

4. STAGE 1B FIELD INVESTIGATIONS AND RESULTS

The purpose of the Stage 1B investigations at the proposed GM Plant Expansion project property was to locate and identify any previously unrecorded cultural resources, prehistoric or historic, that might exist within the project area.

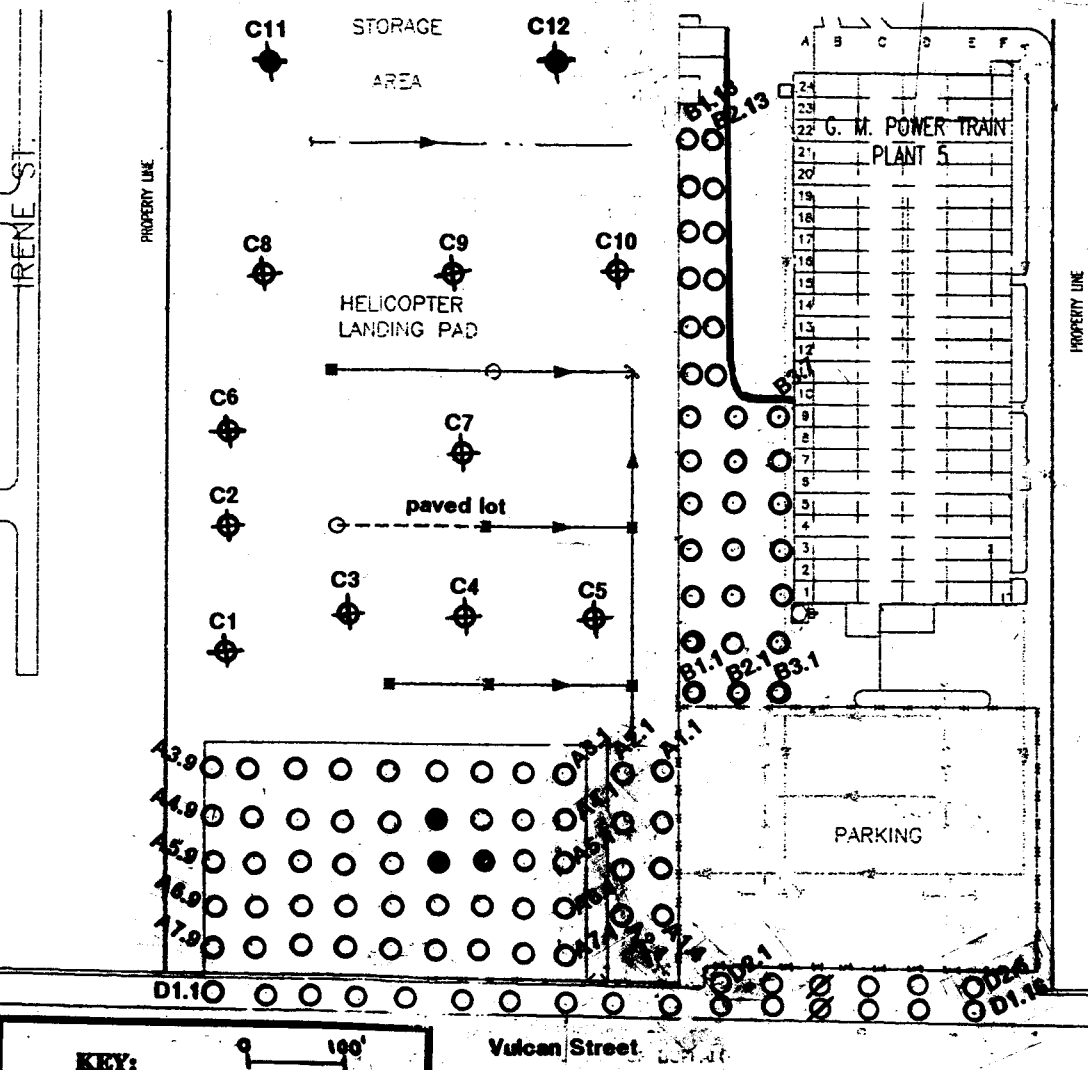
Overall, background research indicated that the project area had low to moderate potential for the location of unrecorded prehistoric archaeological sites, due primarily to the high degree of historic impact to the parcels. The potential for locating historic cultural material, refuse or foundations, was considered to be virtually nil.

