4.0 RESULTS

4.1 Geomorphology

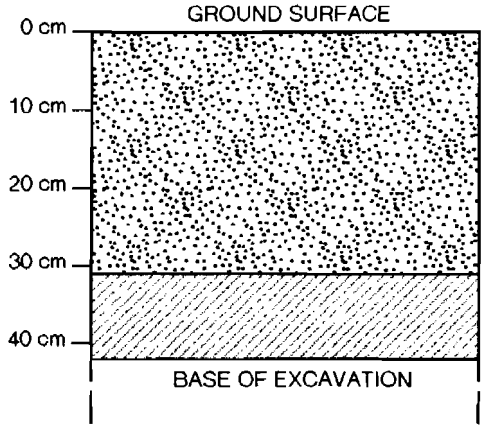
Soils within the archaeological APE are forming in unconsolidated coastal plain sediments, which are predominantly sandy sediments located on broad uplands of very gentle slope. The archaeological APE has been predominantly agricultural in the past, but commercial and residential development has converted many crop fields to shopping areas, housing plans, and a large golf course. Within newer residential plans, commercial areas, and the golf course, initial construction and site preparation included the complete excavation of the surface and upper subsoil, with subsequent regrading and landscaping after construction, thus negating the possibility for *in situ* archaeological resources to be identified in these portions of the archaeological APE. Table 1 includes the specific soil types within each test area.

The soil profiles of several STP excavations were examined and described according to the methods and nomenclature of the United States Department of Agriculture, Natural Resources Conservation Service (Schoenenberger 2002). The descriptions are included in Figures 3 through 13 and in Appendix B.

Soils and landforms were relatively uniform throughout the archaeological APE, with minor differences in horizon thicknesses, color, and development. The majority of profiles were well drained, sandy coastal plain sediments, with advanced pedogenic development due to a long exposure to weathering and leaching. The profiles of STP excavations A8, B10, C1, D42, E12, F10, L8, P28, Q8, and S10 are comprised of a dark surface horizon (Ap) over a well developed argillic subsoil (Bt) horizon.

Several test areas were in slight depressions on the landscape, with profiles showing moderate internal drainage restrictions due to the high water table. Although these profiles are also coastal plain sediments, equally as old as those in other test areas, the subsoil within these profiles is not as well developed, since poor internal drainage impedes pedogenic development. The profiles of STP excavations G15, H50, J25, M20, O11, U15, and W5 are comprised of a dark surface horizon (Ap) over a gleyed cambic horizon (Bwg). The gleyed condition (gray color, with or without mottling) is indicative of prolonged saturation of the soil profile throughout the majority of the growing season.

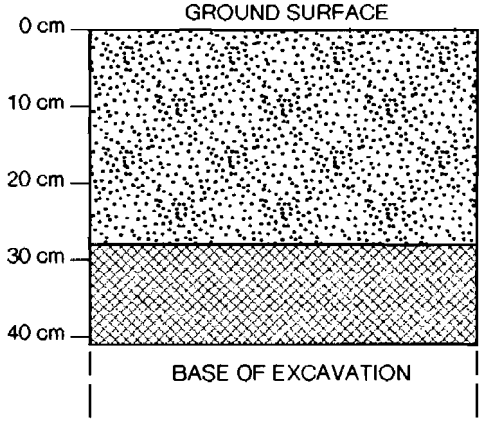
SOIL PROFILE
SHOVEL TEST PIT A8



Ap 10YR 5/4 Yellowish brown sandy loam.

Bt 10YR 6/6 Brownish yellow sandy clay loam.

SOIL PROFILE
SHOVEL TEST PIT B10

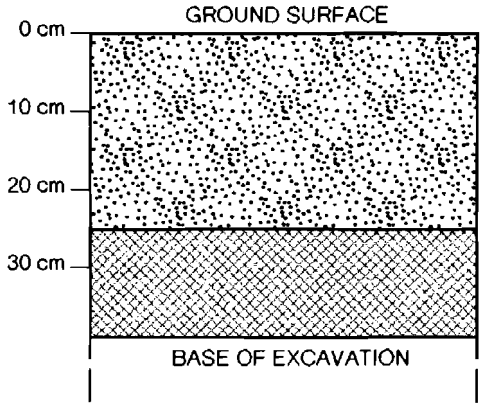


Ap 10YR 5/4 Yellowish brown sandy loam.

Bt 10YR 5/6 Yellowish brown sandy clay loam.

DELAWARE DEPARTMENT OF TRANSPORTATION	
S.R. 24 IMPROVEMENTS, S.R. 1 TO LOVE CREEK AND HOLLY LAKE ROAD TO OAK ORCHARD ROAD REHOBOTH AND INDIAN RIVER HUNDREDS SUSSEX COUNTY	
SOIL PROFILES SHOVEL TEST PITS A8 & B10	
FIGURE - 3	SKELLY AND LOY, INC. CONSULTANTS IN ENVIRONMENT - ENERGY ENGINEERING - PLANNING

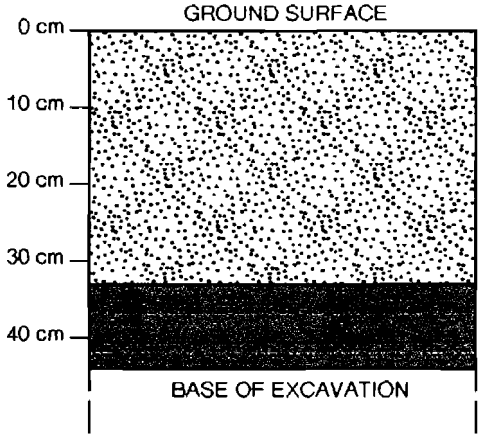
SOIL PROFILE
SHOVEL TEST PIT C1



Ap 10YR 5/4 Yellowish brown sandy loam.

Bt 10YR 5/6 Yellowish brown sandy clay loam.

SOIL PROFILE
SHOVEL TEST PIT D42

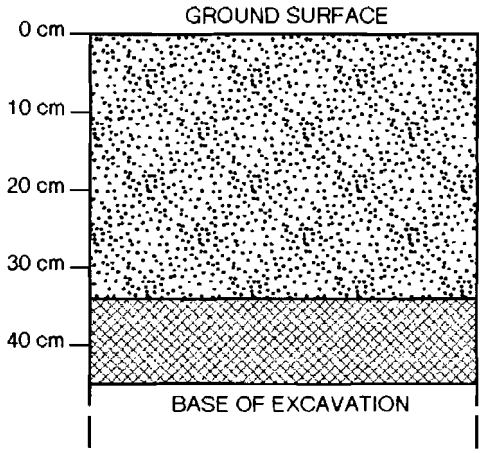


Ap 10YR 5/4 Yellowish brown sandy loam.

Bt 7.5YR 5/6 Strong brown coarse sandy clay loam.

DELAWARE DEPARTMENT OF TRANSPORTATION
S.R. 24 IMPROVEMENTS, S.R. 1 TO LOVE CREEK AND HOLLY LAKE ROAD TO OAK ORCHARD ROAD REHOBOTH AND INDIAN RIVER HUNDREDS SUSSEX COUNTY
SOIL PROFILES SHOVEL TEST PITS C1 & D42
FIGURE - 4 / SKELLY AND LOY, INC. CONSULTANTS IN ENVIRONMENT - ENERGY ENGINEERING - PLANNING

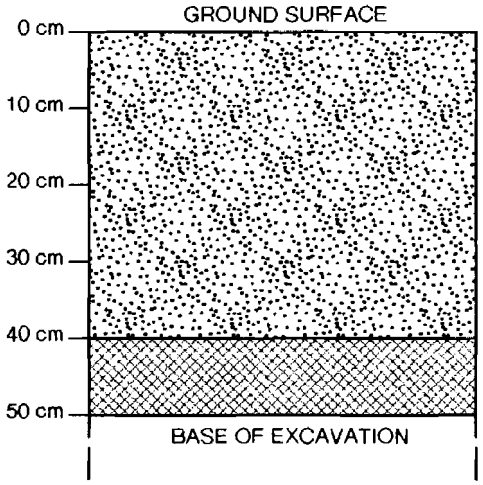
SOIL PROFILE
SHOVEL TEST PIT E12



Ap 10YR 5/4 Yellowish brown sandy loam.

