATIONS

Introduction

This portion of the report presents the results of an architectural survey of the Project Site associated with the Broad Brook section of the town of East Windsor, Connecticut. The Project parcels are owned by Edward and Dorothy Markowski. They include residences, tobacco sheds, English style barns, ancillary farm buildings, a standing water tower, and a dilapidated water tower. Some of these structures, a barn, the standing water tower, and three non-contributing buildings, will not be directly impacted by the Project (Figure 15). For the most part, the historic structures located within and immediately adjacent to the Project Site retain a moderate to high level of integrity, are of importance to the historic agricultural landscape, and are dwindling types of resources according to the Connecticut State Historic Preservation Office.

The following review was accomplished through a combination of background research, pedestrian survey of the Project Site, photo-documentation of the identified historic built resources to determine their potential NRHP eligibility, and mapping. This evaluation views the Markowski Farm as a single complex, with individual buildings representing contributing elements to the overall significance of the complex. Once the pedestrian survey was completed and the standing resources were uniquely identified, they were mapped and categorized using a scale ranging from Level 1 to Level 3, with Level 1 being those resources that retain the highest level of integrity and significance; Level 2 being those that may have some significance but have had some alterations to their historic fabric; and Level 3 being those that contribute the least to the overall significance and integrity of the farm. As Figure 15 depicts, the level of historic significance for each resource category is indicated in the following manner: Level 1 is red, Level 2 is yellow, and Level 3 is green. It should also be noted that whenever possible the numbers for the tobacco sheds shown in the figures refer to the historic shed numbering system that was used by the farm. These numbers were painted on the gable ends of the buildings.

Project Site Description

The Project Site is the location of an operating large-scale tobacco farming complex known as the Markowski Farm, one of the few such facilities remaining in Connecticut. These large-scale operations are often referred to as “shed cities” due to the sizeable number of buildings found within them. The northern Project parcel, identified as 016-49-007 by the East Windsor Assessor’s Office, includes 118 acres of land that is bounded to the east by the Connecticut Department of Transportation (CT-DOT) railroad right-of-way (ROW), to the south by Plantation Road, to the west by residential development, and to the north by parcels of open land associated with the Project. This northern parcel includes nine tobacco sheds, all of which are described below.

The parcels that make up the central portion of the Project Site are 46, 47, and 50 Plantation Road (016-49-7B, 016-29-7A and 016-50), respectively. They straddle Plantation Road, which is outlined in red in Figure 15. These built resources include a converted barn/dormitory and two office/industrial buildings that were constructed within the last 50 years. Neither these parcels nor the buildings and the standing water tower (see below) on them will be impacted by the proposed Project.

The southern parcel within the Project Site, Parcel 016-50-1, is bounded by Plantation Road to the north, a residential development to the west, Windsorville Road and the above-referenced CT-DOT railroad right-of-way (ROW) to the east, and another residential development along Windsorville Road (which turns into Wapping Road) to the south. This southern parcel includes three houses, two English barns, one open shed, a dormitory building, and 24 tobacco sheds, all of which are discussed below. The entire farm complex is characterized by open areas punctuated by tobacco sheds along the periphery of the tobacco fields. Some of these structures border Plantation and Windsorville Roads, while others are located at the interior of the farm along the forested edge of the agricultural fields.

Historic Standing Resources

A preliminary review of the buildings within the Project Site, some of which were previously documented through the Connecticut Trust for Historic Preservation's Barn Survey, revealed that many exhibit a high level of integrity and are potentially eligible for listing in the NRHP. It should also be noted that the Connecticut Trust for Historic Preservation's Barn Survey was not comprehensive, as it was only conducted from abutting public streets and does not contain all the structures located on the Project Site. According to that windshield survey, as well as the pedestrian survey conducted by Heritage as part of this Phase IB architectural survey, the most common type of building found within the Project Site is the tobacco shed. There is a total of 31 tobacco sheds found within the Project Site (28 of which are over 50 years old). In addition to these buildings, there are five additional related agricultural outbuildings located nearby. These consist of three houses, one shed, and the remains of a dilapidated of a water tower located on the Project Site. A second standing water tower that holds several functioning telecommunication antennas is also situated near the center of the area, but it is not within Project Site and it will not be impacted directly by the Project.

The standing structures identified within the limits of the Project Site are described below and they are organized by type and are reflective of the ranking scheme identified at the outset of this chapter. Given the simple nature of the tobacco sheds as described above, even minor changes can have an impact on their integrity. Just because a structure has a ranking of Level 2 (depicted as yellow in Figure 15) does not mean that it does not contribute to the significance of the larger complex. Rather, it means that there are some elements that have been visibly altered from the original design. When discussing the houses and other ancillary structures on the Project Site, it was often determined that they contribute less to the overall significance of the complex than the sheds, as these types of structures can also be found commonly throughout rural Connecticut are not reflective of a dwindling resource base.

Tobacco Sheds

As discussed above, the historic buildings within the Project Site were ranked from Level 1 to Level 3 in terms of their overall condition and potential significance for listing in the NRHP. The following sections discuss the identified tobacco barns on the Project Site. The discussions are divided into three sections: Level 1 Tobacco Sheds, Level 2 Tobacco Sheds, and Level 3 Tobacco Sheds.

Level 1 Tobacco Sheds

Level 1 tobacco sheds include those within the Project Site that retain the highest level of integrity and NRHP significance; they include Sheds 8, 10, and 11, which are located along the eastern edge of the southern Project parcel (Figure 15; Photos 18 through 20). All of these buildings retain original elements of their construction. They are arranged close to Plantation Road with their ridges set perpendicular to the street in an east to west direction. All three sheds are similar in size. They measure approximately 45.7 to 48.7 m (150 to 160 ft) in length by 9.8 m (32 ft) in width. These three buildings retain their original tall gabled, roof vents that run parallel to the ridge line, early concrete footings, and original

siding (with some minimal repairs). The next set of Level 1 tobacco sheds, which were designated Sheds 12, 13, and 14, are located along the interior of the Project Site and are positioned at the edge of wooded areas in the southern half of the southern Project parcel (Photos 21 through 23). They are all arranged with their ridgelines favoring and east to west direction and they too retain their original features. Of these three building, only Shed 14 is partially visible from Windsorville Road.

In addition, Sheds 15, 16, 17, and 18, all of which are Level 1 tobacco sheds and are located along the southwestern edge of the Project Site, are situated adjacent to a wooded area to the west. In the case of Shed 18, the wooded area has been allowed to grow up around the building on all but its northern side. These four tobacco sheds retain a high level of integrity, but of note is the fact they have one single wagon door on the gabled elevations instead of two, which is typical of other sheds of the era (see Photo 24 for example). In addition to the single, central wagon door, there is a small access door located to one side of each shed to provide entry for workers, but not for any large pieces of equipment. This may have been used during the drying and curing process when the sheds are often wrapped in plastic to retain the proper balance of humidity in the leaves and opening a large wagon door would prove too disruptive to the curing process.

A review of these tobacco sheds' interior framing revealed that they are two aisles or bays in width and were used for curing tobacco (Photo 25). The exterior of Sheds 15, 16, 17, and 18 retain the original wrought iron latches that hold the movable boards in place and the lateral boards used to pull open the exterior boards in groups (Photos 26 and 27). The roof vents on Sheds 16 and 17 appear to be taller than those found on the other sheds in the complex (Photos 28 and 29), and the vent on Shed 18 appears to be truncated and located more centrally along the ridge than the other examples (Photo 30). The variation in the roof vents, the high level of weathering to the siding, and retention of early metal latches and wooden cleats (found on the many of the early examples) indicates that Shed 18 is one of the earliest examples of a tobacco shed found on the Project Site (Photo 31).

Shed 20, which is also a Level 1 building, is located to the north of the above-referenced dormitory building and is arranged with its ridgeline oriented in an east to west direction. This tobacco shed retains its original shed-roofed vent and it also has just one wagon door on the gable end to serve both aisles on the interior (Photo 32). Further, Shed 22 is located to the north of House 2 (see below) and extends perpendicular to the driveway leading into the farm complex; it too is a Level 1 building and is oriented in an east to west direction (Photo 33). Shed 24 is located to the southwest of Barn 2 (see below), is a Level 1 building, and serves the small field located immediately to the north of it along Plantation Road (Photo 34). Both Shed 22 and 24 retain the original roof venting, but the roof of Shed 22 has been replaced and clad in standing-seam metal. Both buildings also have one wagon door on the gable end and the small access door located on one side.

Moving to the north side of the Project parcel, Sheds 26 and 28 are arranged with their ridgelines oriented in an east to west direction. These Level 1 tobacco sheds are located in the northern side of a narrow-wooded area. Shed 26 is characterized by two wagon doors on the western gable end and one on the eastern gable end (Photos 35 and 36). Sheds 29 and 30 are located on the east side of the northern parcel and they abut a wooded area located to the east. These two Level 1 tobacco sheds also retain a high level of historical integrity and they contain a single door (and an access door) on one gable end and two on the other gable end (Photos 37 and 38).

Level 2 Tobacco Sheds

The buildings in this group, which includes Sheds 1, 2, 3, 4, and 6, are all considered to have had some level of changes to their original fabric, either through loss of the roof vent or significant changes to the material of the foundation or siding. They are therefore ranked as Level 2 in Table 2 below. These five buildings are all aligned in an east to west direction along Plantation Road. The roof vents on Sheds 1, 2, 3, 4, and 6 appear to have been either removed or were never installed. Shed 1 is located furthest to the west and is also situated to the west of the intact water tower (Photo 39). It is set on a foundation made of Sonotubes, but retains the traditional framing found in the older buildings (Photos 40 and 41). Though Shed 1 appears on a 1934 aerial of the Project Site, it is unclear whether this building was rebuilt in place.

Shed 2, which is also a Level 2 building, is located to the east of the above-referenced water tower and has a concrete loading dock on the eastern elevation (Photo 42). The floor of this building consists of poured concrete, which is unusual for this type of building; however, the interior framing remains consistent with the rest of the tobacco sheds in the complex (Photo 43). Shed 3 has two wagon doors on each gable end and a standing-seam metal roof (Photo 44). The roof covering along the ridge of this Level 2 building indicates that the venting was either removed or never constructed on this shed (Photo 45). The interior contains the original wooden lathes used to hang the tobacco for drying (Photo 46). Shed 4, which is also a Level 2 building, also has two wagon doors on each end (Photo 47). This tobacco shed has a dirt floor and what appears to be newer poured concrete footing walls along the northern and southern elevations; these are visible on the interior (Photo 48). Shed 6 is the furthest to the east and, like Shed 1, it was built or rebuilt using Sonotube footings. This building appears on the 1934 aerial as well, so it is unclear whether this was rebuilt or simply lifted onto a new foundation; it was therefore ranked as a Level 2 building (Photo 49). These four sheds will not be directly impacted by the proposed construction.

Shed 19, which is also a Level 2 building, is located on the southern side of the dormitory building referenced above and located on the western side of the driveway leading into the southern Project parcel. This building is one of the largest sheds on the Project Site. At 88.4 m (290 ft) in length, it is almost double the size of many of the other tobacco sheds on the Project Site (Photos 50 and 51). Shed 19 lacks a roof vent but is set on early period concrete blocks and appears on the 1934 aerial. This building appears to also be an early construction within the farm complex.

Shed 21 is located to the west of House 2 (see below) and has one central wagon door on the eastern gable end of the building (Photo 52). This Level 2 building also is characterized by a standing-seam metal roof and lacks a roof vent. Shed 23 is located to south of Shed 24 and it too has a standing-seam metal roof with no vent (Photo 53). Shed 25 is located on the northern of the two Project parcels and to the south of the wooded area where Sheds 28 and 31 are situated (Photo 54). This Level 2 building retains its original siding, roof vent, and has a concrete block foundation. Shed 31 is located on the eastern side of the northern parcel near a wooded area situated to the north. It has two access doors on its western elevation; they flank a central wagon door. This building, like Shed 21 and Shed 24, lacks a central roof vent, and therefore was ranked as a Level 2 construction (Photo 55). Finally, Shed 9 is located on the far eastern end of the southern Project parcel, between Shed 8 and Shed 10. This building also was assigned a ranking of 2 due to the replacement of the original siding material on its gable end with oriented strand board (OSB) or particle board instead of vertical boards (Photo 56).

Level 3 Tobacco Sheds

The following resources have been ranked as Level 3 either for their age or level of integrity. Sheds 27, 32, and 33 are all located at the far northwestern edge of the northern Project parcel. None of these tobacco sheds are visible in the 1934 aerial. Sheds 32 and 33 do, however, appear on the 1970 aerial, indicating that they are at least 50 years in age. Visual inspection of them, however, showed that they lack historical integrity because large portions of the exterior fabric of the buildings have been replaced particularly on the gable ends, where OSB or particle board has been used in place of the original vertical siding (Photo 57). In addition, Shed 5, which is located to the south of the standing water tower, consists of a large tobacco shed that is comparable in size only to Shed 19 discussed above (Photo 58). This building is set on a Sonotube foundation and lacks a roof vent; it too was categorized as a Level 3 building and it will not be directly impacted by the proposed construction. Finally, Shed 5a was identified to the southwest of Shed 5. The ridgeline of this building is oriented perpendicular to Plantation Road. This shed dates from after 2000 according to aerial photos of the area; it does not meet the definition of a historic resource but is discussed here as it relates to the context of the Project.

Other Built Resources

In addition to the buildings discussed above, which consist primarily of tobacco sheds, the Project Site contains several other historic buildings and structures. Most of them date from the late nineteenth and early twentieth century, and many appear on the 1934 aerial photo of the property. These historic buildings include three houses (labeled Houses 1 through 3); a dormitory building; and five barns (designated as Barns 1 through 5). Each of these built resources is discussed below and their corresponding ranking is shown in Table 2.

Houses

House 1, which dates from ca., 1900, was identified along the western side of the main driveway leading into the southern half of the Project Site; it faces Plantation Road. This residence measures two-and-a-half-stories in height and is topped with a pyramidal roof that has been covered in asphalt shingles. A hipped roof dormer extends from the façade of the building, which is three-over-three bays wide with a central entrance covered by a gabled portico (Photo 59). There is a large, two-story, gable-roofed addition on the rear of the house that measures four bays in width (Photo 60). The portions of the building that were accessible showed that it no longer retained any of its original historic fabric (Photo 61). The house has replacement siding, windows and doors and a large addition at the rear which taken together compromise its architectural integrity; therefore, it was assigned a ranking of Level 3.

House 2, which also dates from ca., 1900, was noted on the western side of the driveway leading south into the southern half of the farm complex. This building is characterized by a gabled roof that is arranged in an east west direction (Photo 62). The roof is clad in asphalt shingles and has a centrally placed brick chimney located along the ridge line. There were returns noted at the gable ends of the roof and the eaves are boxed. The windows identified on the gable end of the building are arranged symmetrically with two on each elevation. Most of the windows have been boarded shut, but the frames of those that remained open indicate that they were once two over two double-hung sash. The main entrance to the home was located on the southern elevation beneath a shed roofed portico that was in a state of advanced decay. Overall, House 2 was in poor condition at the time of the survey and the exterior walls have been clad in wood shingles that were at the end or had exceeded their useful life (Photo 63). It also was assigned a ranking of Level 3.

House 3 was identified near the eastern edge of the Project Site to the south of Shed 11 and along Windsorville Road. This residence dates from before 1934 as determined from a review of an aerial

image from that year. It is characterized a gabled roof with a ridgeline that runs parallel to Windsorville Road. An exterior brick chimney was noted on the northern elevation of the building and the roof had been clad in standing-seam metal. The façade of the house is located on the eastern side and measures four bays in width with an off-center entry. The exterior of the building is clad in vinyl siding and appears to have replacement windows (Photo 64). Overall, this building was ranked as a Level 2 structure.

The dormitory located within the farm complex is a single-story concrete block structure with a gabled ell appended to its north elevation (Photo 65). The gabled portion is clad in clapboards and has an asphalt-shingled roof with an entrance located on the northern end. The southern portion is characterized by a flat roof with a central parapet and a series of seven symmetrically arranged openings along the eastern elevation (façade). One smaller window is located near the southern end of the building between the second and third openings. This building appears to be significantly altered from its appearance on the 1934 aerial; it was assigned a ranking of Level 3.

Barns

As discussed above, a total of five barns were noted during the visual inspection of the Project Site. There were designated as Barns 1 through 5 and they are discussed in the following paragraphs. Barn 1 consists of a two-story, gambrel-roofed structure located on the west side of the driveway leading into the Project Site (Photo 66). The ridge of this building is arranged in a north to south direction. A shed-roofed addition has been appended to the east elevation of the barn and an extended shed-roofed portico supported by bracketed posts is found on the southern elevation (Photo 67). The exterior is clad in vertical boards and the roof is covered in standing-seam metal. Barn 1 currently appears to be used for equipment repair and there are double doors in the gambrel end on the north elevation facing Plantation Road. "Markowski Farm" is painted on the lower half of the elevation in yellow letters on a green background. This building was assigned a ranking of Level 2.

Barn 2, which was categorized as a Level 1 building, is located on the western side of the driveway leading into the Markowski Farm from Plantation Road and to the south of the House 1 (Photo 68). The northern half of this English bank barn is set into a small hill with the roof's ridge line arranged in a north to south direction (Photo 69). It has a shallow-pitched gable roof that has been clad in standing-seam metal; it also is characterized by vertical-board siding and doors on both the gable end and side elevations. The lower story contains a poured concrete floor and foundation and the upper floor above is supported by steel Lally columns (Photo 70). Barn 2 dates from the first decades of the twentieth century and is one of the most significant ancillary farming buildings remaining on the property.

Barn 3 consists of a single-story pole barn that is located immediately to the west of Barn 2. This Level 2 building is characterized by a gabled roof with a ridgeline arranged in a north to south direction; the roof is clad in standing-seam metal. The eastern elevation of Barn 3 is open and was being used for equipment storage at the time of survey (specifically the storage of the many stakes used to hold the tobacco shed tents in place during the growing season (Photo 71). The western elevation of the barn is enclosed with vertical-board siding (Photo 72). Barn 4, which was ranked as a Level 3 building, is appended to the north end of Barn 3. It is a one-and-a-half story cinderblock structure with a gabled that is roof clad in standing-seam metal (Photo 73). The openings are narrow and minimal on each elevation, pointing to a specific but unknown historic use.

Barn 5 is located on the northern side of Plantation Road and has been converted for use as a commercial building/dormitory space (Photo 74). This building has a gabled roof and wood shingled siding. A total of three roof vents are visible along the ridgeline of the building and a series of small,

single-story extensions are situated on the southern, western, and northern elevations of the barn. Given its size, this building was likely used as a sorting facility of some kind, but further documentary research would be required to determine its original use. Attached to Barn 5 is a modern one-and-a-half-story commercial building that is located on the northern side of Plantation Road (Photo 75). This structure is clad in vinyl siding and has an asphalt shingled roof. The current use is unknown, but this may also be a dormitory for seasonal workers. This building was assessed as a Level 3 construction; it will not be impacted directly by the proposed Project.

Water Towers

Visual inspection of the area containing the Project Site revealed the presence of a standing steel water tower; it is located on Parcel 16-50, which is not included within the impact area associated with the Project. While it will not be impacted directly by construction, the water tower is a prominent visual presence in the area and was historically connected to the Markowski Farm. It is located on the southern side of Plantation Road between Sheds 1 and 2 and hosts several telecommunication antennae (Photo 76). The tower is of steel construction and supported by steel lattice legs. It is located within a chain link fenced area that contains a small, flat-roofed support building to house the cellular equipment. It appears on the 1970 aerial and is therefore at least 50 years in age. It is a Level 1 construction but, as referenced above, will not be directly impacted by the Project. Finally, a rusted steel skeleton of a second decommissioned water tower also remains on the Project Site. It is located to the north of Barn 4. The tank associated with the water tower is not gone and only the steel legs remains (Photo 77). This former tower was assessed as a Level 3 construction.

Non-Contributing Buildings

In addition to the tobacco sheds and barns described above, there are two non-contributing modern buildings located on the Project Site. These were identified to the north of Barn 5. Both were built ca., 2000 and will not be impacted by the proposed Project. In addition, 11 greenhouses are also located in the center of the southern Project parcel; they are oriented in an east-west direction. These greenhouses are modern structures, designed to be temporary and movable. As such, none of these structures contribute to the overall integrity of the farm complex.

Table 2. Evaluation of Standing Structures Found on the Project Site.

Building Number	On 1934 Aerial	On 1970 Aerial	Roof Style/ Modifications	Foundation Changes	Siding Changes	Condition/ Integrity	Contributes to District	Rank
Shed 1	Yes	Yes	Monitor intact/ Asphalt shingle	Yes Sonotubes	Some replacement	Good	Yes	2
Shed 2	Yes	Yes	Monitor removed/ Standing seam metal	No concrete blocks	Intact metal hinges	Good	Yes	2
Shed 3	Yes	Yes	Monitor removed/ Standing seam metal	No concrete blocks	Intact hinges	Good	Yes	2
Shed 4	Yes	Yes	Monitor removed/ Standing seam metal	No concrete blocks	Intact hinges and siding	Good	Yes	2
Shed 5	No	No	Monitor removed/ Standing seam metal	Yes Sonotubes	Intact hinges and siding newer	Good	No	3

Table 2. Evaluation of Standing Structures Found on the Project Site, continued.