As indicated above, for ease of field investigations and reporting, the project area was divided into smaller, more manageable study units. These units were based on several criteria, including previous and/or present land use; suitability to specific field methods; and location (i.e., inside or outside of the Facility gates) (see Figure 4-1). Based on the sensitivity assessment, no testing was conducted within the 344 Vulcan Street parcel. Study Areas A and C were located within the 240 Vulcan Street parcel, while Area B was tested within the 280 Vulcan Street parcel (see Figure 4-1; Appendix B, Photos 1 through 21).

Stage 1B shovel testing and coring was conducted at the project area on four days between May 22 and May 25, 2000. The Stage 1B field team consisted of a Principal Investigator, Carolyn Pierce); a crew chief, Robert Peltier, a laboratory director, Todd Harrington, and two archaeological field assistants, Andy Collura and Bill Clark.

4.1 FIELD METHODOLOGIES

Two field methodologies were used at the GM Plant Expansion project area in order to identify and/or locate previously unrecorded cultural resources. These methods included:



KEY:

- - Negative Shovel Test
- - Positive Shovel Test
- ∅ - Unexcavated Shovel Test
- ⊕ - Core Test
- ⊕ - Unexcavated Core Test
- < - Photo Angle

FIGURE 4-1. Map Showing Shovel and Coring Test Locations and Positive Findspots Within Project Area.

1) subsurface (shovel) testing at 50-foot intervals; 2) close-interval (10-foot) shovel testing around findspots; and 3) test coring in the concrete parking lot.

4.1.1 Shovel Testing

Ground surface visibility was nil in both tested project parcels. 240 Vulcan Street contained one grassy location conducive to testing while the remainder was covered with concrete parking lot. 280 Vulcan Street contained only one location that was testable - Area B (see Figure 4-1; Appendix A, Photos 6 and 7).

A 50-foot by 50-foot grid of shovel tests was placed in each of these areas. In addition, two transects covered the area outside of the fence and parallel to Vulcan Street (see Figure 4-1). Shovel tests were located along transects using handheld compasses and tape measures. Tests were excavated with shovels and hand tools, with all soils screened through ¼-inch mesh hardware cloth and carefully examined for the presence or absence of cultural material (see Appendix A, Photo 19). Pertinent information for each shovel test (i.e., stratigraphy, depth, texture, soil type, soil color [Munsell], etc.) was recorded in field notebooks (see Appendix B).

Close-interval (i.e., 10-foot) tests were placed around several findspots to determine if they represented isolated finds or small lithic scatters. The original findspot was used as a datum in these cases. Close-interval tests were placed in cardinal directions and if new material was encountered were excavated to a double negative. If, for example, no new material was recovered, close-interval testing was halted. Figure 4-2 represents a typical pattern of close-interval shovel testing around locations where no additional material was recovered. The results of all shovel testing can be found in Appendix B.

