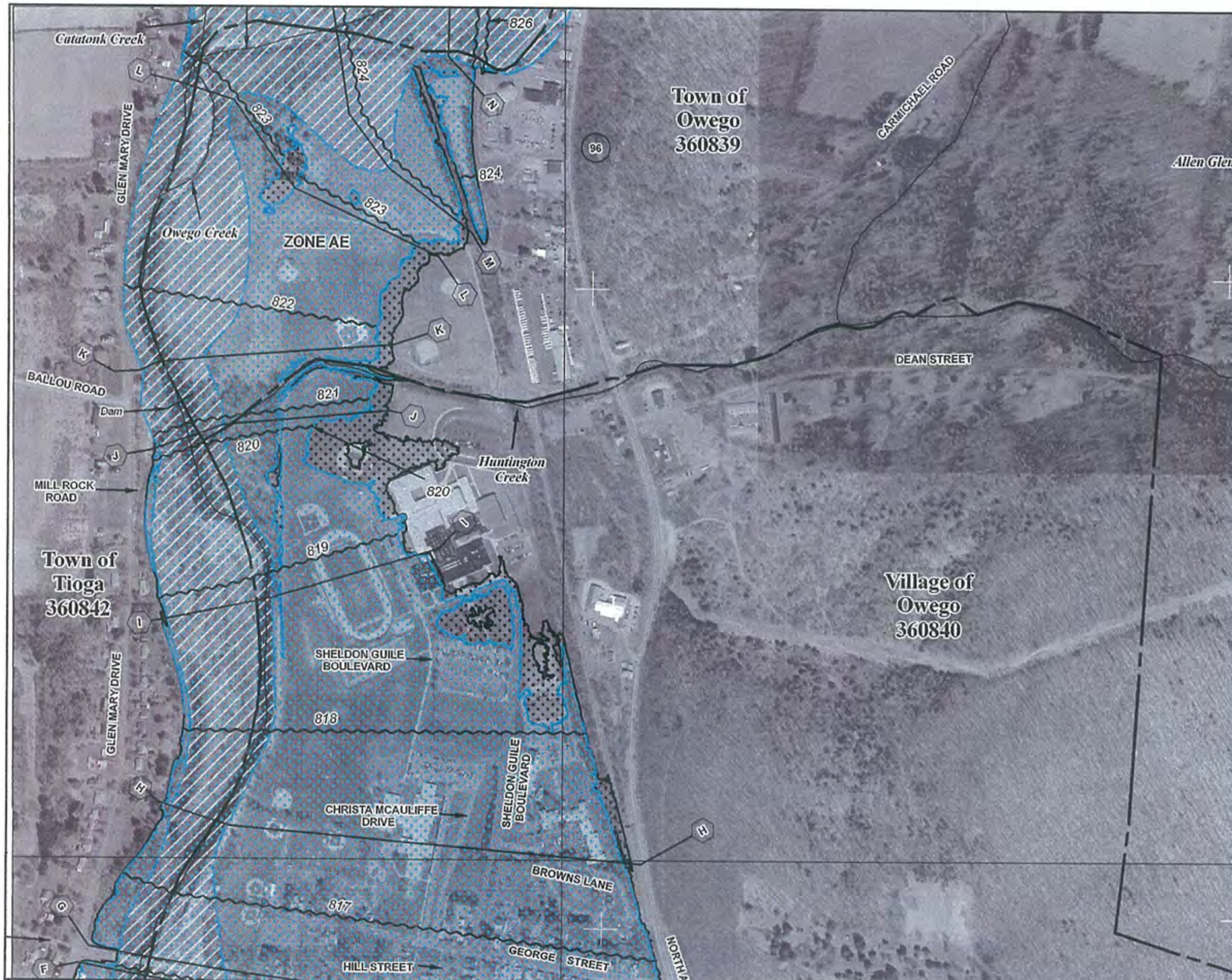

MAP SCALE 1" = 500'

250 0 500 1000 FEET

METERS

NATIONAL FLOOD INSURANCE PROGRAM

NFIP

PANEL 0382E

FIRM

FLOOD INSURANCE RATE MAP

for TIOGA COUNTY, NEW YORK
(ALL JURISDICTIONS)

CONTAINS:

COMMUNITY	NUMBER
OWEGO, TOWN OF	360839
OWEGO, VILLAGE OF	360840
TIOGA, TOWN OF	360842

PANEL 382 OF 551
MAP SUFFIX: E
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
36107C0382E

EFFECTIVE DATE
APRIL 17, 2012

Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov

HEC-RAS Plan: Existing River: OWEGO Reach: EG-RAS Profile: PF 1

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
EG-RAS	3345	PF 1	34100.00	800.78	822.87		823.87	0.001838	9.69	5710.75	1108.39	0.43
EG-RAS	2775	PF 1	34100.00	804.93	820.76		821.54	0.002871	7.16	5029.69	1130.67	0.47
EG-RAS	2403	PF 1	34100.00	803.91	820.14		820.65	0.001726	6.07	6899.04	1331.27	0.35
EG-RAS	1891	PF 1	34100.00	800.88	819.55		819.87	0.001158	5.42	8266.18	1580.73	0.28
EG-RAS	1718	PF 1	34100.00	799.80	819.28		819.62	0.001693	5.24	7833.16	2021.49	0.29
EG-RAS	1595	PF 1	34100.00	799.03	817.72	814.52	818.96	0.037917	4.51	5805.15	1747.18	0.25
EG-RAS	1471	PF 1	34100.00	798.25	817.64		818.07	0.001913	6.26	7323.42	2121.45	0.37
EG-RAS	1353	PF 1	34100.00	797.52	817.48		817.84	0.001706	5.73	7779.09	2192.07	0.36
EG-RAS	1216	PF 1	34100.00	796.64	817.37		817.59	0.001342	3.88	9145.56	2147.19	0.24
EG-RAS	969	PF 1	34100.00	790.87	817.19		817.35	0.000638	3.59	10471.55	1937.70	0.18
EG-RAS	717	PF 1	34100.00	795.53	816.88	813.23	817.12	0.001288	4.92	10562.54	2540.99	0.26
EG-RAS	508	PF 1	34100.00	801.47	816.67		816.91	0.000901	5.18	12042.14	2680.38	0.31
EG-RAS	0	PF 1	34100.00	797.68	816.30	811.03	816.53	0.000642	4.95	13093.17	2918.90	0.27

HEC-RAS Plan: Proposed River: OWEGO Reach: EG-RAS Profile: PF 1

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
EG-RAS	3345	PF 1	34100.00	800.78	822.87		823.88	0.001834	9.68	5717.45	1108.73	0.43
EG-RAS	2775	PF 1	34100.00	804.93	820.78		821.55	0.002856	7.14	5044.77	1134.90	0.47
EG-RAS	2403	PF 1	34100.00	803.91	820.16		820.66	0.001712	6.05	6923.77	1334.56	0.35
EG-RAS	1891	PF 1	34100.00	800.88	819.57		819.89	0.001142	5.39	8308.56	1582.53	0.28
EG-RAS	1718	PF 1	34100.00	799.80	819.31		819.65	0.001652	5.19	7904.25	2022.79	0.28
EG-RAS	1595	PF 1	34100.00	799.03	817.81		819.02	0.033042	4.23	5964.14	1758.59	0.24
EG-RAS	1471	PF 1	34100.00	798.25	817.83		818.20	0.001666	5.89	7717.39	2125.08	0.35
EG-RAS	1353	PF 1	34100.00	797.52	817.69		818.00	0.001456	5.35	8241.48	2195.96	0.33
EG-RAS	1216	PF 1	34100.00	796.64	817.45		817.77	0.002010	4.78	7576.57	1719.27	0.29
EG-RAS	969	PF 1	34100.00	790.87	817.23		817.44	0.000801	4.03	9376.93	1779.12	0.20
EG-RAS	717	PF 1	34100.00	795.53	816.86	812.66	817.16	0.001523	5.34	9415.81	2540.52	0.29
EG-RAS	508	PF 1	34100.00	801.47	816.67		816.91	0.000901	5.18	12042.14	2680.38	0.31
EG-RAS	0	PF 1	34100.00	797.68	816.30	811.03	816.53	0.000642	4.95	13093.17	2918.90	0.27

HEC-RAS Plan: Prop w Mitigatio River: OWEGO Reach: EG-RAS Profile: PF 1

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
EG-RAS	3345	PF 1	34100.00	800.78	822.72		823.80	0.001959	9.94	5553.21	1100.52	0.44
EG-RAS	2775	PF 1	34100.00	804.93	820.43		821.31	0.003266	7.57	4673.95	1025.68	0.51
EG-RAS	2403	PF 1	34100.00	803.91	819.67		820.27	0.002111	6.56	6288.97	1216.54	0.39
EG-RAS	1891	PF 1	34100.00	800.88	818.94		819.31	0.001421	5.81	7702.06	1529.64	0.31
EG-RAS	1718	PF 1	34100.00	799.80	818.68		819.03	0.001747	5.16	7614.11	1842.03	0.29
EG-RAS	1595	PF 1	34100.00	799.03	817.73		818.58	0.007625	2.02	7471.62	1747.66	0.11
EG-RAS	1471	PF 1	34100.00	798.25	817.94		818.14	0.000838	4.20	9868.63	2127.34	0.25
EG-RAS	1353	PF 1	34100.00	797.52	817.69		818.00	0.001456	5.35	8241.89	2195.96	0.33
EG-RAS	1216	PF 1	34100.00	796.64	817.45		817.77	0.002009	4.78	7576.99	1719.29	0.29
EG-RAS	969	PF 1	34100.00	790.87	817.23		817.44	0.000801	4.03	9377.36	1779.14	0.20
EG-RAS	717	PF 1	34100.00	795.53	816.86	812.66	817.16	0.001522	5.34	9416.50	2540.52	0.29
EG-RAS	508	PF 1	34100.00	801.47	816.67		816.91	0.000902	5.18	12041.98	2680.38	0.31
EG-RAS	0	PF 1	34100.00	797.68	816.30	811.03	816.53	0.000642	4.95	13093.17	2918.90	0.27

HEC-RAS Plan: Prop w Stilts River: OWEGO Reach: EG-RAS Profile: PF 1

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
EG-RAS	3345	PF 1	34100.00	800.78	822.87		823.87	0.001837	9.69	5712.30	1108.47	0.43
EG-RAS	2775	PF 1	34100.00	804.93	820.77		821.55	0.002868	7.15	5033.28	1131.68	0.47
EG-RAS	2403	PF 1	34100.00	803.91	820.15		820.65	0.001722	6.06	6904.97	1332.00	0.35
EG-RAS	1891	PF 1	34100.00	800.88	819.55		819.87	0.001154	5.41	8276.41	1581.16	0.28
EG-RAS	1718	PF 1	34100.00	799.80	819.29		819.63	0.001683	5.23	7850.31	2021.80	0.29
EG-RAS	1595	PF 1	34100.00	799.03	817.74	814.52	818.97	0.036713	4.44	5841.97	1749.83	0.25
EG-RAS	1471	PF 1	34100.00	798.25	817.69		818.10	0.001846	6.16	7424.83	2122.38	0.37
EG-RAS	1353	PF 1	34100.00	797.52	817.53		817.88	0.001636	5.63	7899.40	2193.08	0.35
EG-RAS	1216	PF 1	34100.00	796.64	817.44		817.65	0.001221	3.72	9332.79	2043.98	0.23
EG-RAS	969	PF 1	34100.00	790.87	817.24		817.42	0.000675	3.70	10280.79	1934.84	0.19
EG-RAS	717	PF 1	34100.00	795.53	816.86	812.66	817.16	0.001523	5.34	9415.81	2540.52	0.29
EG-RAS	508	PF 1	34100.00	801.47	816.67		816.91	0.000901	5.18	12042.14	2680.38	0.31
EG-RAS	0	PF 1	34100.00	797.68	816.30	811.03	816.53	0.000642	4.95	13093.17	2918.90	0.27

Public Archaeology Facility Report

PHASE 1 CULTURAL RESOURCE SURVEY

OWEGO APALACHIN ELEMENTARY SCHOOL
AND FLOOD MITIGATION PROJECT
VILLAGE OF OWEGO (MCD 10740)
TIOGA COUNTY, NEW YORK

BY:
TIMOTHY D. KNAPP
WITH CONTRIBUTIONS BY
JOHN M. STITELER, GEOMORPHOLOGIST

SUBMITTED TO:
OWEGO APALACHIN CENTRAL SCHOOL DISTRICT
36 TALCOT STREET
OWEGO, NY 13827

DECEMBER 14, 2012

Binghamton University, State University of New York
Binghamton, New York 13902-6000

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36 TALCOT STREET
OWEGO, NY 13827

DECEMBER 14, 2012

MANAGEMENT SUMMARY

Project Name: Owego Apalachin Elementary School and Flood Mitigation Project

OPRHP #:

Involved Agency: Federal Emergency Management Agency, New York State Department of Environmental Conservation, and New York State Education Department

Phase of Survey: Phase 1 Cultural Resource Survey

Location(s): Minor Civil Division: Village of Owego (10740)
County: Tioga

Size of APE (Metric and English): *Elementary school:*3.1 ha (7.7 ac)
*Flood mitigation:*2.5 ha (6.2 ac)
Total: 5.6 ha (13.8 ac)

USGS 7.5 Minute Quadrangle Map(s): 1969 Owego, NY

Archaeological Reconnaissance Survey Methodology: *Number of Shovel Test Pits:* 123 STPs at 15 m (49.6 ft) intervals
Number of Shovel Backhoe Trenches: 8

Results of Reconnaissance Survey: *Number of prehistoric sites identified:* 1 (Owego Elementary School Site [SUBi-3024], Section 5.3, p. 30)

Number of historic sites identified: 0
Number of sites recommended for investigation: 1
Number of listed/eligible or potentially eligible National Register Properties that may be impacted: 1

Architectural Survey: None requested.

Recommendations: Two parcels were surveyed – the elementary school reconstruction parcel, and the flood mitigation parcel. Within the elementary school parcel no archaeological sites were identified. No further work is recommended for the elementary school parcel.

Within the flood mitigation area, we recommend that the Owego Elementary School archaeological site is potentially eligible for the National Register of Historic Places. We recommend that impacts to the site be avoided. If the site can be avoided, no further archaeological testing is recommended within the rest of the current flood mitigation project limits. If site avoidance is not possible, we recommend a Phase 2 site examination within the flood mitigation parcel consisting of close-interval STPs and 2-4 excavation units.

Report Author: Timothy D. Knapp, Public Archaeology Facility.

Date of Report: December 14, 2012

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List of Photographs

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I. INTRODUCTION

This report presents the results of a Phase 1 cultural resource survey conducted by the Public Archaeology Facility (PAF) for the Owego Apalachin Elementary School and Flood Mitigation Project, in the Village of Owego, Tioga County, New York. The research summarized in this report was performed under the supervision of Dr. Nina M. Versaggi, Director of the Public Archaeology Facility (PAF). Timothy Knapp served as project director and co-author of this report. John Stiteler conducted the geomorphological assessment for the project and contributed to this report. Dylan Pelton served as crew chief. Edgar Alcon, Tom Besom, Paul Brown, Alex Button, Greg Diute, John Ferri, Mirand Kearney, Laura Klingman, Matt LoPiccolo, Vanessa LoPiccolo, Alex Nevglovski, Gary Pelton, Mike Rudler, Kevin Sheridan served as field assistants. The site files check was conducted by the author. Artifacts were analyzed and catalogued by Claire Horn and T. Knapp. Databases were created by Laura Knapp. Project maps were drafted by T. Knapp. Maria Pezzuti and Annie Pisani performed all administrative duties.

In compliance with the New York State's Office of Parks, Recreation, and Historic Preservation Standards (1994 and 2005), the area within the project limits is considered the area of impact for the purpose of conducting the survey. *The results of the research performed for this report do not apply to any territory outside the project area.*

II. PROJECT DESCRIPTION

The Owego Elementary School was severely impacted by the 2011 flood of the Village of Owego. The Owego Apalachin Central School District has proposed demolition of the existing elementary school and its replacement with new construction on approximately the same location. Two construction options have been proposed by the school district: 1) build the school entirely on raised fill; or 2) build approximately half of the school on raised fill and the other half on stilts (aggregate piers). Each proposed plan involves different horizontal and vertical Areas of Potential Effect (APEs).

The APE for the option that calls for building the entire structure on engineered fill involves two distinct areas: 1) the immediate area around the proposed elementary school building; 2) as well as a large flood mitigation area to the northwest of the current structure. Plans include removal of 60 cm (2 ft) of existing topsoil in the immediate area of the proposed elementary school. Additionally, a construction trench at least 3.4 m (11 ft) wide and centered on the perimeter of the new school will be excavated to a depth of 1.8 m (6 ft) below the current grade. Therefore, the vertical impacts in the area of the proposed school will be largely confined to the first 60 cm (2 ft). The proposed school area encompasses approximately 3.1 ha (7.7 ac). For the flood mitigation area to the northwest of the existing school, a large area of the current floodplain will be lowered to 812 ft asl, which will require removal of between 60-122 cm (2-4 ft) of soil. The flood mitigation area encompasses approximately 2.5 ha (6.2 ac). The total APE for the engineered fill/flood mitigation option is 5.6 ha (13.8 ac).

The APE for the half fill and half aggregate pier option is limited to the area immediately around the proposed elementary school. Plans include removal of 60 cm (2 ft) of existing topsoil in the immediate area of the proposed elementary school. Additionally, a construction trench at least 3.4 m (11 ft) wide and centered on the perimeter of the new school will be excavated to a depth of 91 cm (3 ft) below the current grade. For the approximately half of the new building constructed on aggregate piers, footings will need to be excavated for each proposed pier. There is no separate flood mitigation area for this option. The total APE for the half engineered fill/half aggregate pier option is 3.1 ha (7.7 ac). Given that the APE for the fill/pier option is completely enclosed in the fill/flood mitigation option, the total area for this cultural resource assessment is 5.6 ha (13.8 ac).

Figure 1 (p. 2) places the project within Tioga County and New York State. Figure 2 (p. 6) shows the project area on the Owego, NY USGS quadrangle. Photos 1-18 (pp. 4-12) show the current land use in the project area. The location of the proposed new elementary school centers on the existing elementary school and includes in addition to the structure itself, numerous paved parking lots, and access road, several playgrounds, an asphalt basketball court, and a number of temporary construction-style trailers. The proposed flood mitigation area is currently athletic practice fields used by the Owego Apalachin Central School District.

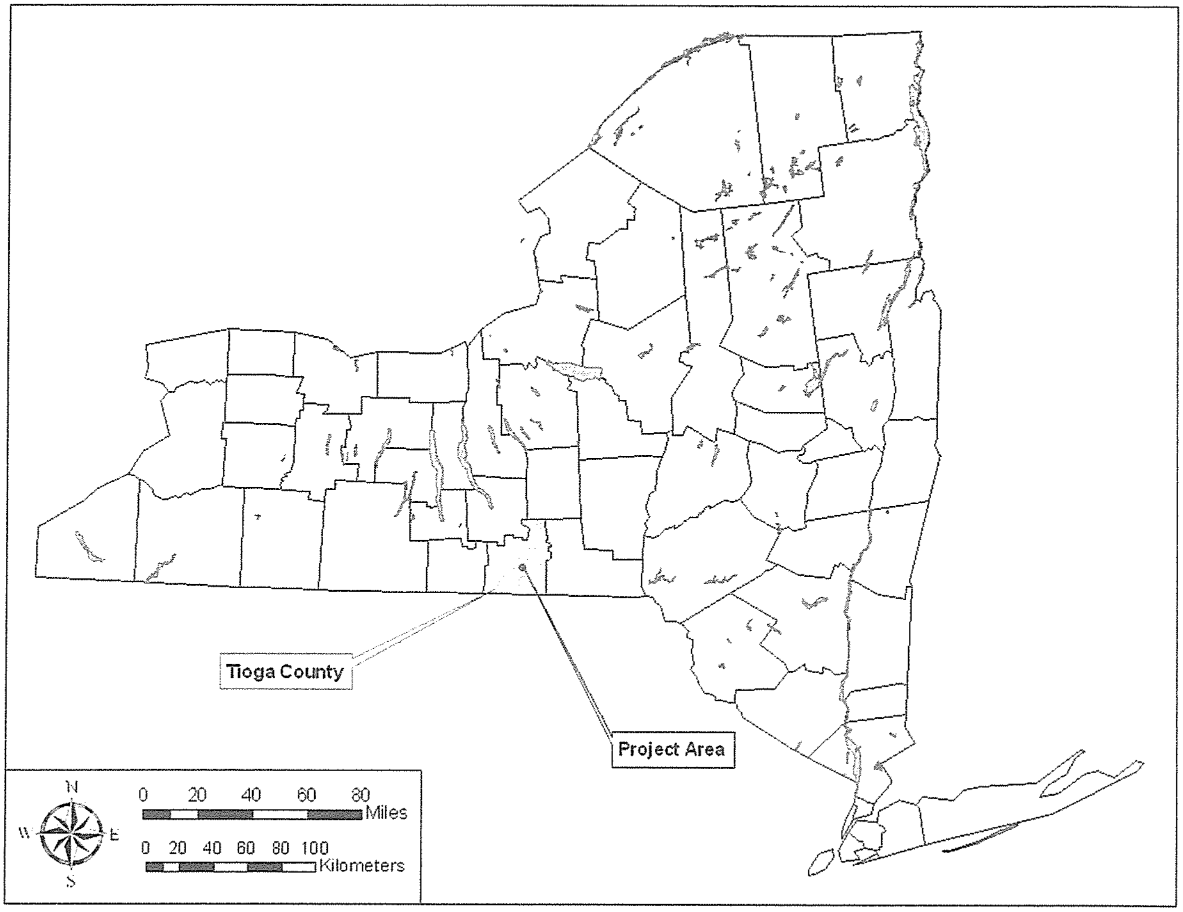

Figure 1. Location of project area in Tioga County.

