

April 25, 2025

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RECEIVED

AUG 10 2026

Land Use Department

Subject: Archaeological Reconnaissance Survey of a Proposed Housing Development
84 Silas Deane Road and 58-59 Seabury Avenue
Ledyard, Connecticut

Dear David George,

The State Historic Preservation Office (SHPO) has reviewed the technical report titled *Phase IB Cultural Resources Reconnaissance Survey of a Proposed Housing Subdivision at 84 Silas Deane Road, 58 Seabury Avenue, and 59 Seabury Avenue in Ledyard, Connecticut* prepared by Heritage Consultants, LLC (Heritage), dated February 2025. The submitted technical report meets the standards set forth in the *Environmental Review Primer for Connecticut's Archaeological Resources*. SHPO understands that the proposed project will consist of the construction of a new subdivision consisting of 24 single-family homes. Project plans include driveways, cul-de-sac, and other associated infrastructure. The project will require a stormwater discharge permit issued by the Connecticut Department of Energy and Environmental Protection through the authority of the Environmental Protection Agency; therefore, it is subject to review by this office pursuant to Section 106 of the National Historic Preservation Act, as amended.

A cultural resources reconnaissance survey of the Area of Potential Effect (APE) for the project was completed by Heritage in February of 2025. During survey, 234 of 241 planned shovel tests were excavated at 15-meter intervals along transects placed 15 meters apart throughout moderate/high archaeologically sensitive portions the APE identified during a previously completed archaeological assessment survey. An additional 15 delineation shovel tests were completed to further explore identified Precontact artifact concentrations. The seven planned but unexcavated shovel tests fell within areas containing previous disturbances. The field effort resulted in the identification of three Precontact loci (Loci 1, 2, & 3), a Precontact isolated findspot (ISO-1), and a limited number of Postcontact artifacts. The recovered Postcontact archaeological material included a whiteware sherd, a pearlware sherd, and a porcelain sherd recovered from the plowzone within three shovel tests. Heritage determined that the Postcontact deposits were representative of typical field scatter and were not eligible for inclusion on the National Register of Historic Places (NRHP).

Excavation of Precontact Period Locus 1 resulted in the recovery of eight quartz flakes from plowzone and subsoil contexts within two shovel tests. Locus 2 yielded 23 artifacts from plowzone and subsoil contexts within two shovel tests. They consisted of 21 pieces of quartz debitage, a quartz utilized flake, and a quartz uniface. Locus 3 consisted of a single quartz flake and a quartz biface recovered from a subsoil context within a single shovel test. Finally, isolated findspot ISO-1 contained a single untyped quartz projectile point from a plowzone context. Heritage concluded that the identified Precontact loci and findspot lacked substantial quantities of artifacts, cultural features, and temporally diagnostic artifacts and were therefore ineligible for listing on the NRHP. No further examination was recommended prior to construction.

Finally, 18 stonewall segments were recorded within the APE. SHPO recommends that all identified stonewall segments remain in place to the greatest extent possible. Based on the information submitted to this office, it is the opinion of SHPO that no historic properties will be affected by the proposed housing development and no additional archaeological investigation is warranted. This comment is conditional upon the submission of two bound copies of the final report; one will be kept for use in the office and the other will be transferred to the Thomas J. Dodd Research Center at the University of Connecticut (Storrs) for permanent archiving and public accessibility.

This office appreciates the opportunity to review and comment upon this project. Do not hesitate to contact Cory Atkinson, Staff Archaeologist and Environmental Reviewer, for additional information at (860) 500-2458 or cory.atkinson@ct.gov.

Sincerely,



Jonathan Kinney
State Historic Preservation Officer

PHASE IB CULTURAL RESOURCES RECONNAISSANCE SURVEY OF A
PROPOSED HOUSING SUBDIVISION AT 84 SILAS DEANE ROAD, 58
SEABURY AVENUE, AND 59 SEABURY AVENUE
IN LEDYARD, CONNECTICUT

PREPARED FOR:
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PLAINFIELD, CONNECTICUT

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ABSTRACT

This report presents the results of a Phase IB cultural resources reconnaissance survey for a proposed housing subdivision at 84 Silas Deane Road, 58 Seabury Avenue, and 59 Seabury Avenue in Ledyard, Connecticut. Heritage Consultants, LLC completed a previous Phase IA cultural resources assessment survey of the area and determined that it retained moderate/high archaeological sensitivity. The Phase IB reconnaissance survey was completed in February of 2025. A total of 234 of 241 (97 percent) of planned shovel tests were excavated throughout the project area. In addition, 15 delineation test pits, and five judgmental test pits were excavated throughout the Project area to further investigate identified cultural deposits. The subsurface investigation resulted in the recovery of three post-European contact period artifacts, including ceramic sherds with date ranges from the seventeenth through the nineteenth centuries, all of which were recovered from disturbed plowzone soils. The artifacts were recovered in low densities from soils that lack depositional integrity and cannot be associated with any below or above-ground features; therefore, they were classified as unassociated field scatter. These materials do not retain research potential or the qualities of significance for listing on the National Register of Historic Places applying the criteria for evaluation (36 CFR 60.4 [a-d]).

The Phase IB subsurface investigation also resulted in the recovery of 34 precontact era lithic artifacts and the identification of three precontact era loci (Locus 1 through 3) and a single precontact era isolated find spot (Isolated Find 1). Locus 1, Locus 3, and Isolated Find 1 produced few artifacts and were classified as ephemeral deposits. Locus 2 represents a single knapping event. These finds also lack research potential and do not meet the qualities of significance for listing on the National Register of Historic Places applying the criteria for evaluation (36 CFR 60.4 [a-d]). No additional archaeological examination of the post-European Contact period artifact scatter or the precontact era finds is recommended prior to construction. Finally, 18 stonewall segments were identified throughout the project area. It is recommended that the walls be avoided to the extent practicable and demarcated with high visibility fencing so that construction contractors do not inadvertently impact them.

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CHAPTER I

INTRODUCTION

This report presents the results of a Phase IB cultural resources reconnaissance survey for a proposed housing subdivision (the Project) at 84 Silas Deane Road, 58 Seabury Avenue, and 59 Seabury Avenue in Ledyard, Connecticut (Figure 1). The Project area encompasses approximately 16.2 acres of land within a larger 47.5 acre parcel. Rice Landscaping, LLC (RL) requested that Heritage Consultants, LLC (Heritage) complete a Phase IB cultural resources reconnaissance survey prior to construction. Heritage completed this investigation in February of 2025. All work associated with this survey 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

The proposed Project will consist of the construction of 24 residences and associated infrastructure, including driveways, access roads, and buried utilities (Figure 2). As mentioned above, the Project area encompasses approximately 16.2 acres of land situated within a larger 47.5 acre parcel. The Project area is situated at elevations ranging between 97.5 to 115.2 meters (320 to 378 feet) NGVD. It is located to the south of Silas Deane Road, to the west of Shewville Road, and to the east of Seabury Avenue in Ledyard, Connecticut. The larger parcel is bounded on all sides by deciduous forested land with sparse residential development to the north and west.

The area was subjected to Phase IB cultural resources reconnaissance survey utilizing pedestrian survey, photo-documentation, GPS recordation, and systematic shovel testing. The pedestrian survey included visual reconnaissance of all areas scheduled for impacts. The subsurface examination was completed through the excavation of shovel tests at 15 meter (49.2 foot) intervals along survey transects positioned 15 meters (49.2 feet) apart. Each shovel test measured 50 x 50 centimeter (19.7 x 19.7 inch) in size, and each was excavated until glacially derived C-Horizon or immovable object (e.g., boulders, large tree roots) were encountered. 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. All shovel test fill was screened through 0.635-centimeter (0.25 inch) hardware cloth. Soil characteristics were recorded in the field using Munsell Soil Color Charts and standard soils nomenclature. Each shovel test was backfilled after it was fully documented.

Phase IB Survey results and Management Recommendations

A total of 234 of 241 (97 percent) of planned shovel tests, 15 delineation test pits, and five judgmental test pits (JTPs) were excavated throughout the Project area. The subsurface investigation resulted in the recovery of three post-European contact period artifacts; these originated from three different shovel tests across the Project area. The post-European Contact period artifact assemblage included 3 ceramic sherds with a general date range of the seventeenth through the nineteenth centuries. All the post-European Contact period artifacts were recovered from plowzone soils. The artifacts were recovered in low densities from soils that lack depositional integrity and were not associated with any below or above-ground features; thus, they were classified as unassociated field scatter. The field scatter does not retain research potential or the qualities of significance for listing on the National Register of Historic Places applying the criteria for evaluation (36 CFR 60.4 [a-d]).

In addition to the post-European Contact period artifacts, 34 precontact era quartz lithic artifacts were recovered from three loci and an isolated find across the Project area. The boundaries of the loci were established and Locus 1, Locus 3, and Isolated Find 1 were determined to be ephemeral deposits. Locus 2 was determined to be a single knapping event. These finds lack research potential and do not meet the qualities of significance for listing on the National Register of Historic Places applying the criteria for evaluation (36 CFR 60.4 [a-d]). No additional archaeological examination of the post-European Contact period artifact scatter or the precontact era finds is recommended prior to construction. Finally, 18 stonewall segments were identified throughout the project area. It is recommended that the walls be avoided to the extent practicable and demarcated with high visibility fencing so that construction contractors do not inadvertently impact it.

Project Personnel

Key personnel who worked on this project included David R. George, M.A., RPA, (Principal Investigator); Brenna Pisanelli, M.A. (Senior Project Manager); Mellissa Wales, B.A. (Field Director); Ivy Johnson, B.A. (Field Technician); Luke Krosby, B.A. (Field Technician); Gannon Riley, B.A. (Field Technician); Elliot Bogue, B.A. (Field Technician); Erica Lang, M.A. (Report Writer); Nita Vitaliano, M.A. (Historian); Susy Goeters, B.A. (Laboratory Specialist); and Morgan Tirrell, B.A. (GIS Specialist).

CHAPTER II

NATURAL SETTING

Introduction

This chapter provides a brief overview of the natural setting of the region containing the proposed Project area in Ledyard, Connecticut. Previous archaeological research has documented that a few specific environmental factors can be associated with both precontact era and post-European contact period site selection. These include general ecological conditions, as well as types of freshwater sources and soils present. The remainder of this section provides a brief overview of the ecology, hydrological resources, and soils present within the project 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 very 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: Northeast Hills Ecoregion. A brief 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.

Southeast Hills Ecoregion

The Southeast Hills ecoregion consists of “coastal uplands, lying within 25 miles of Long Island Sound, characterized by low, rolling to locally rugged hills of moderate elevation, broad areas of upland, and local areas of steep and rugged topography” (Dowhan and Craig 1976). Elevations in the Southeast Hills ecoregion generally range from 75.7 to 227.2 m (250 to 750 ft) above sea level (Dowhan and Craig 1976). The bedrock of the region is composed of schists and gneisses deposited during the Paleozoic. Soils in the region have developed on top of glacial till in upland locales, and on top of stratified deposits of sand, gravel, and silt in the local valleys and upland areas (Dowhan and Craig 1976).

Hydrology in the Vicinity of the Project Area

The Project area is situated within an area that contains multiple sources of freshwater, including Joe Clark Brook, Avery Hill Brook, Billings Avery Brook, and the Thames River, as well as several unnamed streams and wetlands. These freshwater sources may have served as resource extraction areas for Indigenous and post-European contact populations. Previous archaeological investigations in Connecticut have demonstrated that streams, rivers, and wetlands were focal points for precontact occupations because

they provided access to transportation routes, sources of freshwater, and abundant faunal and floral resources.

Soils Within the Project Area

Soil formation is the direct result of the interaction of a number of variables, including climate, vegetation, parent material, time, and organisms present (Gerrard 1981). Once archaeological deposits are buried within the soil, they are subject to a number of diagenic 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 such as those present in the project area. In contrast, acidic soil enhances the preservation of charred plant remains.

A total of five soil types represent four soil categories that were identified within the Project area. They are listed below in Table 1, and their locations are shown in Figure 3. The most ubiquitous of these soils is Charlton-Chatfield, which encompasses approximately two-thirds of the Project area. Hollis-Chatfield and Sutton soils characterize the remainder of the southern portion of the Project area while Canton and Charlton soils were identified in the northwestern corner. These soil types are characterized as well drained. When well drained soils remain undisturbed on a less than eight percent slope, they are generally well correlated with precontact era Native American and post-European contact period site locations and are considered to have higher archaeological sensitivity. Below is a summary of each specific soil type identified within the Project area.

Table 1. Soil Types throughout the Project area.

Soils	Soil Description
50B	Sutton Fine Sandy Loam, 3-8%
62D	Canton and Charlton, 15-35%
73C	Charlton-Chatfield Complex, 3-15% Very Stony
73E	Charlton-Chatfield Complex, 15-45% Very Stony
75C	Hollis-Chatfield Rock Outcrop Complex, 3-15%

Canton Series (Soil Code 62D)

The Canton series consists of very deep, well drained soils formed in a loamy mantle underlain by sandy till. They are on nearly level to very steep moraines, hills, and ridges. typical profile associated with Canton soils is as follows: **Oi**--0 to 5 cm; slightly decomposed plant material; **A**--5 to 13 cm; very dark grayish brown (10YR 3/2) fine sandy loam; weak fine granular structure; friable; common fine roots; 5 percent gravel; very strongly acid (pH 4.6); abrupt smooth boundary; **Bw1**--13 to 30 cm; yellowish brown (10YR 5/6) fine sandy loam; weak medium subangular blocky structure; friable; common fine and medium roots; 5 percent gravel; very strongly acid (pH 4.6); clear smooth boundary; **Bw2**--30 to 41 cm; yellowish brown (10YR 5/4) fine sandy loam; weak medium subangular blocky structure; friable; common fine and medium roots; 5 percent gravel; strongly acid (pH 5.1); clear smooth boundary; **Bw3**--41 to 56 cm; yellowish brown (10YR 5/4) gravelly fine sandy loam; weak medium subangular blocky; friable; common fine and medium roots; 15 percent gravel; strongly acid (pH 5.1); abrupt smooth boundary; and **2C**--56 to 170 cm; grayish brown (2.5Y 5/2) gravelly loamy sand; massive; friable; 25 percent gravel; moderately acid (pH 5.6).

Charlton Series (Soil Codes 62D, 73C, and 73E)

The Charlton series consists of very deep, well drained soils formed in loamy melt-out till. They are nearly level to very steep soils on moraines, hills, and ridges. A typical profile associated with Charlton soils is as follows: **Oe**--0 to 4 cm; black (10YR 2/1) moderately decomposed forest plant material; **A**--4 to 10 cm; dark brown (10YR 3/3) fine sandy loam; weak fine granular structure; very friable; many fine roots; 5 percent gravel; very strongly acid; abrupt smooth boundary; **Bw1**--10 to 18 cm; brown (7.5YR 4/4) fine sandy loam; weak coarse granular structure; very friable; many fine and medium roots; 5 percent gravel; very strongly acid; clear wavy boundary; **Bw2**--18 to 48 cm; yellowish brown (10YR 5/6) fine sandy loam; weak medium subangular blocky structure; very friable; common fine and medium roots; 10 percent gravel and cobbles; very strongly acid; clear wavy boundary; **Bw3**--48 to 69 cm; light olive brown (2.5Y 5/4) gravelly fine sandy loam; massive; very friable; few medium roots; 15 percent gravel and cobbles; very strongly acid; abrupt wavy boundary; and **C**--69 to 165 cm; grayish brown (2.5Y 5/2) gravelly fine sandy loam with thin lenses of loamy sand; massive; friable, some lenses firm; few medium roots; 25 percent gravel and cobbles; strongly acid.

Chatfield Series (Soil Codes 73C, 73E, and 75C)

The Chatfield series consists of well drained soils formed in loamy melt-out till. They are moderately deep to bedrock. They are nearly level to very steep soils on bedrock-controlled hills and ridges. A typical profile associated with Chatfield soils is as follows: **Oi**--0 to 3 cm, slightly decomposed leaf, needle, and twig litter; extremely acid, pH 4.2. (0 to 15 cm thick.) **A**--3 to 5 cm, very dark gray (10YR 3/1) fine sandy loam, gray (10YR 5/1), dry; weak fine subangular blocky structure; friable; many fine and medium roots throughout; 5 percent mixed gravel and cobbles; very strongly acid, pH 4.5; abrupt smooth boundary; **Bw1**--5 to 33 cm, strong brown (7.5YR 5/6) gravelly fine sandy loam; weak fine subangular blocky structure; friable; common fine roots throughout and common medium roots throughout; 15 percent mixed gravel and cobbles; very strongly acid, pH 4.5; abrupt wavy boundary; **Bw2**--33 to 76 cm, strong brown (7.5YR 5/6) gravelly fine sandy loam; moderate medium subangular blocky structure; friable; few fine roots throughout; 20 percent mixed rock fragments; very strongly acid, pH 4.5; abrupt irregular boundary; and **2R**--76 cm; fractured slightly-weathered schist bedrock.

Hollis Series (Soil Code 75C)

The Hollis series consists of well drained and somewhat excessively drained soils formed in a thin mantle of till. **Oi**--0 to 3 cm; slightly decomposed plant material. A typical profile associated with Hollis soils is as follows: **Oa**--3 to 5 cm; black (10YR 2/1) highly decomposed plant material; moderate fine granular structure; very friable; many fine and very fine roots; abrupt smooth boundary; **A**--5 to 18 cm; very dark grayish brown (10YR 3/2) gravelly fine sandy loam, light brownish gray (10YR 6/2) dry; weak fine granular structure; very friable; common fine, very fine, medium, and coarse roots; 10 percent gravel, 5 percent channers; very strongly acid; clear smooth boundary; **Bw1**--18 to 25 cm; dark yellowish brown (10YR 4/4) gravelly fine sandy loam; moderate medium subangular blocky structure; friable; few very fine and fine roots, common medium roots; 10 percent gravel, 10 percent channers; strongly acid; clear wavy boundary; **Bw2**--25 to 41 cm; yellowish brown (10YR 5/6) gravelly fine sandy loam; moderate medium and coarse subangular blocky structure; friable; few fine and very fine roots, common medium roots; 10 percent gravel, 5 percent channers; strongly acid; abrupt smooth boundary; and **2R**--41 cm; schist bedrock.