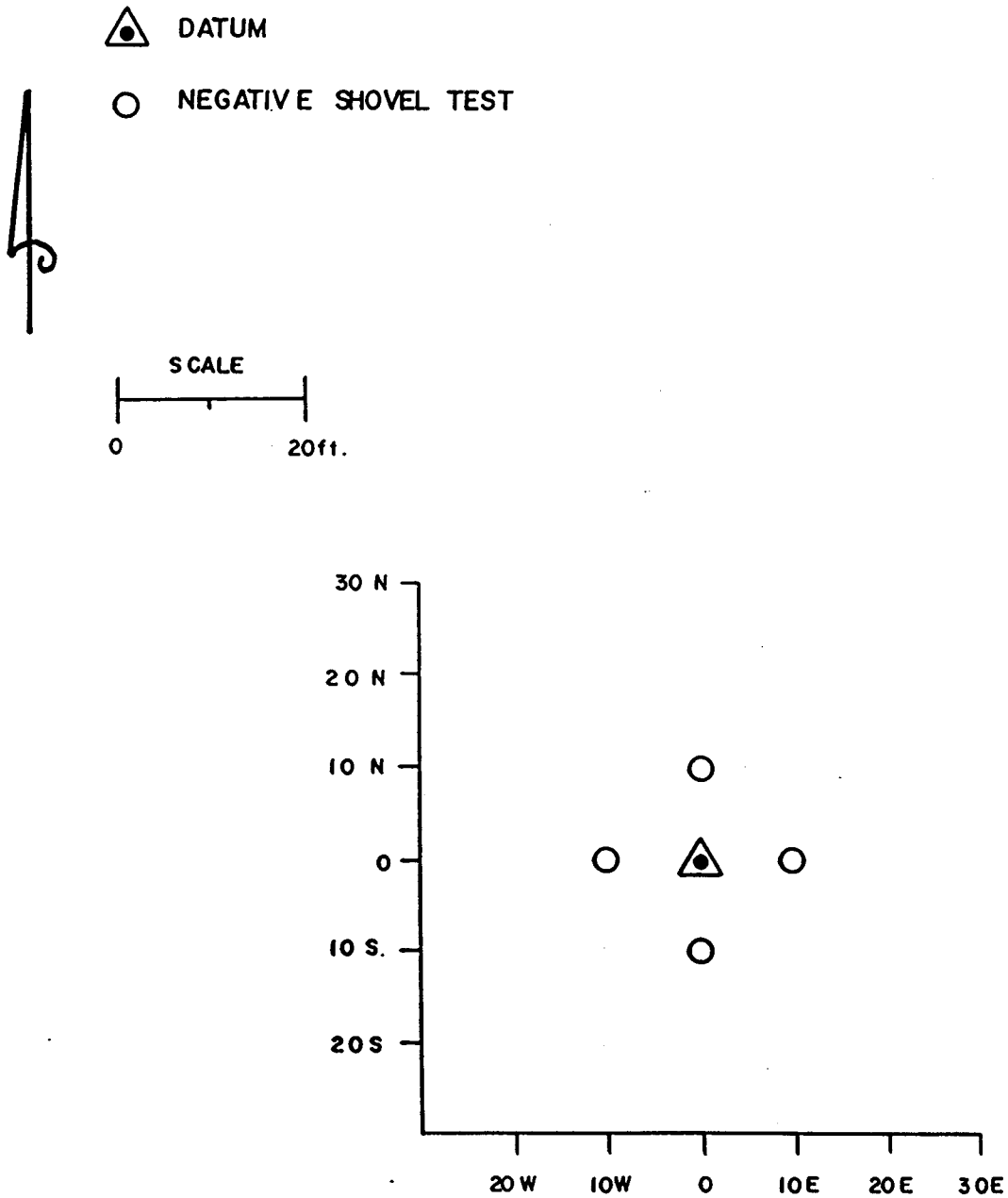


FIGURE 4-2. Map Showing Typical Close-Interval Shovel Testing Around Findspot With No Additional Material.

4.1.2 Coring

Shovel testing was not feasible in Area C, a concrete parking lot criss-crossed with subsurface utilities (see Figure 2-3). Background research, aerial photographs and interviews suggested that the entire project area (all three parcels) had been impacted in any one or more of numerous ways. In spite of this, and in order to determine if original ground surfaces or disturbances were present under the parking lot at Area C, it was decided to use coring methods to at least try and discern stratigraphy (i.e., original or disturbed, etc.). The locations where testing of any kind was impossible was to the north where storage racks and machinery were situated.

Removal of the concrete pavement and underlying base material was conducted to expose, if possible, original ground surfaces and/or native soils for archaeological sampling. The pavement and subbase material were recovered using a free-standing, concrete boring machine. The boring machine was equipped with a rotating, four-inch diameter, diamond-tipped core bit. Although 12 locations had been chosen for sampling in this manner, only ten were able to be cored (see Figure 4-1). Various staff of the IT/EMCON Group were present during the two days of coring.