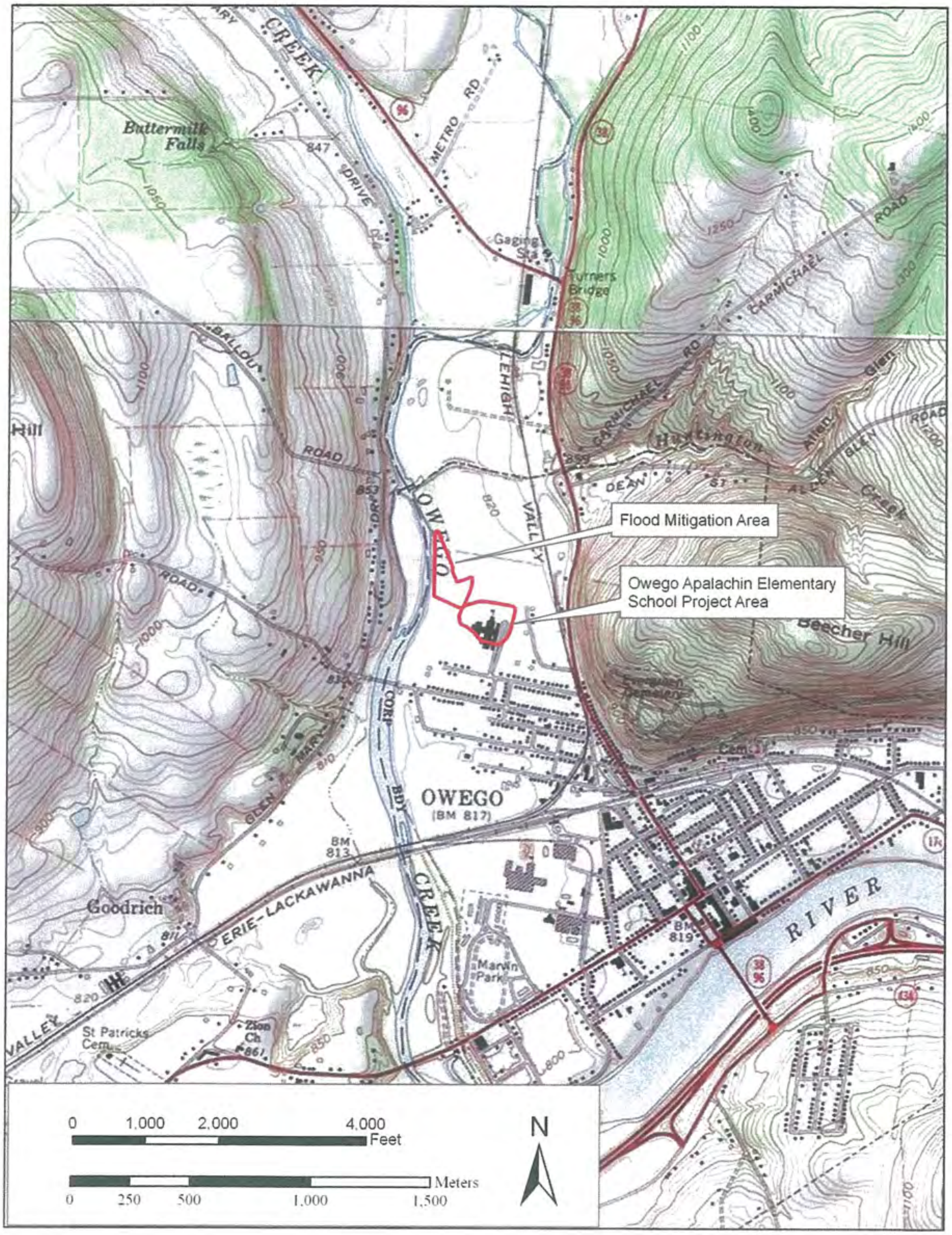

Figure 2. Area of Potential Affect (APE) on 1969 Owego, NY USGS 7.5' quadrangle.

Photo 1. Facing south from northern end of proposed flood mitigation area

Photo 2. Facing south from northern end of flood mitigation area, Owego Creek flood protection levee on right.

Photo 3. Close up of creek levee and storm water drainage cover, facing south.

Photo 4. Close up of creek levee and storm water drainage cover, facing north.

Photo 5. Heavily impacted area at the north end of the elementary school area, facing east. Median includes multiple buried utilities, including recent fiber optic trench.

Photo 6. Existing asphalt parking lot at the north end of the elementary school area, facing southeast.

Photo 7. Eastern edge of elementary school area, facing south.

Photo 8 Existing elementary school building and eastern parking lot, facing west.

Photo 9. Southeastern portion of elementary school area, facing east.

Photo 10. Southern elementary school area, with asphalt access drives and recent fiber optic trench, facing east.

Photo 11. Existing elementary school entrance and temporary trailers, facing northwest.

Photo 12. Western portion of elementary school area, facing south.

Photo 13. Northwestern portion of elementary school area, facing northeast.

Photo 14. Southeastern portion of elementary school area with asphalt basketball court, facing northeast.

Photo 15. Southern elementary school area and playground, facing east.

Photo 16. Southern elementary school area with sharp contour showing edge of fill zone, facing south.

Photo 17. Existing elementary school access road and intervening green space, facing south.

Photo 18. Parking lot at northern end of school area, facing west.

III. BACKGROUND RESEARCH

Background research for the cultural survey was conducted on the environment, prehistory, and history of the project area. This information addressed the types of archaeological sites likely to occur in the project area. Site files, historic maps, county histories, archival documents, and information about known settlement patterns were consulted.

3.1 Environmental Setting (By John Stiteler)

On November 2, 2012 John Stiteler conducted a study of the soils and geomorphology at the site of the proposed flood management project for the Owego-Apalachin Central School District in the village of Owego, Tioga County, New York. The purpose of the investigation, conducted was to determine the potential for the presence of intact, in-situ cultural material, particularly deeply buried material, within alluvium and colluvium in the area of potential effect (APE) of the proposed project area. In this report, reference is made both to the APE and to the study area. "APE" refers to the area where design plans call for cutting, filling, and other construction-related disturbance. "Study area" refers to the broader context – essentially the viewscape as seen from the proposed construction site – and includes alluvial landforms (floodplains and terraces) as they extend outside of the APE; the surrounding slopes that might contribute run-off and colluvium; and the geometry of valley segments and stream reaches up- and downstream.

The APE is located on the left bank of Owego Creek, a 5th order tributary of the North Branch Susquehanna River (Figure 2, p. 3). The setting is 0.75 km downstream from the confluence of Owego Creek with a major tributary – Catatonk Creek – and 2 km above its confluence with the North Branch Susquehanna River. The Owego Creek drainage basin above the APE comprises approximately 800 square kilometers, of which the Catatonk Creek drainage basin constitutes almost half. The APE occupies a gently sloping floodplain over 250 m wide (Figure 3, p.16). The change in elevation with distance from the Owego Creek channel suggests that the landform transitions from an active floodplain to a T-1 alluvial terrace in the distal part of the APE but if this transition was formerly marked by a low terrace riser, recent filling and landscaping have obscured the boundary. The proximal edge of the floodplain lies 3.5-4.0 m above the bed of Owego Creek and a low (0.75 m) earthen levee has been constructed along the top of the bank. The right bank of Owego Creek opposite the APE is formed by a large brushy island with a surface elevation roughly equivalent to that of the proximal edge of the APE floodplain.

The study area lies within the Southern New York section (also called the Glaciated Low Plateau section) of the Appalachian Plateaus physiographic province. Like all of southern New York, this region was covered by continental ice sheets multiple times over the course of the Pleistocene epoch. Most recently, the Wisconsinan ice sheet covered the area, with the ice front receding from the area sometime between 14,000 and 16,000 calendar years bp. Once the North Branch Susquehanna River valley became ice-free, the river served as a major conduit for glacial meltwater and outwash for at least 1500-2000 years, until the receding ice front passed beyond its watershed divide. As the ice fields to the north wasted, Owego Creek and its tributaries such as Catatonk Creek carried vast amounts of meltwater and outwash to the main river valley.

Soils of the great majority of the APE, proximal to Owego Creek, are mapped as Unadilla silt loam, 0-3% slope (Unn) (Soil Survey Staff 2012; Figure 5, p. 17; Table 1). Soils of the slightly higher eastern edge of the APE, further from the creek channel, are mapped as Howard gravelly silt loam, 0-3% slope (Hsn) (Soil Survey Staff 2012). Immediately upstream from the APE, the proximal edge of the Owego Creek floodplain is mapped as Tioga silt loam, high bottom (Tsb) (Soil Survey Staff 2012). Soils of the lower right bank floodplain opposite the APE are mapped as Alluvial lands, undifferentiated (Soil Survey Staff 2012).

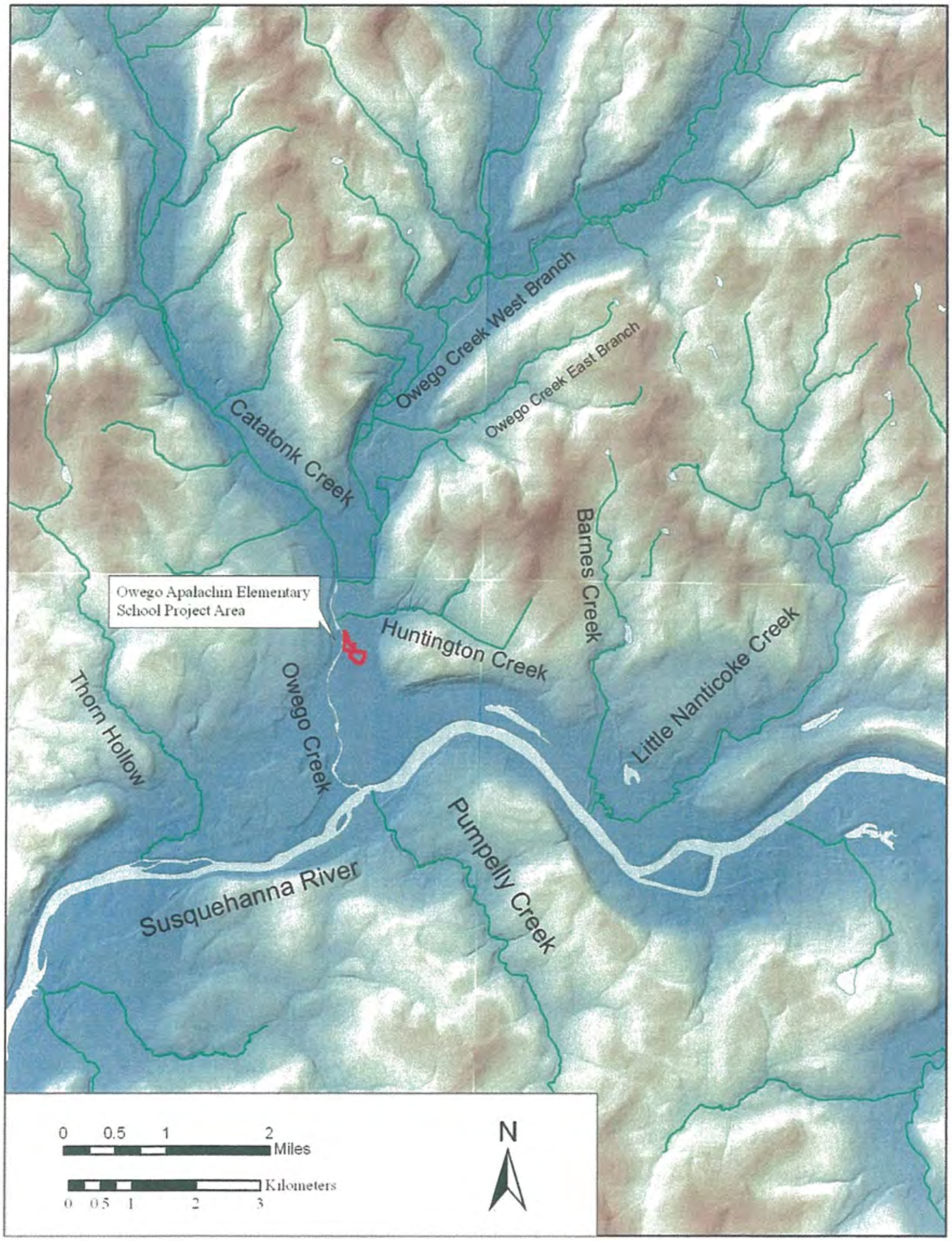

Figure 3. Digital Elevation map of Owego, New York Quadrangle with project area highlighted.

Table 1. Soils Present Within Project Area.

Name	Slope %	Drainage	Soil Horizon Depth cm (in)	Color	Texture/ Inclusions	Land forms
Unadilla silt loam(Unn)	0-3	Well Drained	Ap: 0-20 cm (0-8 in) Bw1: 20-31 cm (8-12 in) Bw2: 31-46 cm (12-18 in) Bw3: 46-79 cm (18-31 in) BC: 79-107 cm (31-42 in) 2C: 107-165 cm (42-65 in)	Brown (10YR4/3) Light yellowish brown (10YR6/4) Yellowish brown (10YR5/6) Light yellowish brown (10YR6/4) Yellowish brown (10YR5/4) Dark grayish brown (10YR4/2)	Silt loam Silt loam Silt loam Silt loam Very fine sandy loam Stratified very gravelly sand	Valley terraces and lacustrine plains
Howard Gravelly Silt Loam (Hsn)	0-3	Well Drained	Ap: 0-23 cm (0-9 in) E: 23-38 cm (9-15 in) E/B: 38-61 cm (15-24 in) B/E: 61-69 cm (24-27 in) Bt1: 69-76 cm (27-30 in) Bt2: 76-114 cm (30-45 in) C: 114-183 cm (45-72 in)	Dark brown (10YR3/3) Brown (10YR5/3) Pale brown (10YR6/3) Brown (10YR4/3) Brown (10YR4/3) Brown (7.5YR4/4) Grayish brown (10YR5/2)	Gravelly loam Very gravelly loam Very gravelly loam Very gravelly loam Very gravelly loam Very gravelly loam Stratified extremely gravelly sand	Valley terraces, outwash plains, kame morains, and eskers

Figure 4. Location of project area on USDA soil survey map.
(Key: Unn = Unadilla silt loam, slope 0-3%; Hsn = Howard gravelly silt loam, slope 0-3

The Unadilla series consists of deep and very deep, well drained soils formed on valley terraces and lacustrine plains in silty, lacustrine sediments or old alluvial deposits. A typical Unadilla profile consists of an Ap/Bw1/Bw2/Bw3/BC/C2 sequence. Thickness of the solum (A and combined Bw horizons) ranges from 50 to 125 cm. Rock fragment content ranges from 0 to 5 percent in the solum and 0 to 60 percent in the C or 2C horizon.

Howard soils consist of very deep, well drained and somewhat excessively drained soils formed in medium textured glacial outwash deposits on valley terraces, outwash plains, kame moraines, and eskers. A typical Howard series profile consists of an Ap/E/(E/B)/(B/E)/Bt1/Bt2/C sequence; thickness of the solum (Ap through Bt2 horizon) ranges from 55 to 150 cm. Rock fragments, mainly gravel and cobbles, range from 5 to 35 percent by volume in the Ap horizon, from 15 to 55 percent in the upper part of the subsoil, from 35 to 60 percent in the lower part of the subsoil, and from 45 to 70 percent in the substratum.

The Tioga series consists of very deep, well drained soils formed in alluvium on higher positions in floodplains. The high bottom designation indicates that the area in question is among the highest where these soils are mapped and is subject to infrequent flooding. A typical profile consists of an Ap/Bw1/Bw2/C sequence; thickness of the solum ranges from 45 to 100 cm. Rock fragments range from 0 to 35 percent by volume in individual layers in the solum and consist of pebbles or channers, and range from 0 to 60 percent by volume in individual layers in the substratum and consist of mostly pebbles and channers. Alluvial lands, undifferentiated, are mapped in dynamic settings where the alluvial soils are a patchwork of soils of various ages (generally recent) in mapping units too small to be easily defined. These areas are subject to frequent flooding and reworking.

Bedrock underlying the APE is Upper Devonian-age sedimentary rock, mostly shales and siltstones (Gardeau Formation, Beers Hill shale, Grimes siltstone, and others) (Rickard and Fisher 1970). These formations are not generally cited as sources of chert and other cryptocrystalline rock suitable for stone tool production. However, the surficial geography of the area is dominated by glacial drift (outwash and till) which is likely to contain nodules of exotic cryptocrystalline rock.

Fieldwork for this study consisted of excavation of four numbered bucket auger probes (AP1-AP5), examination of the profiles of shovel test pits (STPs) excavated by PAF personnel, excavation of unnumbered auger probes in the base of STPs, and a walkover of the study area. Auger probes were conducted using a hand-operated auger with a 10 cm diameter bucket. Soil profiles of each auger probe were described using standard field parameters (Munsell color, texture, structure, rock fragment content, redoximorphic features, etc.). Particular attention was paid to those characteristics pertinent to archaeological potential of the study area (e.g., presence of buried stable surfaces, relative age of the sediments, depositional dynamics, etc.).

Excavation of auger probes and examination of STP profiles at the north end of the APE showed considerable variability there. STP A2, near the northern limit, revealed a disturbed or filled profile to 75 cm bs. The fill consisted of highly variegated silt loam and sandy loam with much rounded gravel.

AP1 was conducted adjacent to the location of STP A5, which had not yet been excavated (see Figure 11, p. 38 for STP locations). The profile consisted of an Ap/Bw/C sequence to auger refusal at 65 cm bs. The Ap horizon (to 40 cm bs) was silt loam containing less than 1% rounded; the horizon had been thickened by the addition of Historic alluvium. The Bw horizon (40-60 cm bs) was sandy loam containing a few pieces of rounded gravel. The Bw horizon showed minimal pedologic development in terms of soil color and soil structure. The C horizon from 60 cm bs to auger refusal at 65 cm bs was gravelly coarse loamy sand. Subsequent examination of the profile of STP A5, adjacent, showed that gravel content increases with depth to 90-95% at 105 cm bs.

The profile of STP A6, 15 m to the south, was capped by 36 cm of gravelly silt loam fill. Beneath the fill was an Ap/(A/B)/Bw/Ab sequence to base of excavation at 110 cm bs. Excavation of an auger probe in the base of the pit revealed that the Ab horizon extended from 95 to 120 cm bs and was underlain by a Bwb1 and Bwb2 sequence to the limit of the auger at 195 cm bs. An increase in depositional clay was noted in the strongly mottled Bwb2 horizon from 140 cm bs to 195 cm bs.

The profile of STP B5, 15 m east of A5, revealed the presence of gravelly silt loam fill to 32 cm bs, capping an intact Ap/(A/B)/Bw1 sequence to base of excavation at 102 cm bs. Excavation of AP2 at the base of the pit revealed a Bw2 horizon to 140 cm bs, with auger refusal by gravel at 140 cm. The Ap horizon (32-52 cm bs) was formed in gravel-free silt loam. The AB horizon (52-70 cm bs) was a zone in which dark Ap horizon material had been bioturbated into the upper zone of the Bw1 horizon. The Bw1 horizon (70-105 cm bs) was gravel-free silt loam showing minimal pedologic development. The Bw2 horizon was fine sandy loam with a low content of rounded gravel. The profile of STP B6, 15 m to the south, was much as described for STP B5, with 22 cm of gravelly fill at the surface and a high gravel content at 105 cm bs.

The profile of STP C5, 15 m east of B5, consisted of gravelly silt loam fill to 22 cm bs, overlying a very dark silt loam Ap horizon to 55 cm bs, bioturbated A/B horizon to 65 cm bs and a silt loam Bw1 horizon to base of excavation at 100 cm bs. Excavation of an auger probe at the base of the pit revealed a Bw2 horizon of silt loam to 150 cm bs, a C horizon of unconsolidated sand to 160 cm bs, and rounded gravel at 160 cm bs.

Several STPs and auger probes were profiles in the west central portion of the APE. AP3 was excavated at the location proposed for STP D13, which had not yet been excavated. The profile consisted of 32 cm of gravelly silt loam fill over an Ap/(A/B)/Bw1/Bw2/Bw3 sequence to auger refusal at 142 cm bs. The Ap horizon (32-46 cm bs) had been truncated by machinery or an erosive flood before addition of the fill. The A/B horizon from 46 to 56 cm bs was a bioturbated zone as described for previous profiles. The Bw 1 horizon (56-82 cm bs) was formed in gravel-free silt loam; the Bw2 horizon (82-110 cm bs) coarsened slightly to fine sandy loam. Texture fined slightly again to silt loam or loam in the Bw3 horizon (110-142 cm bs). Refusal at 142 cm was by bedload gravels.

The profile of STP C11 consisted of fill to 15 cm over an Ap/Bw sequence. The Ap horizon (15-25 cm bs) was truncated as described for AP3 at STP D13. The underlying Bw horizon (25-65 cm bs) was formed in silt loam and was underlain by rounded bedload cobbles in a silt loam matrix at 65 cm bs.

The profile of STP D11, 15 m to the east was entirely filled or disturbed to 100 cm bs. Beneath this was a Bw horizon to 140 cm bs, with auger refusal by gravel or cobbles at 140 cm bs. The disturbance in the upper part of the profile may be a result of installation of an existing storm water drain nearby.

AP4 was located at the proposed location of STP G18, which had not been excavated at that time. The profile consisted of 45 cm of gravelly silt loam fill over an Ap/Bw/Ab sequence to auger refusal by gravel at 130 cm bs. The silt loam Ap horizon (45-85 cm bs) contained much more gravel than seen in the Ap horizon anywhere else in the APE. The Bw horizon from 85 to 120 cm bs was formed in silt loam free of gravel; numerous small charcoal fragments were observed in the Bw horizon. The silt loam Ab horizon (120-130 cm bs) contained 3-5% fine rounded gravel and also contained small charcoal fragments. Small fragments of Bw matrix adhered to some of the gravel recovered at 130 cm bs, suggesting presence of a developed Bw horizon beneath the Ab horizon.

Profiles of several STPs in the J through M transects in the eastern part of the APE were examined in the early stages of their excavation. In each case, an intact Ap horizon was capped by 60 to 65 cm of extremely gravelly and cobbly silt loam fill. AP5 was located adjacent to STP O13, which had been excavated and backfilled. This is at the eastern edge of the APE and on the highest elevation within the APE. The profile of AP5 consisted of 45 cm of extremely gravelly and cobbly fill (excavated with a shovel) over a heavily reduced silt loam Ap horizon to 85 cm bs and gravel-free silt loam Bw1 and Bw2 horizons to auger refusal by gravel or cobbles at 140 cm bs.