Building Number	On 1934 Aerial	On 1970 Aerial	Roof Style/ Modifications	Foundation Changes	Siding Changes	Condition/ Integrity	Contributes to District	Rank
Shed 5A	No	No	Standing seam metal roof	N/A	Wood siding	Good	No	3
Shed 6	Yes	Yes	Monitor removed/ Standing seam metal	No Concrete blocks	Siding intact along with hinges	Good	Yes	2
Shed 8	Yes	Yes	Monitor/ Asphalt shingle	No- Concrete Block	Siding intact	Good	Yes	1
Shed 9	Yes	Yes	No Monitor/ Asphalt shingle	No- Concrete Block	Plywood in gable end and doors	Fair	Yes	3
Shed 10	Yes	Yes	Monitor taller/ Asphalt Shingle/ exposed rafter tails	No- Concrete block	Siding intact	Good	Yes	1
Shed 11	Yes	Yes	Monitor taller/ Asphalt Shingle/ exposed rafter tails	No- Concrete block	Siding intact	Good	Yes	1
Shed 12	Yes	Yes	Monitor taller/ Asphalt Shingle exposed rafter tails	No- Concrete block	Siding intact	God	Yes	1
Shed 13	Yes	Yes	Monitor taller/ Asphalt Shingle/ exposed rafter tails	No- Concrete block	Siding intact	Good	Yes	1
Shed 14	Yes	Yes	Monitor taller/ Asphalt Shingle/ exposed rafter tails	No- Concrete block	Siding intact	Good	Yes	1
Shed 15	Yes	Yes	Monitor/ Asphalt roof	Concrete Block	Siding intact (latch details)	Good	Yes	1
Shed 16	Yes	Yes	Monitor/ Asphalt roof	Concrete Block	Siding intact	Good	Yes	1
Shed 17	Yes	Yes	Monitor/ Asphalt roof	Concrete Block	Siding intact	Good	Yes	1
Shed 18	Yes	Yes	Monitor/ Asphalt roof	Concrete Block	Siding intact	Good	Yes	1
Shed 19	Yes	Yes	No Metal roof altered Longest shed	Concrete block	Siding intact	Good	Yes	2
Shed 20	Yes	Yes	Monitor/ Asphalt roof	Concrete Block	Siding intact	Good	Yes	1
Shed 21	Yes	Yes	No Monitor/ Standing-Seam Metal	No- Concrete Block	Siding intact	Good	Yes	2
Shed 22	Yes	Yes	Monitor/ Asphalt roof	No- Concrete Block	Siding intact	Good	Yes	1
Shed 23	Yes	Yes	No monitor standing-seam metal	No- Concrete Block	Siding intact	Good	Yes	2

Table 2. Evaluation of Standing Structures Found on the Project Site, continued.

Building Number	On 1934 Aerial	On 1970 Aerial	Roof Style/ Modifications	Foundation Changes	Siding Changes	Condition/ Integrity	Contributes to District	Rank
Shed 24	Yes	Yes	Monitor/ Asphalt roof	No- Concrete Block	Siding intact	Good	Yes	1
Shed 25	Yes	Yes	Monitor/ Standing-seam metal	Concrete Block	Siding intact	Good	Yes	2
Shed 27	No	No	No Monitor	Yes Sonotubes	Plywood in gable ends	Fair	No	3
Shed 28	Yes	Yes	Monitor/ Asphalt shingle	No- Concrete Blocks	No	Good	Yes	1
Shed 29	Yes	Yes	Monitor/ Asphalt shingle	No- Concrete	No	Good	Yes	1
Shed 26	Yes	Yes	Monitor/ Asphalt shingle	No- Concrete block	No	Good	Yes	1
Shed 30	Yes	Yes	Monitor/ Asphalt Shingle	No – Concrete block	No	Good	Yes	1
Shed 31	Yes	Yes	Monitor/ Asphalt Shingle	No- Concrete block	Plywood in gable end	Good	No	2
Shed 32	No	Yes	No Monitor	Sonotubes	Plywood in gable end	Good	No	3
Shed 33	No	Yes	No Monitor	Sonotubes	Yes	Good	No	2
House 1 – Plantation Road	Yes	Yes	Asphalt	Composite Shingle	Brick foundation	Fair	Yes	3
House 2 – West side driveway entrance	Yes	Yes	Asphalt Shingle	Wood shingle	Stone- sill on ground	Poor	Yes	3
House 3- Windsorville Road	Yes	Yes	Standing-seam metal roof	Brick foundation	Vinyl siding	Good	Yes	2
Barn 1 Gambrel Roof	Yes	Yes	Standing seam-metal roof	Siding intact	Concrete	Fair	Yes	2
Barn 2 – English Bank Barn	Yes	Yes	Standing-seam metal roof	Vertical wood siding intact	Siding intact	Good	Yes	1
Barn 3- Pole Barn Open	Yes	Yes	Standing-seam metal roof	Wood siding - open	Open siding	Fair	Yes	2
Barn 4- Concrete shed near pole barn	No	No	Standing-seam metal roof	Shed roof	Brick	Good	No	3¹
Barn 5 Converted Barn Dormitory	Yes	Yes	Asphalt shingle with roof vents	Wood Shingle siding	Not visible	Good	Yes	1

Table 2. Evaluation of Standing Structures Found on the Project Site, continued.

Building Number	On 1934 Aerial	On 1970 Aerial	Roof Style/ Modifications	Foundation Changes	Siding Changes	Condition/ Integrity	Contributes to District	Rank
Dormitory between 19 and 20	Yes, but altered	Yes	Concrete Block – original building appended to this?	Concrete Block	Concrete Block	Fair	No	3
Original Water tower	Yes	Yes	Deteriorated	N/A	N/A	Poor	Yes	3
Water tower	No	Yes	N/A	N/A	N/A	Good	Yes	1

¹ Entries in bold indicate buildings and structures that will not be directly impacted by the Project.

Evaluation of National Register Eligibility

The historic standing resources associated with the Project Site were evaluated with respect to their NRHP eligibility applying the following Criteria for Evaluation (36 CFR 60.4 [a-d]). These criteria have been established so that cultural resources management professional may consider a resource’s quality of significance in American history, architecture, archaeology, engineering, and culture as expressed in in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and an historic resource(s). In the current case, the identified buildings may be considered eligible for listing on the NRHP if they:

- a. are associated with events that have made a significant contribution to the broad patterns of our history;
- b. are associated with the lives of significant persons in or past;
- c. 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. have yielded or may be likely to yield, information important in history or prehistory.

Given the evaluation above, Heritage believes that, as a farming complex with historic roots in shade tobacco production, the Markowski Farm may be eligible for listing in the NRHP under Criteria A and C. This is a preliminary evaluation and all determinations of eligibility are made only by CT-SHPO. The sections below provide justifications for the professional opinion of eligibility under Criteria A and C.

Historical Significance—Criterion A

The Markowski Farm is representative of the growth of the tobacco industry in Connecticut as a whole, an event that has broad reaching impacts on the economics and culture of the state in addition to the more tangible changes to the built environment. Tobacco farms were prominent throughout the northern towns of the Connecticut River Valley, including East Windsor, during the first half of the twentieth century. Mr. Fred B. Griffin, who owned the Project Site until his death in 1941, was responsible for the construction of many of the sheds that still stand within the confines of the Project Site today. Mr. Griffin was well known in his time as one of the most prominent tobacco growers in Connecticut. His contributions to the area and its building stock and economic development are highlighted below.

Tobacco growing in Connecticut dates as far back as the colonial era, with cigar making beginning in 1810 in East Windsor and Suffield. By 1830, when a new method of curing or sweating the tobacco leaves was discovered, all or most of the industry shifted to producing for cigars. A cash crop was born and subsequently dominated the farmlands along the Connecticut River and Housatonic River Valleys. Three types of tobacco were grown in Connecticut: Broadleaf, Havana, and Sumatran. The term “field tobacco” refers to the Broadleaf and Havana varieties that were the main sources of income for Connecticut farmers until the introduction of Sumatran seed in the last decades of the nineteenth century. The Havana seed was first introduced to Connecticut growers in 1875, and by the 1890s “Sumatra seed” was becoming increasingly popular among growers. The Sumatra seed produced a leaf that was mild in taste and light in color; in short, this leaf was perfect for cigar wrappers. The Connecticut Agricultural Experiment Station recognized the importance of the tobacco crop to Connecticut farmers and began working on creating a hybrid “Connecticut seed” to be grown under a network of shade tents. Tenting reduced the harmful rays of the sun, allowing the tobacco leaves to retain a more attractive color. The shade tent technique spread rapidly throughout the market, resulting in a significant increase in the grower’s profit base.

The Dolph & Stewart Map of the Project Site dating from 1931 (Figure 14) shows that the area was listed as “Griffin Farm.” The 1934 and 1941 aerial photos indicate that the fields in the southwestern and northern sections were also being used for growing tobacco for the Griffin Company, which was started by Mr. Fred B. Griffin (1873-1941), and the northern and central fields also contained three tobacco sheds. As mentioned above, Mr. Griffin was a prominent figure in the Connecticut tobacco industry. He was raised in a tobacco-growing family but began his independent career as the receiver of the International Tobacco Culture Corporation in Windsor in 1903. He went on to become Superintendent of Kohn Tobacco in 1906. He was also General Manager of the Tobacco Growers’ Association in Connecticut. In 1919, the Griffin Tobacco Company was referred to in a trade journal as one of the largest and most successful growers of shade tobacco in Connecticut. The company was formerly known as the Griffin-Neuberger Tobacco Company, but Mr. Griffin bought out Mr. Neuberger’s assets after they were seized by the Custodian of Alien Property. At the time they owned 1,000 acres of land in Bloomfield, Windsor, Granby, and East Granby, including 52 sheds, workman’s cottages, and a boarding house along with “the best sorting and packing plant in the state.” (United States Investor, Volume 30, Issue 1, New York: Frank P Bennett, Company 37).

By 1921, Mr. Griffin was the Vice President of American Sumatra Tobacco Company, to whom he had sold his firm’s holding and the state’s largest operation; however, he operated his own plantation in East Windsor, which he purchased ca., 1920 in association with the Cullman Brothers. Cullman Brothers was the largest dealer in leaf tobacco in the country at that time. Mr. Griffin was never a resident of East Windsor, so the houses on the Project Site were likely built for and occupied by Farm Superintendents. Mr. Griffin went on to farm his holdings at the Project Site in East Windsor and also in portions of South Windsor under the “Fred B. Griffin Tobacco Company” moniker. In 1925, he became Senior Vice President of the Cullman Brothers Tobacco Company, again at the time the state’s largest producer of shade grown tobacco. He continued in this role until 1937 when he became partners with Samuel Fuller of Suffield to form the “Griffin-Fuller Tobacco Company.” His obituary from 1941, which appeared on the front page of the *Hartford Courant*, detailed his career and stated that he was one of the state’s leaders in the tobacco industry in addition to being a “prominent political figure.” (*Hartford Courant* October 4, 1941:1).

Tobacco was one of the few Connecticut-grown agricultural products distributed nationally and internationally. Connecticut was known throughout the world for producing the highest quality wrapper with the best color and smoothest taste. In 1933, some 11,600 acres of land in the state were devoted to

tobacco, of which 3,800 acres were under shade production. That year the Connecticut crop was worth \$4,037,000.00, of which \$3,253,000.00 (81 percent) was accounted for by shade tobacco (Anderson 1934:802-804). As of 2020, that crop would be worth \$80,460,825.92. At peak production, the landscape of the Connecticut River Valley was covered in tobacco farms, both large and small, but now nearly all the larger producers have gone out of business and with them their farms have vanished.

In the last decade, Connecticut tobacco growers have faced competition from farmers in Honduras and Nicaragua with far lower labor costs who are now growing “Connecticut seed” tobacco. Connecticut growers simply cannot compete against a market that produces a similar product at a much lower cost. By 2006, the amount of cultivated tobacco had been reduced to less than 2,000 acres. In 2011, 700 acres of farmland were planted with shade tobacco. In 2017, that number has declined by nearly 80 percent to 150 acres (Hladky 2017). Much of the former tobacco farmland has been converted to grow other agricultural products, such as nursery stock. In those cases, tobacco sheds are often retained for farm equipment storage or other related uses. At the Project Site, the land was planted again for the coming year and shade tobacco was included in the current crop.

Architectural Significance of the Tobacco Sheds—NRHP Criterion C

Tobacco sheds are utilitarian agricultural buildings, purpose built for the drying and curing of shade grown and broadleaf tobacco. Tobacco is grown throughout the Connecticut River Valley in the summer months and is harvested in the fall. Harvested tobacco is considered “raw” and cannot be sold in that state. It must first be dried or more correctly “cured.” The purpose of the tobacco shed is to cure and safely store the tobacco. The tobacco sheds found on the Project Site are important architectural resources representing a specific building type and method of construction that has been employed consistently since tobacco sheds were first built in the latter half of the nineteenth century. James O’Gorman stated that tobacco first started to be cured in purpose-built sheds based on the design of English barns after 1840 (O’Gorman 1919:60). These tobacco barns or sheds became more common by 1890 and early examples are remarkably like sheds built in the twenty first century. This is so because each piece of the structure serves a purpose.

The main elements of each tobacco shed include the roof, siding, foundation, doors, ventilation systems and the interior framing. They are typically long, low, gable-roofed structures that are wood-framed and one-and-one-half stories in height. Initially debarked poles formed the basis for the transverse frames of these buildings, and they were placed directly in the ground or on stone or brick footings. Later examples included hewn or sawn posts set on stone or concrete footings. The interior structure of the sheds is usually composed of a series of similar transverse frames arranged perpendicular to the roof ridge. In addition to serving as structural support for the building, the interior framing supported the rails used to hang the lathes of tobacco as they were being cured. Each of the tobacco sheds on the Project Site had room for four tiers of hanging and drying tobacco stalks. Broadleaf tobacco was speared through the stalk and hung from lathes. Shade tobacco was hung up as leaves sewn together onto the lathes. The broadleaf stalks naturally required more space between each tier and therefore fewer tiers were required in sheds used to cure broadleaf vs. shade-grown tobacco. A review of historic aerial imagery, as well as more recent street views, shows that the sheds on the Project Site were used for the curing and drying of both broadleaf and shade tobacco. It is possible that the height of the tiers was adjusted over time to accommodate the varying types of tobacco grown.

Tobacco sheds are constructed in units of measure known as “bents.” Each bent typically measures 3.7 to 4.6 m (12 to 15 ft) in width and approximately 4.6 m (15 ft) in depth. The depth of each bent is called a “bay.” The bents are defined by the space between each structural post. Most tobacco sheds are two bays

in width (7.2 to 10 m (24 to 30 ft) across each gable end). The sheds on the Project Site are uniformly two-bay or aisle tobacco sheds measuring between 47.2 and 88.4 m (155 and 290 ft) in length and approximately 10 m (30 ft) in width. The height from the sill to the center of the roof ridge is approximately 8.5 m (28 ft) for most of the buildings. The interior framing consists of sawn 17.5 to 20 cm (7 to 8 in) posts, which define two approximately 5 m (16 ft) wide bays or aisles along the length of each barn. The posts were constructed not only to support the building but also the weight of the tobacco when it is first cut and heavy with water. Most of the center posts rest on square early concrete or granite footings. Additional concrete or granite footings are found at the base of each corner post and at the base of each wall post (in the cases where Sonotubes were used to replace original foundation elements, they were also found in these locations). Wide sill boards typically rest on the concrete footings on either side of each post. The wall posts are often attached to the footings with metal straps.

The posts, which extend to the rafter plates, are set approximately 4.5 m (15 ft) apart and are stabilized with paired transverse 5 x 15 cm (2 x 6 in) members, and diagonal braces forming an “M” pattern. The transverse framing creates five tiers, with longitudinal 5 x 10 cm (2 x 4 in) rows set atop the transverse braces. Rafters are 5 x 10 cm (2 x 4 in) lumber arranged approximately 60 cm (24 in) on center. Blocks are attached to the posts to provide additional hanging space; presumably, this additional space was for shade grown tobacco, which requires shorter tiers because it is hung as bunches of leaves rather than hung by its stalk.

The Connecticut Trust, as part of their Connecticut Barns identification program, has identified four different systems used to cure tobacco resulting in differing shed designs:

1. Vertical siding with top-hinged vents and gable end doors,
2. Vertical siding with side-hinged vents and gable end doors,
3. Horizontal siding with top hinged vents and gable end doors,
4. A series of large doors along one of the long sides of the building with the other sides of the building vented (from Connecticut Trust Barns website).

The tobacco sheds on the Markowski Farm and Project Site are characterized by siding constructed of unpainted vertical wooden boards that range between 25 and 30 cm (10 and 12 in) in width and the roofs area clad in asphalt shingles or standing seam metal. The ventilation system is the first type identified above and involves groups of three to five alternating vertical siding boards connected to horizontal wooden cleats or bars on the exterior. When these bars are pulled out and propped up, they bend the alternating boards to become offset. The offset boards extend from a lower sill, hung approximately 25 cm (10 in) below the rafter plate. Short vertical boards infill the space above. These are found on the side elevations of all the sheds. In some instances, delicate wrought metal hinges and latches form the locking mechanisms for the boards and in others there are wooden pivoting “locks” secure the boards in place when they are set flush. Two sets of out-swinging wagon doors at each gable end of the tobacco shed allow access to each interior bay or aisle. These are attached with iron hinges and are locked with a wooden bar that fits into a wooden bracket. In some cases, a single door was used on one or both elevations along with one or more flanking access doors. Doors on either both ends of sheds allow for tractor and wagons to pass all the way through each barn and the tobacco is hung from the buildings’ supports.

The roofs on the tobacco sheds are simply constructed with wide overhangs at the eaves and rakes to ensure water runs away from any open slats; they are covered in either asphalt shingles or standing seam metal. Unlike other agricultural buildings, there are no decorative features on the tobacco sheds. Many of the older sheds on the Markowski Farm and within the Project Site have a distinctive raised roof vent along the ridge. These structures are known as top vents or “monitors” and they allow air and light to penetrate the interior of the building. Evidence of the removal of these vents was found on several of the shed. They were likely removed when the roofs were re-sheathed in the past. There was no evidence of any electricity in the tobacco sheds on the Project Site, but propane tanks were noted nearby, indicating that gas-powered braziers were used to dry the tobacco. The openings in the side slats, even when closed provide ample light. A pair of small pivoting door constructed of horizontal boards is in each of the gable ends. Finally, one notable feature on the Markowski tobacco sheds is a pair of smaller square doors found near the eaves of the gable ends. They can be opened to allow additional ventilation through the upper gable ends of the buildings.

Recommendations and Conclusions

The historic buildings, structures, and landscapes associated with the Markowski Farm represent one of the last large-scale shade tent tobacco production facilities remaining in the region. Despite some minor modern infill, the site remains largely unchanged and intact. Given its massive size, age, and cohesiveness, it is the opinion of Heritage that the Markowski Farm site may be eligible for listing in the NRHP. This determination, however, will have to be made by the State Historic Preservation Office.

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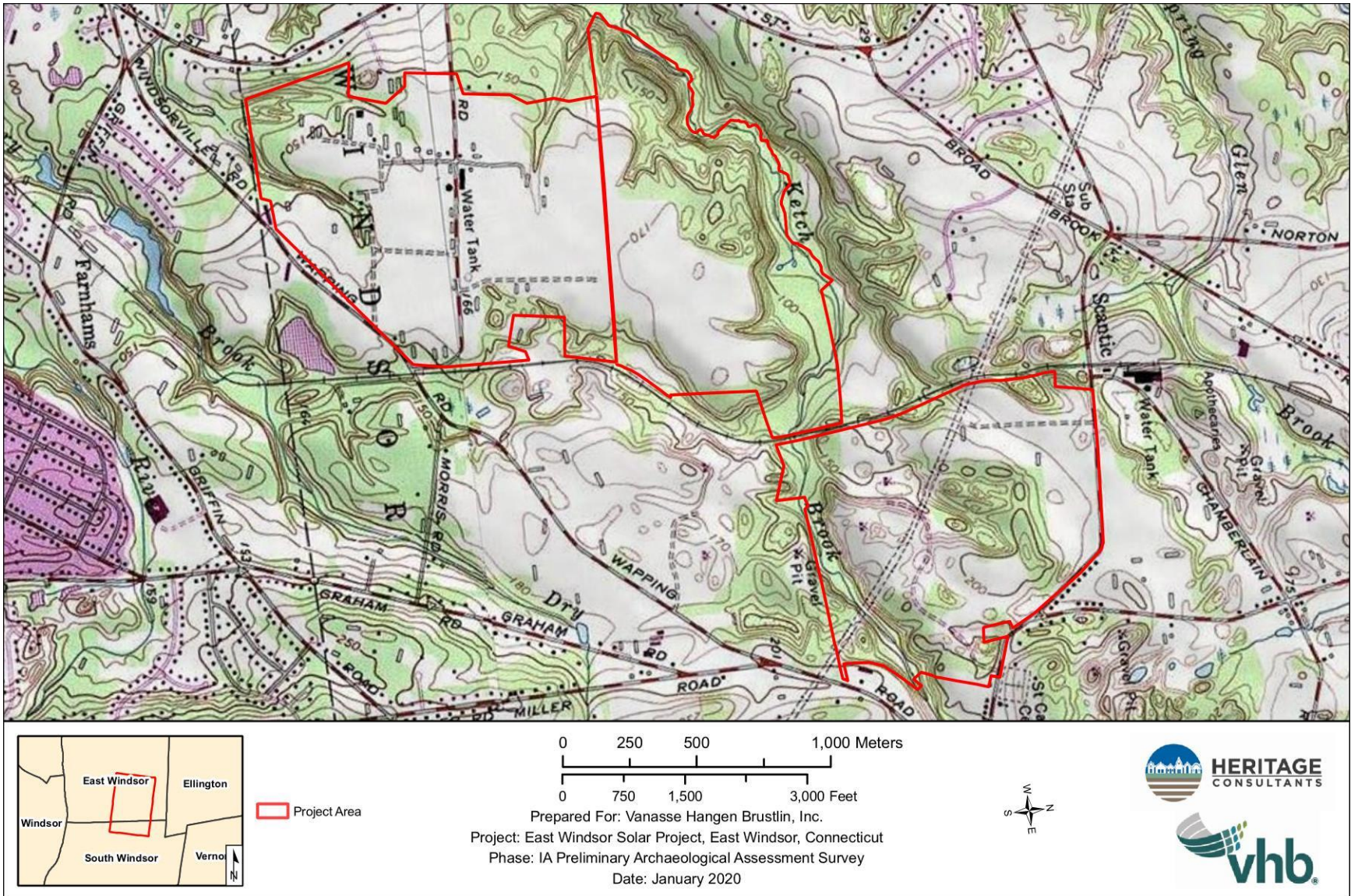


Figure 1. Excerpt from a USGS 7.5' series topographic quadrangle image showing the location of the Gravel Pit Solar Project Area in East Windsor, Connecticut.

