# HISTORICAL PERSPECTIVES INC.



Phase IB Archaeological Field Investigation Tyrellan Avenue Development Block 7469, Lots 115, 120, 125, 136 and 150 Staten Island, Richmond County, New York

**NYSOPRHP # 13PR00027** 

# Phase IB Archaeological Field Investigation Tyrellan Avenue Development Block 7469, Lots 115, 120, 125, 136 and 150 Staten Island, Richmond County, New York

## **NYSOPRHP # 13PR00027**

Prepared For:

Block 7469, LLC 45 Marble Loop Staten Island, NY 10309

Prepared By:

Historical Perspectives, Inc. P.O. Box 529 Westport, CT 06881

Authors: David C. Martin, Ph.D. Sara F. Mascia, Ph.D., R.P.A.

May 2016

## MANAGEMENT SUMMARY

SHPO Project Review Number (if available): 13PR00027

Involved State and Federal Agencies: NYSDEC

Phase of Survey: Phase IB Archaeological Field Investigation

**Location Information** 

Location: Block 7469, Lots 115, 120, 125, 136 and 150

Minor Civil Division: 08501, Staten Island

County: Richmond

Survey Area

Length: varies Width: varies

Number of Acres Surveyed: ca. 4.5

USGS 7.5 Minute Quadrangle Map: Arthur Kill

Archaeological Survey Overview

Number & Interval of Shovel Tests: 57 at 15-meter interval

Number & Size of Units: **N/A** Width of Plowed Strips: **N/A** 

Surface Survey Transect Interval: N/A, urban area

Results of Archaeological Survey

Number & name of precontact sites identified: **None** Number & name of historic sites identified: **None** 

Number & name of sites recommended for Phase II/Avoidance: None

Report Authors(s): David C. Martin Ph.D. and Sara F. Mascia Ph.D

Date of Report: May 2016

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APPENDIX I: RECORD OF SHOVEL TESTS (STs)

# **FIGURES**

- 1. Project site on *Arthur Kill, NY-NJ* 7.5 Minute Quadrangle (U.S.G.S. 1981).
- 2. Locations of STs within the Project APE.

## **PHOTOGRAPHS**

- 1. Overview of one of the Shovel Test (ST) transects within the site.
- 2. Sample of an excavated ST showing the typical stratigraphic profile encountered at the project site.

## I. INTRODUCTION

Block 7469, LLC proposes new construction on Block 7469, Lots 115, 120, 125, 136 and 150, Staten Island, Richmond County, New York (Figures 1). The property is bounded by Tyrellan Avenue on the west, Veterans Road West on the north, and the exit ramp for the West Shore Expressway (Route 440) on the east and south. The proposed project includes construction of commercial buildings and parking lots. The Area of Potential Effect (APE) is the area that could be affected by project development. At this time, development is proposed on the entire project site.

As part of the New York State Department of Environmental Conservation (NYSDEC) permitting process, project materials were submitted to the New York State Office of Parks, Recreation, and Historic Preservation (NYSOPRHP) for cultural resource review. The NYSOPRHP responded that a Phase I archaeological survey was necessary for all areas that would experience ground disturbance as part of the proposed project (Pierpont 1/2/2013).

This Phase IB Field Investigation was prepared to comply with the standards of the NYSOPRHP (New York Archaeological Council 1994; NYSOPRHP 2005). The HPI project team consisted of Sara F. Mascia, Ph.D., R.P.A., who oversaw the field investigation and the report, David C. Martin, Ph.D., R.P.A., who assisted with the field investigation, and Cece Saunders, M.A., R.P.A., who managed the project and provided editorial and interpretive assistance.

