

Enclosure 1

Management Summary of
Phase II National Register Evaluations of Archaeological Sites
36LU279, 36LU280, 36LU281, 36LU283, 36LU285, 36LU286 and 36LU288B
Bell Bend Nuclear Power Plant
Luzerne County Pennsylvania

January 29, 2010

Project C090846.00

Mr. Stephen Geier, PE
VP, New Nuclear Projects
UniStar Nuclear Development, LLC
750 East Pratt Street, 14th Floor
Baltimore, MD 21202

Re: Management Summary
Phase II National Register Evaluations of Archaeological Sites 36LU279, 36LU280, 36LU281,
36LU283, 36LU285, 36LU286 and 36LU288
Bell Bend Nuclear Power Plant
Luzerne County, Pennsylvania
ER 81-0658-079

Dear Mr. Geier,

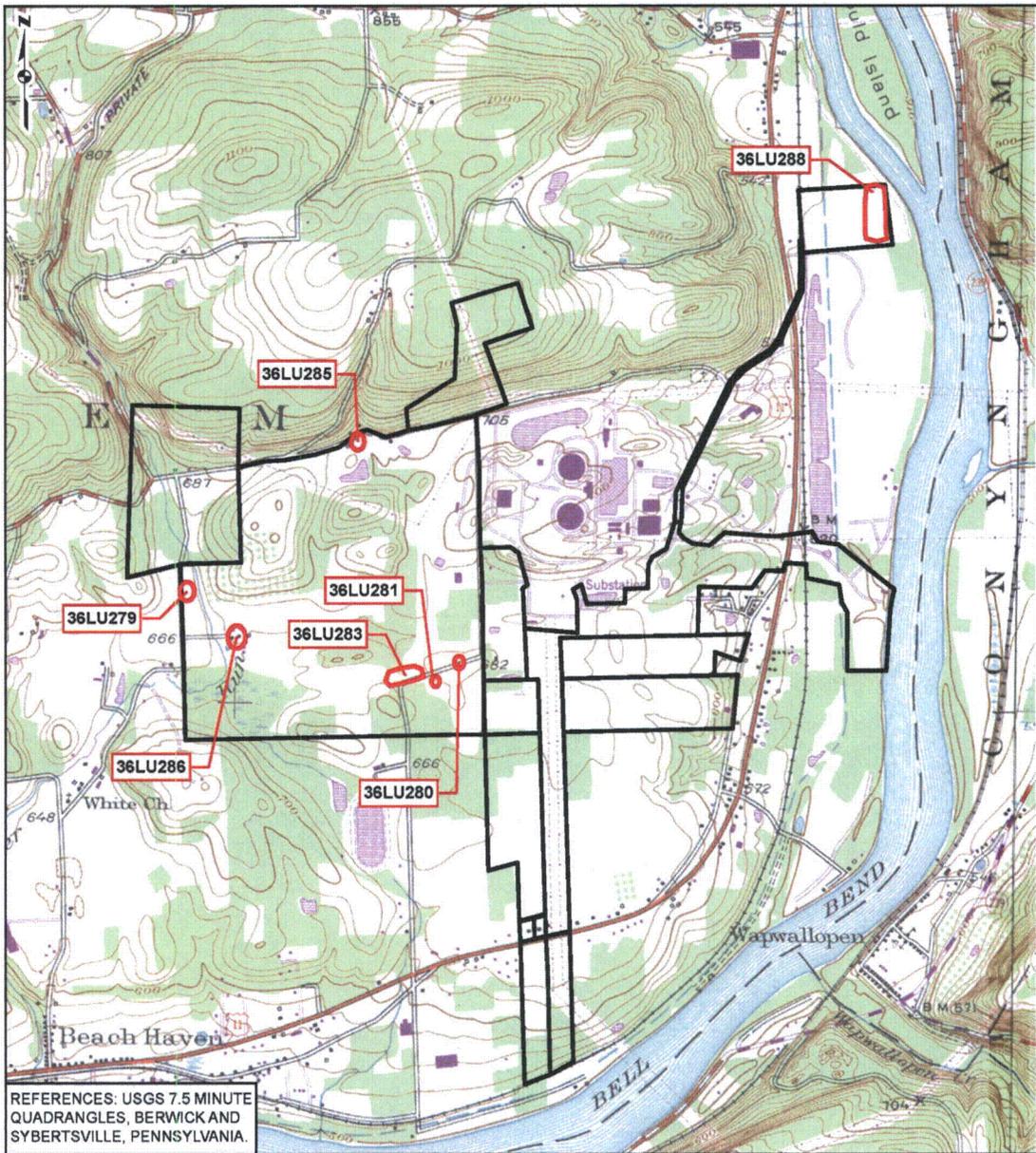
GAI Consultants, Inc. (GAI) is pleased to submit this Management Summary for Phase II National Register Evaluations of Sites 36LU279, 36LU280, 36LU281, 36LU283, 36LU285, 36LU286 and 36LU288 at the Bell Bend Nuclear Power Plant (BBNPP), Luzerne County, Pennsylvania. Phase II investigations include site-specific archival research, fieldwork, and laboratory analysis. Phase II fieldwork was conducted between July 7 and November 4, 2009. Laboratory analysis is currently underway. Detailed results of GAI's Phase II studies will be presented in a Phase I/II Technical Report to be submitted in 2010.