Coring was continued at each location until native clayey soils were reached. Approximately two inches of concrete pavement and 16 to 18 inches of stone subbase material were encountered at the core locations (see Appendix B). These materials were encountered upon the native clayey soils (see Appendix A, Photo 21). In a few tests, a fine black sand was encountered atop the native clay soils. This sand was most likely associated with the former foundry in this area. No cultural material was observed in any of the core tests (see Appendix B).

4.2 RESULTS

Figure 4-1 indicates the locations of the Stage 1B shovel testing and core locations at the 240 Vulcan Street (Areas A and C) and 280 Vulcan Street (Area B) parcels. The 344 Vulcan Street parcel was not conducive to shovel testing as discussed above. In addition, shovel testing was conducted within the grassy strip along 240 and 280 Vulcan Street and the fence (Area D) (see Figure 4-1).

4.2.1 Area A

Area A, located within 240 Vulcan Street, measures approximately 550 feet by 250 feet in size (i.e., about three acres). Located in the southern third of the parcel, Area A is bounded on the west by a fenceline; on the north by a concrete parking lot/helicopter pad (Area C); on the east by the 280 Vulcan Street parcel; and on the south by Vulcan Street (see Figure 4-1).

Forty-five shovel tests were proposed for excavation in Area A, a grassy section. Shovel tests were placed at 50-foot intervals along seven transects that ran west of and perpendicular to the eastern fenceline, which served as a baseline (see Figure 4-1).

Soil profiles from shovel testing in Area A were difficult to describe since no general pattern was clear (see Appendix B). This is most likely due to the fact that this portion of the property, once low and wet, has been filled in to alleviate the wetness and bring it up to grade for use as a parking lot. As Appendix B indicates, most of the soils are mottled and mixed with road gravel and many contained evidence of debris. In particular the shovel tests along the southern edge, although more consistent, showed evidence of standing water and wet profiles, even though it had not rained from many weeks prior to testing.

In spite of the highly disturbed and wet conditions in Area A, several shovel tests contained prehistoric material. The cultural material recovered from shovel testing in Area A included lithic debris of the sort used in lithic reduction. Shovel tests A4.3, A4.5, A5.3 and A5.4 each contained a single flake fragment. Shovel test A5.5 yielded a flake fragment, a whole flake and a flake tool. Close-interval shovel testing around these findspots only produced a single additional lithic - a small core fragment from A4.5 (0N/10E) (see Figure 4-3; Appendix B).

The context of the material recovered from Area A was suspect. It was mixed with gravel, clay, modern trash, as well as being mixed with chert samples that had clearly only recently been broken (probably by large machinery and mowing equipment or from dumping activities) (see Appendix A, Photo 21). The material described (all of Onondaga chert) in the shovel test summary has clearly been culturally altered. is clearly cultural. However, the context of the material with its matrix suggest strongly that the material came in with fill, the source of which is not known.

It is not surprising to have found some evidence of prehistoric activity in this vicinity, since so many "traces of occupation" have been reported by Parker (1922) and recorded in various institutions (see Chapter 3 above). There is absolutely no way to determine the original location of the cultural material found in Area A.

4.2.2 Area B

Area B measures approximately 425 feet by 125 feet (i.e., 1.2 acres) in size. Located adjacent to Plant 5 (west), Area B is bounded on the west by a paved parking lot; on the north by a paved lot and Plant 4; on the east by a chainlink Fence and Plant 5; and on the south by a chainlink fence and a parking lot (see Figure 4-1; Appendix A, Photos 6 and 7).