Bt 10YR 5/6 Yellowish brown sandy clay loam.

SOIL PROFILE
SHOVEL TEST PIT F10



Ap 10YR 5/4 Yellowish brown sandy loam.

Bt 10YR 5/6 Yellowish brown sandy clay loam.

DELAWARE DEPARTMENT OF TRANSPORTATION

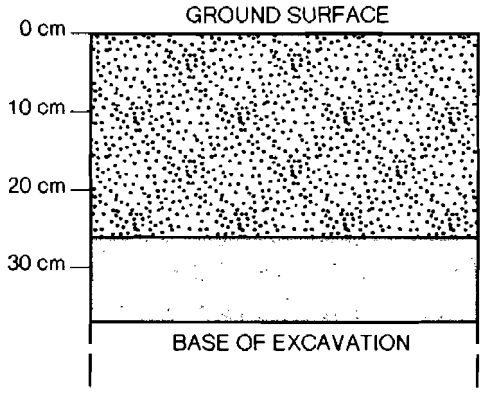
S.R. 24 IMPROVEMENTS, S.R. 1 TO LOVE CREEK AND HOLLY LAKE ROAD TO OAK ORCHARD ROAD
REHOBOTH AND INDIAN RIVER HUNDREDS
SUSSEX COUNTY

SOIL PROFILES
SHOVEL TEST PITS E12 & F10

FIGURE - 5

SKELLY AND LOY, INC.
CONSULTANTS IN
ENVIRONMENT - ENERGY
ENGINEERING - PLANNING

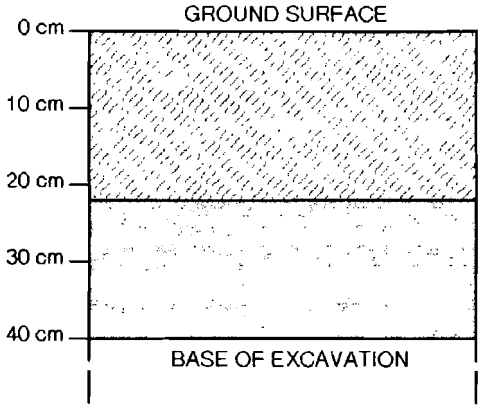
SOIL PROFILE
SHOVEL TEST PIT G15



Ap 10YR 5/4 Yellowish brown sandy loam.

Bwg 10YR 7/2 Light gray loamy sand.

SOIL PROFILE
SHOVEL TEST PIT H50

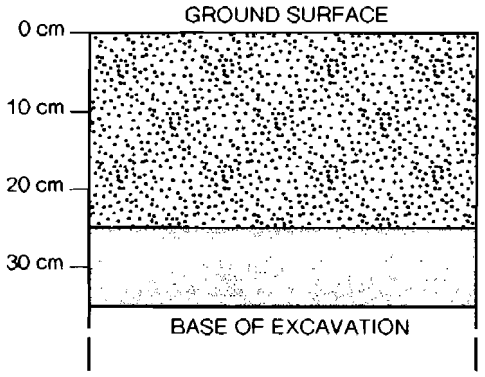


Ap 10YR 4/3 Brown sandy loam.

Bwg 10YR 7/2 Light gray loamy sand.

DELAWARE DEPARTMENT OF TRANSPORTATION
S.R. 24 IMPROVEMENTS, S.R. 1 TO LOVE CREEK AND HOLLY LAKE ROAD TO OAK ORCHARD ROAD REHOBOTH AND INDIAN RIVER HUNDREDS SUSSEX COUNTY
SOIL PROFILES SHOVEL TEST PITS G15 & H50
FIGURE - 6 / SKELLY AND LOY, INC. CONSULTANTS IN ENVIRONMENT - ENERGY ENGINEERING - PLANNING

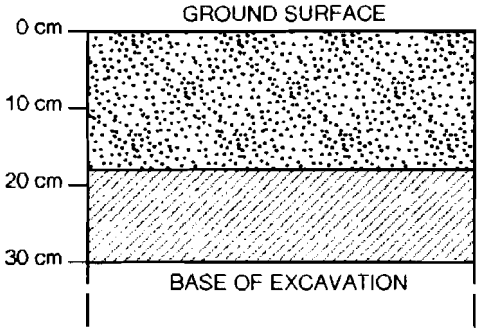
SOIL PROFILE
SHOVEL TEST PIT J25



Ap 10YR 5/4 Yellowish brown sandy loam.

Bwg 10YR 7/2 Light gray loamy sand.

SOIL PROFILE
SHOVEL TEST PIT L8

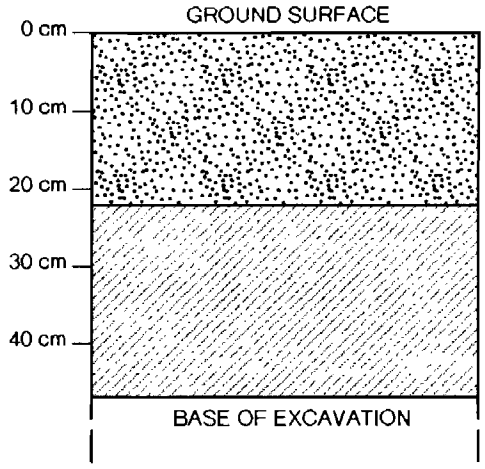


Ap 10YR 5/4 Yellowish brown sandy loam.

Bt 10YR 6/6 Brownish yellow sandy clay loam.

DELAWARE DEPARTMENT OF TRANSPORTATION
S.R. 24 IMPROVEMENTS, S.R. 1 TO LOVE CREEK AND HOLLY LAKE ROAD TO OAK ORCHARD ROAD REHOBOTH AND INDIAN RIVER HUNDREDS SUSSEX COUNTY
SOIL PROFILES SHOVEL TEST PITS J25 & L8
FIGURE - 7 / SKELLY AND LOY, INC. CONSULTANTS IN ENVIRONMENT - ENERGY ENGINEERING - PLANNING

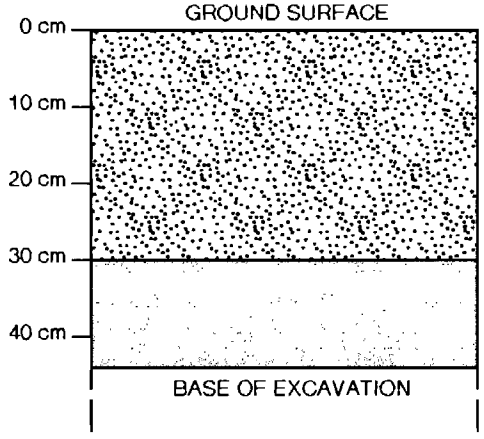
SOIL PROFILE
SHOVEL TEST PIT M20



Ap 10YR 5/4 Yellowish brown sandy loam.

Bwg 10YR 7/2 Light gray loamy sand, with many coarse 10YR 6/6 Brownish yellow mottles.

SOIL PROFILE
SHOVEL TEST PIT O11

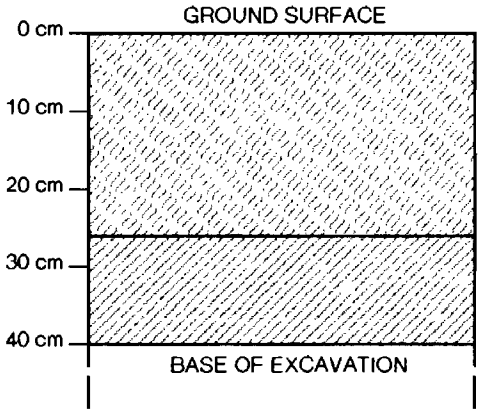


Ap 10YR 5/4 Yellowish brown sandy loam.

Bwg 10YR 7/2 Light gray loamy sand.