Introduction and Project Description

The seven sites investigated during this study lie within the Area of Potential Effect (APE) of the proposed BBNPP project, located adjacent to the existing PPL Generation's Susquehanna Steam Electric Station (SSES), west of the North Branch Susquehanna River and northeast of the borough of Berwick. This study was conducted to evaluate the eligibility of each of these sites for listing in the National Register of Historic Places (NRHP). The seven sites include six historic period sites (36LU279, 36LU280, 36LU281, 36LU283, 36LU285, and 36LU286), located in upland settings west of the SSES, and one prehistoric site (36LU288) situated on a low terrace/floodplain adjacent to the river (Figure 1).

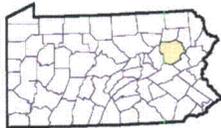
For each of the six historic period sites GAI conducted site-specific archival research that included constructing a chain-of-title for each property as well as collecting additional information from census records, historic maps, tax assessments, wills and local histories.

As described in GAI's May 29, 2009 Phase II work plan, field methodology included excavation of judgmental and/or close interval shovel test pits (STPs) (on a 15-foot/4.6-meter grid) and excavation of test units (TUs) of various sizes [generally 5x5 feet (1.5x1.5 m) and 2.5x 5 feet (0.76x1.5 m)]. Sites located with cultivated fields were also subject to controlled surface collection (CSC) in 15x15 ft² (4.6x4.6 m²) blocks and mechanical stripping of plowzone in trenches (TRs) measuring 6x105 feet (1.8x32 m) for historic sites and between 197 and 344 feet (60 and 105 m) in length for the prehistoric site).



REFERENCES: USGS 7.5 MINUTE QUADRANGLES, BERWICK AND SYBERTSVILLE, PENNSYLVANIA.

PROJECT LOCATION



LUZERNE COUNTY, PENNSYLVANIA

LEGEND

-  PHASE I PROJECT AREA
-  PHASE II SITE LOCATION

0 1,000 2,000 4,000 Feet

FIGURE 1
 PHASE II PROJECT LOCATION

 BELL BEND NUCLEAR POWER PLANT
 UNISTAR NUCLEAR DEVELOPMENT, LLC.

DRAWN BY: AJW DATE: 12/18/2009
 CHECKED: MDO APPROVED: BAM

Results of the Phase II investigations at these seven sites are briefly summarized below. Table 1 provides a summary of Phase II work effort and results for each site.

Table 1. Summary of Phase II Field Results by Site

Site	Dimensions	# STPs	# TUs	Surface Collection	Plowzone Stripping	Features	Artifact Count*	Preliminary NRHP Recommendations
36LU279	285x150 ft (42,750 ft ² / (3,971 m ²))	52	8	Yes	4@6x105 ft (2,520 ft ² / 234 m ²)	0	1,241	Not Eligible
36LU280	130x135 ft (17,550 ft ² / (1,630 m ²))	61	4	Yes	3@6x105 ft (1,890 ft ² / 175 m ²)	5	1,511	Not Eligible
36LU281	125x200 ft (25,000 ft ² / (2,322 m ²))	81	9	Yes	3@6x105 ft (1,890 ft ² / 175 m ²)	2	8,472	Eligible
36LU288	508x850 ft (431,800 ft ² / (40,114 m ²))	56	20	Yes	11@6x197 to 344 ft (23,358 ft ² / 7,120 m ²)	2	369	Not Eligible**
36LU283	530x310 ft (164,300 ft ² / (15,263 m ²))	310	12	No	--	8	14,036	Not Eligible
36LU285	130x275 ft (35,750 ft ² / (3,321 m ²))	108	12	No	--	7	26,714	Eligible
36LU286	400x380 ft (152,000 ft ² / (14,120 m ²))	502	16	No	--	5	9,127	Not Eligible
Totals		1,170	81			30	61,470	

*Preliminary artifact counts based on fieldwork and preliminary artifact analysis; ** Site 36LU288 NRHP eligibility recommendation is for upper soil profiles only—deep deposits not tested.