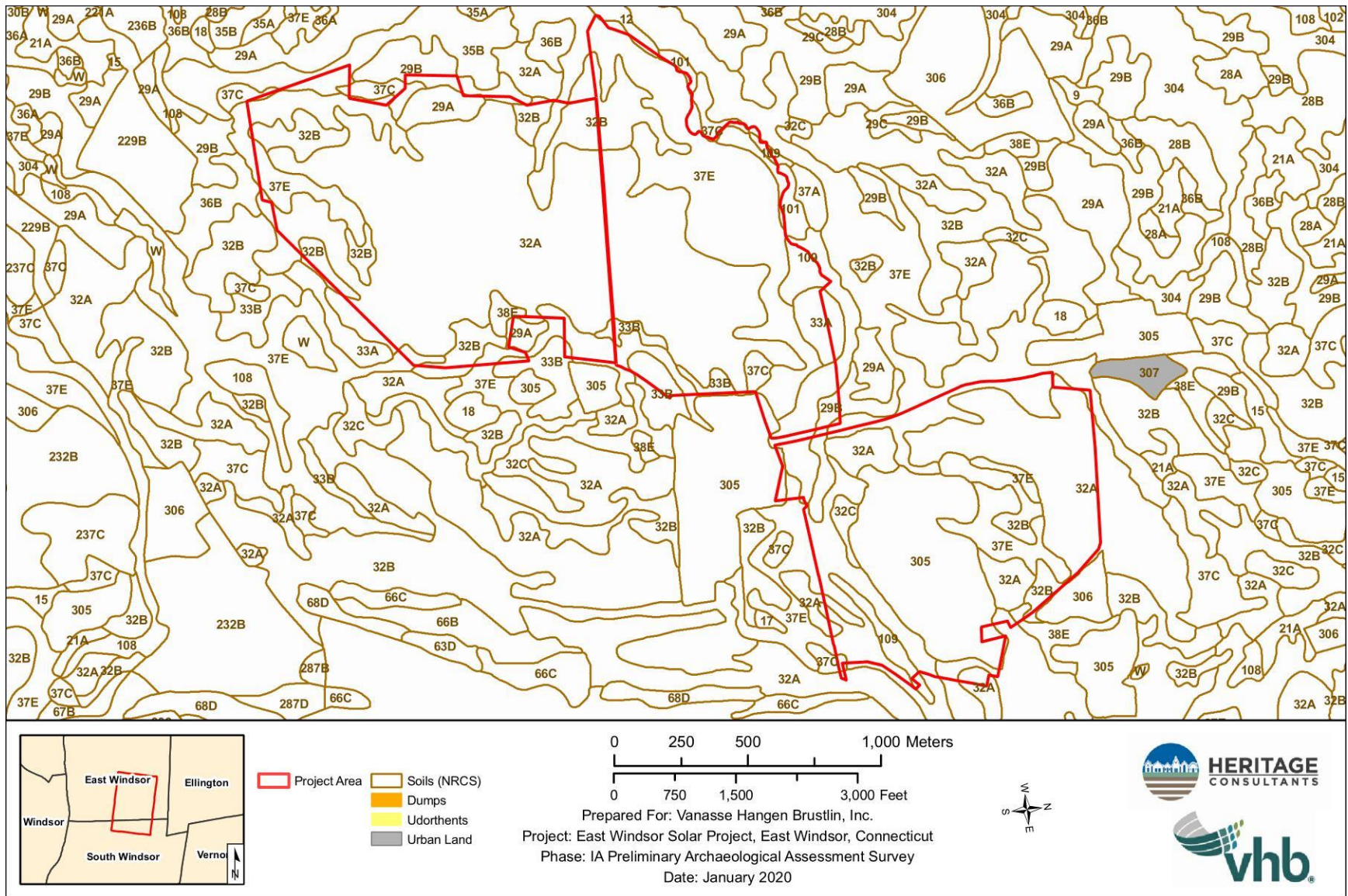


Figure 2. Map of soils located in the vicinity of the Gravel Pit Solar Project Area in East Windsor, Connecticut.

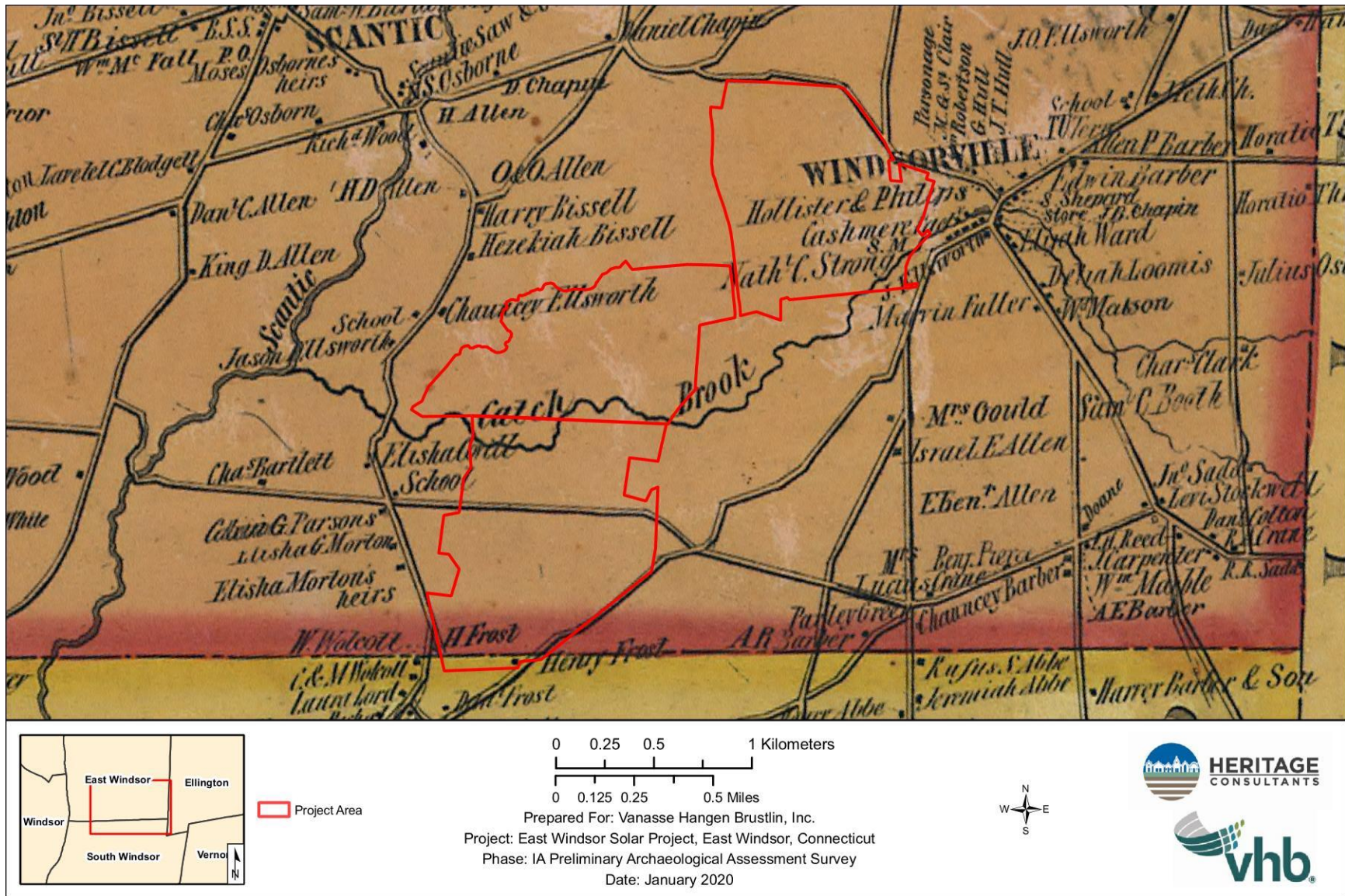


Figure 3. Excerpt from an 1855 historic map showing the location of the Gravel Pit Solar Project Area in East Windsor, Connecticut.

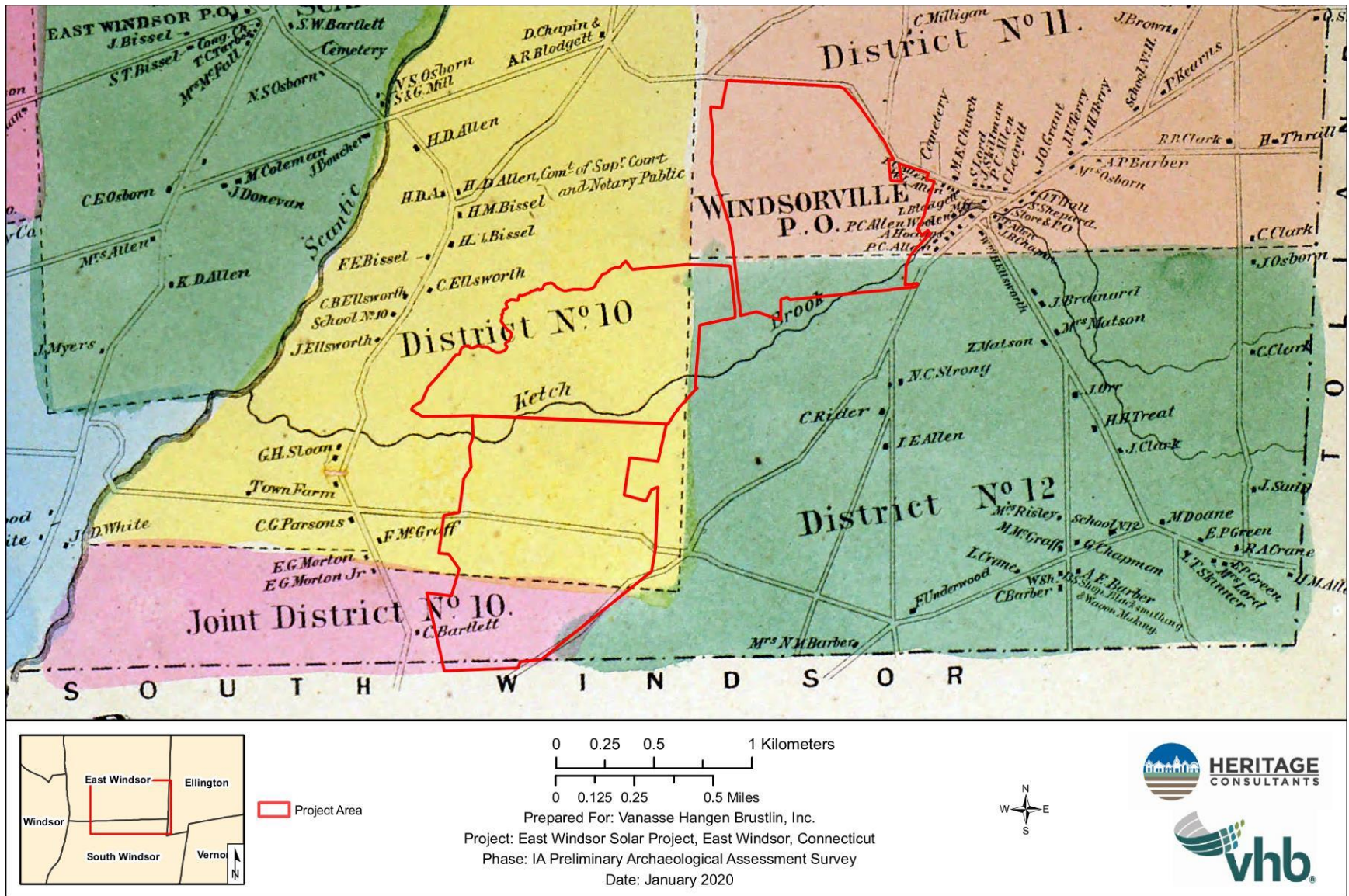


Figure 4. Excerpt from an 1869 historic map showing the location of the Gravel Pit Solar Project Area in East Windsor, Connecticut.

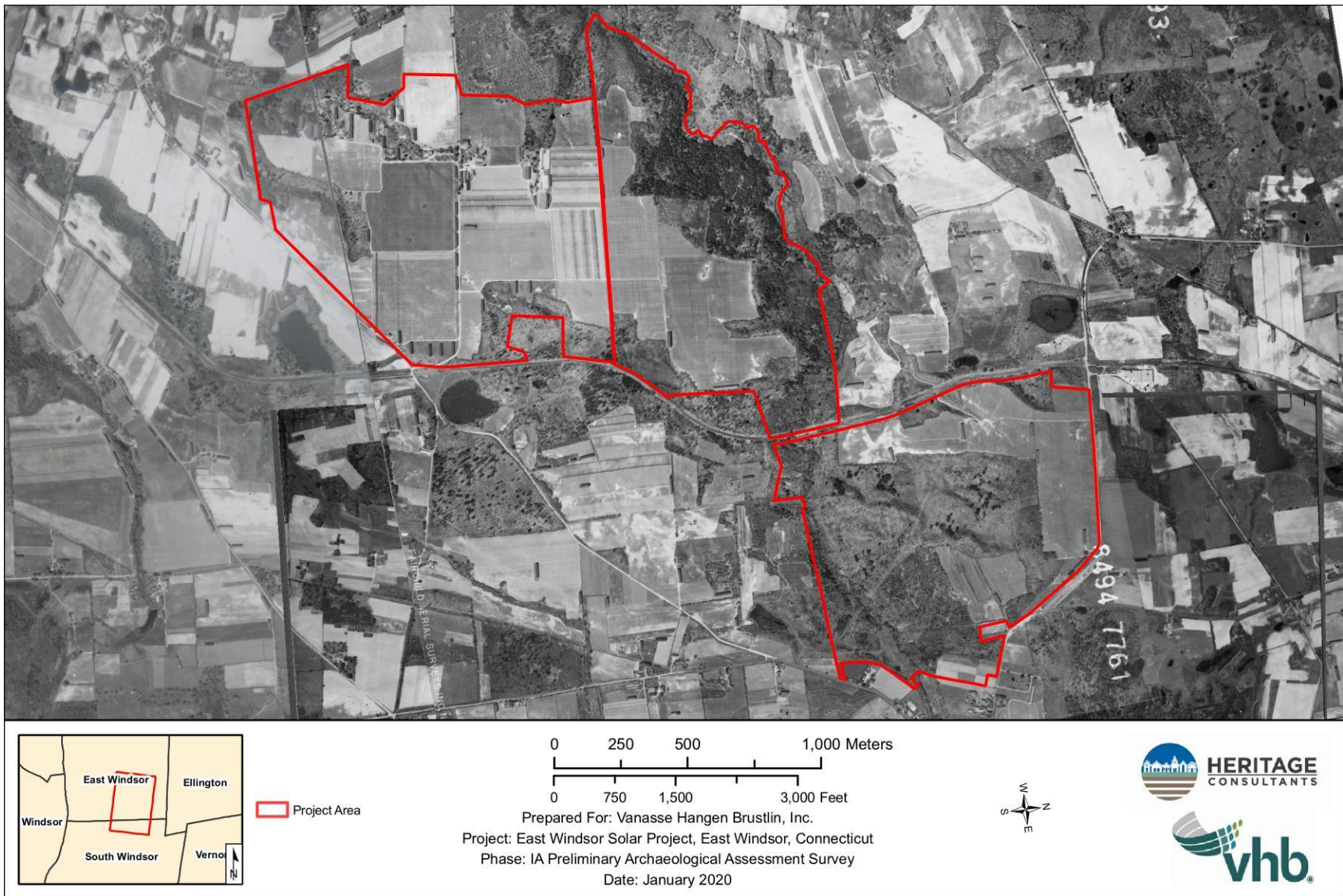


Figure 5. Excerpt from a 1934 aerial photograph showing the location of the Gravel Pit Solar Project Area in East Windsor, Connecticut.

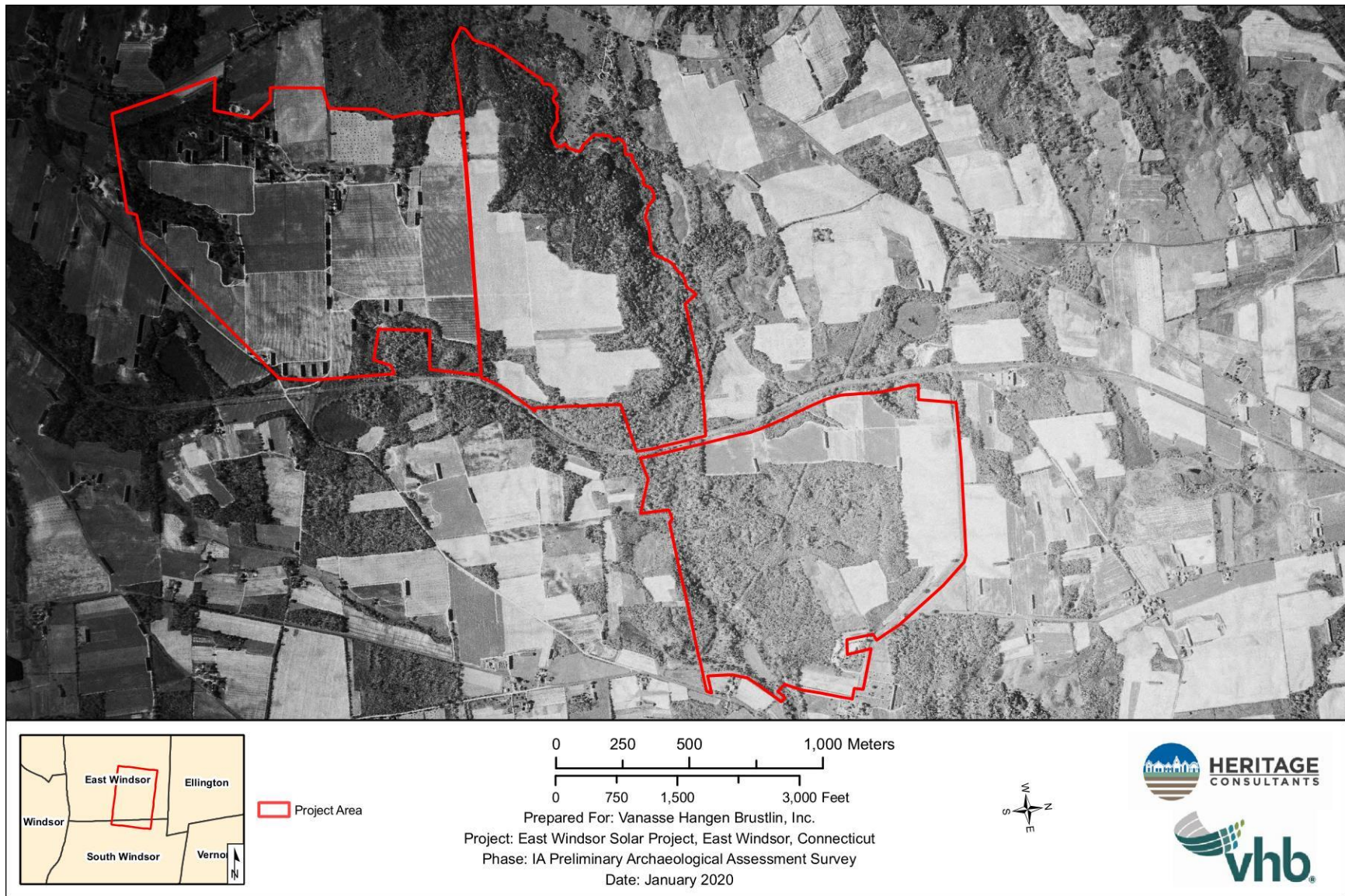


Figure 6. Excerpt from a 1941 aerial photograph showing the location of the Gravel Pit Solar Project Area in East Windsor, Connecticut.

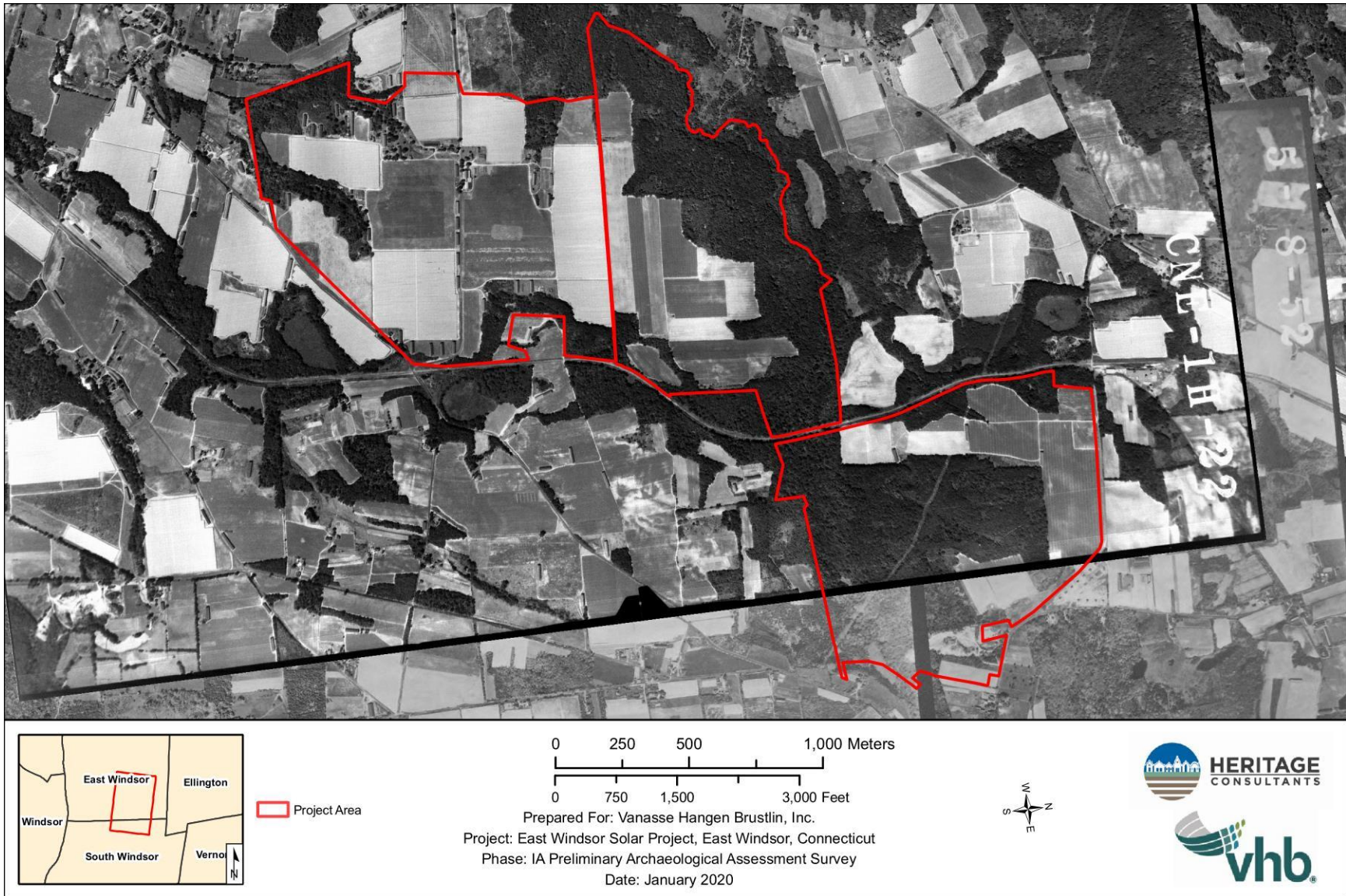


Figure 7. Excerpt from a 1951 aerial photograph showing the location of the Gravel Pit Solar Project Area in East Windsor, Connecticut.