Interpretation. As the Wisconsinan glacial epoch came to a close around 16,000 years ago, the valleys of the North Branch Susquehanna River and tributaries such as Owego Creek were deeply aggraded with glacial outwash. In the lowest reach of the Owego Creek valley – the setting of the APE – large amounts of outwash accumulated because of the elevated base level of the main stem valley. As the ice front receded from their drainage basins, the supply of outwash was cut off and the river and its tributaries began reworking and removing the accumulated glacial material. Removal of the outwash was seldom complete, resulting in the creation of remnant outwash terraces along valley edges as the streams downcut the central part of their valleys and began construction of floodplains made up of coarse- to fine-textured alluvium. The soil profiles of these floodplains, constructed as the river and stream channels migrated laterally across the valley floor, generally exhibit a fining-upward character. The base of the profile is made up of channel-bottom gravel, cobbles, and channers capped by sand deposited as in-channel bars or lateral deposition. The sand is covered by very fine sand, silt, and clay deposited by overbank floods that spread across the aggrading floodplain surface.

The soil profiles of the Owego School APE generally consist of 75 to 100 cm of Holocene overbank alluvium capped by gravelly fill. The fill ranges in thickness from around 65 cm to little or none. The extent of pedologic development seen in the profiles, the majority of which consisted of Ap/Bw1/Bw2/C sequences, strongly suggests that the sediments date to the Middle Holocene and later. No argillic (Bt) horizon development was noted, the presence of which would have connoted greater age and stability. The varying thickness of the fill cap – even over relatively short lateral distances – suggests that the floodplain exhibited a gently undulating surface before being leveled by addition of the fill. The highest degree of profile variability and the least expression of soil development were noted in the soil profiles closest to the Owego Creek channel. This suggests that the proximal part of the floodplain was a geomorphologically dynamic area, as is usually the case. Anomalously greater depth to bedload gravel, as seen in STP A6, is attributable to the presence of an abandoned channel segment that filled in with silty and clay-rich slackwater deposition. This area would have constituted a frequently ponded topographic low point as it was filling with this sediment, which constitutes the Bwb2 horizon (140-195 cm bs) in the profile. It is unlikely that this small area would have constituted a desirable habitation setting until sediment accumulation had raised the surface to a level equivalent to the surrounding area. Therefore it is unlikely that the sediments below 140 cm bs have the potential to contain cultural material.

Development of an Ab horizon directly over gravel in an abandoned channel segment and development of a Bwb horizon within the soil matrix around the gravel was noted in AP4 at the location of STP G18. Together, development of these horizons indicates a period of relative surface stability and slow sediment accumulation in this area immediately following abandonment of the channel segment.

No evidence of in-situ coarse glacial outwash was observed along the eastern edge of the APE. This suggests that mapping of Howard gravelly loam in this area constitutes a minor mapping error. There is a high likelihood that a remnant outwash terrace on which Howard soils have developed is present just east of the APE limit. Mapping of the APE as the Unadilla series is generally in keeping with the profile sequences seen there. But inasmuch as the Unadilla series is described as having formed in silty lacustrine or old (pre-Holocene) alluvium, this also appears to constitute a minor mapping error and the soils of the APE might more appropriately be mapped as Tioga or Tioga high bottom soils, as are mapped immediately upstream.

Summary. The sediments making up the APE consist of around one meter of Middle Holocene through Historic overbank alluvium, capped by as much as 65 cm of recently emplaced gravelly fill. The potential for the presence of in-situ cultural material exists throughout the profile from the base of the fill to the depth at which coarse sand, gravelly fine to medium sand, or bedload gravel and cobbles are encountered (generally speaking, 120 to 140 cm bs).

3.2 Prehistoric Context

New York State prehistory is traditionally divided into four main phases: Paleoindian (c. 10,000-8000 BC), Archaic (8000-1500 BC), Transitional (1500-1000 BC), and Woodland (c. 1000 BC to European contact) (Ritchie 1980: xxx-xxxi). While this cultural-historical framework obscures temporal and regional variability, it does highlight major developmental trends in the northern woodlands.

The Paleoindian period begins with the migration of hunting and gathering populations into New York with the retreat of the glacial ice, c. 12,000 BP, and the development of a tundra environment. These groups brought with them a fluted point technology typified by the Clovis projectile point and surface finds of this distinctive artifact remain our most substantial evidence of their presence. Interestingly, few of these finds are directly associated with the remains of mammoth or mastodon, the supposed focus of these big game hunters (Armstrong et al. 2000:50). This and other evidence suggesting that New York was not characterized by a tundra environment during this period have begun to undermine our traditional notions that these early populations followed a big game hunting adaptation. It appears likely that small game and plants played a more significant role in the diet of these populations than was previously thought (Armstrong et al. 2000: 50-1). This reappraisal of diversity within Paleoindian adaptations is part of a larger, recent trend in North American archaeology. Ritchie (1980:4-5) notes two loci where fluted points were identified in Tioga County, but they are at the western end of the county. Excavations just east of this project by the Binghamton University field school identified one paleo point within the plow zone. This is evidence of hunting on this landform during the Paleoindian period.

The Archaic period marks the transition to post-Pleistocene adaptations and climatic regimes. A spruce-pine forest, and later a mixed deciduous forest, developed in the northeast and these were populated by modern animal and plant species. The Early Archaic (8000-6000 BC) period defines initial human adaptation to these conditions. Site and population densities during this period are low, a fact that has generally been related to the availability of resources. Explanations have focused on the lack of mast and mast-browsing species in pine dominated forests, the low availability of fish until modern conditions of temperature, flow and gradient were reached, and the generally dispersed nature of resource patches in major valleys during the Early and Middle Archaic (Armstrong et al. 2000: 52). The generally poor environmental conditions may also have confined settlement to the more stable environments of Pennsylvania, New Jersey, and coastal New York while scattered Early Archaic sites in central New York represent only occasional northward excursions (Ritchie and Funk 1973: 337). However, dispersed resource patches existed within major river valleys and around upland water resources (Custer 1996; Versaggi 2000).

The Middle Archaic period (6000-4000 BC) differs little from the preceding Early Archaic. The climate did reach its modern condition by approximately 7,500 BP (Funk 1993) which would have led to an increase in oak and, presumably, mast browsing animal species. There is a slight increase in site frequency but population in the Allegheny Plateau remained low. An increase in the number of sites is the major departure from an Early Archaic settlement pattern where small, temporary camps seem to represent an orientation to dispersed resource patches.

The Late Archaic period (4000-1500 BC) is one of increasing population density and cultural diversity related to local processes. Settlement patterns suggest an increased focus on aquatic resources with most sites located near small lakes, rivers, and wetlands, although they were often situated on terraces and upland slopes (Trubowitz 1977: 98-120; Versaggi 1996). Late Archaic subsistence/settlement patterns exhibit a range of variability tied to seasonal scheduling and resource availability. Large base camps located near major water sources provided a focal point for groups during the tougher months of the year from which small groups of foragers could range to procure and process needed resources. During other seasons, base camps would divide into smaller groups who engaged in more mobile foraging activities. This pattern of seasonal aggregation and dispersal results in several site types, including large residential camps, small special purpose camps and resource processing locations (Versaggi 1996).

Two major studies of the Upper Susquehanna have provided good contextual information for the Late Archaic in the region (Funk 1993; Versaggi 1996). From established residential base camps, daily foraging groups roamed the valley and uplands around the residence and returned each day with the resources they collected or hunted. These foragers would have left light scatters of debris from their resource procurement and processing activities within patches surrounding their work areas. When there was a need for securing resources far distant from the base, other work parties would travel to these areas and spend days or weeks away from the main camp. These groups would create task-specific, or special purpose camps in the far regions where they worked and then return to the base with the products of their trip. In this manner a large diversity of sites and site types would result from this logistical system of organization (Versaggi 1996). One predictive model for this part of the upper Susquehanna Valley suggests that the environmental setting along the Susquehanna River provided excellent locations for fishing during the spawning season, especially near tributary confluences. These fish and deer resources available along the creeks could have provided for a seasonally nomadic population that migrated toward the confluence with main waterways during the fall and winter (Versaggi 1987).

The Transitional period (1500-1000 B.C.) designates a continuum from Late Archaic adaptations to the Early Woodland period. The central characteristic of the period is the introduction of steatite vessels, with the production of the first pottery during this period. Other defining traits include elaboration of burials, the increased use of exotic lithic materials and broad spear points of the Susquehanna Tradition. Small, temporary camps, often oriented toward river or coastal areas, typify settlement patterns during this period (Ritchie and Funk 1973). The Transitional period is poorly understood in central New York. Manifestations of the Susquehanna Tradition in the region include the Frost Island and Orient cultures with Frost Island sites being more numerous (Ritchie 1980). A variant of the Orient culture, Dry Brook, dating to 900-200 BC may also be present in the Upper Susquehanna and Upper Delaware River valleys (Versaggi and Knapp 2000; Kinsey 1973). Extensive evidence of the Transitional period was found in the Owego Southside Plant site (SUBi-672) located adjacent to the northern portion of this project area (Versaggi et al.1982).

The Woodland period (1000 BC-AD 1600) is traditionally defined by the intensive use of clay pottery, permanent village settlements, and increased reliance on agriculture. The stage is divided into Early, Middle and Late periods. Of the three, the Early Woodland is the least distinct and some archaeologists suggest that in terms of adaptation it is similar to the Late Archaic and Transitional periods with a heavy reliance on small-game hunting, fishing, and gathering (Ritchie 1980: 183). However, the use of pottery vessels and tobacco smoking pipes, changes in settlement pattern and, perhaps, intensive use of plants (Ritchie and Funk 1973) do signal departures from previous cultural patterns. There is currently no evidence of native domestication of these plants such as occurred in the southeast. Ritchie and Funk (1973:348) also argue that seasonal rounds did not structure settlement pattern during the Early Woodland but that groups remained in camps near major waterways year round. A more recent assessment of the Susquehanna Valley indicated that the only site type absent from the Early Woodland was multi-task foraging camps possibly stemming from a decreased need for fissioning of base camps (Versaggi 1999). The Meadowood phase (1000-500 BC) is the most common Early Woodland culture but is mostly absent from the Susquehanna Valley near Owego. The Transitional period with steatite and fishtail points dominates during time periods usually assigned to the Early Woodland.

Current evidence suggests that agriculture developed during the Middle Woodland period (c. AD 0-800) but horticulture did not become widespread until the Late Woodland period (AD 800 to 1600). Middle Woodland cultures of the Point Peninsula tradition were still somewhat mobile and settlements consist of large semi-permanent camps and small temporary and seasonal camps. This settlement pattern reflects the continued reliance on fishing, hunting and gathering by Middle Woodland groups.

Late Woodland cultures are characterized by the adoption of horticulture based on maize, beans, and squash and the development of relatively large villages occupied year round. The period is generally divided into the Owasco (AD 800-1300) and Iroquois (AD 1300 to 1600) cultures. The two cultures shared very similar adaptations but are distinguished by pottery styles and increasing sedentism, village size, and reliance on maize and bean horticulture during the Iroquois period. Iroquois village plans reflect the development of the matrilineal kin groups characteristic of ethnohistoric groups and differentiation in size between descent groups. Villages are generally located on high terraces and knolls, rather than near drainage basins and waterways. The typical later Iroquois village settings indicate an increased need for defense.

Research by Versaggi (1987; 1996) created base-line models of prehistoric hunter-gatherer land use patterns, and derived from these a set of site types that can be used in prehistoric sensitivity assessments.

- **Long-term residential sites (base-camps and villages)** are large sites with high frequencies of artifacts, tools, features (e.g., hearths and pits), and spatial clusters. Base-camps were typically located at confluences of creeks with major rivers near winter deer aggregation areas and dense spring fish runs, and in valleys with stable and fertile alluvial soils.

- **Single-task field camps** are typically smaller size occupations that contain large numbers of artifacts and specialized tools. Bifacial reduction debitage is prominent as bifacial tool-kits are replaced and maintained. Single-task temporary camps appear to have been occupied by few people for a short duration, and there may have been little need to organize and divide space. Fewer spatial clusters would result and these would tend to be similar in composition, reflecting a focus on a single or limited range of tasks. The high-density tool production sites and intensive game butchering sites are prime examples of single-task field camps.

- **Multi-task field camps** are typically smaller size occupations that contain lower numbers of artifacts and tools. These sites resemble forager-like camps in which small groups of people moved frequently in pursuit of low density and dispersed resources. Multi-task camps occur in a wide variety of contexts. Some were widely scattered within the valleys of major and secondary drainages, and others were mapped onto specific resource patches in the uplands.

- **Resource-processing locations** and single-encounter hunting/butchering stations result from short duration tasks that produce low numbers of artifacts, tools, and spatial clusters. Expedient debitage tools predominate; many times these are reduced from chert cobbles or any available raw material. Generally, these sites are expected within the daily foraging radius around a camp or village, as well as around dispersed single- and multi-task camps.

Prehistoric Sensitivity

The area around the Village of Owego was used and inhabited from the Paleoindian to the Late Woodland periods (10,000 B.C to A.D.1600). Numerous sites have been identified along Owego Creek. Sites immediately to the north of the current project area, including Huntington Creek, Owego Free Academy, and Owego Creek have been identified in settings that closely match the current project area. The topographic placement of the project area adjacent to Owego Creek suggests a high probability of large residential sites, such as base camps and villages, as well as smaller camps and resource procurement/processing areas.

3.3 Historic Context

The area along the Susquehanna River was occupied throughout the historic period. The historic Native American period, and post European contact is also part of the continued settlement within this area. Below is a summary of the historic Native American settlement in the Owego area.

> *Owego was located within the traditional territory of the Cayuga nation. Owego is mentioned in a travel narrative of 1737 as a Cayuga town. The place was reportedly abandoned in the spring of 1744 and was still uninhabited in 1756; where the residents went is unknown [P. Wallace 1945: 85-86; Beauchamp 1916: 12, 158; SCP 1:286; CR 7:68-69]. Neutralist Shawnees who evacuated the Wyoming Valley in early 1756 were directed to settle at the site of "Owegy." They went to Chenango instead, and by 1758 they had moved to the upper Canisteo River (a tributary of the Chemung) [CR 7:66; NYCD 7:244-45; PA Ser. 1, 3:413]. A few Shawnees were at Owego in 1763 [CR 9:46]. Probably by then and certainly by 1765 Cayugas had reoccupied the site and resided there until early 1779 [MA 131:1 May 15, 1765, 131:3 Apr. 26, Aug. 12, 1766; WJP 12:777; Flick 1929a: 196]. Around 1774, there were about 150 people living at Owego. A Cayuga chief at Owego was the appointed overseer of the dependent nations on the Susquehanna [Beauchamp 1916: 218, 222]; an intermediary Cayuga overseer resided at Choconut (see above). Owego was again abandoned in late spring 1779, after New York troops led by Col. Goose Van Schaick attacked and destroyed the main Onondaga town in the north. Finally, Continental troops commanded by Gen. Enoch Poor burned the twenty vacant houses of Owego on August 19, 1779 [Cook 1887: 24, 70, 92-93, 184-85, 230, 381; Flick 1929b: 23-24]* (Folts 2010:12-13).

A historic map review shows the project area consisted of farm land during the nineteenth and early twentieth centuries. Figures 5-7 show the historic maps available for the project area. Although the project area is located within the current village limits, for most of the historic period it was on the village's northern periphery. The 1855 map indicates that the project area was owned by the Brown family, who were likely farmers. At this early date, the project area was located well away from any roadways and was likely under cultivation. By the time of the 1869 map, the Village of Owego was apparently contemplating adding a number of city blocks that would have included the project area. The absence of structures on any of the proposed blocks in 1869 suggests that these roads likely did not exist at the time. This is confirmed by the 1903 map which shows no roads or structures in the project area. The project area likely remained farmland until the construction of the current elementary school in the 1960s.

Historic Sensitivity

Given the setting of the project area, well away from any historic transportation features and within an area that remained agricultural land until the middle of the twentieth century, there is a low likelihood for intersecting historic sites.

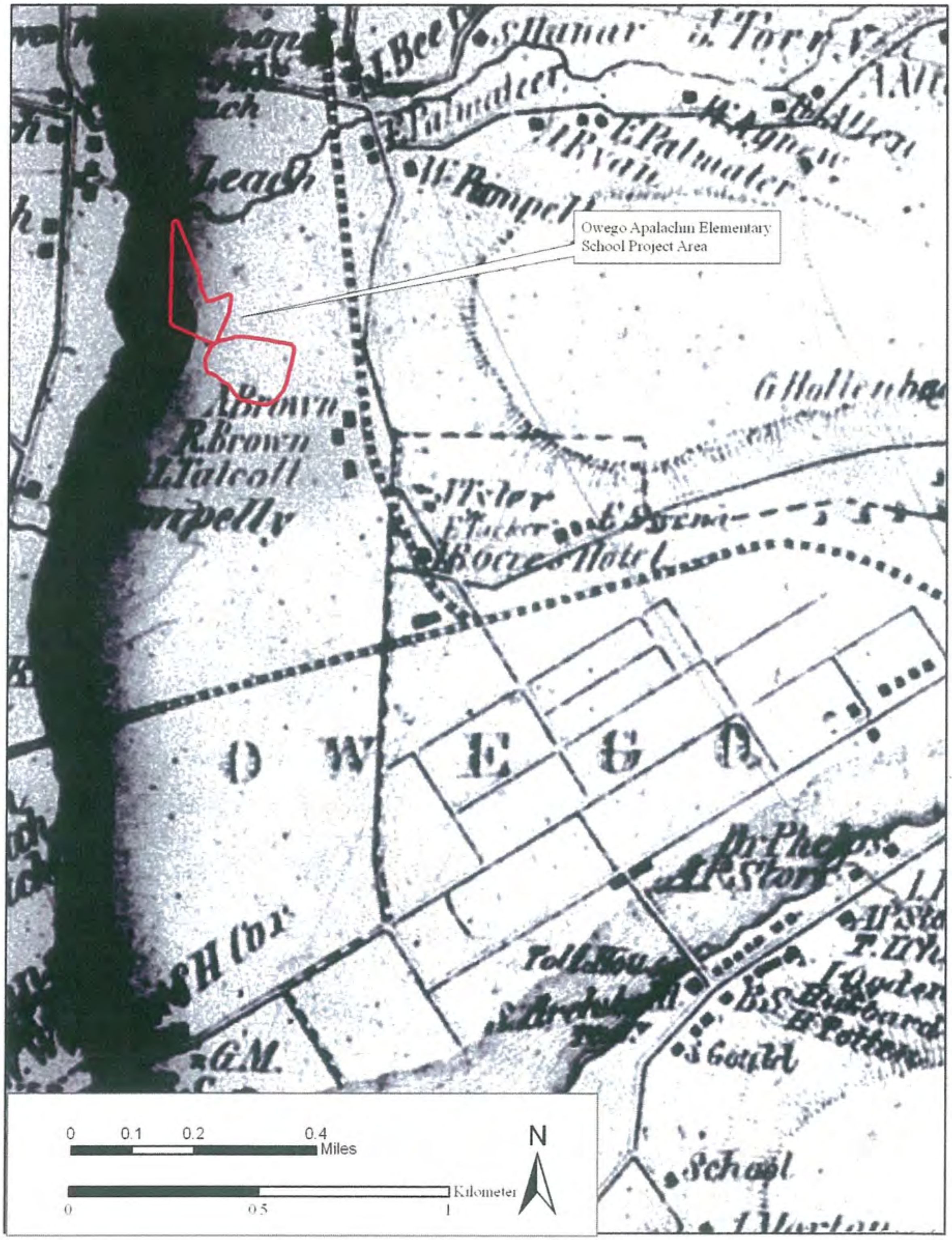

Figure 5. 1855 Gould Map of Tioga County, New York with project area highlighted.

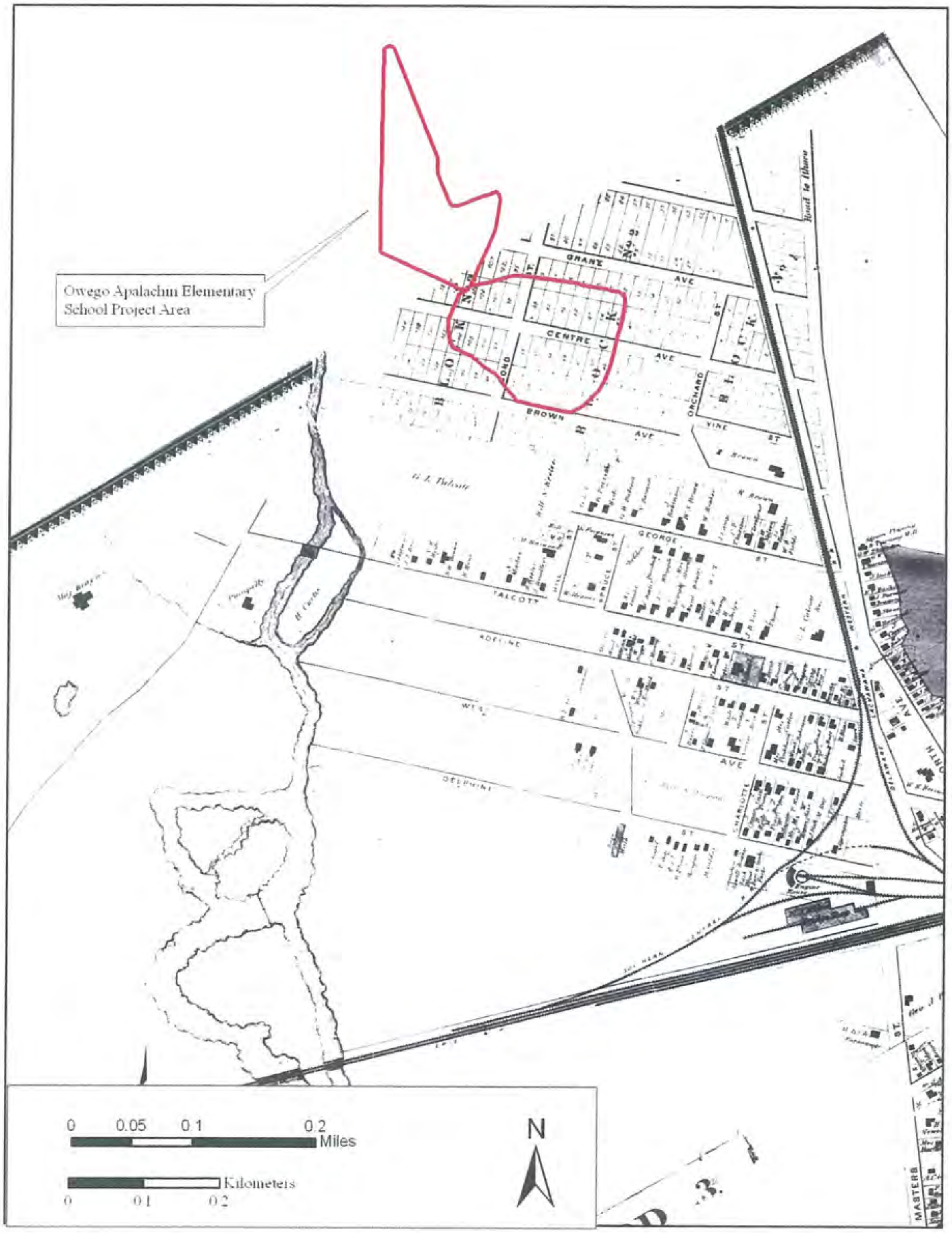

Figure 6. 1869 Beers Atlas of Tioga County, New York (Village of Owego) with project area highlighted.

