

**Sussex County, Delaware
Baltimore Hundred
S.R. 26 Improvements
(Clarksville to Assawoman Canal)**

**Geomorphology Report
and
Phase I Archaeology Survey Work Plan**

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July 2003

ABSTRACT

Geomorphological investigations have been completed for the State of Delaware Department of Transportation's (DelDOT) proposed improvements to a segment of State Route (S.R.) 26 (Clarksville to Assawoman Canal) in Baltimore Hundred, Sussex County, Delaware. DelDOT will improve the existing two-lane roadway by the construction of roadway shoulders/bicycle lanes, open and closed drainage systems, sidewalks, and curbs, as well as intersection improvements at S.R. 26 and Omar Road/Powell Farm Road, and S.R. 26 and Central Avenue. In addition, turning and/or bypass lanes will be added at particular places along the project route, and at least three stormwater management basins will also be constructed. The majority of the proposed improvements will take place within a 21.3 m (70.0 ft) wide corridor centered on the existing roadway/right-of-way. Portions of the project where larger areas of ground surface may be disturbed include the intersection realignments and stormwater management basin locations. The archaeological Area of Potential Effect (APE) for the S.R. 26 Improvements project will include all areas of potential construction impact, totaling 11.8 ha (29.2 ac).

Geomorphological investigations conducted within the project APE assessed the nature of the landforms and soils within the project APE, and determined appropriate areas for the implementation of Phase I archaeological fieldwork *via* expedient auger borings. Project mapping was coded for testable areas versus non-testable areas (i.e., previously disturbed areas), with a total of approximately 0.8 ha (1.9 ac) of the project APE categorized as testable. A summary of the results of the preliminary archaeological background research and the geomorphological reconnaissance, as well as a work plan for the recommended Phase I survey investigations are presented in this report.

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1.0 INTRODUCTION

This report summarizes the results of preliminary archaeological background research and the geomorphological reconnaissance performed for the proposed improvements to a segment of State Route (S.R.) 26 (Clarksville to Assawoman Canal) in Baltimore Hundred, Sussex County, Delaware (Figure 1). The project Area of Potential Effect (APE) is located on the Bethany Beach and Frankford, Delaware 7.5 minute topographic quadrangles (United States Geological Survey [USGS] 1984a, 1984b) in the Coastal Bay physiographic province of Delaware's Lower Coastal Plain. The State of Delaware Department of Transportation (DeIDOT) will improve the existing two-lane roadway by the construction of roadway shoulders/bicycle lanes, open and closed drainage systems, sidewalks, and curbs, as well as intersection improvements at S.R. 26 and Omar Road/Powell Farm Road, and S.R. 26 and Central Avenue. In addition, turning and/or bypass lanes will be added at particular places along the project route. Based on project mapping, it appears that at least three stormwater management basins will also be constructed. The majority of the proposed improvements will take place within a 21.3 m (70.0 ft) wide corridor centered on the existing roadway/right-of-way. The length of the project APE is approximately 6.1 km (3.8 mi). Portions of the project where larger areas of ground surface may be disturbed include the intersection realignments and stormwater management basin locations. As indicated on project mapping, the archaeological APE for the S.R. 26 Improvements project will include all areas of potential construction impact, totaling 11.8 ha (29.2 ac).

Prior to the initiation of the S.R. 26 Improvements project geomorphological reconnaissance, background research was conducted. This background research included the examination of the Delaware archaeological site files; the National Register of Historic Places (NRHP) files; the historic resources inventory files; reports documenting previously conducted cultural resource studies, especially the S.R. 26 Planning Study (McCormick, Taylor & Associates, Inc. 2002); relevant state-wide historic contexts; historic maps; and historic as-built roadway plans housed at the Delaware State Historic Preservation and DeIDOT offices.