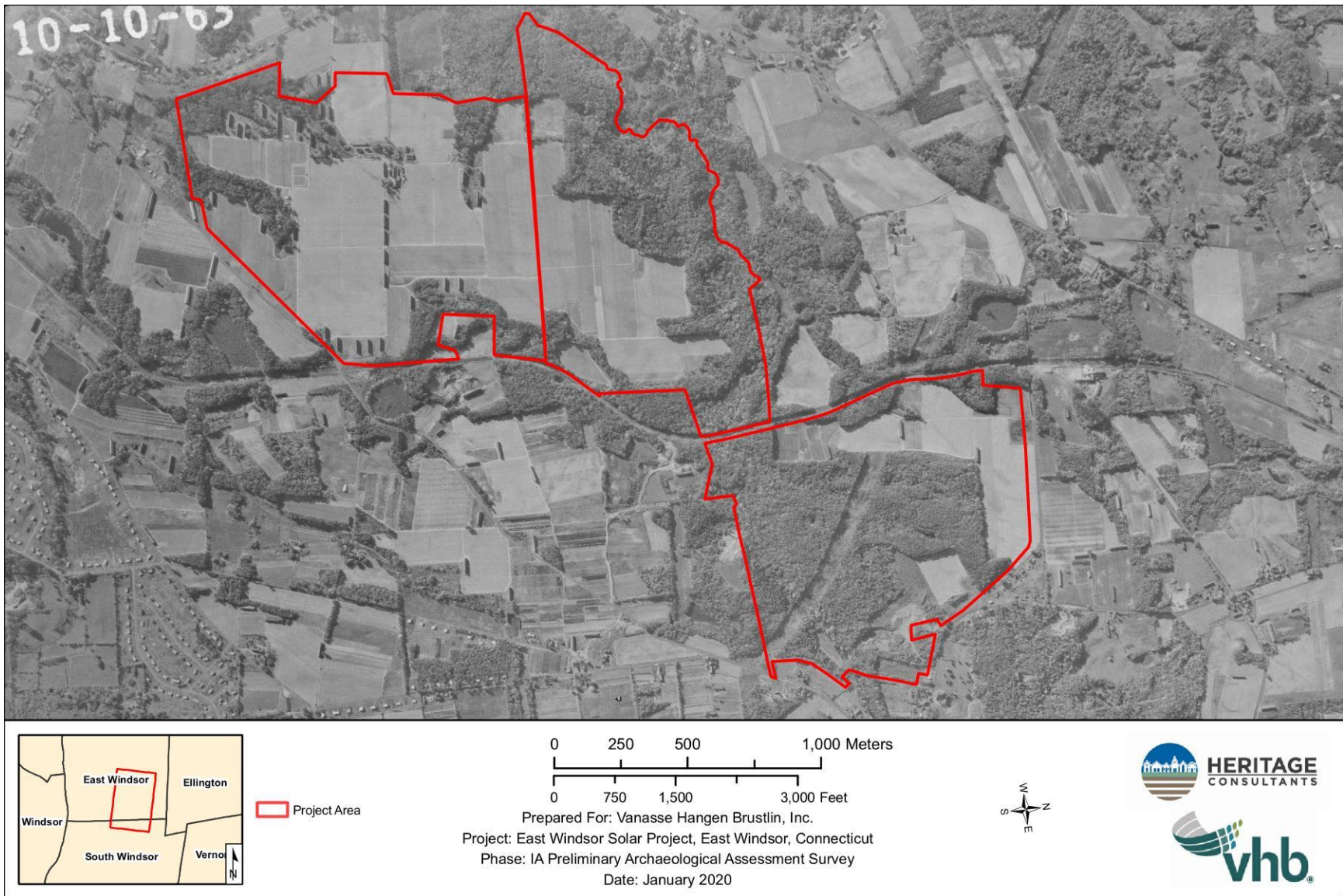


Figure 8. Excerpt from a 1963 aerial photograph showing the location of the Gravel Pit Solar Project Area in East Windsor, Connecticut.

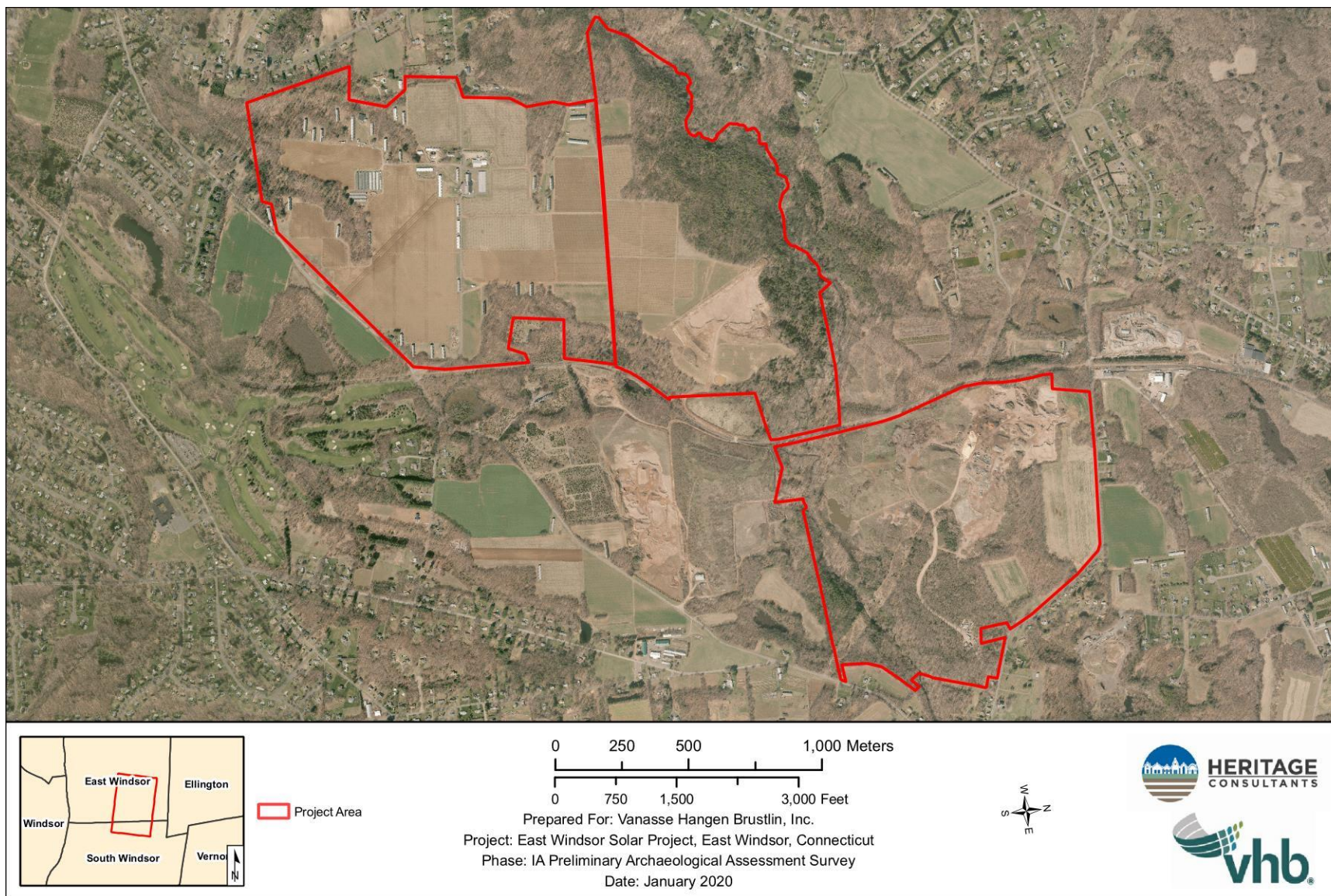


Figure 9. Excerpt from a 2016 aerial photograph showing the location of the Gravel Pit Solar Project Area in East Windsor, Connecticut.

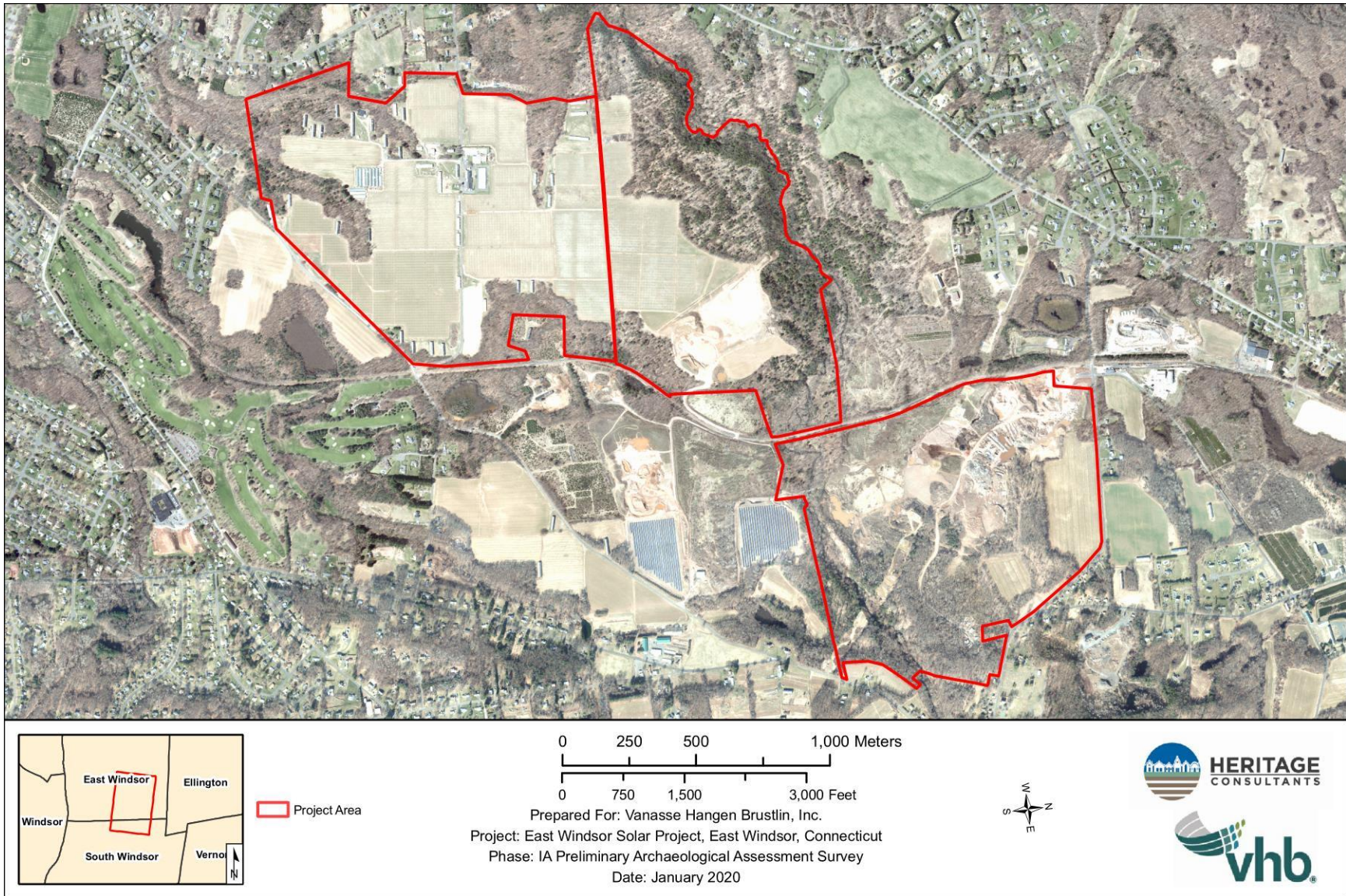


Figure 10. Excerpt from a 2019 aerial photograph showing the location of the Gravel Pit Solar Project Area in East Windsor, Connecticut.

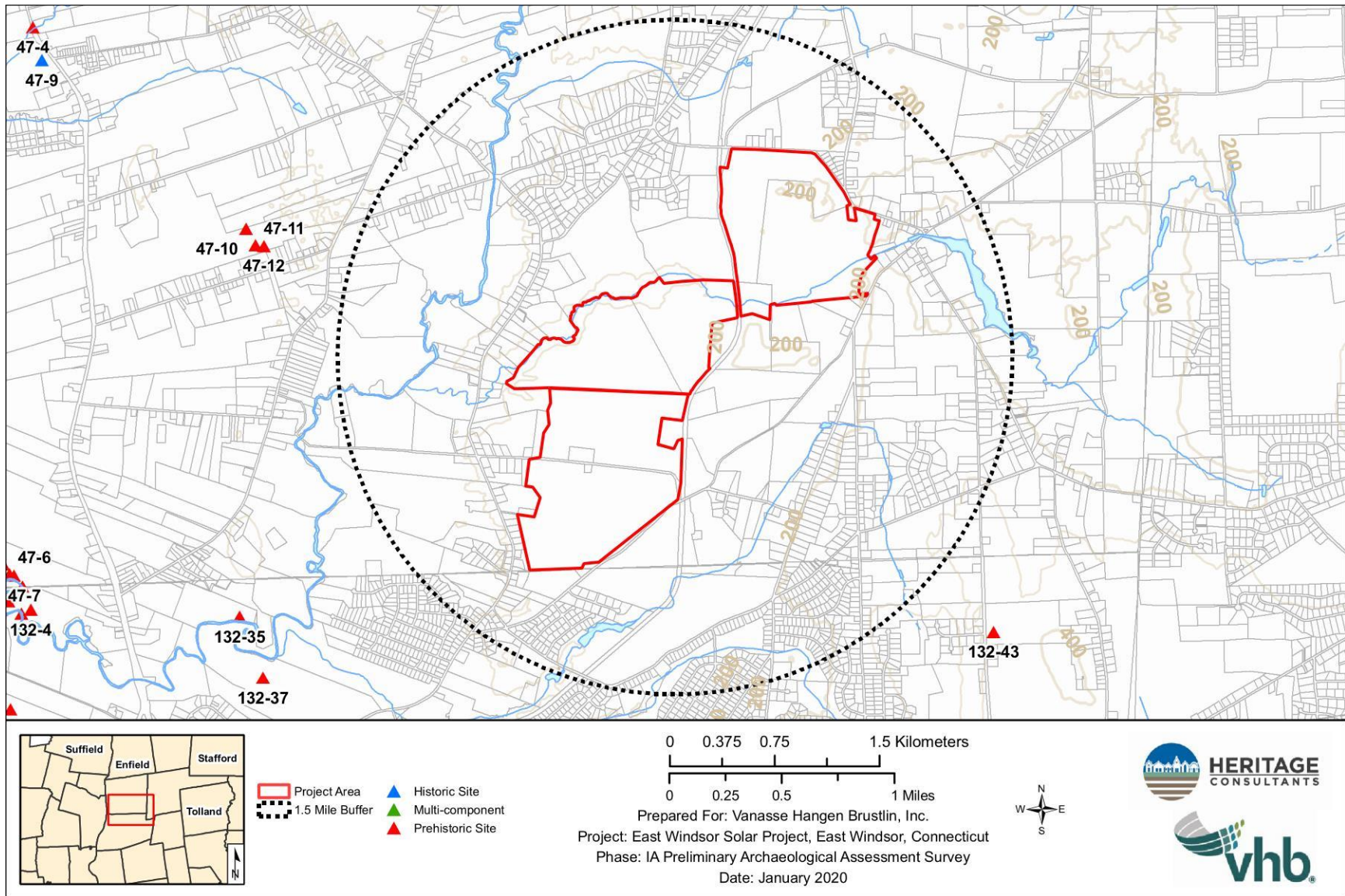


Figure 11. Digital map showing the location of previously identified archaeological sites in the vicinity of the Gravel Pit Solar Project Area in East Windsor, Connecticut.

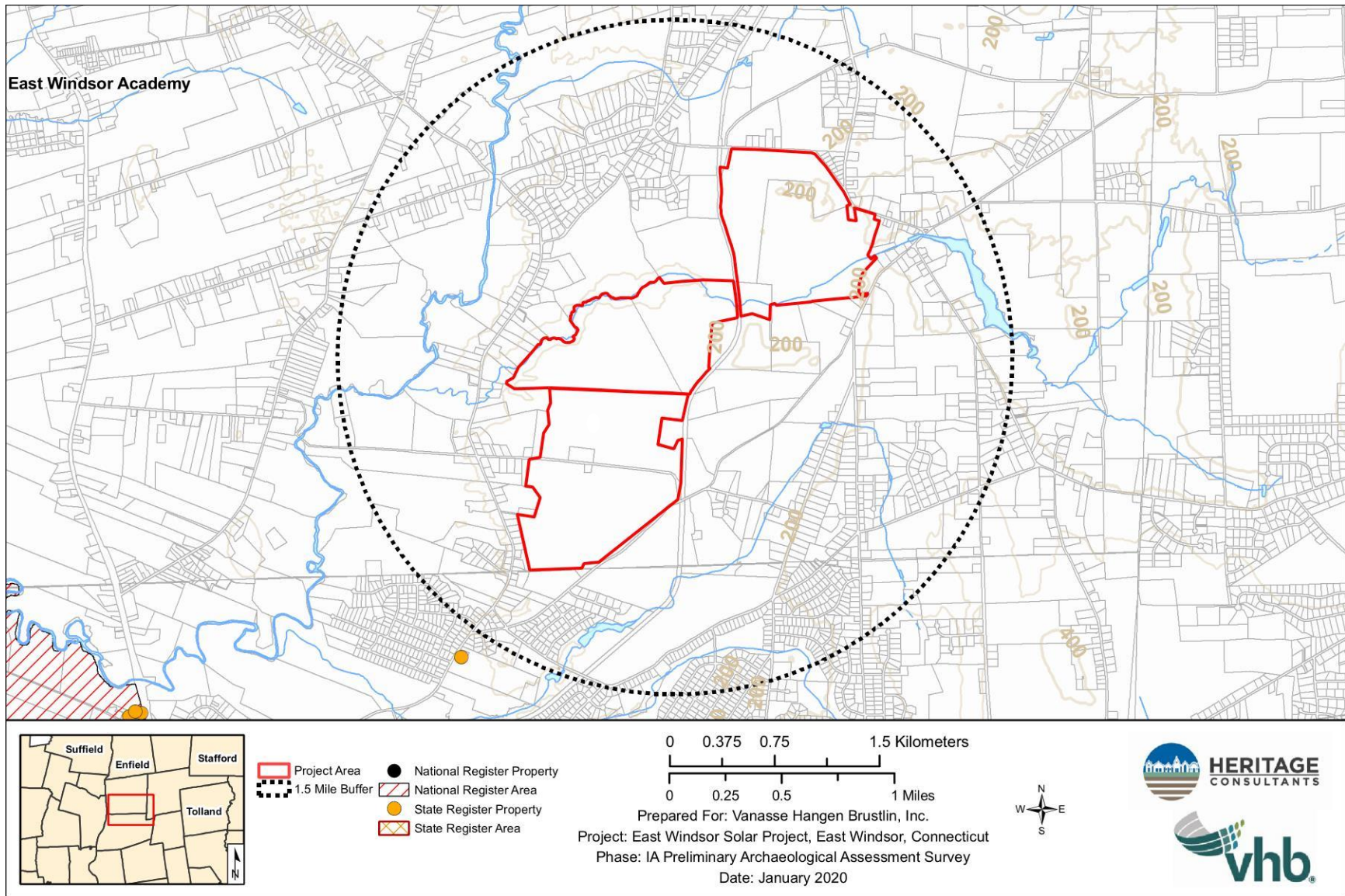


Figure 12. Digital map depicting the locations of previously identified National/State Register of Historic Places properties in the vicinity of the Gravel Pit Solar Project Area in East Windsor, Connecticut.