Figure 7. 1903 Owego, NY 15' quadrangle with sewer line project area highlighted.

IV. ARCHAEOLOGICAL SURVEY METHODOLOGY

4.1 Project Walkover

The Phase 1 methodology included a walkover assessment of the project impact area looking for signs of disturbance, and cultural material and foundations. The walkover was conducted on November 1, 2012. The initial walkover of the proposed flood mitigation area documented the existence of a flood protection levee separating the project area from Owego Creek immediately to the west (Photos 2-4). Field observations also suggested that the flood mitigation area had likely been artificially leveled to construct athletic fields (Photos 1-4). This had likely been accomplished by a combination of cutting and filling. The walkover also located evidence of storm drainage system that diverted water from the athletic fields and from parking areas to the east of project area (Photos 3-4). The walkover around the location of the proposed elementary school documented numerous buried utilities. The median separating the parking lot at the north of the existing school from the middle/high school access road had at least three separate buried utilities, including electric service for stadium lights, street lights, and parking lights, as well as a recently placed fiber optic line (Photo 5). The trench for the fiber optic line is readily visible on the surface and runs from the north to the south to the east of the existing school, ultimately running temporary trailers to the south of the existing school (Photos 5-7, 10). Additionally a buried high voltage line begins at the north end of the school, skirts the eastern edge of the existing school, before entering the southern end of the building. As noted above, a number of temporary trailers have been set up to the south of the existing elementary school (Photo 11). Most of the project area north of the existing school is covered with a paved parking lot (Photo 18). To the east of the existing school much of the ground surface is covered by an access road and additional pave parking (Photo 17). Several playground facilities ring the existing structure (Photos 13, 15). An asphalt basketball court is located off the southwest corner of the existing structure (Photo 14).

4.2 Subsurface Testing Procedures

When subsurface testing began on November 1, 2012, design options for the new elementary school and the flood mitigation areas had not been finalized. Therefore, the initial APE was significantly larger than the final one. Originally the APE was approximately 8.1 ha (20 ac). A 15 m (49 ft) grid was superimposed on the initial APE. This grid included 24 transects, laid out from west to east and labeled A through X. Within transects, STPs were numbered from 1 to 35 in a north-south fashion. Due to the irregular shape of the APE, individual transects had varying numbers of STPs. There was a total of 216 STPs excavated within the APE as initially defined. Of these, 126 are in or around the revised flood mitigation boundary, while 90 are in or around the elementary school area.

The flood mitigation STPs were excavated with hand tools and were 40 cm (16 in) in diameter. In general, STPs were excavated to a depth of 15 cm (6 in) into sterile subsoil unless stopped by rock or other obstruction. When possible fill deposits were encountered crews attempted to reach sub-fill soils. Once below the fill, STPs nearly uniformly encountered either silt loam Ap and or silt loam Bw horizons. Every attempt was made to continue excavation to the depths of the C horizon. The geomorphological assessment predicted marked variability in depths of fill, as well as the depth at which the C horizon would be reached. The more extensive STP sampling indicated that this variability was even greater than the more limited geomorphologic probing suggested. Proposed impacts in the flood mitigation area extend on average 91 cm (36 in) below the current surface. Therefore, in the relatively rare instance when the C horizon was not reached crews attempted to reach at least 100 cm (3.3 ft). All soil was sifted through 7 mm (0.25 in) hardware cloth, and artifacts from each recognizable soil horizon were bagged separately. Notation was made of coal ash, brick fragments, and any post-1950 materials such as plastic and roadside debris, and these items were discarded in the field. Written descriptions of soil color and texture, artifact content, and digging conditions were made at the time of excavation. The STP soil records are presented in Appendix 2.1 (p. 41).

The elementary school STPs were excavated with hand tools and were 40 cm (16 in) in diameter. In general, STPs were excavated to a depth of 15 cm (6 in) into sterile subsoil unless stopped by rock or other obstruction. When possible fill deposits were encountered crews attempted to reach sub-fill soils. The results of our initial STPs and geomorphologic study indicated that there were relatively significant deposits of fill along the eastern edge of the flood mitigation area (Transects J-O) and surrounding the current elementary school. Additionally, STPs revealed soil profiles to the east of the elementary school that had apparently been stripped down to the gravelly sand C horizon. Therefore, to supplement the STP testing, a series of eight small backhoe trenches were dug around the perimeter of the existing school to test for the presence of fill and to determine the integrity of soil horizons in the area of the proposed new elementary school. Given that most of the proposed impacts associated with the elementary school involve the removal of the existing soils to a depth of 60 cm (2 ft), crews attempted to dig STPs to at least this depth. Soil data from the 8 backhoe trenches suggested that nearly all of the elementary school area had fill to greater than 60 cm (2 ft) depths. Deeper impacts are possible along the perimeter of the proposed new elementary school, however, much of this area falls within the footprint of the existing structure or is covered by asphalt.

4.3 General Laboratory Methods

Following fieldwork, all artifacts were processed and analyzed in the laboratories of PAF. Processing included washing (or dry-brushing fragile materials), along with checking and retagging the artifact bags.

All artifacts recovered were analyzed according to standard PAF systems. All chipped stone debitage was categorized by specific characteristics. These include: cortical flake, non-cortical flake, bifacial edge flake, core flake, blade flake, non-cortical chunk, cortical chunk, shatter, flake core, core fragment, bifacial thinning flake, non-cortical flake fragment (distal, medial, proximal), bipolar core, bifacial core, blade core, and discoidal core. Artifact raw material was also recorded.

The historic artifacts were catalogued according to a PAF system based on South's classification (South 1976). Each piece was classified as to general functional groups (e.g., food-related, faunal remains, clothing related, architectural remains, etc.) and then according to specific types, forms and patterns (e.g., blue transfer print cup, sun-purpled bottle glass, cut nail, animal bone, etc.). Where possible, time ranges for these artifacts were assigned.

The resulting artifact catalog was entered into a relational database management program (Paradox) to facilitate subsequent analysis, and is included in Appendix 2.2 (p. 54). All of the artifacts, notes, and other documentation of the reconnaissance testing are curated according to federal (36 CFR Part 79) and state (NYAC 2005) guidelines in the facilities of the Department of Anthropology at Binghamton University.

V. RESULTS OF ARCHAEOLOGICAL SURVEY

5.1 Overview

Archaeologists excavated 216 shovel test pits: 126 in the flood mitigation area and 90 in the elementary school area (Figures 10-12, pp. 37-39). Of these, 126 are in or around the revised flood mitigation boundary, while 90 are in or around the elementary school area.

In the flood mitigation area, the final depths for the STPs ranged from 30 to 110 cm (12 to 43 in) with an average of 76 cm (30 in). STP excavation and the geomorphologic assessment confirmed that the flood mitigation project area had clearly been artificially leveled with fill. The varying depths of fill and varying depths at which the C horizon was intersected indicate that prior to filling, this area had a more undulating surface that gradually sloped toward Owego Creek. STPs and auger probes in the flood mitigation area displayed a remarkable diversity of depth to the C horizon, ranging from as shallow as 35 cm (14 in) to greater than 192 cm (76 in). The shallow C horizon STPs form one and possibly two north-south trending linear clusters that likely mark ancient gravel bars associated with the post-Pleistocene stream. There appears to be two distinct fill layers associated with the flood mitigation area. The uppermost fill consists of a brown silt loam; the lower fill zone is a brown gravelly silt loam. While the upper fill zone is consistently encountered across the flood mitigation area, the gravelly fill horizon is concentrated to the east. Total fill depths along the eastern edge of the mitigation area (Transect L-O) averaged greater than 60 cm (24 in) and were rarely penetrated by STPs. Auger probes that did penetrate this fill indicated the presence of an Ap horizon that extended to as deep as 85 cm (33 in) and B horizons to 140 cm (44 in) at which point the C horizon was encountered. Although the flood mitigation transects L-O did not reach sub-fill deposits, these transects fall outside the revised APE. Excluding those STPs that have been eliminated from the flood mitigation APE, the final depths for STPs in the flood mitigation area had an average final depth of 85 cm (33. 5 in). Of these same STPs, nearly 80% reached the C horizon at depths less than 100 cm. These final depths and the high rate of reaching the C horizon, provided excellent vertical sampling of the flood mitigation area.

In the elementary school area, the final depths for STPs ranged from 20 to 125 cm (8-49 in) with an average of 54 cm (21 in). STP excavation and backhoe tests documented extensive cutting east of the existing elementary school and deep fill deposits surrounding much of the rest of the current structure. Testing indicated that east of the school, soils had been stripped down to the gravelly sand C horizon and then capped with a relatively thin layer of topsoil. Trenches to the south and west of the existing school documented the presence of fill to an average depth of 85 cm (33 in). Given that most of the impacts associated with the proposed elementary school involve the removal of the existing soils to a depth of 60 cm (2 ft), the documentation of the prior destruction of A and B horizons east of the existing school and average fill depths in other areas of 85 cm (33 in), our testing provided excellent vertical sampling of potential impacts to the elementary school area.

5.2 Archaeology Survey Results

PAF archaeologists recovered seven prehistoric artifacts from six STPs (D8, D8/1mS, D8/1mW, D10, D11, and D16). The seven prehistoric artifacts were Onondaga chert non-cortical flakes. The flake from STP D16 was recovered from fill deposits, therefore, no site was designated. The flake from STP D11 was recovered from a disturbed utility (storm water drainage) trench; no site was designated. Four 1 m (3.3 ft) radial STPs around STP D10 were all negative, consequently the flake from STP D10 has been classified as an isolated find and no site was designated. Two of the 1 m (3.3 ft) radials around STP D8 produced flakes from what appears to be a sub-fill plow zone Ap horizon. Additional 3 m (10 ft) radials were negative. The three positive STPs centered on STP D8 have been designated as the Owego Elementary School Prehistoric Site (SUBi-3024), which is discussed in Section 5.3.

Historic material was recovered in 22 of the 216 STPs producing a total of 41 artifacts. About 56% (n=23) of the artifacts were classified as unaffiliated items. These consisted of unidentified bottle glass (n=1), undiagnostic metal (n=2), undifferentiated glass (n=4), and undifferentiated ceramic fragments (n=16). The undifferentiated ceramics included ironstone (n=13), pearlware (n=1), whiteware (n=1), and yellowware (n=1). About 22% (n=9) of the artifacts were architectural items consisting of undiagnostic nails (n=1) and window glass (n=8). Food-related items accounted for 10% (n=4) and consisted of molded ironstone tableware/teaware (n=2) and whiteware tableware/teaware (n=2). A single piece of modern plastic was also recovered as well as four faunal remains including three indeterminate fragments and one mammal bone.

There is no evident clustering of the historic artifacts. Rather, items appear to be spread across the project area. No historic sites were designated.

5.3 Owego Elementary School Prehistoric Site (SUBi-3024)

Site Location. The site is located 58 m (190 ft) east of Owego Creek and 440 m (1444 ft) south of Huntington Creek in the Village of Owego, Tioga County, New York. The site is within the Susquehanna River drainage.

Context. The site is located on the floodplain of Owego Creek, approximately 2.3 km (1.4 mi) north of where Owego Creek joins the Susquehanna River. Huntington Creek is located approximately 440 m (1444 ft) north of the site. The materials recovered from the site were not diagnostic, and a cultural affiliation could not be determined. The Owego Elementary School Prehistoric Site matches a site type previously identified along Owego Creek—that of small resource processing station associated with an individual or small group of hunter-gatherers (Miroff 2001).

Site Size. The site measures approximately 4 x 4 m (13 x 13 ft), for a total area of 16 m^2 (172 ft^2).

Site Stratigraphy. The artifacts were recovered from a buried Ap horizon, which consisted of a brown silt loam. Capping the Ap is a sterile medium brown gravelly silt loam fill layer. Immediately below the Ap horizon is a sterile yellowish brown silt loam B horizon. The Ap horizon begins at approximately 15 cm (6 in) and ends around 37 cm (15 in) below the surface.

Summary of Artifacts. The four prehistoric artifacts were all Onondaga chert non-cortical flakes.

Artifact Distribution. The prehistoric artifacts were fairly evenly distributed among three STPS. STP D8/1mS had two flakes, while STPs D8 and D8/1mW each had one flake. All of the artifacts were recovered from the Ap horizon.

Features. No features were clearly identified during the reconnaissance survey

Integrity. The site retains good integrity with no evidence of disturbance or alluvial scouring and redeposition.

Research Potential. The Owego Elementary School Prehistoric Site has the potential to reveal information about the prehistoric settlement patterns and lithic reduction strategies along a major tributary of the Upper Susquehanna River.

Potential Impacts. The site lies within the area of impact for the proposed flood mitigation area.

Recommendations. We recommend that the site is potentially eligible for the National Register of Historic Places.

5.4 Recommendations

Within the elementary school parcel no archaeological sites were identified. No further work is recommended for the elementary school parcel.

Within the flood mitigation area, we recommend that the Owego Elementary School Site is potentially eligible for the National Register of Historic Places. We recommend that impacts to the site be avoided. If the site can be avoided, no further archaeological testing is recommended within the rest of the current flood mitigation project limits. If site avoidance is not possible, we recommend a Phase 2 site examination consisting of close-interval STPs and 2-4 excavation units.

CONFIDENTIAL

NEW YORK STATE PREHISTORIC ARCHAEOLOGICAL SITE INVENTORY FORM

Project Identifier: Owego Apalachin Elementary School Project
Date: December 2012
Name: Timothy Knapp
Phone: (607) 777-4786
Address: Rm. 146, Science I, Binghamton University, Binghamton NY
Organization (if any): Public Archaeology Facility

1. **Site Identifier(s):** Owego Elementary School Prehistoric Site (SUBi-3024)

2. **County:** Tioga
City:
Township: Stamford
Incorporated Village: Owego
Unincorporated Village or Hamlet:

3. **Present Owner:** Owego Apalachin Central School District
Address:

4. **Site Description (check all appropriate categories):**

Site:
- ☐ Stray find
- ☐ Cave/Rock shelter
- ☐ Workshop
- ☐ Pictograph
- ☐ Quarry
- ☐ Mound
- ☐ Burial
- ☐ Shell midden
- ☐ Village
- ☒ Material in plow zone
- ☐ Surface evidence
- ☐ Camp
- ☒ Resource procurement/ processing area
- ☐ Material below plow zone
- ☒ Buried Evidence
- ☐ Intact occupation floor
- ☐ Single Component
- ☐ Multi-component
- ☐ Stratified
- ☐ Evidence of features (FCR)

Location:
- ☐ Under cultivation
- ☐ Never cultivated
- ☒ Previously cultivated
- ☐ Pastureland
- ☐ Woodland
- ☐ Floodplain
- ☐ Upland
- ☐ Sustaining erosion

Soil Drainage: ☐ Excellent ☒ Good ☐ Fair ☐ Poor

Slope: ☒ Flat ☐ Gentle ☐ Moderate ☐ Steep

Distance to nearest water from site (approx.): 58 m (190 ft) east of Owego Creek
Elevation: approximately 248.7 m (816 ft) ASL

5. **Site Investigation (append additional sheets if necessary):**
Surface Testing Date(s):

*** Submission should be 8 ½" by 11" if feasible**
- ☒ **Site Map (Submit with form*)**
- ☐ **Collection**

Subsurface Testing Date(s): November 2 - December 4, 2012

Testing: ☒☒ **Shovel** ☐ **Coring** ☒ **Other:** backhoe trenches

Unit size: STPS 40 cm diameter; Trenches variable
Number of Units: 7 STPs **(Submit plan of unit with form*)**
Investigator: Timothy Knapp

Manuscript or published report(s) (reference fully):
Timothy Knapp and John M. Stiteler
2012 *Phase 1 Cultural Resource Survey, Owego Apalachin Elementary School and Flood Mitigation Project, Village of Owego (MCD 10740) Tioga County, New York.* Public Archaeology Facility, Binghamton, NY.

Present repository of materials: The Public Archaeology Facility

7. **Components(s) (Cultural affiliation and dates):** Ap horizon-Unknown prehistoric

8. **List of material remains (be as specific as possible in identifying object and material):**

STP	Description	Count
D8	Onondaga Chert Non-Cortical Flake	1
D8/1mW	Onondaga Chert Non-Cortical Flake	1
D8/1mS13	Onondaga Chert Non-Cortical Flake	2
D14	Onondaga Chert Non-Cortical Flake	1

If historic materials are evident, check here and fill out historic site form. ☐

9. **Map References:** Map or maps showing exact location and extent of site must accompany this form and must be identified by source and date. Keep this information to 8½" by 11" if possible.

USGS 7 ½ Minute Series Quad. Name: 1969 Owego, NY Quadrangle
For Office Use Only – UTM Coordinates: ___________________________

10. **Photography (optional for environmental impact survey):** Please submit 5" by 7" black and white print(s) showing the current state of the site. Provide a label for the print(s) on a separate sheet.

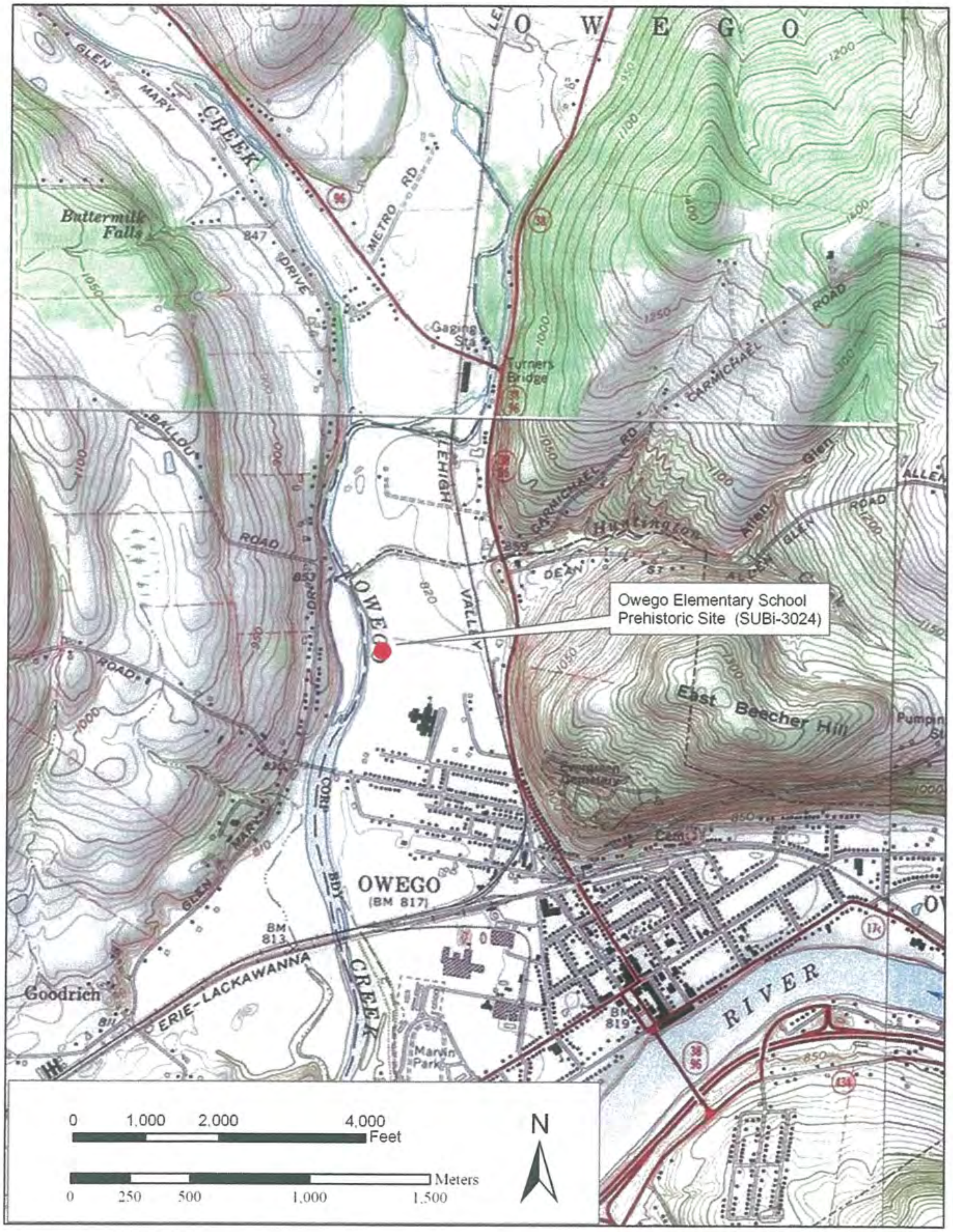

Figure 8. Location of Owego Elementary School Site (SUBi-3024) on 1969 Owego, NY Quadrangle.