#### II. PROJECT SITE SENSITIVITY

The project site appears to be largely undisturbed, except in the locations bordering the two outparcels on the block, which exhibit visible evidence of clearing, grading, and dumping. For example, the 2007 Phase I ESA reported a large sand stockpile about 100 feet east of the parking lot for the bank building (CEA 2007)

The Phase IA research found that the project site is located in an area where numerous precontact period archaeological sites have been recorded, including many on similar landforms as the Veterans Road site. Further, the examination found that in the past the project site had topographic and landscape attributes that would have been favorable for precontact activity. Finally, research also found that the property had been undeveloped and largely wooded during the historic era, which might have preserved potential archaeological resources. As a result, the entire APE was considered potentially sensitive for precontact archaeological remains.

## III. PHASE IB FIELD METHODOLOGY

Phase IB archaeological testing is designed to verify or deny the conclusions of the initial assessment by establishing the actual presence or absence of cultural resources on the site. The field investigation was implemented according to applicable archaeological standards and was conducted over the course of four days in April 2016 (New York Archaeological Council 1994, NYSOPRHP 2005). The field team established a site datum and spaced shovel tests (STs) at 15m (50 ft) intervals on a grid over the sensitive portions of the APE (Figure 2). Areas within the APE of greater than 12% slope were not tested. In some locales, ST locations fell on clearly disturbed area, represented by modern trash or push piles, for example. In particular, a significant amount of disturbance was observed along the northern edge of the project site. Along the southern edge of the project, disturbance was also noted. In some cases, STs were offset to a suitable area within 1-2 meters of the grid.

Each shovel test measured approximately 40 x 40cm (16 x16 in.). Each soil stratum encountered during field testing was explored and documented and any cultural materials were noted in order to determine their context and integrity as well as to further ascertain whether or not any potential *in situ* cultural resources or features were extant. During testing, all of the STs were hand excavated and soil was sifted through one-quarter inch screen. Stratigraphic profiles of all STs were recorded (Appendix 1). Recovered modern

material (modern trash) was noted on the field forms, but not collected. Appropriate field notations, drawings, and photographs were made during field testing and the results of each ST were documented.

#### IV. PHASE IB FIELD TESTING RESULTS

The entire APE was treated as one area that contained a single datum/grid. This area included two small hills and several drainages, 60 STs were laid out on the grid and 57 STs were excavated. As previously stated, those STs displaying clear modern disturbance (3) were not excavated. The excavated STs will be discussed below.

#### APE AREA

A typical ST in the APE consisted of an Ao horizon ranging from 0-10 cm in depth, and described as 10YR 2/1 (black) and was a sandy loam. Most STs had an A horizon that was approximately 11-40 cm thick. This soil was typically a 10YR 4/4 (dark yellowish brown) sandy loam. Sterile B/C horizon subsoil was usually present at a depth of 41-60 cm and was a 7.5YR 4/4 (brown) clayey sand. Excavation halted one the C-horizon was revealed. Two STs displayed different soil profiles, most likely due to them being in drainage ways and very close to the natural water table. ST S45E105 had a C sterile horizon that was a 10YR 6/6 mixed with Gley 7/8 (light gray) silty clayey sand at 30-51cm below the surface. ST S30 E135 displayed an A horizon that was the typical 10YR 2/1 mixed with Gley 7/8 (light gray) silty sandy loam. Both of these STs began to fill with water at approximately 50cm below surface.

No precontact artifacts were recovered from any STs investigated during the course of fieldwork. Further, no charcoal deposits, features, or evidence of any precontact habitation was identified. The cultural material noted within the APE was very clearly modern trash. The materials included food wrappers, plastic and glass bottles, plastic bags, and aluminum cans. Modern material was noted, but not collected.

#### V. CONCLUSIONS AND RECOMMENDATIONS

The absence of precontact artifacts, the excavation of numerous sterile STs, and the notation of only modern materials indicates that there was no precontact activity within the project site. Given the lack of recovered finds and the lack of further research potential, a key criterion for a site's National Register eligibility, no additional archaeological investigations are warranted.

#### VI. REFERENCES

CEA Engineers, P.C.

2007 Phase I Environmental Site Assessment, Tyrellan Avenue Holdings, LLC, (Block 7469), Staten Island, Richmond County, New York 10309.

Historical Perspectives, Inc.

