4.0 Field Results

4.0 FIELD RESULTS

A total of 311 artifacts were recovered during the Phase IB archaeological investigation of the SR 1/SR 9 project area (Appendix C). Of this total, twenty-six were prehistoric in nature. The entire Native American artifact assemblage was recovered during the investigation of the Tilcon property within the southern portion of the APE and is described below.

4.1 Dover Air Force Base

A total of thirty-seven (n=37) shovel test pits were excavated at 30.5 meters (100.0 ft) intervals across the Dover Air Force Base APE (Attachment A). Testing revealed generally similar soil profiles, colors and textures (Appendix C). However some of the test pits evidenced severe truncation of the A- or Ap-horizon (plowzone) soils, with only a thin topsoil remaining, possibly owing to landscaping and/or grading of the surrounding landform. This was especially evident along the southern edge of the project area, along the N100 grid line. Truncated A-horizon soils were thin, ranging from only 2.0 to 9.0 centimeters (0.8 to 3.5 in) in thickness. A typical soil profile consisted of a 20.0 to 25.0 centimeters (7.9 to 10.0 in) thick Ap-horizon overlying a B-horizon. Ap-horizons were often a brown to dark yellowish brown (10YR 4/3-4/4) silt loam and silty clay. This soil was followed by lighter B-horizon subsoil that ranged from a yellowish brown to light olive brown (10YR-2.5YR 5/4) and (2.5YR 5/6 and 10YR 5/6) silty clay-clay loam. A slight increase in sand content was noted toward the southeastern portion of the test area.

Surprisingly, shovel testing failed to recover any significant artifacts from within the A-horizon or subsoil deposits within the DAFB property. Only two coal fragments (discarded) were recovered from a fill deposit 0.0 to 20.0 centimeters (0.0 to 7.9 in) thick at STP N900 E900, located at the extreme northeastern end of the APE (Appendix B). No additional testing is proposed at this location.

4.2 SR 1, SR 9, and Kitts Hummock Road Intersection Infield

Two locations were tested in the central portion of the project area at the intersection of SR 1, SR 9, and Kitts Hummock Road. Six (n=6) shovel test pits were excavated within two grass covered and landscaped islands, five within the larger island to the east and a single centrally placed STP within the western triangular parcel (Attachment A).

Soils encountered in these isolated areas varied due to ground disturbance associated with roadway construction and widening activities along SR 1, SR 9, and Kitts Hummock Road. In general, the infield soil profile consisted of a 14.0 to 23.0 centimeters-thick (5.5 to 9.0 in) brown to yellowish-brown (10YR 4/3-5/4) silt loam A-horizon overlying a yellowish brown (10YR 5/4-5/6) silt loam subsoil (Appendix B).

A circa 1961 aerial photograph of the project study area depicts an unidentified structure in the infield on the south side of Kitts Hummock Road between SR 9 and SR 1 (Figure 3). Attempts were made to probe the area where the structure was identified. However, the area has experienced extensive reworking and the soils proved to be compact, restricting the effectiveness of the tile probe investigation. STP 5, located near the area of the former structure, evidenced an A-horizon composed of a very dark grayish brown (10YR 3/2) silt loam 0.0 to 29.0 centimeters (0.0 to 11.4 in) below surface overlying a yellowish brown (10YR 5/4-5/6) silt loam subsoil 29.0 to 52.0 centimeters (11.4 to 20.5 in) below surface. STP 4 exhibited thick layers of pebbly grayish brown (10YR 5/2) and brown (10YR 5/3) silt loam fill extending to at least 60.0 centimeters (23.6 in) below surface, suggesting extensive landscaping activities in portions of the infield area.

Excavations in STP 1 and 2 produced a light brownish-gray (10YR 6/2) silt loam B-horizon at 11.0 and 33.0 centimeters (4.3 and 13.0 in), respectively, below surface (Appendix B). The soil profile of STP 2 was different from other tests in the central portion of the study area. Slight charcoal flecking was observed in the B-horizon of STP 2. The test revealed a yellowish brown (10YR 5/4) A-horizon atop a light brownish gray

(10YR 6/2) silt loam B-horizon subsoil. The charcoal extended from the top of the subsoil to approximately 45.0 centimeters (17.7 in) below surface. No stains or features were associated with the observed charcoal. The subsoil was further excavated to a total depth of 60.0 centimeters (23.6 in) below surface. No cultural material was recovered from B-horizon soils. The presence of the charcoal flecking in the B-horizon may be associated with the demolition of the adjacent structure, although the lack of historic debris (i.e. wood fragments, nails) or prehistoric artifacts in the horizon does not offer any cultural association with the episode.