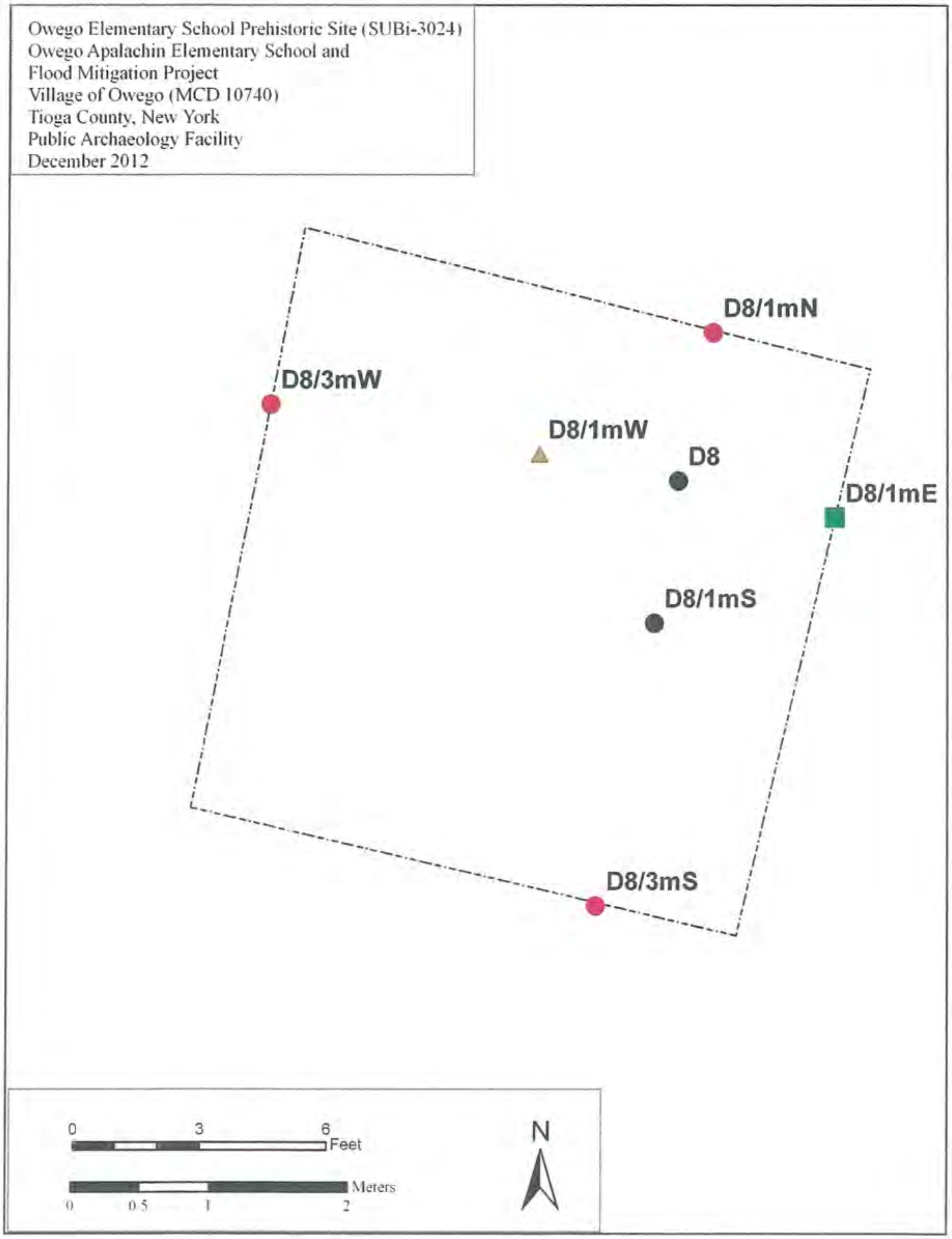

Figure 9. Owego Elementary School Prehistoric Site Map.

Photo 19. The Owego Elementary School Prehistoric Site, facing north.

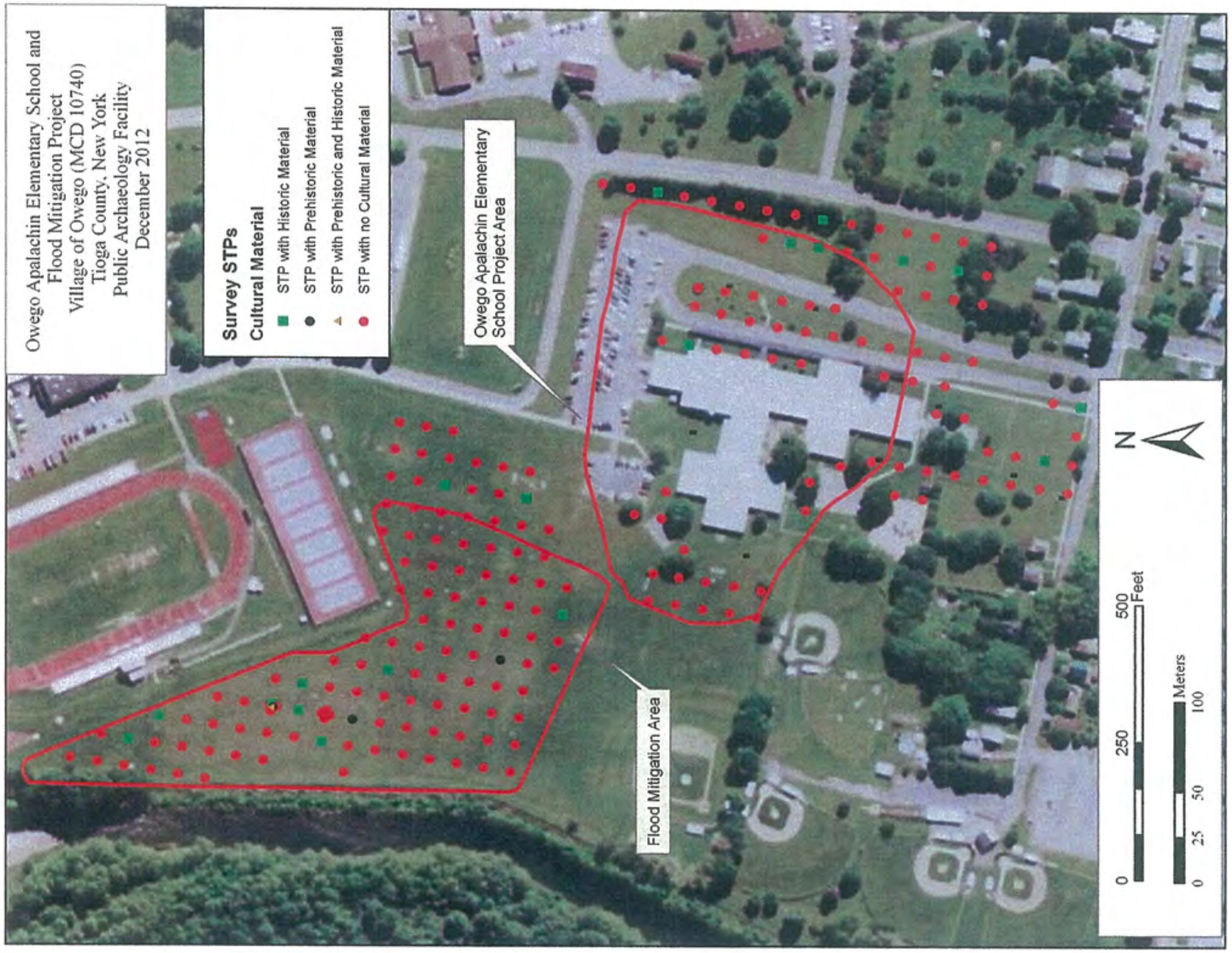

Figure 10. Project Map.

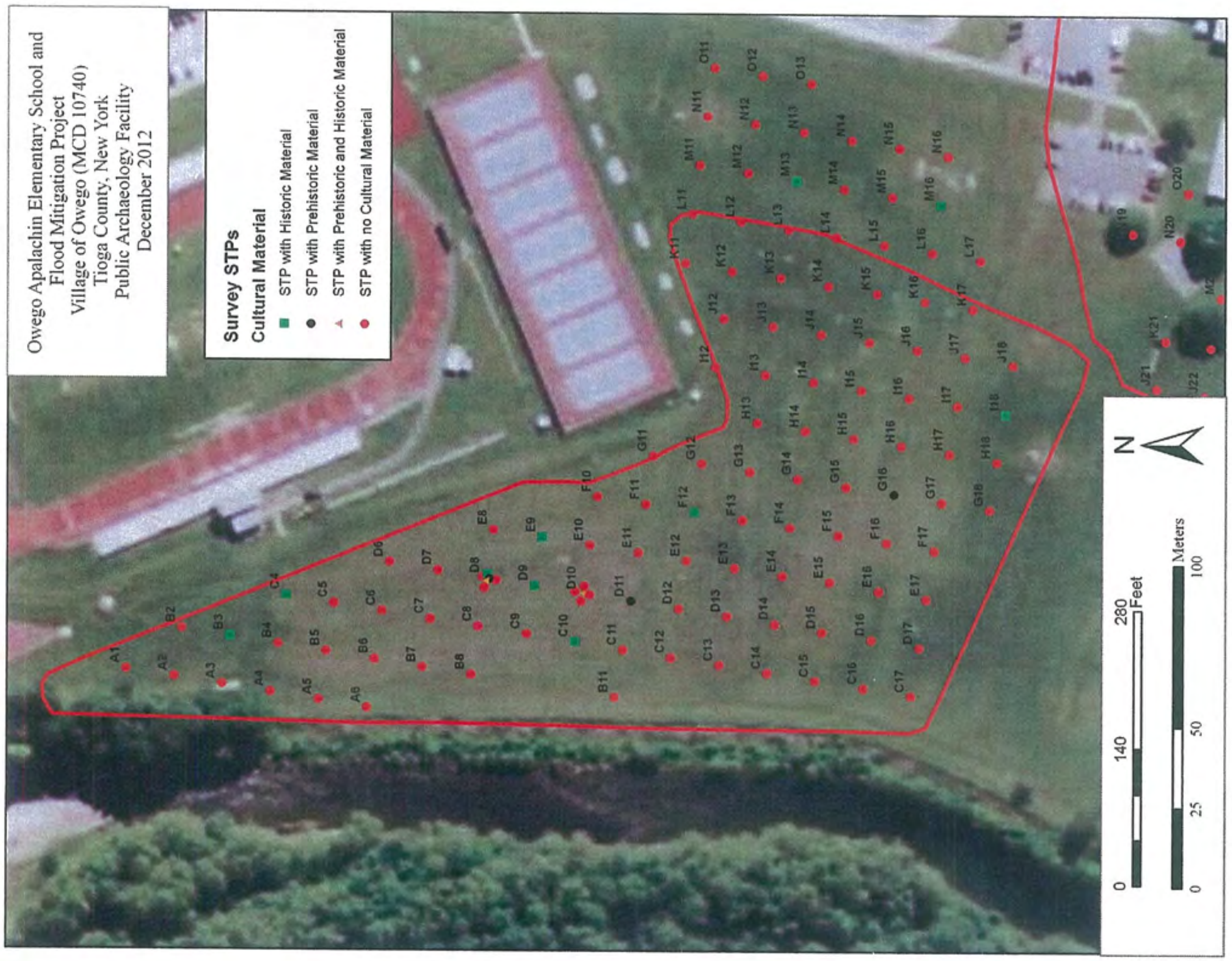

Figure 11. STP location for the flood mitigation area.

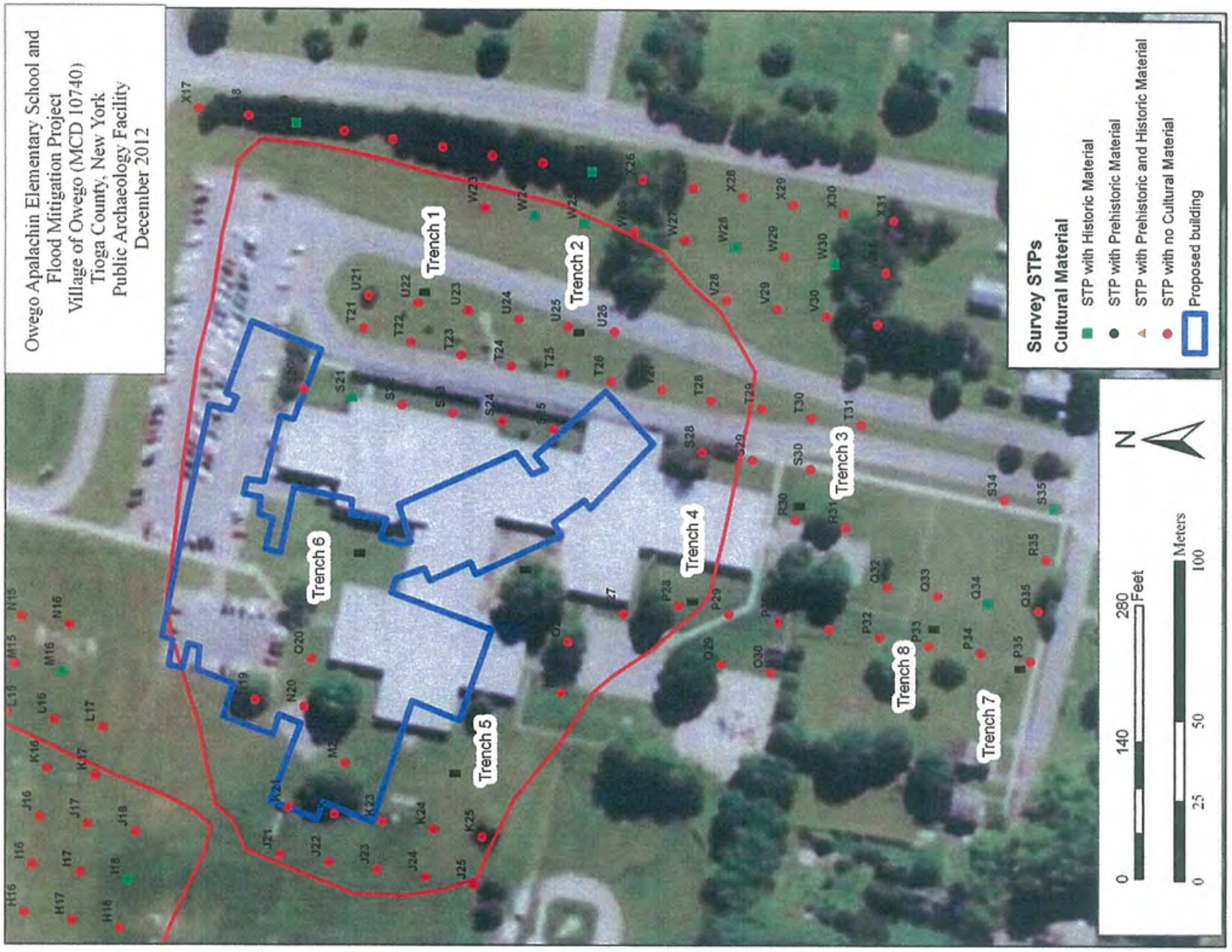

Figure 12. Location of elementary school area STPs

APPENDIX I: BIBLIOGRAPHY

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APPENDIX II: SOIL NOTES AND CATALOGS

APPENDIX 2.1 Soil Notes

PA=PALE LT=LIGHT MD=MEDIUM DK=DARK
BR=BROWN GR=GRAY YL=YELLOW OL=OLIVE TN=TAN RD=RED BK=BLACK WH=WHITE
SI=SILT SA=SAND CL=CLAY LO=LOAM GVL=GRAVEL
P=PREHISTORIC H=HISTORIC N=NO CULTURAL MATERIAL

STP	LEVEL	DEPTH (CM)	DESCRIPTION	CM	CREW	DATE
A1	1	0-12	MOTTLED BR/YL BR SI LO W/ROCK	N	AB/ML	11/2/2012
A1	2	12-30	DK GR BR SI	N	AB/ML	11/2/2012
A1	3	30-55	DK YL BR COMPACT SI	N	AB/ML	11/2/2012
A1	4	55-80	DK YL BR COMPACT SI	N	AB/ML	11/2/2012
A1	5	80-83	DK YL BR COMPACT SI; STOPPED BY ROCK	N	AB/ML	11/2/2012
A2	1	0-25	DK BR SI LO	N	AB/ML	11/2/2012
A2	2	25-27	DK BR SI LO	N	AB/ML	11/2/2012
A2	3	27-50	YL BR SI W/DENSE ROCKS & GVL	N	AB/ML	11/2/2012
A2	4	50-60	YL BR MOTTLED W/DK BR SI W/ROCKS	N	AB/ML	11/2/2012
A3	1	0-22	BR SI LO W/GVL	N	AB/ML	11/2/2012
A3	2	22-48	DK GR BR SI LO	N	AB/ML	11/2/2012
A3	3	48-73	DK YL BR COMPACT SI	N	AB/ML	11/2/2012
A3	4	73-92	DK YL BR COMPACT SI	N	AB/ML	11/2/2012
A3	5	92-100	YL BR COMPACT SI	N	AB/ML	11/2/2012
A4	1	0-15	DK BR SI LO	N	TB/EA	11/2/2012
A4	2	15-25	DK BR SI LO MIXED W/YL BR SI	N	TB/EA	11/2/2012
A4	3	25-90	VERY DK GR BR COMPACT SI	N	TB/EA	11/2/2012
A4	4	90-100	DK YL BR SI	N	TB/EA	11/2/2012
A5	1	0-25	DK BR SI LO W/SOME ROCK	N	AB/ML	11/2/2012
A5	2	25-31	DK BR SI LO W/SOME ROCK	N	AB/ML	11/2/2012
A5	3	31-44	DK BR SI LO W/YL BR SI	N	AB/ML	11/2/2012
A5	4	44-57	YL BR COMPACT SI	N	AB/ML	11/2/2012
A5	5	57-77	STRONG BR/RD YL BR COMPACT SI	N	AB/ML	11/2/2012
A5	6	77-100	DK YL BR SA CL	N	AB/ML	11/2/2012
A5	7	100-105	YL BR COMPACT SI W/ROCKS & GVL	N	AB/ML	11/2/2012
A6	1	0-33	LT BR SI LO	N	TK/DP	11/2/2012
A6	2	33-66	MD BR SI LO	N	TK/DP	11/2/2012
A6	3	66-93	LT BR SI LO	N	TK/DP	11/2/2012
A6	4	93-103	DK BR SI LO (BURIED A)	N	TK/DP	11/2/2012
A6	5	103-120	DK BR SI LO (AB; AUGER PROBE)	N	TK/DP	11/2/2012
A6	6	120-140	YL BR SI LO (BW1; AUGER PROBE)	N	TK/DP	11/2/2012
A6	7	140-192	LT YL BR MOTTLED W/YL RD COMPACT CL SI (BW2; AUGER PROBE)	N	TK/DP	11/2/2012
B2	1	0-30	BR SI LO	N	GD/JF	11/2/2012
B2	2	30-90	DK BR SI LO	N	GD/JF	11/2/2012
B2	3	90-107	YL BR SI LO	N	GD/JF	11/2/2012
B3	1	0-13	BR SI LO	H	GD/JF	11/2/2012
B3	2	13-16	BR SI LO W/GVL LENS	N	GD/JF	11/2/2012
B3	3	16-41	DK BR SI LO	N	GD/JF	11/2/2012
B3	4	41-83	STRONG YL BR SI LO; STOPPED BY ROCKS	N	GD/JF	11/2/2012
B4	1	0-30	BR SI LO	N	GD/JF	11/2/2012
B4	2	30-54	DK BR SI LO	N	GD/JF	11/2/2012
B4	3	54-69	YL BR SI LO	N	GD/JF	11/2/2012
B4	4	69-85	DK BR SI LO	N	GD/JF	11/2/2012
B4	5	85-100	YL BR SI LO	N	GD/JF	11/2/2012
B5	1	0-25	BR SI LO	N	TB/EA	11/2/2012
B5	2	25-35	BR SI LO	N	TB/EA	11/2/2012
B5	3	35-60	VERY DK BR SI LO	N	TB/EA	11/2/2012
B5	4	60-85	YL BR SI W/FINE SA	N	TB/EA	11/2/2012
B5	5	85-105	YL BR SI W/FINE SA	N	TB/EA	11/2/2012
B5	6	105-140	YL BR SI W/FINE SA; GVL AT BOTTOM; DUG W/AN AUGER	N	TB/EA	11/2/2012
B6	1	0-60	BR SI LO	N	GD/JF	11/2/2012

