Phase IB Archaeological Survey

Proposed Improvements
Lasdon Park and Arboretum

Town of Somers
Westchester County, New York

Prepared By:

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September 20, 2021

SCA is an ACRA Member Firm & Certified WBE and WOSB

Management Summary

Involved Agencies	NYS Dept of Environmental Conservation New York State Office of Parks, Recreation and Historic Preservation Westchester County
Phase of Investigation	Phase IB Archaeological Survey
Project Location	2610 NY 35, Town of Somers, New York
Description of APE	Trail & path improvements: 1,770 linear meters (5-foot width) Septic improvements: 780 linear meters of pipe and 0.4 acres of septic field
USGS 7.5-Minute Quadrangle Map	Croton Falls, New York 1960 (Photoreivsed 1981)
Investigation Methods	Subsurface testing (excavation of 103 shovel tests) 77 at 15-meter (50-foot) intervals 23 at 7.5-meter (25-foot) intervals 3 at 30-meter (100-foot) intervals
Identified Sites	None
Entity/Author	Stony Creek Archaeology, Inc. – Rebecca Brodeur, RPA and Dell Gould
Recommendations	No additional investigation is recommended
Date of Report	September 20, 2021

ABSTRACT

Stony Creek Archaeology, Inc. (SCA) has prepared a Phase IB archaeological survey on behalf of the Westchester County Department of Public Works and Transportation for proposed improvements at the Lasdon Park and Arboretum, a park owned and operated by the Westchester County Parks Department in the Town of Somers, Westchester County, New York. Projects improvements include the installation of a new septic system. The existing buildings are served by an outdated and undersized series of septic tanks and fields; these will be replaced by a system that will consist of new tanks located near the existing buildings with piping that will be located underneath the existing paths and gardens and lead to an open field at the intersection of the existing main house driveway and the main parking lot access road. The excavation to install the piping and septic fields will be approximately 1.2 meters (4 feet) in depth. The tanks will be excavated to a depth of 1.8 meters (6 feet) below ground surface. Areas requiring lawn or path restoration will be limited to less than 0.3 meters (1-foot) deep.

The project will entail the resurfacing and/or widening of existing paths. Some existing paths will be widened from 0.9 meters (3 feet) wide to 1.5 meters (five feet). Existing 0.9- meter (3-foot) wide asphalt paths will be widened to 1.5 meters (5 feet) and paved with asphalt; existing stone dust and earthen paths will also be widened as needed to a uniform 5-foot width and will be paved with asphalt. The existing dirt path shown the southern wooded area will be upgraded to hard surface material but will not need to be widened. A new pathway will be installed in a loop from the gift shop and conservatory south across the yard and then looping back around to the north to the Main House and Office.

The project area was included in Phase IA investigation of the entire 234-acre property that was conducted in 2006 by Hartgen Archaeological Associates. The Phase IB area of potential effect falls within areas identified as having both high and moderate sensitivity for archaeological resources. SCA also conducted a pedestrian reconnaissance survey of the project area to review existing conditions and document existing disturbances. The pedestrian reconnaissance and subsurface testing were conducted on August 16- 20, 2021.

A total of 103 shovel tests were excavated. Seventy-seven subsurface shovel tests were excavated at 15-meter (50-foot) intervals across the APE. An additional 23 shovel tests were excavated at 7.5-meter (25 foot) intervals in proximity to a Mapped Documented Structure (MDS) in the APE, and three shovel tests were excavated at a 30-meter (100-foot) interval due to disturbance. Shovel test profiles indicated that overall, previous disturbance in the APE is limited to relatively minor but widespread landscaping impacts. No artifacts were recovered and no sites are present.

Based on the results of this investigation it is SCA's opinion that the proposed project improvements have minimal or no potential to impact historical or precontact archaeological sites. SCA recommends that no additional archaeological investigation is warranted in the APE and the project proceed as planned.

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FIGURES

PHOTOGRAPHS

I. INTRODUCTION

Stony Creek Archaeology, Inc. (SCA) has prepared a Phase IB archaeological survey on behalf of the Westchester County Department of Public Works and Transportation for proposed improvements at the Lasdon Park and Arboretum, a working park owned and operated by the Westchester County Parks Department in the Town of Somers, Westchester County, New York. Projects improvements include the installation of a new septic system. The existing buildings are served by an outdated and undersized series of septic tanks and fields; these will be replaced by a system that will consist of new tanks located near the existing buildings with piping that will be located underneath the existing paths and gardens and lead to an open field at the intersection of the existing main house driveway and the main parking lot access road. The excavation to install the piping and septic fields will be approximately 1.2 meters (4 feet) in depth. The tanks will be excavated to a depth of 1.8 meters (6 feet) below ground surface. Areas requiring lawn or path restoration will be limited to less than 0.3 meters (1-foot) deep.

The project will entail the resurfacing and/or widening of existing paths. Some existing paths will be widened from 0.9 meters (3-foot) wide to five feet. Figure 2 shows the paths that will be improved. The existing 0.9 meter (3-foot) wide path will be widened to 1.5 meter (5-foot) and paved with asphalt; the existing stone dust path will be paved with asphalt as will the existing dirt paths shown in Figure 2. The existing dirt path shown within the southern wooded area will be upgraded to hard surface material.

II. SCOPE OF SERVICES

SCA conducted a Phase IB Archaeological Survey consisting of a pedestrian reconnaissance and systematic subsurface survey of the APE. A Phase IA sensitivity assessment was completed in 2006 by Hartgen Archaeological Associates (HAA). HAA delineated areas of high and moderate archaeological sensitivity for which subsurface archaeological survey was recommended. Therefore, the information in that report served as a basis for the methodology of the current investigation. The pedestrian reconnaissance and subsurface testing were carried out on August 16-20, 2021.

LAWS, REGULATIONS, AND GUIDELINES

SCA conducts cultural resources studies meeting state and federal legislation such as the National Historic Preservation Act of 1966, as amended, the National Environmental Policy Act of 1969, and the New York State Parks, Recreation and Historic Preservation Law. SCA adheres to the New York Archaeological Council *Standards for Cultural Resource Investigations and the Curation of Archaeological Collections in New York State* and *Guidance for Understanding* and *Applying the New York State Standards for Cultural Resource Investigations* (NYAC 1994 and 2000). SCA's Principal Investigator meets the Secretary of the Interior Professional Qualification Standards listed in the Code of Federal Regulations (36 CFR Part 61).

PERSONNEL

This work was carried out by SCA President and Principal Archaeologist Rebecca Brodeur, RPA and SCA Vice President and Archaeologist Delland Gould. Mr. Gould and Ms. Brodeur authored the technical report; Mr. Gould conducted the fieldwork.