DELAWARE DEPARTMENT OF TRANSPORTATION	
S.R. 24 IMPROVEMENTS, S.R. 1 TO LOVE CREEK AND HOLLY LAKE ROAD TO OAK ORCHARD ROAD REHOBOTH AND INDIAN RIVER HUNDREDS SUSSEX COUNTY	
SOIL PROFILES SHOVEL TEST PITS M20 & O11	
FIGURE - 8	SKELLY AND LOY, INC. CONSULTANTS IN ENVIRONMENT - ENERGY ENGINEERING - PLANNING

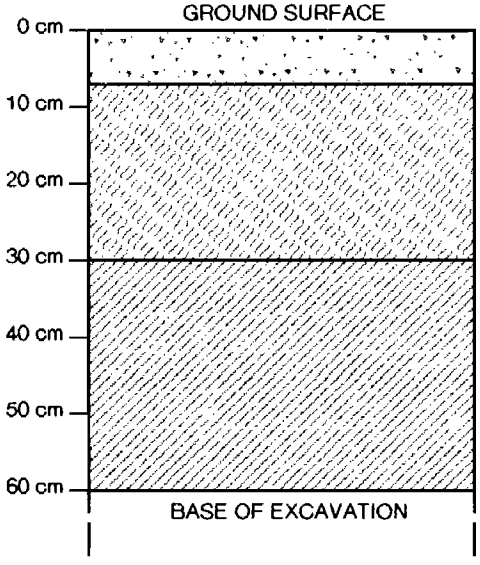
SOIL PROFILE
SHOVEL TEST PIT P28



Ap 10YR 4/3 Brown sandy loam.

Bt 10YR 6/6 Brownish yellow sandy clay loam.

SOIL PROFILE
SHOVEL TEST PIT Q8



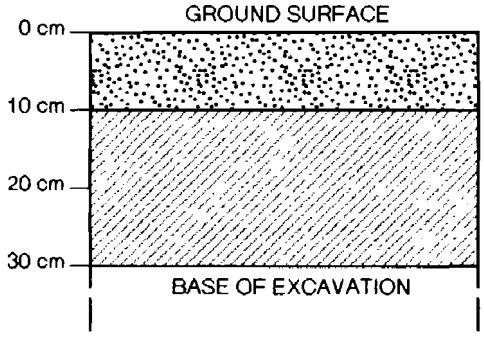
Fill Sandy fill.

Ap 10YR 4/3 Brown sandy loam.

Bt 10YR 6/6 Brownish yellow sandy clay loam.

DELAWARE DEPARTMENT OF TRANSPORTATION
S.R. 24 IMPROVEMENTS, S.R. 1 TO LOVE CREEK AND HOLLY LAKE ROAD TO OAK ORCHARD ROAD REHOBOTH AND INDIAN RIVER HUNDREDS SUSSEX COUNTY
SOIL PROFILES SHOVEL TEST PITS P28 & Q8
FIGURE - 9 / SKELLY AND LOY, INC. CONSULTANTS IN ENVIRONMENT - ENERGY ENGINEERING - PLANNING

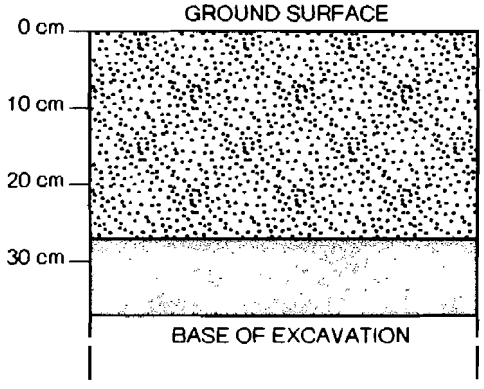
SOIL PROFILE
SHOVEL TEST PIT S10



Ap 10YR 5/4 Yellowish brown sandy loam.

Bt 10YR 6/6 Brownish yellow sandy clay loam.

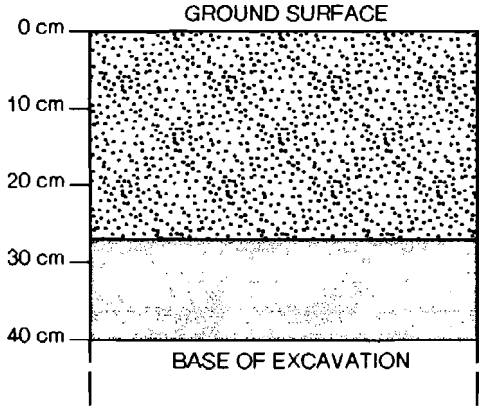
SOIL PROFILE
SHOVEL TEST PIT U15



Ap 10YR 5/4 Yellowish brown sandy loam.

Bwg 10YR 7/2 Light gray sandy loam.

SOIL PROFILE
SHOVEL TEST PIT W5



Ap 10YR 5/4 Yellowish brown sandy loam.

Bwg 10YR 7/2 Light gray loamy sand.

DELAWARE DEPARTMENT OF TRANSPORTATION

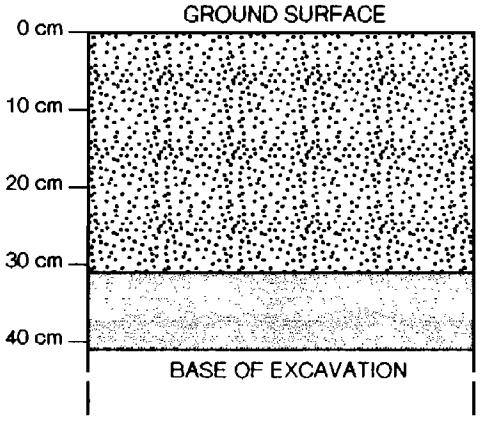
S.R. 24 IMPROVEMENTS, S.R. 1 TO LOVE CREEK AND HOLLY LAKE ROAD TO OAK ORCHARD ROAD
REHOBOTH AND INDIAN RIVER HUNDREDS
SUSSEX COUNTY

SOIL PROFILES SHOVEL TEST PITS S10, U15, & W5

FIGURE - 10

SKELLY AND LOY, INC.
CONSULTANTS IN
ENVIRONMENT - ENERGY
ENGINEERING - PLANNING

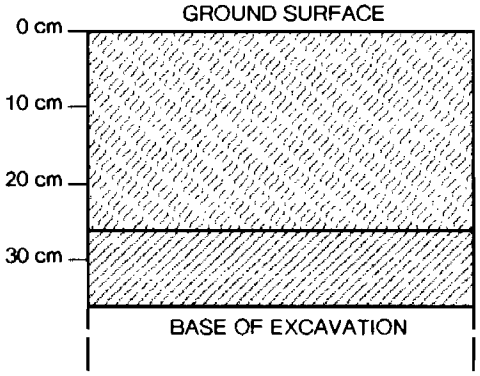
SOIL PROFILE
SHOVEL TEST PIT N165 E45
TUNNELL TEST AREA



Ap 10YR 4/3 Brown sandy loam.

Bt 10YR 6/6 Brownish yellow sandy clay loam.

SOIL PROFILE
SHOVEL TEST PIT N360 E390
HALL/NORWOOD TEST AREA

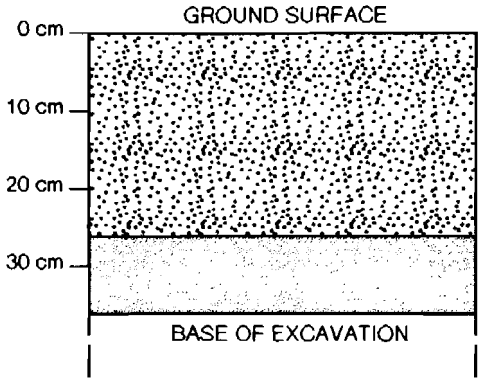


Ap 10YR 5/4 Yellowish brown sandy loam.

Bt 10YR 6/6 Brownish yellow sandy clay loam.

DELAWARE DEPARTMENT OF TRANSPORTATION	
S.R. 24 IMPROVEMENTS, S.R. 1 TO LOVE CREEK AND HOLLY LAKE ROAD TO OAK ORCHARD ROAD REHOBOTH AND INDIAN RIVER HUNDREDS SUSSEX COUNTY	
SOIL PROFILES SHOVEL TEST PITS TUNNELL N165 E45 & HALL/NORWOOD N360 E390	
FIGURE - 11	SKELLY AND LOY, INC. CONSULTANTS IN ENVIRONMENT - ENERGY ENGINEERING - PLANNING

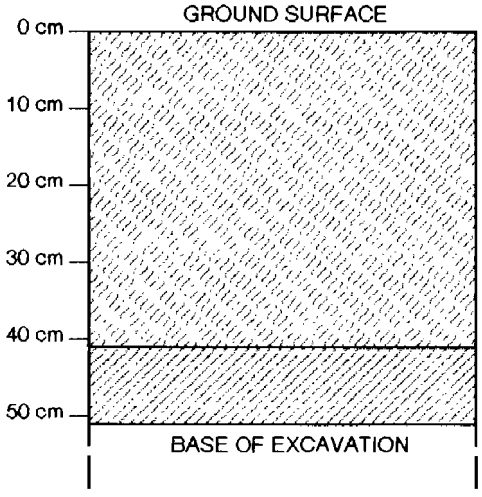
SOIL PROFILE
SHOVEL TEST PIT N480 E540
COURSEY TEST AREA



Ap 10YR 5/4 Yellowish brown sandy loam.