STP	LEVEL	DEPTH (CM)	DESCRIPTION	CM	CREW	DATE
B6	2	60-100	STRONG YL BR SI LO	N	GD/JF	11/2/2012
B7	1	0-30	MD BR MOTTLED W/YL BR SI LO; FILL; GLASS - DISC.	N	TK/DP	11/2/2012
B7	2	30-42	DK BR SI LO (PLOW ZONE)	N	TK/DP	11/2/2012
B7	3	42-57	MD BR SI (BW)	N	TK/DP	11/2/2012
B7	4	57-77	DK BR SI (A)	N	TK/DP	11/2/2012
B7	5	77-102	YL BR SI (BW)	N	TK/DP	11/2/2012
B8	1	0-25	DK BR SI LO	N	PB/LP	11/2/2012
B8	2	25-35	DK BR SI LO	N	PB/LP	11/2/2012
B8	3	35-60	YL BR SI	N	PB/LP	11/2/2012
B8	4	60-68	YL BR SI	N	PB/LP	11/2/2012
B8	5	68-85	DK YL BR SA SI	N	PB/LP	11/2/2012
B11	1	0-33	BR SI LO W/GVL	N	JF/DP	12/4/2012
B11	2	33-79	YL BR SI LO	N	JF/DP	12/4/2012
B11	3	79-103	BR SA SI	N	JF/DP	12/4/2012
C4	1	0-24	DK BR SI LO W/GVL; PLASTIC & CHARCOAL - DISC.	H	TB/EA	11/2/2012
C4	2	24-40	YL BR SI	N	TB/EA	11/2/2012
C4	3	40-60	LT YL BR SA SI LO W/COBBLES/GVL	N	TB/EA	11/2/2012
C5	1	0-23	DK BR SI LO	N	TB/EA	11/2/2012
C5	2	23-70	VERY DK GR BR COMPACT SI	N	TB/EA	11/2/2012
C5	3	70-100	YL BR COMPACT SI	N	TB/EA	11/2/2012
C5	4	100-160	LT YL BR SA SI; GVL BELOW 160cm	N	TB/EA	11/2/2012
C6	1	0-25	BR SI LO W/GVL; PLASTIC - DISC.	N	AB/ML	11/2/2012
C6	2	25-44	BR SI LO W/GVL	N	AB/ML	11/2/2012
C6	3	44-69	YL BR SI	N	AB/ML	11/2/2012
C6	4	69-94	YL BR SI	N	AB/ML	11/2/2012
C6	5	94-100	YL BR SI W/GVL AT VERY BOTTOM	N	AB/ML	11/2/2012
C7	1	0-23	BR SI LO	N	GD/JF	11/2/2012
C7	2	23-45	YL BR SA SI W/PEA GVL	N	GD/JF	11/2/2012
C7	3	45-80	STRONG BR SA SI W/GVL; STOPPED BY ROCK	N	GD/JF	11/2/2012
C8	1	0-20	BR SI LO	N	AB/ML	11/2/2012
C8	2	20-40	DK BR/OL BR SI LO	N	AB/ML	11/2/2012
C8	3	40-65	YL BR SI LO	N	AB/ML	11/2/2012
C8	4	65-83	YL BR SI LO	N	AB/ML	11/2/2012
C9	1	0-38	BR SI LO	N	TK/DP	11/2/2012
C9	2	38-60	YL BR SI LO	N	TK/DP	11/2/2012
C10	1	0-25	BR SI LO MOTTLED W/YL BR SI W/GVL	H	AB/ML	11/2/2012
C10	2	25-40	BR SI LO MOTTLED W/YL BR SI W/GVL	N	AB/ML	11/2/2012
C10	3	40-60	YL BR SI	N	AB/ML	11/2/2012
C10	4	60-85	YL BR SA SI W/GVL & LG.COBBLES	N	AB/ML	11/2/2012
C10	5	85-90	YL BR SA SI W/GVL & LG.COBBLES	N	AB/ML	11/2/2012
C11	1	0-15	BR SI LO; FILL	N	AB/ML	11/2/2012
C11	2	15-29	BR/YL BR SI LO; PLOW ZONE	N	AB/ML	11/2/2012
C11	3	29-54	YL BR SI W/GVL	N	AB/ML	11/2/2012
C11	4	54-65	YL BR SI W/GVL	N	AB/ML	11/2/2012
C11	5	65-80	DK YL BR SA W/HEAVY GVL	N	AB/ML	11/2/2012
C12	1	0-38	BR SI LO W/ROCK	N	JF/DP	12/4/2012
C12	2	38-57	YL BR SI LO	N	JF/DP	12/4/2012
C12	3	57-72	DK YL BR SI LO W/ROCKS	N	JF/DP	12/4/2012
C13	1	0-22	BR SI LO W/ROCK	N	JF/DP	12/4/2012
C13	2	22-44	YL BR SI LO	N	JF/DP	12/4/2012
C13	3	44-60	DK YL BR SI LO W/ROCK	N	JF/DP	12/4/2012
C14	1	0-40	BR SI LO W/ROCKS; FILL	N	JF/DP	12/4/2012
C14	2	40-68	DK YL BR SI	N	JF/DP	12/4/2012
C14	3	68-81	YL BR SI	N	JF/DP	12/4/2012
C14	4	81-96	YL BR SA SI W/COBBLES	N	JF/DP	12/4/2012
C15	1	0-27	BR SA LO	N	AB/GD	12/4/2012
C15	2	27-49	DK YL BR SA W/PEA GVL	N	AB/GD	12/4/2012
C16	1	0-36	BR SI LO	N	AB/GD	12/4/2012

STP	LEVEL	DEPTH (CM)	DESCRIPTION	CM	CREW	DATE
C16	2	36-56	STRONG BR SA SI	N	AB/GD	12/4/2012
C16	3	56-73	DK BR SA W/GVL	N	AB/GD	12/4/2012
C17	1	0-27	DK BR SI LO	N	AB/GD	12/4/2012
C17	2	27-53	VERY DK GR BR SA SI W/GVL	N	AB/GD	12/4/2012
C17	3	53-83	STRONG BR SA	N	AB/GD	12/4/2012
C17	4	83-100	DK BR SA SI W/GVL	N	AB/GD	12/4/2012
D6	1	0-25	DK BR SI LO	N	TB/EA	11/1/2012
D6	2	25-50	DK BR SI LO	N	TB/EA	11/1/2012
D6	3	50-75	YL BR SI LO	N	TB/EA	11/1/2012
D6	4	75-85	YL BR SI LO	N	TB/EA	11/1/2012
D6	5	85-100	LT YL BR COMPACT SA SI LO W/GVL & ROCKS	N	TB/EA	11/1/2012
D6	6	100-108	LT YL BR COMPACT SA SI LO W/GVL & ROCKS	N	TB/EA	11/1/2012
D7	1	0-35	BR SI LO	N	GD/JF	11/2/2012
D7	2	35-75	YL BR SI LO W/GVL FROM 70-75cm; STOPPED BY ROCKS & GVL	N	GD/JF	11/2/2012
D8	1	0-25	BR SI LO	N	PB/LP	11/2/2012
D8	2	25-38	BR SI LO	P	PB/LP	11/2/2012
D8	3	38-50	YL BR SI LO	N	PB/LP	11/2/2012
D8	4	50-70	YL BR SA SI W/GVL & ROCKS	N	PB/LP	11/2/2012
D8/1mE	1	0-36	BR SI LO W/SOME ROCKS	H	JF/DP	12/4/2012
D8/1mE	2	36-51	YL BR SI LO	N	JF/DP	12/4/2012
D8/1mE	3	51-56	YL BR SI LO W/ROCKS	N	JF/DP	12/4/2012
D8/1mN	1	0-30	BR SI LO	N	JF/DP	12/4/2012
D8/1mN	2	30-45	YL BR SI LO	N	JF/DP	12/4/2012
D8/1mS	1	0-15	MD BR SI LO W/MINOR GVL (FILL)	N	TK	12/4/2012
D8/1mS	2	15-37	DK BR SI LO (AP)	P	TK	12/4/2012
D8/1mS	3	37-57	YL BR SI LO (B)	N	TK	12/4/2012
D8/1mW	1	0-27	BR SI LO W/GVL	P/H	JF/DP	12/4/2012
D8/1mW	2	27-44	YL BR SI LO	N	JF/DP	12/4/2012
D8/1mW	3	44-60	DK YL BR SA LO W/GVL	N	JF/DP	12/4/2012
D8/3mS	1	0-25	BR SI LO	N	AB/GD	12/4/2012
D8/3mS	2	25-33	BR SI LO	N	AB/GD	12/4/2012
D8/3mS	3	33-48	YL BR SI LO W/GVL	N	AB/GD	12/4/2012
D8/3mW	1	0-26	BR SI LO W/GVL	N	JF/DP	12/4/2012
D8/3mW	2	26-41	DK YL BR SI LO	N	JF/DP	12/4/2012
D9	1	0-25	BR SI LO	H	LP/DP	11/5/2012
D9	2	25-33	BR SI LO	N	LP/DP	11/5/2012
D9	3	33-48	YL BR/BR SI LO	N	LP/DP	11/5/2012
D9	4	48-67	YL BR SI LO	N	LP/DP	11/5/2012
D9	5	67-80	GR BR LO W/GVL & ROCK; STOPPED BY ROCK	N	LP/DP	11/5/2012
D10	1	0-40	BR SI LO	P/H	LP/DP	11/5/2012
D10	2	40-68	BR SI LO	N	LP/DP	11/5/2012
D10	3	68-95	YL BR SI LO	N	LP/DP	11/5/2012
D10	1	0-30	DK BR MOTTLED W/YL BR GVL SI LO (FILL)	N	TK	12/4/2012
D10	2	30-55	DK BR SI LO (AP)	N	TK	12/4/2012
D10	3	55-78	YL BR SI LO (B)	N	TK	12/4/2012
D10	1	0-14	DK BR SI LO (FILL)	N	TK	12/4/2012
D10	2	14-37	DK BR MOTTLED W/YL BR GVL SI LO (FILL)	N	TK	12/4/2012
D10	3	37-57	DK BR SI LO (AP)	N	TK	12/4/2012
D10	4	57-77	YL BR SI LO (B)	N	TK	12/4/2012
D10	1	0-25	DK BR SI LO; POSS.FILL; COAL & BRICK - DISC.	N	AB/BV	11/8/2012
D10	2	25-50	DK BR SI LO; POSS.FILL; COAL & BRICK - DISC.	N	AB/BV	11/8/2012
D10	3	50-58	DK BR SI LO; POSS.FILL	N	AB/BV	11/8/2012
D10	4	58-70	DK BR SI LO MOTTLED W/YL BR SI LO	N	AB/BV	11/8/2012
D10	5	70-90	DK BR SI LO MOTTLED W/YL BR SI LO	N	AB/BV	11/8/2012
D10	6	90-100	DK BR SI LO MOTTLED W/YL BR SI LO	N	AB/BV	11/8/2012
D10	1	0-12	DK BR SI LO (FILL 1)	N	TK	12/4/2012
D10	2	12-35	DK BR MOTTLED W/YL BR GVL SI LO (FILL 2)	N	TK	12/4/2012
D10	3	35-57	DK BR SI LO (AP)	N	TK	12/4/2012

STP	LEVEL	DEPTH (CM)	DESCRIPTION	CM	CREW	DATE
D10	4	57-73	YL BR SI LO (B)	N	TK	12/4/2012
D11	1	0-37	BR SI LO	N	TK/DP	11/2/2012
D11	2	37-100	BR SI LO MOTTLED W/YL BR SI LO W/ROCKS	P	TK/DP	11/2/2012
D11	3	100-110	YL BR COMPACT SI LO; STOPPED BY ROCK	N	TK/DP	11/2/2012
D12	1	0-27	DK BR SI LO W/ROCK	N	LP/DP	11/5/2012
D12	2	27-55	DK BR SI LO	N	LP/DP	11/5/2012
D12	3	55-95	YL BR SI LO	N	LP/DP	11/5/2012
D13	1	0-25	BR SI LO W/ROCK	N	LP/DP	11/5/2012
D13	2	25-30	BR SI LO W/ROCK	N	LP/DP	11/5/2012
D13	3	30-50	DK GR BR SI LO	N	LP/DP	11/5/2012
D13	4	50-75	YL BR COMPACT SI	N	LP/DP	11/5/2012
D13	5	75-100	YL BR COMPACT SI	N	LP/DP	11/5/2012
D14	1	0-18	BR SI LO W/ROCK	N	JF/DP	12/4/2012
D14	2	18-50	BR SI LO MIXED W/YL BR SI LO W/ROCK; STOPPED BY ROCK (DRAINAGE BASIN TO WEST)	N	JF/DP	12/4/2012
D15	1	0-26	BR SI LO; FILL; CANDY WRAPPER, PLASTIC - DISC.	N	JF/DP	12/4/2012
D15	2	26-50	BR SI LO W/GVL; FILL	N	JF/DP	12/4/2012
D15	3	50-70	YL BR SI	N	JF/DP	12/4/2012
D15	4	70-85	YL BR SA SI W/COBBLES (C HORIZON)	N	JF/DP	12/4/2012
D16	1	0-25	BR SA LO W/GVL; FILL	N	AB/GD	12/4/2012
D16	2	25-30	BR SA LO W/GVL; FILL	N	AB/GD	12/4/2012
D16	3	30-55	DK OL BR SA SI W/GVL	N	AB/GD	12/4/2012
D16	4	55-65	DK OL BR SA SI W/GVL	N	AB/GD	12/4/2012
D16	5	65-83	DK YL BR SI SA W/HEAVY GVL & ROCK	N	AB/GD	12/4/2012
D17	1	0-25	DK BR SI LO	N	AB/GD	12/4/2012
D17	2	25-30	DK BR SI LO	N	AB/GD	12/4/2012
D17	3	30-55	DK BR SA SI W/GVL	N	AB/GD	12/4/2012
D17	4	55-60	DK BR SA SI W/GVL	N	AB/GD	12/4/2012
D17	5	60-83	YL BR SA SI	N	AB/GD	12/4/2012
D17	6	83-100	DK YL BR SA W/GVL	N	AB/GD	12/4/2012
E8	1	0-32	DK BR SI LO W/GVL (FILL)	N	KS/VL	11/4/2012
E8	2	32-70	DK YL BR SI LO; STOPPED BY ROCK	N	KS/VL	11/4/2012
E9	1	0-25	DK BR SI LO W/GVL (FILL); COAL & BRICK - DISC.	H	TK/EA	11/5/2012
E9	2	25-46	MD BR MOTTLED W/YL BR SI LO (AP)	N	TK/EA	11/5/2012
E9	3	46-75	YL BR SI (BW)	N	TK/EA	11/5/2012
E9	4	75-80	YL BR SA W/GVL (C); STOPPED BY ROCK	N	TK/EA	11/5/2012
E10	1	0-25	DK BR SI LO W/GVL	N	KS/VL	11/4/2012
E10	2	25-45	DK BR SI LO W/GVL	N	KS/VL	11/4/2012
E10	3	45-70	YL BR SI LO	N	KS/VL	11/4/2012
E10	4	70-82	YL BR SI LO W/ROCKS AT BOTTOM	N	KS/VL	11/4/2012
E11	1	0-30	DK BR SI LO W/GVL	N	KS/VL	11/4/2012
E11	2	30-60	VERY DK GR BR SI LO	N	KS/VL	11/4/2012
E11	3	60-101	YL BR SI LO	N	KS/VL	11/4/2012
E12	1	0-25	DK BR SI LO W/GVL	N	KS/VL	11/4/2012
E12	2	25-35	DK BR SI LO W/GVL	N	KS/VL	11/4/2012
E12	3	35-60	YL BR SI LO	N	KS/VL	11/4/2012
E12	4	60-78	YL BR SI LO W/ROCKS AT BOTTOM	N	KS/VL	11/4/2012
E13	1	0-25	DK GR BR SI LO W/GVL; MODERN BOTTLE GLASS - DISC.	N	KS/VL	11/4/2012
E13	2	25-46	YL BR SI LO W/GVL; STOPPED BY COMPACT COBBLES	N	KS/VL	11/4/2012
E14	1	0-25	GR BR SI LO W/GVL	N	KS/VL	11/4/2012
E14	2	25-40	GR BR SI LO W/GVL	N	KS/VL	11/4/2012
E14	3	40-65	YL BR SI LO	N	KS/VL	11/4/2012
E14	4	65-78	YL BR SI LO W/ROCKS AT BOTTOM	N	KS/VL	11/4/2012
E15	1	0-25	DK GR BR SI LO W/ROCKS & GVL	N	KS/VL	11/4/2012
E15	2	25-50	DK GR BR SI LO W/ROCKS & GVL	N	KS/VL	11/4/2012
E15	3	50-72	DK GR BR SI LO W/ROCKS & GVL	N	KS/VL	11/4/2012
E15	4	72-95	DK GR BR SI LO MOTTLED W/OL YL BR SI LO; STOPPED BY ROCKS	N	KS/VL	11/4/2012
E16	1	0-40	GR BR SA SI LO	N	AB/GD	12/4/2012
E16	2	40-67	DK BR SA SI W/GVL	N	AB/GD	12/4/2012

STP	LEVEL	DEPTH (CM)	DESCRIPTION	CM	CREW	DATE
E16	3	67-82	LT BR SA SI W/GVL	N	AB/GD	12/4/2012
E17	1	0-27	DK GR BR SI LO	N	AB/GD	12/4/2012
E17	2	27-57	STRONG BR SA SI	N	AB/GD	12/4/2012
E17	3	57-87	VERY DK BR SA SI W/GVL	N	AB/GD	12/4/2012
F10	1	0-30	DK BR SI LO W/LOW DENSITY COAL	N	TK/EA	11/5/2012
F10	2	30-60	YL BR SI	N	TK/EA	11/5/2012
F10	3	60-75	YL BR SI	N	TK/EA	11/5/2012
F10	4	75-100	BR SA	N	TK/EA	11/5/2012
F11	1	0-15	DK BR SI LO W/GVL (FILL)	N	TK/EA	11/5/2012
F11	2	15-28	MD BR MOTTLED W/YL BR SI LO W/GVL (AP?)	N	TK/EA	11/5/2012
F11	3	28-35	YL BR SI LO (BW)	N	TK/EA	11/5/2012
F11	4	35-43	DK BR SI LO (A)	N	TK/EA	11/5/2012
F11	5	43-94	YL BR SI (BW)	N	TK/EA	11/5/2012
F11	6	94-104	DK YL BR SA SI (BW)	N	TK/EA	11/5/2012
F12	1	0-24	DK BR SI LO; FILL; COAL - DISC.	H	TK/EA	11/5/2012
F12	2	24-35	DK BR SA LO W/GVL/COBBLES; FILL	N	TK/EA	11/5/2012
F12	3	35-48	YL BR SI	N	TK/EA	11/5/2012
F12	4	48-57	BR SA SI W/GVL/ROCKS	N	TK/EA	11/5/2012
F13	1	0-20	DK BR SI LO W/GVL; FILL	N	VL/EA	11/5/2012
F13	2	20-45	YL BR SI	N	VL/EA	11/5/2012
F13	3	45-60	BR SA SI LO W/GVL/ROCKS	N	VL/EA	11/5/2012
F14	1	0-25	DK BR SI LO	N	KS/VL	11/4/2012
F14	2	25-50	DK BR SI LO	N	KS/VL	11/4/2012
F14	3	50-60	DK BR SI LO	N	KS/VL	11/4/2012
F14	4	60-100	YL BR SI LO	N	KS/VL	11/4/2012
F15	1	0-25	BR SI LO	N	LP/DP	11/5/2012
F15	2	25-29	BR SI LO	N	LP/DP	11/5/2012
F15	3	29-49	YL BR/BR SI LO	N	LP/DP	11/5/2012
F15	4	49-74	YL BR SI	N	LP/DP	11/5/2012
F15	5	74-100	YL BR SI	N	LP/DP	11/5/2012
F16	1	0-25	DK BR SI LO	N	KS	11/4/2012
F16	2	25-45	DK BR SI LO	N	KS	11/4/2012
F16	3	45-80	DK BR SI LO W/COBBLES; STOPPED BY ROCKS	N	KS	11/4/2012
F17	1	0-30	DK BR SI LO W/ROCK	N	LP/DP	11/5/2012
F17	2	30-70	BR SI LO	N	LP/DP	11/5/2012
F17	3	70-100	YL BR SI LO	N	LP/DP	11/5/2012
G12	1	0-25	ROCKS W/MOTTLED DK BR/YL BR SI LO; FILL	N	VL/EA	11/5/2012
G12	2	25-40	ROCKS W/MOTTLED DK BR/YL BR SI LO; FILL; STOPPED BY ROCKS	N	VL/EA	11/5/2012
G13	1	0-25	DK BR SI LO W/ROCKS; FILL	N	VL/EA	11/5/2012
G13	2	25-45	DK BR SI LO W/ROCKS; FILL	N	VL/EA	11/5/2012
G13	3	45-70	MOTTLED DK BR/YL BR SI LO W/ROCKS; FILL	N	VL/EA	11/5/2012
G14	1	0-30	DK BR SI LO W/GVL (FILL)	N	VL/EA	11/5/2012
G14	2	30-60	YL BR SI	N	VL/EA	11/5/2012
G14	3	60-85	BR SA SI W/GVL	N	VL/EA	11/5/2012
G15	1	0-15	DK BR SI LO	N	KS	11/4/2012
G15	2	15-31	YL BR SI LO	N	KS	11/4/2012
G15	3	31-34	YL BR SI LO W/DENSE COBBLES; STOPPED BY ROCKS	N	KS	11/4/2012
G16	1	0-25	DK BR SI LO W/GVL	P	KS	11/4/2012
G16	2	25-50	YL BR SI LO	N	KS	11/4/2012
G16	3	50-69	BR COARSE SA	N	KS	11/4/2012
G16	4	69-101	OL YL BR SA SI	N	KS	11/4/2012
G17	1	0-9	DK BR SI LO	N	LP/DP	11/5/2012
G17	2	9-57	DK BR SI LO W/GVL & ROCKS; STOPPED BY ROCKS	N	LP/DP	11/5/2012
G18	1	0-30	BR SA LO W/ROCKS	N	MK/VL	11/29/2012
G18	2	30-50	GR BR SA SI W/ROCKS	N	MK/VL	11/29/2012
G18	3	50-65	YL BR SI LO W/ROCKS	N	MK/VL	11/29/2012
H13	1	0-18	DK BR SI LO	N	VL/EA	11/5/2012
H13	2	18-35	DK BR SA SI LO W/GVL/ROCKS	N	VL/EA	11/5/2012