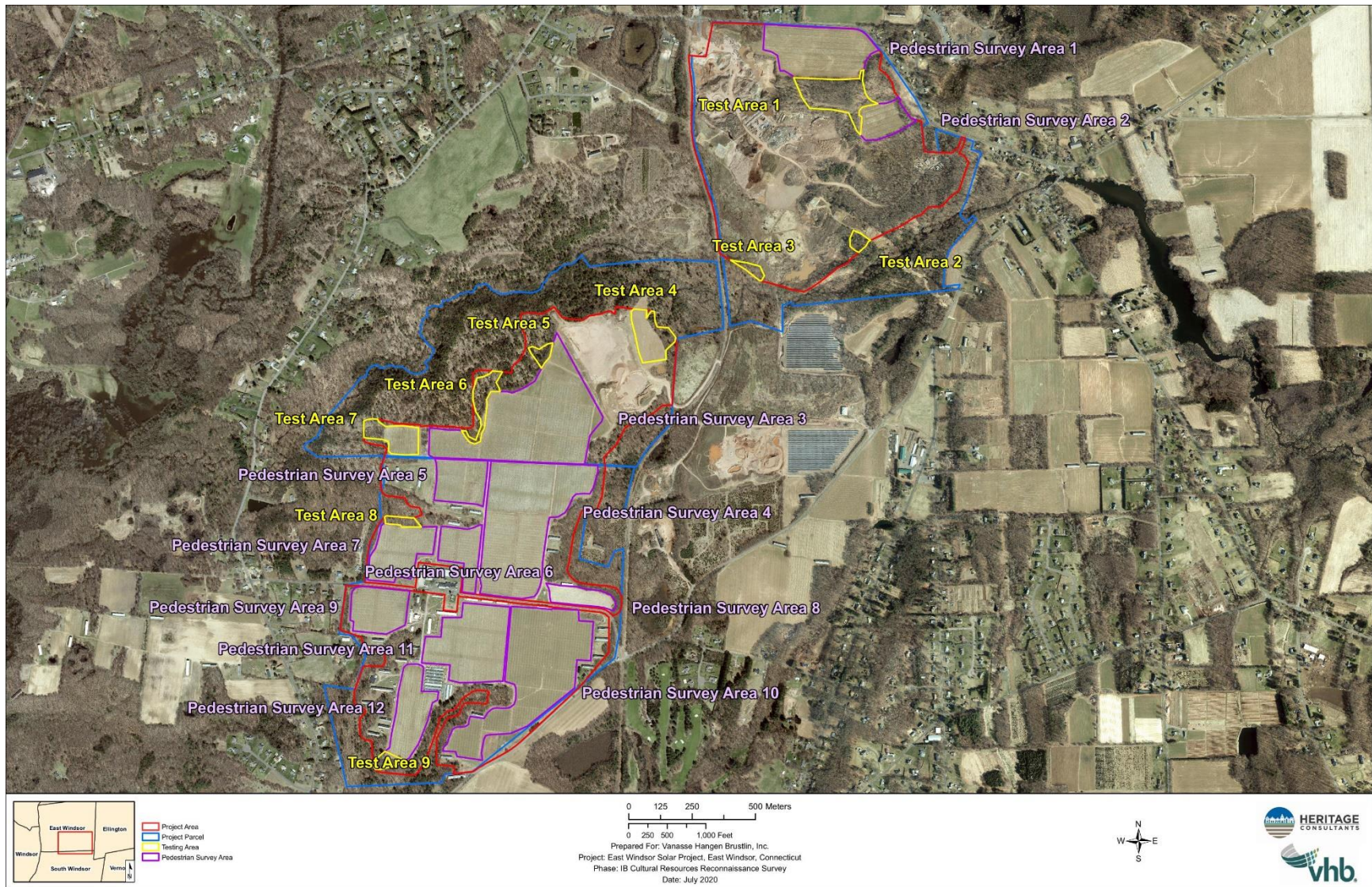


Figure 13; Sheet 1. Excerpt from a 2019 aerial image showing plan view of test areas and pedestrian survey areas for the Gravel Pits Solar Project in East Windsor, Connecticut.

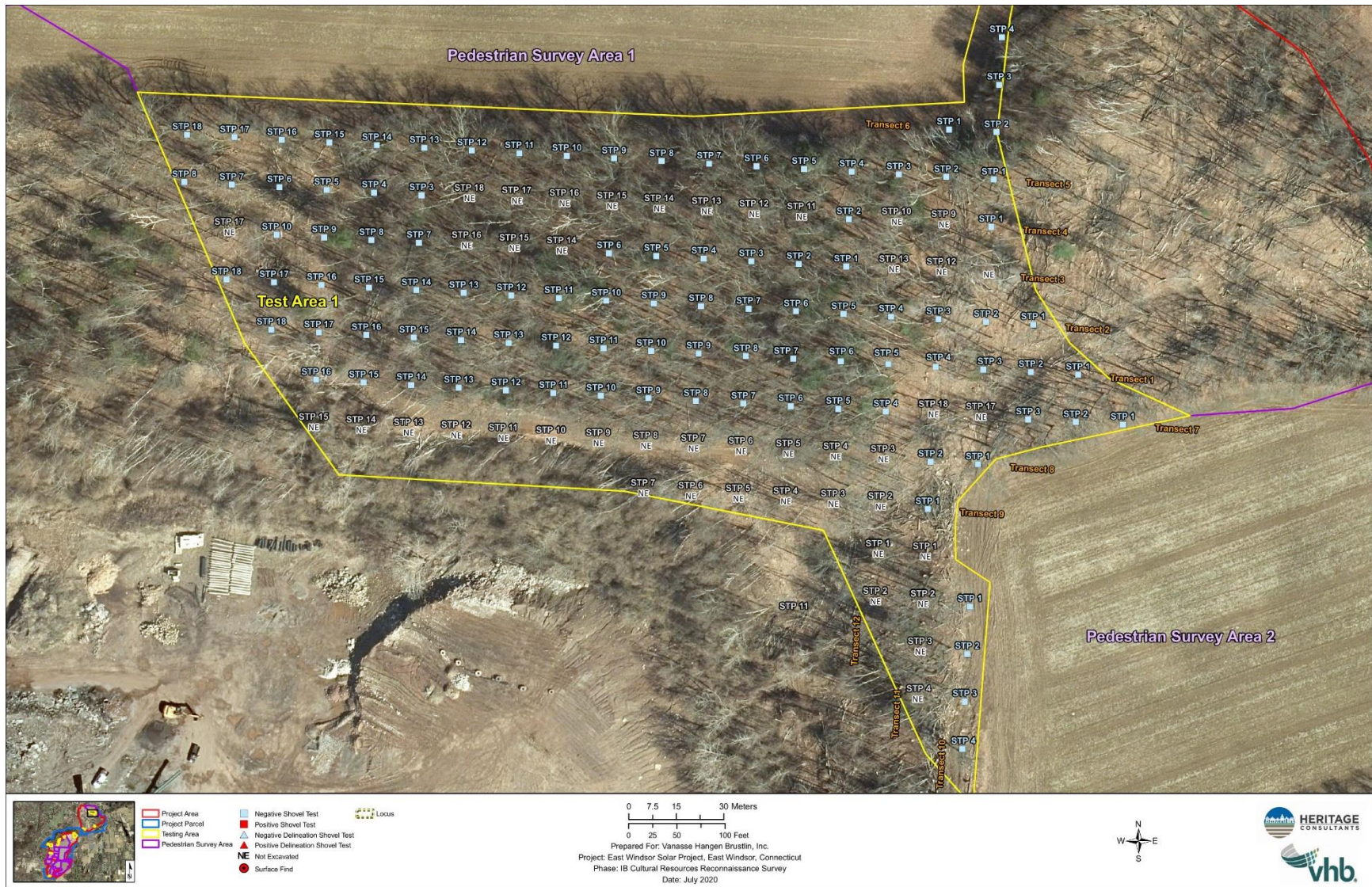


Figure 13; Sheet 2. Excerpt from a 2019 aerial image showing plan view of Test Area 1 for the Gravel Pits Solar Project in East Windsor, Connecticut.

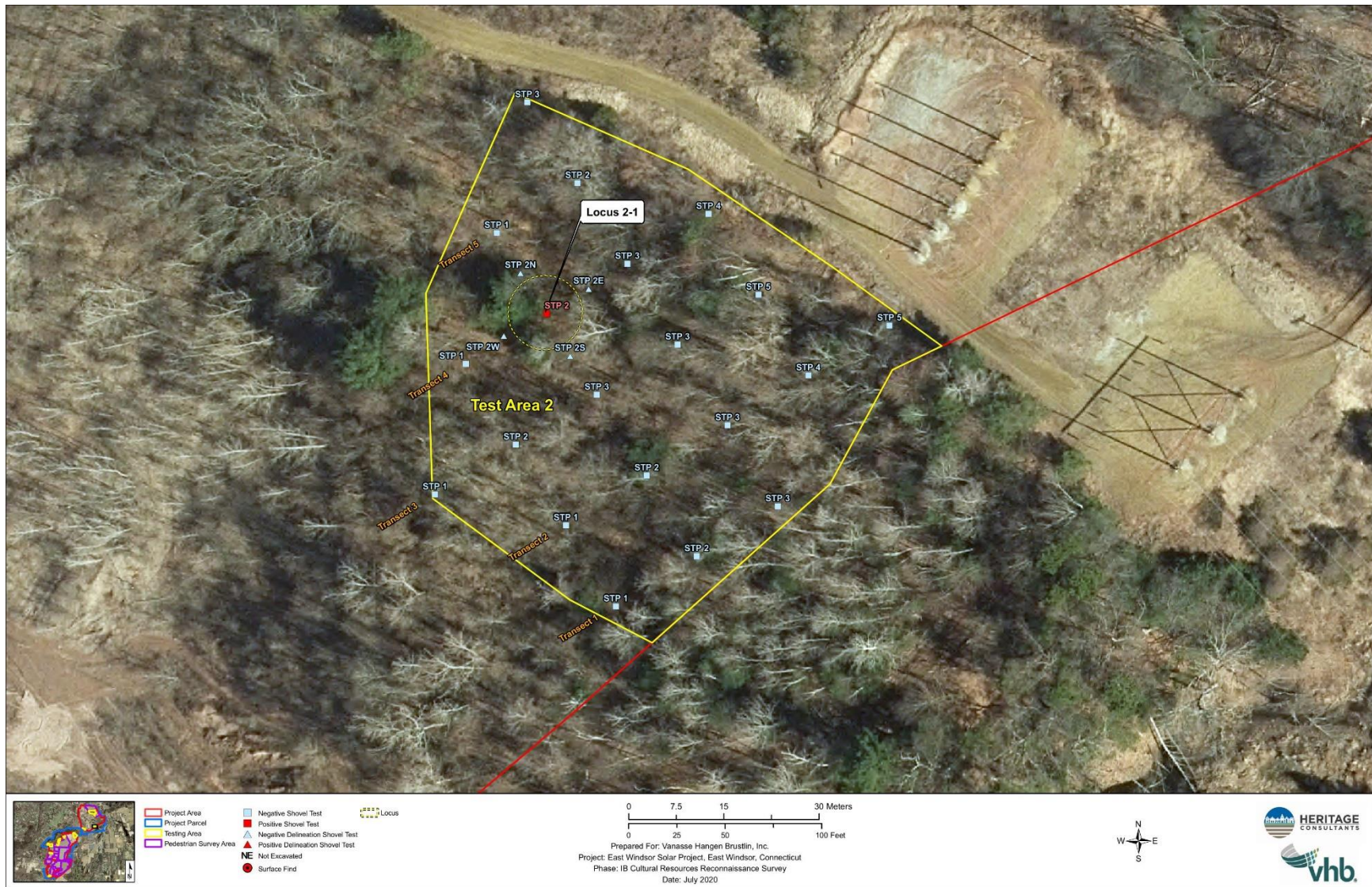


Figure 13; Sheet 3. Excerpt from a 2019 aerial image showing plan view of Test Area 2 with Locus 2-1 for the Gravel Pits Solar Project in East Windsor, Connecticut.

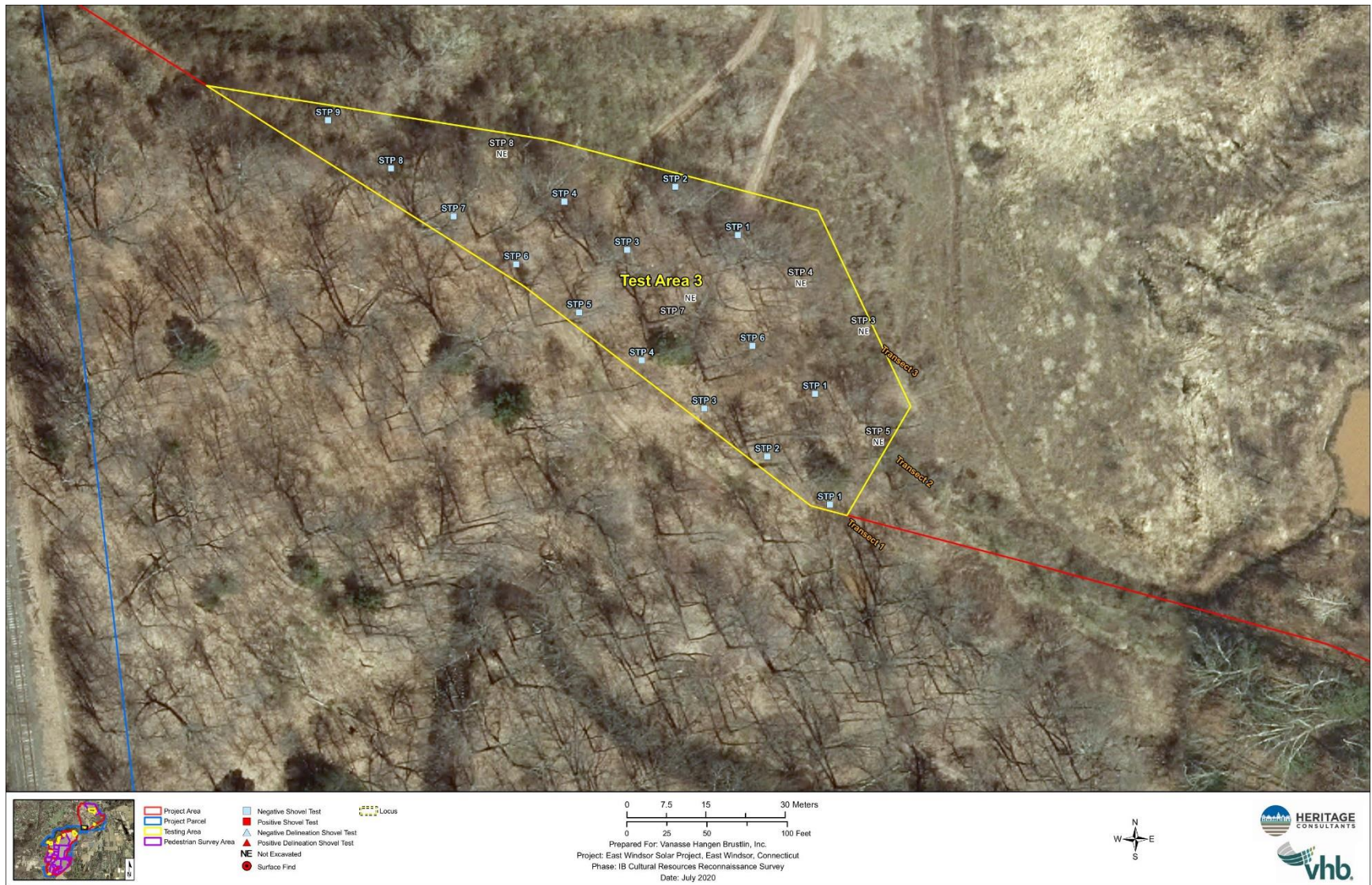


Figure 13; Sheet 4. Excerpt from a 2019 aerial image showing plan view of Test Area 3 for the Gravel Pits Solar Project in East Windsor, Connecticut.

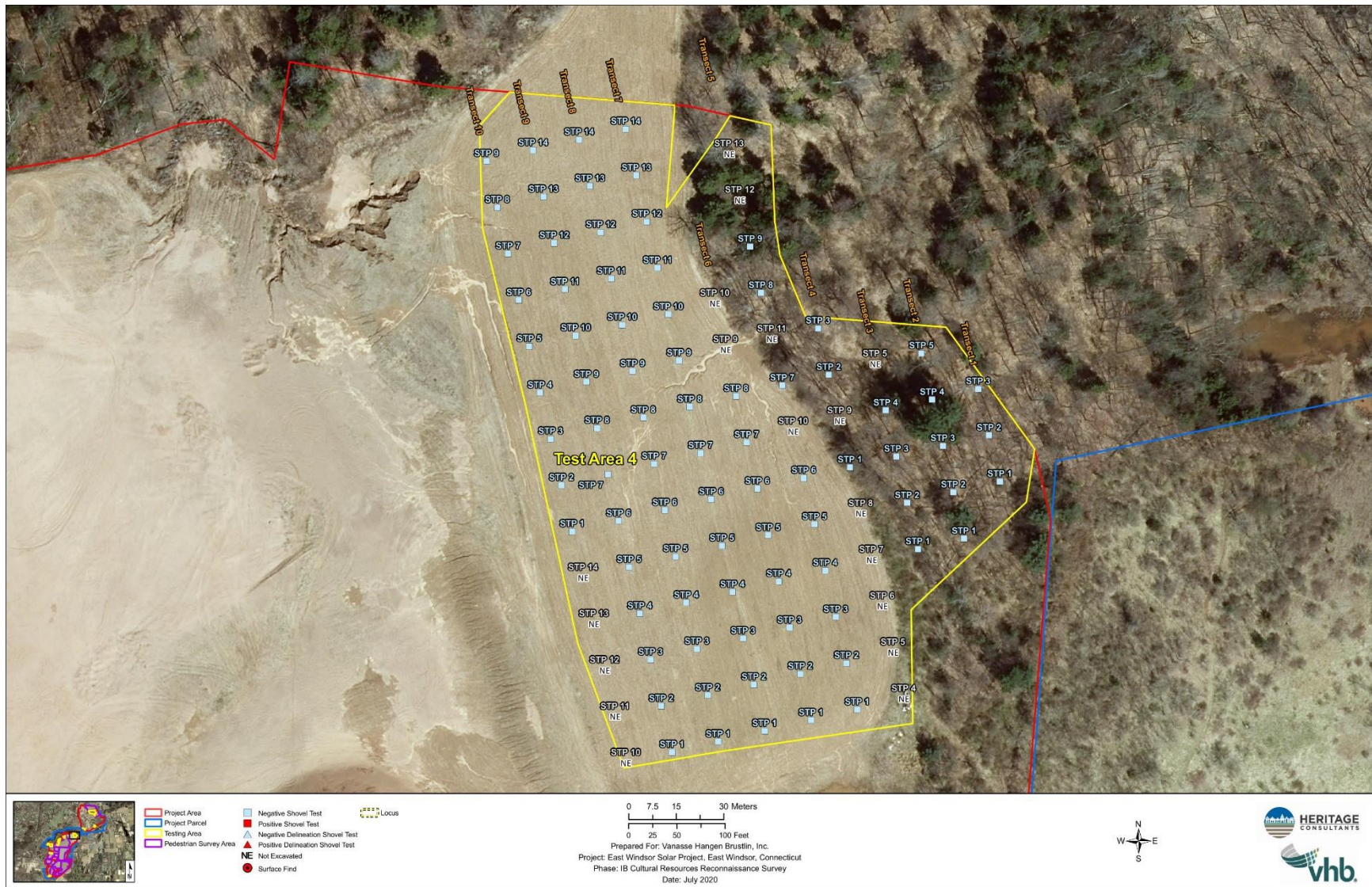


Figure 13; Sheet 5. Excerpt from a 2019 aerial image showing plan view of Test Area 4 for the Gravel Pits Solar Project in East Windsor, Connecticut.

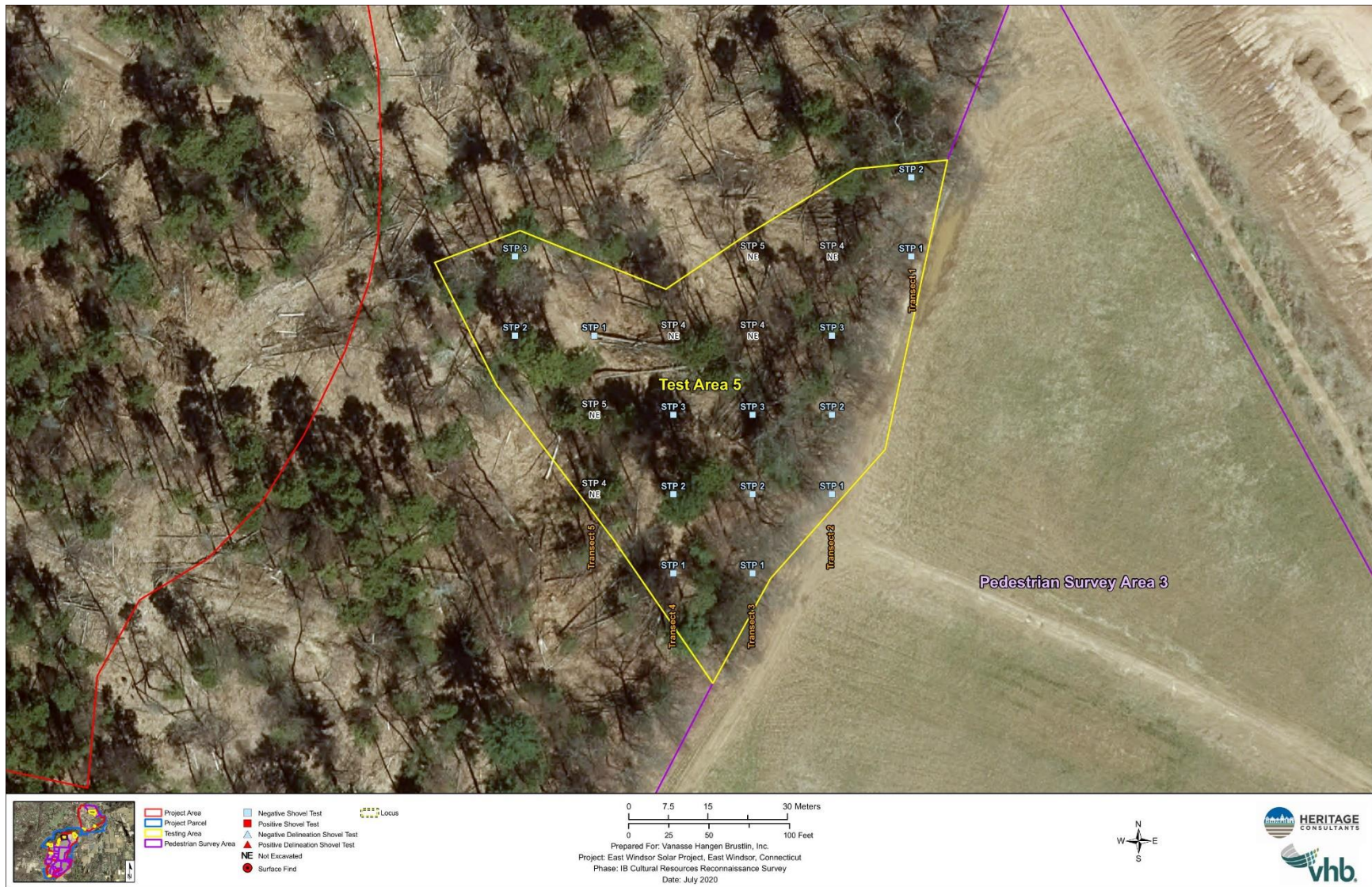


Figure 13; Sheet 6. Excerpt from a 2019 aerial image showing plan view of Test Area 5 and Pedestrian Survey Area 3 for the Gravel Pits Solar Project in East Windsor, Connecticut.