Bwg 10YR 7/2 Light gray loamy sand, with many coarse 10YR 6/6 Brownish yellow mottles.

SOIL PROFILE
SHOVEL TEST PIT 4
ARNELL TEST AREA

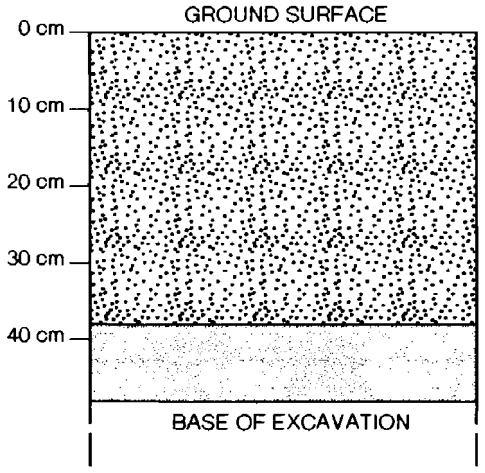


Ap 10YR 5/4 Yellowish brown sandy loam.

Bt 7.5YR 5/6 Strong brown coarse sandy clay loam.

DELAWARE DEPARTMENT OF TRANSPORTATION
S.R. 24 IMPROVEMENTS, S.R. 1 TO LOVE CREEK AND HOLLY LAKE ROAD TO OAK ORCHARD ROAD REHOBOTH AND INDIAN RIVER HUNDREDS SUSSEX COUNTY
SOIL PROFILES SHOVEL TEST PITS COURSEY N480 E540 & ARNELL 4
FIGURE - 12 / SKELLY AND LOY, INC. CONSULTANTS IN ENVIRONMENT - ENERGY ENGINEERING - PLANNING

SOIL PROFILE
SHOVEL TEST PIT 1
HOLLY LAKE TEST AREA



Ap 10YR 4/3 Brown sandy loam.

Bt 10YR 6/6 Brownish yellow sandy clay loam.

DELAWARE DEPARTMENT OF TRANSPORTATION
S.R. 24 IMPROVEMENTS, S.R. 1 TO LOVE CREEK AND HOLLY LAKE ROAD TO OAK ORCHARD ROAD REHOBOTH AND INDIAN RIVER HUNDREDS SUSSEX COUNTY
SOIL PROFILE SHOVEL TEST PIT HOLLY LAKE 1
FIGURE - 13 / SKELLY AND LOY, INC. CONSULTANTS IN ENVIRONMENT - ENERGY ENGINEERING - PLANNING

4.2 Archaeology

4.2.1 Test Area A

Test Area A is located along the western edge of existing S.R. 24 from approximately 121.9 m (400.0 ft) south of the intersection of S.R.24 with Plantation Road to the intersection of S.R. 24 with Mulberry Knoll Road in the northern segment of the archaeological APE (see Figure 2:Sheets 1 and 2). The total length of the test area is approximately 762.0 m (2,500.0 ft) and the width is 7.6 m (25.0 ft). The test area at the time of the survey was an active cornfield (Photograph 12). Minor disturbances to portions of the test area include plowing, emplacement of telephone poles, and maintenance of existing S.R. 24 and its berm (e.g., snow plowing, paving, pothole maintenance, etc.).

Due to good ground surface visibility (85 to 90 percent), pedestrian reconnaissance of the test area was completed prior to the excavation of 51 STPs. Three pieces of historic period ceramic were identified at the modern ground surface during the pedestrian reconnaissance and one additional historic period ceramic sherd was recovered from the uppermost stratum of STP A13 in the general vicinity of where the surface collected sherds were located. Due to the constricted size of the archaeological APE and the surface distribution of the three ceramic artifacts, no radial (retest) STPs were excavated. No other artifacts of any type were found during the survey of Test Area A.

The four historic period ceramic sherds are blue underglaze transfer print porcelain (most likely the Blue Willow pattern or some variation) and may have originated from a single vessel. One rim and three body sherds are present; however, none of them crossmend. The rim and the largest body sherd do not demonstrate any curvature; therefore, they may part of a square/flat vessel such as a tray, platter, ashtray, or octagonal jar. The sherds are thick and no maker's marks are present on any of them. The Blue Willow pattern and its variations evolved as the English potters of the mid-1700s tried to imitate Chinese porcelain imports (Gaston 1992:9). Despite the early British origin of Blue Willow, its manufacturing and use date range is long and many potteries in different countries (e.g., Japan, United States, Belgium, France, Germany, Holland, Ireland, Mexico, Poland, Portugal, and Spain) have produced this type of ware. Potteries in the United States manufactured a large amount of this pattern during the1920s and 1930s (Gaston 1992:10). Due to a lack of direct historical context and associations for the sherds, the fact

Photograph 12. General view of Test Area A, facing north.

that they were found along a major roadway, and their thickness, it is possible that these sherds date to the late historic or modern period.

Due to the lengthy manufacturing and use date ranges for Blue Willow underglaze transfer print porcelain and the lack of maker's marks on the identified sherds, these sherds are not temporally diagnostic. The inability to crossmend the sherds, and the small number and size of the sherds, makes it impossible to define a vessel type for these sherds, and thus, their specific function. Without direct temporal data, or associations with other datable cultural features or artifacts, these porcelain sherds are not useful for revealing the time period associated with their use/discard in the archaeological APE. These ceramic sherds are most likely the result of a single discard activity, indicative of the general historical or modern residential/domestic rural land use of the archaeological APE or litter. Due to the limited information that is revealed by these sherds, and the appearance that they are from a single vessel and related to a single discard activity, the four identified porcelain sherds are considered an isolated find and are not assigned a site designation. These ceramic sherds do not comprise a historic period archaeological site and can not contribute significant information about the specific land-use history within the archaeological APE; therefore, no additional archaeological research in Test Area A is recommended.

4.2.2 Test Area B

Test Area B is located in a fallow field along the western edge of existing S.R. 24 from approximately 160.0 m (525.0 ft) south of the intersection of S.R. 24 with Mulberry Knoll Road in the northern segment of the archaeological APE (see Figure 2:Sheet 2). The total length of the test area is approximately 350.5 m (1,150.0 ft) and the width is 7.6 m (25.0 ft). Minor disturbances to portions of the test area include plowing, emplacement of telephone poles, and maintenance of existing S.R. 24 and its berms (e.g., snow plowing, paving, pothole maintenance, etc.).

Due to good ground surface visibility (80 to 85%), pedestrian reconnaissance of the test area was completed prior to the excavation of 23 STPs. The STPs were emplaced in a single transect paralleling and approximately 7.6 m (25.0 ft) from the edge of the existing roadway. No pre-contact or historic period cultural artifacts or features were identified in the test area during the Phase I survey. Since no previously recorded archaeological sites or NRHP-listed properties are present within Test Area B, and no cultural materials were

identified during the surface and subsurface surveys of the area, no additional archaeological investigations are warranted.

4.2.3 Test Area C

Test Area C is located along the western edge of existing S.R. 24 from its intersection with Tanglewood Road to the southern terminus of the northern segment of the archaeological APE (see Figure 2:Sheet 3). The total length of the test area is approximately 144.8 m (475.0 ft) and the width is 7.6 m (25.0 ft). The test area was planted in corn that was ankle high at the time of the survey. Minor disturbances to portions of the test area include plowing, and maintenance of existing S.R. 24 and Tanglewood Road (e.g., snow plowing, paving, pothole maintenance, etc.). Test Area C is located in one of Custer's (n.d.) designated high probability portions of the archaeological APE.