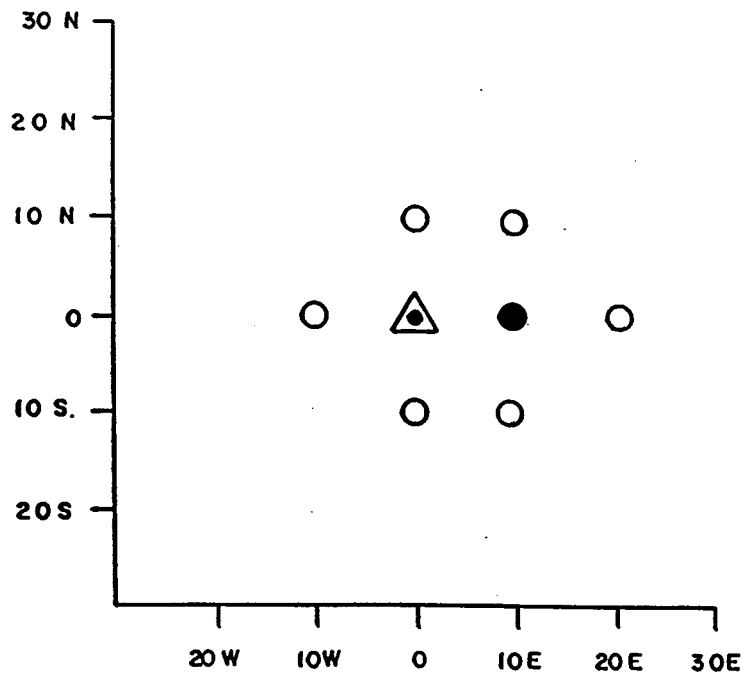
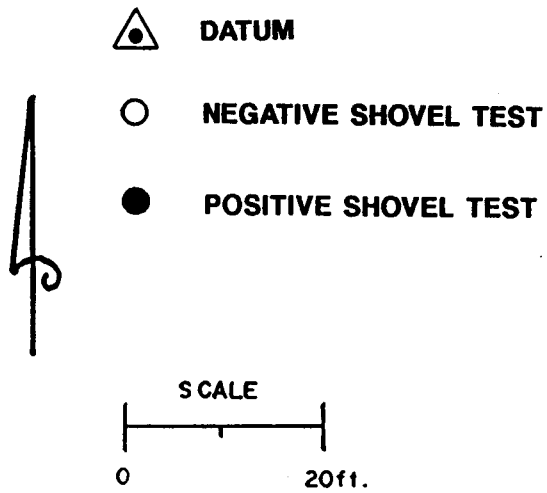


FIGURE 4-3. Map Showing Close-Interval (10-Ft) Shovel Test Pattern Around A4.5 Findspot.

Forty-three shovel tests were proposed for excavation in Area B. Shovel tests were placed at 50-foot intervals along three transects that ran north of, and perpendicular to, a chainlink fence, which served as a baseline (see Figure 4-1). All tests proposed for excavation in Area B were dug.

Soils profiles from shovel testing in Area B were fairly consistent, consisted of very dark grayish brown (10YR 4/2) to grayish brown (10YR 5/2) silty clay topsoils to an average of 12 inches below the surface. These overlay brown silty clay subsoils to an average depth of 15.6 inches below the surface (see Appendix A). Shovel tests to the north of the study area appeared to be more mottled than elsewhere.

No cultural material was recovered from shovel testing in Area B.

4.2.3 Area C

Area C comprises the middle half (the parking lot portion) of 240 Vulcan Street. As indicated above, the northern portion of the parcel was covered with heavy storage racks and machinery, precluding testing. This is also near the former foundry location. The unit measures approximately 850 feet by 525 feet (about 10 acres in size) (see Figure 4-1). Area C is bounded on the south by Area A, on the east by the 280 Vulcan Street parcel (Area B); on the west by a fenceline and storage area; and on the north by the approximate three-acre heavy equipment machinery and storage rack area.

As indicated above, test coring was the method used in Area C. Ten out of the 12 proposed core location were able to be cored. The remaining two were in locations containing heavy equipment and racks (see Appendix A, Photos 5, 9, 10).

Soils from the test coring are described in general above. Specific stratigraphy is found in Appendix B. Basically, all cores went into native heavy clay subsoils, indicating a lack of an A horizon (see Appendix A, Photo 20). In a few locations, black fine sand (originally associated with the former foundry) was found in core tests (see Appendix A).

No cultural material was observed in Area C.

4.2.4 Area D

Area D measures about 1,025 feet by 40 feet (one acre) in size. Located along the southern edge of the 240 and 280 Vulcan Street parcels, the unit is bounded on the west and north by paved parking lots and Area A; and on the south by Vulcan Street (see Figure 4-1; Appendix A, Photos 1 and 2).