2016 Phase 1A Archaeological Documentary Study, Tyrellan Avenue Development, Block 7469, Lots 115, 120, 125, 136 and 150m Staten Island, Richmond County, New York (NYSOPRHP # 13PR00027). Prepared for Tyrellan Holdings, LLC.

New York Archaeological Council (NYAC)

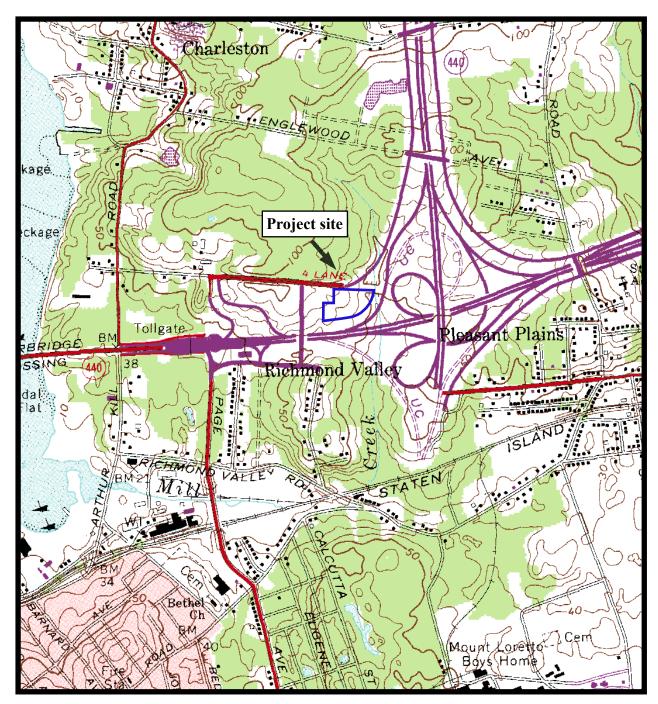
1994 Standards for Cultural Resource Investigations and the Curation of Archaeological Collections. New York Archaeological Council.

New York State Office of Parks, Recreation, and Historic Preservation (NYSOPRHP) 2005 Phase I Archaeological Report Format Requirements.

United States Department of Agriculture (U.S.D.A.)

New York City Reconnaissance Soil Survey. United States Department of Agriculture, Natural Resources Conservation Service, Staten Island, NY. Map updated 2006. 2005

