

2.0 ARCHAEOLOGICAL INVESTIGATIONS

2.1 Methods

2.1.1 Background Research Methods

Prior to the initiation of the archaeological fieldwork, background research was conducted at the Delaware State Historic Preservation Office in Dover. This research consisted of the examination of the Delaware archaeological site files, the National Register of Historic Places (NRHP) files, the historic resources inventory files, and reports documenting previously conducted cultural resource studies. In addition, cultural resource reports on file with DelDOT that are germane to the project goals were reviewed. Historic maps were also examined (G.M. Hopkins & Company 1881; Heald 1820; Pomeroy & Beers 1868; Rea and Price 1849; Thomson and Teel 1801). Discussions were conducted with knowledgeable researchers, including Laura Mackie of the Iron Hill Museum; Charles Fithian, Curator of Archaeology for the Delaware State Museums; historian Edward Cooch; Raynor Johnson, manager of the Dayett Mills Historic Site; archaeologist Wade Catts; and members of local relic-hunting clubs.

The background research revealed that no prehistoric or historic cultural resources that have been determined eligible for, or are listed in the NRHP, are located within the project APE. The NRHP-listed Cooch's Bridge property is located east-southeast of the APE, and there was the potential for related sites to be present in the APE (Cooch 1936). Likewise, iron pits and haul roads were potential resources (Melson 1969; Owen and Owen n.d.; Vidal 1988); Wade Catts (personal communication 2001) reported that an early iron pit was located near the APE. Also, quarry and near-quarry sites related to the jasper outcrops on Iron Hill are known from the general vicinity, and there was the potential for similar sites to be located in the APE (Custer 1995; Custer and Doms 1996; Custer *et al.* 1986; Lothrop *et al.* 1987; Petraglia *et al.* 1996; Vidal 1988).

2.1.2 Field Methods

The Phase I archaeological survey of the project APE used a combination of surface survey, metal detector survey, and the excavation of 57.0 cm (22.4 in) diameter shovel test

pits (STPs). The shallow nature of the soils in the APE assured that surface survey (when visibility was sufficient) and STPs were adequate to locate sites.

Surface survey was used in areas of suspected modern disturbance or steep slope (greater than 15%), where there was reasonable surface exposure. Most of the northern section of the APE is located within a previously cleared corridor that contains a buried fiber optic cable and a natural gas pipeline. The existing mountain bike path and eroded patches also provided sufficient surface visibility. In these areas, the 3.1 m (10.0 ft) wide corridor was walked in 1.5 m (5.0 ft) wide transects.

Limited surface survey was undertaken in the vicinity of possible early iron pits, which are located outside the project APE. Investigation of this important feature was necessary due to the close proximity (within 24.4 m, or 80.0 ft) of the iron pit features to the project APE. The major land alterations associated with the iron pits were easily recognizable, and provided a clear boundary between the pits and the unaltered surrounding landscape to determine if the iron pit feature extends into the project APE.

The surface survey was augmented with the excavation of STPs. The STPs were excavated occasionally to verify the suspected disturbances, and in the few areas where the proposed bikeway was not located in areas of modern disturbances. STPs were excavated at least 10.0 cm (3.9 in) into sterile subsoil, and all soil was screened through 0.64 cm (0.25 in) hardware mesh. Information regarding the stratigraphy of each STP, including disturbances, was noted on Skelly and Loy's standard excavation forms. Daily notes were kept by the Principal Investigator. The fieldwork was documented with 35 mm black and white and color photographs. A total of 12 STPs was excavated.

Metal detecting was conducted in the vicinity of a roadbed that had been reported as a possible military entrenchment, and a second roadbed possibly associated with iron pits. Areas approximately 20.0 x 10.0 m (65.6 x 32.8 ft) in size, in and around each roadbed, were swept with a metal detector. A coverage rate of approximately 75 percent was achieved; thick vegetation hindered the metal-detecting in some areas. All positive readings were excavated and examined. The recovery of many modern shotgun shells, cartridge casings, and fence wires indicated that the machine was properly tuned to local conditions.

2.1.3 Laboratory Methods and Curation

No artifacts were recovered. The project notes and photographic material were prepared for curation at the Delaware State Museum according to their guidelines (Delaware State Historic Preservation Office 1993:47-54).

2.2 Results

The Iron Hill Bikeway project Phase I archaeological survey was initiated in November and completed in December 2001. Table 1 describes the sections, conditions and survey methods, and findings by proposed project station numbers. The survey resulted in the recordation of two historic period roadbeds, designated as Structures 1 and 2, that cross the APE and one archaeological site, designated as Site 1, located just outside the APE. Soils in the STPs were generally characterized by a thin topsoil (A horizon) over a clay loam subsoil (Bt horizon). Table 2 summarizes the profiles.