The testing of the two triangular island locations resulted in the recovery of a total of twenty-two (n=22) historic period artifacts (Appendix C). A majority of the artifacts dated to the latter twentieth century and represented recent roadside trash disposal. No prehistoric material was recovered. A total of five artifacts were recovered from two yellowish brown (10YR 5/4) silt loam Ap-horizons in STP 1. Coal cinders (n=2), asphalt (n=1) and an amber bottle glass fragment were found in the Ap1-horizon 0.0 to 24.0 centimeters (0.0 to 9.4 in) below ground surface. A single slag fragment was recovered from the Ap2-horizon 24.0 to 33.0 centimeters (9.4-13.0 in) below surface. These two overlying soil deposits are likely the result of ground disturbance through the modification of the surface during landscaping. A single piece of concrete (discarded) was recovered from the topsoil in STP 2.

Sixteen of the total artifacts collected from the infield area were recovered from a fill deposit in STP 6 (Appendix B). This fill deposit, found 14.0 to 36.0 centimeters (5.5 to 14.1 in) below surface, consisted of a brown (10YR 4/3) gravelly silt loam. Asphalt (n=1), modern bottle and vessel glass (n=12), plastic (n=2), and styrofoam (n=1) comprised the cultural materials found in the fill event. A second pebbly compact fill layer, a yellowish-brown (10YR 5/4) sandy silt, was encountered at 36.0 to 51.0 centimeters (14.1 to 20.1 in) below surface. No artifacts were recovered from this lower fill layer. The test was terminated at this base depth due to the compact nature of the deposit. The two fill layers were overlain by a brown (10YR 4/3) clay loam Ap-horizon.

This topsoil horizon was likely introduced during landscaping of the area, which has apparently has been significantly reworked during prior road construction activities.

4.3 Tilcon Property

4.3.1 Surface Collection

A controlled surface collection of the 30,662.4 square meters (330,047.4 sq ft) area within the Tilcon property yielded a total of 294 artifacts, including 25 prehistoric and 27 faunal remains. The faunal material consisted of chicken bones (n=3) and oyster shell (n=24) (Appendix C). In general the cultural material observed on the surface was widely scattered and of low density, with a slight increase in density within the central portion of the collection area within Rows J through L.

A total of four Native American ceramic fragments were collected during the controlled surface collection. One ceramic body fragment was collected from Block J-10, while the remaining three fragments were recovered from Blocks L-4, L-9, and L-11 (Figure 4). The ceramic fragments were all small, finely crushed quartz and quartz/mica tempered body fragments. Exterior surface treatment was not discernable. These sherds are attributable to Mockley wares (A.D. 200 - 400), dating from the Woodland I Period (3000 B.C-1000 A.D.). Tools were represented by a single jasper Bare Island projectile point, a quartz biface, a chert biface, a unifacially worked primary jasper flake, a unifacially worked primary chert flake, and a hammerstone (Photograph 5). The Bare Island point (3000 B.C. - A.D. 500) was recovered from the surface in Block L-1. Table 1 provides an overview of the prehistoric artifacts recovered during the surface collection of the Tilcon property.

Table 1. Prehistoric Artifacts: Tilcon Property Surface Collection

Artifact Type	Number	Percentage of Total Prehistoric
FCR	6	24.0
Core/Core fragment	3	12.0
Tested Cobble	2	8.0
Hammerstone	1	4.0
Debitage: Flakes and shatter	4	16.0
Unifacial flake tool	2	8.0
Biface	2	8.0
Projectile Point	1	4.0
Ceramic	4	16.0
Total	**25**	**100**

Photograph 5: Prehistoric artifacts recovered from the Tilcon property surface collection of the APE (March 2004).

Debitage and cores were made of chert (n=5), jasper (n=1) and quartz (n=1). The two bifaces were made of quartz and chert. Two primary reduction flakes, one of jasper recovered from Block A-10 and a chert example from Block C-6, evidenced unifacial flaking along their cortical sides.

The historic period material dates from the mid-nineteenth century through the late twentieth century and recent period (Table 2). As one would expect, modern bottle glass fragments and automobile/truck tire remains were concentrated along the existing roadway corridors. Bottle glass, often colored, accounted for 19.1 percent (n=46) of the glass recovered during the surface collection. Architectural items were limited to brick (n=44), a square nail, window glass (n=15), a metal washer and a metal bolt.