Sutton Series (Soil Code 50B)

The Sutton series consists of very deep, moderately well drained loamy soils formed in melt-out till. A typical profile associated with Sutton soils is as follows: **Oe**--0 to 2 cm; black (10YR 2/1) moderately decomposed forest plant material; **A**--2 to 15 cm; very dark brown (10YR 2/2) fine sandy loam; weak

medium granular structure; very friable; common fine and medium roots; 5 percent gravel; strongly acid; clear wavy boundary; **Bw1**--15 to 30 cm; brown (7.5YR 4/4) fine sandy loam; weak fine and medium subangular blocky structure; friable; common fine and medium roots; 10 percent gravel and cobbles; moderately acid; gradual wavy boundary; **Bw2**--30 to 61 cm; yellowish brown (10YR 5/6) fine sandy loam; weak medium subangular blocky structure; friable; few medium roots; 10 percent gravel and cobbles; common fine and medium prominent light brownish gray (2.5Y 6/2) iron depletions and yellowish red (5YR 5/6) masses of iron accumulation; moderately acid; gradual wavy boundary; **Bw3**--61 to 71 cm; yellowish brown (10YR 5/4) fine sandy loam; weak medium subangular blocky structure; friable; 10 percent gravel and cobbles; common medium prominent light brownish gray (2.5Y 6/2) iron depletions and reddish brown (5YR 4/4) and strong brown (7.5YR 5/6) masses of iron accumulation; moderately acid; gradual wavy boundary; **C1**--71 to 91 cm; brown (10YR 5/3) gravelly fine sandy loam; weak thick platy structure; firm; 15 percent gravel and cobbles; common medium distinct light brownish gray (2.5Y 6/2) iron depletions and common medium prominent strong brown (7.5YR 5/6) masses of iron concentrations; moderately acid; gradual wavy boundary; and **C2**--91 to 165 cm; light olive brown (2.5Y 5/4) gravelly sandy loam; massive; friable; 25 percent gravel and cobbles; moderately acid.

Summary

A review of mapping, geological data, ecological conditions, soils, slopes, and proximity to freshwater suggests that portions of the Project area appear to be amenable to both precontact era Native American and post-European contact period occupations. This includes areas of low to moderate slopes with well-drained soil located near freshwater sources. The types of precontact Native American sites that may be contained in these areas include task specific, temporary, or seasonal base camps, which may include areas of lithic tool manufacturing, hearths, post-molds, and storage pits.

CHAPTER III

PRECONTACT ERA SETTING

Introduction

Prior to the late 1970s and early 1980s, very few systematic archaeological surveys of large portions of the State of Connecticut had been undertaken. Rather, the precontact era occupation of the region was studied at the site level. Sites chosen for excavation were highly visible and they were in such areas as the coastal zone, e.g., shell middens, and Connecticut River Valley. As a result, a skewed interpretation of the precontact era occupation 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 precontact era Native Americans, while the coastal zone, i.e., the eastern and western coastal and the southeastern and southwestern hills ecoregions, was the focus of settlements and exploitation. 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 precontact period of Connecticut. The remainder of this chapter provides an overview of the precontact era setting of the region encompassing the Facility.

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., 13,000 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 over 50 surface finds of Paleo-Indian projectile points throughout the State of Connecticut, only three sites, the Templeton Site (6-LF-21) in Washington, Connecticut, the Hidden Creek Site (72-163) in Ledyard, Connecticut, and the Brian D. Jones Site (4-10B) in Avon, Connecticut have been studied in detail and dated using the radiocarbon method (Jones 1997; Moeller 1980; Singer 2017a; Leslie et al. 2020).

The Templeton Site (6-LF-21) in Washington, Connecticut 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. More recently, the site has undergone re-investigation by Singer (2017a and 2017b), who has determined that the overwhelming majority of tools and debitage are exotic and were quarried directly from the Hudson River Valley. Recent research has focused on task-specific loci at the Templeton Site, particularly the production of numerous Michaud-Neponset projectile points, as identified through remnant channel flakes.

The Hidden Creek Site (72-163) is situated on the southeastern margin of the Great Cedar Swamp on the Mashantucket Pequot Reservation in Ledyard, Connecticut (Jones 1997). 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.

The Brian D. Jones Site (4-10B) was identified in a Pleistocene levee on the Farmington River in Avon, Connecticut; it was buried under 1.5 m (3.3 ft) of alluvium (Leslie et al. 2020). The Brian D. Jones Site was identified by Archaeological and Historical Services, Inc., in 2019 during a survey for the Connecticut Department of Transportation preceding a proposed bridge construction project. It is now the oldest known archaeological site in Connecticut at +12,500 years old. The site also provides a rare example of a Paleo-Indian site on a river rather than the more common upland areas or on the edges of wetlands. Ground-penetrating radar survey revealed overbank flooding and sedimentation that resulted in the creation of a stable ancient river levee with gentle, low-energy floods. Archaeological deposits on the levee were therefore protected.

Excavations at the Brian D. Jones Site revealed 44 soil anomalies, 27 of which were characterized as cultural features used as hearths and post holes, among other uses. Of these, one hearth has been dated thus far ($10,520 \pm 30$ 14C yr BP; charred Pinus; 2-sigma 12,568 to 12,410 CAL B.P.) (Leslie et al. 2020:4). Further radiocarbon testing will be completed in the future. Artifact concentrations surrounded these features and were separated in two stratigraphic layers representing at least two temporally discrete Paleo-Indian occupations. The recovered lithic artifacts are fashioned from Normanskill chert, Hardyston jasper, Jefferson/Mount Jasper rhyolite, chalcedony, siltstone, and quartz. They include examples of a fluted point base, preforms, channel flakes, pièces esquillées, end scrapers, side scrapers, grinding stones, bifaces, utilized flakes, graters, and drilled stone pendant fragments. Lithic tools numbered over 100, while toolmaking debris was in the thousands. The channel flakes represent the production of spear points used in hunting. Scrapers, perforators, and grinding stones indicate animal butchering, plant food grinding, the production of wood and bone tools, and the processing of animal skins for clothing and tents. Other collected cultural materials included charred botanicals and calcined bone. Botanical specimens recovered in hearth features included burned remains of cattail, pin cherry, strawberry, acorn, sumac, water lily, and dogwood. Approximately 15,000 artifacts were collected in total.

The scarcity of identified Paleo-Indian sites suggests a low population density during this period. The small size of most Paleo-Indian sites, their likely inundation by rising sea levels, and the high degree of landscape disturbance over the past 10,000 years likely contribute to poor site visibility, although the presence of two deeply alluvially buried Paleo-Indian sites in Connecticut suggests that other sites may be located along stable rivers (Leslie et al. 2021).

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, very 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 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 of 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 identified 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, are 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.

Another localized cultural tradition, the Gulf of Maine Archaic, which lasted from ca. 9,500 to 6,000 14C B.P., is beginning to be recognized in Southern New England (Petersen and Putnam 1992). It is distinguished by its microlithic industry, which may be associated with the production of compound tools (Robinson and Petersen 1993). Assemblages from Maine (Petersen et al. 1986; Petersen 1991; Sanger et al. 1992), Massachusetts (Strauss 2017; Leslie et al. 2022), and Connecticut (Forrest 1999) reflect the selection of local, coarse-grained stones. Large choppers and hoe-like forms from southeastern Connecticut's Sandy Hill Site likely functioned as digging implements. Woodworking tools, including adzes, celts, and gull-channeled gouges recovered at the Brigham and Sharrow sites in Maine (Robinson and Petersen 1993:68), may have been used for dugout canoe manufacture. The deeply stratified Sandy Hill (Forrest 1999; Jones and Forrest 2003) and Sharrow sites (Petersen 1991), with their overlapping lenses of "black sand" floor deposits, suggest intensive site re-occupations according to an adaptation that relied, in part, on seasonally available wetland resources. Thus far, sites from this tradition have only been identified within coastal and near-coastal territories along the Gulf of Maine, in southeastern Connecticut, and in Massachusetts.

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

By the onset of the Middle Archaic Period modern deciduous forests had developed in the region (Davis 1969). Increased numbers and types of sites associated with this period are noted in Connecticut (McBride 1984). The most well-known Middle Archaic site in New England is the Neville Site in Manchester, New Hampshire studied by Dincauze (1976). A careful analysis of the Neville Site indicated that the Middle Archaic occupation dated from between 7,700 and 6,000 years ago. In fact, Dincauze obtained several radiocarbon dates from the Middle Archaic component of the Neville Site associated with the then-newly named Neville type projectile point, ranging 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 as the collection of a wide range of plant foods (McBride 1984; Snow 1980:228).

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

The Terminal Archaic, which lasted from ca., 3,700 to 2,700 B.P., is perhaps the most interesting, yet confusing of the Archaic Periods in southern New England precontact period. 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 B.P.) is characterized by the presence of Snook Kill and Susquehanna Broadspear projectile points while the latter Terminal Archaic (3,200-2,700 B.P.) is distinguished by Orient Fishtail projectile points (McBride 1984:119; Ritchie 1971).

In addition, it was during the late Terminal Archaic 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 was still 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 was 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. Archaeological investigations of Early Woodland sites in southern New England 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 (Lizée 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 that are indicative of the Middle Woodland Period include Linear Dentate, Rocker Dentate, Windsor Cord Marked, Windsor Brushed, Windsor Plain, and Hollister Stamped (Lizée 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; Lizée 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; Lizée 1994a; Pope 1953; Rouse 1947; Salwen and Ottesen 1972; Smith 1947). These types are more stylistically diverse than their predecessors with incision, shell stamping, punctation, single point, linear dentate, rocker dentate stamping, and stamp and drag impressions common (Lizée 1994a:216).

Summary of Connecticut's Precontact Era

The precontact era of Connecticut spans from ca. 13,000 to 350 B.P., and it is characterized by numerous changes in tool types, subsistence patterns, and land use strategies. Much of this era is characterized by local Native American groups who practiced a subsistence pattern based on a mixed economy of hunting and gathering plant and animal resources. It was not until the Late Woodland Period that incontrovertible evidence for the use of domesticated species was available. Further, settlement patterns throughout the precontact period 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 that includes the proposed project area, a variety of precontact site types may be expected, ranging from seasonal camps utilized by Paleo-Indian and Archaic populations to temporary and task-specific sites of the Woodland era.

CHAPTER IV

POST-EUROPEAN CONTACT OVERVIEW

Introduction

The Project area is located at 84 Silas Deane Road, 58 Seabury Avenue, and 59 Seabury Avenue in Ledyard, Connecticut, which is part of New London County. This chapter provides a brief overview of New London County with a focus Project area. Most Connecticut towns, including Ledyard in particular, originated as Native American settlements and later became English colonial villages. Originally part of Groton, Ledyard was not incorporated as an independent town until 1836. Through the nineteenth and twentieth centuries Ledyard functioned as an agricultural hub with manufacturing centers powered by local waterways. The proximity of Ledyard to the cities of New London and Norwich, as well as the Long Island shoreline, Mystic, Poquonnock, and Thames Rivers, allowed townspeople to engage in both substantial agricultural and maritime activities. In the twenty-first century, the Town of Ledyard, Connecticut, has largely become a suburban center home to significant commercial and industrial development while retaining aspects of its rural character.

New London County

New London was one of the four original counties established in 1666 following the merger of Connecticut Colony and New Haven Colony. Located in the southeastern corner of Connecticut, it is bounded south by Long Island Sound, east by the State of Rhode Island, north by Windham County, Tolland, and Hartford Counties, and west by Middlesex and Tolland Counties (Connecticut 2023). Its landscape includes rich farmland, significant freshwater rivers, and an extended shoreline on Long Island Sound. Important waterways associated with New London County include the Connecticut, Thames, Shetucket, Quinebaug, Yantic, Pawcatuck, Mystic, Poquonnock, and Niantic Rivers (Hurd 1882). The shoreline also has many smaller rivers, harbors, islands, and inlets. The county's three largest cities are located on the Thames River; New London on the western shore near the mouth, Groton on the eastern shore near the mouth, and Norwich at the river's head. Other important population centers are located at Mystic, Stonington Borough, Waterford, and Niantic. The Town of Ledyard, Connecticut became a town in 1836 from land that was formerly part of North Groton (Avery 1901; Barry 1985).

Woodland Period to Seventeenth Century

During the Woodland Period of northeastern North American history (ca., 3000 to 500 years ago) the Indigenous peoples who resided between the mouth of the Connecticut River Valley and east towards the Pawcatuck River were part of the greater Algonquian culture of northeastern North America (Lavin 2013). They spoke local variations of Southern New England Algonquian (SNEA) languages and resided in extended kinship groups on lands they maintained for a variety of horticultural and resource extraction purposes (Goddard 1978). Native people in the region practiced subsistence activities including hunting, fowling, and fishing, along with the cultivation of various crops, the most important of which were maize, squash, and beans. They supplemented these foods seasonally by collecting shellfish, fruits, and plants during warmer periods, and gathering nuts, roots, and tubers during colder times (Lavin 2013).

In addition, these communities came together in large groups to hunt deer in the fall and winter. Indigenous people lived with their immediate or extended families in large settlements often concentrated along rivers and/or wetlands. Some villages were fortified by wooden palisades. Their habitations, known as a *weetu* or wigwam, were generally constructed of a tree sapling frame and

covered in reed matting during warm months and tree bark throughout the winter. These varied in size from a small, individual dwelling to an expansive “long house” which could accommodate several families. Native communities commonly traded among both their immediate neighbors and often maintained long-distance networks as well (Lavin 2013). At the time of the arrival of Europeans some of the prominent Native nations, within the present-day bounds of New London County, included the Pequot, Mohegan, and Western Niantic people (DeForest 1852; Lavin 2013). All three communities were closely connected through kinship, culture, language, and trade. The Native people who resided at present-day Ledyard were Pequot and maintained several large villages in the area, including those at Poquetanuck Cove and Mashantucket (Hauptman and Wherry 1990). The Pequot homeland was on the eastern side of the Pequot (Thames) River to the Pawcatuck River and north towards Pachaug in the present-day towns of Groton, Stonington, North Stonington, Ledyard, Preston, Griswold and Voluntown (DeForest 1852; Hauptman and Wherry 1990; Lavin 2013).

Seventeenth Century through Eighteenth Century

As Native communities maintained oral tradition rather than a written record, most surviving information of the Indigenous people of present-day New London County was recorded by European observers (Lavin 2013). The earliest Europeans known to have entered Long Island Sound and the Connecticut River along present-day New London County were the Dutch in 1614. During that voyage Captain Adrian Block created a figurative map of the region which depicted the shoreline including the Pawcatuck, Mystic, Pequot (Thames), and Connecticut Rivers. Block’s 1614 map identified Native nations in the region and placed both the Pequot and Mohegan homelands on the landscape. The Dutch established trade relationships with Native people of the area and by the early 1620s they entered an agreement with the Pequot of present-day southeastern Connecticut in which the Pequot would provide wampum and furs for European goods. By 1624 the Dutch West India Company formally established the colony of New Netherland centered around Manhattan and the Hudson River, but its eastern bounds extended as far as Cape Cod, which included present-day New London County (Jacobs 2009). Through their relationship with the Dutch, the Pequot had steady access to a variety of valuable European trade goods they could distribute to tributaries and/or trade with other groups in the region. The Pequot extended their dominance over the Connecticut shoreline, eastern Long Island, and the lower Connecticut River Valley bringing all the Native nations in those areas into a tributary relationship under their leadership (Hauptman and Wherry 2009; McBride 2013). The Nehantic and Mohegan were closely tied to the Pequot through kinship networks, trade, and political alliances during this period.

In 1633, the Pequot allowed the Dutch to build a fortified trading post, the *Huys de Hoop*, on the Connecticut River at the site of present-day Hartford to further cement both parties’ domination over the flow of wampum, fur, and trade goods. To break from the Pequot, several Connecticut River sachems invited the English to the valley who settled Windsor in 1633, Wethersfield in 1634, and both Hartford and Saybrook by 1635 (Van Dusen 1961). Increased European interaction resulted in exposure to diseases and epidemics to which Indigenous people had no natural immunity. Illnesses such as smallpox, measles, tuberculosis, and cholera devastated Native communities. In 1633, an epidemic spread through the region impacting the Pequot and most their neighbors. Tensions between Native and European groups laying claim to the Connecticut River resulted in the death of several English traders between 1634 and 1636 which they blamed on the Pequot. In retaliation English forces from Massachusetts Bay destroyed Pequot and Nehantic villages on the Pequot (Thames) River in August 1636 which began the Pequot War. The Pequot laid siege to Saybrook Fort at the mouth of the Connecticut River during the winter of 1636-1637 and attacked Wethersfield in April of 1637 further upriver. Connecticut Colony declared war on the Pequot, and it was joined by Native warriors from the Connecticut River and Mohegans under the Sachem Uncas (Oberg 2006). In May of 1637, English allied

forces destroyed the fortified Pequot village at Mistick in present-day Groton and pursued Pequot refugees west towards present-day Fairfield. (Cave 1996). After the war, the Connecticut English claimed Pequot lands as conquered lands for their growing colony. The Harford Treaty of 1638 established the English as the dominant power in the region and divided Pequot survivors between the Mohegan and Narragansett (Cave 1996).

By 1640, English colonization concentrated along the Connecticut River and Long Island shoreline before extending northward into the interior. Originally known by the Pequot name, *Nameaug*, New London was the earliest shoreline settlement (1645) soon followed by Stonington (1649) and Norwich (1659) (Hurd 1882; Marshall 1922). With the assistance of Connecticut Governor John Winthrop, Jr., Pequot refugees that were living among the Mohegan removed to New London, and, by 1650, they were allowed to settle in present-day Groton at Noank Neck before being granted land at Mashantucket in 1666 in present-day Ledyard (Hauptman and Wherry 2009). That same year Connecticut Colony received a royal charter from London and the General Court created New London County, and New London Harbor became the first deep water port in Connecticut Colony (Caulkins 1852; Connecticuthistory.org 2021). By 1700 the towns of Stonington (1662), Lyme (1667), Preston (1687), and Colchester (1698) were established (Barry 1985). In addition to the Western Mashantucket Pequot reservation in Ledyard, Connecticut Colony created reservation lands for other Native communities in New London County which included the Eastern Pequot at Lantern Hill (1683); the Mohegan at Mohegan (1683) in present-day Montville; and the Western Niantic at Black Point (1686) in present-day East Lyme (Caulkins 1852).