Due to good ground surface visibility (85 to 90 percent), pedestrian reconnaissance of the test area was completed prior to the excavation of nine STPs. The STPs were emplaced in a single transect paralleling and approximately 7.6 m (25.0 ft) from the edge of the existing roadway. Despite having a high potential for archaeological sites designation (Custer n.d.), no pre-contact or historic period cultural artifacts or features were identified in the test area during the Phase I survey. Since no previously recorded archaeological sites or NRHP-listed properties are present within Test Area C, and no cultural materials were identified during the surface collection and subsurface excavation of the area, no additional archaeological investigations are warranted.

4.2.4 Test Area D

Test Area D is located along the eastern edge of existing S.R. 24 from approximately 121.9 m (400.0 ft) south of the intersection of S.R. 24 with Warrington Road to the intersection of S.R. 24 with Mulberry Knoll Road in the northern segment of the archaeological APE (see Figure 2:Sheets 1 and 2). The total length of the test area is approximately 762.0 m (2,500.0 ft) and the width is 7.6 m (25.0 ft). The northern portion of the test area was a fallow agricultural field and the southern portion of the test area was a newly planted corn field at the time of the survey. Minor disturbances to portions of the test

area include plowing and maintenance of existing S.R. 24, Warrington Road, and Mulberry Knoll Road (e.g., snow plowing, paving, pothole maintenance, etc.).

Due to good ground surface visibility (85%) in both the fallow field and the newly planted field, pedestrian reconnaissance of the test area was completed prior to the excavation of 49 STPs. The STPs were emplaced in a single transect paralleling and approximately 7.6 m (25.0 ft) from the edge of the existing roadway. No pre-contact or historic period cultural artifacts or features were identified in the test area during the Phase I survey. Since no previously recorded archaeological sites or NRHP-listed properties are present within Test Area D, and no cultural materials were identified during the surface collection and subsurface excavation of the area, no additional archaeological investigations are warranted.

4.2.5 Test Area E

Test Area E is located along the eastern edge of existing S.R. 24 from approximately 502.9 m (1,650.0 ft) south of the intersection of S.R. 24 with Mulberry Knoll Road in the northern segment of the archaeological APE (see Figure 2:Sheets 2 and 3). The total length of the test area is approximately 449.8 m (1,475.6 ft) and the width is 7.6 m (25.0 ft). The test area was planted in corn that was ankle high at the time of the survey. Minor disturbances to portions of the test area include plowing, emplacement of telephone poles, and maintenance of existing S.R. 24 (e.g., snow plowing, paving, pothole maintenance, etc.).

Due to good ground surface visibility (80 to 85%), pedestrian reconnaissance of the test area was completed prior to the excavation of 29 STPs. The STPs were emplaced in a single transect paralleling and approximately 7.6 m (25.0 ft) from the edge of the existing roadway. No pre-contact or historic period cultural artifacts or features were identified in the test area during the Phase I survey. Since no previously recorded archaeological sites or NRHP-listed properties are present within Test Area E, and no cultural materials were identified during the surface collection and subsurface excavation of the area, no additional archaeological investigations are warranted.

4.2.6 Test Area F

Test Area F is located along the eastern edge of existing S.R. 24 opposite the intersection of S.R. 24 with Tanglewood Drive to the southern terminus of the northern segment of the archaeological APE (see Figure 2:Sheet 3). The total length of the test area is approximately 152.4 m (500.0 ft) and the width is 7.6 m (25.0 ft). The test area was a grassy field with wildflowers at the time of the survey. Minor disturbances to portions of the test area include plowing, emplacement of telephone poles, and maintenance of existing S.R. 24 (e.g., snow plowing, paving, pothole maintenance, etc.). Test Area F is located in one of Custer's (n.d.) designated high probability portions of the archaeological APE.

Due to poor ground surface visibility (<80 percent), no pedestrian reconnaissance was used in this test area. The subsurface testing included the excavation of 10 STPs. The STPs were emplaced in a single transect paralleling and approximately 7.6 m (25.0 ft) from the edge of the existing roadway. Despite having a high potential for archaeological sites designation (Custer n.d.), no pre-contact or historic period cultural artifacts or features were identified in the test area during the Phase I survey. Since no previously recorded archaeological sites or NRHP-listed properties are present within Test Area F, and no cultural materials were identified during the subsurface excavation of the area, no additional archaeological investigations are warranted.

4.2.7 Test Area G

Test Area G is located along the western edge of existing S.R. 24 from the intersection of S.R. 24 with Holly Lake Road in the southern segment of the archaeological APE (see Figure 2:Sheet 4). The total length of the test area is approximately 396.2 m (1,300.0 ft) and the width is 2.4 m (8.0 ft). The northern portion of the test area was wooded and the southern portion was lawn at the time of the survey. Minor disturbances to portions of the test area include plowing, emplacement of underground utilities, and maintenance of existing S.R. 24 and Holly Lake Road (e.g., snow plowing, paving, pothole maintenance, etc.).

Due to poor ground surface visibility (<80 percent), no pedestrian reconnaissance was used in this test area. The subsurface testing included the excavation of 26 STPs. The STPs were emplaced in a single transect paralleling and approximately 2.4 m (8.0 ft) from

the edge of the existing roadway. No pre-contact or historic period cultural artifacts or features were identified in the test area during the Phase I survey. Since no previously recorded archaeological sites or NRHP-listed properties are present within Test Area G, and no cultural materials were identified during the subsurface excavation of the area, no additional archaeological investigations are warranted.

4.2.8 Test Area H

Test Area H is located along the western edge of existing S.R. 24 from approximately 442.0 m (1,450.0 ft) south of the intersection of S.R. 24 with Holly Lake Road to the proposed entranceway to Bay Greens Development in the southern segment of the archaeological APE (see Figure 2:Sheets 4 and 5). The total length of the test area is approximately 960.1 m (3,150.0 ft) and the width is 7.6 m (25.0 ft). The test area at the time of the survey was a mowed field (Photograph 13). Minor disturbances to portions of the test area include emplacement of underground utilities, a fence, and maintenance of existing S.R. 24 (e.g., snow plowing, paving, pothole maintenance, etc.). Custer (n.d.) has designated portions of Test Area H as having a high potential for the presence of pre-contact period archaeological remains.

Due to poor ground surface visibility (<80 percent), no pedestrian reconnaissance was used in this test area. The subsurface testing included the excavation of 60 STPs and four re-test STPs. The STPs were emplaced in a single transect paralleling and approximately 7.6 m (24.6 ft) from the edge ofthe existing roadway. One retest STP was emplaced both north and south of each of two culturally positive STPs, H37 and H48. No artifacts were recovered from the four retest STPs. A brass artifact was recovered from the 0-19.0 cm (0-7.5 in) level of Stratum I within STP H37, while a brick fragment and a wire nail were recovered from the 0-10.0 cm (0-3.9 in) level of Stratum I in STP H48. Despite having been designated as a high potential pre-contact period area (Custer n.d.), no pre-contact period artifacts of any type were found during the survey of Test Area H.

The brass artifact appears to be a piece of hardware of unknown function. There is no way to assign a manufacturing or use date to this artifact. The nail is a 20d wire nail that is heavily oxidized and bent. Wire nails were first manufactured in the United States in New York during the 1850s; however, they did not become the dominant nail type in use until the 1890s (Nelson 1963:38). Wire nails continue to dominate the tasks in the

Photograph 13. General view of Test Area H, facing north.

construction trades today. The brick fragment is a small portion of a red brick which can not be dated. All three of the artifacts recovered from Test Area H can be categorized within the architecture functional group (South 1977); however, based on the scattered location and small numbers of the artifacts, they do not appear to represent a historic archaeological site, but rather are indicative of the general rural land use of the archaeological APE. Due to the limited temporal and functional information that is revealed by these artifacts, and their scattered provenience, these three historic period artifacts are considered to be two isolated finds and are not assigned site designations. These artifacts do not comprise a historic period archaeological site and can not contribute significant information about the specific land use history within the archaeological APE; therefore, no additional archaeological research in Test Area H is recommended.