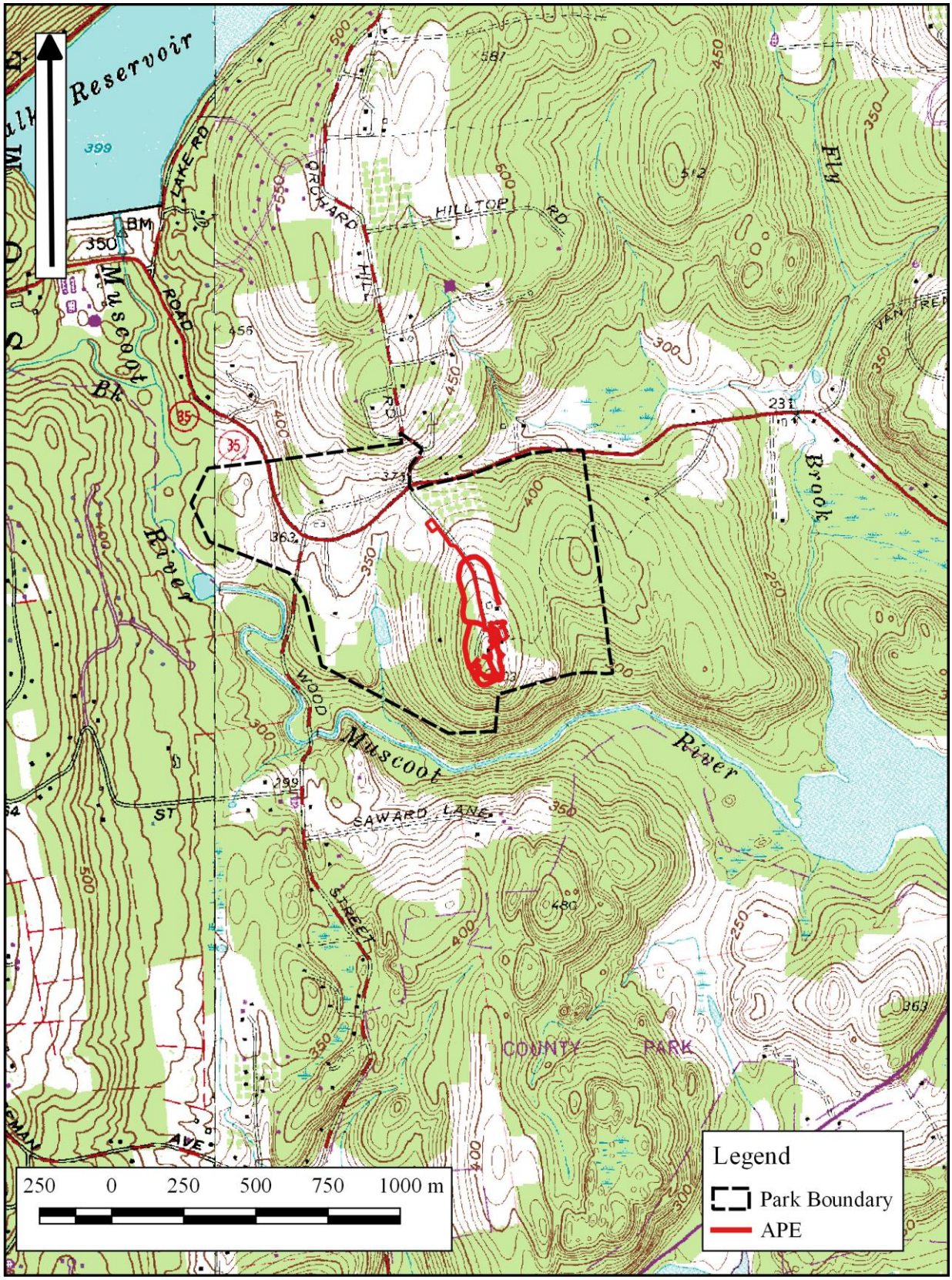

Figure 1: Project Area Location (USGS 1981).

III. Previous Investigations

The project area has been previously investigated by Hartgen Archeological Associates (HAA) who conducted a Phase IA Archaeological Sensitivity Assessment of the entire 234-acre park in 2006.

Environmental Setting and Soils

The project area is situated in the Hudson Valley Lowland Physiographic Province. The surficial geology of the project area is mapped as outwash sands and silts with nearby areas mapped as till. Bedrock in the APE is the Middle Ordovician Trenton group, consisting of pelitic schists and amphibolite (HAA 2006). Elevations in the APE range rom 350 to 490 feet (106 to 149 meters) above mean sea level (USGS 1981).

The United States Department of Agriculture-Natural Resource Conservation Service maps soils in the project area as primarily Paxton Fine Sandy Loam (PnC ad PnB) the northern extent of the new septic field is mapped as Charlton Loam (ChB) (HAA 2006). All of these soil types are typical for convex side- and footslopes, emphasizing the overall rolling to sloping conditions within the park.

Historic and Recent Land Use

Lasdon Park and Arboretum is a 234-acre park that consists of open fields, formal gardens, and wooded areas. There is a Main House, Veterans Museum, Gift Shop, Conservatory, and various outbuildings including greenhouses. This property was acquired by Westchester County in 1986; for use as a park and arboretum; prior to that it was a private residence. Available documentation indicate the land was used for agriculture prior to 1900 (HAA 2006:7).

Archaeological Sites

HAA (2006:5) determined that no archaeological sites were mapped within 0.4 kilometers (0.25 miles) of the 2006 Phase IA study area. SCA reviewed the NYS CRIS files to update any new site data. SCA found that no sites were mapped within 0.4 kilometers (0.25 miles) of the APE. A total of eight sites were mapped within 1.6 kilometers (1-mile) of the Phase IB APE (Table 1). The sites are in proximity to Angle Fly Brook and associated drainages. A NYSM area is located to the east of the APE, no information for this area is available. However, A.C. Parker lists a Village/Mound site near the bank of the river in Amawalk (Parker 1922:231).

TABLE 1
Archaeological Sites Mapped Within 1.6 Kilometers (1-Mile) of the APE

USN	Name	Status	Miles	Kilometers	Direction	Survey
11917.00024	Area W-7 Precontact Site	Undetermined	0.66	1.06	N	HP 2003
11917.00024	Area W-9 Precontact Site	Undetermined	0.65	1.05	NE	HP 2003
11917.00024	Area W-10 Precontact Site	Undetermined	0.35	0.56	NE	HP 2003
11917.00024	Area W-10a Precontact Site	Undetermined	0.44	0.72	E/NE	HP 2003
11917.00025	Area W-10 Historic Site	Undetermined	0.30	0.48	NE	HP 2003
11917.00024	Eagle River Site 4 Prehistoric	Undetermined	0.66	1.06	E	EP 1990
11917.00024	Eagle River Site 5 Prehistoric	Undetermined	0.5	0.82	NE	EP 1990
NYSM	**Name**	**Status**	**Miles**	**Kilometers**	**Direction**	
5149	No Information	Undetermined	0.41	0.66	E	NYSM n.d.
HP 2003 – Historical Perspectives, Inc Eagle River Conservation Subdivision Project EP 1990 – Enviroplan Associates – Eagle River at Primrose Project						

Archaeological Surveys

In addition to the 2006 Phase IA study, five archaeological surveys were conducted within 1.6 kilometers (1-mile) of the current APE, two of which identified archaeological sites. In 2016 Boesch conducted a Phase IB survey adjacent to the current Ladson Park APE. This survey was conducted to assess an area for the proposed conservatory alternate location (Boesch 2016). The APE for the 2016 survey measured 0.4 acres located to the east of the Ladson Mansion (circa 1930) and the former in ground pool (1935-1940). The APE also surveyed an area to the north of the former mansion within an area of grass covered slope and woodland a well as an area near the gift shop (Figure 2). Boesch noted the APE was fully landscaped (Boesch 2016:2). Shovel testing did not identify preserved archaeological sites in the APE. Shovel tests found areas of naturally occurring soils, fill material and areas of disturbance (Boesch 2016:3). No additional investigation was recommended for the APE.