During the eighteenth century, New London County's population steadily increased, and the area developed into an important agricultural region with strong maritime connections to activities such as fishing, shipbuilding, and international trade (Van Dusen 1961; Marshall 1922). The towns of Lebanon (1700), Groton (1705), and Voluntown (1721) were established early on from land taken from existing towns in the county (Barry 1985). Water-powered industries in present-day Ledyard, then known as North Groton, took root along significant waterways including sawmills, fulling mills, as well as gristmills (Avery 1901). Slavery was prevalent in New London County at this time, and was practiced by wealthy families, merchants, and ministers (Caulkins 1852). The 1774 Connecticut colonial census recorded a "White" population of 3,488 and "Black" population of 360 in Groton, which included present-day Ledyard, but ignored Native inhabitants altogether and did not distinguish between free and enslaved people (Hoadly 1887).

During the American Revolution (1775-1783), Groton played an important role in recruiting soldiers, supplying food stores, and was the site of a fort located on Groton Heights, which was part of New London Harbor's defenses. The harbor served as an important harbor for American privateers, naval vessels, and commercial shipping. On September 6, 1781, British forces commanded by General Benedict Arnold, a Norwich native who defected a year earlier, landed along the Thames River where they burned New London and massacred the American garrison at Fort Griswold, Groton (Allyn 1882). Groton recovered from wartime economic disruptions thanks to its robust agricultural production and maritime trade. In 1784, the neighboring towns of New London and Norwich were incorporated among the first five cities in the state. That same year the State passed a gradual manumission law, but slavery was not fully abolished until 1848 (Normen 2013). On January 9, 1788, Connecticut ratified the U.S. Constitution to become the fifth state (Van Dusen 1961).

Nineteenth Century through the Twenty-first Century

At the beginning of the nineteenth century, the majority of the towns in New London County were relatively small in size, including Groton, of which present-day Ledyard was a part, which had a

population of 4,302 people in 1800 (Connecticut 2024a). By this time Groton was home to extensive shipbuilding along the Mystic River and the Thames River. During the War of 1812 Captain Stephen Decatur in command of the *USS United States*, *USS Macedonian*, and the *Hornet* were blockaded in New London Harbor by the British Navy. Unable to escape the harbor, Decatur took guns off his ships and built a fortification on Allyn's Hill in the Gales Ferry section of North Groton, present-day Ledyard, in the event the British attacked which became known as Fort Decatur. Following the War of 1812, Groton became an important whaling town with ships leaving the Mystic River and Thames River for seals in Antarctica or whales in the Pacific (Caulkins 1852; Marshall 1922). Several new towns were incorporated from existing towns in New London County during the early 1800s which included the Town of Ledyard (1836) which had formerly been referred to as North Groton and derived its name from Colonel William Ledyard who was slain at Fort Griswold (Avery 1901; Barry 1985). During the Civil War, Ledyard's textile mills produced uniforms for the Union as well as food stores (Nivens 1965). There was no rail service through Ledyard until 1899 when the Norwich & Worcester Railroad constructed a line on the east side of the Thames River from Norwich to Groton (Turner and Jacobus 1986). Through the late nineteenth century, the Town of Ledyard slowly, but steadily lost population and by the turn of the century, it was home to 1,236 residents (Connecticut 2024b-c).

As the twentieth century progressed, Ledyard firmly remained an agricultural community with some manufacturing. It was not until after the Second World War that Ledyard would experience significant population growth due to the construction of a Dow Chemical Company plant at Allyn's Point in 1952 (Ledyard 2024). That same year Electric Boat shipbuilders became a subsidiary of General Dynamics and in 1954, the company launched the first nuclear powered submarine, the *Nautilus*. Throughout the Cold War, Electric Boat continued to serve as an important defense contractor and was one of New London County's largest employers (General Dynamics 2024; Nagy 2015). Ledyard quickly became a bedroom community for employees of Dow Chemical as well as Electric Boat and the US Naval Submarine Base to the south in Groton. The fall of communism in eastern Europe beginning in 1989 signaled the end of the Cold War and with it, major cuts in defense spending. In 1989, 25 percent of New London County's labor force worked in the defense industry and over the next decade thousands of people lost their jobs (Spaid 1991).

The Mashantucket Pequot received federal recognition in 1983 and reconstituted much of their reservation lands in Ledyard illegally sold by the state in 1856. The tribe opened a bingo hall on their land in Ledyard in 1986 and in 1992 the largest casino on the East Coast opened on their land in Ledyard as well. This brought much needed employment and economic renewal in a county that had struggled since the decline of Cold War defense spending (Bixby 1996; Lightman 1995). Ledyard's population remained relatively stable for nearly 50 years, regardless of changing economic conditions, likely due to the town's proximity to tribal casinos, Dow Chemical, Electric Boat, the US Navy Submarine Base, and several major roadways (Table 2). In the twenty-first century, Ledyard remains an important suburban landscape which retains significant rural characteristics as well as one of the country's largest casinos. As of 2022, the top industries in Ledyard included local government and retail trade. In 2024, key employers included Foxwoods Casino Resort and Prides Corner Farms, Inc. (AdvanceCT 2024). Strategic growth is anticipated in Ledyard. According to the Town's 2020 Plan of Conservation and Development, a major goal is to "support and manage the growth of Ledyard in order to maximize both the environmental and functional quality of life" (Ledyard 2020:10).

Table 2: Population of Ledyard, Connecticut 1790-2020 (Connecticut 2024a-d; USCB 2024)

Town	1790	1800	1810	1820	1830	1840	1850	1860	1870	1880	1890	1900
Ledyard, New London County	-	-	-	-	-	1,871	1,558	1,615	1,392	1,373	1,183	1,236
	1910	1920	1930	1940	1950	1960	1970	1980	1990	2000	2010	2020
	1,079	1,161	1,144	1,426	1,749	5,395	14,837	13,735	14,913	14,687	15,051	15,421

History of the Project Area

The Project area is located at 84 Silas Deane Road, 58 Seabury Avenue, and 59 Seabury Avenue in Ledyard, Connecticut. According to an excerpt from Walling's 1854 New London County map, the proposed housing development is located in the north-central part of Ledyard and to the west of what was then labeled the "Groton Indian Town Pequots," referring to the above-referenced Pequot reservation established in Ledyard in 1666 (Figure 4). Some road infrastructure was present at the time, as were unlabeled freshwater streams to the east and to the west of the Project area. The property of "A. Gray" overlapped with the Project parcel. The Gray family is ubiquitous in Ledyard history; thus, it is not simple to determine which A. Gray the map refers. It is known that Benjamin Gray lived in this area of Ledyard in the eighteenth century near Lee's Brook and a document from 1800 notes the sawmill along this brook was built by Joseph Lee and Benjamin Gray, a Revolutionary War veteran (Ledyard Up-Down Sawmill 2024). Benjamin's son Philip Gray 3rd purchased the sawmill in 1805 and subsequently sold it to Elias Brown of Stonington in 1831, who then sold it to Avery Brown in 1838, likely the same A. Brown listed on the 1854 map, to the south of the project area. Presently, Sawmill Park is owned by the Town of Ledyard, preserving this early history (Ledyard Up-Down Sawmill 2024).

An excerpt from the 1868 F.W. Beers Atlas of New London County shows the Project area within what was then called District No. 8 in Ledyard (Figure 5). While A. Gray was still noted as a property owner, his properties were depicted further to the south of the Project area and in close proximity to Lee's Brook, as was the property of A. Brown. The closest property owner to the Project parcel at that time was J. Crouch, but it is difficult to determine if this was John Crouch or Jabez Crouch, who both lived in Ledyard at this time (USCB 1860). The Pequot reservation was still documented to the east of the proposed housing development.

During the twentieth century, the Project area transitioned from a largely wooded environment with pockets of cleared agricultural land to one that was predominantly wooded but with suburban housing evident throughout the area. An aerial photograph from 1934, the first year in which such images were available, shows the project area as mostly wooded, with one plot of open agricultural land within its bounds (Figure 6). It does not appear that there were any buildings within the project parcel; however, small freshwater streams and ponds were evident. This landscape continued until 1951 (Figure 7). A series of aerial photos taken in 1970 reveal the growth of suburban development in the area (Figure 8). To the north of the proposed housing development a road of single-family homes was present along Silas Deane Road. In addition, a building of unknown function was present within the Project parcel.

By 1990, increasing suburban growth had continued. A new neighborhood of single-family homes and associated infrastructure was evident directly to the west of the Project area (Figure 9). Further, a single-family home was built on the land between the eastern and western portions of the Project area, but not within the land outlined for the proposed development. The building first documented in the 1970 photography remained within the Project parcel, but no agricultural land remained. The photography from 2004 shows that the building within the Project area was no longer present (Figure

10). In addition, minimal clearing had taken place in the northwest portion of the Project area by 2004. Finally, a 2019 aerial image demonstrates few additional changes to the landscape, with the exception of three new houses to the east of the Project parcel (Figure 11).

Conclusions

The post-European contact period investigation indicates that the Project area has the potential to be associated with cultural resources. Because of nineteenth century use of the nearby land for sawmills and other riverine activity and the continued use of some land through the twentieth century, there is the possibility of encountering evidence of post-European contact industrial activities that may be important as a component of a rural landscape. In addition, the close proximity of the Pequot tribal land suggests the possibility of encountering cultural resources related to this settlement, including during the post-European contact period, particularly given that the Mashantucket Pequot Reservation in Ledyard is amongst the older continually occupied Indigenous sites in the eastern United States (McBride 2022).

CHAPTER V

PREVIOUS INVESTIGATIONS

Introduction

This chapter presents an overview of previous cultural resources research completed within the vicinity of the Project area. This discussion provides the comparative data necessary for assessing the results of the Phase IB survey, and it ensures that the potential impacts to all previously recorded cultural resources located within and adjacent to the work areas are taken into consideration. Specifically, this chapter reviews previously identified archaeological sites, National/State Register of Historic Places properties, and National/State Register Historic Districts situated within 0.8 kilometers (0.5 miles) of the Project area. The discussions presented below are based on information currently on file at the CT-SHPO in Hartford, Connecticut. In addition, the electronic site files maintained by Heritage were examined. 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.

Previous Investigations in the Vicinity of the Project Area in Ledyard, Connecticut

A review of files maintained by the CT-SHPO, as well as the electronic site files maintained by Heritage identified seven previously documented archaeological sites within 0.8 kilometers (0.5 mile) of the Project area (Figure 12). All but one (72-207) of these archaeological sites are located within the Mashantucket-Pequot Reservation. In addition, one State Register of Historic Places (SRHP) property was identified within 0.8 kilometers (0.5 mile) of the proposed Project area (Figure 13). These properties and districts are reviewed in Table 3 below and discussed further in the concluding paragraph of this chapter.

Table 3. Cultural resources within .81 kilometers (0.5 mile) of the Project Area

Site	Site Name	Site Type	Period
072-123	-	Post-European Contact	Unknown
072-164	-	Multi-component	Unknown
072-196	-	Multi-component	Unknown
072-197	-	Post-European Contact	1700-1800
072-207	Lot 875	Multi-component	Unknown
072-219	House Lot C	Multi-component	Unknown
072-228	-	Precontact	Unknown
-	Pequot Burial Ground	Precontact	17th Century

Site 72-123

Site 72-123 is characterized as a post-European contact period site that dates from an unknown time period; it is located in Ledyard, Connecticut (Figure 12). It was recorded by Public Archaeology Survey Team, Inc., (PAST) in 1986 during a walkover survey. The site was described as a rural agrarian complex with extensive stone walls and complex stonework. The site's integrity was listed on the state archaeological site form as undisturbed; however, Site 72-123 has not been assessed applying the qualities of significance as defined by the National Register of Historic Places criteria for evaluation (36 CFR 60.4 [a-d]). It is located approximately 275 meters (902 feet) to the east of the Project parcel and will not be impacted by construction.

Site 72-164

Site 72-164 is a multi-component archaeological site located in Ledyard, Connecticut (Figure 12). The site consists of a precontact era Native American component dating from an undetermined period and a post-European contact period component that dates from the eighteenth through nineteenth centuries. It was recorded by PAST in 1992 during a Phase I archaeological survey. Recovered artifacts include 1 flint flake, 1 creamware sherd, and 1 green bottle glass shard. The site's integrity was listed on the state archaeological site form as undisturbed. This site has not been assessed applying the qualities of significance as defined by the National Register of Historic Places criteria for evaluation (36 CFR 60.4 [a-d]). Site 72-164 is located approximately 350 meters (1148 feet) to the east of the Project parcel; it will not be impacted by construction.

Site 72-196

Site 72-196 is a multi-component site with components dating from unknown time periods that is located in Ledyard, Connecticut (Figure 12). It was recorded by PAST in 1993 during Phase I and II investigations. Recovered artifacts include unknown quantities of calcined bone, shell, kaolin, as well as quartz, quartzite, and flint debitage. The state site form listed that the site retained good integrity and was a possible early post-European contact period site. Site 72-196 has not been assessed applying the qualities of significance as defined by the National Register of Historic Places criteria for evaluation (36 CFR 60.4 [a-d]). It is located approximately 200 meters (656 feet) to the east of the Project parcel and no impacts to the site will occur as a result of the proposed construction.

Site 72-197

Site 72-197 is characterized as a post-European contact period site dating from the eighteenth through nineteenth centuries in Ledyard, Connecticut (Figure 12). It was recorded by PAST in 1993 during Phase I and II investigations. Recovered artifacts include an unspecified amount of creamware and pearlware sherds, glass shards, and shell fragments. Site 72-197 is listed as retaining good integrity; however, it has not been assessed applying the qualities of significance as defined by the National Register of Historic Places criteria for evaluation (36 CFR 60.4 [a-d]). The site is located approximately 300 meters (985 feet) to the northeast of the Project parcel; it will not be impacted by the proposed housing development.

Site 72-207

Site 72-207, which is also known as Lot 875, is a multi-component site dating from an unknown time period located in Ledyard, Connecticut (Figure 12). It was recorded by PAST in 1995 and 1997 during Phase I investigations. Recovered artifacts from the surveys include an unknown amount of green bottle glass shards, refined earthenware sherds, kaolin fragments, as well as one argillite, three quartz, and two quartzite flakes. Site 72-207 has not been assessed applying the qualities of significance as defined by the National Register of Historic Places criteria for evaluation (36 CFR 60.4 [a-d]). The site is located approximately 525 meters (0.33 miles) to the north of the Project parcel and will not be impacted by the proposed housing development.

Site 72-219

Site 72-219, which is also known as House Lot C, is located in Ledyard, Connecticut (Figure 12). It is characterized as a multi-component site from an unknown time period. It was recorded by the Mashantucket Pequot Museum and Research Center in 2000. The site was listed as destroyed on the site form although one iron nail was recovered. The site was not assessed applying the qualities of significance as defined by the National Register of Historic Places criteria for evaluation (36 CFR 60.4 [a-d]). Site 72-219 was located 175 meters (574 feet) to the east of the project area.

Site 72-228

Site 72-196 is a precontact era Native American site of undetermined function that is located in Ledyard, Connecticut (Figure 12). It was tested and recorded in 2003 by the Mashantucket Pequot Museum and Research Center. Recovered artifacts included an unspecified amount of quartz and quartzite debitage, as well as a quartzite chopper. The state archaeological site form lists the site as retaining good integrity; however, it has not been assessed applying the qualities of significance as defined by the National Register of Historic Places criteria for evaluation (36 CFR 60.4 [a-d]). Site 72-228 is located approximately 275 meters (902 feet) east of the Project parcel and no impacts to the site will occur as a result of the proposed housing development.

Pequot Burial Ground

The Pequot Burial Ground is located in Ledyard, Connecticut (Figure 13). It is a Connecticut State Register property dating from ca., seventeenth century. It encompasses approximately 200 acres of land that was purchased from the Silas Deane Homestead. The property is the largest known Pequot Burial Ground, with extant gravestones, including that of a past sachem. The burial ground was listed on the Connecticut State Register of Historic Places and Historic American Buildings Survey in 1968. It is located approximately 475 meters (0.3 miles) to the north of the Project parcel. No impacts to the Pequot Burial Ground will occur as a result of the proposed housing development.

CHAPTER VI

METHODS

Introduction

This chapter describes the research design and field methods used to complete the Phase IB cultural survey of the Project area in Ledyard, Connecticut. In addition, the location and point-of-contact for the facility at which all cultural material, drawings, maps, photographs, and field notes generated during survey will be curated is provided below.

Research Design

The current Phase IB cultural resources reconnaissance survey was designed to identify all precontact era and post-European contact period cultural resources located within the previously identified moderate/high sensitivity areas associated with the Project. Fieldwork for the Phase IB survey was comprehensive and planning considered the distribution of previously recorded archaeological sites located near the development area, as well as an assessment of the natural qualities of the Project parcel. The methods used to complete this investigation were designed to provide complete and thorough coverage of all portions of the development area. This undertaking entailed pedestrian survey, systematic subsurface testing, detailed mapping, and photo-documentation.

Field Methods

Following the completion of all background research, the development area was subjected to a Phase IB cultural resources reconnaissance survey utilizing pedestrian survey, photo-documentation, GPS recordation, and systematic shovel testing. The field strategy was designed such that the entirety of the moderate/high sensitivity areas) was examined visually and photographed. The pedestrian survey portion of this investigation included visual reconnaissance of the development area. The subsurface examination was completed through the excavation of shovel tests at 15 meter (49.2 foot) intervals along survey transects positioned 15 meters (49.2 feet) apart. Each shovel test measured 50 x 50 centimeter (19.7 x 19.7 inch) in size, and each was excavated until glacially derived C-Horizon or immovable object (e.g., boulders, large tree roots) were encountered. 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. All shovel test fill was screened through 0.64 centimeter (0.25 inch) hardware cloth. Soil characteristics were recorded in the field using Munsell Soil Color Charts and standard soils nomenclature. Each shovel test was backfilled after it was fully documented.

Curation

Following the completion and acceptance of the Final Report of Investigations, all cultural material, drawings, maps, photographs, 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 & MANAGEMENT RECOMMENDATIONS

Introduction

As described above, the goals of the Phase IB investigation included completion of the following tasks: 1) preparation of a contextual overview of the regions' precontact era, post-European contact period, and natural settings (e.g., soils, ecology, hydrology, etc.); 2) a literature search to identify and discuss previously recorded cultural resources in the region encompassing the Project area; 3) a review of readily available maps and aerial imagery depicting the Project and the archaeologically sensitive area; 4) pedestrian survey and photo-documentation of the archaeologically sensitive areas; and 5) subsurface examination of the archaeologically sensitive areas for evidence of intact cultural deposits. The results of the investigation are presented below.