Geomorphological investigations were conducted within the project APE. The purpose of the geomorphological reconnaissance was to assess the nature of the landforms and soils within the project APE, and to determine if appropriate areas exist for the implementation of Phase I archaeological fieldwork. Geomorphological investigations included the examination of the soils/sediments contained within the project APE *via* expedient auger borings for the potential to contain

buried preserved archaeological resources. In addition, the assessment determined any disturbances to the soils/sediments that would preclude the preservation of buried archaeological resources.

2.0 RESULTS

2.1 Background Research

According to the predictive modeling accomplished by Custer (n.d.) for prehistoric period archaeological resources in Delaware, the majority of the project APE is contained within low probability areas; however, there are a few moderate probability areas and three locations along the project APE that have been assigned as high probability. The first of these high probability locations is situated approximately 243.5 m (799.0 ft) east of the intersection of S.R. 26 with Diane Road. The second high probability area is located approximately 182.9 m (600.0 ft) east of Lord Baltimore School within the project APE. The third high probability area is located immediately west of the intersection of S.R. 26 with Central Avenue. More specifically, Custer (1987:62) indicates that the probability for finding significant sites within the Mid-Drainage/Inland Bay areas of the Atlantic Coastal region, which comprises most of the S.R. 26 Improvements project APE, is medium to high for most of the prehistoric period site types, while the existing data quality is poor. Custer (1987:58) concludes that the Mid-Drainage/Inland Bay areas of the Atlantic Coastal region have the best data and the highest potential for significant sites, as well as the highest research sensitivity.

Review of the Delaware archaeological site files did not yield any previously recorded prehistoric period archaeological sites within the project APE; however, one previously recorded archaeological site (7S-K-101) is located within 30.5 m (100.0 ft) of the project APE. In addition, there are five previously recorded archaeological sites (7S-K-54, 7S-K-75, 7S-K-76, 7S-K-77, and 7S-K-103) located within 0.8 km (0.5 mi) of the project APE. Several of these sites are located on drainages which extend into the project APE.

The S.R. 26 Planning Study (McCormick, Taylor & Associates, Inc. 2002) and De Cunzo and Catts (1990) present an in-depth discussion of the history of the project area, as well as the statewide historic contexts within which identified resources may be evaluated.

Based on that information, it appears that the area surrounding the S.R. 26 Improvements project has the potential to contain historic period archaeological resources dating from the contact period to the recent past. The McCormick, Taylor & Associates, Inc. (2002:34) S.R. 26 Planning Study identified the following:

One hundred-fourteen (114) architectural resources were identified within the project's Area of Potential Effect (APE). Of these resources, one (1), Spring Banke (S-454), is listed in the National Register of Historic Places. Two (2) ineligible resources, the C.J. Raubacher House (S-2478) and the Shore Deal Auto Property (S-9148), were determined as such in 1999. Twenty-nine (29) properties were previously identified with no determinations of eligibility. Four (4) of the twenty-nine properties, the F.S. Barnett, Jr. House (S-2481), Esther Hudson House (S-2470), Dorothy E.W. Schulze House (S-2438), and the property identified at the corner of S.R. 26 and road 349 near Millville in 1998 (S-9114) are no longer extant. Eighty-two (82) properties were identified during the recent survey that met the fifty years of age or older requirement for evaluation... The resources documented in this study span several contextual periods and the property types illustrate several different themes within these contexts.

2.2 Geomorphology

Soil types mapped within the project APE include Evesboro, Fallsington, Johnston, Klej, Pocomoke, Rumford, Swamp, and Woodstown series, which all form in coastal plain sediments (Ireland and Matthews 1974). Soils in the Evesboro, Klej, Rumford, and Woodstown series have no or only moderate drainage restrictions within their internal soil profiles, and therefore, would have been attractive for aboriginal human occupation. However, soils within the Fallsington, Johnston, Pocomoke, and Swamp series have severe drainage restrictions, displaying gleyed conditions at shallow depths, and would have been less suitable for direct aboriginal occupation. However, resources associated with these wet soils may have been exploited prehistorically. Based on their topographic positions, drainage, and age, portions of the project APE exhibiting the better drained soils have the higher potential to contain prehistoric and historic period cultural remains.