Site 36LU279 (Site 2)

Site 36LU279 is located on a slight rise in an agricultural field on the east side of North Market Street. Archival research provided a chain-of-title for Site 36LU279, which ties this site to the same land parcel as Site 36LU286. A house was built on the property between 1814 and 1826 (possibly at Site 36LU279). Between 1840 and 1845, a second house was built on this tract (Site 36LU286) and the earlier house site was abandoned.

Phase II testing included CSC followed by the excavation of 52 STPs, 8 TUs [4-5x5 ft (1.5x1.5 m) and 4-2.5x5 ft (0.76x1.5 m)], and 4 TRs. The site size of 125x246 feet (38x75 m) reflects the location of positive CSC blocks and positive STPs. Excavations exposed an Ap-B soil horizon sequence across the site. **No features were identified.**

Based on preliminary analysis and field counts, Phase II activities produced 1,241 artifacts. Preliminary review indicates that artifacts consist largely of kitchen ceramics (94.6%) with a small quantity of brick, nail, window glass, bottle glass, and lamp chimney glass. The mixture of pearlware and whiteware ceramics is indicative of an early to mid-19th century date for this site.

Summary and Evaluation. Site 36LU279 diagnostic artifacts and archival research suggest the site dates to ca. 1815-1845; however, the lack of subsurface features makes it difficult to determine if this is

a domestic site or a low density secondary refuse scatter. The archaeological remains are located entirely within the plowzone. Therefore, this site lacks integrity and does not meet the minimum criteria for listing in the National Register of Historic Places (NRHP). Accordingly, GAI recommends no further investigations of this site.

Site 36LU280 (Site 3)

Site 36LU280 is located in an agricultural field on an upland flat north of Confers Lane. Archival research provided a chain-of-title for Site 36LU280. Tax assessment records suggest that a farm house was built in this locality sometime between 1873 and 1939 and was demolished prior to 1955.

Phase II testing included CSC followed by the excavation of 61 STPs, 4 TUs [2-5x5 ft (0.76x1.5 m) and 2-2.5x5 ft (1.5x1.5 m)], and 3 TRs. The site size of 130x135 feet (40x41 m) reflects the location of positive CSC blocks and positive STPs. An Ap-B soil horizon sequence was exposed across the site. Excavations identified five cultural features including one modern plastic drain pipe in a trench (Feature 2), two post molds (Feature 3 and Feature 6), one burn pit (Feature 4), and one possible trash pit (Feature 5). The post molds and burn pit were excavated. The modern pipe trench and possible trash pit were sampled.

Based on preliminary analysis and field counts, Phase II activities produced 1,511 artifacts. Preliminary review indicates that artifacts consist largely of kitchen ceramics and glass (68.7%) and architectural-related items (24.6%). Small quantities of other artifact types accounted for the remaining 6.7% of the assemblage.

Summary and Evaluation. Based on diagnostic artifacts and map research Site 36LU280 dates to the late 19th to mid-20th century. Phase II testing of over 10% of the site failed to identify any deep shaft features or structural features. In general, the absence of these types of features makes it problematic to address questions associated with site proxemics (use of the landscape/space within a domestic site) and architecture or other broader research questions related to its late-nineteenth-century to mid-twentieth century occupation. Based on preliminary Phase II results GAI recommends that Site 36LU280 is not eligible for listing in the National Register of Historic Places. This recommendation is preliminary and may change following completion of Phase II analysis.

Site 36LU281 (Site 4)

Site 36LU281 is situated within an agricultural field on an upland flat on the south side of Confers Lane. Archival research indicates that Site 36LU281 was occupied from ca. 1835 to at least 1873 by two generations of the same family. The deed chain-of-title links Sites 36LU281 and 36LU283 to the same parcel of land.

Phase II testing included CSC followed by the excavation of 81 STPs, 8 TUs [4-5x5-ft (1.5x1.5 m) and 4-2.5x5-ft (0.76x1.5 m)], and 3 TRs. The site size of 125x200 feet (37x61 m) reflects the location of positive CSC blocks and positive STPs. Testing revealed an Ap-B soil horizon sequence across the site. Excavations identified two cultural features including one stone house foundation with a cellar hole (Feature 1) and one post mold (Feature 3). Only a small sample of the foundation interior was sampled; excavation was halted before reaching the base of the cellar due to large debris and unstable unit walls. Based on preliminary analysis and field counts, Phase II testing produced approximately 8,472 artifacts.