STP	LEVEL	DEPTH (CM)	DESCRIPTION	CM	CREW	DATE
H13	3	35-60	YL BR SI	N	VL/EA	11/5/2012
H13	4	60-95	YL BR SI	N	VL/EA	11/5/2012
H13	5	95-100	LT YL BR SA SI W/GVL	N	VL/EA	11/5/2012
H14	1	0-19	DK BR SI LO W/GVL	N	KS	11/4/2012
H14	2	19-52	YL BR SI LO; STOPPED BY ROCKS	N	KS	11/4/2012
H15	1	0-25	DK BR SI LO	N	KS	11/4/2012
H15	2	25-37	DK BR SI LO	N	KS	11/4/2012
H15	3	37-61	YL BR SI LO; STOPPED BY COBBLES	N	KS	11/4/2012
H16	1	0-9	BR SI LO	N	DP/LK	11/5/2012
H16	2	9-32	BR SI LO W/GVL & ROCK	N	DP/LK	11/5/2012
H16	3	32-52	DK GR BR SI LO	N	DP/LK	11/5/2012
H16	4	52-100	YL BR SI	N	DP/LK	11/5/2012
H17	1	0-60	BR SI LO W/ROCK (FILL)	N	DP/LK	11/5/2012
H17	2	60-80	BR SI LO	N	DP/LK	11/5/2012
H17	3	80-100	YL BR SI LO	N	DP/LK	11/5/2012
H18	1	0-33	MD BR SA LO W/GVL	N	MK/VL	11/29/2012
H18	2	33-60	GR BR SI LO	N	MK/VL	11/29/2012
H18	3	60-71	DK YL BR SI LO W/GVL	N	MK/VL	11/29/2012
I12	1	0-15	DK BR SI LO	N	JF/DP	12/4/2012
I12	2	15-35	DK BR VERY COMPACT SI LO W/ROCKS	N	JF/DP	12/4/2012
I12	3	35-50	DK BR VERY COMPACT SI LO	N	JF/DP	12/4/2012
I12	4	50-65	YL BR VERY COMPACT SI LO	N	JF/DP	12/4/2012
I12	5	65-70	YL BR VERY COMPACT SI LO W/COBBLES	N	JF/DP	12/4/2012
I13	1	0-25	DK BR SI LO W/ROCKS; FILL	N	VL/EA	11/5/2012
I13	2	25-35	DK BR SI LO W/ROCKS; FILL	N	VL/EA	11/5/2012
I13	3	35-55	MOTTLED YL BR/DK BR SI LO W/ROCKS; FILL; STOPPED BY ROCKS	N	VL/EA	11/5/2012
I14	1	0-25	BR SI LO W/GVL	N	VL/EA	11/5/2012
I14	2	25-55	DK GR BR SI LO	N	VL/EA	11/5/2012
I14	3	55-85	YL BR SI	N	VL/EA	11/5/2012
I14	4	85-100	LT YL BR SA SI	N	VL/EA	11/5/2012
I15	1	0-25	DK BR SI LO W/GVL	N	KS	11/4/2012
I15	2	25-50	DK BR SI LO W/GVL	N	KS	11/4/2012
I15	3	50-86	YL BR SA SI; STOPPED BY COBBLES	N	KS	11/4/2012
I16	1	0-45	BR SI LO W/ROCK (FILL)	N	DP/LK	11/5/2012
I16	2	45-72	DK BR SI LO	N	DP/LK	11/5/2012
I16	3	72-95	YL BR SI LO	N	DP/LK	11/5/2012
I17	1	0-10	BR SI LO (FILL)	N	DP/TK	11/29/2012
I17	2	10-35	BR SA LO MOTTLED W/YL BR GVL SA LO (FILL)	N	DP/TK	11/29/2012
I17	3	35-55	DK BR COBBLES/ROCK W/SA (C HORIZON)	N	DP/TK	11/29/2012
I18	1	0-12	BR SI LO	H	DP/TK	11/29/2012
I18	2	12-40	BR SA LO MOTTLED W/YL BR SA LO W/ROCK	N	DP/TK	11/29/2012
I18	3	40-65	DK BR SA W/ROCK (C HORIZON)	N	DP/TK	11/29/2012
J12	1	0-23	MD GR BR SI LO	N	GD/AB	12/4/2012
J12	2	23-53	STRONG BR SA SI W/GVL	N	GD/AB	12/4/2012
J12	3	53-60	DK BR SA SI W/GVL; STOPPED BY GVL	N	GD/AB	12/4/2012
J13	1	0-24	BR SI LO	N	TK/DP	11/2/2012
J13	2	24-44	BR SI LO W/ROCK; MODERN GLASS - DISC.	N	TK/DP	11/2/2012
J13	3	44-59	LT BR SI LO W/ROCK	N	TK/DP	11/2/2012
J14	1	0-25	BR SI LO W/ROCKS	N	VL/EA	11/5/2012
J14	2	25-50	BR SI LO W/ROCKS	N	VL/EA	11/5/2012
J14	3	50-72	DK GR BR SI LO W/ROCKS	N	VL/EA	11/5/2012
J14	4	72-100	YL BR SI LO W/ROCKS	N	VL/EA	11/5/2012
J15	1	0-65	DK BR SI LO	N	TB/EA	11/2/2012
J15	2	65-85	YL BR SI	N	TB/EA	11/2/2012
J15	3	85-135	VERY DK BR SI (BURIED A)	N	TB/EA	11/2/2012
J15	4	135-145	YL BR SI W/ROCKS; FINAL 60cm WERE DUG W/AN AUGER	N	TB/EA	11/2/2012
J16	1	0-25	BR SI LO W/GVL	N	AB/ML	11/2/2012
J16	2	25-42	YL BR SI LO W/ROCKS & GVL; STOPPED BY ROCK	N	AB/ML	11/2/2012

STP	LEVEL	DEPTH (CM)	DESCRIPTION	CM	CREW	DATE
J17	1	0-25	MD BR SA LO W/GVL	N	MK/VL	11/29/2012
J17	2	25-50	YL BR SI LO W/ROCKS & GVL	N	MK/VL	11/29/2012
J18	1	0-26	MD BR SA LO W/GVL	N	MK/VL	11/29/2012
J18	2	26-56	YL BR SI LO	N	MK/VL	11/29/2012
J18	3	56-73	PALE YL BR SI LO; STOPPED BY LG.ROCK	N	MK/VL	11/29/2012
J21	1	0-25	GR BR SI LO W/COBBLES	N	MK/VL	11/29/2012
J21	2	25-45	GR BR SI LO W/COBBLES	N	MK/VL	11/29/2012
J21	3	45-70	DK BR SI LO W/COBBLES	N	MK/VL	11/29/2012
J21	4	70-95	YL BR SI LO	N	MK/VL	11/29/2012
J22	1	0-34	MD BR SA LO W/GVL	N	MK/VL	11/29/2012
J22	2	34-68	GR BR SI LO	N	MK/VL	11/29/2012
J22	3	68-100	YL BR SI LO	N	MK/VL	11/29/2012
J23	1	0-30	BR SI LO	N	DP/TK	11/29/2012
J23	2	30-40	BR SI LO MOTTLED W/YL BR SI LO	N	DP/TK	11/29/2012
J23	3	40-90	GR BR SI LO	N	DP/TK	11/29/2012
J23	4	90-100	GR BR SI LO MOTTLED W/YL BR SI LO	N	DP/TK	11/29/2012
J24	1	0-12	BR SI LO (FILL 1)	N	DP/TK	11/29/2012
J24	2	12-41	DK BR GVL SI (FILL 2); 1 WIRE - DISC.	N	DP/TK	11/29/2012
J24	3	41-60	DK BR SI LO (AP)	N	DP/TK	11/29/2012
J24	4	60-125	YL BR SI (B)	N	DP/TK	11/29/2012
J25	1	0-17	BR SI LO	N	DP/TK	11/29/2012
J25	2	17-34	BR COMPACT SA SI W/GVL	N	DP/TK	11/29/2012
J25	3	34-77	GR BR COMPACT SA SI W/GVL	N	DP/TK	11/29/2012
J25	4	77-98	YL BR SI LO	N	DP/TK	11/29/2012
J25	5	98-104	DK BR SA LO W/GVL	N	DP/TK	11/29/2012
K11	1	0-28	DK BR SI LO W/GVL	N	JF/DP	12/4/2012
K11	2	28-47	DK YL BR SA LO W/COBBLES	N	JF/DP	12/4/2012
K12	1	0-25	DK BR SI LO W/GVL & ROCK	N	GD/AB	12/4/2012
K12	2	25-53	DK BR SI LO W/GVL & ROCK; STOPPED BY ROCK	N	GD/AB	12/4/2012
K13	1	0-22	MD BR SI LO; COAL - DISC.	N	TK/DP	11/2/2012
K13	2	22-40	MD BR SI W/GVL	N	TK/DP	11/2/2012
K13	3	40-48	YL BR SA SI W/GVL	N	TK/DP	11/2/2012
K14	1	0-14	BR SI LO W/GVL	N	AB/ML	11/2/2012
K14	2	14-48	BR SI LO	N	AB/ML	11/2/2012
K14	3	48-63	YL BR/BR SI LO	N	AB/ML	11/2/2012
K14	4	63-100	DK GR BR SI	N	AB/ML	11/2/2012
K15	1	0-45	BR SI LO	N	GD/JF	11/2/2012
K15	2	45-65	DK BR SI LO	N	GD/JF	11/2/2012
K15	3	65-80	YL BR SI LO W/ROCKS & GVL	N	GD/JF	11/2/2012
K16	1	0-20	BR SI LO W/GVL	N	AB/ML	11/2/2012
K16	2	20-37	YL BR SI LO W/GVL; STOPPED BY ROCK	N	AB/ML	11/2/2012
K17	1	0-13	BR SI LO W/GVL & ROCK	N	DP/LK	11/5/2012
K17	2	13-50	YL BR SI LO	N	DP/LK	11/5/2012
K17	3	50-80	YL BR SA SI W/ROCK AT BOTTOM; STOPPED BY ROCK	N	DP/LK	11/5/2012
K21	1	0-14	BR SI LO	N	DP/TK	11/29/2012
K21	2	14-31	BR SA LO W/GVL	N	DP/TK	11/29/2012
K21	3	31-50	YL BR SI LO	N	DP/TK	11/29/2012
K21	4	50-64	BR SA LO	N	DP/TK	11/29/2012
K21	5	64-81	LT YL BR COMPACT SA LO	N	DP/TK	11/29/2012
K22	1	0-10	BR SI LO (FILL 1)	N	DP/TK	11/29/2012
K22	2	10-52	DK BR GVL SI (FILL 2)	N	DP/TK	11/29/2012
K22	3	52-70	DK BR SI LO (AP)	N	DP/TK	11/29/2012
K22	4	70-101	YL BR SI (B)	N	DP/TK	11/29/2012
K23	1	0-25	GR BR SI LO W/LG.COBBLES	N	MK/VL	11/29/2012
K23	2	25-50	GR BR SI LO W/LG.COBBLES	N	MK/VL	11/29/2012
K23	3	50-70	YL BR SI LO W/LG.COBBLES; STOPPED BY ROCKS	N	MK/VL	11/29/2012
K24	1	0-40	MD BR SA LO W/GVL	N	MK/VL	11/29/2012
K24	2	40-60	DK BR SI LO	N	MK/VL	11/29/2012

STP	LEVEL	DEPTH (CM)	DESCRIPTION	CM	CREW	DATE
K24	3	60-82	YL BR SI LO; STOPPED BY LG.COBBLE	N	MK/VL	11/29/2012
K25	1	0-30	BR SA LO	N	MK/VL	11/29/2012
K25	2	30-55	YL BR SI SA W/COBBLES	N	MK/VL	11/29/2012
K25	3	55-80	DK BR SI LO W/COBBLES	N	MK/VL	11/29/2012
K25	4	80-95	YL BR SI LO	N	MK/VL	11/29/2012
L11	1	0-25	BR SI LO	N	GP/MK	11/1/2012
L11	2	25-37	BR SA LO W/ROCK; WINDOW GLASS - DISC.	N	GP/MK	11/1/2012
L11	3	37-42	YL BR SA LO W/ROCK; STOPPED BY ROCK	N	GP/MK	11/1/2012
L12	1	0-15	BR SI LO	N	GP/MK	11/1/2012
L12	2	15-34	BR SA LO W/GVL	N	GP/MK	11/1/2012
L12	3	34-45	YL BR SA LO W/GVL	N	GP/MK	11/1/2012
L13	1	0-25	GR BR SI LO W/GVL	N	AB/ML	11/2/2012
L13	2	25-27	GR BR SI LO W/GVL	N	AB/ML	11/2/2012
L13	3	27-45	YL BR SA SI W/GVL & ROCKS	N	AB/ML	11/2/2012
L13	4	45-55	DK GR COMPACT SI	N	AB/ML	11/2/2012
L14	1	0-25	BR SI LO	N	GD/JF	11/2/2012
L14	2	25-70	MD YL BR SI LO	N	GD/JF	11/2/2012
L14	3	70-100	DK YL BR SI LO	N	GD/JF	11/2/2012
L15	1	0-25	DK BR SI LO	N	TB/EA	11/2/2012
L15	2	25-40	DK BR SI LO	N	TB/EA	11/2/2012
L15	3	40-60	DK YL BR SI LO	N	TB/EA	11/2/2012
L15	4	60-85	LT YL BR COMPACT SI W/GVL	N	TB/EA	11/2/2012
L16	1	0-18	BR SI LO W/GVL	N	AB/ML	11/2/2012
L16	2	18-36	YL BR SI LO W/HEAVY GVL & ROCK; STOPPED BY ROCK	N	AB/ML	11/2/2012
M11	1	0-15	BR SI LO	N	GP/MK	11/1/2012
M11	2	15-39	YL BR SA LO W/GVL	N	GP/MK	11/1/2012
M11	3	39-45	RD BR SA LO W/GVL	N	GP/MK	11/1/2012
M12	1	0-26	BR SI LO	N	GP/MK	11/1/2012
M12	2	26-38	BR SA LO W/GVL	N	GP/MK	11/1/2012
M12	3	38-52	YL BR SA LO W/GVL	N	GP/MK	11/1/2012
M13	1	0-15	BR SI LO; SLAG & BRICK - DISC.	N	GP/MK	11/1/2012
M13	2	15-35	BR SA LO W/GVL	H	GP/MK	11/1/2012
M14	1	0-10	BR SI LO; ASPHALT - DISC.	N	GP/MK	11/1/2012
M14	2	10-30	BR SA LO W/GVL	N	GP/MK	11/1/2012
M14	3	30-46	YL BR SI	N	GP/MK	11/1/2012
M15	1	0-15	BR SI LO	N	GP/MK	11/1/2012
M15	2	15-36	BR SA LO W/GVL	N	GP/MK	11/1/2012
M16	1	0-15	BR SI LO; WINDOW GLASS - DISC.	H	GP/MK	11/1/2012
M16	2	15-30	BR SA LO W/GVL	N	GP/MK	11/1/2012
M21	1	0-30	BR SI LO W/GVL & ROCK; STOPPED BY SOLID CONCRETE	N	GD/AB	12/4/2012
M27	1	0-20	DK BR SI LO; FILL; ALUM.FOIL, MODERN NAIL, CONCRETE - DISC.	N	JF/TB	11/12/2012
M27	2	20-37	YL BR SI SA W/GVL	N	JF/TB	11/12/2012
M28	1	0-20	BR SI LO W/PEA GVL	N	AB/MK	11/9/2012
M28	2	20-33	YL BR CL LO	N	AB/MK	11/9/2012
M28	3	33-40	DK BR SI LO	N	AB/MK	11/9/2012
N11	1	0-25	BR SI LO	N	PB/LP	11/1/2012
N11	2	25-29	BR SI LO	N	PB/LP	11/1/2012
N11	3	29-50	BR LOOSE SI LO W/ROCK & GVL	N	PB/LP	11/1/2012
N12	1	0-23	BR SI LO	N	PB/LP	11/1/2012
N12	2	23-41	YL BR SA SI W/GVL & ROCK	N	PB/LP	11/1/2012
N13	1	0-24	GR BR SI LO W/ROCK & GVL	N	PB/LP	11/1/2012
N13	2	24-42	YL BR SA SI W/ROCK & GVL	N	PB/LP	11/1/2012
N14	1	0-25	GR BR SI LO	N	PB/LP	11/1/2012
N14	2	25-31	GR BR SI LO	N	PB/LP	11/1/2012
N14	3	31-47	YL BR SA SI W/ROCKS & GVL	N	PB/LP	11/1/2012
N15	1	0-20	BR SI LO W/ROCKS & GVL	N	PB/LP	11/1/2012
N15	2	20-35	YL BR SA SI W/ROCKS & GVL	N	PB/LP	11/1/2012
N16	1	0-16	BR SI LO	N	PB/LP	11/1/2012

STP	LEVEL	DEPTH (CM)	DESCRIPTION	CM	CREW	DATE
N16	2	16-32	YL BR SA SI W/ROCKS & GVL	N	PB/LP	11/1/2012
N19	1	0-20	DK BR SI LO W/MANY ROOTS	N	JF/DP	12/4/2012
N19	2	20-30	DK BR SI LO W/ROOTS & ROCKS; STOPPED BY ROOTS & ROCKS	N	JF/DP	12/4/2012
N20	1	0-12	BR SI LO	N	JF/DP	12/4/2012
N20	2	12-47	BR SA LO W/DENSE GVL; STOPPED BY ROCK	N	JF/DP	12/4/2012
N26	1	0-37	BR SA LO W/ROCK; MODERN GLASS & UNID.METAL - DISC.; STOPPED BY ROCK	N	DP/LM	11/12/2012
O11	1	0-23	BR SI LO	N	PB/LP	11/1/2012
O11	2	23-30	YL BR SI LO	N	PB/LP	11/1/2012
O11	3	30-50	BR LOOSE SI LO W/DENSE ROCK & GVL	N	PB/LP	11/1/2012
O12	1	0-25	BR SI LO	N	PB/LP	11/1/2012
O12	2	25-30	BR SI LO	N	PB/LP	11/1/2012
O12	3	30-45	YL BR/GR BR SI LO W/GVL & ROCK	N	PB/LP	11/1/2012
O13	1	0-25	BR SI LO	N	PB/LP	11/1/2012
O13	2	25-42	YL BR SA SI W/ROCKS & GVL	N	PB/LP	11/1/2012
O17	1	0-25	DK BR SI LO	N	AB/BV	11/8/2012
O17	2	25-50	BR SI SA W/HEAVY GVL & ROCK; FILL	N	AB/BV	11/8/2012
O17	3	50-67	BR SI SA W/HEAVY GVL & ROCK; FILL; STOPPED BY ROCK	N	AB/BV	11/8/2012
O20	1	0-15	BR SI LO	N	GD/AB	12/4/2012
O20	2	15-35	STRONG GR BR SA SI W/GVL; STOPPED BY ROCKS	N	GD/AB	12/4/2012
O26	1	0-38	BR SA LO W/ROCK; MODERN GLASS & TIN FOIL - DISC.; STOPPED BY ROCK	N	DP/LM	11/12/2012
O29	1	0-14	BR SI LO W/ROCK	N	DP/GP	11/9/2012
O29	2	14-28	BR SA LO W/ROCK	N	DP/GP	11/9/2012
O29	3	28-40	YL BR SI LO W/ROCK; STOPPED BY ROCK	N	DP/GP	11/9/2012
O30	1	0-24	BR SI LO	N	DP/GP	11/9/2012
O30	2	24-38	YL BR MOTTLED W/BR SI LO W/ROCK	N	DP/GP	11/9/2012
P27	1	0-25	BR SI LO W/ROCKS & ROOTS	N	LP/AN	11/12/2012
P27	2	25-50	BR SI LO W/ROCKS & ROOTS	N	LP/AN	11/12/2012
P27	3	50-52	BR SI LO W/ROCKS & ROOTS; STOPPED BY CONCRETE	N	LP/AN	11/12/2012
P28	1	0-35	BR SI LO	N	DP/LM	11/12/2012
P28	2	35-45	YL BR SI LO	N	DP/LM	11/12/2012
P29	1	0-22	DK BR SI LO; BRICK, WIRE NAIL - DISC.	N	JF/TB	11/12/2012
P29	2	22-33	DK BR SI W/GVL; BRICK, WIRE NAIL - DISC.	N	JF/TB	11/12/2012
P29	3	33-49	VERY DK BR SI	N	JF/TB	11/12/2012
P29	4	49-51	YL BR SI W/ROCKS; STOPPED BY ROCK	N	JF/TB	11/12/2012
P30	1	0-25	BR SI LO	N	LP/AN	11/12/2012
P30	2	25-35	YL BR SI LO W/GVL & ROCKS	N	LP/AN	11/12/2012
P31	1	0-28	DK YL BR SI W/GVL	N	LM/DP	11/12/2012
P31	2	28-42	YL BR SI W/GVL	N	LM/DP	11/12/2012
P31	3	42-53	DK YL BR SI	N	LM/DP	11/12/2012
P31	4	53-72	YL BR SI	N	LM/DP	11/12/2012
P32	1	0-20	BR SI LO	N	GP/DP	11/9/2012
P32	2	20-36	YL BR MOTTLED W/BR SI LO W/ROCK	N	GP/DP	11/9/2012
P33	1	0-21	BR SA LO; BRICK - DISC.	N	GP/DP	11/9/2012
P33	2	21-44	BR SA W/DENSE GVL; STOPPED BY ROCK	N	GP/DP	11/9/2012
P34	1	0-25	BR SI LO	N	GP/DP	11/9/2012
P34	2	25-34	YL BR MOTTLED W/BR SI LO W/ROCK; STOPPED BY ROCK	N	GP/DP	11/9/2012
P35	1	0-20	DK BR SA LO W/GVL; COAL - DISC.	N	GP/DP	11/9/2012
P35	2	20-33	DK BR SA W/DENSE GVL; STOPPED BY ROCK	N	GP/DP	11/9/2012
Q32	1	0-20	BR SI LO	N	DP/GP	11/9/2012
Q32	2	20-40	BR SA LO W/GVL	N	DP/GP	11/9/2012
Q32	3	40-58	YL BR SI LO	N	DP/GP	11/9/2012
Q33	1	0-23	BR SI LO W/GVL	N	AB/MK	11/9/2012
Q33	2	23-39	YL BR SI LO W/GVL; STOPPED BY ROCK	N	AB/MK	11/9/2012
Q34	1	0-25	BR SI LO W/GVL	H	AB/MK	11/9/2012
Q34	2	25-30	BR SI LO W/GVL	N	AB/MK	11/9/2012
Q34	3	30-55	YL BR SI LO W/GVL	H	AB/MK	11/9/2012
Q34	4	55-80	DK BR SI LO W/GVL & ROCK	N	AB/MK	11/9/2012