The S.R. 26 Improvements project APE was investigated for the presence of landforms and soils which might have the potential to contain intact archaeological

resources. Many soil auger borings were taken within the project APE, and five were determined to be representative of the general types of conditions present over most of the project APE. These five were examined and described in detail according to the methods and nomenclature prescribed by the United States Department of Agriculture, Natural Resources Conservation Service (Schoeneberger 2002). Tabular descriptions of the auger boring stratigraphic profiles are included in Appendix A.

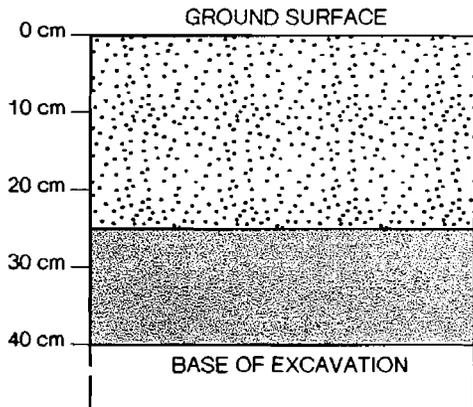
Soils within the area are forming in unconsolidated coastalplain sediments, which are predominantly sandy sediments on broad uplands of very gentle slope. Undisturbed soil profiles typical for this area have a dark brown surface layer (A horizon) underlain by a brown subsoil (B horizon). The profiles are very high in sand content, with lesser amounts of silt and clay. Auger Borings A1 and A5 are typical of relatively undisturbed areas within the project APE (Figure 2). Portions of the project APE that exhibited these typical undisturbed soil profiles are the areas where archaeological testing is recommended.

The project area has been predominantly agricultural in the past, but commercial and residential development has converted many crop fields to shopping areas, commercial and light industrial ventures, and housing plans. This development has disturbed a large portion of the project APE differentially. Testing for archaeological resources is not recommended within these disturbed areas. One example of this is shown in Auger Boring A6, which is located at the edge of a crop field and exhibits a truncated subsoil covered with fill high in asphalt chips (Figure 3). The surface and upper subsoil of the area have been previously excavated, possibly during the construction of the existing roadway, and subsequently covered with fill and graded. No testing for archaeological resources is recommended within this type of disturbed area.

Auger Borings A13 and A17 both exhibit fill materials underlain by former wetland area sediments (Figure 4). The profile of Auger Boring A13 is comprised of 30.0 cm (11.8 in) of sandy fill underlain by highly organic and gleyed clay loam deposits of the former wetland bottom (Figure 4). It appears that the lawn of the residence to the west was extended by filling a portion of the adjacent wetland to the east. The fill was obtained from the surface and upper subsoil of the lawn, and the entire area was then regraded. Intact archaeological resources would not be expected in this type of graded area.

The profile of Auger Boring A17 is comprised of 45.0 cm (17.7 in) of sandy fill underlain by lenses of fill obtained from sediments in a former wetland area (Figure 4). This

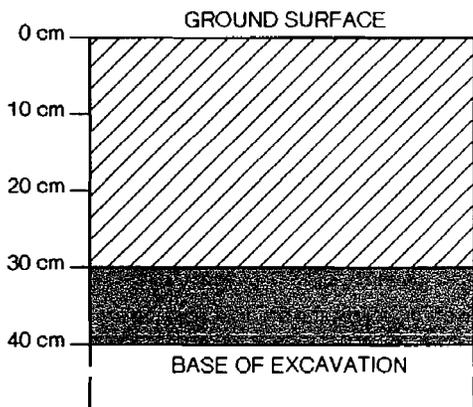
SOIL PROFILE AUGER BORING A1



Ap 10YR 4/3 Brown sandy loam.