Summary and Evaluation. Site 36LU281 contains features and a substantial artifact assemblage. Based on the types of artifacts and the presence of features this site has the potential to provide important information on the history of this region including access to consumer goods and consumer preferences, socio-economic status, architecture, and site proxemics. Based on preliminary findings, Site 36LU281 likely meets the minimum criteria for listing on the NRHP and should be avoided. If avoidance is not feasible, data recovery excavations are recommended. This recommendation is preliminary and may change following completion of Phase II analysis.

Site 36LU288 (Site 5)

Site 36LU288, the only prehistoric site in the Phase II study, is situated in a large agricultural field on a low terrace/floodplain approximately 90 meters (300 feet) west of the North Branch Susquehanna River. Although this locality has a potential for deeply buried prehistoric cultural materials, due to the shallow depth of proposed project impacts (15 to 18 cm/0.5 to 0.6 feet) resulting from use as a lay-down area, Phase II investigations were limited to the upper approximately 80 cm (2.6 feet) of the soil profile. Phase II testing included controlled surface collection, the hand-excavation of 56 judgmentally-placed STPs and 20 1x1-meter (3x3-foot) test units, and mechanical stripping of the plowzone within eleven trenches (2x60 to 105 meters/6x197 to 344 feet; total of 2,170 m²/23,358 feet²). Due to the extremely low-density of artifacts in the southern portion of the site, plowzone stripping was reduced from the proposed 3,800 m² (40,904 ft²), and was concentrated in the site's northern half. Based on results of surface collection and STP artifact distributions, Site 36LU288 has dimensions of approximately 155 x 260 meters (508 x 850 feet).

The entire site area has been plowed and Phase II excavations, to a depth of approximately 80 cm (2.6 feet), exposed a simple Ap-B soil horizon sequence across the majority of the site. However, an Ap-B1-Ab-B2 soil horizon sequence was identified in five test units and four scattered shovel tests, primarily in the northeast portion of the site. The buried A (Ab) horizon was encountered at a depth of between 51 and 66 cm below surface and was approximately 30 cm thick. Approximately two-thirds (61.5 percent) of the Phase II artifact assemblage was recovered from disturbed or plowzone (Ap horizon) contexts. The remaining artifacts were found in the B horizon (18.5 percent) at depths of 20 to 79 cm (0.7 to 2.6 feet) below surface, the buried A (4.4 percent) or feature fill (15.6 percent). The majority of artifacts, and all artifacts from sub-plowzone contexts, were found in the northern half of the site.

Based on preliminary analysis and field counts, Phase II testing yielded just 276 prehistoric artifacts and 93 historic specimens. Preliminary artifact review indicates that the prehistoric assemblage consists of 11 bifaces, 5 unifaces, 203 debitage, and 57 fire-cracked rocks (FCR). The biface sample includes two temporally diagnostic specimens—one Late Woodland Levanna point and one probable Paleoindian fluted point basal fragment. All prehistoric tools were recovered from plow-disturbed contexts. The historic artifacts consist largely of window and container glass and represent field scatter.

Phase II excavations identified two prehistoric hearth features (Features 1 and 2) in the northeast portion of the site. Feature 1 occurred in the buried A (Ab) horizon at a depth of approximately 67 cm below ground surface and had dimensions of 75x80x25 cm (2.5x2.6x0.8 feet). Feature 2 was exposed at the top of the B horizon, approximately 40 cm below ground surface, and has been truncated by plowing; this feature extended into the wall of Trench 6 and its exposed portion measured 90x100x12 cm (2.9x3.2x.4 feet). Both features were characterized by charcoal-flecked fill and a basin-shaped profile. Additionally, artifacts recovered from both of these features were limited to fire cracked rock (Feature 1=25 FCR; Feature 2=18 FCR); no chipped stone artifacts were recovered. Samples of charcoal collected from each feature will be submitted for radiocarbon analysis.