Table 2. Historic Artifacts: Tilcon Property Surface Collection

Artifact Class	Number	Percent
Ceramics	86	35.7
Glass	75	31.1
Architectural	62	25.7
Other	18	7.5
Total	**241**	**100**

Inspection of the historic artifact assemblage recovered during the surface collection of the Tilcon property revealed a varied assortment of mid-nineteenth through twentieth century ceramic types. As seen in Table 3, red earthenware and white earthenware dominated the ceramic assemblage. The overwhelming majority of the ceramic assemblage consisted of undecorated sherds (n=78). Decorated sherds exhibited a variety of mid-nineteenth through twentieth century patterns common to household ceramics, including blue transfer-print pearlware (n=1) and vitreous china (n=1), blue shell edge pearlware (n=1), slipped red earthenware (n=1), transfer-print polychrome floral design porcelain (n=1), and partially painted interiors (n=3).

Table 3. Historic Ceramic Assemblage: Tilcon Property Surface Collection

Ceramic Type	Number	Percent
Red earthenware	27	31.4
White earthenware	24	28.0
Vitreous china	16	18.6
Stoneware	9	10.5
Porcelain	4	4.6
Pearlware	3	3.5
Earthenware	3	3.5
Total	**86**	**100**

The diverse assemblage of historic ceramics recovered from the surface collection of the Tilcon property is not unexpected. The G.G. Logan Farm (Cultural Resources Survey number K-902), a mid-nineteenth through twentieth century farm complex, is located approximately 220.0 meters (722.0 ft) south of the APE. A group of frame agricultural outbuildings, part of the G.G. Logan Farm resource, were present during the Phase IA assessment of the project study area, but have since been razed. While no structures associated with the farm were identified within the area of the surface collection, historic cultural debris discarded from the farmstead would have been cast into the agricultural fields surrounding the farm complex and dispersed by repeated plowing activities. As seen in Figure 5, historic ceramics were widely dispersed across the APE for the Tilcon property. The surface collection did not reveal concentrations of historic artifacts which would suggest the possible presence of a trash midden or in-filled privy, but rather a general surface scatter of debris.

4.3.2 Test Units

Blocks J-10, L-4, L-9, and L-11 each received a single 1.0 meter by 1.0 meter (3.3 ft by 3.3 ft) test unit. The geoarchaeological analysis of the soil profiles in the four test unit excavations did not identify the potential for deeply buried cultural deposits in the APE for the Tilcon property. Rather, the test excavations revealed that the landform within the APE consists of a well-weathered, 70.0 to 80.0 centimeters-thick (27.5 to 31.5 in) suite of B-horizon subsoils overlain by a 26.0 to 40.0 centimeter-thick (10.2 to 15.7 in) plowzone (Ap) horizon. Test units excavated in Blocks J-10 and L-4 identified a thin, 4.0 to 10.0 centimeter-thick (1.6 to 3.9 in) B/E-horizon remnant below the plowzone, while units in Blocks L-9 and L-11 did not exhibit this horizon.

Test Unit 1 in Block L-4 is representative of the soil profile found in the APE (Figure 6). Stratum I consisted of a 26.0 to 32.0 centimeters-thick (10.2 to 12.6 in) gravelly brown (10YR 4/3) very fine sandy silt plowzone horizon (Ap). Below the plowzone, Stratum II was identified as a 4.0 to 6.0 centimeter-thick (1.6 to 2.4 in) brownish-yellow (10YR 6/6) silt B/E-horizon. A yellowish-brown (10YR 5/6) sandy clay silt B-horizon, Stratum III, was recorded from 30.0 to 68.0 centimeters (11.8 to 26.8 in) below surface, followed by Stratum IV, a yellowish-brown (10YR 5/6) clayey silt horizon mottled with ferric staining (B2), from 68.0 to 90.0 centimeters (26.8 to 35.4 in) below surface. A transition horizon, Stratum V, was noted below the ferric-stained B2-horizon, consisting of a mottled yellowish-brown and light brownish-gray (10YR 5/6 and 6/2) clay loam extending from 90.0 to 100.0 centimeters (35.4 to 39.4 in) below surface. Stratum VI was identified as a light brownish-gray (10YR 6/2) compact clay loam with 10 to 20 percent gravels (Bg-horizon) from 100.0 centimeters (39.4 in) to the end of excavation at 107.0 centimeters (42.1 in) below surface.

