C. Field Investigations

1. Field Methods

A total of 78 shovel tests and two one-meter-square excavation units were excavated in advance of the proposed replacement of Delaware State Bridge #424 along Wiggins Mill Road (Figure 3). A testing interval of 25 feet was employed between shovel tests within the limits of construction. Ten of the 78 shovel tests (ST#s 69-78) and the two excavation units (EU#s 1 and 2) were located outside of the limits of construction, to the south of the bridge, in the area of Wiggin's Grist Mill. All tests were excavated by hand and screened through 1/4-inch mesh hardware cloth (Appendix A).

2. Prehistoric Resources

No prehistoric features were found within the limits of the project corridor. Minor clusters of artifacts suggesting a possible occupational level were noted in two locations. The first area is located on an eroded knoll along the south side of the road northwest of Delaware State Bridge #424 between two dirt driveways (ST#s 4-7, 9 and 11). This area was originally cut for the construction of the road and has since been widened and become unstable through erosion. This activity area more than likely continues south along the east side of the knoll. The second area is located near the gristmill building on the original first terrace of the stream south southeast of Delaware State Bridge 424 (ST#s 25, 26, 30 and 31). This activity area may very well continue south outside of the proposed construction limits along the first terrace up to the earthen dam constructed to create the mill pond.

3. Historic Resources

The Davis/Townsend House Site and Wiggin's Gristmill properties extend up to the current edge of the road pavement, but no cultural features or concentrations of historic artifacts were encountered within the proposed limits of construction.

Outside the proposed limit of construction historic vegetation was evident and plentiful around the site of the former Davis/Townsend House. No shovel testing was conducted outside the limits of construction at this location. At the former gristmill site no historic vegetation remains as the area is currently occupied by well manicured grasses. A depression outlined by fragments of stone foundation wall helped locate the site of the former mill building. Shovel Tests 70-74 successfully located traces of the former main mill building. Shovel Test 74 came directly down onto the former north wall of the foundation. Excavation Units 1 and 2 incorporated Shovel Test 74 and were situated adjacent to one another to form a trench straddling the main northwest exterior wall of the mill building (Figure 4).

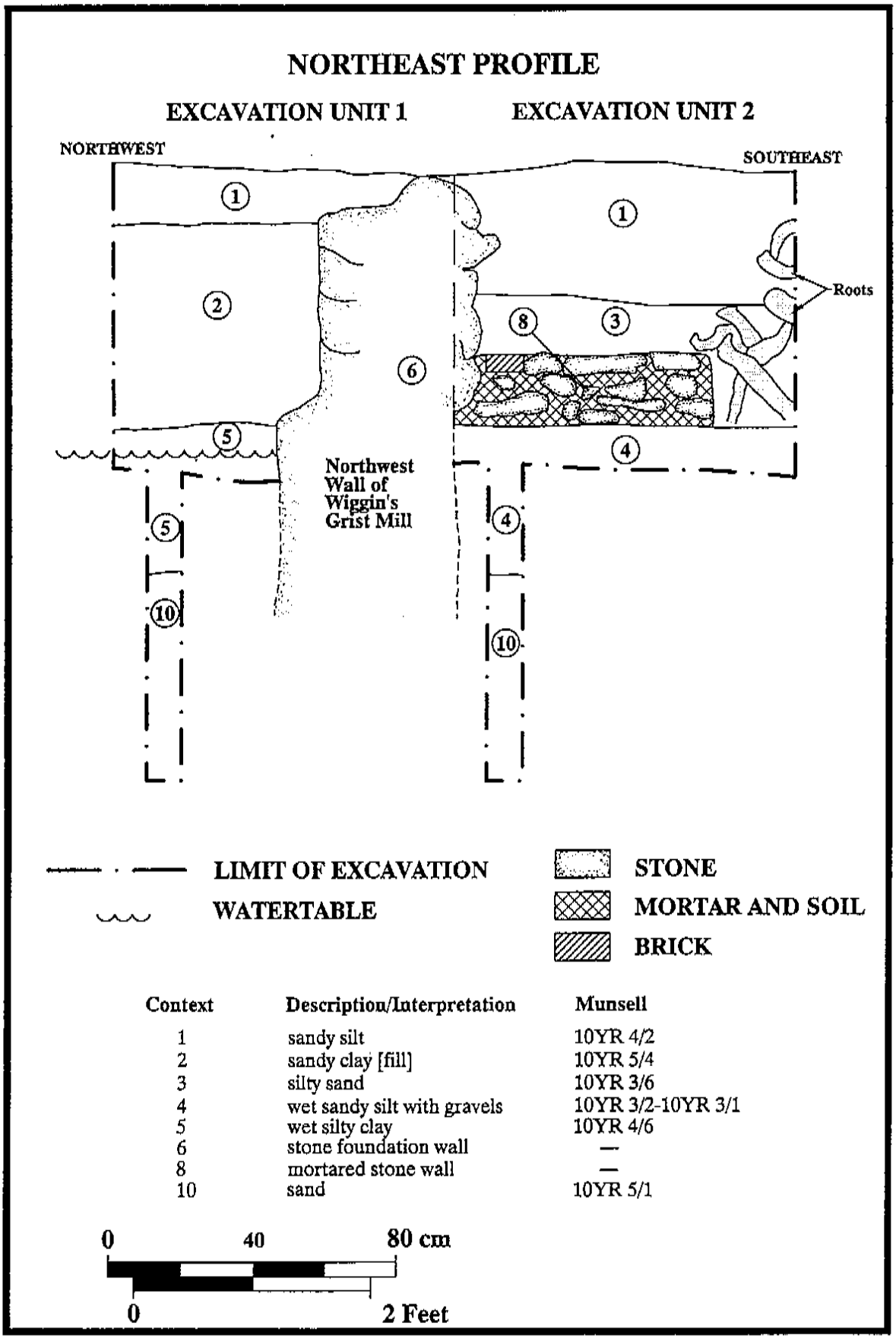

Figure 4. Excavation Units 1 and 2, Northeast Profiles.