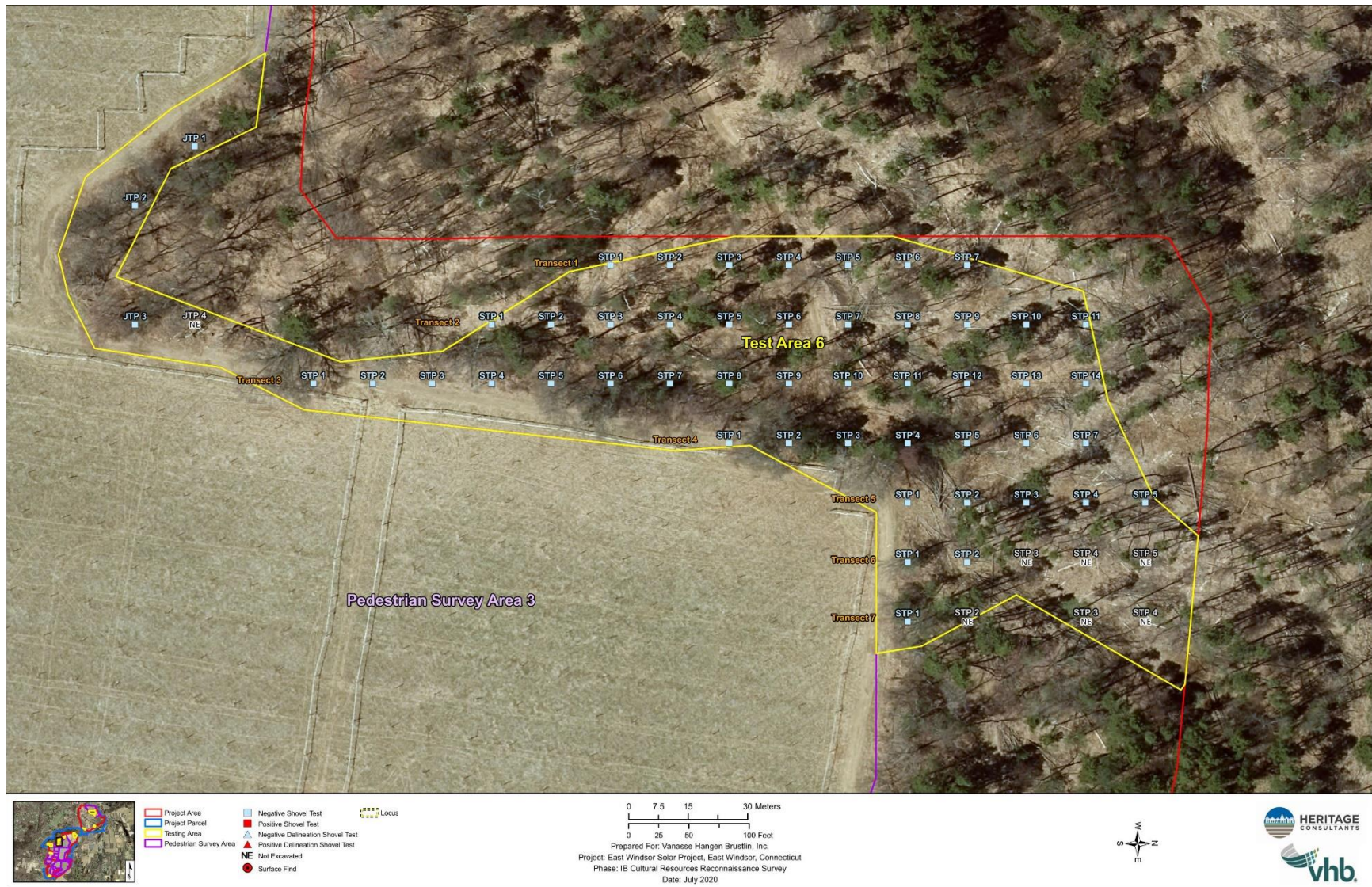


Figure 13; Sheet 7. Excerpt from a 2019 aerial image showing plan view of Test Area 6 and Pedestrian Survey Area 3 for the Gravel Pits Solar Project in East Windsor, Connecticut.

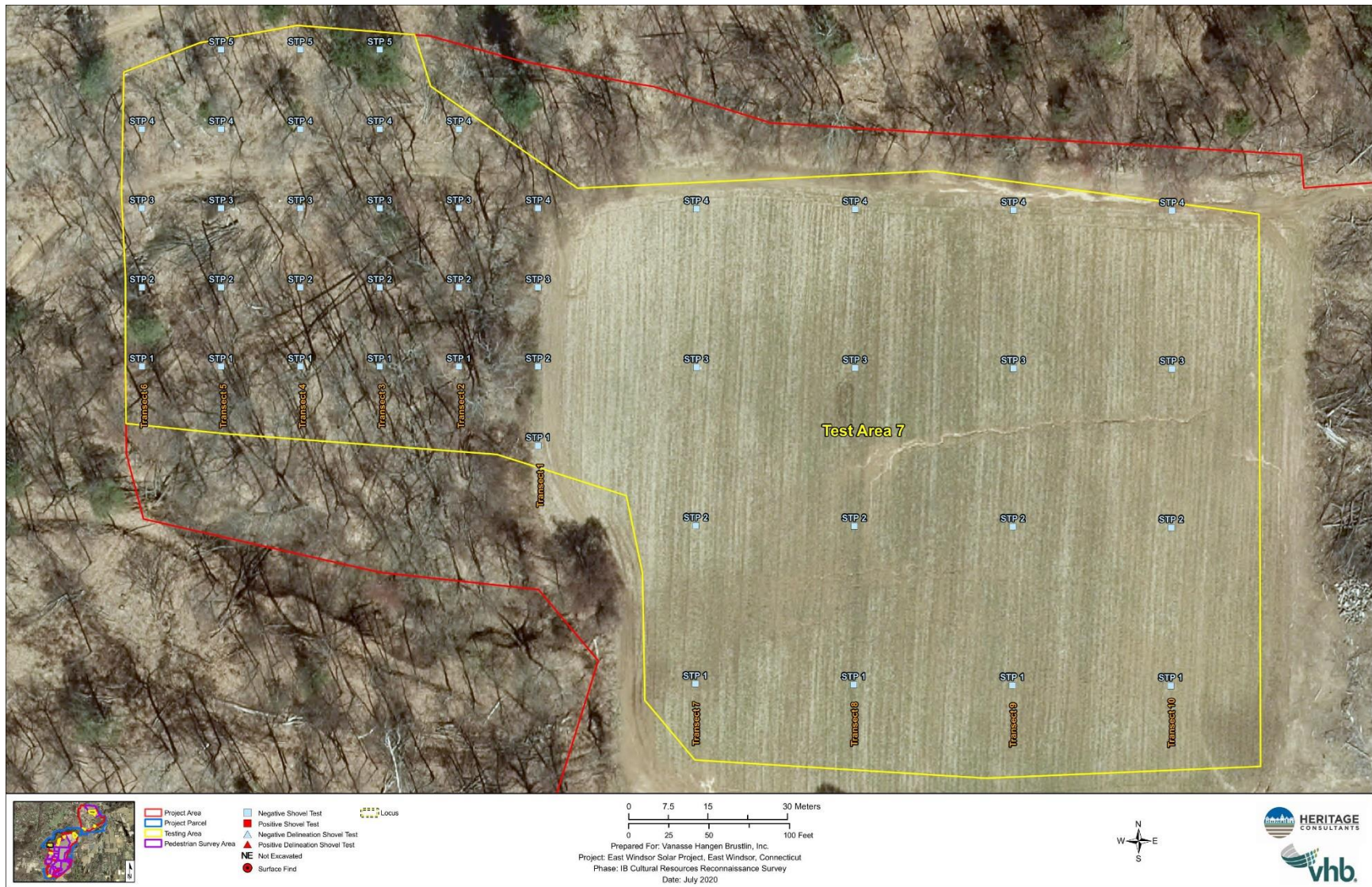


Figure 13; Sheet 8. Excerpt from a 2019 aerial image showing plan view of Test Area 7 for the Gravel Pits Solar Project in East Windsor, Connecticut.

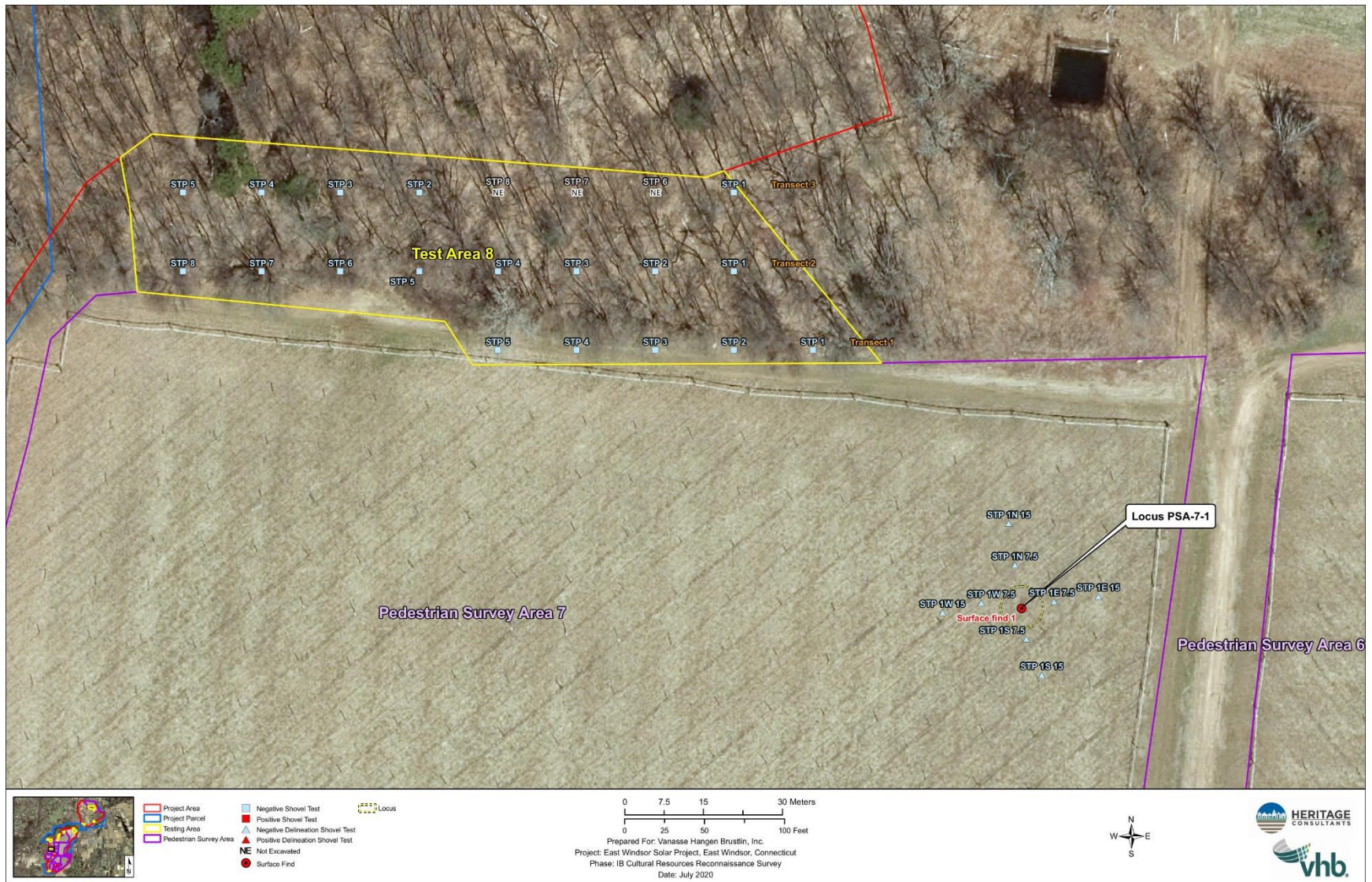


Figure 13; Sheet 9. Excerpt from a 2019 aerial image showing Pedestrian Survey Area 7 with Locus PSA-7-1 for the Gravel Pits Solar Project in East Windsor, Connecticut.



Figure 13; Sheet 10. Excerpt from a 2019 aerial image showing plan view of Pedestrian Survey Area 7 with Locus PSA-7-2 for the Gravel Pits Solar Project in East Windsor, Connecticut.

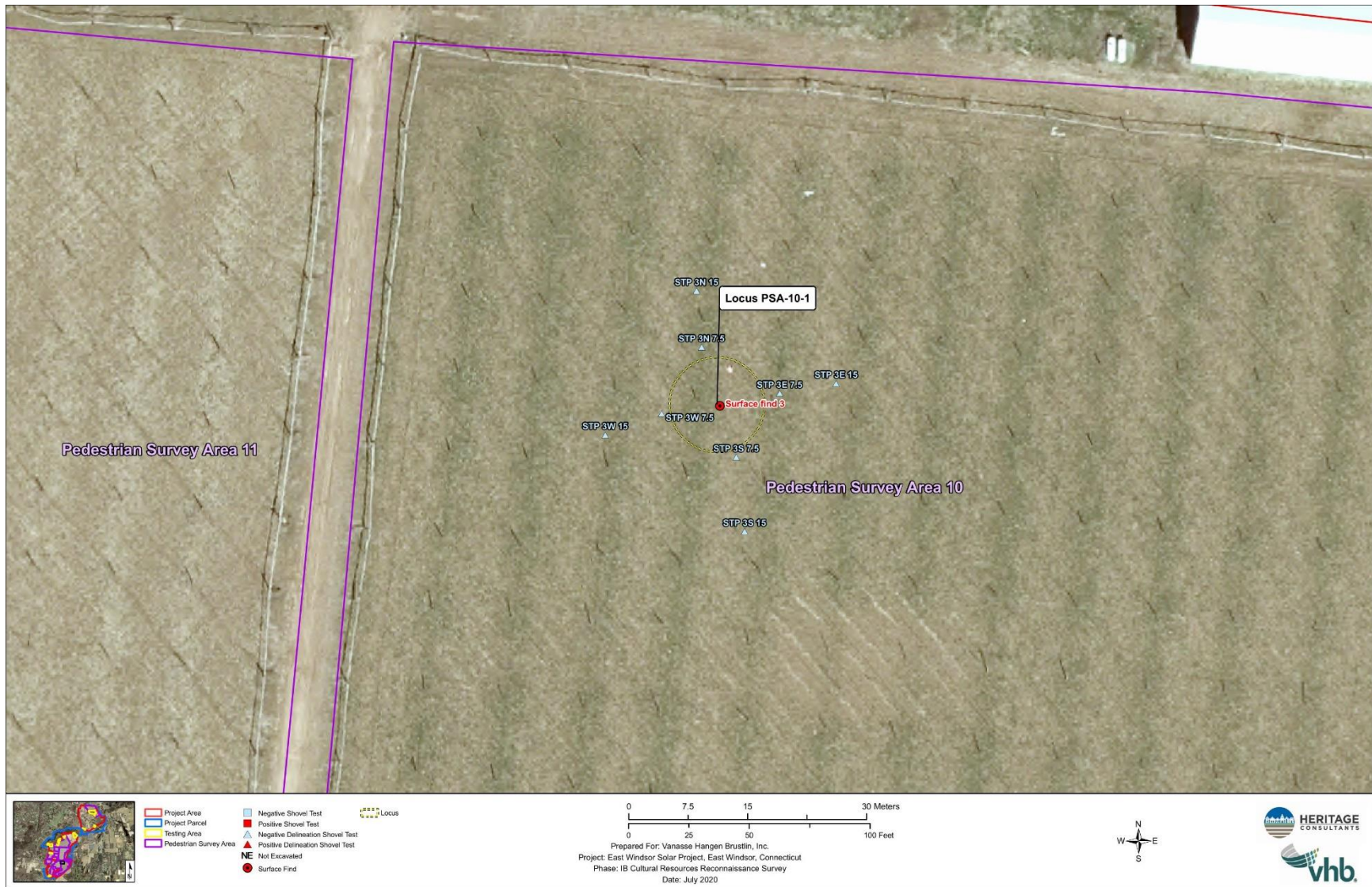


Figure 13; Sheet 11. Excerpt from a 2019 aerial image showing plan view of Pedestrian Survey Area 10 with Locus PSA-10-1 and Pedestrian Survey Area 11 for the Gravel Pits Solar Project in East Windsor, Connecticut.

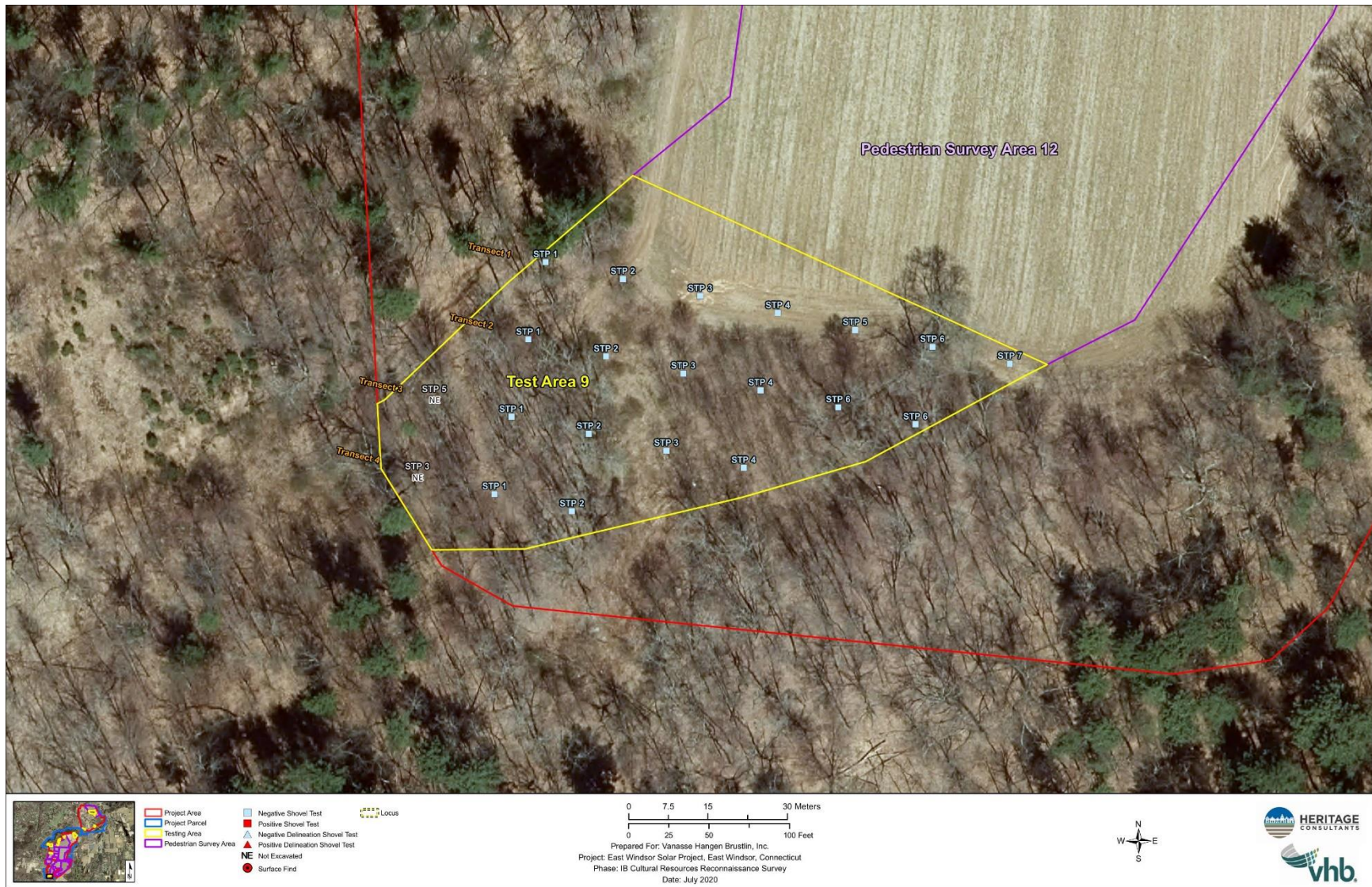


Figure 13; Sheet 12. Excerpt from a 2019 aerial image showing plan view of Pedestrian Survey Area 12 and Test Area 9 for the Gravel Pits Solar Project in East Windsor, Connecticut.

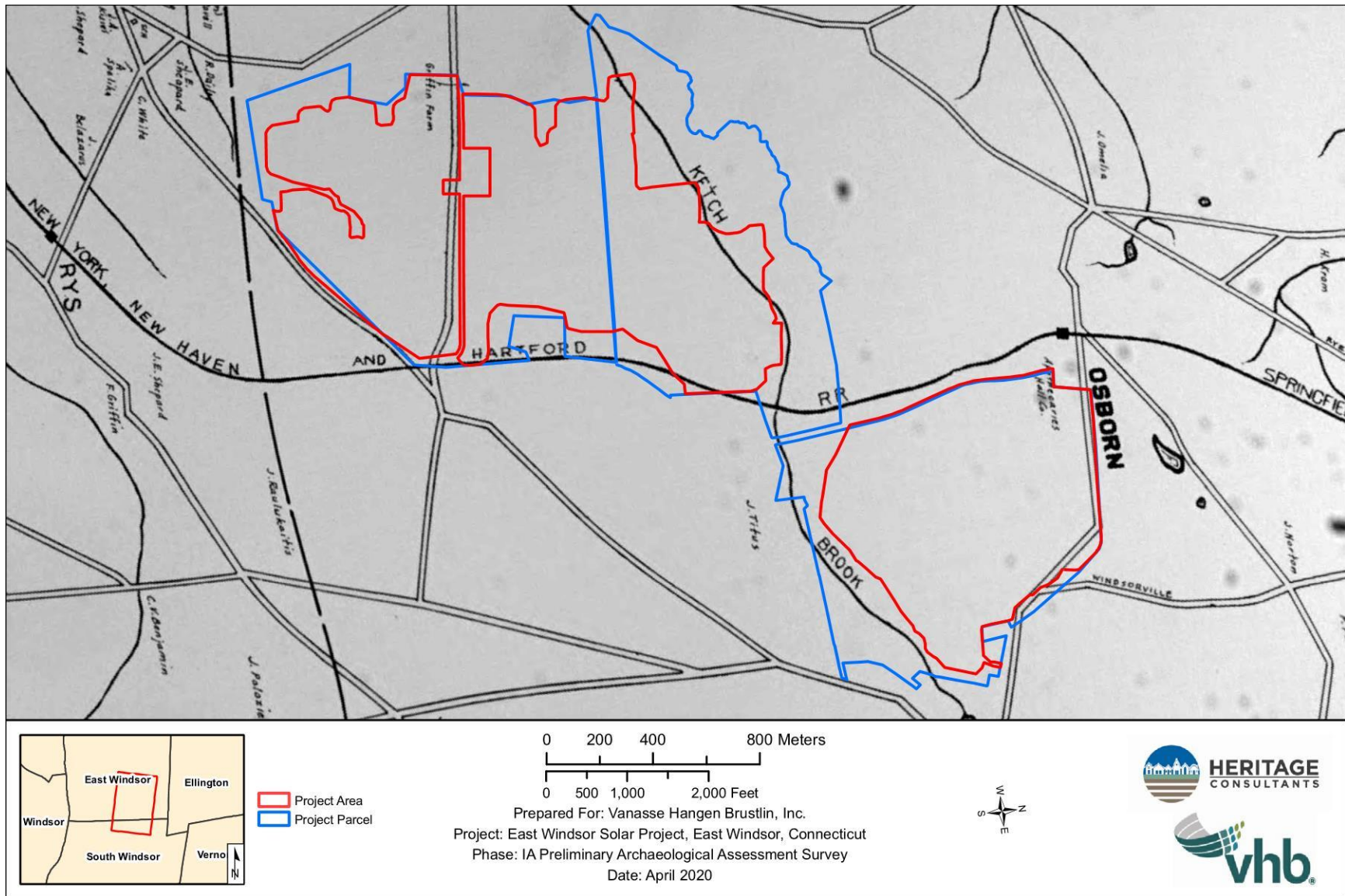


Figure 14. Excerpt from a 1931 historic map showing the location of the Project Site in East Windsor, Connecticut.