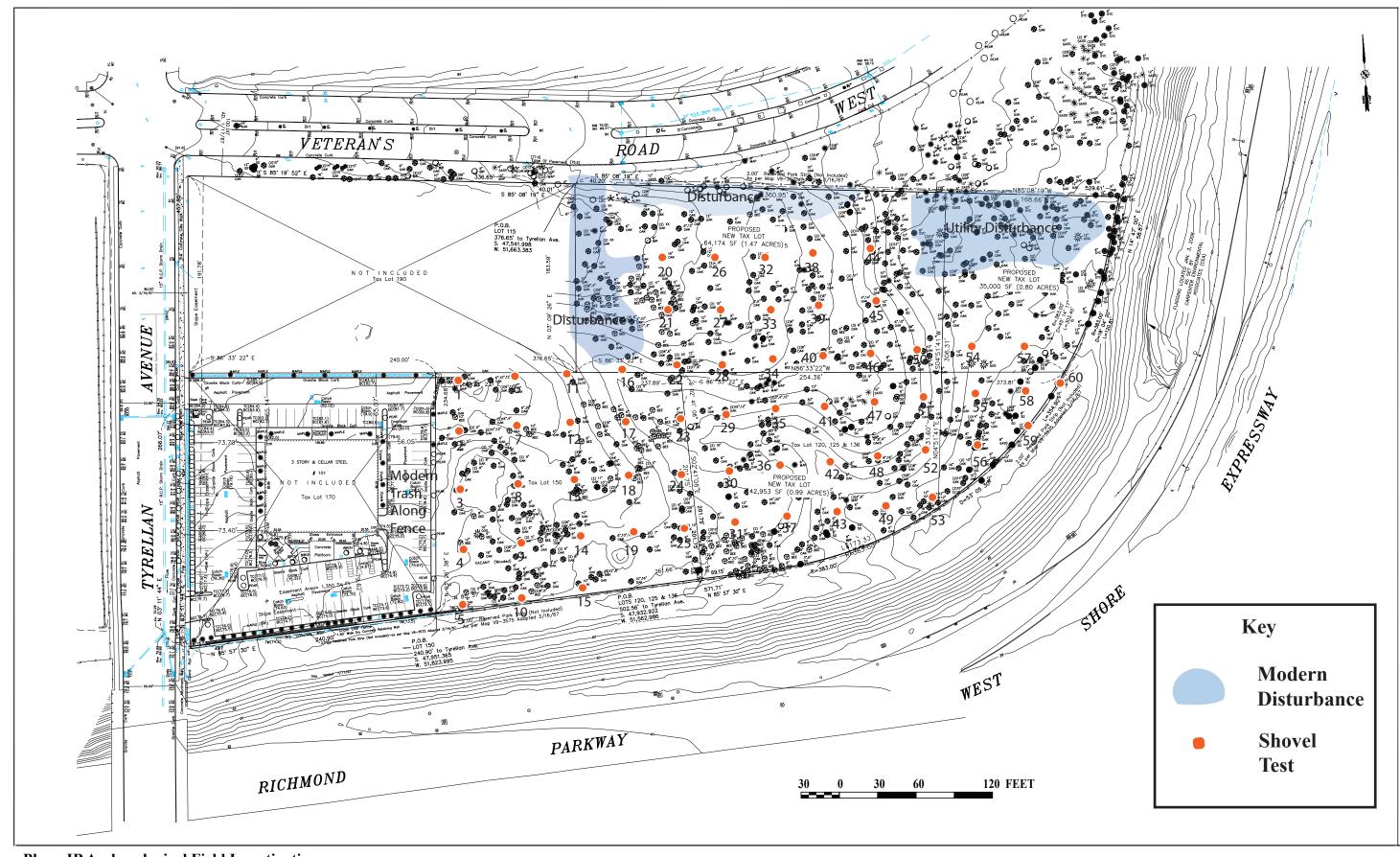
United States Geological Survey (U.S.G.S.)
1981 *Arthur Kill, N.J.-N.Y.* 7.5 Minute Topographic Quadrangle.



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Figure 1: Project site on Arthur Kill, N.Y-N.J. 7.5 Minute quadrangle (U.S.G.S. 1981).



Phase IB Archaeological Field Investigation Tyrellan Avenue Development Block 7469, Lots 115, 120, 125, 136 and 150 Staten Island, Richmond County, New York

(Hp)

Figure 2. Locations of STs within the Project APE.



Photograph 1. Overview of one of the Shovel Test (ST) transects within the site.

Photograph 2. Sample of an excavated ST showing the typical stratigraphic profile encountered at the project site.