Results of Phase IB Cultural Resources Reconnaissance Survey

As stated earlier in this report, the proposed Project includes a housing development that will encompass approximately 16.2 acres of land along Silas Deane Road and Seabury Avenue in Ledyard, Connecticut. The Project area contains elevations ranging from 97.5 to 115.2 meters (320 to 378 feet) NGVD. At the time of the survey, the area was characterized by forested land with sloping topography (Photos 1 through 5). A previously conducted Phase IA cultural assessment survey determined that the Project area retained moderate/high archeological sensitivity. The results of the Phase IB survey are discussed below.

A total of 234 of 241 (97 percent) of planned shovel tests were excavated throughout the previously identified moderate/high sensitivity areas (Figure 14). The seven (3 percent) planned but unexcavated shovel tests fell into areas defined by previous disturbance. An additional 15 delineation test pits and four judgmental test pits were excavated to further explore identified precontact era Native American cultural deposits. A single JTP (JTP 1) was also placed within the boundaries of a possible livestock pen to determine if cultural material was present (Photos 6 through 9). Shovel Test 2, Transect 2 exemplifies the stratigraphy seen in a typical STP (Figure 20). The uppermost soil horizon was characterized by an Ap-Horizon (plowzone) that extended from the ground surface to 21 cmbs (0 to 8.3 inbs); it consisted of a layer of dark brown (10YR 3/3) sandy loam. The underlying B1-Horizon (upper subsoil) reached from 21 to 47 cmbs (8.3 to 18.5 inbs) and was defined by a deposit of dark yellow brown (10YR 4/6) sandy silt. It was underlaid by a B2-Horizon (lower subsoil) that was described as a layer of yellow brown (10YR 5/6) silty sand that extended from 47 to 62 cmbs (18.5 to 24.4 inbs). The glacially derived C-Horizon was not reached in an average STP due to rock and root impasses that were present across the Project area.

The Phase IB shovel testing results in the recovery of three artifacts dating from the post-European contact period. The post-European contact material culture was recovered from three separate shovel tests. The recovered cultural material consisted of three ceramic sherds, including 1 plain whiteware body sherd, 1 pearlware hand-painted rim sherd, and 1 Chinese export porcelain hand-painted body sherd (Photo 10). The post-European contact period artifacts were exclusively recovered from plowzone (Ap-Horizon) soils. Figure 14 shows that they were collected from various locations across the Project area and were not recovered in significant concentrations or in association with any above or below ground cultural features such as foundation, privies, etc. In addition, despite careful excavation, the JTP placed within the possible animal pen did not produce any cultural material. As a result, the post-

European Contact period materials were classified as unassociated low density field scatter. These items in and of themselves do not retain research potential or the qualities of significance for listing to the National Register of Historic Places applying the criteria for evaluation (36 CFR 60.4[a-d]). No additional examination of the post-European contact period assemblage is recommended prior to Project construction.

In addition, the Phase IB subsurface examination resulted in the identification of three precontact era Native American loci (Locus 1, 2, and 3) and a single isolated find (ISO-1) across the Project area (Figure 14). As seen in Table 5 below, the recovered Native American artifacts included examples of quartz lithic debitage, debitage tools, and flaked tools. ISO-1 and the Loci 1 through 3 are discussed in detail below.

Table 5. Precontact Era Native American Artifacts

Locus	Soil Horizon	Artifact Class	Material	Description	Total
Locus 1	Ap	Debitage	Quartz	Primary Reduction Flake	5
				Flake	2
	B	Debitage	Quartz	Primary Reduction Flake	1
	Locus 1 Total				8
Locus 2	Ap	Debitage	Quartz	Flake	1
				Primary Reduction Flake	1
	B1	Debitage	Quartz	Flake	3
				Primary Reduction Debris	1
				Biface Reduction Flake	1
				Primary Reduction Flake	14
		Debitage Tool	Quartz	Utilized Flake	1
		Flaked Tool	Quartz	Uniface	1
	Locus 2 Total				23
Locus 3	B1	Debitage	Quartz	Primary Reduction Flake	1
	B2	Flaked Tool	Quartz	Biface	1
	Locus 3 Total				2
ISO-1	Ap	Flaked Tool	Quartz	Untyped Projectile Point	1
	ISO 1 Total				1
Total					34

Isolated Find 1 (ISO-1)

ISO-1 was identified within the northern portion of the Project area (Figures 14 and 15). At the time of this survey, this area was wooded with slightly sloping topography. ISO-1 was identified within Shovel Test 12 along Survey Transect 7. This shovel test was excavated to 45 cmbs (17.7 inbs) and exhibited two soil horizons in profile, which was consistent with the typical stratigraphy observed throughout the Project area. The excavation of Shovel Test 12 along Survey Transect 7 resulted in the recovery of a single, untyped quartz projectile point fragment collected from the Ap-Horizon (Photos 18 and 19). As a result, three delineation test pits were excavated at 7.5 meter (24.6 foot) intervals in a south, west, and east direction of the initial test pit. A northern delineation was not excavated because it fell outside the Project boundaries. Despite careful excavation, no additional cultural material or evidence of cultural features was recovered from this area. Therefore, the single, temporally non-diagnostic, artifact was classified as an isolated find spot and was determined to lack research potential. It is not eligible for listing on the National Register of Historic Places applying the criteria for evaluation (36 CFR 60.4[a-d]). No additional archaeological examination of the ISO-1 area is recommended prior to the construction of the proposed housing development Project.

Locus 1

Locus 1 was identified within the northwestern portion of the Project area (Figures 14 and 15). At the time of the survey, this area was wooded with slightly sloping topography. Locus 1 was first identified within Shovel Test 6 along Survey Transect 6. This shovel test extended to a depth of 56 cmbs (22 inbs) and exhibited two soil horizons in profile. The stratigraphy observed within Shovel Test 6 along Survey Transect 6 was consistent with a typical shovel test from the Project area. The archaeological examination of Locus 1 was accomplished through the excavation of the original survey shovel test and four delineation shovel tests, which were excavated at 7.5 meter (24.6 foot) intervals in all cardinal directions from Shovel Test 6 along Survey Transect 6. Delineation D1-W was the only delineation shovel test that yielded additional cultural material. Phase IB survey and delineation of the Locus 1 area resulted in the collection of eight lithic artifacts (Table 5). One quartz biface reduction flake was recovered from the B-Horizon in Shovel Test 6, Transect 6. In addition, Delineation Test D1-W yielded in 5 quartz primary reduction flakes and 2 quartz flakes from the Ap-Horizon (Photos 20 and 21).

The quartz flakes located in Locus 1 suggests that the precontact era occupation of this area included tool reduction activities from locally sourced materials. However, a majority (n=7) of the lithic artifacts recovered were in a previously disturbed Ap-Horizon. In addition, no dense artifact deposits and/or associated cultural features were identified during the survey. This suggests that Locus 1 is an ephemeral precontact era deposit. It lacks research potential and qualities of significance for listing on the National Register of Historic Places applying the criteria of evaluation (36 CFR 60.4 [a-d]). No additional archaeological investigation of Locus 1 is recommended prior to Project construction.

Locus 2

Locus 2 was identified within the northeastern portion of the Project area (Figures 14, 17, and 19). At the time of the survey, this area was wooded with slightly sloping topography. Locus 2 was first identified within Shovel Test 16 along Survey Transect 6, which extended to a depth of 62 cmbs (24.4 inbs) and exhibited three soil horizons in profile. The archaeological examination of Locus 2 was accomplished through the excavation of the original survey shovel test and two sets of four delineation shovel tests that were excavated at 1.5 meter (4.9 foot) and 7.5-meter (24.6 foot) intervals, respectively, in each cardinal direction from the initial shovel test. Phase IB Survey and delineation of the Locus 2 area resulted in the collection of 23 lithic artifacts from Shovel Test 16 along Survey Transect 6, JTP 3, and JTP 4 (Table 5; Photos 22 and 23). The cultural material recovered from Shovel Test 16, Survey Transect 6 included 3 quartz flakes, 1 quartz primary reduction debris, 14 quartz primary reduction flakes, 1 quartz uniface, and 1 quartz utilized flake. All artifacts recovered from Shovel Test 16, Transect 6 originated from the B1-Horizon. The two artifacts excavated from JTP 3 included 1 quartz flake, which was recovered from the Ap-Horizon, and 1 quartz biface reduction flake, which was found in the B1 Horizon. Finally, a single quartz primary reduction flake was found in JTP 4. It was recovered from the Ap-Horizon.

Locus 2 appears to represent a discrete, isolated knapping event using locally sourced quartz. The archaeological deposits within Locus 2 appear to be intact, as evidenced by the recovery of artifacts from intact B-Horizon subsoils; however, the deposit does not contain any functionally diagnostic tools or cultural feature. Delineation of Locus 2 resulted in the identification the boundaries of the precontact occupation, confirming that it is isolated to a small ca., 5 meter area. Due to its small size and lack of temporally diagnostic artifacts, Locus 2 lacks research potential and the qualities of significance for listing on the National Register of Historic Places applying the criteria of evaluation (36 CFR 60.4 [a-d]). No additional archaeological investigation of Locus 2 is recommended prior to Project construction.

Locus 3

Locus 3 was identified within the southwestern portion of the Project area (Figures 14 and 16). At the time of this survey, this area was wooded with slightly sloping topography. Locus 3 was first identified within Shovel Test 2 along Survey Transect 13. The stratigraphy observed within Shovel Test 2 along Survey Transect 13 varied slightly from the typical shovel test pit from the area discussed above (Figure 21). This shovel test exhibited five soil horizons in profile. The first soil horizon was an Ao (duff) that extended 0 to 5 cmbs (0 to 2 inbs). The following soil horizon was an Ap-Horizon that extended from 5 to 21 cmbs (2 to 8.3 inbs); it was characterized by a layer of dark brown (10YR 3/3) sandy loam. A B1-Horizon underlaid the Ap-Horizon and it was described as a layer of dark yellowish brown (10YR 4/6) sandy silt that extended from 21 to 43 cmbs (8.3 to 16.9 inbs). A B2-Horizon followed; it ranged from 43 to 67 cmbs (16.9 to 26.4 inbs) was defined by a deposit of yellowish brown (10YR 5/6) silty sand. Finally, the glacially-derived C-Horizon extended from 67 cmbs to 80 cmbs (26.3 to 31.5 inbs), and it was classified as a layer of light olive brown (2.5YR 5/4) fine to medium sand. The archaeological examination of Locus 2 was accomplished through the excavation of the original survey shovel test and four delineation shovel tests, which were excavated at 7.5 meter (24.6 foot) intervals in each cardinal direction of the initial artifact bearing shovel test.

Phase IB Survey and delineation of the Locus 3 area resulted in the collection of a quartz biface and 1 quartz primary reduction flake (Table 5; Photos 24 and 25), which originated from a B1-Horizon and B2-horizon, respectively. This suggests that the precontact era occupation of this area has not been impacted by plowing and any other later forces. However, delineation testing did not result in the identification of any additional cultural materials, suggesting Locus 3 contains an ephemeral deposit. It lacks research potential and qualities of significance for listing on the National Register of Historic Places applying the criteria of evaluation (36 CFR 60.4 [a-d]). No additional archaeological investigation of Locus 2 is recommended prior to Project construction.

Finally, 18 dry-laid stacked stonewalls were also identified during the Phase IA and Phase IB surveys (Photos 11 through 17). The stonewalls were designated as SW-1 through SW-18 (Figure 14; Table 4). They were located in the northwestern, northern, and southern portions of the Project area (Figure 14). Collectively they total approximately 917.9 meters (3,011.5 feet) in length (Table 4). They range from 3.8 meters (12.5 feet) in length to 203.7 meters (668.3 feet) in length. Review of aerial images reveal that the walls have been present and visible since at least 1934 (Figure 6). As seen in Table 4 and Figure 14, Stonewalls 1, 7, and 13 fall partially outside the proposed Project area. These will be preserved in place. It is recommended that the walls be avoided to the extent practicable and demarcated with high visibility fencing so that contractors do not inadvertently impact them during construction.

Table 4. Identified Stonewalls throughout the Project Area

Stonewall	Length	Inside Project Area
Stonewall 1	203.7 m (668.3 ft)	Partially
Stonewall 2	3.8 m (12.5 ft)	Yes
Stonewall 3	50.9 m (167.0 ft)	Yes
Stonewall 4	65.8 m (215.7 ft)	Yes
Stonewall 5	62.3 m (204.4 ft)	Yes
Stonewall 6	76.3 m (250.3 ft)	Yes
Stonewall 7	103.9 m (340.9 ft)	Partially
Stonewall 8	54.9 m (180.1 ft)	Yes
Stonewall 9	144.9 m (475.4 ft)	Yes
Stonewall 10	21.8 m (71.5 ft)	Yes
Stonewall 11	53.8 m (176.5 ft)	Yes
Stonewall 12	61.7 m (202.4 ft)	Yes

Stonewall	Length	Inside Project Area
Stonewall 13	5.2 m (17.1 ft)	Partially
Stonewall 14	2.7 m (8.9 ft)	No
Stonewall 15	6.2 m (20.3 ft)	Partially
Stonewall 16	43.4 m (142.4 ft)	Yes
Stonewall 17	32.9 m (107.9 ft)	Yes
Stonewall 18	89.7 m (294.3 ft)	Yes

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APPENDIX A

FIGURES

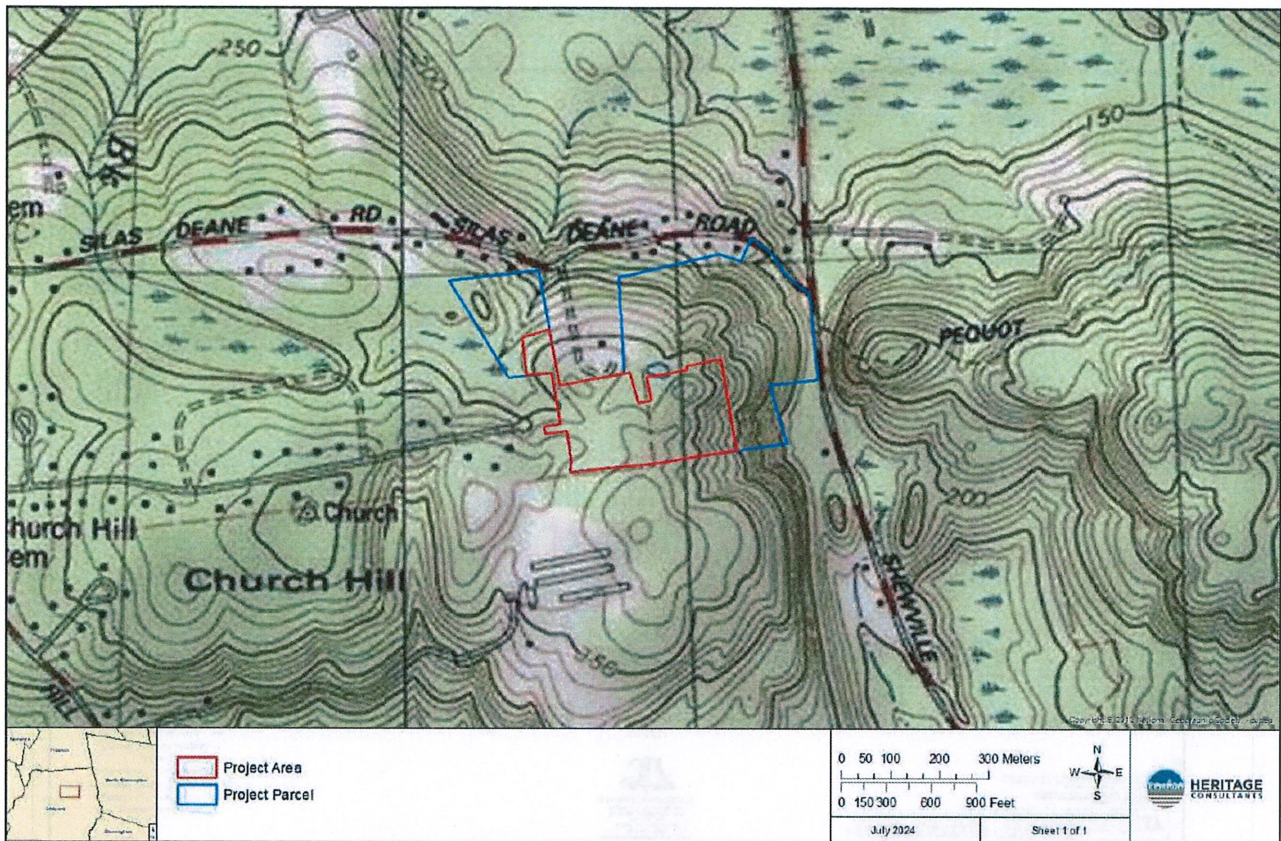


Figure 1. Excerpt from a USGS 7.5' series topographic quadrangle image showing the location of the Project area in Ledyard, Connecticut.