4.2.9 Test Area I

Test Area I is located along the western edge of existing S.R. 24 from a proposed entrance to Baywood Greens to a wet area further south in the southern segment of the archaeological APE (see Figure 2:Sheet 5). The total length of the test area is approximately 228.6 m (750.0 ft) and the width is 7.6 m (25.0 ft). The test area was a mowed field at the time of the survey. Minor disturbances to portions of the test area include adjacent development, and maintenance of existing S.R. 24 (e.g., snow plowing, paving, pothole maintenance, etc.).

Due to poor ground surface visibility (<80%), no pedestrian reconnaissance was used in this test area. The subsurface testing included the excavation of 15 STPs. The STPs were emplaced in a single transect paralleling and approximately 7.6 m (25.0 ft) from the edge of the existing roadway. No pre-contact or historic period cultural artifacts or features were identified in the test area during the Phase I survey. Since no previously recorded archaeological sites or NRHP-listed properties are present within Test Area I, and no cultural materials were identified during the subsurface excavation of the area, no additional archaeological investigations are warranted.

4.2.10 Test Area J

Test Area J is located along the western edge of existing S.R. 24 from just south of a wet area to 335.3 m (1,100.0 ft) north of the intersection of S.R. 24 with S.R. 5 in the

southern segment of the archaeological APE (see Figure 2:Sheets 5 and 6). The total length of the test area is approximately 434.3 m (1,425.0 ft) and the width is 7.6 m (25.0 ft). The test area was a mowed field and woods at the time of the survey. Minor disturbances to portions of the test area include emplacement of underground utilities and maintenance of existing S.R. 24 (e.g., snow plowing, paving, pothole maintenance, etc.).

Due to poor ground surface visibility (<80%), no pedestrian reconnaissance was used in this test area. The subsurface testing included the excavation of 30 STPs. The STPs were emplaced in a single transect paralleling and approximately 7.6 m (25.0 ft) from the edge of the existing roadway. No pre-contact or historic period cultural artifacts or features were identified in the test area during the Phase I survey. Since no previously recorded archaeological sites or NRHP-listed properties are present within Test Area J, and no cultural materials were identified during the subsurface excavation of the area, no additional archaeological investigations are warranted.

4.2.11 Test Area K

Test Area K is located along the western edge of existing S.R. 24 approximately 243.8 m (800.0 ft) south of the intersection of S.R. 24 with S.R. 5 in the southern segment of the archaeological APE (see Figure 2:Sheet 7). The total length of the test area is approximately 61.0 m (200.0 ft) and the width is 7.6 m (25.0 ft). The test area was short grass at the time of the survey. Minor disturbances to portions of the test area include surrounding development and maintenance of existing S.R. 24 (e.g., snow plowing, paving, pothole maintenance, etc.).

Due to poor ground surface visibility (<80%), no pedestrian reconnaissance was used in this test area. The subsurface testing included the excavation of four STPs. The STPs were emplaced in a single transect paralleling and approximately 7.6 m (25.0 ft) from the edge of the existing roadway. No pre-contact or historic period cultural artifacts or features were identified in the test area during the Phase I survey. Since no previously recorded archaeological sites or NRHP-listed properties are present within Test Area K, and no cultural materials were identified during the subsurface excavation of the area, no additional archaeological investigations are warranted.

4.2.12 Test Area L

Test Area L is located along the western edge of existing S.R. 24 approximately 563.9 m (1,850.0 ft) south of the intersection of S.R. 24 with S.R. 5 in the southern segment of the archaeological APE (see Figure 2:Sheet 7). The total length of the test area is approximately 228.6 m (750.0 ft) and the width is 7.6 m (25.0 ft). The test area was wooded at the time of the survey. Minor disturbances to portions of the test area include emplacement of telephone poles, housing, and maintenance of existing S.R. 24 (e.g., snow plowing, paving, pothole maintenance, etc.).

Due to poor ground surface visibility (<80%), no pedestrian reconnaissance was used in this test area. The subsurface testing included the excavation of 10 STPs. The STPs were emplaced in a single transect paralleling and approximately 7.6 m (25.0 ft) from the edge of the existing roadway. No pre-contact or historic period cultural artifacts or features were identified in the test area during the Phase I survey. Since no previously recorded archaeological sites or NRHP-listed properties are present within Test Area L, and no cultural materials were identified during the subsurface excavation of the area, no additional archaeological investigations are warranted.

4.2.13 Test Area M

Test Area M is located along the western edge of existing S.R. 24 from the intersection of S.R. 24 with Autumn Road south for approximately 426.7 m (1,400.0 ft) in the southern segment of the archaeological APE (see Figure 2:Sheets 7 and 8). The width of the test area is 7.6 m (25.0 ft). The test area was a mowed field at the time of the survey. Minor disturbances to portions of the test area include the maintenance of existing S.R. 24 (e.g., snow plowing, paving, pothole maintenance, etc.).

Due to poor ground surface visibility (<80 percent), no pedestrian reconnaissance was used in this test area. The subsurface testing included the excavation of 35 STPs. The STPs were emplaced in a single transect paralleling and approximately 7.6 m (25.0 ft) from the edge of the existing roadway. No pre-contact or historic period cultural artifacts or features were identified in the test area during the Phase I survey. Since no previously recorded archaeological sites or NRHP-listed properties are present within Test Area M,

and no cultural materials were identified during the subsurface excavation of the area, no additional archaeological investigations are warranted.

4.2.14 Test Area N

Test Area N is located along the western edge of existing S.R. 24 opposite the intersection of S.R. 24 with Legion Road in the southern segment of the archaeological APE (see Figure 2:Sheets 8 and 9). The total length of the test area is 403.6 m (1,324.0 ft) and the width is 7.6 m (25.0 ft). The test area was a fallow field and mowed lawn at the time of the survey. Minor disturbances to portions of the test area include gravel access driveways, a business, the emplacement of telephone poles, and the maintenance of existing S.R. 24 (e.g., snow plowing, paving, pothole maintenance, etc.).

Due to poor ground surface visibility (<80%), no pedestrian reconnaissance was used in this test area. The subsurface testing included the excavation of 23 STPs. The STPs were emplaced in a single transect paralleling and approximately 7.6 m (25.0 ft) from the edge of the existing roadway. No pre-contact or historic period cultural artifacts or features were identified in the test area during the Phase I survey. Since no previously recorded archaeological sites or NRHP-listed properties are present within Test Area N, and no cultural materials were identified during the subsurface excavation of the area, no additional archaeological investigations are warranted.

4.2.15 Test Area O

Test Area O is located along the western edge of existing S.R. 24 approximately 213.4 m (700.0 ft) north of the intersection of S.R. 24 with Mount Joy Road in the southern segment of the archaeological APE (see Figure 2:Sheet 9). The total length of the test area is 213.4 m (700.0 ft) and the width is 7.6 m (25.0 ft). The test area was mowed lawn at the time of the survey. Minor disturbances to portions of the test area include the emplacement of telephone poles, and the maintenance of existing S.R. 24 and Mount Joy Road (e.g., snow plowing, paving, pothole maintenance, etc.).

Due to poor ground surface visibility (<80%), no pedestrian reconnaissance was used in this test area. The subsurface testing included the excavation of 13 STPs. The STPs were emplaced in a single transect paralleling and approximately 7.6 m (25.0 ft) from

the edge of the existing roadway. No pre-contact or historic period cultural artifacts or features were identified in the test area during the Phase I survey. Since no previously recorded archaeological sites or NRHP-listed properties are present within Test Area O, and no cultural materials were identified during the subsurface excavation of the area, no additional archaeological investigations are warranted.

4.2.16 Test Area P

Test Area P is located along the eastern edge of existing S.R. 24 approximately 76.2 m (250.0 ft) south of and opposite the intersection of S.R. 24 with Holly Lake Road in the southern segment of the archaeological APE (see Figure 2:Sheet 4). The total length of the test area is 685.8 m (2,250.0 ft) and the width is 7.6 m (25.0 ft). The test area was mowed lawns and a mowed field at the time of the survey. Minor disturbances to portions of the test area include residential development with associated landscaping and driveways, and the maintenance of existing S.R. 24 and S.R. 298 (e.g., snow plowing, paving, pothole maintenance, etc.).