The 2003 Eagle River Conservation Subdivision Project in Somers was conducted by Historical Perspectives, Inc. The APE was located north and east of Route 35 and Ladson Park. The survey identified five archaeological sites (4 Precontact and 1 Historic) (see Table 1). All sites are mapped between 0.3 and 1.0 miles of the APE. The sites were in proximity to Angle Fly Brook. Another survey conducted by Enviroplan Associates for the Eagle River at Primrose Project identified two Precontact sites, again in proximity to Angle Fly Brook and its drainages.

Richard Grubb and Associates, Inc. conducted the *Section 106 Consultation, Sprint Spectrum LP, Site ID NY54XC522, Orchard Hill Road, Town of Somers, Westchester County New York* in 2003. This telecom installation project identified limited archaeological sensitivity requiring the excavation of 8 shovel tests. No cultural sites were identified, and no additional investigation was recommended. EBI Consulting carried out a *Phase 1 Literature Review and Archaeological Sensitivity Assessment, Somers-Orchard Hills, 2580 Route 35, Somers, New York* in 2009. The project area measured 0.03 hectares (0.08 acres) and the planed impacts were associated with the installation of a new telecom tower and associated underground lines and access. No archaeological sensitivity was identified in the APE due to excessive slope, shallow/eroded soils, and surficial disturbances. No additional investigation was recommended.

Archaeological Sensitivity

HAA concluded that the APE for the Phase IB survey should be considered moderate to high in potential for the presence of precontact sites in areas of level, undisturbed terrain proximal to water sources. Areas of lower sensitivity were moderate to steep slopes (HAA 2006:12). Historic sensitivity was also considered to be moderate to high based on the presence of Map-documented structures (MDS's) in various location around the property. Phase IB archaeological survey was recommended for any ground-disturbing activities (HAA 2006:12). For the current investigation, one MDS (MDS # 7) was identified by the Phase IA study is in proximity to the APE (HAA 2006: 9). This structure is extant and was constructed circa 1930 (HAA 2006:9).

IV. Pedestrian reconnaissance survey

SCA conducted the archaeological pedestrian reconnaissance survey on August 16, 2021. This survey consisted of a surface inspection of the entire project area, including the grounds around the main house and ancillary structures, and the portions of the park where new septic line and field will be installed, as well as the pathways that will be resurfaced. During the surface inspection, SCA identified areas of visible subsurface disturbances, including cut-and-fill episodes, landscaping disturbance and subsurface installations including sprinkler lines, storm drains and buried electrical lines.

The project area is comprised of open green space, with some scattered trees and shrubs, pathways, planting beds, a large fountain and a number of buildings, including the large main house, the conservatory, sheds, and other outbuildings connected by earthen, gravel, and paved walks and drives, and a wooded section along the eastern side of the main house (Photographs 1-10; see Figures 1-2). The project area occupies the crest and sideslopes of a long hill, gradually sloping upward from the south, with steeper flanks on the east and west. At the southern limit of the project area, the hill slopes down more sharply to the south, with exposed bedrock at the crest of the hill and down the southern slope.

The main project component is a new sewerline, which will run from just north of the Main House, north along the existing central entrance drive and to the foot of the slope in a large open field to the north of the arboretum deer fence (see Photographs 1 and 2, Figure 2). The proposed septic field measures approximately 0.4 acres (0.2 hectares). There are also new collection lines to be installed under the complex of paths located between the fountain complex and the Main House at the top of the hill. These collector lines will be installed primarily under or along the existing pathways, with the exception of a line which runs east and then north from the rear of the gift shop building where the existing restrooms are located (see Photographs 3 and 4, Figure 2) . The sewer installation impacts will range between four and six feet (1.3 to 2 meters) in depth. Based on the geology and topography of the project area, any archaeological deposits would be located within 30 centimeters (1 foot) of the surface, unless significant filling is present.

In addition to the septic improvements, the project includes the widening and/or resurfacing of most of the pathways in the arboretum proper (see Photographs 5-10, Figure 2). Existing pathways will be widened to a standard width of five feet (1.5 meters) and upgraded to pavement or other hard surface (see Photographs 5 and 6). Some existing pathways are already paved, but are too narrow, and some paths are already five feet in width, but need upgraded surfaces. A new pathway will be installed in a loop from the gift shop and conservatory south across the yard and then looping back around to the north to the Main House and Office (see Photographs 7 and 8, Figure 2).

The pedestrian reconnaissance indicates that although heavily landscaped the project area consists of open green space along a hill crest and shoulder slopes. Although archaeological deposits are likely to be shallowly buried in the thin upland soils, environmental and historical factors indicate that archaeological sites are potentially present and subsurface testing will be required to identify any archaeological sites. Due to the presence of one or more residences dating back to the nineteenth century on the property, reduced (7.5-meter) interval testing is needed to survey impacts within the central yard between the Gift Shop/Conservatory and the Main House/Office.

Photograph 1. Central Drive just West of the Fountain, showing Existing Storm Drainage Installed in Shoulder, View Southeast

Photograph 2. Proposed Septic Field Location North of the Arboretum Fence, with Amawalk Road in the Background, View North.

Photograph 3. Proposed Sewerline Location East of the Gift Shop and Restrooms, View West

Photograph 4. Proposed Sewerline Location along Gravel Maintenance Road, East Side of APE, View South

Photograph 5. Earthen Pathway along Western Side of APE (Transect W), with Buried Utility Line near Main House and Office, View South.

Photograph 6. Stone Dust Pathway along Sewerline Alignment (Transect S), View South

Photograph 7. Overview of Central Lawn Between Main House to the West and Conservatory to the East, View South

Photograph 8. Proposed Location of New Pathway from Gift Shop to the East and Continuing West along Sloping Yard to the Main House, View North

V. Subsurface Investigation

The subsurface investigation consisted of the excavation of 103 shovel tests (see Figure 2). Shovel tests were excavated in 15-meter (50-foot) interval transects along the proposed linear disturbances, with a small 15-meter interval grid excavated in the proposed septic field location. A 7.5-meter (25-foot) interval was utilized in the central lawn area, due to proximity to the Main House and Office (a former residence). Shovel tests measured a minimum of 40 centimeters (16 inches) in diameter and were excavated into culturally sterile subsoil, except where an impenetrable obstacle (e.g. rock) was encountered. Soils were screened using 0.64-centimeter (0.25-inch) mesh hardware cloth and recorded using standardized SCA forms and Munsell soil color charts. Testing locations were recorded in planview on the project map. Digital photography was used to document the field investigation, ground conditions, project topography and disturbances. All shovel tests were backfilled, and the surfaces restored to the best extent possible. Shovel tests in were assigned alpha-numeric shovel test designations (Appendix A). Shovel tests ranged from 14 to 78 centimeters (0.5 to 2.3 feet) in depth.