Excavation Unit 1 (Figure 4)

Excavation Unit 1 was manually excavated to a depth of 90 centimeters below the ground surface and was extended five centimeters below the existing water table into a silty clay sediment [context 5]. This context contained various artifacts associated with the milling process, including heavily corroded fragments of iron hardware and a piece of leather belting that was most likely used to transmit power to some form of machinery in the mill interior (e.g., threshing or sifting equipment). A four-inch bucket auger was employed to explore the lower sediments within the unit below the silty clay [5]. Below context 5 was an undisturbed sterile sandy alluvial deposits [10] at 120 centimeters below the ground surface. Context 5 abutted the outside of the northwest wall [6] of the mill foundation. Overlying the silty clay sediment [5] was a post-occupational, culturally sterile fill deposit of sandy clay [2]. Context 2 was capped by a sandy silt deposit [1] which was derived from the surrounding ground and used for leveling after the structure was demolished around 1940.

Excavation Unit 2 (Figure 4)

Excavation Unit 2 was also manually excavated to a depth of 90 centimeters below the ground surface into a sandy silt with gravel and organic materials [4]. Artifacts recovered from this level, such as a stoneware and redware drainage pipes, suggest an attempt at controlling the amount of water inside of the foundation. The presence of a burned piece of wood may also be evidence of a fire. A four-inch bucket auger was employed to explore the lower sediments within the unit below the sandy silt [4]. Below Context 4 was an undisturbed sterile sandy alluvial deposit [10] at 120 centimeters below the ground surface (as there was in Excavation Unit 1). Context 4 abutted the inside of the northwest wall of the foundation wall [6] of the mill. A stone wall with mortar [8] partially overlay context 4 and abutted context 6. This wall appears to be a later structural element, possibly inserted following a fire at the mill in the early 1850s to support new or more modern machinery. The remaining portions of contexts 4 and 8 were covered by a sterile silty sand [3] which was used to partially fill in the foundation following the removal of the superstructure. The remaining void was filled with a sandy silt deposit [1] and was presumably intended to level the area, as was noted in Excavation Unit 1.

D. Artifact Analysis

1. Prehistoric Artifacts

A total of 56 prehistoric artifacts consisting of thermally fractured rocks (32), debitage (23) and a single chert core were recovered from 12 shovel tests (ST#s 4-7, 9, 11, 25, 26, 30, 31 and 42) (Appendix B). No diagnostic artifacts were recovered which might indicate a particular cultural or temporal period within the region. All of the artifacts were manufactured from local raw materials such as quartz, pebble chert and pebble jasper.

2. Historic Artifacts

A variety of mid- to late-19th century artifacts were recovered from the uppermost contexts of most of the shovel tests. These artifacts consist mostly of fragments of curved vessel glass, ceramics sherds, and cut nails, and reflect an ongoing domestic presence in the area. Artifacts relating to the gristmill consisted of a leather belt/strap, a cast iron drive pulley, large wheel fragments, and a variety of large cast iron fragments assumed to be of industrial origin.

E. Conclusions and Recommendations

This Phase I archaeological survey has identified two prehistoric activity areas and three historic sites (the site of Wiggin's Gristmill; the Davis/Townsend House Site; and the Wiggins Millpond Bridge/Delaware State Bridge #424) within or immediately adjacent to the project corridor.

Unless the project alignment can be modified slightly to avoid affecting the prehistoric activity area located to the south southeast of Delaware State Bridge 424 along the first terrace, Phase II-level archaeological investigation is recommended to further investigate this resource. This work should be restricted within the limits of likely project impact and should specifically aim to establish whether intact prehistoric features survive along the road edge. No further work is recommended for the other prehistoric activity area located on the knoll located to the northwest of the bridge as use of the proposed construction limits will only result in the removal of approximately one to two feet of intact soils along the alignment in an area where archaeological deposits have already suffered extensive natural erosion. Both locations where prehistoric materials have been found should be excluded from any future consideration as potential staging area sites during construction.

The Wiggins Millpond Bridge (Delaware State Bridge #424) shows slight signs of rust and has been assessed to be in fair condition. The bridge has been also identified as an important historic engineering structure and, although several pony truss bridges still survive within the State of Delaware, few are as intact and unaltered as this example. If replacement of the span cannot be avoided, it is recommended that the bridge be offered to any responsible individual or institution that might be interested in relocating and preserving the structure.

The site of Wiggin's Gristmill appears to be archaeologically intact and retains reasonable integrity. While more detailed archaeological study would be required to fully evaluate this site, it can be considered as potentially eligible for inclusion in the National Register of Historic Places as a locally significant industrial archaeological resource. The core of the site lies outside the project limits and does not appear to be threatened by the proposed road improvement and bridge replacement actions. It should be noted, however, that site of the sawmill referenced in early 19th-century documents remains unknown and could conceivably lie closer to the project corridor. As for the prehistoric resources, the gristmill site (and the site of the Davis/Townsend House) should both, if possible, be excluded from consideration as potential staging areas during construction.