ST No.	Grid Coord	Level	Strata	Depth cmbs	Soil Color	Soil Description	Cultural Material	Comments/ Reason for Termination
1	N0 W30							Disturbed
2	S15 W30	1	Α	0-50	10 YR 2/1	SA LO	NCM	
2		2	В	50-66	7.5 YR 4/4	SA LO	NCM	
2		3		66				Root obstruction on slope; Modern Trash on Surface
3	S30 W30	1	Ao	0-15	10 YR 2/1	SA LO	NCM	
3		_	Α	15-39	10 YR 4/4	LO SA	NCM	
3			В	39-55	7.5 YR 4/4	CL SA	NCM	Sterile Subsoil; Modern trash on surface
4	S45 W30	1	Ao	0-9	10 YR 2/1	SA LO	NCM	
4		2	Α	9-40	10 YR 4/4	LO SA	NCM	
4		3	В	40-58	7.5 YR 4/4	CL SA	NCM	Sterile Subsoil
5	S60 W30	1	Ao	0-5	10 YR 2/1		NCM	
5		2	Α	5-30	10 YR 4/4	SA LO	NCM	
5		3		38		SA LO	NCM	Root Obstruction
6	N0 W15	1	Ao	0-10	10 YR 2/1	SA LO	NCM	
6		2	Α	10-40	10 YR 4/4	SA LO	NCM	
6		3	В	40-63	7.5 YR 4/4	CL SA	NCM	Sterile Subsoil; Moved 1M South for fence disturbance
7	S15 W15	1	Ao	0-11	10 YR 2/1	SA LO	NCM	
7		2	Α	11-28	10 YR 4/4	SA LO	NCM	
7		3	В	28-43	7.5 YR 4/4	CL SA	NCM	Rock Obstruction
7		4	Rock	43				Modern trash on surface
8	S30 W15	1	Ao	0-19	10 YR 2/1	SA LO	NCM	
8		2	Α	19-59	10 YR 4/4	SA LO	NCM	
8		3		59			NCM	Rock Obstruction; Modern trash on surface
9	S 45 W15	1	Ao	0-51	10 YR 2/1	SA LO	NCM	
9		,	٨	51-55	10 YR 4/4	SA LO	NCM	Clear soil disturbance; modern trash on surface
			A	0-8				Januace
10	S60 W15	_	Ao A	0-8 8-43	10 YR 2/1 10 YR 4/4	SA LO SA LO	NCM NCM	
10			В	43-62	7.5 YR 4/4	CL SA	NCM	Sterile Subsoil
	NO EO	, <u>, , , , , , , , , , , , , , , , , , </u>	٦	73 02	7.5 11(4/4	CL JA	INCIVI	Disturbed
	S15 E0	1	٨٥	0-12	10 VD 2/1	SA LO	NCM	Distuibed
			Ao ^		10 YR 2/1			
12			Α	12-31	10 YR 4/4	SA LO	NCM	

ST No.	Grid Coord	Level	Strata	Depth cmbs	Soil Color	Soil Description	Cultural Material	Comments/ Reason for Termination
12		3	В	31-52	7.5 YR 4/4	CL SA	NCM	Sterile Subsoil
13	S30 E0	1	Ao	0-9	10 YR 2/1	SA LO	NCM	
13		2	А	9-31	10 YR 4/4	SA LO	NCM	
13		3	Root	31				Root Obstruction
14	S45 E0	1	Ao	0-15	10 YR 2/1	SA LO	NCM	
14		2	Α	15-32	10 YR 4/4	SA LO	NCM	
								Sterile Subsoil; Offset
								1.5 M for push pile
14		3	В	32-56	7.5 YR 4/4	CL SA	NCM	disturbance
15	S60 E0							Disturbed
16	N0 E15	1	Ao	0-20	10 YR 2/1	SA LO	NCM	1
16		2		20-39	10 YR 4/4	SA LO	NCM	
16		3		39-60	7.5 YR 4/4	CL SA	NCM	Sterile Subsoil
17	S15 E15	1	Ao	0-20	10 YR 2/1	SA LO	NCM	
17		2		20-43	10 YR 4/4	SA LO	NCM	
17		3		43-53	7.5 YR 4/4	CL SA	NCM	Sterile Subsoil
18	S30 E15	1		0-11	10 YR 2/1	SA LO	NCM	
18	330 213	2		11-34	10 YR 4/4	SA LO	NCM	+
18		3		34-46	7.5 YR 4/4	CL SA	NCM	
18			Root	46	7.0, .	0207	NCM	Sterile Subsoil
19		1		0-6	10 YR 2/1	SA LO	NCM	
19	3 13 213	2		6-45	10 YR 4/4	SA LO	NCM	
19		3		45-55	7.5 YR 4/4	CL SA	NCM	Sterile Subsoil
	N30 E30	1		0-18	10 YR 2/1	SA LO	NCM	
20	1430 230	2		18-24	10 YR 4/4	SA LO	NCM	
20			В	24-51	7.5 YR 4/4	CL SA	NCM	Sterile Subsoil
21	N15 E30	1		0-6	10 YR 2/1	SA LO	NCM	Sterne Subson
21			A	6-23	10 YR 4/4	SA LO	NCM	+
21			В	23-44	7.5 YR 4/4	CL SA	NCM	
21			Rock	44	7.5 11(4)4	CESA	IVEIVI	Sterile Subsoil/Rock Obstruction
	N0 E30		Ao	0-11	10 YR 2/1	SA LO	NCM	
22		2		11-38	10 YR 4/4	SA LO	NCM	†
22			В	38-55	7.5 YR 4/4	CL SA	NCM	Sterile Subsoil
	S15 E30	1		0-12	10 YR 2/1	SA LO	NCM	
23			A	12-33	10 YR 4/4	SA LO	NCM	†
23			В	33-53	7.5 YR 4/4	CL SA	NCM	Sterile Subsoil
	S30 E30		Ao	0-6	10 YR 2/1	SA LO	NCM	
24		2		6-35	10 YR 4/4	SA LO	NCM	
24			В	35-54	7.5 YR 4/4	CL SA	NCM	
24			Root	54	7.5 11. 17.	3237	1.13.11	Sterile Subsoil/Root Obstruction
25	S45 E30		Ao	0-8	10 YR 2/1	SA LO	NCM	