Transect F (F1 to F6) was excavated in the proposed septic field area adjacent to the main entrance drive (see Figure 2, Photograph 2). Shovel test profiles in this portion of the project area were consistent, with a dark grayish brown (10YR 4/3) silt loam topsoil overlying a yellowish brown (10YR 5/6) silt loam subsoil. The topsoil stratum ranged from 29 to 36 centimeters (1.0 to 1.2 feet) in thickness. Gravels and cobbles were common throughout the soil profile. No artifacts were recovered from Transect F.

Transect S1 to S27 was excavated along the proposed sewer line which follows the main entrance drive from the septic field to the main house. Each shovel test was excavated to the east or west of the man drive as conditions allowed, to avoid any existing utilities or obvious surficial disturbances or the root systems of the large mature trees that line the drive as well. Despite the length of the transect, shovel test profiles on Transect S were fairly uniform, with a dark grayish brown (10YR 4/3) silt loam topsoil overlying a yellowish brown (10YR 5/6) silt loam subsoil. The topsoil stratum ranged from 22 to 46 centimeters (0.8 to 1.5 feet) in thickness. As with the downslope Transect F, soil profiles in Transect S encountered gravel and cobbles throughout the soil profile. Shovel tests S31 to S35 were placed in the area immediately surrounding the main house at 7.5-meter (25-foot) intervals (see Photograph 6, Figure 2). This was along the southernmost extent of the proposed sewer upgrades, and adjacent to a stone dust path that will be paved. The paving will not result in any impacts, as the path does not require widening but the sewer installation will exceed the depth of the existing disturbance. Shovel test profiles were consistent across, with a dark grayish brown (10YR 4/3) silt loam A horizon overlying a yellowish brown (10YR 4/6 to 5/6) gravelly silt loam B horizon. The topsoil stratum ranged from 22 to 42 centimeters (0.6 to 1.5 feet) in thickness.

Shovel Tests S36-S38 were excavated in a disturbed area along the eastern edge of the APE, where the proposed sewer upgrade will traverse a short slope west of the Gift Shop and turn north to follow a gravel drive (see Photographs 3 and 4, Figure 2). The proposed sewer upgrade ends at an existing garden shed (see Photograph 4) which will be removed as part of the project. The shed was constructed fairly recently and sits on a low concrete slab. The shed sits on top of a large spoil pile, which may have been intentionally filled to install the shed. This portion of the APE has been extensively disturbed, and Shovel Tests S36-S38 all had profiles indicative of disturbance and were excavated at 30-meter (100 feet) intervals. No artifacts were recovered from Transect S.

Shovel tests L1 to L30 were along the pathway which loop around the sloping hilltop at the center of the arboretum (see Photograph 9, Figure 2). This pathway winds around the shoulder slope of the hilltop, and is relatively flat, though a portion in the northwest segment of the path was greater than 12 percent slope. Shovel test profiles were consistent with the soil profiles throughout Transects F and L, with a dark grayish brown gravelly silt loam overlying a yellowish-brown gravelly loam B horizon (see Appendix A). As with Transect S, shovel tests in

Transect L were excavated on one side of the path or the other in a generally zig-zag pattern, with occasional offsets to avoid planted beds. No artifacts were recovered from Transect L.

Photograph 9. Overview of Transect L, Showing Planting Beds along Proposed Path Widening, View Southeast

Shovel tests C1 to C18 were excavated in the flat-lying yard area immediately east of the main house (see Photographs 7 and 8, Figure 2). Shovel Tests in Transect C were excavated at 7.5-meter (25-foot) intervals due to proximity to the former residence, and possibly the original residence that burned and was replaced in the twentieth century. The location of the original structure is not clearly known, especially due to the extensive landscaping in the project area but is presumed to have been near the existing Main House. Generally, shovel test profiles were consistent with the soils observed along the paths downslope, with a thin topsoil capping a yellowish-brown gravelly silt loam B horizon. No artifacts were recovered from Transect C.

Shovel tests W1 to W18 were excavated along the earthen path through the wooded section of the arboretum to loop back around to the flat lawn along the east side of the main house (Transect C). Though wooded, some subsurface disturbances are present (see Photograph 5). The trail loops along the western edge of the Arboretum, turns east along the crest of the hill around the Dinosaur Garden, and ends at the proposed new path in the central lawn area (Photographs 10-11; see Figure 2). A few short sections along this trail/path were too steep to test, and short path spurs off of the main trail around the Dinosaur Garden and other features lacked sufficient soil cover or were otherwise disturbed and were not shovel tested (see Figure 2). Other portions had very little soil capping the outcropping boulders and bedrock, but where soils were deep enough to test, soil textures were markedly sandier (fine sandy loam rather than silt loam) than in areas to the north and east, and far fewer gravels were present in the A

horizon. Three shovel tests in this transect (W3, W8, and W11) encountered rock at less than 20 centimeters (0.6 feet) and were abandoned due to the impasse. Soil colors were consistent with Transects L and C. No artifacts were recovered from Transect W.

Pathways between fountain to the north and the central yard to the south exhibit evidence of heavy surficial and subsurficial disturbance by plantings and replantings, and subsurface utilities including storm drainage, electrical and water and sprinkler systems. Due to the presence of existing paths and numerous subsurface disturbances, these short segments were not shovel tested, as soil conditions throughout the arboretum indicate prior disturbance to a depth greater than one foot (30 centimeters) would be sufficient to disrupt any archaeological deposits present.

Photograph 10. Overview of Dinosaur Exhibit Adjacent to Transect W, showing Steep Slope in Foreground, View East

Photograph 11. Overview of South End of APE near Transect W, showing Shallow Bedrock and Partially Buried Subsurface Water Lines, View Southwest