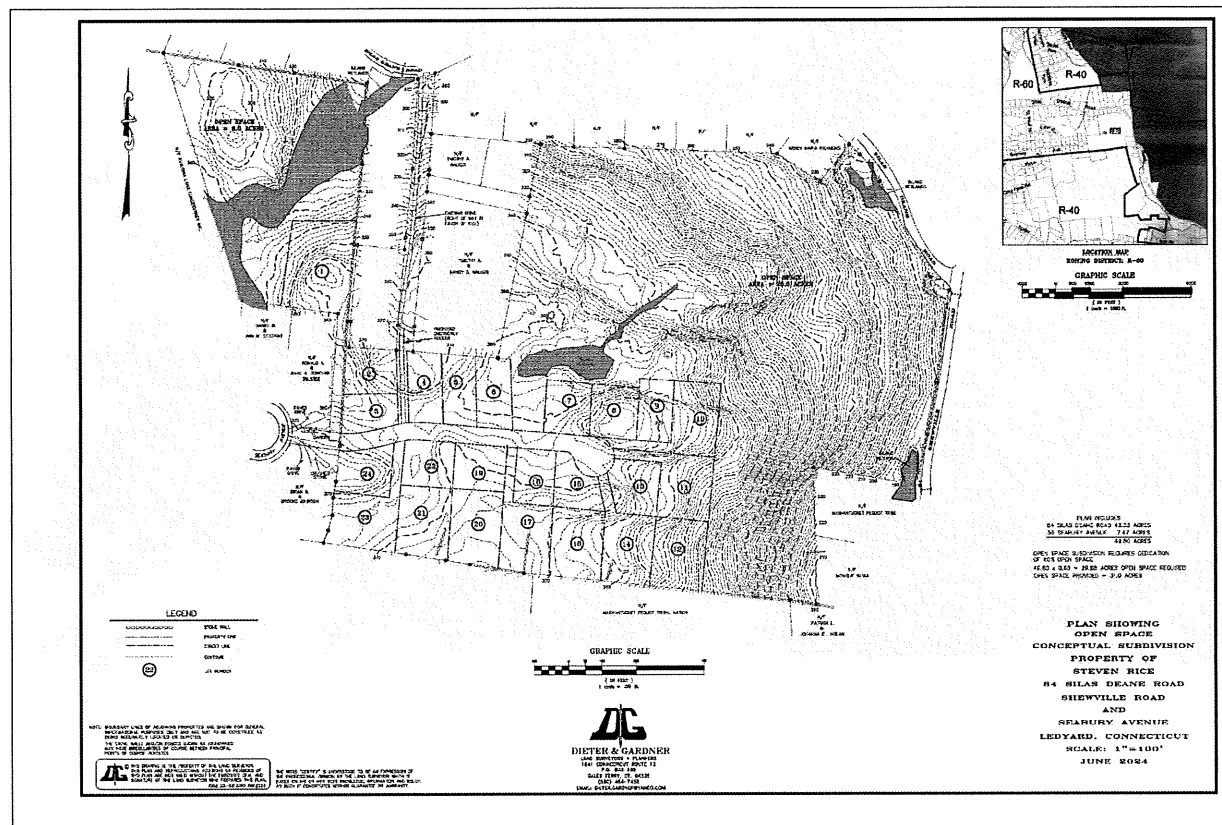
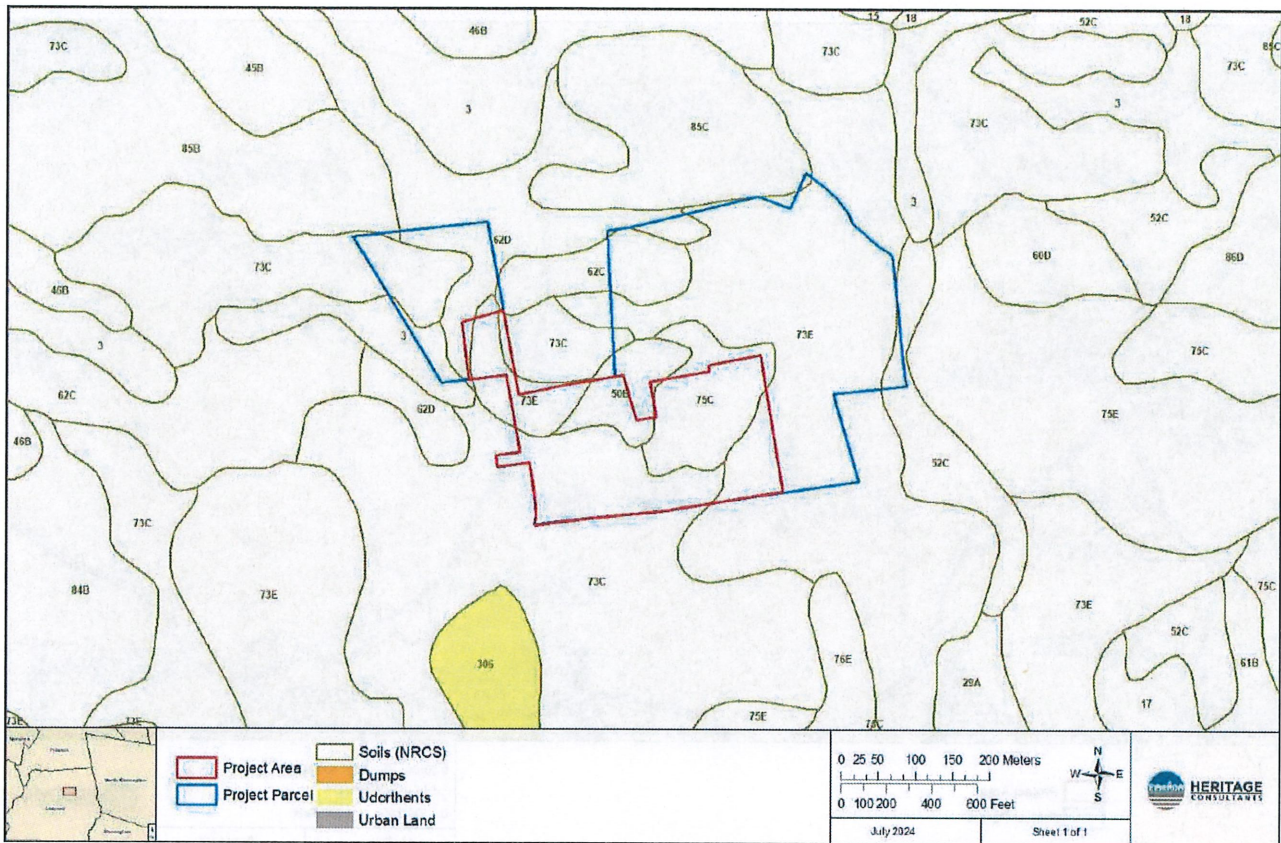


Figure 2. Client provided mapping of Project in area in Ledyard, Connecticut.



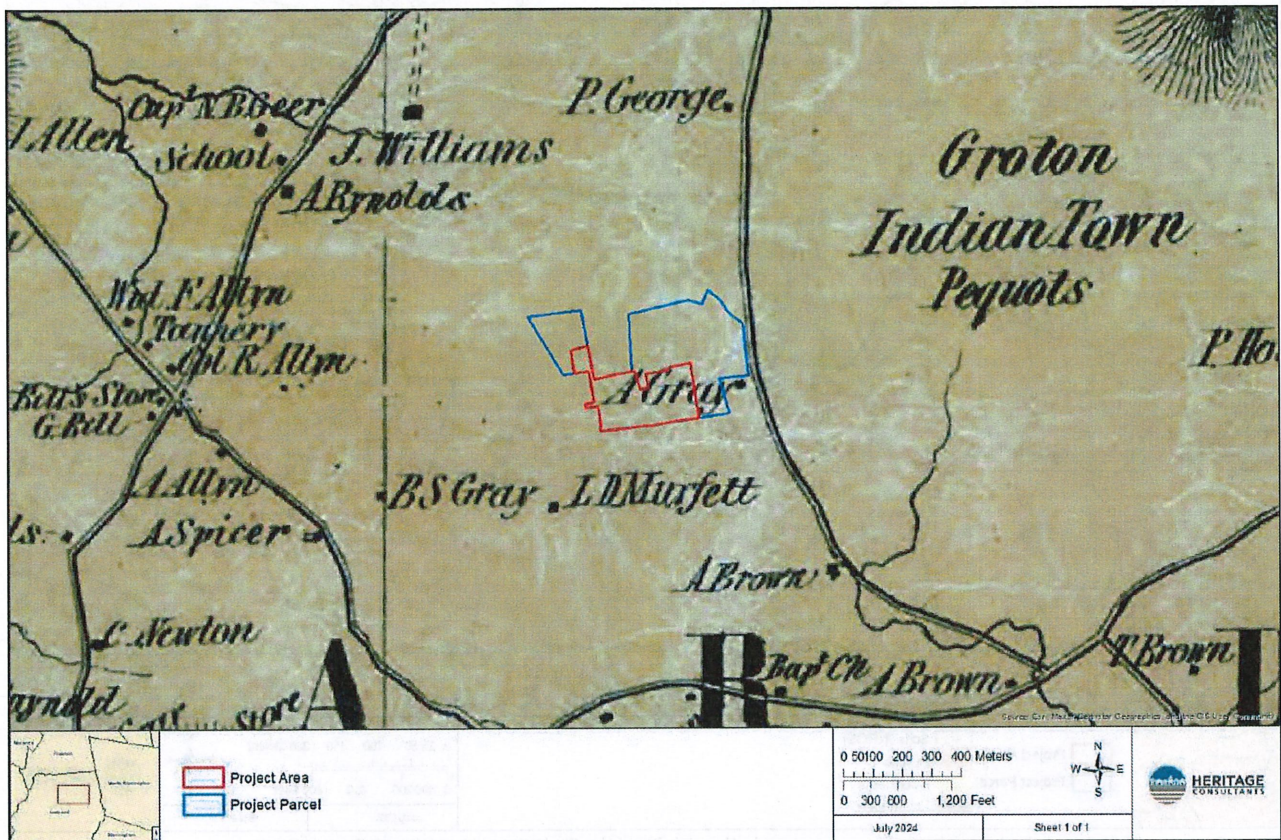
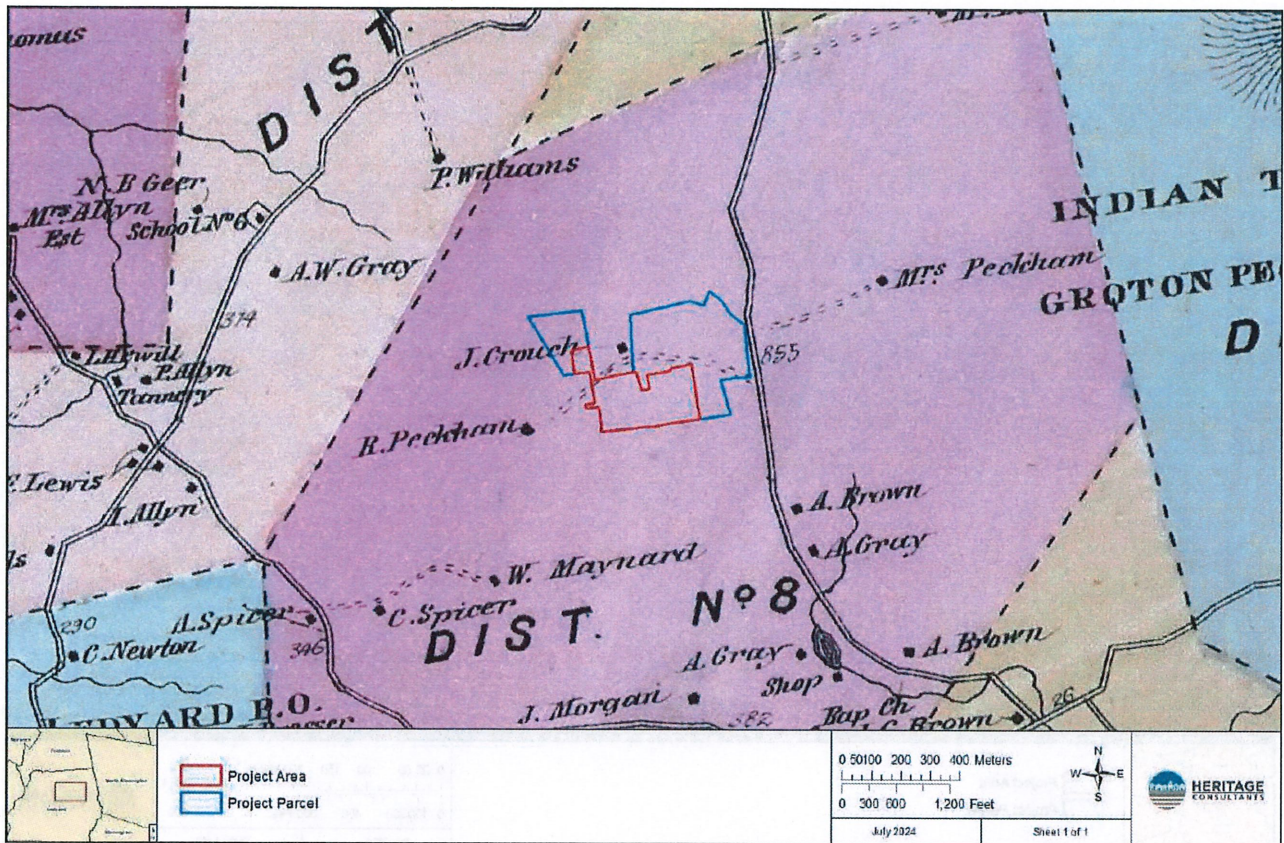


Figure 4. Excerpt from an 1854 Historic map depicting the proposed project area in Ledyard, Connecticut.



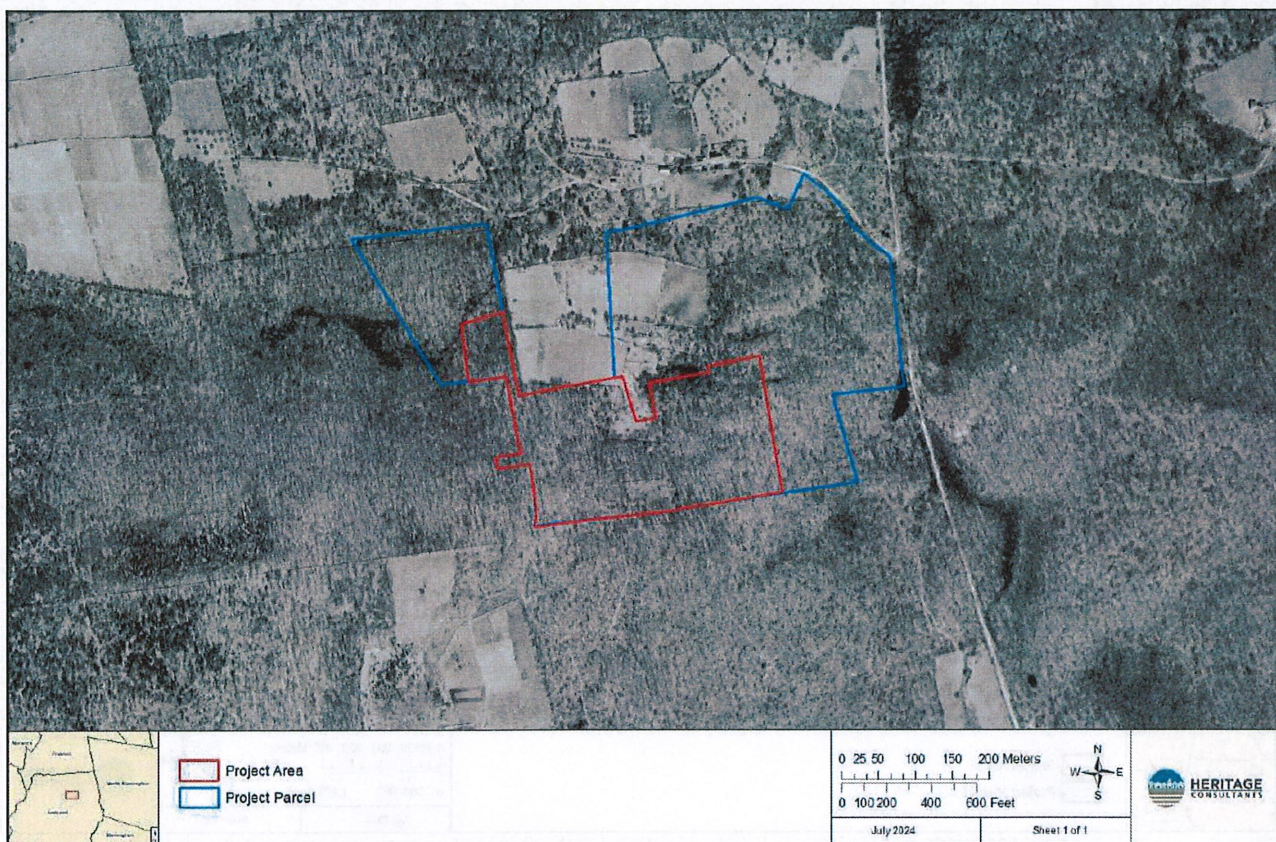


Figure 6. Excerpt from a 1934 aerial image depicting the location of the proposed project area in Ledyard, Connecticut.

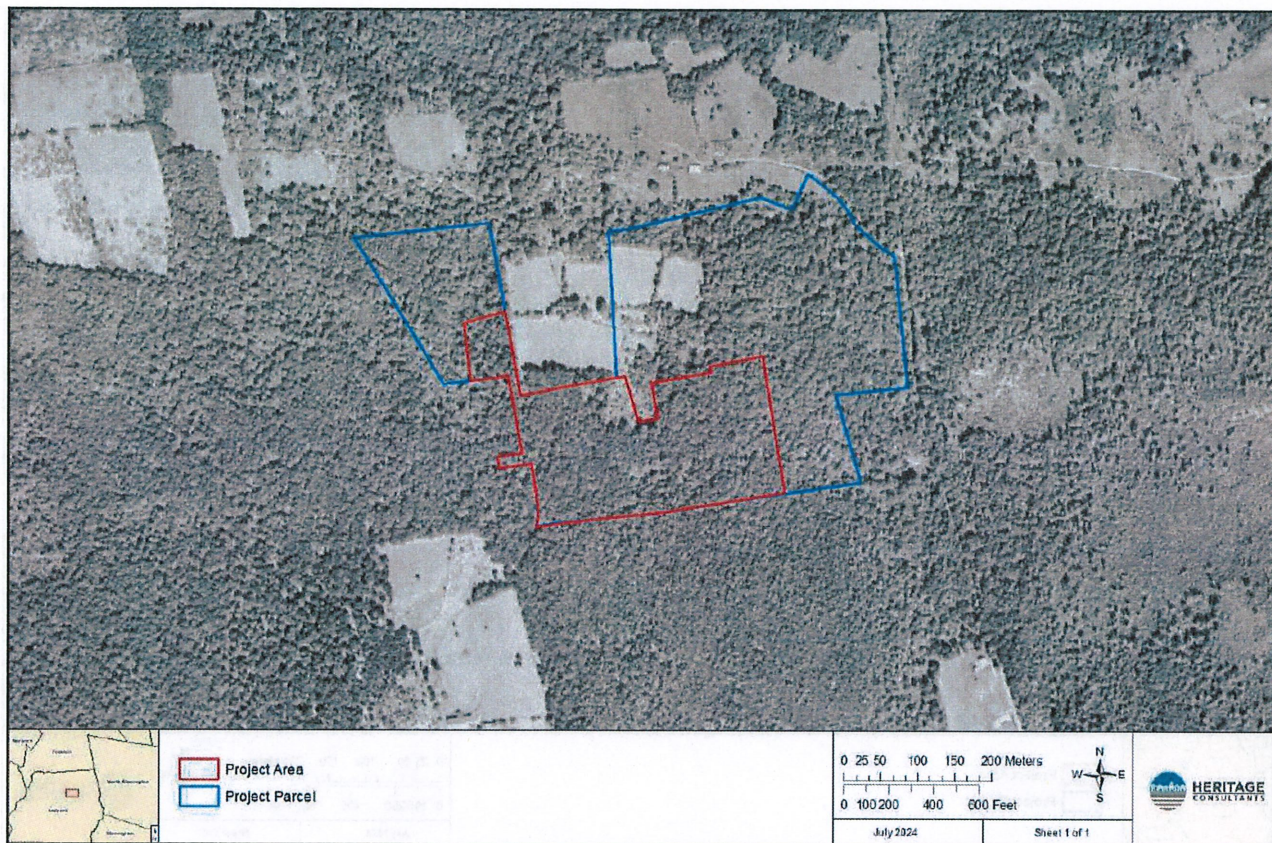


Figure 7. Excerpt from a 1951 aerial image depicting the location of the proposed project area in Ledyard, Connecticut.