Summary and Evaluation. Site 36LU288 represents the remains of multiple, low-density, prehistoric occupations dispersed across a low terrace/floodplain adjacent to the North Branch Susquehanna River. Based on the results of Phase I and Phase II investigations the uppermost portion of the soil profile (Ap-B horizon) within the site contains one truncated prehistoric hearth feature and a widely scattered, low-density artifact assemblage dating from the Paleoindian through Late Woodland periods. All recovered diagnostic artifacts were found in plow-disturbed contexts. The buried A (Ab) horizon, documented primarily in the northeast portion of the site, produced one prehistoric hearth feature and 37 nondiagnostic artifacts, consisting almost exclusively of FCR (33 FCR, 1 biface fragment and 3 debitage).

Due to the site's mixed, multicomponent nature and low artifact density, GAI recommends that prehistoric materials in the upper-soil profiles (<80 cm/2.6 feet) of Site 36LU288, investigated by the current Phase II study, do not meet the minimum criteria for listing on the NRHP. Although the buried A horizon identified within the site has a potential for intact prehistoric cultural materials, the near-absence of artifacts associated with this soil suggests that further investigations would not yield important data. If modifications in project design should result in deeper impacts within Site 36LU288, additional Phase II Site Evaluation would be required to investigate more deeply buried soil profiles in this locality.

Site 36LU283 (Site 7)

Site 36LU283 is located in a field in an upland flat on the north side of Confers Lane. Archival research indicates that the house was constructed between 1913 and 1920 and was demolished between 1987 and 1989, giving the site a twentieth-century temporal affiliation. The parcel containing this site was divided in 1957 and the barn (with silo) was acquired by the same family that owned the parcel containing Sites 36LU279 and 36LU286. Therefore, Site 36LU283, as currently defined, was actually owned and used by two different households during the last 30+ years of occupation (1957-1989).

Phase II testing included excavation of 310 STPs and 12 TUs [6-5x5-ft (1.5x1.5-m) and 6-2.5x5-ft (0.76x1.5-m) units]. The site is L-shaped, with the long axis (east-west) bordering the roadway measuring approximately 65x520 feet (20x158 m) and a block in the northeast corner [165x165 feet (50x50 m)] forming the short axis. The site size was identified based on positive STPs. All but one of the TUs were excavated in the eastern portion of the site.

Excavations identified seven cultural features including one stone house foundation and cellar hole (Feature 2 / 6), one drainage pipe and trench (for house cellar) (Feature 9), a stone-lined well with water (Feature 3), a cinder block cistern with a concrete cap (Feature 4), two cinder and ash dumps (Features 5 and 7), and one stone barn foundation with an attached concrete silo base (Feature 1). The two deep shaft features (well and cistern) do not contain fill and therefore do not provide information to address broader research questions. The house cellar, which is mainly filled with demolition debris, has a poured concrete floor with a drain hole in the northwest corner. Artifacts in the cellar are a result of demolition activities ca. 1989. The only feature associated with the western portion of the site (later owned by the family residing at Site 36LU286) was the barn and silo foundation. The remaining features are located within the eastern part of the site. Based on preliminary analysis and field counts, Phase II activities produced approximately 14,036 artifacts.

Summary and Evaluation. Site 36LU283 dates to ca 1913-1989 but was subdivided into two parcels in 1957. The cellar is mainly filled with demolition rubble. The ash and cinder scatter features were sampled with test units and are unlikely to provide additional information about occupation of the domestic portion of this site. While information was uncovered documenting two historic-period foundations (house and barn with silo) and associated cultural debris, in general, the absence of deep shaft features with fill deposits and discrete, temporally-diagnostic deposits precludes the ability to address broader research questions related to these occupations. GAI recommends that Site 36LU280 is not eligible for listing in the National Register of Historic Places. This recommendation is preliminary and may change following completion of Phase II analysis.

Site 36LU285 (Site 9)

Site 36LU285 is located in a field on an upland flat south of Beach Grove Road. Archival research indicates that the site was occupied ca. 1815-1900; however, at least one outbuilding remained on the west side of the site until after 1989.

Phase II testing included the excavation of 108 STPs, 12 TUs and 10 slot trenches. Test units varied in size and consisted of the following: three 5x5 ft (1.5x1.5 m), four 2.5x5 ft (0.76x1.5 m), one 2.5x6 ft (0.76x1.8 m), one 2x2.5 ft (0.61x0.76 m), one 4x4.5 ft (1.22x1.37 m), one 3x7 ft (0.91x2.13 m), and one 3x4.5 ft (0.91x1.5 m). The slot trenches, excavated to identify the limits of Feature 1, each measured 1x5 feet (0.30x1.5 m) and were not screened for artifacts. The site size of 130x160 feet (40x49 m)

reflects the location of positive STPs. Soil stratigraphy exposed by Phase II testing consisted of either an A-B or A-CA/feature-B soil horizon sequence. Excavations identified seven cultural features including a refuse dump (Feature 1), a burned feature (Feature 4), two drain pipes and associated trenches (Features 2 and 5), two post molds, (Features 6 and 7), and a possible structure area (Feature 3). These features were located in the eastern portion of the site.