Bw 10YR 5/4 Yellowish brown sandy loam.

SOIL PROFILE AUGER BORING A5



Ap 10YR 4/2 Dark grayish brown sandy loam.

Bw 10YR 5/3 Brown sandy loam.

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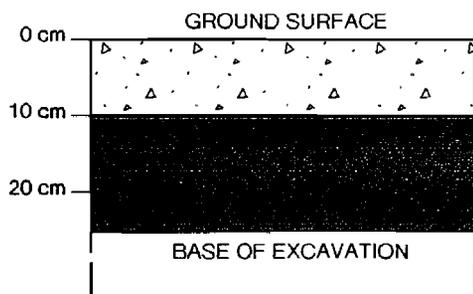
S.R. 26 IMPROVEMENTS
(CLARKSVILLE TO ASSAWOMAN CANAL)
BALTIMORE HUNDRED
SUSSEX COUNTY

**SOIL PROFILES
AUGER BORINGS A1 AND A5**

FIGURE - 2

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SOIL PROFILE AUGER BORING A6



Fill Asphalt chips and sand.

C 10YR 6/3 Pale brown sand.

DELAWARE DEPARTMENT OF TRANSPORTATION

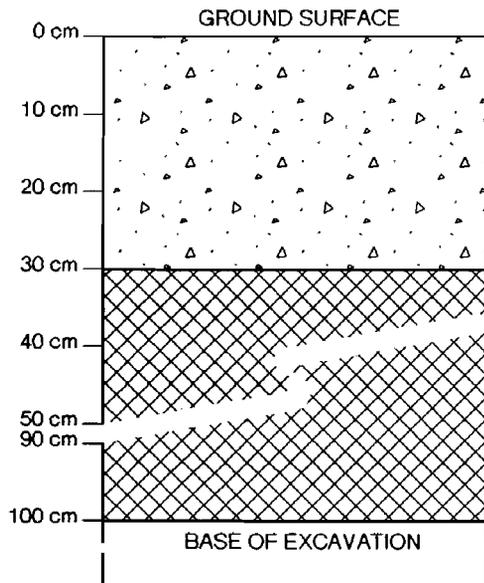
S.R. 26 IMPROVEMENTS
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BALTIMORE HUNDRED
SUSSEX COUNTY

SOIL PROFILE
AUGER BORING A6

FIGURE - 3

SKELLY AND LOY, INC.
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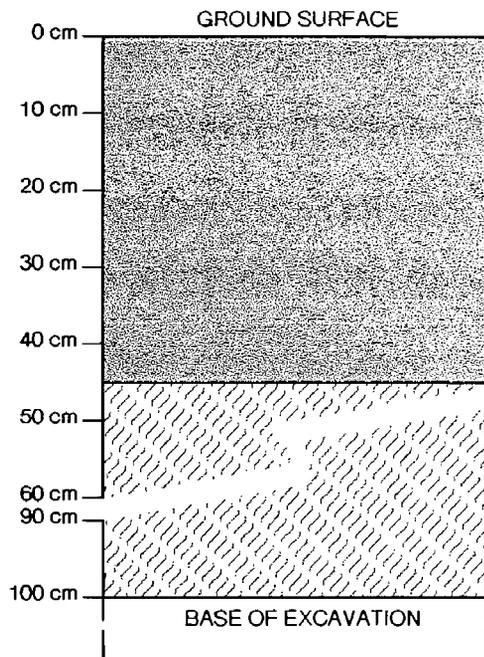
SOIL PROFILE AUGER BORING A13



Fill 10YR 4/1 Dark gray loamy sand, with common
10YR 6/1 Gray and 5YR 4/4 Reddish brown
mottles.

Cg 10YR 3/1 Very dark gray highly organic clay loam.