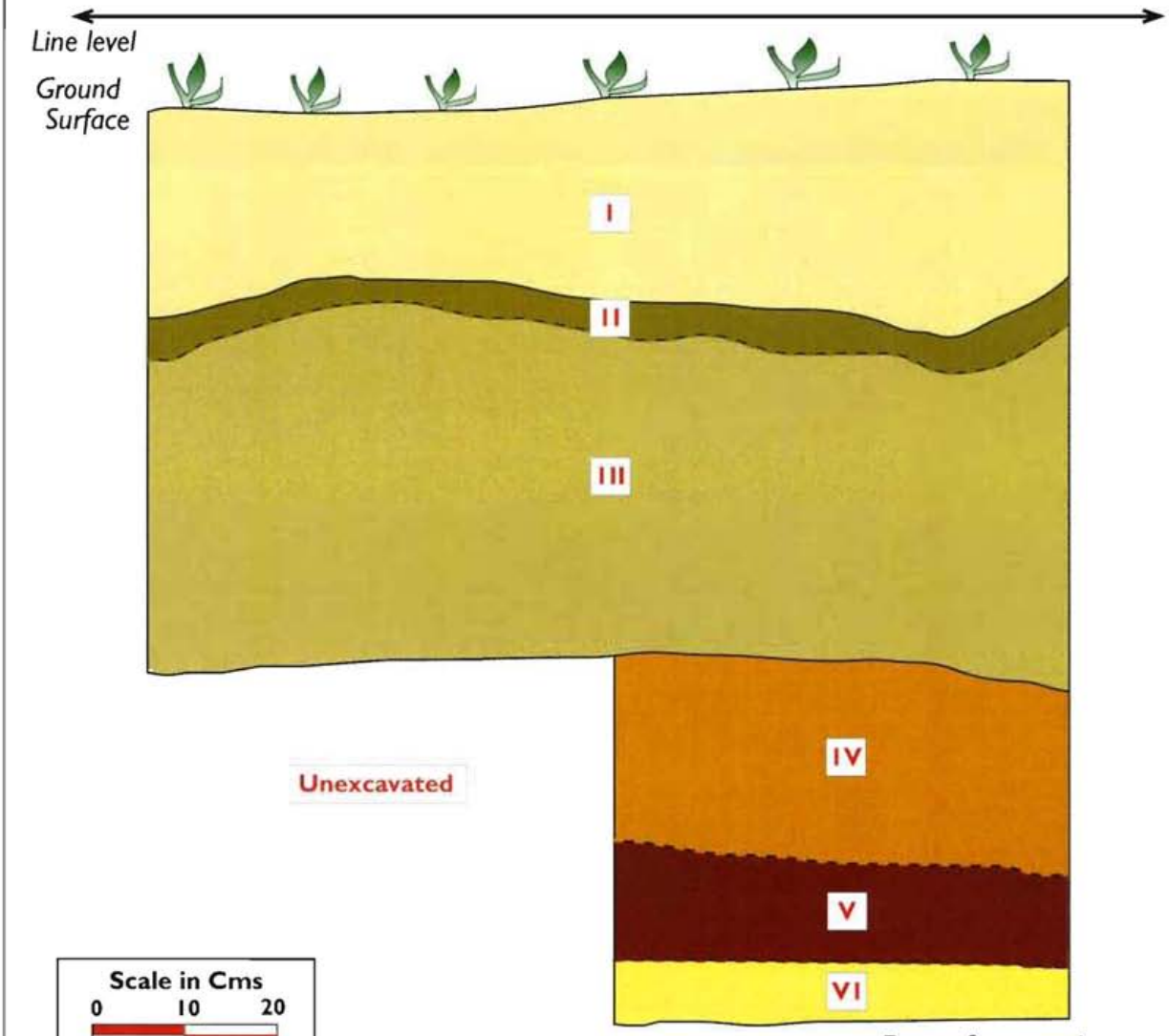
While the test excavations produced generally consistent soil profiles across the APE, evidence of groundwater inundation was visible in the lower depths of the soil column. In Test Unit 1, Block L-9, Stratum V, a mottled grayish-brown, gray, and yellowish-brown (10YR 5/2, 6/1, and 5/6) silty clay Bg-horizon 118.0 to 135.0 centimeters (46.4 to 53.1 in) below surface (Photograph 6). Stratum IV in Test Unit 1, Block L-4, exhibited a yellowish-brown (10YR 5/6) clayey silt horizon mottled with ferric staining (B2) from 68.0 to 90.0 centimeters (26.8 to 35.4 in) below surface. Stratum V in Test Unit 1, Block J-10, exhibited manganese flecking and gravelly deposits in a light yellowish-brown (10YR 6/4) sand horizon 87.0 centimeters (34.2 in) to the end of excavation at 93.0 centimeters (36.6 in) below surface. Groundwater did not penetrate into the test units during the excavation, but the presence of the staining and gravel deposits suggests that at one time the landscape supported an active groundwater table or drainage system.