STP	LEVEL	DEPTH (CM)	DESCRIPTION	CM	CREW	DATE
Q34	5	80-90	DK BR SI LO W/GVL & ROCK	N	AB/MK	11/9/2012
Q35	1	0-22	BR SI LO W/GVL	N	AB/MK	11/9/2012
Q35	2	22-37	YL BR SA LO W/GVL	N	AB/MK	11/9/2012
R30	1	0-20	BR SI LO W/GVL; FILL; ASPHALT & CONCRETE - DISC.	N	AN/LP	11/12/2012
R30	2	20-45	BR SI LO W/ROCK	N	AN/LP	11/12/2012
R30	3	45-68	YL BR SI LO W/GVL	N	AN/LP	11/12/2012
R30	4	68-75	DK YL BR SA SI W/PEA GVL	N	AN/LP	11/12/2012
R30	5	75-100	DK YL BR SA SI W/PEA GVL	N	AN/LP	11/12/2012
R31	1	0-19	DK BR SI LO W/ROCKS (FILL); BRICK & COAL - DISC.	N	JF/TB	11/12/2012
R31	2	19-45	DK BR SI LO	N	JF/TB	11/12/2012
R31	3	45-60	YL BR COMPACT SA SI W/GVL	N	JF/TB	11/12/2012
R34		-	NOT DUG - VERY CLOSE TO UTILITY		AB/MK	11/9/2012
R35	1	0-18	BR SI LO; STYROFOAM - DISC.	N	GP/DP	11/9/2012
R35	2	18-26	YL BR SI LO	N	GP/DP	11/9/2012
R35	3	26-45	GR BR SI LO	N	GP/DP	11/9/2012
R35	4	45-60	YL BR SI LO W/GVL	N	GP/DP	11/9/2012
S20	1	0-16	DK BR SI LO; CONCRETE - DISC.	N	JF/TB	11/12/2012
S20	2	16-31	DK BR SI W/ROCKS	N	JF/TB	11/12/2012
S20	3	31-51	DK YL BR SI W/COARSE SA & GVL	N	JF/TB	11/12/2012
S21	1	0-18	BR SI LO	N	LM/DP	11/12/2012
S21	2	18-40	BR SA LO W/ROCK; MORTAR & BRICK - DISC.; STOPPED BY ROCK	H	LM/DP	11/12/2012
S22	1	0-24	BR SI LO W/ROCKS	N	DP/LM	11/12/2012
S22	2	24-50	YL BR SI LO W/ROCKS; STOPPED BY ROCKS	N	DP/LM	11/12/2012
S23	1	0-16	BR SI LO	N	LP/AN	11/12/2012
S23	2	16-32	BR SI LO W/COBBLES & GVL	N	LP/AN	11/12/2012
S23	3	32-50	DK YL BR SA SI W/COBBLES & GVL	N	LP/AN	11/12/2012
S24	1	0-27	DK BR SI LO; COAL, COAL ASH, BRICK, PLASTIC - DISC.	N	JF/TB	11/12/2012
S24	2	27-50	YL BR SI SA W/GVL	N	JF/TB	11/12/2012
S25	1	0-28	DK BR SI LO	N	DP/LM	11/12/2012
S25	2	28-45	BR SA LO W/ROCK	N	DP/LM	11/12/2012
S25	3	45-61	YL BR SA LO	N	DP/LM	11/12/2012
S28	1	0-37	BR SA LO W/ROCK	N	LM/DP	11/12/2012
S28	2	37-50	BR SI LO	N	LM/DP	11/12/2012
S28	3	50-67	YL BR SI LO	N	LM/DP	11/12/2012
S29	1	0-14	BR SI LO	N	AN/LP	11/12/2012
S29	2	14-30	BR SI LO W/GVL	N	AN/LP	11/12/2012
S29	3	30-35	ASPHALT; STOPPED BY ASPHALT	N	AN/LP	11/12/2012
S30	1	0-13	DK BR SI LO; BRICK & COAL - DISC.	N	JF/TB	11/12/2012
S30	2	13-53	DK BR SI W/ROCKS	N	JF/TB	11/12/2012
S30	3	53-68	YL BR SI W/GVL	N	JF/TB	11/12/2012
S34	1	0-25	BR SI LO	N	GP/DP	11/9/2012
S34	2	25-45	BR/YL BR MOTTLED SI LO W/GVL	N	GP/DP	11/9/2012
S35	1	0-25	DK BR SI LO W/GVL	N	AB/MK	11/9/2012
S35	2	25-35	DK BR SI LO W/GVL	H	AB/MK	11/9/2012
S35	3	35-42	YL BR SI CL	N	AB/MK	11/9/2012
S35	4	42-65	DK GR BR CL LO	H	AB/MK	11/9/2012
S35	5	65-80	YL BR SI LO W/GVL	N	AB/MK	11/9/2012
T21	1	0-14	BR SI LO	N	LP/AN	11/12/2012
T21	2	14-40	YL BR/BR SI LO W/GVL & ROCK	N	LP/AN	11/12/2012
T22	1	0-20	DK BR SI LO; FILL; MODERN GLASS - DISC.	N	JF/TB	11/12/2012
T22	2	20-40	YL BR SA W/GVL	N	JF/TB	11/12/2012
T23	1	0-14	DK BR SI LO; AMORPHOUS IRON - DISC.	N	JF/TB	11/12/2012
T23	2	14-27	DK BR SI W/ROCKS	N	JF/TB	11/12/2012
T23	3	27-43	DK YL BR SI & COARSE SA W/GVL	N	JF/TB	11/12/2012
T24	1	0-23	DK BR SI LO; FILL; BRICK, COAL, AMORPHOUS METAL - DISC.	N	JF/TB	11/12/2012
T24	2	23-54	DK YL BR SA W/GVL; STOPPED BY ROCK	N	JF/TB	11/12/2012
T25	1	0-13	DK BR SI LO	N	JF/TB	11/12/2012
T25	2	13-23	DK BR SI W/ROCKS	N	JF/TB	11/12/2012

STP	LEVEL	DEPTH (CM)	DESCRIPTION	CM	CREW	DATE
T25	3	23-52	YL BR SI W/GRIT & GVL	N	JF/TB	11/12/2012
T26	1	0-15	BR SI LO; PLASTIC - DISC.	N	LM/DP	11/12/2012
T26	2	15-31	BR SA LO W/ROCK; PLASTIC - DISC.	N	LM/DP	11/12/2012
T26	3	31-50	DK BR SI LO	N	LM/DP	11/12/2012
T26	4	50-70	YL BR SI LO	N	LM/DP	11/12/2012
T27	1	0-25	DK BR SI LO; FILL; BRICK, COAL, PLASTIC, AMORPHOUS IRON - DISC.	N	JF/TB	11/12/2012
T27	2	25-40	DK BR SI LO W/COBBLES; FILL; BRICK, COAL, PLASTIC, AMORPHOUS IRON - DISC.	N	JF/TB	11/12/2012
T27	3	40-57	YL BR SI	N	JF/TB	11/12/2012
T28	1	0-24	BR SI LO W/ROCK & GVL	N	LM/DP	11/12/2012
T28	2	24-45	YL BR SI LO	N	LM/DP	11/12/2012
T29	1	0-21	BR SI LO W/ROCK; PLASTIC - DISC.	N	AN/LP	11/12/2012
T29	2	21-52	DK YL BR COMPACT SA SI W/GVL & COBBLES	N	AN/LP	11/12/2012
T30	1	0-8	BR SI LO	N	AN/LP	11/12/2012
T30	2	8-22	BR SI LO W/GVL & ROCK	N	AN/LP	11/12/2012
T30	3	22-30	YL BR SI LO W/GVL & ROCK	N	AN/LP	11/12/2012
T31	1	0-18	BR SI LO W/ROCK	N	AN/LP	11/12/2012
T31	2	18-42	YL BR SI LO W/ROCK	N	AN/LP	11/12/2012
T31	3	42-65	DK YL BR SA SI W/GVL	N	AN/LP	11/12/2012
U21	1	0-14	BR SI LO W/ROCK	N	AN/LP	11/12/2012
U21	2	14-24	BR SI LO W/ROCK & ASPHALT; ASPHALT - DISC.	N	AN/LP	11/12/2012
U21	3	24-42	DK YL BR SA SI W/COBBLES & GVL	N	AN/LP	11/12/2012
U22	1	0-16	BR SI LO W/ROCKS	N	LM/DP	11/12/2012
U22	2	16-24	YL BR SI LO W/ROCKS	N	LM/DP	11/12/2012
U22	3	24-30	DK BR SI LO W/ROCKS	N	LM/DP	11/12/2012
U22	4	30-45	YL BR SI LO W/ROCKS; STOPPED BY ROCK	N	LM/DP	11/12/2012
U23	1	0-7	BR SI LO	N	AN/LP	11/12/2012
U23	2	7-39	BR/YL BR SI LO W/GVL & ROCK; STOPPED BY ROCK	N	AN/LP	11/12/2012
U24	1	0-18	BR SI LO	N	LM/DP	11/12/2012
U24	2	18-40	BR SA LO W/ROCK; STOPPED BY ROCK	N	LM/DP	11/12/2012
U25	1	0-20	BR SA LO	N	LM/DP	11/12/2012
U25	2	20-30	YL BR SI LO	N	LM/DP	11/12/2012
U25	3	30-45	DK YL BR SA LO W/GVL	N	LM/DP	11/12/2012
U26	1	0-54	BR SI LO W/ROCKS	N	LM/DP	11/12/2012
V28	1	0-3	BR SA LO W/GVL	N	GP/DP	11/9/2012
V28	2	3-20	YL BR SI LO W/GVL	N	GP/DP	11/9/2012
V28	3	20-29	DK YL BR SA W/GVL; STOPPED BY ROCK	N	GP/DP	11/9/2012
V29	1	0-25	BR SI SA W/HEAVY GVL & ROCK; STOPPED BY ROCK - POSS.C HORIZON	N	AB/MK	11/9/2012
V30	1	0-25	BR SI LO W/ROCK; 1 PC.WINDOW GLASS - DISC.	N	GP/DP	11/9/2012
V30	2	25-40	YL BR SI W/ROCK	N	GP/DP	11/9/2012
W23	1	0-25	DK BR SI SA W/HEAVY GVL & ROCK	N	AB/BV	11/8/2012
W23	2	25-40	DK BR SI SA W/HEAVY GVL & ROCK; POSS.FILL OR C HORIZON (TOPSOIL POSS.SCOOPED AWAY); STOPPED BY ROCK	N	AB/BV	11/8/2012
W24	1	0-25	BR SI SA W/HEAVY GVL & ROCK	H	AB/MK	11/9/2012
W24	2	25-48	BR SI SA W/HEAVY GVL & ROCK; PROBABLY C HORIZON (SURF.SCOOPED AWAY); STOPPED BY ROCK	N	AB/MK	11/9/2012
W25	1	0-13	BR SI LO W/GVL	N	GP/DP	11/9/2012
W25	2	13-33	YL BR SI LO W/GVL	H	GP/DP	11/9/2012
W25	3	33-49	BR SA W/GVL	N	GP/DP	11/9/2012
W26	1	0-15	BR SI LO W/GVL	N	AB/MK	11/9/2012
W26	2	15-35	BR SI LO MOTTLED W/YL BR SI LO W/GVL	N	AB/MK	11/9/2012
W26	3	35-53	YL BR SI LO	N	AB/MK	11/9/2012
W27	1	0-25	BR SI LO	N	GP/DP	11/9/2012
W27	2	25-35	BR SI LO	N	GP/DP	11/9/2012
W27	3	35-50	YL BR SI LO	N	GP/DP	11/9/2012
W27	4	50-60	YL BR SI LO	N	GP/DP	11/9/2012
W28	1	0-25	BR SI LO W/GVL; COAL - DISC.	H	AB/MK	11/9/2012
W28	2	25-53	BR SI LO W/GVL	N	AB/MK	11/9/2012

STP	LEVEL	DEPTH (CM)	DESCRIPTION	CM	CREW	DATE
W28	3	53-69	YL BR SI LO W/GVL	N	AB/MK	11/9/2012
W29	1	0-33	BR SI LO	N	GP/DP	11/9/2012
W29	2	33-55	YL BR SI LO	N	GP/DP	11/9/2012
W30	1	0-30	BR SI LO	N	GP/DP	11/9/2012
W30	2	30-32	YL BR SI LO	N	GP/DP	11/9/2012
W31	1	0-36	BR SI LO W/GVL	N	GP/DP	11/9/2012
W31	2	36-53	YL BR SA LO W/GVL	N	GP/DP	11/9/2012
W32	1	0-25	BR SI LO W/GVL	N	AB/MK	11/9/2012
W32	2	25-45	BR SI LO W/GVL	H	AB/MK	11/9/2012
W32	3	45-60	YL BR SI LO W/GVL	N	AB/MK	11/9/2012
X17	1	0-5	BR SI LO; STOPPED BY ASPHALT	N	AB/BV	11/8/2012
X18	1	0-25	DK BR SI LO	N	AB/BV	11/8/2012
X18	2	25-50	BR SI SA W/GVL & ROCK; FILL	N	AB/BV	11/8/2012
X18	3	50-53	BR SI SA W/GVL & ROCK; FILL; STOPPED BY ROCK	N	AB/BV	11/8/2012
X19	1	0-20	BR SI LO	N	AB/BV	11/8/2012
X19	2	20-45	DK BR SI SA MOTTLED W/YL BR SI SA W/HEAVY GVL, ROCK & COBBLES	H	AB/BV	11/8/2012
X19	3	45-70	DK BR SI SA MOTTLED W/YL BR SI SA W/HEAVY GVL, ROCK & COBBLES	N	AB/BV	11/8/2012
X19	4	70-80	DK BR SI SA MOTTLED W/YL BR SI SA W/HEAVY GVL, ROCK & COBBLES; FILL; STOPPED BY ROCK	N	AB/BV	11/8/2012
X20	1	0-20	BR SA LO W/ROCK	N	GP/DP	11/9/2012
X20	2	20-45	YL BR MOTTLED W/BR SA LO W/ROCK; MODERN GLASS - DISC.	N	GP/DP	11/9/2012
X21	1	0-40	BR SA LO W/GVL	N	GP/DP	11/9/2012
X21	2	40-60	DK YL BR COMPACT SA LO W/GVL	N	GP/DP	11/9/2012
X22	1	0-25	BR COMPACT SA LO W/LG.GVL	N	AB/MK	11/9/2012
X22	2	25-37	BR COMPACT SA LO W/LG.GVL	N	AB/MK	11/9/2012
X22	3	37-54	YL BR SA LO W/GVL & ROCK	N	AB/MK	11/9/2012
X23	1	0-20	BR SA LO W/ROCK; STOPPED BY ROCK	N	GP/DP	11/9/2012
X24	1	0-35	BR SA LO W/GVL	N	GP/DP	11/9/2012
X24	2	35-56	DK YL BR COMPACT SA LO W/GVL	N	GP/DP	11/9/2012
X25	1	0-25	BR SA LO W/GVL	H	AB/MK	11/9/2012
X25	2	25-33	BR SA LO W/GVL	N	AB/MK	11/9/2012
X25	3	33-54	YL BR SA LO W/DENSE GVL & ROCK	N	AB/MK	11/9/2012
X26	1	0-25	BR SA SI LO	N	GP/DP	11/9/2012
X26	2	25-41	YL BR SA SI LO	N	GP/DP	11/9/2012
X27	1	0-25	BR SI LO	N	AB/BV	11/8/2012
X27	2	25-28	BR SI LO	N	AB/BV	11/8/2012
X27	3	28-45	YL BR SI LO W/GVL	N	AB/BV	11/8/2012
X28	1	0-25	BR SI LO	N	AB/BV	11/8/2012
X28	2	25-30	BR SI LO	N	AB/BV	11/8/2012
X28	3	30-45	YL BR SI LO W/GVL & ROCK	N	AB/BV	11/8/2012
X29	1	0-25	BR SI LO	N	AB/BV	11/8/2012
X29	2	25-30	BR SI LO	N	AB/BV	11/8/2012
X29	3	30-47	YL BR SI LO W/DENSE GVL & ROCK	N	AB/BV	11/8/2012
X30	1	0-25	BR SI LO	H	AB/BV	11/8/2012
X30	2	25-40	YL BR SI LO W/GVL & ROCK	N	AB/BV	11/8/2012
X31	1	0-23	BR SI LO W/GVL	N	AB/BV	11/8/2012
X31	2	23-40	YL BR SI LO W/HEAVY GVL & ROCK	N	AB/BV	11/8/2012
Trench 1	1	0-25	BR SI LO (FILL)	N	TK/DP	11/8/2012
Trench 1	2	25-70	BR GVL SA (C HORIZON)	N	TK/DP	11/8/2012
Trench 1	3	70-110	GR BR GVL SA (C HORIZON)	N	TK/DP	11/8/2012
Trench 2	1	0-28	BR SI LO (FILL)	N	TK/DP	11/8/2012
Trench 2	2	28-80	BR GVL SA (C HORIZON)	N	TK/DP	11/8/2012
Trench 2	3	80-110	GR BR GVL SA (C HORIZON)	N	TK/DP	11/8/2012
Trench 3	1	0-30	BR SI LO	N	TK/DP	11/8/2012
Trench 3	2	30-80	YL BR SI	N	TK/DP	11/8/2012
Trench 3	3	80-110	GR BR GVL SA (C HORIZON)	N	TK/DP	11/8/2012
Trench 4	1	0-20	BR SI LO (FILL)	N	TK/DP	11/8/2012
Trench 4	2	20-80	BR GVL SA LO (FILL)	N	TK/DP	11/8/2012

STP	LEVEL	DEPTH (CM)	DESCRIPTION	CM	CREW	DATE
Trench 4	3	80-90	DK YL BR SI LO (Ap?)	N	TK/DP	11/8/2012
Trench 4	4	90-120	YL BR SI (Bw?)	N	TK/DP	11/8/2012
Trench 5	1	0-20	DK BR GVL SA LO (FILL)	N	TK/DP	11/8/2012
Trench 5	2	20-90	BR GVL SA LO (FILL)	N	TK/DP	11/8/2012
Trench 5	3	90-120	YL BR SI LO W/ LT GVL (Bw?)	N	TK/DP	11/8/2012
Trench 5	4	120-145	GR BR GVL SA (C HORIZON)	N	TK/DP	11/8/2012
Trench 6	1	0-20	DK BR GVL SI (FILL)	N	TK/DP	11/8/2012
Trench 6	2	20-110	YL BR MOTTLED W/ MD BR GVL SA (FILL)	N	TK/DP	11/8/2012
Trench 6	3	110-130	DK BR SI LO (Ap HORIZON)	N	TK/DP	11/8/2012
Trench 6	4	130-140	YL BR SI (Bw HORIZON)	N	TK/DP	11/8/2012
Trench 7	1	0-20	DK BR GVL SI (FILL)	N	TK/DP	11/8/2012
Trench 7	2	20-60	MD BR GVL SI (FILL)	N	TK/DP	11/8/2012
Trench 7	3	60-80	BR SI LO (Ap HORIZON)	N	TK/DP	11/8/2012
Trench 7	4	80-100	YL BR SI LO (Bw HORIZON)	N	TK/DP	11/8/2012
Trench 7	5	100-125	GR BR GVL SA (C HORIZON)	N	TK/DP	11/8/2012
Trench 8	1	0-20	DK BR GVL SI (FILL)	N	TK/DP	11/8/2012
Trench 8	2	20-40	MD BR GVL SI (FILL)	N	TK/DP	11/8/2012
Trench 8	3	40-140	VERY MIXED YL BR AND MD BR GVL SI (DISTURBANCE)	N	TK/DP	11/8/2012

APPENDIX 2.2 Artifact Catalog

STP	LEVEL	DEPTH (CM)	DESCRIPTION	COMMENTS	DATE	CT	WT (G)
B3	1	0-13	BONE MAMMAL	VERY WEATHERED		1	2.3
C4	1	0-24	IRONSTONE MOLDED TABLEWARE/TEAWARE		1850-2012	2	1.5
C4	1	0-24	IRONSTONE UNDIFF. CERAMIC		1850-2012	1	0.2
C10	1	0-25	IRONSTONE UNDIFF. CERAMIC		1850-2012	1	2.1
D8	2	25-38	ONONDAGA CHERT NON-CORTICAL FLAKE	WT.<0.1g		1	0.1
D8/1mE	1	0-36	IRONSTONE UNDIFF. CERAMIC		1850-2012	1	2.5
D8/1mS	2	15-37	ONONDAGA CHERT NON-CORTICAL FLAKE			1	0.5
D8/1mS	2	15-37	ONONDAGA CHERT NON-CORTICAL FLAKE			1	0.1
D8/1mW	1	0-27	IRONSTONE UNDIFF. CERAMIC		1850-2012	1	1.6
D8/1mW	1	0-27	ONONDAGA CHERT NON-CORTICAL FLAKE			1	0.2
D9	1	0-25	IRONSTONE UNDIFF. CERAMIC		1850-2012	1	0.1
D10	1	0-40	IRONSTONE UNDIFF. CERAMIC		1850-2012	1	0.3
D10	1	0-40	WHITEWARE TABLEWARE/TEAWARE		1830-2012	1	0.3
D10	1	0-40	PLASTIC SMOKY UNDIFF. GLASS			1	0.2
D10	1	0-40	ONONDAGA CHERT NON-CORTICAL FLAKE			1	0.6
D11	2	37-100	ONONDAGA CHERT NON-CORTICAL FLAKE			1	0.2
E9	1	0-25	IRONSTONE UNDIFF. CERAMIC		1850-2012	2	1.3
F12	1	0-24	IRONSTONE UNDIFF. CERAMIC		1850-2012	1	0.2
G16	1	0-25	ONONDAGA CHERT NON-CORTICAL FLAKE			1	0.3
I18	1	0-12	IRONSTONE MOLDED TABLEWARE/TEAWARE		1850-2012	3	8.5
M13	2	15-35	PLATE GLASS			1	1.9
M16	1	0-15	IRONSTONE UNDIFF. CERAMIC		1850-2012	1	0.5
Q34	1	0-25	YELLOWWARE GLAZED UNDIFF. CERAMIC		1830-1900	1	1.5
Q34	1	0-25	FERROUS METAL UNDIAG. NAIL FRAG.			1	1.6
Q34	3	30-55	CUPROUS METAL UNDIAG.	U-SHAPED PC.W/2 ATTACHED WIRES		1	23.5
S21	2	18-40	IRONSTONE UNDIFF. CERAMIC		1850-2012	3	2.7
S35	2	25-35	FERROUS METAL UNDIAG.			1	2.9
S35	2	25-35	WHITEWARE TABLEWARE/TEAWARE		1830-2012	1	0.5
S35	4	42-65	GLASS WINDOW			3	3.4
W24	1	0-25	GLASS CLEAR UNDIFF. GLASS			1	0.2
W25	2	13-33	PEARLWARE UNDIFF. CERAMIC		1780-1830	1	0.5
W28	1	0-25	BONE INDETERMINATE			3	0.7
W28	1	0-25	GLASS WINDOW			1	1
W28	1	0-25	GLASS CLEAR UNDIFF. GLASS			1	0.3
W32	2	25-45	GLASS WINDOW			3	1.3
W32	2	25-45	WHITEWARE UNDIFF. CERAMIC		1830-2012	1	0.3
X19	2	20-45	GLASS WINDOW			1	0.5
X25	1	0-25	GLASS CLEAR UNDIFF. GLASS			1	1.6
X30	1	0-25	GLASS SUN PURPLED BOTTLE-UNID.		1880-1918	1	1.8

APPENDIX III: CORRESPONDENCE