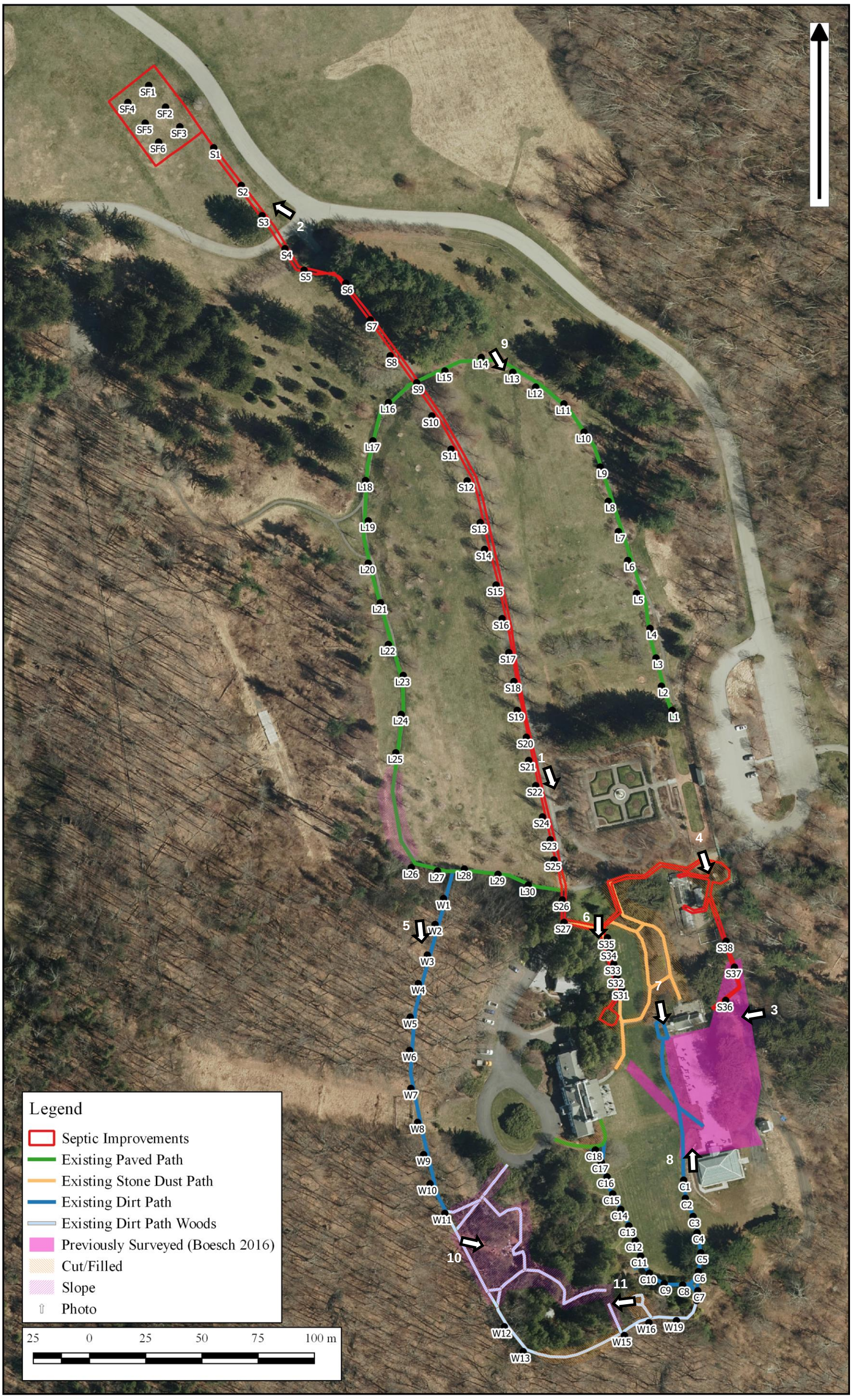

Figure 2. Aerial View of the Project Area and Subsurface Testing

VI. Conclusions and Recommendations

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Based on the results of this investigation it is SCA's opinion that the proposed project improvements have minimal or no potential to impact historical or precontact archaeological sites. SCA recommends that no additional archaeological investigation is warranted in the APE and the project proceed as planned.

VII. REFERENCES CITED

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1981 Croton Falls, New York 7.5-Minute Quadrangle. USGS Washington, D.C.

Appendix A – Shovel Test Log

STP			Depth		Soil			
Trns	Test #	Stratum	Meters	Feet	Color	Texture	Artifacts	Notes
F	1	A	0.36	1.18	10YR 4/3	Silt Loam	NCM	5% Cobbles and gravel
		B	0.61	2.00	10YR 5/6	Silt Loam	NCM	10-15% Cobbles and gravel
F	2	A	0.31	1.02	10YR 4/3	Silt Loam	NCM	5% Cobbles and gravel
		B	0.52	1.71	10YR 5/6	Silt Loam	NCM	10-15% Cobbles and gravel
F	3	A	0.27	0.89	10YR 4/3	Silt Loam	NCM	5% Cobbles and gravel
		B	0.68	2.23	10YR 5/6	Silt Loam	NCM	10-15% Cobbles and gravel
F	4	A	0.29	0.95	10YR 4/3	Silt Loam	NCM	5% Cobbles and gravel
		B	0.48	1.57	10YR 5/6	Silt Loam	NCM	10-15% Cobbles and gravel
F	5	A	0.30	0.98	10YR 4/3	Silt Loam	NCM	5% Cobbles and gravel
		B	0.59	1.94	10YR 5/6	Silt Loam	NCM	10-15% Cobbles and gravel
F	6	A	0.31	1.02	10YR 4/3	Silt Loam	NCM	5% Cobbles and gravel
		B	0.56	1.84	10YR 5/6	Silt Loam	NCM	10-15% Cobbles and gravel
S	1	A	0.32	1.06	10YR 4/3	Silt Loam	NCM	5% Cobbles and gravel
		B	0.51	1.67	10YR 4/6-5/6	Silt Loam	NCM	10-15% Cobbles and gravel
S	2	A	0.26	0.85	10YR 4/3	Silt Loam	NCM	5% Cobbles and gravel
		B	0.46	1.51	10YR 5/6	Silt Loam	NCM	10-15% Cobbles and gravel
S	3	A	0.28	0.92	10YR 4/3	Silt Loam	NCM	5% Cobbles and gravel
		B	0.50	1.64	10YR 4/6-5/6	Silt Loam	NCM	10-15% Cobbles and gravel
S	4	A	0.29	0.95	10YR 4/3	Silt Loam	NCM	5% Cobbles and gravel
		B	0.48	1.57	10YR 4/6	Silt Loam	NCM	10-15% Cobbles and gravel
S	5	A	0.25	0.82	10YR 4/3	Silt Loam	NCM	5% Cobbles and gravel
		B	0.42	1.38	10YR 4/6	Silt Loam	NCM	10-15% Cobbles and gravel
S	6	A	0.26	0.85	10YR 4/3	Silt Loam	NCM	5% Cobbles and gravel
		B	0.46	1.51	10YR 5/6	Silt Loam	NCM	10-15% Cobbles and gravel
S	7	A	0.47	1.54	10YR 4/3	Silt Loam	NCM	5% Cobbles and gravel
		B	0.60	1.97	10YR 5/6	Silt Loam	NCM	10-15% Cobbles and gravel
S	8	A	0.29	0.95	10YR 4/3	Silt Loam	NCM	5% Cobbles and gravel
		B	0.43	1.41	10YR 5/6	Silt Loam	NCM	10-15% Cobbles and gravel
S	9	A	0.26	0.85	10YR 4/3	Silt Loam	NCM	5% Cobbles and gravel
		B	0.46	1.51	10YR 5/6	Silt Loam	NCM	10-15% Cobbles and gravel
S	10	A	0.23	0.75	10YR 4/3	Silt Loam	NCM	5% Cobbles and gravel
		B	0.46	1.51	10YR 5/6	Silt Loam	NCM	10-15% Cobbles and gravel