Table 1.
Summary of Conditions, Methods, and Findings

Stations*	Conditions	Methods	Findings
0+00 to 0+50	Disturbed by construction of Welsh Tract Road bridge over I-95.	Walkover.	No archaeological resources.
0+50 to 5+20	Cleared pipeline and fiber optic right-of-way with surface visibility.	Surface survey and excavation of STPs 1-3.	No archaeological resources.
5+20 to 11+60	Wooded sideslope with many erosional gullies.	Surface survey, metal-detecting, and excavation of STPs 4-7.	Roadbed (Structure 1) is present paralleling the property line at Station 11+60. No associated artifacts were discovered.
11+60 to 25+85	Cleared pipeline and fiber optic right-of-way with existing mountain bike trail.	Surface survey and excavation of STPs 8 and 9.	Iron pits site (Welsh Tract Iron Pits) is located 24.4 to 224.4 m south of the APE at Station 21+30.
25+85 to 26+75	Cleared pipeline and fiber optic right-of-way with existing mountain bike trail, near small springhead.	Surface survey and excavation of STPs 10 and 11.	No archaeological resources.

Table 1.
Summary of Conditions, Methods, and Findings
(Continued)

Stations*	Conditions	Methods	Findings
26+75 to 43+35	Cleared pipeline and fiber optic right-of-way with existing mountain bike trail on slope greater than 15 percent.	Surface survey and metal-detecting near roadbed.	Roadbed (Structure 2) is present running east-west across APE at Station 28+85. No associated artifacts were discovered.
43+35 to 45+50	Cleared pipeline and fiber optic right-of-way.	Surface survey and excavation of STP 12.	No archaeological resources.
45+50 to 49+25	Wooded sideslope greater than 15 percent.	Surface survey.	No archaeological resources.
49+25 to 72+44	Within cut area of S.R. 896 improvements; landform cut well into subsoil.	Surface survey.	No archaeological resources.
72+44 to 74+16	Disturbed by construction of Old Baltimore Pike.	Surface survey.	No archaeological resources.
74+16 to 75+92	Disturbed by S.R. 896 improvements.	Surface survey.	No archaeological resources.

*Stations are in feet, starting with 0+00 at Welsh Tract Road.

Table 2.
Shovel Test Pit Profile Information

Shovel Test Pit	Horizon	Depth Below Ground Surface	Description	Results
1	A Bt	0-8 cm 8-18+ cm	10YR 3/2 very dark grayish brown loam. 10YR 7/4 very pale brown clay loam, with 50% channers.	No artifacts. No artifacts.
2	A Bt	0-5 cm 5-15+ cm	10YR 4/4 dark yellowish brown clay loam. 10YR 8/3 very pale brown clay loam.	No artifacts. No artifacts.
3	A Bt	0-6 cm 6-16+ cm	Mottled 10YR 4/4 dark yellowish brown and 10YR 8/3 very pale brown clay loam. 10YR 8/3 very pale brown clay loam.	No artifacts. No artifacts.
4	A Bt	0-3 cm 3-13+ cm	10YR 3/2 very dark grayish brown loam. 10YR 7/4 very pale brown clay loam.	No artifacts. No artifacts.
5	A Bt	0-5 cm 5-15+ cm	10YR 3/2 very dark grayish brown loam. 10YR 7/3 very pale brown clay loam.	No artifacts. No artifacts.
6	A Bt	0-12 cm 12-22+ cm	10YR 4/3 brown loam. 10YR 7/3 very pale brown clay loam.	No artifacts. No artifacts.

Table 2.
Shovel Test Pit Profile Information
(Continued)

Shovel Test Pit	Horizon	Depth Below Ground Surface	Description	Results
7	A Bt	0-20 cm 20-30+ cm	10YR 4/3 brown loam. 10YR 6/4 light yellowish brown clay loam.	No artifacts. No artifacts.
8	Bt	0-10+ cm	10YR 7/6 yellow clay loam (subsoil at surface).	No artifacts.
9	A Bt	0-5 cm 5-15+ cm	10YR 3/2 very dark grayish brown loam. 10YR 7/4 very pale brown clay loam.	No artifacts. No artifacts.
10	A Bt	0-10 cm 10-20+ cm	10YR 3/2 very dark grayish brown loam. 10YR 7/4 very pale brown clay loam.	No artifacts. No artifacts.
11	Humus C	0-8 cm 8-18+ cm	Wet humus. 5BG 7/1 light greenish gray (gleyed) clay.	No artifacts. No artifacts.
12	A Bt	0-15 cm 15-25+ cm	10YR 5/4 yellowish brown loam. Mottled 7.5YR 7/3 pink and 10YR 7/6 yellow clay loam.	No artifacts. No artifacts.