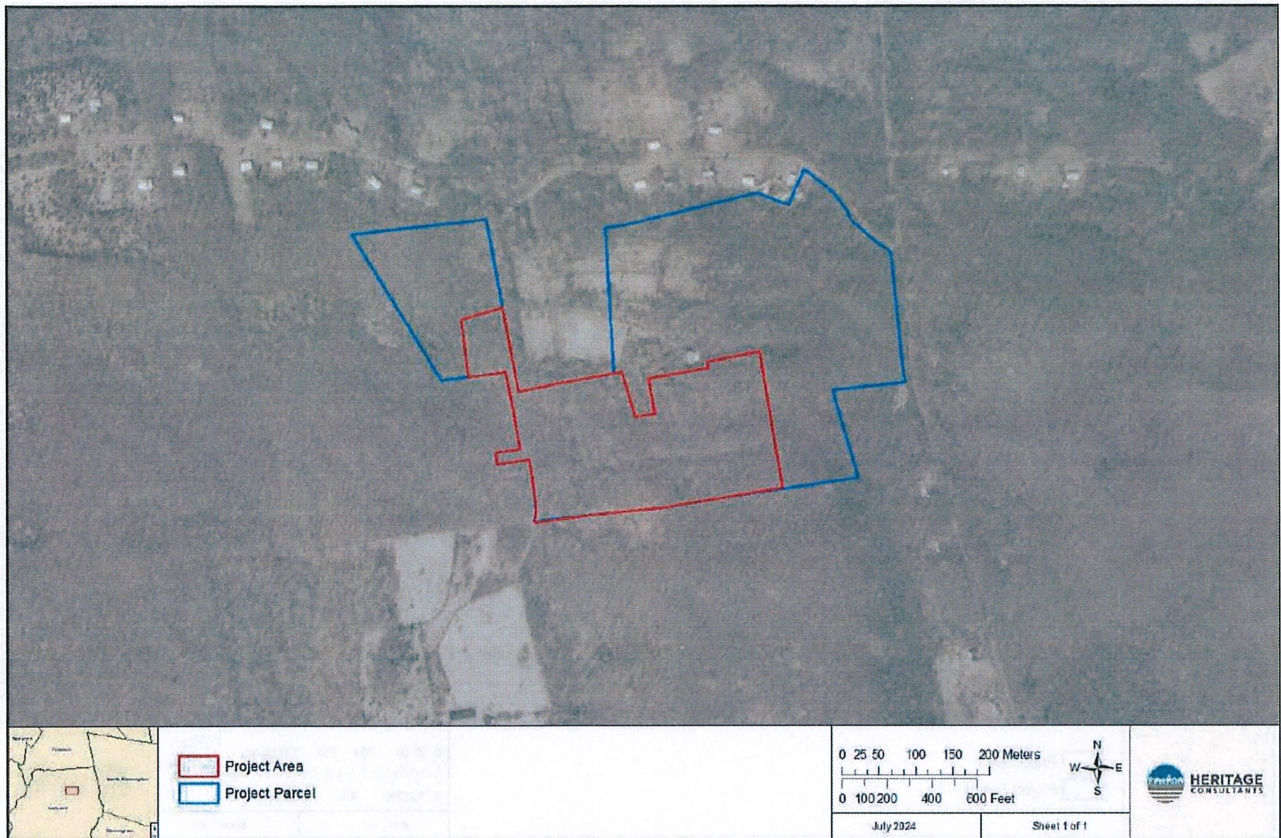


Figure 8. Excerpt from a 1970 aerial image depicting the location of the proposed project area in Ledyard, Connecticut.

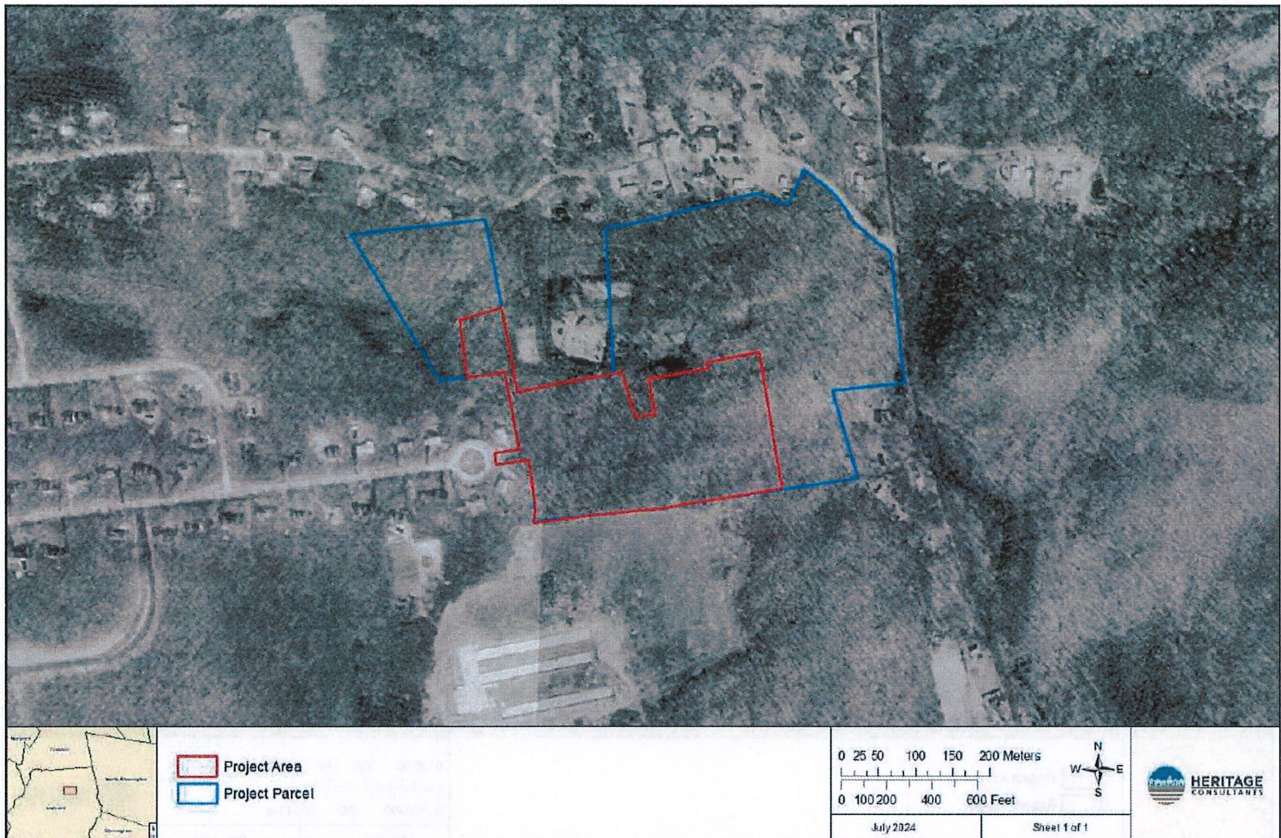


Figure 9. Excerpt from a 1990 aerial image depicting the proposed project area in Ledyard, Connecticut.

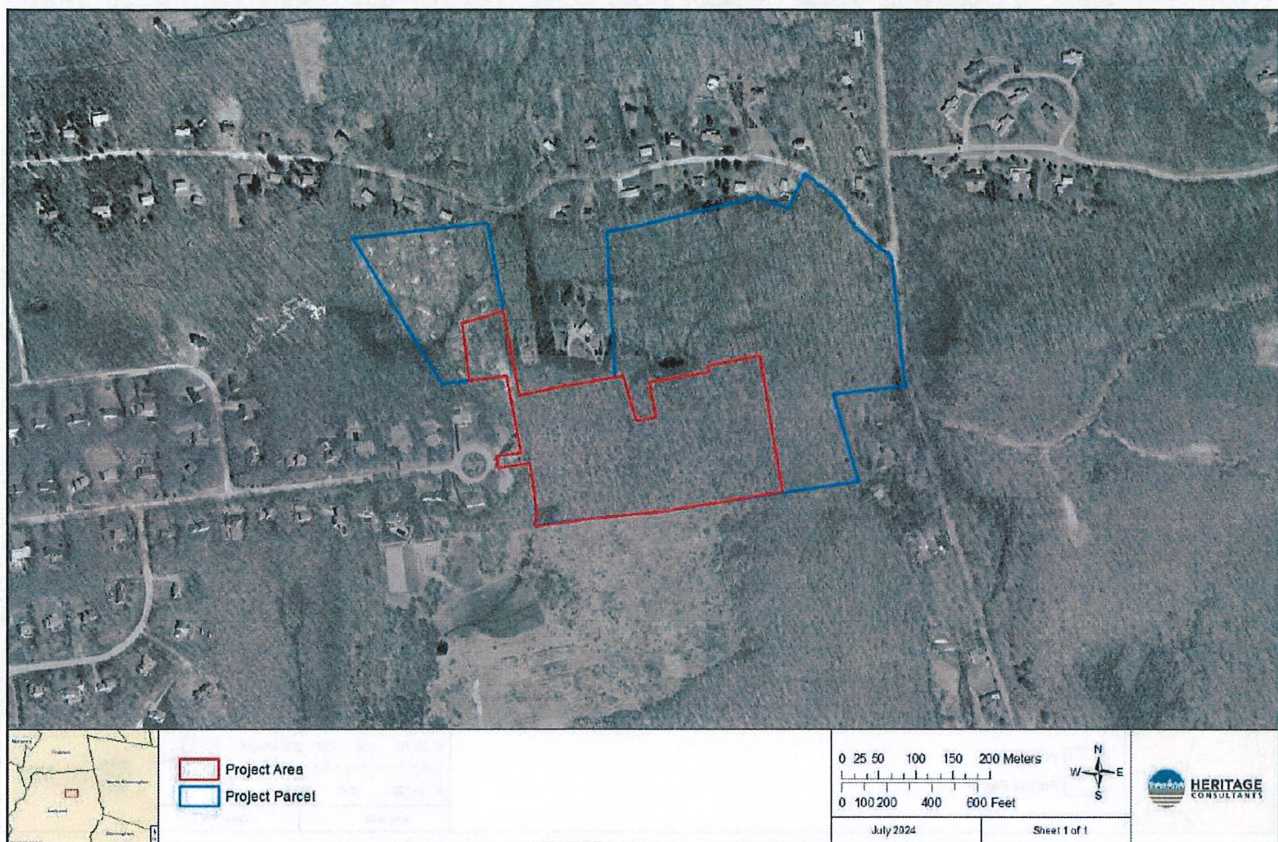


Figure 10. Excerpt from a 2004 aerial image depicting the proposed project area in Ledyard, Connecticut.

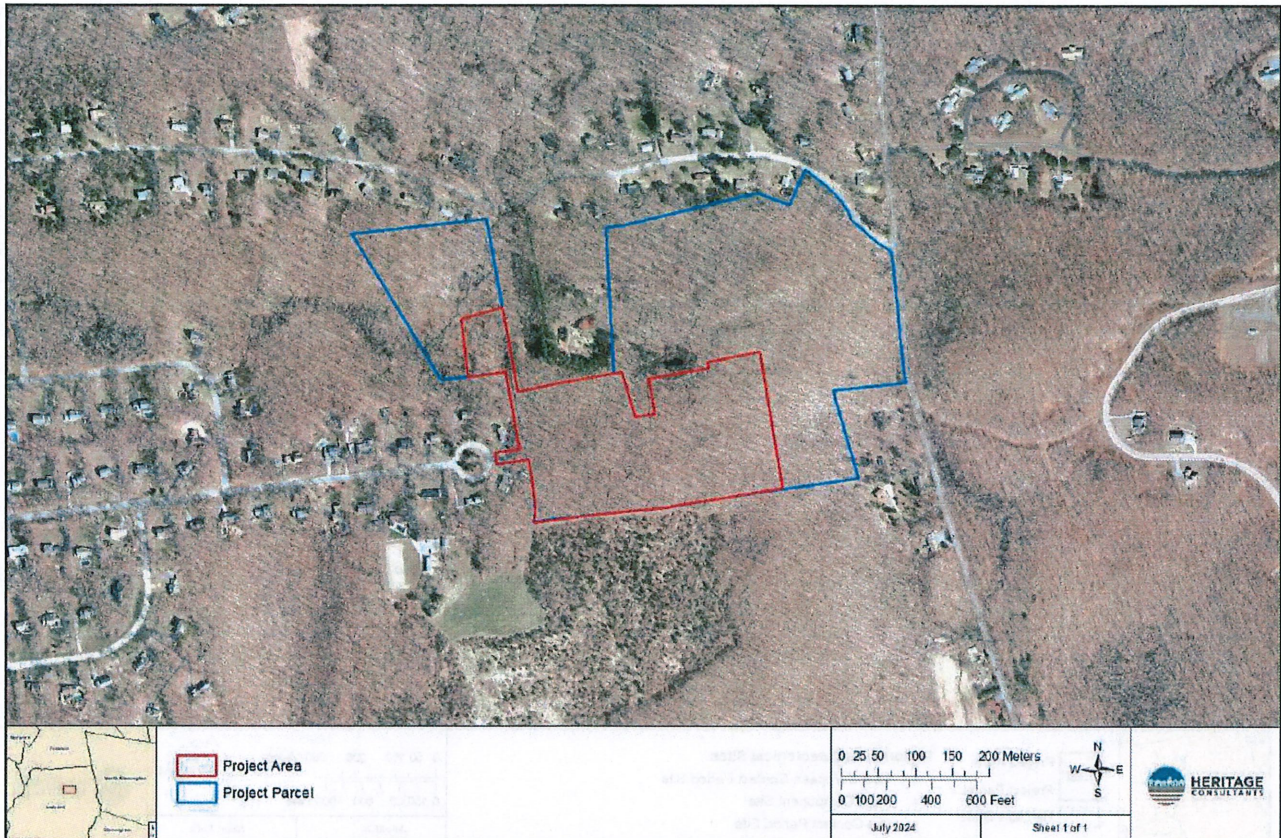


Figure 11. Excerpt from a 2019 aerial image depicting the proposed project area in Ledyard, Connecticut.

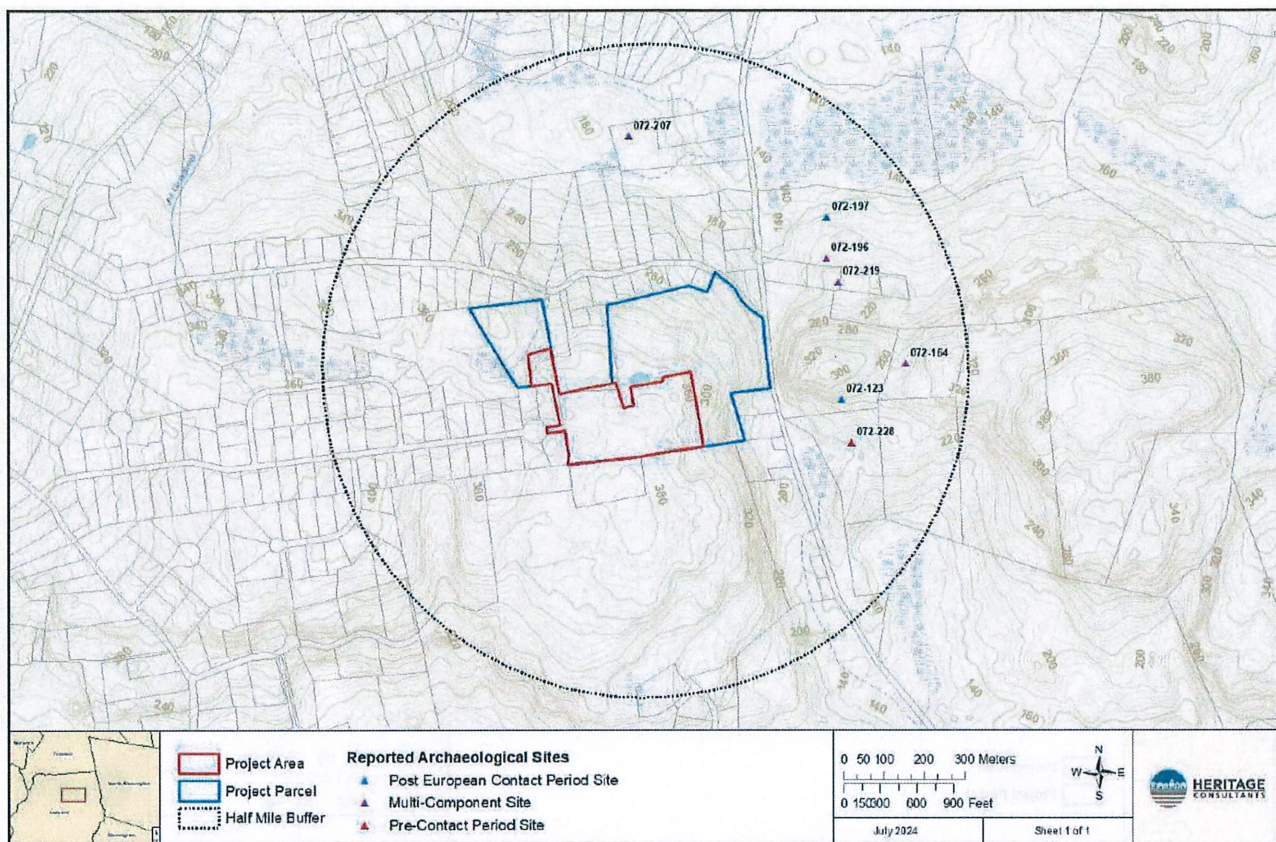


Figure 12. Digital map depicting the locations of previously identified archaeological sites properties in the vicinity of the proposed project area in Ledyard, Connecticut.

