3. METHODOLOGY AND RESULTS

Prior to the commencement of fieldwork, DelDOT survey the study area and placed wooden stakes at the shovel test locations. Unfortunately, city maintenance workers and local residents removed several of the stakes; however, their relocation was easily completed.

The project area encompassed approximately 30,000 square meters (20-meter in width by 1500-meters in length) or approximately 7-acres. In addition, some portions of the project area, particularly the northern end of the path between Forest Avenue and Maple Avenue, appear to have potential for disturbance from residential development. Five acres in the project was deemed testable. Following Guidelines for Architectural and Archaeological Surveys in Delaware (1993) and in consultation with DelDOT, the fieldwork included:

- a pedestrian survey to determine on-the-ground conditions and possible surface features;
- systematic shovel testing on a single-grid line or transect following the proposed construction path's center line, performed at a 15-meter interval (1500m: n=100 shovel tests);
- 30 cm diameter shovel tests at a minimum depth of 60cm with all material extracted screened through a ¼" mesh;
- radial shovel tests at 7.5 meter intervals on either side of positive shovel tests (when applicable) limited to within the boundary of the APE [n=25]); and
- a single one-by-one meter test unit to be included if a an area was deemed suitable for better understanding the archaeological resources and the regional site formation processes.

Areas with excessive slope, standing water, significant prior disturbance (e.g. utility installation), and those capped by impervious surfaces will not be tested. In these cases, reasons for not excavating are justified in the technical report. The location of each shovel test was plotted using a Global Positioning System (GPS) receiver. Photography will be digital and exceeded the standards for photography established by the DE SHPO.

All measurements were recorded in metric units. Soils were excavated by natural stratigraphy and details of each shovel test will be recorded to ensure standardization. Sediments extracted from each shovel test were screened through one-quarter-inch mesh hardware cloth to standardize artifact recovery, and recovered artifacts were provenienced by shovel test and stratigraphic level. Only those artifacts greater than 50 years of age will be recovered. Modern debris will be documented and discarded in the field. Also certain classes of artifacts (i.e., brick, coal, slag, shell, nails) recovered from non-feature contexts were counted, weighed, and sampled as appropriate.

Fieldwork associated with the Phase I Archaeological Survey of the Elsmere Pedestrian and Bicycle Path Improvements in New Castle County, Delaware began on July 15th, 2013. The original scope of work proposed a 15-meter interval over the 1500-meter transect of the pathway yielding approximately 100 test pits. We were able to excavate and screen the associated sediment from 95 shovel test pits along the pathway over the period between July 15th and July 16th, 2013.. However, an impenetrable asphalt roadbed and a ca. 2-meter thick deposit of recent fill along the eastern section of the pathway reduced the total number of possible test-pit locations. See the Appendix for the details of test-pit dimensions, soil and sediment characteristics, and cultural materials retained.

The data generated from the shovel testing indicates that all of the project area has been filled and/or graded along the entire transect of the proposed pathway (see the Appendix, and Figures 3.6 and 3.7). Modern debris was noted within much of the fill (see Appendix). Dense gravel (Figure 3.9), some recent refuse (i.e., coal, small brick fragments, metal pull-tabs, and glass), and organic soil material were associated with the fill. No significant archaeological features or artifact clusters were discovered as a result of the fieldwork.

Two sections of the pathway could not be shovel tested. The first section was associated with an asphalt road bed located between STP#75 and STP#79. As such, sub-surface archaeological data could not be assessed for STP#76, #77, and #78. Between STP#85 through #90, a large ca. 2-meter high mound of recent fill posed some logical sub-surface testing issues. The proposed pathway extended across this large pile of recent fill. The shovel-tests located both east and west of the mounded fill indicated extensive grading and filling north of the railroad track. As such, there should be no archaeological features associated with STP#86, #87, #88, and #89 even though we could not test these areas.

Evidence of sub-surface landscape disturbance was noted throughout the eastern portion of the project area (see Figures 3.1, 3.4, and 3.5). Numerous young saplings had been recently planted using a tree-spade, which would excavated into the sub-soil (see Figure 3.12). A large concrete drain had been installed in the area of the proposed pathway (see Figure 3.13). Wooden utility poles had also been recently emplaced and new footings had been excavated (see Figure 3.14). A large drainage ditch, which crossed the entire section north of the railroad, had been freshly widened and excavated (see Figure 3.15). The mounded fill noted within the project area may represent some of the spoil material associated with the recently ditching activities. Some large galvanized metal utility poles had also been recently installed within the project area (see Figure 3.16). Mortar associated with the utility pole foundation was noted on the surface and within one of the shovel test areas.