2.2.1 Structure 1: Western Roadbed

The first of two structures recorded during the survey was a roadbed that runs north-south along the property line between Iron Hill Park and a tract owned by the Welsh Tract Baptist Church (Photograph 4). The structure is a generic woods road located in the western portion of the project APE (see Figure 2:Sheet 2). It is located at Station 11+60, and measures 3.1 x 4.6 m (10.0 x 15.0 ft) within the APE. To the north of the APE, the roadbed extends only approximately 20.0 m (65.6 ft) to the right-of-way fence of I-95. The roadbed extends at least 100.0 m (328.1 ft) south of the APE; it was not traced beyond that point.

Metal-detecting was conducted in and around the roadbed. A few pieces of modern wire, a wire nail, and a shotgun shell were recovered. No historic artifacts were found.

The construction of the single-lane road did not involve significant earth-moving activity, and generally traverses the natural topography. It lacks a prepared bed, paving, and ditches. No artifacts were encountered near the road, and it is not possible to date its construction. The road is presently clear of trees, suggesting its use in recent years.

2.2.2 Site 1: Welsh Tract Iron Pits

Wade Catts (personal communication 2001) indicated that an early eighteenth century iron pit may be located near the APE. An iron pit is a broad area that was excavated 3.1-6.1 m (10.0-20.0 ft) below natural grade to gather iron ore. A spoil pile and unnatural topography were visible from the APE, and the Principal Investigator made a brief examination of the site to verify its function and boundaries. Site 1, the Welsh Tract Iron Pits, measures approximately 200.0 m (656.2 ft) north-south by 50.0 m (164.0 ft) east-west, and contains extensive quarried areas, spoil piles, and an open, rectangular wood-lined well (see Figure 2:Sheet 3; Photographs 5-6). At its closest point, the site is located 24.4 m (80.0 ft) south of the APE at Station 21+30. Site 1 is similar in form and topography to the early eighteenth century iron pits documented at the Iron Hill Museum, and Site 1 may also date to that period. No artifacts were observed on the site. Raynor Johnson (personal communication 2001), Manager of the Dayett Mills State Historic Site, suggests that this site is one of Lord Keith's (governor of Pennsylvania) iron pit operations, dating to 1705-1720. Detailed histories of the mining of Iron Hill are available in Melson (1969), Owen and Owen (n.d.), and Vidal (1988).

2.2.3 Structure 2: Eastern Roadbed

Structure 2 is a single lane woods road located in the central portion of the project APE (see Figure 2:Sheet 4 and Photograph 2). It crosses the APE at Station 28+85, and measures 3.1 x 4.6 m (10.0 x 15.0 ft) within the APE. The road is oriented approximately east-west. To the east, it extends only to the cut line of the I-95/S.R. 896 interchange, but a local informant suggests that it once extended all the way to Lord Keith's furnace on the Christina River (Raynor Johnson, personal communication 2001). To the west, the road appears to follow a straight line, which places the road near the southeastern margin of the Welsh Tract Iron Pits.

The road was constructed by cutting the upslope portion of the roadbed and placing the resultant fill on the downslope portion, allowing the road to be approximately level in cross-section despite being located on a sideslope. There was no evidence of formal retaining walls on the downslope face, and no ditches are evident. This type of road construction was utilized throughout Delaware's history, and it is possible that the road was

enhanced and reused repeatedly through the years. Vegetation in the road suggests that it was used up to the 1970s or 1980s.

An intensive metal detector survey was undertaken at this site for two reasons: 1) to verify that the landscape feature was not a military entrenchment; and 2) to provide a date, if possible, for the construction and use of the road. The metal-detecting recovered more than a dozen shotgun shells (all twentieth century), modern rifle cartridge brass, fence wire ends from the construction of the nearby I-95 right-of-way fence, and late twentieth century beverage cans and wrapper foil. No historic artifacts were recovered; therefore, the road cannot be dated. Its proximity to the Welsh Tract Iron Pits may indicate that the road was first built in the early 1700s. However, Iron Hill experienced several episodes of mining and timbering, and the road may have been constructed or improved at any point since *ca.* 1730.