STP			Depth		Soil			
Trns	Test #	Stratum	Meters	Feet	Color	Texture	Artifacts	Notes
S	11	A	0.26	0.85	10YR 4/3	Silt Loam	NCM	5-10% Cobbles and gravel
		B	0.32	1.05	10YR 5/6	Silt Loam	NCM	10% Cobbles and gravel; rock impasse at 32 cm bgs
S	12	A	0.31	1.02	10YR 4/3	Silt Loam	NCM	5% Cobbles and gravel
		B	0.52	1.71	10YR 5/6	Silt Loam	NCM	10-15% Cobbles and gravel
S	13	A	0.25	0.82	10YR 4/3	Silt Loam	NCM	5% Cobbles and gravel
		B	0.45	1.48	10YR 5/6	Silt Loam	NCM	10-15% Cobbles and gravel
S	14	A	0.29	0.94	10YR 4/3	Silt Loam	NCM	5% Cobbles and gravel
		B	0.46	1.51	10YR 5/6	Silt Loam	NCM	10-15% Cobbles and gravel
S	15	A	0.25	0.82	10YR 4/3	Silt Loam	NCM	5% Cobbles and gravel
		B	0.46	1.51	10YR 4/6-5/6	Silt Loam	NCM	10-15% Cobbles and gravel
S	16	A	0.18	0.59	10YR 4/3	Silt Loam	NCM	5% Cobbles and gravel
		B	0.40	1.31	10YR 5/6	Silt Loam	NCM	10-15% Cobbles and gravel
S	17	A	0.15	0.49	10YR 4/3	Silt Loam	NCM	5% Cobbles and gravel
		B	0.61	2.00	10YR 5/6	Silt Loam	NCM	10-15% Cobbles and gravel
S	18	A	0.17	0.56	10YR 4/3	Silt Loam	NCM	5% Cobbles and gravel
		B	0.59	1.94	10YR 5/6	Silt Loam	NCM	10-15% Cobbles and gravel
S	19	A	0.21	0.69	10YR 4/3	Silt Loam	NCM	5% Cobbles and gravel
		B	0.55	1.80	10YR 5/6	Silt Loam	NCM	10-15% Cobbles and gravel
S	20	A	0.23	0.75	10YR 4/3	Silt Loam	NCM	5% Cobbles and gravel
		B	0.52	1.71	10YR 5/6	Silt Loam	NCM	10-15% Cobbles and gravel
S	21	A	0.22	0.72	10YR 4/3	Silt Loam	NCM	5% Cobbles and gravel
		B	0.47	1.54	10YR 5/6	Silt Loam	NCM	10-15% Cobbles and gravel
S	22	A	0.31	1.02	10YR 4/3	Silt Loam	NCM	5% Cobbles and gravel
		B	0.38	1.25	10YR 4/6-5/6	Silt Loam	NCM	10-15% Cobbles and gravel
S	23	A	0.22	0.72	10YR 4/3	Silt Loam	NCM	5% Cobbles and gravel
		B	0.43	1.41	10YR 5/6	Silt Loam	NCM	10-15% Cobbles and gravel
S	24	A	0.28	0.92	10YR 4/3	Silt Loam	NCM	5% Cobbles and gravel
		B	0.51	1.67	10YR 5/6	Silt Loam	NCM	10-15% Cobbles and gravel
S	25	A	0.42	1.38	10YR 4/3	Silt Loam	NCM	5% Cobbles and gravel
		B	0.61	2.00	10YR 5/6	Silt Loam	NCM	10-15% Cobbles and gravel
S	26	A	0.42	1.38	10YR 4/3	Silt Loam	NCM	5% Cobbles and gravel

STP			Depth		Soil			
Trns	Test #	Stratum	Meters	Feet	Color	Texture	Artifacts	Notes
		B	0.61	2.00	10YR 5/6	Silt Loam	NCM	10-15% Cobbles and gravel
S	27	A	0.42	1.38	10YR 4/3	Silt Loam	NCM	5% Cobbles and gravel
		B	0.61	2.00	10YR 4/6-5/6	Silt Loam	NCM	10-15% Cobbles and gravel
S	31	A	0.22	0.72	10YR 4/3	Silt Loam	NCM	5% Cobbles and gravel
		B	0.47	1.54	10YR 5/6	Silt Loam	NCM	10-15% Cobbles and gravel
S	32	A	0.31	1.02	10YR 4/3	Silt Loam	NCM	5% Cobbles and gravel
		B	0.38	1.25	10YR 5/6	Silt Loam	NCM	10-15% Cobbles and gravel
S	33	A	0.22	0.72	10YR 4/3	Silt Loam	NCM	5% Cobbles and gravel
		B	0.43	1.41	10YR 5/6	Silt Loam	NCM	10-15% Cobbles and gravel
S	34	A	0.28	0.92	10YR 4/3	Silt Loam	NCM	5% Cobbles and gravel
		B	0.51	1.67	10YR 5/6	Silt Loam	NCM	10-15% Cobbles and gravel
S	35	A	0.52	1.71	10YR 4/3	Silt Loam	NCM	5% Cobbles and gravel
		B	0.78	2.56	10YR 3/2 & 10YR 5/6	Silt Loam	NCM	10-15% Cobbles and gravel
S	36	A	0.45	1.48	10YR 4/3	Silt Loam	NCM	5% Cobbles and gravel
		B	0.68	2.23	10YR 4/4	Silt Loam	NCM	10-15% Cobbles and gravel
S	37	A	0.48	1.57	10YR 4/2	Silt Loam	NCM	5% Cobbles and gravel
		B	0.67	2.20	10YR 4/2 & 10YR 5/6	Silt Loam	NCM	10-15% Cobbles and gravel
S	38	A	0.42	1.38	10YR 4/3	Silt Loam	NCM	5% Cobbles and gravel
		B	0.61	2.00	10YR 5/6	Silt Loam	NCM	10-15% Cobbles and gravel
C	1	A	0.42	1.38	10YR 4/3	Silt Loam	NCM	5% Cobbles and gravel
		B	0.55	1.80	10YR 5/6	Silt Loam	NCM	10-15% Cobbles and gravel
C	2	A	0.29	0.95	10YR 4/2	Silt Loam	NCM	5% Cobbles and gravel
		B	0.44	1.44	10YR 5/4	Silt Loam	NCM	10-15% Cobbles and gravel
C	3	A	0.22	0.72	10YR 4/2	Silt Loam	NCM	5% Cobbles and gravel
		B	0.47	1.54	10YR 5/4	Silt Loam	NCM	10-15% Cobbles and gravel
C	4	A	0.27	0.89	10YR 4/2	Silt Loam	NCM	5% Cobbles and gravel
		B	0.56	1.84	10YR 5/4	Silt Loam	NCM	10-15% Cobbles and gravel
C	5	A	0.25	0.82	10YR 4/2	Silt Loam	NCM	5% Cobbles and gravel
		B	0.46	1.51	10YR 4/6-5/6	Silt Loam	NCM	10-15% Cobbles and gravel
C	6	A	0.19	0.62	10YR 5/4	Silt Loam	NCM	5% Cobbles and gravel
		B	0.31	1.02	10YR 4/1	Silt Loam	NCM	10-15% Cobbles and gravel
C	7	A	0.42	1.38	10YR 4/2	Silt Loam	NCM	5% Cobbles and gravel