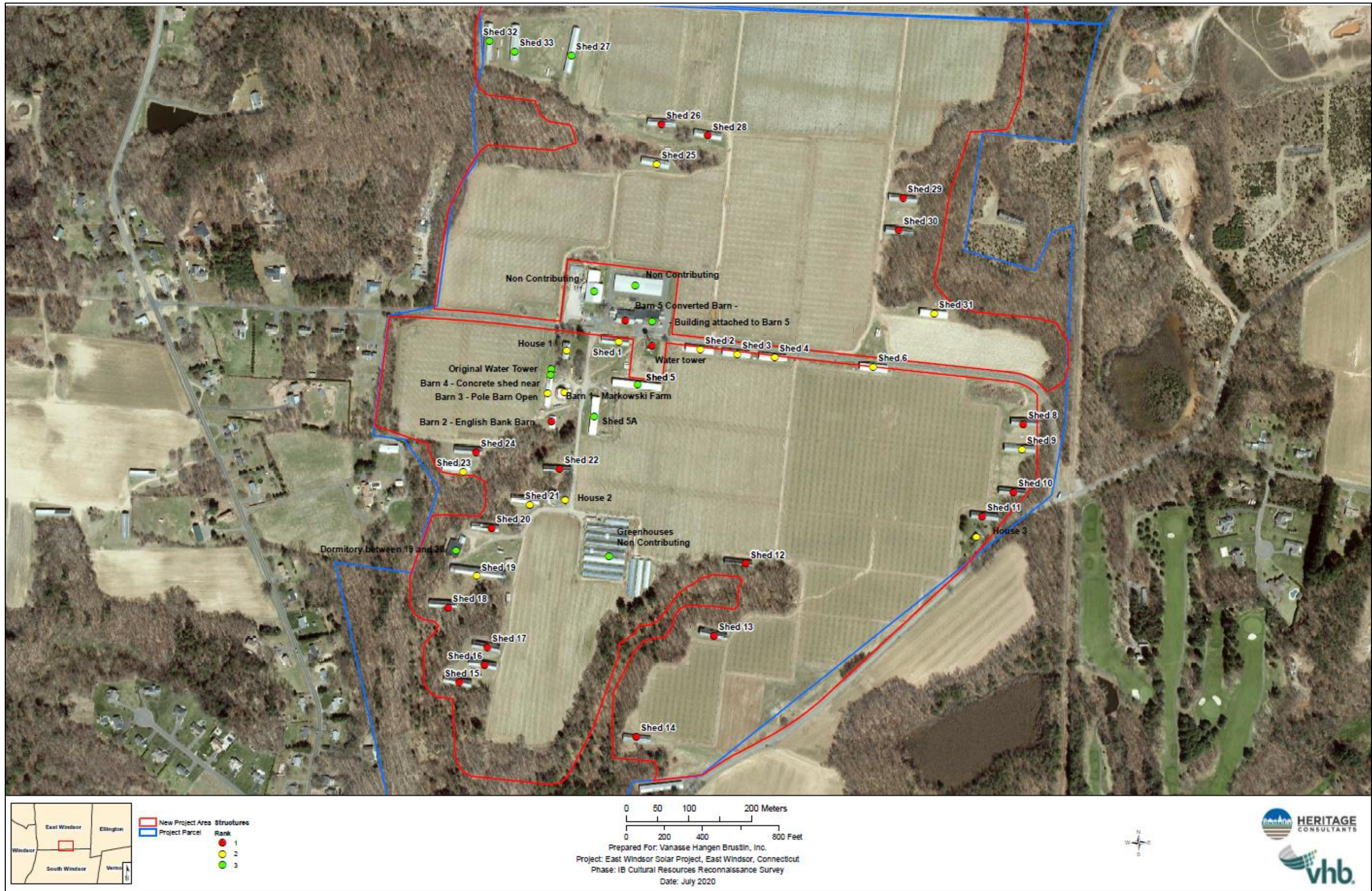


Figure 15. Excerpt from a 2019 aerial image showing the location and rankings of historic standing structure on the Project Site in East Windsor, Connecticut.



Photo 1. Overview photo of Gravel Pit Solar Project in East Windsor, Connecticut. Test Area 1 facing north.



Photo 2. Overview photo of Gravel Pit Solar Project in East Windsor, Connecticut. Test Area 2 (Locus 2-1) facing northwest.



Photo 3. Overview photo of Gravel Pit Solar Project in East Windsor, Connecticut. Test Area 3 facing north.



Photo 4. Overview photo of Gravel Pit Solar Project in East Windsor, Connecticut. Test Area 4 facing north.



Photo 5. Overview photo of Gravel Pit Solar Project in East Windsor, Connecticut. Test Area 5 facing south.



Photo 6. Overview photo of Gravel Pit Solar Project in East Windsor, Connecticut. Test Area 6 facing south.



Photo 7. Overview photo of Gravel Pit Solar Project in East Windsor, Connecticut. Test Area 7 facing northwest.



Photo 8. Overview photo of Gravel Pit Solar Project in East Windsor, Connecticut. Pedestrian Survey Area 1 facing north.



Photo 9. Overview photo of Gravel Pit Solar Project in East Windsor, Connecticut. Pedestrian Survey Area 3 facing north.



Photo 10. Overview photo of Gravel Pit Solar Project in East Windsor, Connecticut. Pedestrian Survey Area 4 facing north.



Photo 11. Overview photo of Gravel Pit Solar Project in East Windsor, Connecticut. Pedestrian Survey Area 6 facing west.



Photo 12. Overview photo of Gravel Pit Solar Project in East Windsor, Connecticut. Pedestrian Survey Area 7 (Locus PSA-7-1 and Locus PSA-7-2) facing north.



Photo 13. Overview photo of Gravel Pit Solar Project in East Windsor, Connecticut. Pedestrian Survey Area 9 facing north.



Photo 14. Overview photo of Gravel Pit Solar Project in East Windsor, Connecticut. Pedestrian Survey Area 10 (Locus PSA-10-1) facing northeast.



Photo 15. Overview photo of Gravel Pit Solar Project in East Windsor, Connecticut. Pedestrian Survey Area 12 facing south.



Photo 18; Shed 8, view northeast.



Photo 19: Shed 10, view southeast.



Photo 20. Shed 11, view Northwest.



Photo 21: Shed 12 (in distance), View south.



Photo 22: Shed 13, view southwest from Windsorville Road.



Photo 23: Shed 14, view northwest.



Photo 24: Shed 15, view southwest.



Photo 25: Shed 15 interior framework detail.



Photo 26: Shed 15 latch detail.



Photo 27: Shed 15 siding detail.



Photo 28: Shed 16, view east.



Photo 29: Shed 17, view north.



Photo 30: Shed 18, view southwest.



Photo 31: Shed 18, siding detail.



Photo 32: Shed 20, view northwest.



Photo 33: Shed 22, view north.



Photo 34: Shed 24, view southeast.



Photo 35: Shed 26 detail.



Photo 36: Shed 28, view northwest.



Photo 37: Shed 29, view southwest.



Photo 38: Shed 30, view northeast.



Photo 39: Shed 1, view east along planation road.



Photo 40: Shed 1, exterior detail.



Photo 41: Shed 1, interior framing detail.



Photo 42: Shed 2, view east along Plantation Road.



Photo 43: Shed 2, framing detail.



Photo 44: Shed 3, view east along Planation Road.



Photo 45: Shed 3, view north.



Photo 46: Shed 3, interior detail.



Photo 47: Shed 4, view east.



Photo 48: Shed 4, interior detail.



Photo 49: Shed 6, view southeast.



Photo 50: Shed 19, view southwest.



Photo 51: Shed 19, interior.



Photo 52: Shed 21, view northwest.



Photo 53: Shed 23, view west.



Photo 54: Shed 25 (foreground) and Shed 28 (background), view west.



Photo 55: Shed 31, view east.



Photo 56: Shed 9, view northwest.



Photo 57: Shed 27 (foreground) and Sheds 32 and 33 (background), view west.



Photo 58: Shed 5, view northwest.



Photo 59: House 1, view northeast.



Photo 60: House 1, view west.



Photo 61: House 1, interior.



Photo 62: House 2, view northwest.



Photo 63: House 2, view southwest.



Photo 64: House 3, view west.



Photo 65: Dormitory between Sheds 19 and 20, view west.



Photo 66: Barn 1-Markowski Barn, view southwest.



Photo 67: Barn 1-Markowski Barn, view northwest.



Photo 68: Barn 2—English bank barn, view north.



Photo 69: Barn 2—English bank barn, view west.



Photo 70: Barn 2—English bank barn, interior.



Photo 71: Barn 3—Pole barn open, view northwest.



Photo 71: Barn 3—Pole barn open, view northeast.



Photo 73: Barn 4—Concrete barn near pole barn.



Photo 74: Barn 5-converted barn/dormitory, view east.



Photo 75: Barn 5-converted barn/dormitory, view west.



Photo 76: Water tower, view northeast.



Photo 77: Original water tower, view southeast.



November 6, 2020

Mr. David R. George
Heritage Consultants
PO Box 310249
Newington, CT 06131

Subject: Phase IB Cultural Resources Reconnaissance Survey
Proposed Gravel Pit Solar
Apothecaries Hall Road et al
East Windsor, Connecticut
ENV-20-0698

Dear Mr. George:

The State Historic Preservation Office (SHPO) has reviewed the archeological survey report prepared by Heritage Consultants, LLC (Heritage), dated September 2020. The proposed activities are under the jurisdiction of the Connecticut Siting Council and are subject to review by this office pursuant to the Connecticut Environmental Policy Act (CEPA). The proposed undertaking includes the construction of a 120-megawatt, alternating current, ground-mounted solar facility, which is to occupy an approximately 517 acre project site within a larger 726 acre area, located within 8 parcels adjacent to Apothecaries Hall Road, Plantation Road, Wapping Road, and Windsorville Road. Surrounding land uses include housing developments, agricultural fields, a utility transmission corridor, railroad line, wooded areas, and a golf course. The submitted report is well-written, comprehensive, and meet the standards set forth in the *Environmental Review Primer for Connecticut's Archaeological Resources*.

Phase IB of the reconnaissance survey consisted of subsurface testing of areas deemed to have moderate to high archaeological sensitivity during Phase IA, and that would be subject to ground disturbing impacts as part of the proposed undertaking. A total of 389 of 474 planned shovel tests were excavated successfully throughout the proposed work area. The reconnaissance survey resulted in the identification of four cultural resource loci: Locus 2-1, Locus PSA-7-1, Locus PSA-7-2, and Locus PSA-10-1. Each loci yielded a single, nontemporal diagnostic artifact; no cultural features or soil anomalies were identified in the project area. As a result of the information submitted, SHPO concurs with the findings of the report that additional archeological investigations of the project area are not warranted.

The Phase IA assessment survey also identified 41 historic period structures within and immediately adjacent to the project site, including tobacco sheds, English-style barns, residential structures, a water tower, and other ancillary structures. The Phase IB further evaluated these structures, with a recommendation that the site, known collectively as Markowski Farm, is

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eligible for listing on the National Register of Historic Places applying the criteria for evaluation (36 CFR 60.4 [a-d]), under Criterion A in the area of Agriculture for its association with the production of shade tobacco, and under Criterion C in the area of Architecture as exhibiting examples of “utilitarian agricultural buildings, purpose built for the drying and curing of shade grown and broadleaf tobacco,” and which retain moderate to high degree of integrity. Following a site visit by SHPO staff, this office concurs that the property is eligible for listing under Criteria A and C.

As the current project proposal entails demolition of at least 22 contributing structures, the undertaking would adversely impact the historic resource. In order to resolve this adverse impact, our office would like to continue consultation to discuss minimization measures and mitigation options. SHPO acknowledges and appreciates the initial minimization efforts offered by the project sponsor, including screening efforts and retention of sheds along Plantation Road, and looks forward to a successful resolution for all parties.

This office appreciates the opportunity to review and comment upon this project. These comments are provided in accordance with the Connecticut Environmental Policy Act. For additional information, please contact Marena Wisniewski, Environmental Reviewer, at (860) 500-2357 or marena.wisniewski@ct.gov.

Sincerely,

A handwritten signature in black ink that reads "Jonathan Kinney". The signature is written in a cursive, flowing style.

Jonathan Kinney
Deputy State Historic Preservation Officer

cc. (via email): Melanie Bachman, Executive Director, Connecticut Siting Council



February 9, 2021

Ms. Susan Moberg
Director of Energy and Environmental Services
Vanasse Hangen Brustlin, Inc.
1 Cedar Street #400,
Providence, Rhode Island 02903

RE: Addendum to the Phase IA Cultural Resources Assessment Survey of the Proposed Gravel Pits Solar Project in East Windsor, Connecticut

Ms. Moberg:

Heritage Consultants, LLC (Heritage), is pleased to have this opportunity to provide Vanasse Hangen Brustlin, Inc., (VHB) with the following addendum to the previously completed and reviewed Phase IA Cultural Resources Assessment Survey of the Gravel Pits Solar Project in East Windsor, Connecticut. The current examination entailed a review of a 1.4 acre parcel of land located opposite and to the south of the intersection of Chamberlain Road and Apothecaries Hall Road in East Windsor. This parcel will be added to the existing Gravel Pits Solar project area, which has been the subject of both previous Phase IA cultural resources assessment and Phase IB cultural resources reconnaissance survey. The current review included an examination a cultural resources data obtained from the Connecticut State Historic Preservation Office (CT-SHPO), as well as GIS data, including historical mapping, aerial photographs, and topographic quadrangles maintained by Heritage. This investigation is based upon project location information provided to Heritage by VHB. The objectives of this study were to gather and present data regarding previously identified cultural resources situated within the vicinity of the proposed project parcel and to investigate it in terms of its natural and historical characteristics so that the need for completing additional cultural resources investigations could be evaluated.

The proposed 1.4 acre additional parcel is situated to the east of rail line and the Scantic River, as well as to the south of Apothecaries Hall Road (Figure 1). The larger project region is mostly rural in nature and contains agricultural fields. The area also contains large gravel pits and a light density of residential properties. A review of historic maps depicting the subject parcel shows that the road network in the region was well developed by the middle of the nineteenth century (Figures 2 and 3). The 1855 and 1869 maps of the region containing the subject parcel show that both Chamberlain Road and Apothecaries Hall Road were in place by that time and conform to their modern alignments. These 1855 and 1869 maps also maps show that the subject parcel is located in what was an open and unoccupied parcel of land during the mid to late nineteenth century. It is likely that this area was a either woodlot at the time or may have been used for agricultural purposes during the historical era.

A review of the earliest available aerial image showing the subject parcel, which dates from 1934, confirms the interpretation of the above-referenced historical maps (Figure 4). This image shows that the project region was under cultivation as of the early twentieth century and that the subject parcel consisted of a small wooded area adjacent an agricultural field. The 1934 aerial image also shows the existing rail line to the west of the subject parcel, indicating that this feature was built by in the early twentieth century. The subsequent aerial image, which was captured in 1951, shows that very little

changed in the project region between the early and mid-twentieth century (Figure 5). The subject parcel remained as a wooded lot at this time, and it was situated within a large area containing agricultural fields and the above-referenced rail line.

The next aerial image in the series, which dates from 1968 also is very similar to the previous aerial images (Figure 6). This image shows that additional buildings, likely residences were constructed in the northwestern portions of the study region, but that the subject parcel itself remained wooded and unchanged. Finally, Figure 7, which is an excerpt from an aerial image series dating from 2019, shows the project region and the subject parcel in their essentially modern conditions. It is clear that many more buildings have been added to the project region over the last 50 years or so and that substantial landscape changes, especially within the subject parcel, have occurred. Today, the subject parcel exists as an open area that has been completely disturbed by sand and gravel mining, as well the installation of an asphalt driveway that extends to the south from Apothecaries Hall Road.

Background research for the current Phase IA cultural resources survey addendum also included a review of previously identified archaeological sites and National Register of Historic Places properties/districts sites within 152 m (5005 ft) of the subject parcel (Figures 8 and 9). This revealed that no previously recorded National Register of Historic Places properties or archaeological sites on file with the CT-SHPO are located either within or in the vicinity of the subject parcel.

In addition, soils located within the subject parcel also were examined as part of this review (Figure 10). According to United States Department of Agriculture (USDA) mapping, the major soil type defined within the subject parcel is Manchester gravelly sandy loam (soil Code 37E). This soil type very deep and excessively drained. A typical profile for Manchester soil is as follows: **Ap**--0 to 9 inches; dark brown (7.5YR 3/2) gravelly sandy loam; weak medium granular structure; very friable; many fine and common medium roots; 20 percent gravel; strongly acid; clear smooth boundary; **Bw**--9 to 18 inches; reddish brown (5YR 4/3) gravelly loamy sand; very weak fine and medium granular structure; very friable; few fine roots; 25 percent gravel; strongly acid; clear wavy boundary; and **C**--18 to 65 inches; reddish brown (5YR 4/4) very gravelly sand; single grain; loose; 50 percent gravel; very strongly acid. It is important to note that the subject parcel has been altered and, although Manchester soils are defined for the area, most of the soil profile has been destroyed by sand and gravel removal.

In summary, a review of data collected from the archives at the CT-SHPO, as well as information maintained by Heritage, revealed that the subject parcel has been completely disturbed in the modern era. It no longer retains any potential to yield archaeological resources. As a result, it is the professional opinion of Heritage that no additional archaeological examination of the subject parcel is recommended prior to construction of the proposed solar facility. If you have any questions regarding this Technical Memorandum, or if we may be of additional assistance with this or any other projects you may have, please do not hesitate to call me at 860-299-6328 or email me at dgeorge@heritage-consultants.com.

Sincerely,



David R. George, M.A., R.P.A.



Figure 1. Excerpt from a USGS 7.5' series topographic quadrangle image showing the location of the subject parcel in East Windsor, Connecticut.

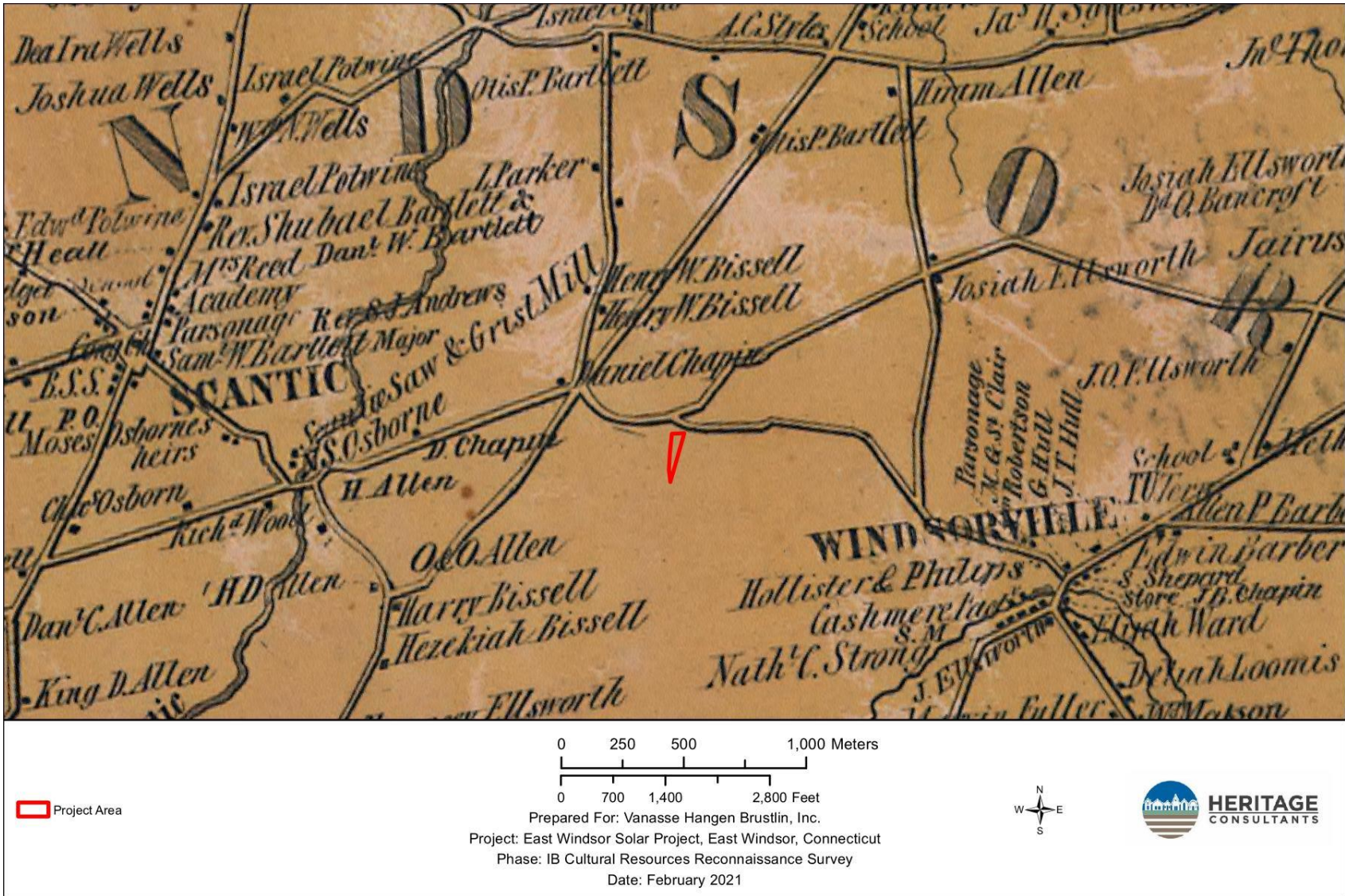


Figure 2. Excerpt from an 1855 historical map showing the location of the subject parcel in East Windsor, Connecticut.