Due to poor ground surface visibility (<80 percent), no pedestrian reconnaissance was used in this test area. The subsurface testing included the excavation of 38 STPs. The STPs were emplaced in a single transect paralleling and approximately 7.6 m (24.6 ft) from the edge of the existing roadway, as well as at the intersection of Banks Road with S.R. 24. No pre-contact or historic period cultural artifacts or features were identified in the test area during the Phase I survey. Since no previously recorded archaeological sites or NRHP-listed properties are present within Test Area P, and no cultural materials were identified during the subsurface excavation of the area, no additional archaeological investigations are warranted.

4.2.17 Test Area Q

Test Area Q is located along the eastern edge of existing S.R. 24 opposite the proposed entranceway for the Baywood Greens development and immediately south of a golf course in the southern segment of the archaeological APE (see Figure 2:Sheet 5). The total length of the test area is 198.1 m (650.0 ft) and the width is 7.6 m (25.0 ft). The test area was a mowed field at the time of the survey. Minor disturbances to portions of the test

area include an adjacent constructed wet area and golf course development, as well as the maintenance of existing S.R. 24 (e.g., snow plowing, paving, pothole maintenance, etc.).

Due to poor ground surface visibility (<80 percent), no pedestrian reconnaissance was used in this test area. The subsurface testing included the excavation of 13 STPs. The STPs were emplaced in a single transect paralleling and approximately 7.6 m (25.0 ft) from the edge of the existing roadway. No pre-contact or historic period cultural artifacts or features were identified in the test area during the Phase I survey. Since no previously recorded archaeological sites or NRHP-listed properties are present within Test Area Q, and no cultural materials were identified during the subsurface excavation of the area, no additional archaeological investigations are warranted.

4.2.18 Test Area R

Test Area R is located along the eastern edge of existing S.R. 24 approximately 419.1 m (1,375.0 ft) north of the intersection of S.R. 24 with S.R. 5 in the southern segment of the archaeological APE (see Figure 2:Sheet 6). The total length of the test area is 59.4 m (195.0 ft) and the width is 7.6 m (25.0 ft). The test area was wooded at the time of the survey. Minor disturbance to portions of the test area include the maintenance of existing S.R. 24 (e.g., snow plowing, paving, pothole maintenance, etc.).

Due to poor ground surface visibility (<80 percent), no pedestrian reconnaissance was used in this test area. The subsurface testing included the excavation of four STPs. The STPs were emplaced in a single transect paralleling and approximately 7.6 m (25.0 ft) from the edge of the existing roadway. No pre-contact or historic period cultural artifacts or features were identified in the test area during the Phase I survey. Since no previously recorded archaeological sites or NRHP-listed properties are present within Test Area R, and no cultural materials were identified during the subsurface excavation of the area, no additional archaeological investigations are warranted.

4.2.19 Test Area S

Test Area S is located along the eastern edge of existing S.R. 24 approximately 304.8 m (1,000.0 ft) south of the intersection of S.R. 24 with Long Neck Road in the southern segment of the archaeological APE (see Figure 2:Sheet 7). The total length of the

test area is 243.8 m (800.0 ft) and the width is 7.6 m (25.0 ft). The test area was a grassy area and woods at the time of the survey. Minor disturbance to portions of the test area include the emplacement of telephone poles and the maintenance of existing S.R. 24 (e.g., snow plowing, paving, pothole maintenance, etc.).

Due to poor ground surface visibility (<80 percent), no pedestrian reconnaissance was used in this test area. The subsurface testing included the excavation of 14 STPs. The STPs were emplaced in a single transect paralleling and approximately 7.6 m (25.0 ft) from the edge of the existing roadway. No pre-contact or historic period cultural artifacts or features were identified in the test area during the Phase I survey. Since no previously recorded archaeological sites or NRHP-listed properties are present within Test Area S, and no cultural materials were identified during the subsurface excavation of the area, no additional archaeological investigations are warranted.

4.2.20 Test Area T

Test Area T is located along the eastern edge of existing S.R. 24 approximately 289.6 m (950.0 ft) north of the intersection of S.R. 24 with Bay Farm Road in the southern segment of the archaeological APE (see Figure 2:Sheet 7). The total length of the test area is 76.2 m (250.0 ft) and the width is 7.6 m (25.0 ft). The test area was wooded at thetime of the survey. Minor disturbances to portions of the test area include theemplacement of telephone poles, and the maintenance of existing S.R. 24 and Bay Farm Road (e.g., snow plowing, paving, pothole maintenance, etc.).

Due to poor ground surface visibility (<80 percent), no pedestrian reconnaissance was used in this test area. The subsurface testing included the excavation of four STPs. The STPs were emplaced in a single transect paralleling and approximately 7.6 m (25.0 ft) from the edge of the existing roadway. No pre-contact or historic period cultural artifacts or features were identified in the test area during the Phase I survey. Since no previously recorded archaeological sites or NRHP-listed properties are present within Test Area T, and no cultural materials were identified during the subsurface excavation of the area, no additional archaeological investigations are warranted.

4.2.21 Test Area U

Test Area U is located along the eastern edge of existing S.R. 24 south of the intersection of S.R. 24 with Legion Road in the southern segment of the archaeological APE (see Figure 2:Sheets 8 and 9). The total length of the test area is 472.4 m (1,550.0 ft) and the width is 7.6 m (25.0 ft). The test area was mowed and unmowed field at the time of the survey. Minor disturbances to portions of the test area include a gravel driveway, and the maintenance of existing S.R. 24 and Legion Road (e.g., snow plowing, paving, pothole maintenance, etc.).

Due to poor ground surface visibility (<80 percent), no pedestrian reconnaissance was used in this test area. The subsurface testing included the excavation of 30 STPs. The STPs were emplaced in a single transect paralleling and approximately 7.6 m (25.0 ft) from the edge of the existing roadway. No pre-contact or historic period cultural artifacts or features were identified in the test area during the Phase I survey. Since no previously recorded archaeological sites or NRHP-listed properties are present within Test Area U, and no cultural materials were identified during the subsurface excavation of the area, no additional archaeological investigations are warranted.

4.2.22 Test Area V

Test Area V is located along the western edge of existing S.R. 24 approximately 30.5 m (100.0 ft) south of the intersection ofS.R. 24 with Mount Joy Road in the southern segment of the archaeological APE (see Figure 2:Sheet 9). The total length of the test area is 144.8 m (475.0 ft) and the width is 7.6 m (25.0 ft). The test area was a yard and field at the time of the survey. Minor disturbances to portions of the test area include an adjacent gravel area, and the maintenance of existing S.R. 24 (e.g., snow plowing,paving, pothole maintenance, etc.).

Due to poor ground surface visibility (<80 percent), no pedestrian reconnaissance was used in this test area. The subsurface testing included the excavation of nine STPs. The STPs were emplaced in a single transect paralleling and approximately 7.6 m (25.0 ft) from the edge of the existing roadway. No pre-contact or historic period cultural artifacts or features were identified in the test area during the Phase I survey. Since no previously recorded archaeological sites or NRHP-listed properties are present within Test Area V, and

no cultural materials were identified during the subsurface excavation of the area, no additional archaeological investigations are warranted.

4.2.23 Test Area W

Test Area W is located along the eastern edge of existing S.R. 24 approximately 61.0 m (200.0 ft) south of the intersection of S.R. 24 with Oak Orchard Road in the southern segment of the archaeological APE (see Figure 2:Sheet 9). The total length of the test area is 106.7 m (350.0 ft) and the width is 7.6 m (25.0 ft). The test area was a grassy field at the time of the survey. Minor disturbance to portions of the test area include the maintenance of existing S.R. 24 (e.g., snow plowing, paving, pothole maintenance, etc.).

Due to poor ground surface visibility (<80 percent), no pedestrian reconnaissance was used in this test area. The subsurface testing included the excavation of seven STPs. The STPs were emplaced in a single transect paralleling and approximately 7.6 m (25.0 ft) from the edge of the existing roadway. No pre-contact or historic period cultural artifacts or features were identified in the test area during the Phase I survey. Since no previously recorded archaeological sites or NRHP-listed properties are present within Test Area W, and no cultural materials were identified during the subsurface excavation of the area, no additional archaeological investigations are warranted.

4.2.24 Tunnell Test Area

The Tunnell Test Area is located along the eastern edge of existing S.R. 24 approximately 500.0 m (1,640.4 ft) north of the intersection of S.R. 24 with S.R. 5/23 in the southern segment of the archaeological APE (see Figure 2:Sheet 5). The test area is 0.21 ha (0.52 ac) in size, and is in a proposed stormwater management area. The test area was a grassy field at the time of the survey. Minor disturbance to portions of the test area include the maintenance of existing S.R. 24 and the presence of sediment push piles apparently caused by a bulldozer or like machine.