ST No.	Grid Coord	Level	Strata	Depth cmbs	Soil Color	Soil Description	Cultural Material	Comments/ Reason for Termination
25		2	Α	8-20	10 YR 4/6	SA LO	NCM	
25		3	В	20-51	7.5 YR 4/4	CL SA	NCM	Sterile Subsoil
26	N30 E45	1	Ao	0-12	10 YR 2/1	SA LO	NCM	
26		2	Α	12-26	10 YR 4/4	SA LO	NCM	
26		3	В	26-53	7.5 YR 4/4	CL SA	NCM	Sterile Subsoil
27	N15 E45	1	Ao	0-8	10 YR 2/1	SA LO	NCM	
27		2	Α	8-37	10 YR 4/4	SA LO	NCM	
27		3	В	37-54	7.5 YR 4/4	CL SA	NCM	Sterile Subsoil
28	N0 E45	1	Ao	0-10	10 YR 2/1	SA LO	NCM	
28		2	Α	10-24	10 YR 4/4	SA LO	NCM	
28		3	В	24-50	7.5 YR 4/4	CL SA	NCM	Sterile Subsoil
29	S15 E45	1	Ao	0-6	10 YR 2/1	SA LO	NCM	
29		2	Α	6-37	10 YR 4/4	SA LO	NCM	
29		3	В	37-48	7.5 YR 4/4	CL SA	NCM	Sterile Subsoil
30	S30 E45	1	Ao	0-6	10 YR 2/1	SA LO	NCM	
30		2	Α	6-44	10 YR 4/4	SA LO	NCM	
30		3	В	44-54	7.5 YR 4/4	CL SA	NCM	Sterile Subsoil
31	S45 E45	1	Ao	0-10	10 YR 2/1	SA LO	NCM	
31		2	Α	10-44	10 YR 4/4	SA LO	NCM	
31		3	В	44-66	7.5 YR 4/4	CL SA	NCM	Sterile Subsoil
32	N30 E60	1	Ao	0-7	10 YR 2/1	SA LO	NCM	
32		2	А	7-30	10 YR 4/4	SA LO	NCM	
32		3	В	20-48	7.5 YR 4/4	CL SA	NCM	Sterile Subsoil
33	N 15 E60	1	Ao	0-12	10 YR 2/1	SA LO	NCM	
33		2	Α	12-34	10 YR 4/4	SA LO	NCM	
33		3	В	34-52	7.5 YR 4/4	CL SA	NCM	Sterile Subsoil
34	N0 E60	1	Ao	0-8	10 YR 2/1	SA LO	NCM	
34		2	Α	8-40	10 YR 4/4	SA LO	NCM	
34		3	В	40-53	7.5 YR 4/4	CL SA	NCM	Sterile Subsoil
35	S15 E60	1	Ao	0-8	10 YR 2/1	SA LO	NCM	
35		2	Α	8-39	10 YR 4/4	SA LO	NCM	
35		3	В	39-54	7.5 YR 4/4	CL SA	NCM	Sterile Subsoil
36	S30 E45	1	Ao	0-25	10 YR 2/1	SA LO	NCM	
36		2	Α	25-40	10 YR 4/4	SA LO	NCM	
								Sterile Subsoil; In drainage, water table
36		3	В	40-57	7.5 YR 4/4	CL SA; wet	NCM	at base of pit
37	S45 E45	1	Ao	0-8	10 YR 2/1	SA LO	NCM	
37		2	A	8-32	10 YR 4/4	SA LO	NCM	
37			В	32-49	7.5 YR 4/4	CL SA	NCM	Sterile Subsoil
38	N30 E75	1	Ao	0-6	10 YR 2/1	SA LO	NCM	
38			Α	6-41	10 YR 4/4	SA LO	NCM	1
38		3		41-51	7.5 YR 4/4	CL SA	NCM	Sterile Subsoil