STP			Depth		Soil			
Trns	Test #	Stratum	Meters	Feet	Color	Texture	Artifacts	Notes
		B	0.62	2.03	10YR 5/4	Silt Loam	NCM	10-15% Cobbles and gravel
C	8	A	0.48	1.57	10YR 4/2	Silt Loam	NCM	5% Cobbles and gravel
		B	0.59	1.94	10YR 5/4	Silt Loam	NCM	10-15% Cobbles and gravel
C	9	A	0.39	1.28	10YR 3/3	Silt Loam	NCM	5% Cobbles and gravel
		B	0.62	2.03	10YR 5/4	Silt Loam	NCM	10-15% Cobbles and gravel
C	10	A	0.23	0.75	10YR 4/2	Silt Loam	NCM	5% Cobbles and gravel
		B	0.45	1.48	10YR 5/4	Silt Loam	NCM	10-15% Cobbles and gravel
C	11	A	0.29	0.95	10YR 4/2	Silt Loam	NCM	5% Cobbles and gravel
		B	0.47	1.54	10YR 5/4	Silt Loam	NCM	10-15% Cobbles and gravel
C	12	A	0.29	0.95	10YR 4/2	Silt Loam	NCM	5% Cobbles and gravel
		B	0.48	1.57	10YR 5/4	Silt Loam	NCM	10-15% Cobbles and gravel
C	13	A	0.32	1.05	10YR 4/2	Silt Loam	NCM	5% Cobbles and gravel
		B	0.60	1.97	10YR 5/4	Silt Loam	NCM	10-15% Cobbles and gravel
C	14	A	0.28	0.92	10YR 4/2	Silt Loam	NCM	5% Cobbles and gravel
		B	0.47	1.54	10YR 4/4	Silt Loam	NCM	10-15% Cobbles and gravel
C	15	A	0.28	0.92	10YR 5/4	Silt Loam	NCM	5% Cobbles and gravel
		B	0.46	1.51	10YR 4/4	Silt Loam	NCM	10-15% Cobbles and gravel
C	16	A	0.27	0.89	10YR 3/3	Silt Loam	NCM	5% Cobbles and gravel
		B	0.46	1.50	10YR 5/4	Silt Loam	NCM	10-15% Cobbles and gravel
C	17	A	0.24	0.79	10YR 4/2	Silt Loam	NCM	5% Cobbles and gravel
		B	0.43	1.41	10YR 4/6	Silt Loam	NCM	10-15% Cobbles and gravel
C	18	A	0.32	1.05	10YR 3/2	Silt Loam	NCM	5% Cobbles and gravel
		B	0.51	1.67	10YR 5/6	Silt Loam	NCM	10-15% Cobbles and gravel
W	1	A	0.42	1.38	10YR 3/2	Fine Sandy Loam	NCM	<5% Cobbles and gravel
		B	0.59	1.94	10YR 5/6	Fine Sandy Loam	NCM	10-15% Cobbles
W	2	A	0.31	1.02	10YR 3/2	Fine Sandy Loam	NCM	<5% Cobbles and gravel
		B	0.52	1.71	10YR 5/6	Fine Sandy Loam	NCM	10-15% Cobbles
W	3	A	0.14	0.46	10YR 3/2	Fine Sandy Loam	NCM	Rock Impasse at 14cm bgs
W	4	A	0.26	0.85	10YR 3/2	Fine Sandy Loam	NCM	<5% Cobbles and gravel
		B	0.48	1.57	10YR 5/6	Fine Sandy Loam	NCM	10-15% Cobbles
W	5	A	0.25	0.82	10YR 3/2	Fine Sandy Loam	NCM	<5% Cobbles and gravel
		B	0.58	1.90	10YR 5/6	Fine Sandy Loam	NCM	10-15% Cobbles and gravel

STP			Depth		Soil			
Trns	Test #	Stratum	Meters	Feet	Color	Texture	Artifacts	Notes
W	6	A	0.31	1.02	10YR 3/2	Fine Sandy Loam	NCM	<5% Cobbles and gravel
		B	0.59	1.94	10YR 5/6	Fine Sandy Loam	NCM	10-15% Cobbles
W	7	A	0.20	0.66	10YR 3/2	Fine Sandy Loam	NCM	<5% Cobbles and gravel
		B	0.29	0.95	10YR 5/6	Fine Sandy Loam	NCM	10-15% Cobbles and gravel
W	8	A	0.17	0.56	10YR 3/2	Fine Sandy Loam	NCM	<5% Cobbles and gravel
W	9	A	0.20	0.66	10YR 3/2	Fine Sandy Loam	NCM	Rock Impasse at 17cm bgs
		B	0.45	1.48	10YR 5/6	Fine Sandy Loam	NCM	10-15% Cobbles and gravel
W	10	A	0.27	0.89	10YR 3/2	Fine Sandy Loam	NCM	<5% Cobbles and gravel
		B	0.52	1.71	10YR 5/6	Fine Sandy Loam	NCM	10-15% Cobbles
W	11	A	0.18	0.59	10YR 3/2	Fine Sandy Loam	NCM	Rock Impasse at 18cm bgs
W	12	A	0.21	0.69	10YR 3/3	Fine Sandy Loam	NCM	<5% Cobbles and gravel
		B	0.42	1.38	10YR 5/4	Fine Sandy Loam	NCM	10-15% Cobbles
W	13	A	0.37	1.21	10YR 3/3	Fine Sandy Loam	NCM	<5% Cobbles and gravel
		B	0.49	1.61	10YR 5/4	Fine Sandy Loam	NCM	10-15% Cobbles and gravel
W	14	A	0.26	0.85	10YR 3/3	Fine Sandy Loam	NCM	<5% Cobbles and gravel
		B	0.45	1.48	10YR 5/4	Fine Sandy Loam	NCM	10-15% Cobbles and gravel
W	15	A	0.33	1.08	10YR 3/3	Fine Sandy Loam	NCM	<5% Cobbles and gravel
		B	0.49	1.61	10YR 5/4	Fine Sandy Loam	NCM	10-15% Cobbles and gravel
W	16	A	0.33	1.08	10YR 3/3	Fine Sandy Loam	NCM	<5% Cobbles and gravel
		B	0.49	1.61	10YR 5/4	Fine Sandy Loam	NCM	10-15% Cobbles and gravel
W	17	A	0.33	1.08	10YR 3/2	Fine Sandy Loam	NCM	<5% Cobbles and gravel
		B	0.49	1.61	10YR 5/4	Silt Loam	NCM	10-15% Cobbles and gravel
W	18	A	0.33	1.08	10YR 3/2	Fine Sandy Loam	NCM	5% Cobbles and gravel
		B	0.49	1.61	10YR 5/4	Silt Loam	NCM	10-15% Cobbles and gravel
L	1	A	0.33	1.08	10YR 4/2	Silt Loam	NCM	5% Cobbles and gravel
		B	0.49	1.61	10YR 5/6	Silt Loam	NCM	10-15% Cobbles and gravel
L	2	A	0.33	1.08	10YR 4/2	Silt Loam	NCM	5% Cobbles and gravel
		B	0.49	1.61	10YR 5/6	Silt Loam	NCM	10-15% Cobbles and gravel
L	1	A	0.36	1.18	10YR 4/2	Silt Loam	NCM	5% Cobbles and gravel
		B	0.61	2.00	10YR 5/6	Silt Loam	NCM	10-15% Cobbles and gravel
L	2	A	0.31	1.02	10YR 4/2	Silt Loam	NCM	5% Cobbles and gravel
		B	0.52	1.71	10YR 5/6	Silt Loam	NCM	10-15% Cobbles and gravel