SOIL PROFILE AUGER BORING A17



Fill 1 10YR 4/1 Dark gray sand, with 20% fine pebbles
and 5YR 4/4 Reddish brown mottles.

Fill 2 10YR 2/1 Very dark gray 50% and 5G 4/1
Dark greenish gray 50% lenses of fill
obtained from wetland sediments.

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S.R. 26 IMPROVEMENTS
(CLARKSVILLE TO ASSAWOMAN CANAL)
BALTIMORE HUNDRED
SUSSEX COUNTY

SOIL PROFILES
AUGER BORINGS A13 AND A17

FIGURE - 4

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ENGINEERING - PLANNING

wetland was filled, the flow channelized, and the surrounding area regraded, most likely to accommodate the height, length, and grade requirements of the existing bridge and roadway at the time of construction. No intact landforms or soils remain within this area. Portions of the project APE that exhibit soil disturbances similar to those discussed above preclude the possibility of in situ archaeological resources and will not be tested.

3.0 RECOMMENDATIONS

Based on the absence of previously identified prehistoric period archaeological sites in the general vicinity of the project APE, the nature of the project APE along an existing transportation and utilities corridor, and the constricted areal size of the test areas, the S.R. 26 Improvements project APE is considered to have a low probability to contain prehistoric period archaeological sites. The presence of both well drained soils of appropriate age to contain archaeological resources, as well as the presence of less attractive poorly drained soils within the project APE, also supports a determination of low probability to contain prehistoric period archaeological remains.

Based on the presence of several potentially significant historic structures adjacent to the project APE, the indications that this area has been inhabited by Euro-Americans since A.D. 1630, and the long association of the project APE as a transportation corridor, the S.R. 26 Improvements project APE has a moderate probability to contain historic period archaeological resources. Due to the long-term rural nature of the project APE, and based on the numbers of different types of previously identified historic archaeological sites located within Sussex County, if historic period archaeological sites are identified in the project APE they will likely be related to Euro-American rural agricultural and/or domestic activities. However, given the constricted size and positioning of the project APE, it is unlikely that generalized historic artifact scatters or isolates will contribute significant information to the specific land-use history of the project APE.

4.0 PHASE I ARCHAEOLOGY SURVEY WORK PLAN

4.1 Introduction

A primary means of involving the public in the S.R. 26 Improvements project historical preservation efforts will be through the distribution of a project brochure which

seeks to elicit pertinent archaeological/historical information from the general public, and interviews with local residents and landowners, as appropriate.

The Phase I archaeology survey fieldwork is predicated on the combined results of the background research, including that contained in the S.R. 26 Planning Study (McCormick, Taylor & Associates, Inc. 2002) and the geomorphology reconnaissance discussed above, and includes testing for both precontact and historic period archaeological resources. Portions of the S.R. 26 Improvements project APE were coded for testing with regard to numerous variables, such as the presence of *in situ* soils of appropriate age to contain precontact archaeological remains and perceived associations with historic events and/or persons important to local history. Other portions of the project APE were coded as not testable due to the presence of modern period disturbances that have extensively interrupted or obliterated the subsurface stratigraphic record, the presence of natural wetland soils that are typically not associated with precontact habitation, and the presence of paving or other conditions making the subsurface inaccessible.

When these factors are considered, approximately 0.8 ha (1.9 ac) or 6.5 percent of the S.R. 26 (Clarksville to Assawoman Canal) Improvements project APE is categorized as testable at the Phase I survey level. A maximum of 120 shovel test pits (STPs) is anticipated as necessary to complete a Phase I survey of the testable portions of the S.R. 26 Improvements project APE, as currently designed. The breakdowns for the testable versus not testable portions of the project APE are presented below in Table 1 and shown in Figure 5. The testable and not testable areas will be refined as the fieldwork for the project progresses, and in concert with information gathered from historic structures and other local historic information supplied by McCormick, Taylor and Associates, Inc., landowners, and the general public.