ST No.	Grid Coord	Level	Strata	Depth cmbs	Soil Color	Soil Description	Cultural Material	Comments/ Reason for Termination
39	N15 E75	1	Ao	0-8	10 YR 2/1	SA LO	NCM	
39		2	Α	8-30	10 YR 4/4	SA LO	NCM	
39		3	В	30-50	7.5 YR 4/4	CL SA	NCM	Sterile Subsoil
40	N0 E75	1	Ao	0-8	10 YR 2/1	SA LO	NCM	
40		2	Α	8-45	10 YR 4/4	SA LO	NCM	
40		3	В	45-60	7.5 YR 4/4	CL SA	NCM	Sterile Subsoil
41	S15 E75	1	Ao	0-17	10 YR 2/1	SA LO	NCM	
41		2	Α	17-37	10 YR 4/4	SA LO	NCM	
41		3	Rock	37	7.5 YR 4/4	CL SA	NCM	Root/Rock Obstruction
42	S30 E75	1	Ao	0-7	10 YR 2/1	SA LO	NCM	
42		2	Α	7-33	10 YR 4/4	SA LO	NCM	
42	S45 E75	3	В	33-51	7.5 YR 4/4	CL SA	NCM	Sterile Subsoil
43		1	Ao	0-5	10 YR 2/1	SA LO	NCM	
43		2	А	5-53	10 YR 4/4	SA LO	NCM	
43		3	В	53-63	7.5 YR 4/4	CL SA	NCM	Sterile Subsoil
44	N30 E90	1	Ao	0-15	10 YR 2/1	SA LO	NCM	
44		2	Α	15-48	10 YR 4/4	SA LO	NCM	
44		3	Rock	48				Rock Obstruction at 48 cm
45	N15 E90	1	Ao	0-6	10 YR 2/1	SA LO	NCM	
45		2	Α	6-34	10 YR 4/4	SA LO	NCM	
45		3	В	34-48	7.5 YR 4/4	CL SA	NCM	Sterile Subsoil; on slope
46	N0 E90	1	Ao	0-10	10 YR 2/1	SA LO	NCM	
46		2	Α	10-34	10 YR 4/4	SA LO	NCM	
46		2	Doot	24	7.5 YR 4/4	CL SA	NCM	Root obstruction; widened hole at 20 cm
			Root	34				CIII
	S 15 E90		Ao	0-8	10 YR 2/1	SA LO	NCM	
47 47			A B	8-34 34-50	10 YR 4/4	SA LO	NCM	Sterile Subsoil
	620 500				7.5 YR 4/4	CL SA	NCM	Sterile Subsoil
48	S30 E90	1		0-10	10 YR 2/1 10 YR 4/4	SA LO	NCM	
48			A Root	21	10 18 4/4	SA LO	NCM	Root obstruction at 21 cm; widened hole at 20 cm
	S45 E90		Ao	0-27	10 YR 2/1	SA LO	NCM	
49			В	27-56	10 YR 4/4	SA LO	NCM	Sterile Subsoil; No "A"; Hole 8M north of fence
	N0 E105	1		0-11	10 YR 2/1	SA LO	NCM	
50	. 10 2100			11-47	10 YR 4/4	SA LO	NCM	
50			В	47-57	7.5 YR 4/4	CL SA	NCM	Sterile Subsoil