A small number of historic and prehistoric cultural materials were recovered exclusively from the Ap-horizon of the test units. A single jasper flake, a piece of coal, an amber bottle glass fragment, two window glass shards, and two historic ceramics (vitreous china

Figure 6
Test Unit 1, Block L-4, North Wall Profile

SR 1/SR 9 Interchange Project

Dover, Kent County, Delaware



I - (Ap) Brown (10YR 4/3) very fine sandy silt w/10-20% gravels

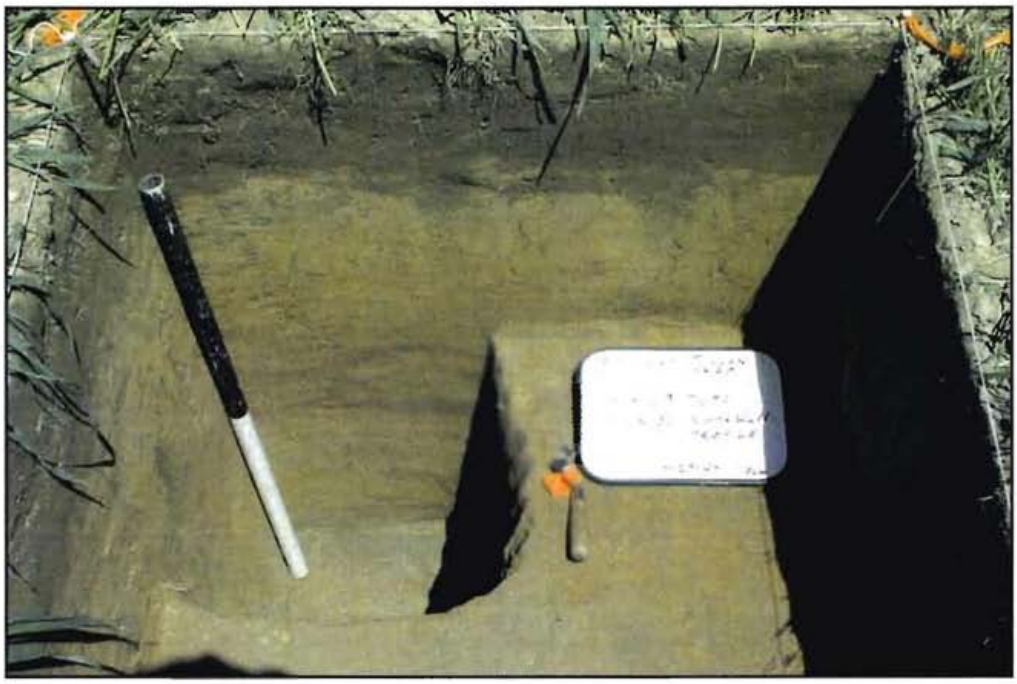
II - (B/E) Brownish yellow (10YR 6/6) silt

III - (B) Yellowish brown (10YR 5/6) sandy clay

IV - (B2) Yellowish brown (10YR 5/6) clayey silt w/ferric staining

V - (Transition) Yellowish brown and light brownish gray (10YR 5/6 + 6/2) clay loam

VI - (Bg) Light brownish grey (10YR 6/2) compact clay loam, 10-20% gravels



Photograph 6: Test Unit 1, Block L-9, North Wall Profile (April 2004).

and whiteware) were found in Test Unit 1, Block L-4. Test Unit 1, Block L-9, contained vessel glass fragments (n=3), window glass (n=1), and a whiteware sherd (n=1). Test Unit 1, Block J-10, produced six artifacts from the plowzone, including vessel glass fragments (n=3), amber bottle glass (n=1), and red earthenware sherds (n=2). No cultural features or buried cultural horizons were encountered in any of the test units.