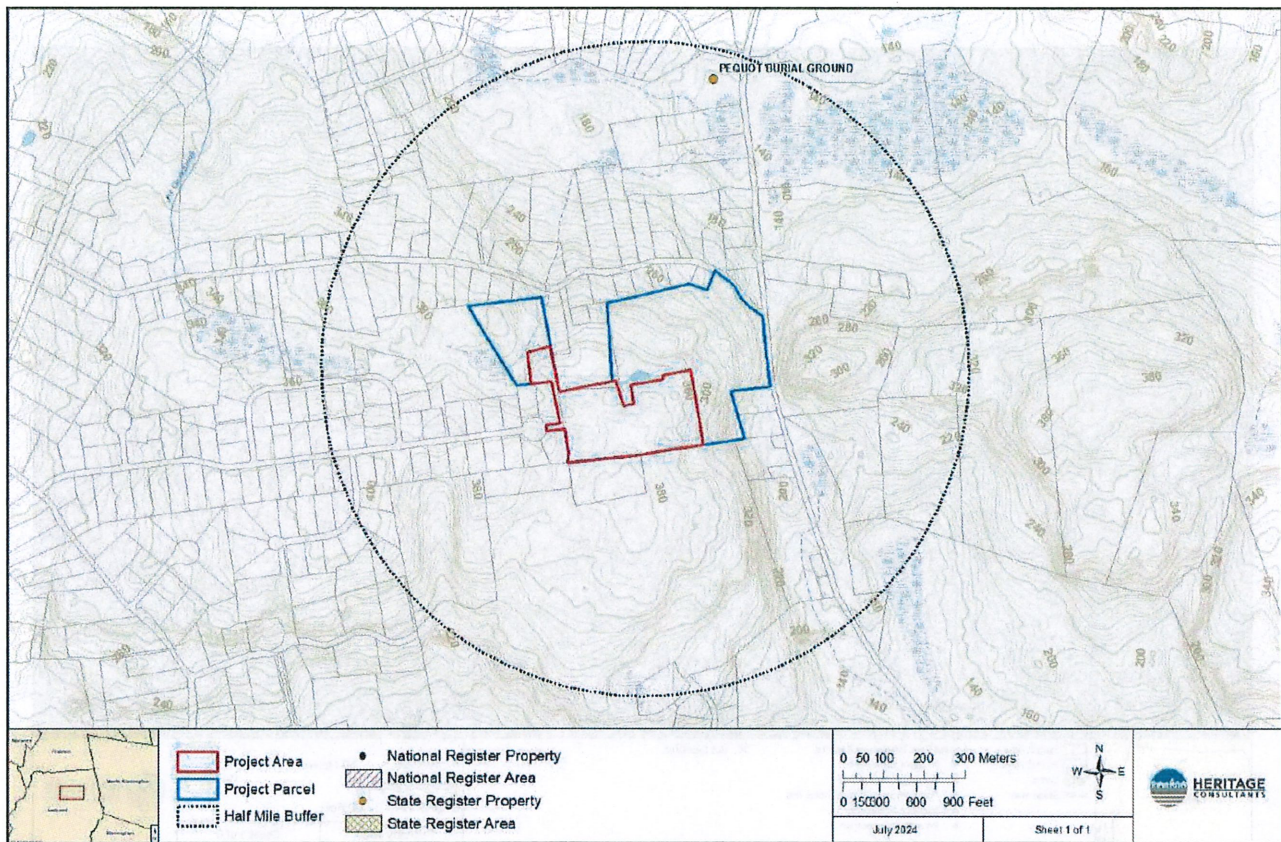


Figure 13. Digital map depicting the locations of the previously identified National Register of Historic Places and State Register of Historic Places properties in the vicinity of the project parcel in Ledyard, Connecticut.

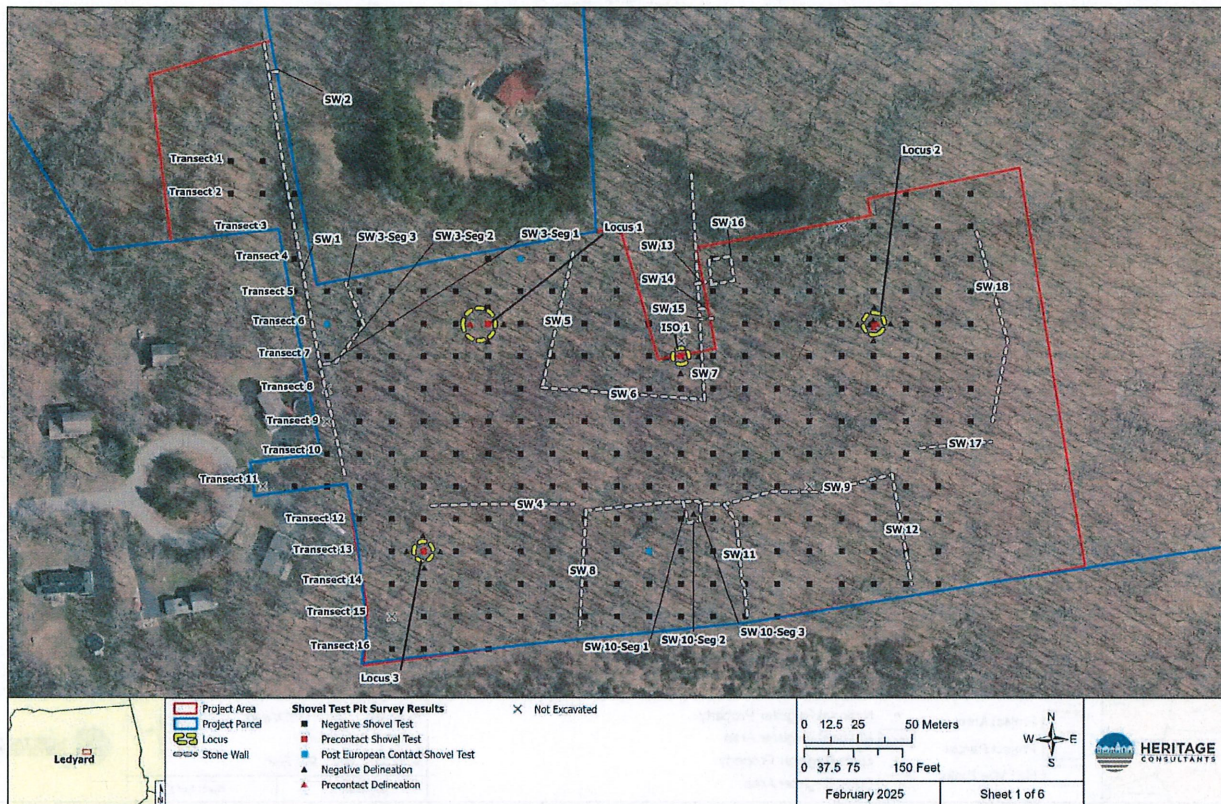


Figure 14. Excerpt from a 2019 aerial image showing the results of the Ph IB survey of the APE in Ledyard, Connecticut.



Figure 15. Excerpt from a 2019 aerial image showing the results of Locus 1 and ISO-1 from the Ph IB survey of the APE in Ledyard, Connecticut.

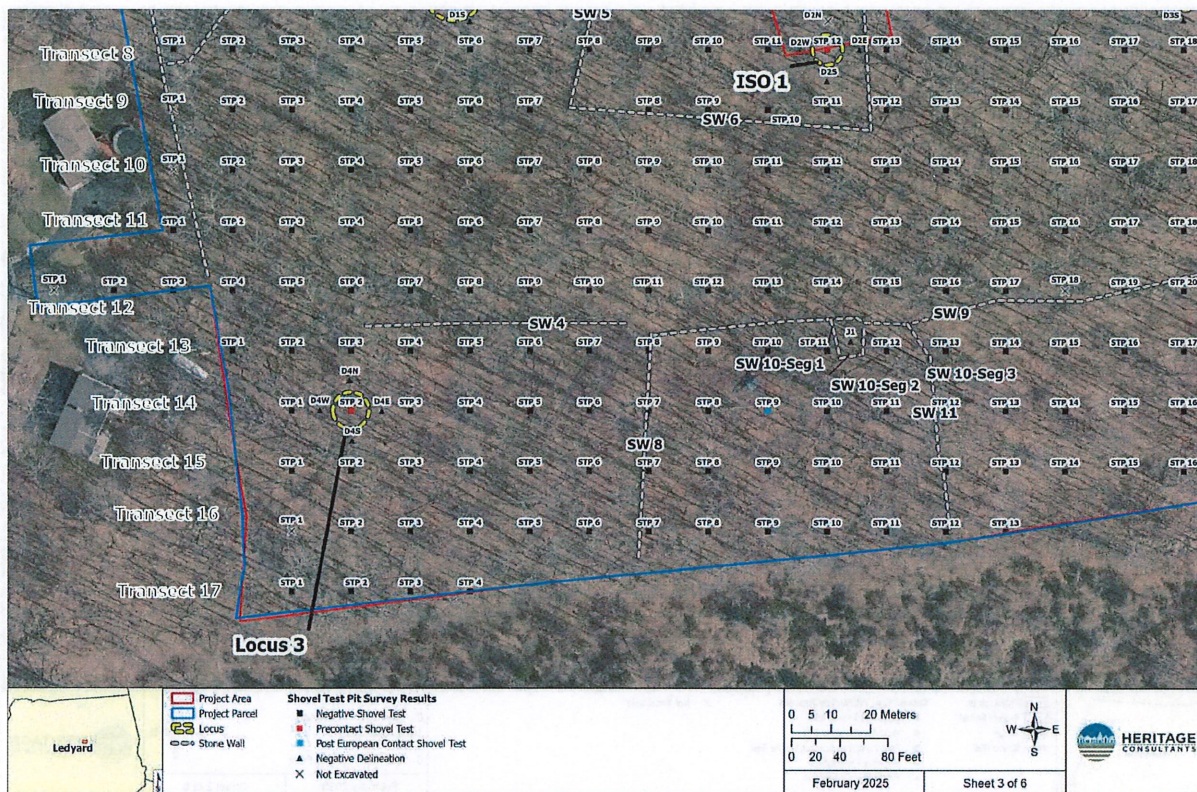


Figure 16. Excerpt from a 2019 aerial image showing the results of Locus 3 and ISO-1 from the Ph IB survey of the APE in Ledyard, Connecticut.

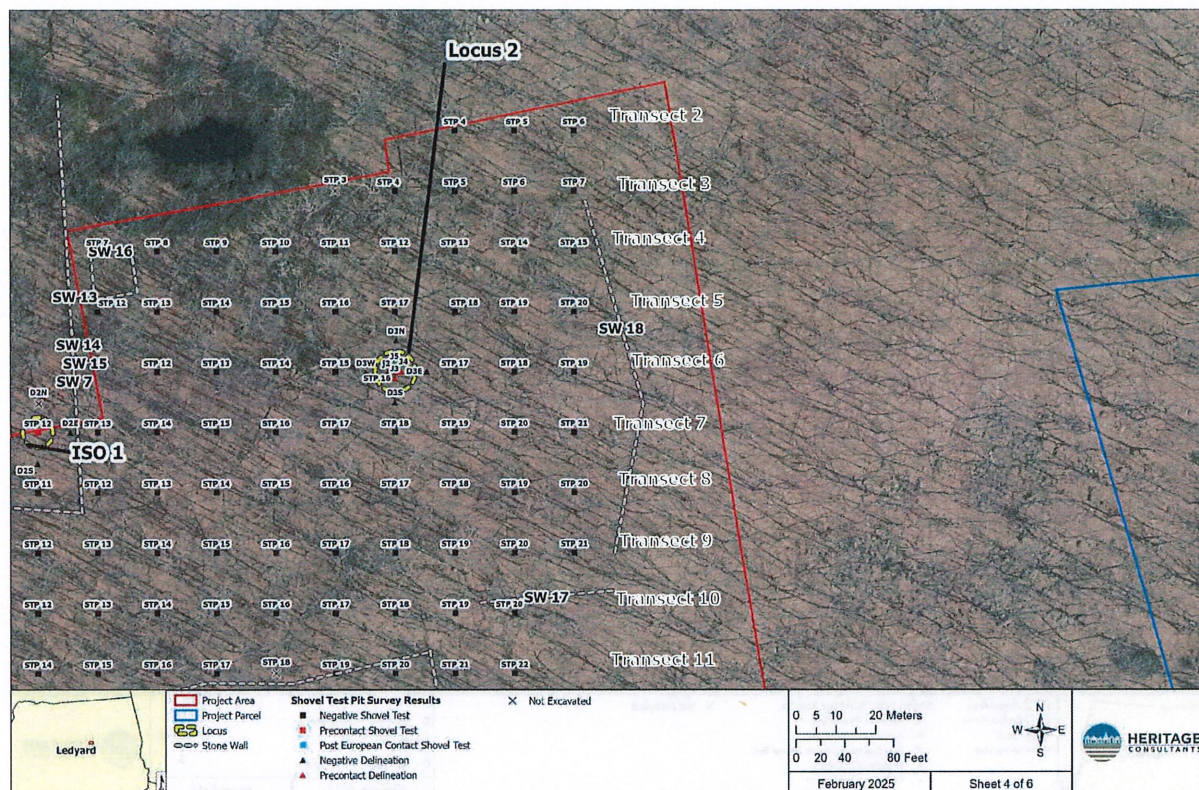


Figure 17. Excerpt from a 2019 aerial image showing the results of Locus 2 and ISO-1 from the Ph IB survey of the APE in Ledyard, Connecticut.

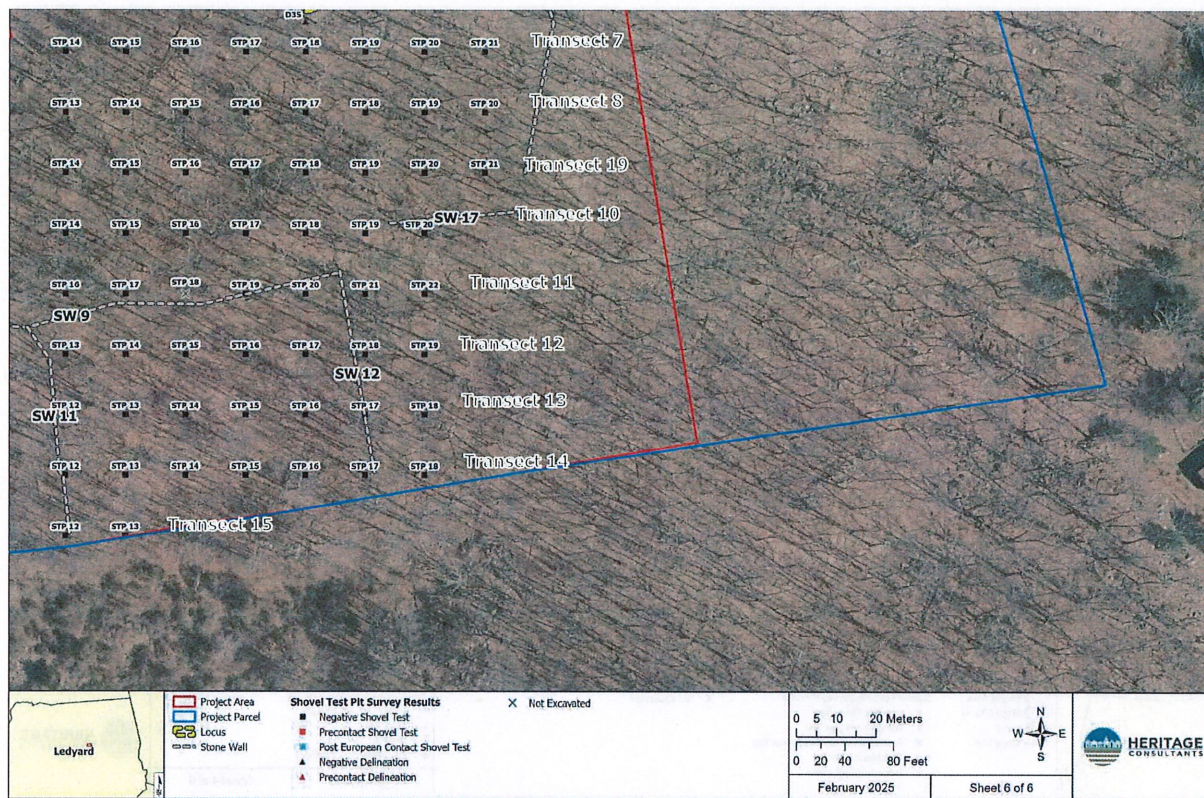


Figure 18. Excerpt from a 2019 aerial image showing the southeast portion of the results of the Ph IB survey of the APE in Ledyard, Connecticut.