Due to poor ground surface visibility (<80 percent), no pedestrian reconnaissance was used in this test area. The subsurface testing included the excavation of 11 STPs. The STPs were emplaced in three transects paralleling the existing roadway. No pre-contact or historic period cultural artifacts or features were identified in the test area during the

Phase I survey. Since no previously recorded archaeological sites or NRHP-listed properties are present within the Tunnell Test Area, and no cultural materials were identified during the subsurface excavation of the area, no additional archaeological investigations are warranted.

4.2.25 Hall/Norwood Test Area

The Hall/Norwood Test Area is located along the northern edge of Autumn Road approximately 146.0 m (479.0 ft) west of existing S.R. 24 in the southern segment of the archaeological APE (see Figure 2:Sheet 7). The test area is 0.85 ha (2.11 ac) in size, and is in a proposed stormwater management area. The test area was an agricultural and a grassy/brush field at the time of the survey. Minor disturbance to portions of the test area include the maintenance of existing Autumn Road (e.g., snow plowing, paving, pothole maintenance, etc.), utilities, and an area of extremely compacted earth most likely the result of heavy equipment staging for construction of a nearby pond.

Due to poor ground surface visibility (<80%), no pedestrian reconnaissance was used in this test area. The subsurface testing included the excavation of 50 STPs. The STPs were emplaced in nine transects along Autumn Road. No pre-contact or historic period cultural artifacts or features were identified in the test area during the Phase I survey. Since no previously recorded archaeological sites or NRHP-listed properties are present within the Hall/Norwood Test Area, and no cultural materials were identified during the subsurface excavation of the area, no additional archaeological investigations are warranted.

4.2.26 Coursey Test Area

The Coursey Test Area is located along the western edge of S.R. 24 immediately south of the intersection of S.R. 24 with Autumn Road in the southern segment of the archaeological APE (see Figure 2:Sheets 7 and 8). The test area is 3.04 ha (7.50 ac) in size, and is in a proposed stormwater management area. The test area was a grassy/brush field at the time of the survey (Photograph 14). Minor disturbance to portions of the test area include the maintenance of existing S.R. 24 and Autumn Road (e.g., snow plowing, paving, pothole maintenance, etc.), utilities, and two graded/gravel access roads.

Photograph 14. General view of Coursey Test Area, facing north.

Due to poor ground surface visibility (<80%), no pedestrian reconnaissance was used in this test area. The subsurface testing included the excavation of 150 STPs. The STPs were emplaced in 12 transects paralleling S.R. 24, and using a 15.0 m (49.2 ft) transect and STP interval. Two historic period ceramic sherds, a small piece of plain, spalled whiteware and a piece of bisque porcelain, were recovered from two STPs during the survey excavations in the test area. Additional retest STPs in all four cardinal directions around each positive STP were negative for additional artifacts. Due to the small size of the sherds, neither is indicative of vessel form or function, and no maker's marks are present on the sherds. Due to the lengthy manufacturing and use date ranges for porcelain and whiteware and the lack of maker's marks on the identified sherds, these sherds are not temporally diagnostic. Without direct temporal data, or associations with other datable cultural features or artifacts, these ceramic sherds are not useful for revealing the time period associated with their use/discard in the archaeological APE. These ceramic sherds are most likely the result of discard activities, indicative of the general historical residential/domestic rural land use of the archaeological APE. Due to the limited information that is revealed by these sherds, the two identified ceramic sherds are considered isolated finds and are not assigned a site designation. These ceramic sherds do not comprise a historic period archaeological site and can not contribute significant information about the specific land use history within the archaeological APE; therefore, no additional archaeological research in the Coursey Test Area is recommended.

4.2.27 Arnell Test Area

The Arnell Test Area is located along the eastern edge of S.R. 24 approximately 230.0 m (754.6 ft) north of the S.R. 24/Mulberry Knoll Road intersection in the northern segment of the archaeological APE (see Figure 2:Sheet 1). A proposed outfall pipe to Arnell Creek is slated for this area. The test area is 0.06 ha (0.15 ac) in size. The test area was a grassy/brush field at the time of the survey. Minor disturbance to portions of the test area include the maintenance of existing S.R. 24 (e.g., snow plowing, paving, pothole maintenance, etc.). A wet area within the test area was not tested due to the presence of standing water.

Due to poor ground surface visibility (<80 percent), no pedestrian reconnaissance was used in this test area. The subsurface testing included the excavation of four STPs.

The STPs were emplaced in a single transect perpendicular to S.R. 24 following the proposed pipeline route. No pre-contact or historic period cultural artifacts or features were identified in the test area during the Phase I survey. Since no previously recorded archaeological sites or NRHP-listed properties are present within the Arnell Test Area, and no cultural materials were identified during the subsurface excavation of the area, no additional archaeological investigations are warranted.

4.2.28 White Pines Test Area

The White Pines Test Area is located along the eastern edge of S.R. 24 approximately 130.0 m (426.5 ft) north of the intersection of S.R. 24 with White Pines Drive in the southern segment of the archaeological APE (see Figure 2:Sheet 6). The test area is slated to be used for two outfalls and is 0.005 ha (0.012 ac) in size. The test area was wooded at the time of the survey. Minor disturbance to portions of the test area include the maintenance of existing S.R. 24 (e.g., snow plowing, paving, pothole maintenance, etc.) and wet areas.

Due to poor ground surface visibility (<80 percent), no pedestrian reconnaissance was used in this test area. The subsurface testing included the excavation of two STPs; however, standing water in the STPs limited the testing depth. No pre-contact or historic period cultural artifacts or features were identified in the test area during the Phase I survey. Since no previously recorded archaeological sites or NRHP-listed properties are present within the White Pines Test Area, and no cultural materials were identified during the subsurface excavation of the area, no additional archaeological investigations are warranted.

4.2.29 Holly Lake Test Area

The Holly Lake Test Area is located along the eastern edge of S.R. 24 approximately 76.0 m (249.3 ft) north of the S.R. 24/Holly Lake Road intersection in the southern segment of the archaeological APE (see Figure 2:Sheet 4). The test area is 0.02 ha (0.06 ac) in size and is slated for an outfall into Hopkins Prong. The test area was a mowed field at the time of the survey (Photograph 15). Minor disturbance to portions of the test area include the maintenance of existing S.R. 24 (e.g., snow plowing, paving, pothole maintenance, etc.). Wet portions of the test area were not surveyed due to the presence

Photograph 15. General view of Holly Lake Test Area, facing north.

of standing water. Despite the location of the test area proximal to Hopkins Prong, stratigraphically this test area exhibits a uniform upland soil profile similar to the other areas tested.

Due to poor ground surface visibility (<80 percent), no pedestrian reconnaissance was used in this test area. The subsurface testing included the excavation of three STPs. Two of the three STPs were emplaced perpendicular to S.R. 24 at 15.0 m (49.2 ft) intervals along the proposed pipeline route. Two historic period ceramic sherds, a small piece of manganese glazed redware and a piece of black glazed earthenware, were recovered from one STP during the survey of the test area. Due to the limited size of the test area, a single radial (retest) STP was emplaced between the two original STPs in order to further determine if additional artifacts or cultural features could be identified. Due to the small size of the sherds, neither is indicative of vessel form or function, and no maker's marks are present on the sherds. Due to the lengthy manufacturing and use date ranges for redware and earthenwares and the lack of maker's marks on the identified sherds, these sherds are not temporally diagnostic. Without direct temporal data, or associations with other datable cultural features or artifacts, these ceramic sherds are not useful for revealing the time period associated with their use/discard in the archaeological APE. These ceramic sherds are most likely the result of discard activities, indicative of the general historical residential/domestic rural land use of the archaeological APE. Due to the limited information that is revealed by these sherds, the two identified ceramic sherds are considered isolated finds and are not assigned a site designation. These ceramic sherds do not comprise a historic period archaeological site and can not contribute significant information about the specific land use history within the archaeological APE; therefore, no additional archaeological research in the Holly Lake Test Area is recommended.