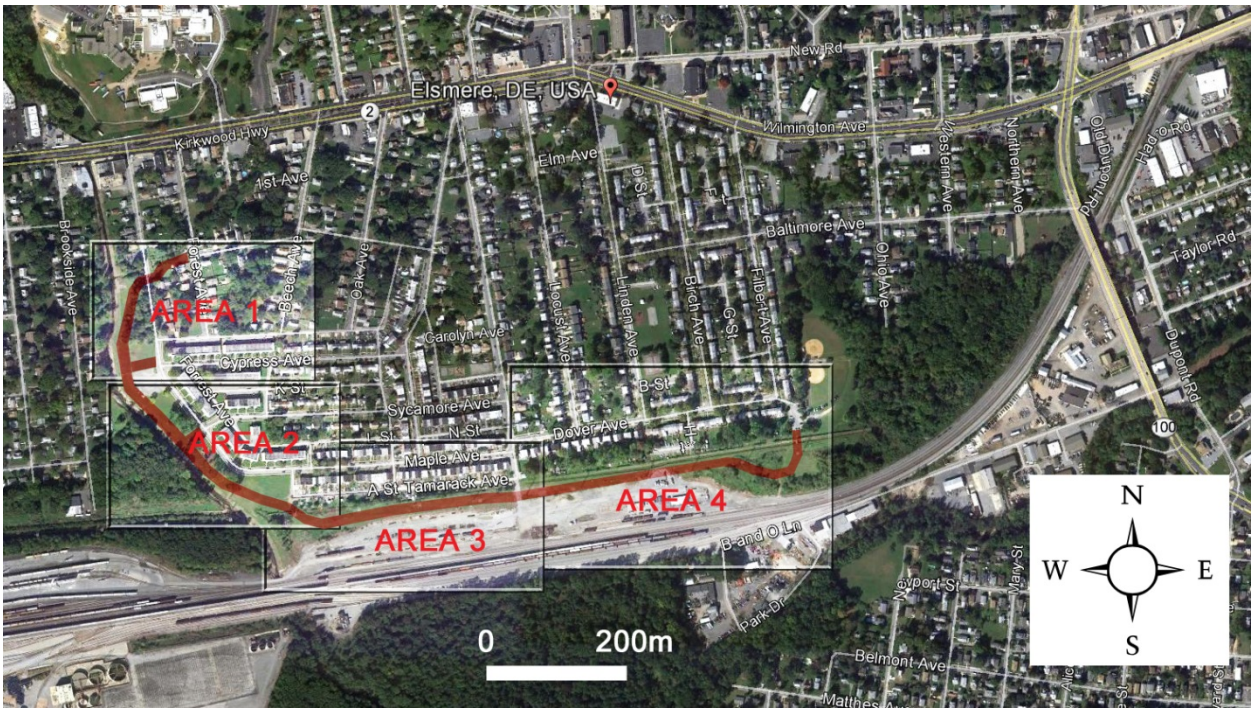

Figure 3.1. An aerial image showing the project area, which encompasses four portioned sections. Details of each section are shown in Figures 3.2, 3.3, 3.4, and 3.5.

Figure 3.2. . An aerial photograph view of Area 1 shown in Figure 3.1. The shovel test locations are also plotted and numbered.

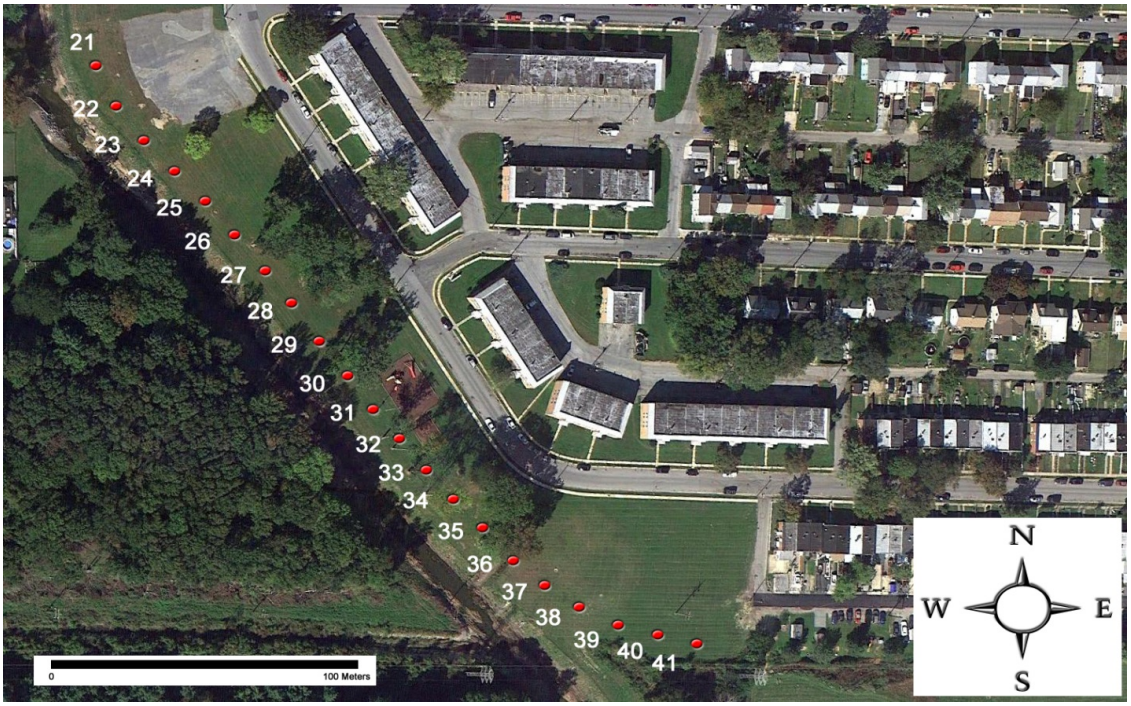

Figure 3.3. An aerial photograph view of Area 2 shown in Figure 3.1. The shovel test locations are also plotted and numbered.