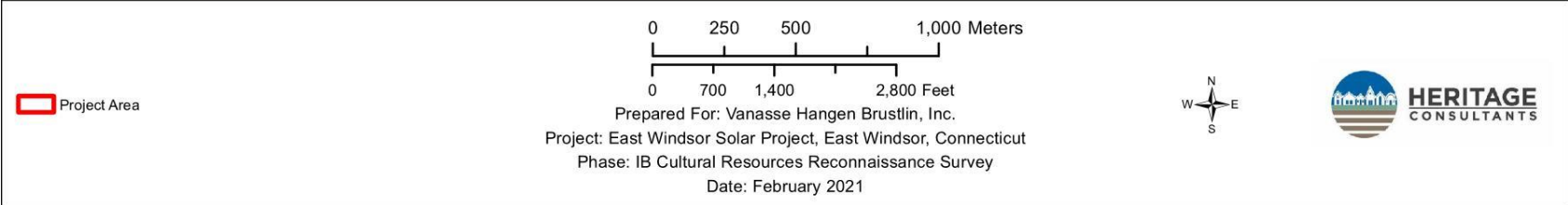


Figure 3. Excerpt from an 1869 historical map showing the location of the subject parcel in East Windsor, Connecticut.

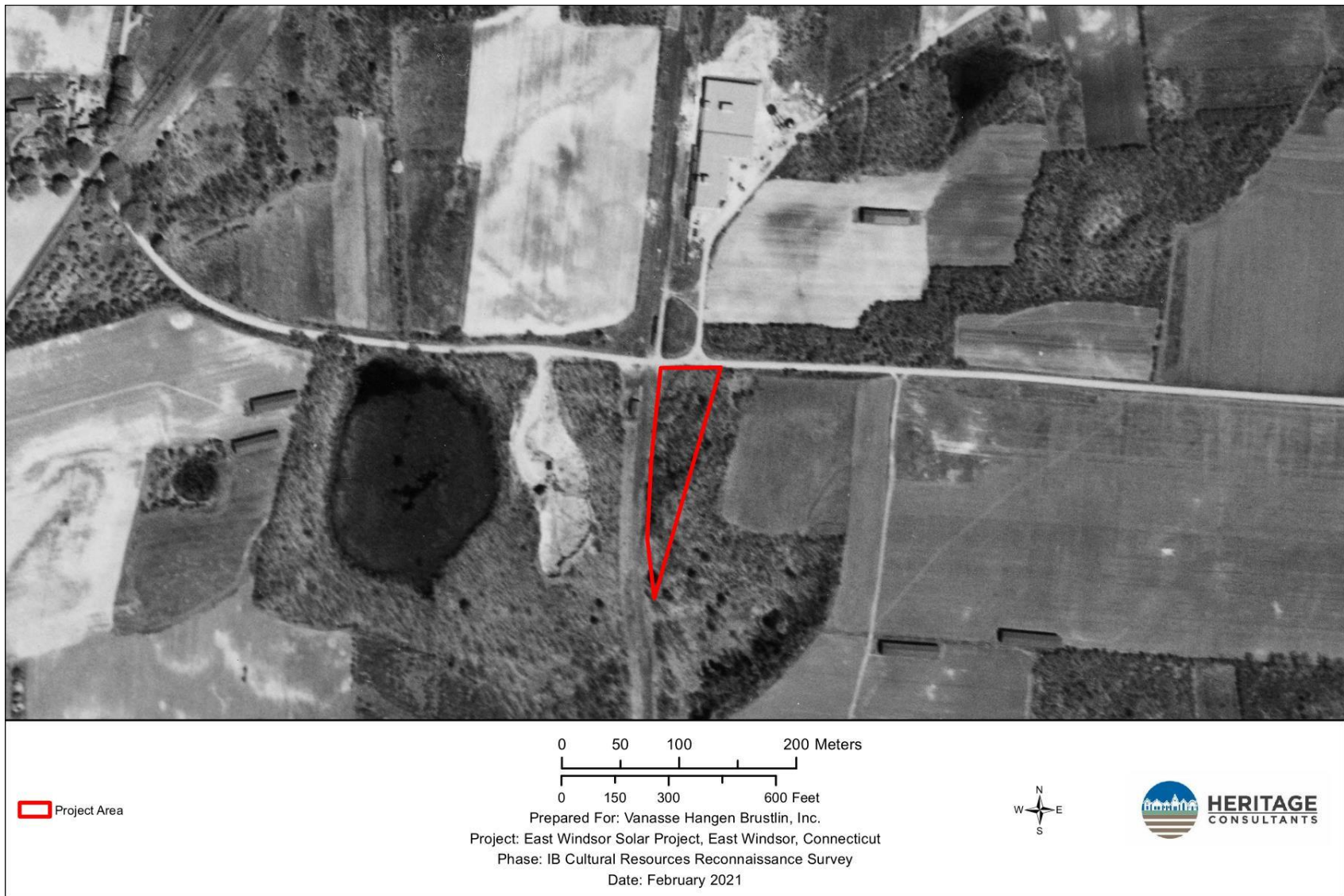


Figure 4. Excerpt from a 1934 aerial photograph showing the location of the subject parcel in East Windsor, Connecticut.



Figure 5. Excerpt from a 1951 aerial photograph showing the location of the subject parcel in East Windsor, Connecticut.

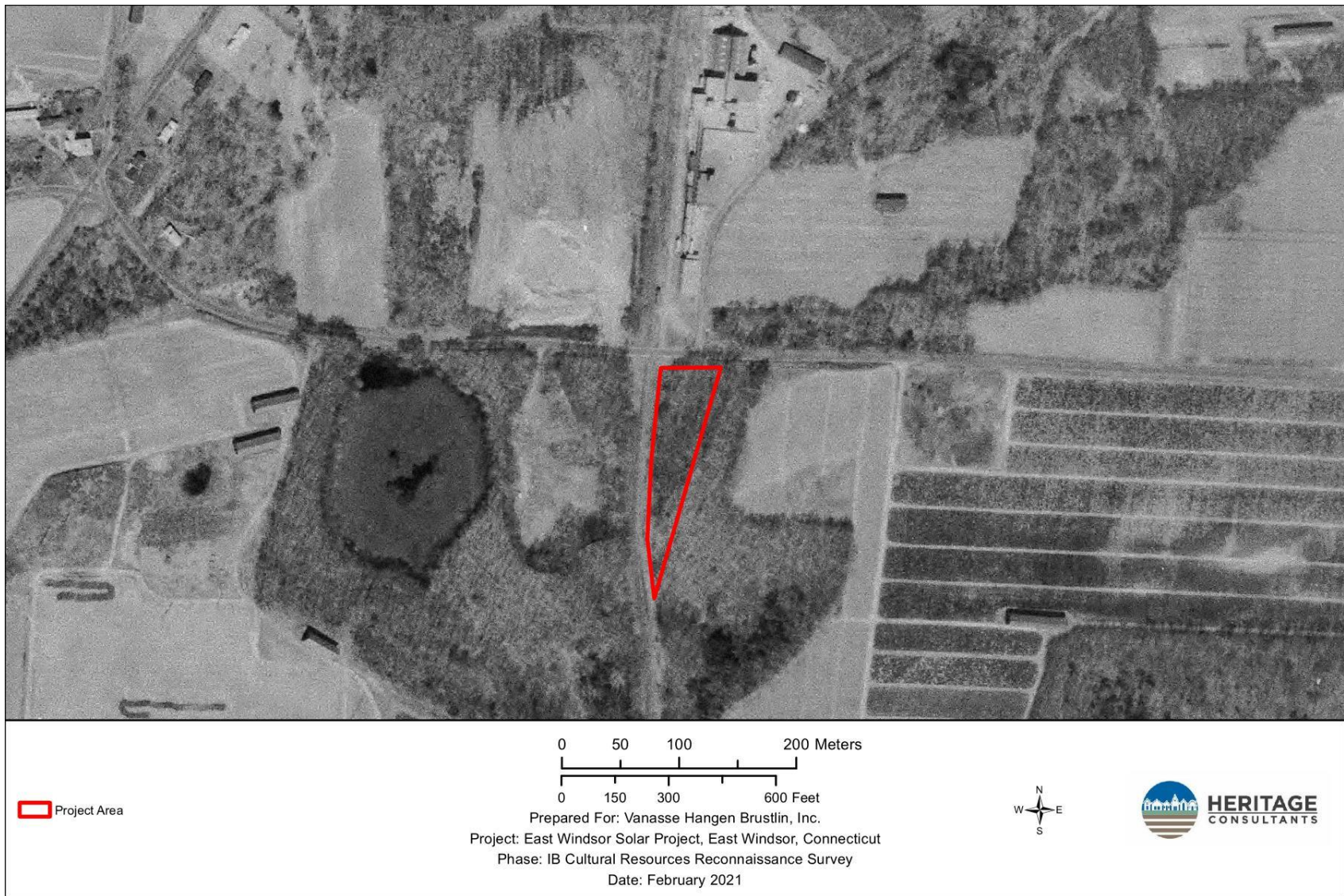


Figure 6. Excerpt from a 1970 aerial photograph showing the location of the subject parcel in East Windsor, Connecticut.



Figure 7. Excerpt from a 2019 aerial photograph showing the location of the subject parcel in East Windsor, Connecticut.

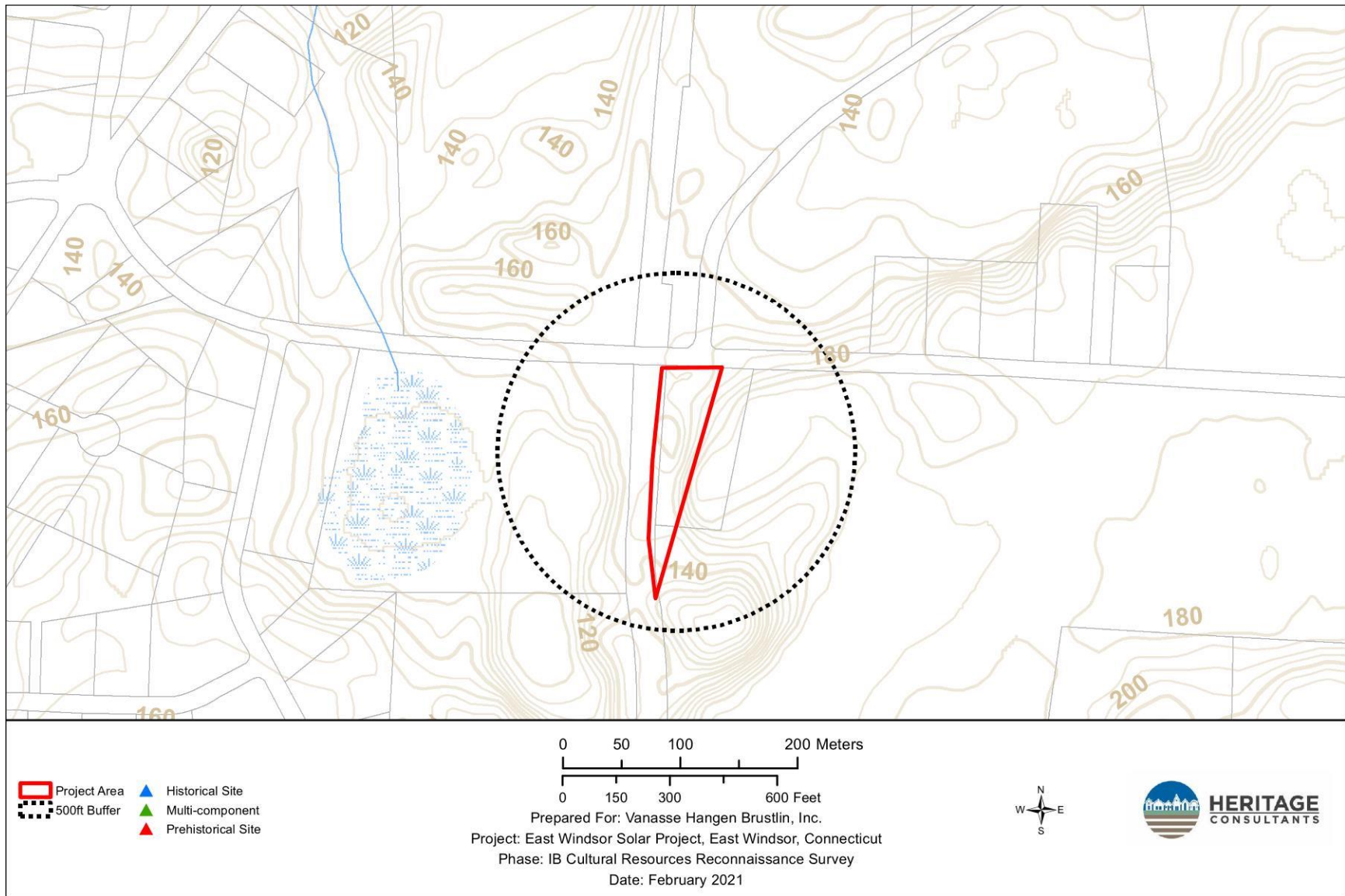


Figure 8. Digital map showing the location of previously identified archaeological sites in the vicinity of the subject parcel in East Windsor, Connecticut.

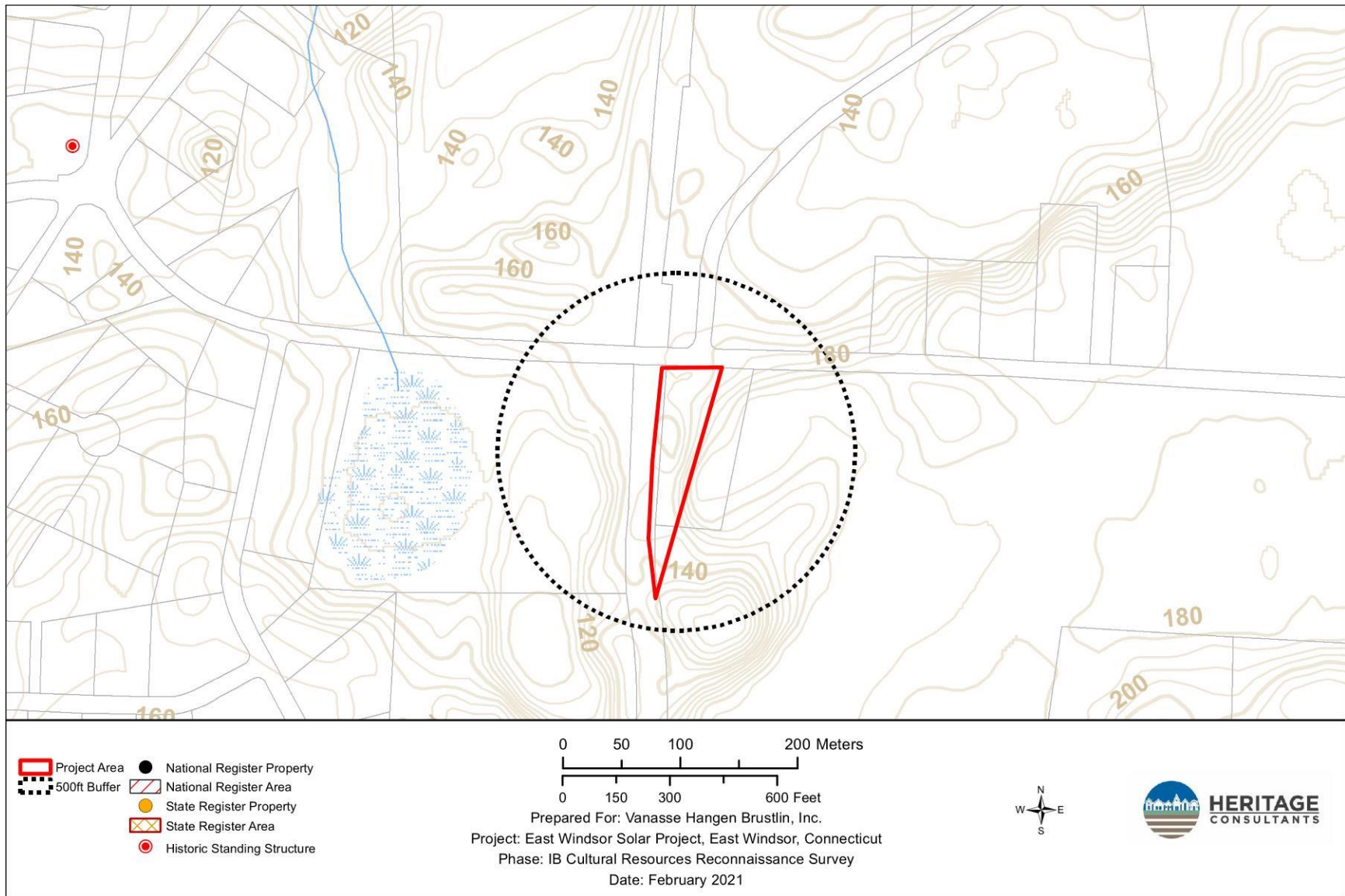


Figure 9. Digital map depicting the locations of previously identified National Register of Historic Places properties in the vicinity of the subject parcel in East Windsor, Connecticut.

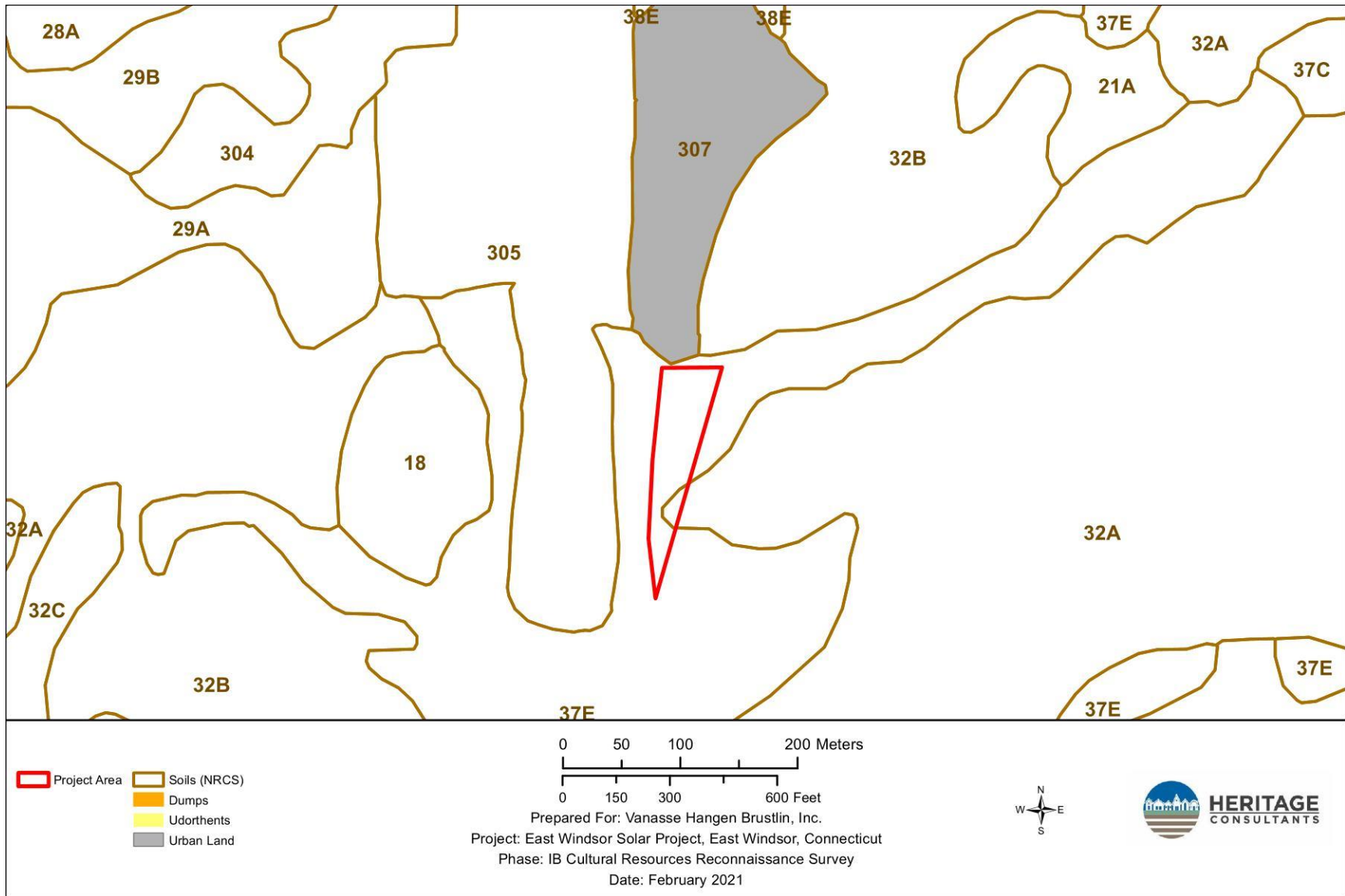


Figure 10. Digital map depicting the soil types present in the vicinity of subject parcel in East Windsor, Connecticut.