A total of 22 shovel tests was proposed for excavation in Area D. The tests were placed at 50-foot intervals along two transects that ran east and parallel to Vulcan Street. Only two shovel tests were not able to be excavated, due to the presence of subsurface utilities (see Appendix B).

Soils from shovel testing in Area D generally consisted of dark grayish brown (10YR 4/2) or very dark grayish brown (10YR 3/2) clayey silt to an average depth of 12.1 inches below the surface. These overlay yellowish brown (10YR 5/4) to brownish yellow (10YR 6/6) sandy clay subsoils to an average depth of 17.9 inches below the surface (see Appendix B).

5. STAGE 1B SUMMARY AND RECOMMENDATIONS

5.1 SUMMARY

Stage 1B archaeological investigations were completed at the proposed GM Plant Expansion project, in the Town of Tonawanda, Erie County, New York. Historic map, atlas, site file and literature research suggested a low sensitivity for the recovery of historic archaeological resources within the project area and a low to moderate sensitivity for prehistoric archaeological resources.

Stage 1B archaeological field investigations included systematic (50-foot) shovel testing within portions of the project parcel where feasible (i.e., Areas A, B, C and D) and test coring through a concrete parking lot in order to determine if original ground surfaces might be intact that would hold archaeological sites.

A total of 108 shovel tests and ten test cores were excavated across the two parcels considered to be conducive to testing (i.e., 240 and 280 Vulcan Street). Five of these tests, all in study area A, were found to contain prehistoric cultural material. Shovel tests A4.3, A4.5, and A5.3 each contained a flake fragment. Shovel test A5.4 contained a flake fragment and a core fragment. Shovel test A5.5 contained a whole flake, a flake fragment and a scraper (see Appendix B). Only one of the radial tests contained additional cultural material, although the amount of gravel and debris and fill in some of the tests made it difficult to determine in the field if an object was cultural or not. Laboratory analysis later determined that most of the material in the radials was not.

Overall, analyses of the recovered material suggests that the GM material were most likely brought in when the low, wet area was filled.

5.2 RECOMMENDATIONS

No further archaeological investigations are recommended for the GM Expansion Plant project. Historic impacts to the 47-acre project area have included construction into nearly all of the original ground surfaces (i.e., 344 Vulcan Street parcel) and/or filling formerly low and wet areas to grade (study area A and C).

Although a few prehistoric lithic reduction flakes were found in shovel testing in Area A, subsequent lithic identification and laboratory analysis indicated that the material was not in its original context. The flakes had been most likely re-deposited from their original location(s), which are completely unknown. The lithics were sometimes mixed with modern debris (e.g., bottle glass, whiteware sherds) and mottled fill soils (see Appendix B). It was not surprising to find some evidence of prehistoric activity in this area. As discussed above, the entire region paralleling the river were undoubtedly utilized by prehistoric populations, as reported by early archaeologists (see Table 3-2). The material retrieved from the small filled area at the GM Expansion Plant project is not considered to be culturally important. It lacks context and cultural affiliation.

6. ACKNOWLEDGEMENTS

Many individuals contributed to the successful completion of the Stage 1 archaeological investigations at the GM Expansion Plant project area. Carolyn A. Pierce served as Principal Investigator; Robert Peltier provided assistance as crew chief for the Stage 1B field effort with Andy Collura and Bill Clark as archaeological field assistants

Processing and identification of prehistoric artifacts recovered at the project area during the course of the investigations were conducted by Todd P. Harrington. Production of this report was a joint effort involving numerous individuals. Principal author of the report was Carolyn A. Pierce with contributions by Todd Harrington and Robert Peltier. Word was done by Barbara Miller. Drafting and graphics expertise was provided by Robert Peltier. Report production was completed by Todd Harrington and Robert Peltier.

Special thanks are extended to Christine Longiaru for background and historical information; and to Kathy Galanti and her colleagues at IT/EMCON for technical and informational assistance and other support during the length of the project, including coordination of performing the core boring tests in Area C. And, in particular, the author is especially grateful to Adam Walters for his extreme patience, interest and understanding over the course of the project.