Figure 3.4. . An aerial photograph view of Area 3 shown in Figure 3.1. The shovel test locations are also plotted and numbered.

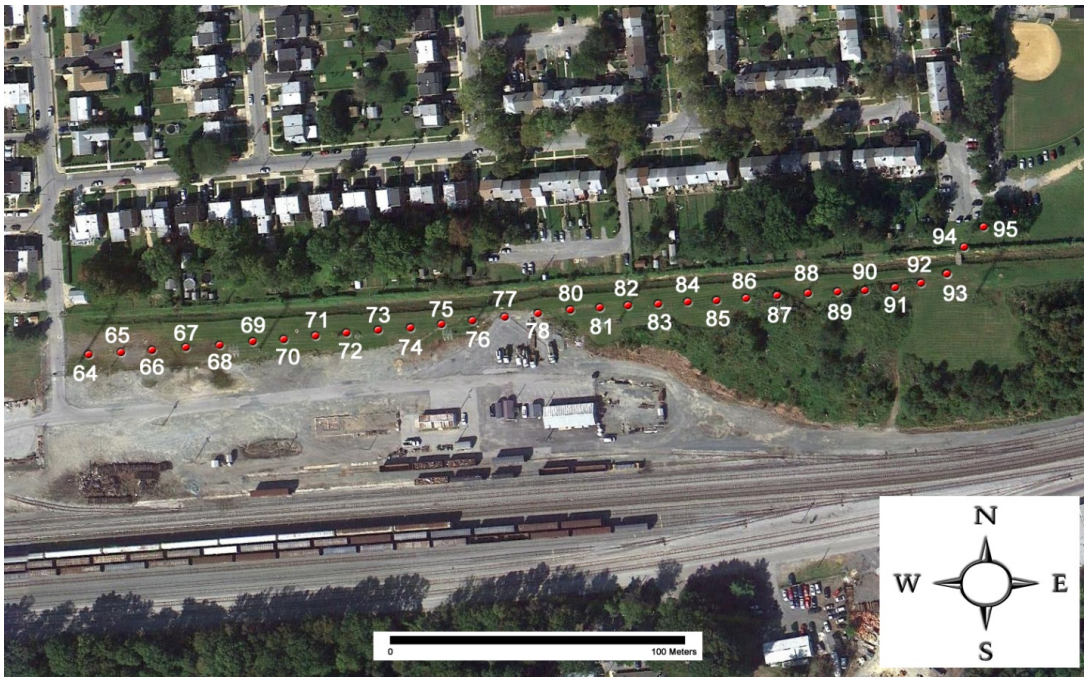

Figure 3.5. An aerial photograph view of Area 4 shown in Figure 3.1. The shovel test locations are also plotted and numbered.

Figure 3.6. A profile image of STP#13. A recent ca. 9-cm thick A-horizon is located at the surface. A ca. 21-cm thick AC-horizon represents fill overlying a buried ca. 25-cm thick Ap-horizon or plowzone. Discoloration associated with gleying is apparent in the both the Ap-horizon and the underlying sub-soil.

Figure 3.7. Asphalt with fragments of brick unearthed at STP#14.

Figure 3.8. A large pile of modern brick near STP#72.

Figure 3.9. The gravely fill being screened. The fill was unearthed throughout the project area. The gravel fill was typically associated with the AC and C soil horizons.

Figure 3.10. An asphalt roadbed associated with STP#76, #77, and #78. These shovel test pit locations could not be excavated.

Figure 3.11. Worker standing on a large pile of fill located in Area 4 shown in Figure 3.5. The ca. 2-m thick pile of fill encompassed the flagged areas associated with STP#86, #87, #88, and #89.

Figure 3.12. Recent sub-surface disturbance within the project area. A tree spade had been used to plant a row of saplings in Area 3 shown in Figure 3.4.

Figure 3.13. A large drain had been installed in Area 4 shown in Figure 3.5. The drain installation represents a recent sub-surface disturbance within the project area.

Figure 3.14. Several wooden utility poles had been installed in Area 4 shown in Figure 3.5, which represents a recent sub-surface disturbance within the project area.

Figure 3.15. A ditch and adjacent road fill, located in Area 3 and 4 (see Figures 3.4 and 3.5), represents a recent sub-surface disturbance.

Figure 3.16. A large galvanized metal utility pole that was recently installed near STP#94. While screening the sediment associated with the STP, fragments of concrete related to the installation of this pole were noted.