ST No.	Grid	Level	Strata	Depth cmbs	Soil Color	Soil	Cultural	Comments/ Reason for
	Coord					Description	Material	Termination
	S15 E105		Ao	0-10	10 YR 2/1	SA LO	NCM	
51		2	A	10-36	10 YR 4/4	SA LO	NCM	6. 1. 6. 1. 11
								Sterile Subsoil-on
51		3	В	36-62	7.5 YR 4/4	CL SA	NCM	slight slope
	S30 E105	1	Ao	0-8	10 YR 2/1	SA LO	NCM	
52		2		8-38	10 YR 4/4	SA LO	NCM	
52		3	В	38-51	7.5 YR 4/4	CL SA	NCM	Sterile Subsoil
53	S45 E105	1	Ao	0-13	10 YR 2/1	SA LO	NCM	
53		2	Α	13-30	10 YR 4/4	SA LO	NCM	
					10 YR 6/6;	Mixed with SI		
53		3	B/C	30-51	Gley 7/8	CL SA	NCM	
53		4	Water	51				Water Table at 51 cm
54	N0 E120	1	Ao	0-7	10 YR 2/1	SA LO	NCM	
54		2	Α	7-19	10 YR 4/4	SA LO	NCM	
								Offset 1M East; Root
								Obstruction
54		Root		19				Obstruction at 19 cm
55	S15 E120	1	Ao	0-7	10 YR 2/1	SA LO	NCM	
55			Α	7-26	10 YR 4/4	SA LO	NCM	
					<u> </u>			Sterile Subsoil w/
55		3	В	26-50	7.5 YR 4/4	CL SA	NCM	roots
56	S30 E120	1	Ao	0-6	10 YR 2/1	SA LO	NCM	
56		2	Α	6-23	10 YR 4/4	SA LO	NCM	
56		3	В	23-50	7.5 YR 4/4	CL SA	NCM	Sterile Subsoil
57	N0 E135	1	Ao	0-9	10 YR 2/1	SA LO	NCM	
57		2	Α	9-25	10 YR 4/4	SA LO	NCM	
57			В	25-40	7.5 YR 4/4	CL SA	NCM	
					,			Sterile Subsoil; Root
57		4	Root	40				obstruction at 40 cm
58	S15 E135	1	Ao	0-8	10 YR 2/1	SA LO	NCM	
58			A	8-31	10 YR 4/4	SA LO	NCM	
58			В	31-49	7.5 YR 4/4	CL SA	NCM	Sterile Subsoil
					10 YR 2/1;	Mixed with SI		
59	S30 E135	1	Ao	0-24	Gley 7/8	SA LO	NCM	
59	230 2133		A	24-35	10 YR 4/4	SA LO	NCM	
33		<del>-</del>		33				Sterile Subsoil; Water
59		3	В	35-48	7.5 YR 4/4	CL SA; wet	NCM	in drainage
60	S15 E150	1	Ao	0-14	10 YR 2/1	LO SA	NCM	
					10 YR 4/4;	LO SA with		
60		ر ا	Α	14-38	Gley 7/8	fine sand	NCM	

# APPENDIX 1: RECORD OF SHOVEL TESTS (STS)

ST No.		Level	Strata	Depth cmbs	Soil Color			Comments/ Reason for
	Coord					Description	Material	Termination
								Root Obstruction at
								38 cm; Widened hole
								at 20 cm; in
60		3	Root	38				secondary drainage