STP			Depth		Soil			
Trns	Test #	Stratum	Meters	Feet	Color	Texture	Artifacts	Notes
L	3	A	0.27	0.89	10YR 4/2	Silt Loam	NCM	5% Cobbles and gravel
		B	0.68	2.23	10YR 5/6	Silt Loam	NCM	10-15% Cobbles and gravel
L	4	A	0.29	0.95	10YR 4/2	Silt Loam	NCM	5% Cobbles and gravel
		B	0.48	1.57	10YR 5/6	Silt Loam	NCM	10-15% Cobbles and gravel
L	5	A	0.30	0.98	10YR 4/2	Silt Loam	NCM	5% Cobbles and gravel
		B	0.59	1.94	10YR 5/6	Silt Loam	NCM	10-15% Cobbles and gravel
L	6	A	0.31	1.02	10YR 4/2	Silt Loam	NCM	5% Cobbles and gravel
		B	0.56	1.84	10YR 5/6	Silt Loam	NCM	10-15% Cobbles and gravel
L	7	A	0.32	1.06	10YR 4/2	Silt Loam	NCM	5% Cobbles and gravel
		B	0.51	1.67	10YR 5/6	Silt Loam	NCM	10-15% Cobbles and gravel
L	8	A	0.26	0.85	10YR 4/2	Silt Loam	NCM	5% Cobbles and gravel
		B	0.46	1.51	10YR 5/6	Silt Loam	NCM	10-15% Cobbles and gravel
L	9	A	0.28	0.92	10YR 4/2	Silt Loam	NCM	5% Cobbles and gravel
		B	0.50	1.64	10YR 5/6	Silt Loam	NCM	10-15% Cobbles and gravel
L	10	A	0.29	0.95	10YR 4/2	Silt Loam	NCM	5% Cobbles and gravel
		B	0.48	1.57	10YR 5/6	Silt Loam	NCM	10-15% Cobbles and gravel
L	11	A	0.25	0.82	10YR 4/2	Silt Loam	NCM	5% Cobbles and gravel
		B	0.42	1.38	10YR 5/6	Silt Loam	NCM	10-15% Cobbles and gravel
L	12	A	0.26	0.85	10YR 4/2	Silt Loam	NCM	5% Cobbles and gravel
		B	0.46	1.51	10YR 5/6	Silt Loam	NCM	10-15% Cobbles and gravel
L	13	A	0.27	0.89	10YR 4/2	Silt Loam	NCM	5% Cobbles and gravel
		B	0.56	1.84	10YR 5/6	Silt Loam	NCM	10-15% Cobbles and gravel
L	14	A	0.29	0.95	10YR 4/2	Silt Loam	NCM	5% Cobbles and gravel
		B	0.48	1.57	10YR 5/6	Silt Loam	NCM	10-15% Cobbles and gravel
L	15	A	0.26	0.85	10YR 4/2	Silt Loam	NCM	5% Cobbles and gravel
		B	0.46	1.51	10YR 5/6	Silt Loam	NCM	10-15% Cobbles and gravel
L	16	A	0.23	0.75	10YR 4/2	Silt Loam	NCM	5% Cobbles and gravel
		B	0.47	1.54	10YR 5/6	Silt Loam	NCM	10-15% Cobbles and gravel
L	17	A	0.26	0.85	10YR 4/2	Silt Loam	NCM	5% Cobbles and gravel
		B	0.52	1.71	10YR 5/6	Silt Loam	NCM	10-15% Cobbles and gravel
L	18	A	0.31	1.02	10YR 4/2	Silt Loam	NCM	5% Cobbles and gravel
		B	0.52	1.71	10YR 5/6	Silt Loam	NCM	10-15% Cobbles and gravel

STP			Depth		Soil			
Trns	Test #	Stratum	Meters	Feet	Color	Texture	Artifacts	Notes
L	19	A	0.25	0.82	10YR 4/2	Silt Loam	NCM	5% Cobbles and gravel
		B	0.45	1.48	10YR 5/6	Silt Loam	NCM	10-15% Cobbles and gravel
L	20	A	0.29	0.94	10YR 4/2	Silt Loam	NCM	5% Cobbles and gravel
		B	0.46	1.51	10YR 5/6	Silt Loam	NCM	10-15% Cobbles and gravel
L	21	A	0.25	0.82	10YR 4/2	Silt Loam	NCM	5% Cobbles and gravel
		B	0.46	1.51	10YR 5/6	Silt Loam	NCM	10-15% Cobbles and gravel
L	22	A	0.24	0.79	10YR 4/2	Silt Loam	NCM	5% Cobbles and gravel
		B	0.40	1.31	10YR 5/6	Silt Loam	NCM	10-15% Cobbles and gravel
L	23	A	0.26	0.85	10YR 4/2	Silt Loam	NCM	5% Cobbles and gravel
		B	0.52	1.71	10YR 5/6	Silt Loam	NCM	10-15% Cobbles and gravel
L	24	A	0.22	0.71	10YR 4/2	Silt Loam	NCM	5% Cobbles and gravel
		B	0.54	1.77	10YR 5/6	Silt Loam	NCM	10-15% Cobbles and gravel
L	25	A	0.27	0.89	10YR 4/2	Silt Loam	NCM	5% Cobbles and gravel
		B	0.55	1.80	10YR 5/6	Silt Loam	NCM	10-15% Cobbles and gravel
L	26	A	0.23	0.75	10YR 4/2	Silt Loam	NCM	5% Cobbles and gravel
		B	0.46	1.51	10YR 5/6	Silt Loam	NCM	10-15% Cobbles and gravel
L	27	A	0.28	0.92	10YR 4/2	Silt Loam	NCM	5% Cobbles and gravel
		B	0.49	1.61	10YR 5/6	Silt Loam	NCM	10-15% Cobbles and gravel
L	28	A	0.26	0.85	10YR 4/2	Silt Loam	NCM	5% Cobbles and gravel
		B	0.43	1.41	10YR 5/6	Silt Loam	NCM	10-15% Cobbles and gravel
L	29	A	0.29	0.95	10YR 4/2	Silt Loam	NCM	5% Cobbles and gravel
		B	0.49	1.61	10YR 5/6	Silt Loam	NCM	10-15% Cobbles and gravel
L	30	A	0.28	0.92	10YR 4/2	Silt Loam	NCM	5% Cobbles and gravel
		B	0.52	1.71	10YR 5/6	Silt Loam	NCM	10-15% Cobbles and gravel