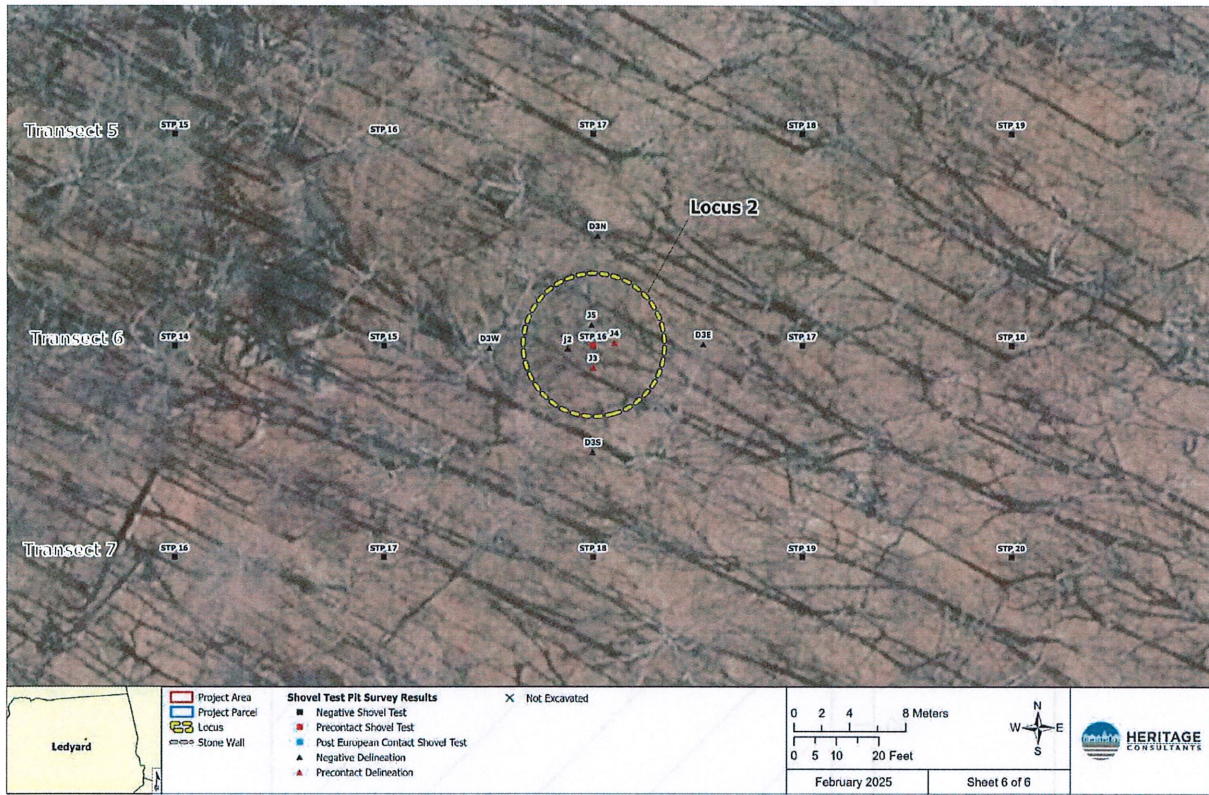


Figure 19. Excerpt from a 2019 aerial image showing the results of Locus 2 from the Ph IB survey of the APE in Ledyard, Connecticut.

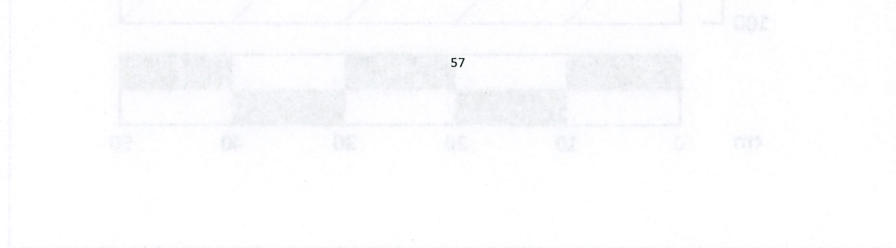


Figure 20. Digital representation of the soil profile of shovel test pit 15.

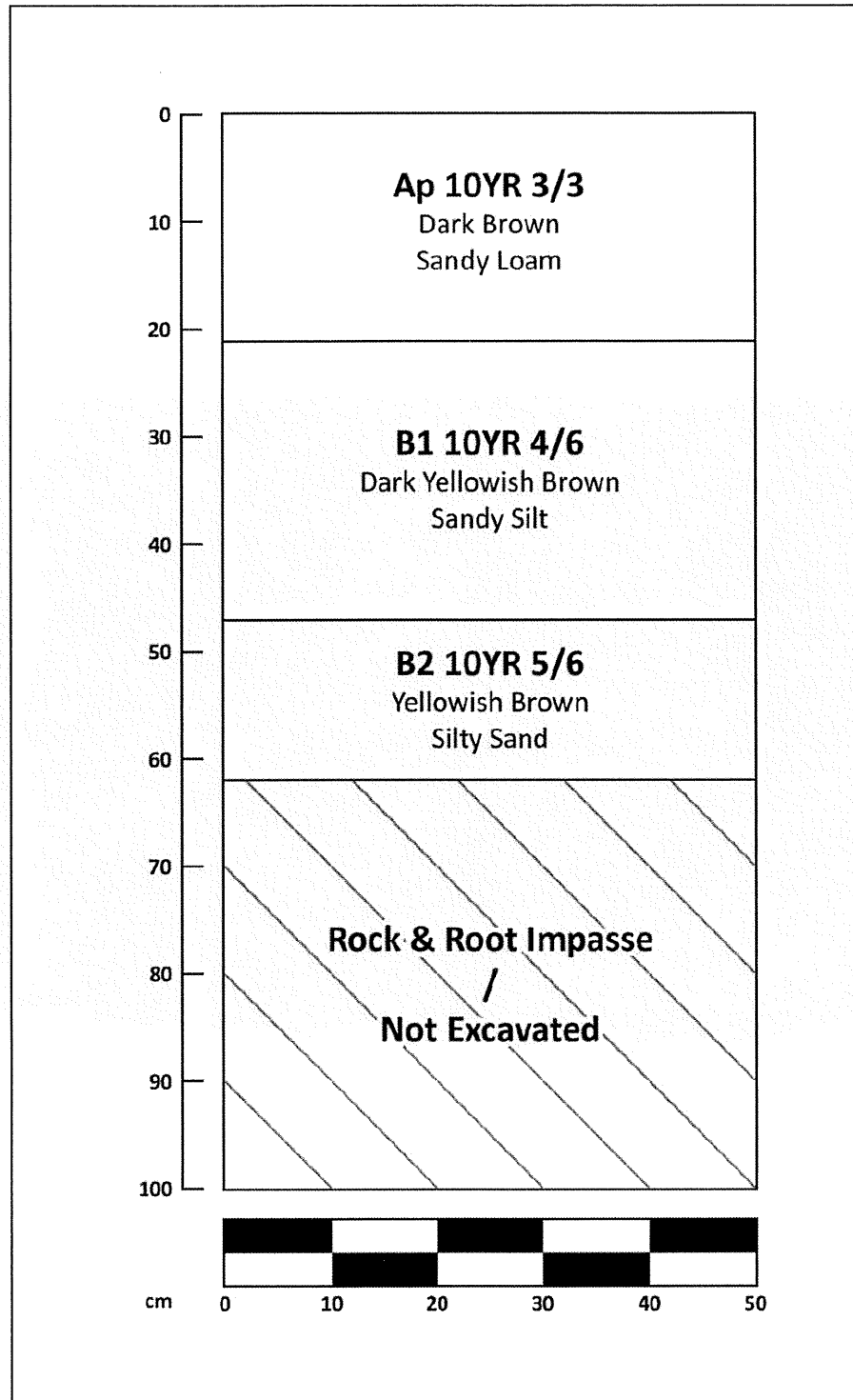


Figure 20. Digital representation of the soil profile of Shovel Test 2, Transect 2.

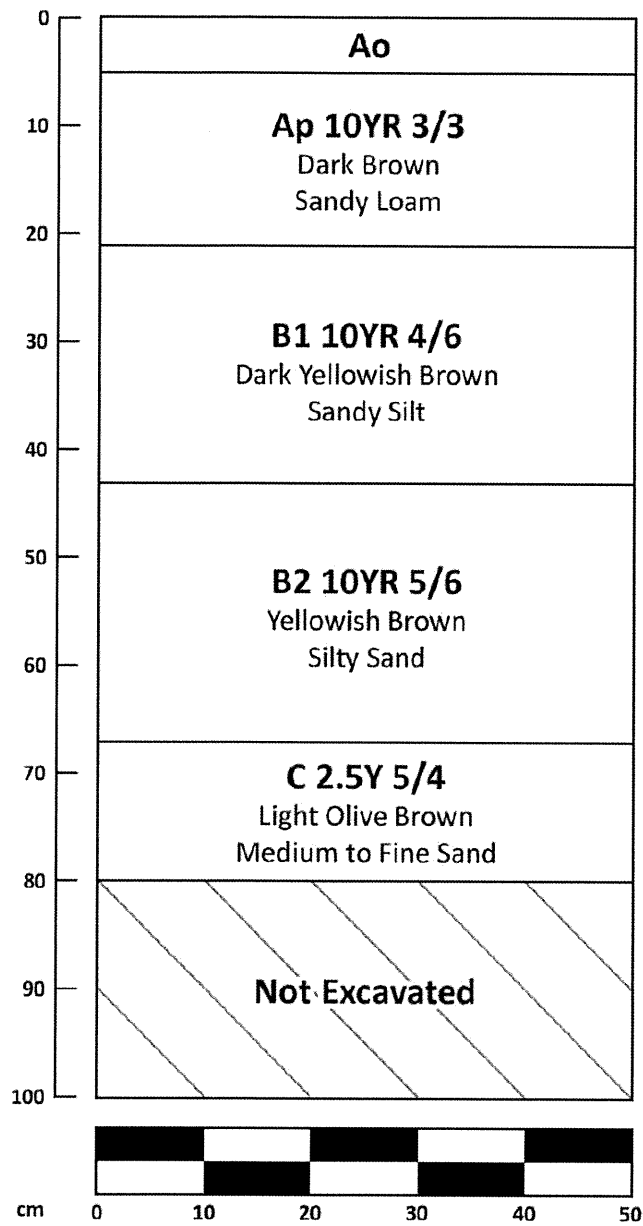


Figure 21. Digital representation of the soil profile of Shovel Test 2, Transect 13.



Photo 1. Overview of Project area taken from the northwestern portion. Photo taken facing east.



Photo 2. Overview of Project area taken from the northern portion. Photo taken facing south.



Photo 3. Overview of Project area taken from northern portion. Photo taken facing east.



Photo 4. Overview of Project area taken from the northern portion. Photo taken facing north.



Photo 5. Overview photo of Project area taken from the eastern portion.
Photo taken facing west.



Photo 6. Overview photo of livestock pen taken from center of enclosure.
Photo taken facing north.



Photo 7. Overview photo of livestock pen taken from center of enclosure.
Photo taken facing south.



Photo 8. Overview photo of livestock pen taken from center of enclosure.
Photo taken facing east.



Photo 9. Overview photo of livestock pen taken from center of enclosure. Photo taken facing west.

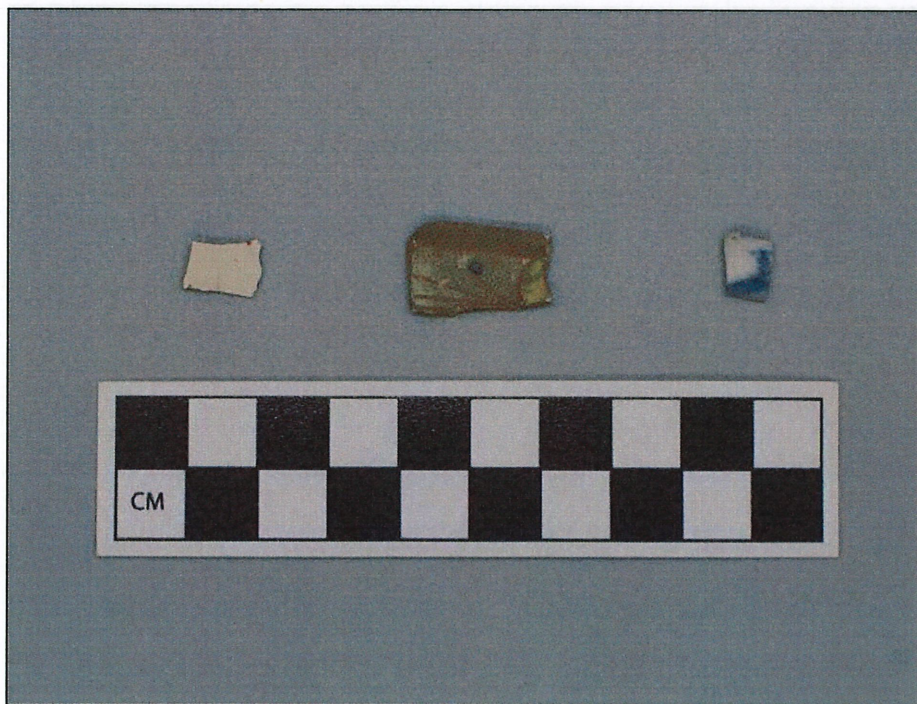


Photo 10. Post-European contact period artifacts. Left to right: whiteware sherd, hand-painted polychrome pearlware sherd, and hand-painted blue Chinese porcelain sherd.



Photo 11. Overview photo of Stonewall 1 and 2. Photo taken facing north.



Photo 12. Overview photo of Stonewall 3. Photo taken facing south.



Photo 13. Overview photo of Stonewall 4. Photo taken facing west.



Photo 14. Overview photo of Stonewalls 5 and 6. Photo taken facing east.



Photo 15. Overview photo of Stonewalls 8 and 10. Photo taken facing south.



Photo 16. Overview photo of Stonewalls 7 and 13. Photo taken facing west.



Photo 17. Overview photo of Stonewalls 9 and 12. Photo taken facing west.



Photo 18. Untyped quartz projectile point from Isolated Find 1 (side A).

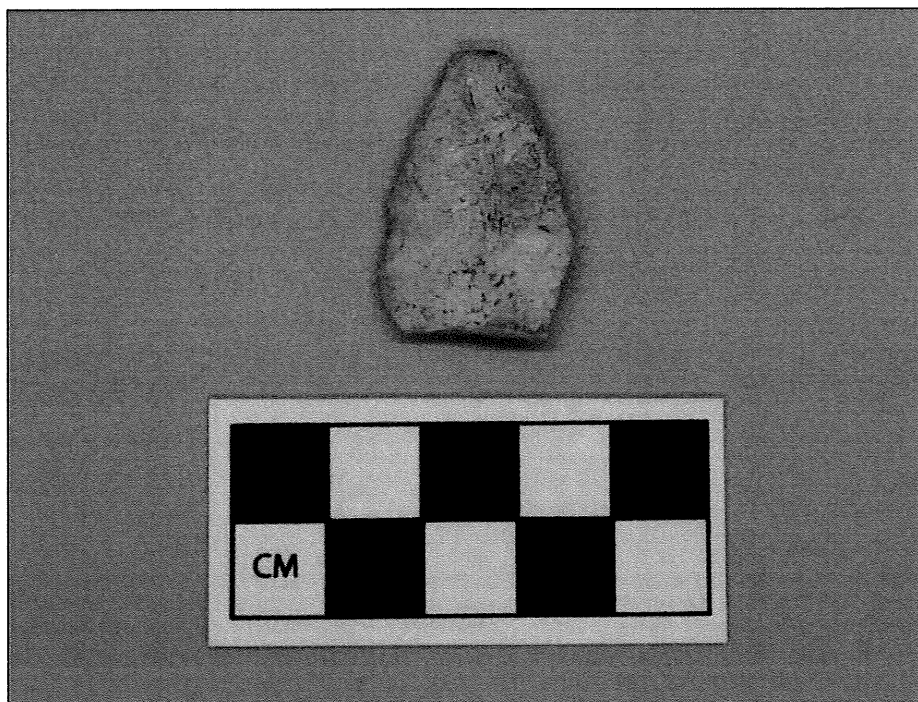


Photo 19. Untyped quartz projectile point from Isolated Find 1 (side B).



Photo 20. Precontact era artifacts from Locus 1. Left to right: 2 quartz flakes, 4 quartz primary reduction flakes, 1 quartz primary reduction flake, and 1 quartz primary reduction flake (side A).



Photo 21. Precontact era artifacts from Locus 1. Left to right: 2 quartz flakes, 4 quartz primary reduction flakes, 1 quartz primary reduction flake, and 1 quartz primary reduction flake (side B).



Photo 22. Sample of precontact era artifacts from Locus 2. Left to right: Quartz utilized flake, quartz uniface, quartz primary reduction debris, quartz primary reduction flake, and quartz biface reduction flake (side A).



Photo 23. Sample of precontact era artifacts from Locus 2. Left to right: Quartz utilized flake, quartz uniface, quartz primary reduction debris, quartz primary reduction flake, and quartz biface reduction flake (side B).



Photo 24. Precontact era artifacts from Locus 3. Left to right: Quartz primary reduction flake and quartz biface (side A).

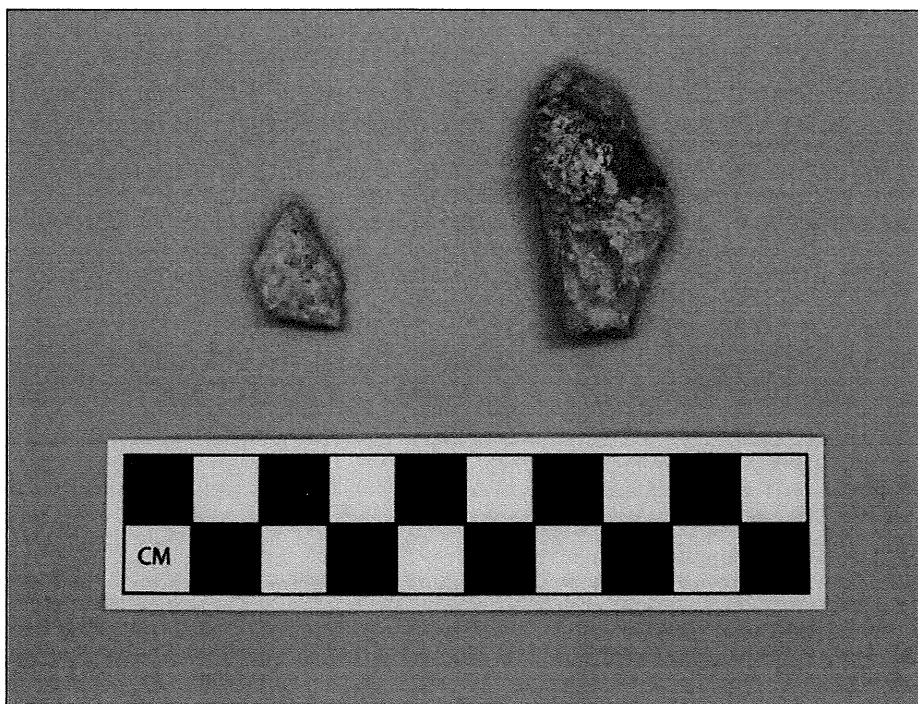


Photo 25. Precontact era artifacts from Locus 3. Left to right: Quartz primary reduction flake and quartz biface: (side B).