4.2 Work Plan

The archaeological fieldwork will utilize hand excavated STPs in all testable portions of the project APE that contain relatively undisturbed *in situ* developed soil/sediment profiles and sufficient potential for prehistoric and/or historic period archaeological resources to exist based on the previously completed background research, the geomorphological reconnaissance, and field inspections.

**TABLE 1.
PROPOSED PHASE I ARCHAEOLOGY SURVEY OF S.R. 26 (CLARKSVILLE TO ASSAWOMAN CANAL)**

| Project APE Segment | Testing Methodology* | Expected Resources | Justification |
|---|--|---|--|
| North Side of S.R. 26 (west to east) | | | |
| A | no testing | none | paved parking lot; drainage ditch; Custer's low probability area |
| Test Area 1 | 3 STPs | precontact - small to large; temporary or permanent occupation; single to multiple uses historic - none | <i>in situ</i> soils of appropriate age; adjacent to small drainage; well-drained soils (EvB) ² ; Custer's low probability area; within same drainage as previously identified archaeological sites 7S-K-75, 7S-K-76, and 7S-K-77 ca. 0.6 km (0.4 mi) north property use not identified as 50+ years; within non-eligible Clarksville potential historic district |
| B | no testing | none | paving; disturbances by structures, pavement, landscaping; natural wet depression with no soils appropriate for precontact habitation; ditches; buried utilities; Custer's low probability area |
| Test Area 2 | surface collection, if possible, or 9 STPs | precontact - small; temporary; single to multiple uses historic - none | <i>in situ</i> soils of appropriate age; adjacent to drainage ditch; agricultural fields with minor plow disturbance; well drained soils (EvA ³ , Wo ⁴); Custer's moderate probability area property use not identified as 50+ years; within non-eligible Clarksville potential historic district |
| C | no testing | none | paved roadways; Custer's low and moderate probability areas |
| Test Area 3 | need to determine exact relationship of project APE to NRHP boundary (potentially 13 STPs) | precontact - none historic - Frontier Settlement period (1630-1730); Intensified and Durable Occupation (1730-1770); rural agriculture | Spring Banke (S-454) - NRHP listed property 1976; 1700-1750; Oak and gum frame, clapboarding and shingling, 1 ½ stories, rectangular, gabled roof sections, interior end chimneys; 2-story shingled addition, early 19th C.; well preserved example of small house type constructed by early area colonists of limited means; one of few area houses basically unaltered from this period; privately owned |
| D | no testing | none | paving; disturbances by structures and landscaping; front yards of modern residences; ditches; buried utilities; Custer's high probability area |
| Test Area 4 | 3 STPs | precontact - small; temporary; single to multiple uses historic - none | <i>in situ</i> soils of appropriate age; old agricultural fields with minor plow disturbance; Custer's moderate probability area; well-drained soils (EvA) property use not identified as 50+ years |

TABLE 1.
PROPOSED PHASE I ARCHAEOLOGY SURVEY OF S.R. 26 (CLARKSVILLE TO ASSAWOMAN CANAL)
(Continued)