Based on preliminary analysis and field counts, Phase II activities produced approximately 26,714 artifacts. Artifacts from the upper levels of Feature 1 appear to have a general twentieth-century date range. Artifacts from Feature 3 suggest a mid-nineteenth century usage. Artifacts from Feature 5 have a general nineteenth-century temporal affiliation.

Summary and Evaluation. Site 36LU285 appears to have changed functions over time from a domestic habitation site (ca. 1815-1900) to an activity area around outbuildings located across the road from the new house location. Based on preliminary review of feature and artifact data, Phase II archaeological investigations yielded evidence of both types of usage. The types of recovered artifacts and the presence of features indicates that this site has the potential to provide important information on the history of this region including access to consumer goods and consumer preferences, socio-economic status, and site proxemics. Based on preliminary findings, Site 36LU285 likely meets the minimum criteria for listing on the NRHP and should be avoided. If avoidance is not feasible, data recovery excavations are recommended. This recommendation is preliminary and may change following completion of Phase II analysis.

Site 36LU286 (Site 10)

Site 36LU286 is located in an agricultural field on an upland flat east of North Market Street and Walker Run. Archival research provided a chain-of-title for the site. Background research (in conjunction with diagnostic artifacts) indicates that a house was constructed at this location ca. 1845. Four buildings were added by 1939. The USGS quadrangle map indicates there were two dwellings and four outbuildings present by 1955. Two additional outbuildings were added within the site complex between 1955 and 1969; in addition, in 1957 the landowners acquired the barn and silo associated with site 36LU283. Aerial imagery of the project area in 2005, illustrates a tight cluster of ten major buildings northeast of the pond within the site area. These structures were demolished at some point between 2005 and the start of Phase IA investigations in 2007. Based on research the site dates from ca. 1845 to ca. 2005.

Phase II testing included the excavation of 502 STPs and 16 TUs (8-5x5 ft [1.5x1.5 m] and 8-2.5x5 ft [0.76x1.5 m]). The site size of 400x380 feet (122x116 m) reflects the location of positive STPs and also encompasses a pond. Phase II testing generally exposed an A-B soil horizon sequence across the site. Excavations identified five cultural features including a house foundation (Feature 1), concrete wall and associated builder's trench (Features 2 and 3), and stone wall and associated builder's trench (Features 4 and 5).

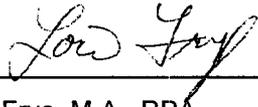
Based on preliminary analysis and field counts, Phase II activities produced approximately 9,127 artifacts. Preliminary review indicates that artifacts consist largely of kitchen ceramics and glass and architectural-related items including nails, window glass, brick, and mortar.

Summary and Evaluation. Site 36LU286, occupied for a period of at least 155 years, consists of the remains of a farmstead including two houses surrounded by numerous outbuildings. Archaeological evidence relating to one house and one outbuilding, along with an associated artifact scatter, was identified and tested during Phase II investigations. In general, the absence of deep shaft features and discrete, temporally-diagnostic deposits preclude the ability to address broader research questions related to these occupations. GAI recommends that Site 36LU286 is not eligible for listing in the National Register of Historic Places. This recommendation is preliminary and may change following completion of Phase II analysis.

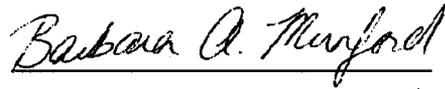
Summary

Based on preliminary results of GAI's Phase II National Register evaluations, two of the seven archaeological sites (36LU281 and 36LU285) investigated by this study are tentatively recommended as eligible for listing on the NRHP. The remaining sites are tentatively recommended as not eligible to the NRHP. Note that Phase II evaluations for Site 36LU288 are for archaeological components in the upper soils only; no investigations were conducted of deeper deposits in this locality. Recommendations provided in this summary are preliminary and may change following completion of Phase II analysis. As noted previously, detailed results of Phase II investigations and recommendations for further work will be presented in a Phase I/II Technical Report to be submitted in 2010.

Sincerely,
GAI Consultants, Inc.



Lori A. Frye, M.A., RPA
Lead Archaeologist



Barbara A. Munford, M.A.
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LAF:BAM