| Project APE Segment | Testing Methodology* | Expected Resources | Justification |
|----------------------------|--|---|---|
| E | no testing | none | paving; disturbances by structures and landscaping; graded areas; road; Custer's low probability area |
| Test Area 5 | surface collection, if possible, or 4 STPs | precontact - small, temporary, single to multiple uses historic - rural domestic and agriculture; ca. 1920-recent past | <i>in situ</i> soils of appropriate age; agricultural field with minor plow disturbance; well drained soils (EvA); Custer's low probability area adjacent to O.T. Collins Family Limited Partnership Property (S-9769); potentially NRHP eligible |
| F | no testing | none | paving; disturbances by structures and landscaping; Custer's low probability area |
| Test Area 6 | surface collection, if possible, or 4 STPs at 30 m intervals | precontact - small, temporary, single to multiple uses historic - rural domestic and agriculture; ca. 1920-recent past | <i>in situ</i> soils of appropriate age; old agricultural field with potential localized modern disturbances; well-drained soils (EvA); Custer's low probability area O.T. Collins Family Limited partnership Property (S-9769); potentially NRHP eligible |
| G | no testing | none | paving; disturbances by structures; Custer's low probability area |
| Test Area 7 | need to determine exact relationship of project APE to existing cemetery boundary (scraping to determine if unmarked graves exist) | precontact - none historic - potential unmarked graves | proximity to existing Messick Cemetery; established ca. 1890; family cemetery; not NRHP eligible |
| H | no testing | none | paving; disturbances by commercial/industrial development; landscaping; buried utilities; road; Custer's moderate probability area |
| Test Area 8 | 3 STPs | precontact - small, temporary, single to multiple uses historic - none | <i>in situ</i> soils of appropriate age; wooded area; well drained soils (EvA); Custer's low and moderate probability areas property use not identified as 50+ years |

TABLE 1.
PROPOSED PHASE I ARCHAEOLOGY SURVEY OF S.R. 26 (CLARKSVILLE TO ASSAWOMAN CANAL)
(Continued)

| Project APE Segment | Testing Methodology* | Expected Resources | Justification |
|---|--|--|---|
| I | no testing | none | paving; severely disturbed by commercial/industrial development; structures and landscaping; front yards of modern residences; buried utilities; road; graded areas; wet areas; poorly drained soils; ditches; Custer's low probability area |
| Test Area 9 | 6 STPs | precontact - small, temporary, single to multiple uses historic - domestic; urbanization; suburbanization; ca. 1935-recent past | <i>in situ</i> soils of appropriate age; wooded area; Custer's low and moderate probability areas; storm water management facility is located well off of existing S.R. 26 in undisturbed soils Ruby Quillen House (S-9740); not NRHP eligible |
| J | no testing | none | paving; disturbances by commercial/industrial development; structures and landscaping; front yards of modern residences; buried utilities; roads; wet areas; ditches; Custer's low and moderate probability areas |
| South Side of S.R. 26 (west to east) | | | |
| K | no testing | none | paving; disturbances by church structure and landscaping; roads; Custer's low probability area |
| Test Area 10 | need to determine exact relationship of project APE to existing cemetery boundary (scraping to determine if unmarked graves exist) | precontact - none historic - potential unmarked graves | proximity to St. Georges United Methodist Church Cemetery; established ca. 1880; not NRHP eligible |
| L | no testing | none | paving; disturbances by structures and landscaping; buried utilities; road; Custer's low probability area |

TABLE 1.
PROPOSED PHASE I ARCHAEOLOGY SURVEY OF S.R. 26 (CLARKSVILLE TO ASSAWOMAN CANAL)
(Continued)

| Project APE Segment | Testing Methodology* | Expected Resources | Justification |
|---------------------|--|--|---|
| Test Area 11 | 5 STPs | <p>precontact - small, temporary, single to multiple uses</p> <p>historic - domestic; urbanization; suburbanization; ca. 1920-recent past; domestic; early urbanization; ca. 1885 to recent past</p> | <p><i>in situ</i> soils of appropriate age; some wooded area; well drained soils (EvA); adjacent to small drainage; Custer's low probability area</p> <p>St. George's Church Parsonage (S-2424), not NRHP eligible; Sylvester G. Quillen, Sr. property (S-2474), not NRHP eligible; within non-NRHP eligible Clarksville potential historic district</p> |
| M | no testing | none | paving; disturbances by structures and landscaping; buried utilities, roads; Custer's low and moderate probability areas |
| Test Area 12 | 4 STPs | <p>precontact - small to large; temporary or permanent occupation; single to multiple uses</p> <p>historic - none</p> | <p><i>in situ</i> soils of appropriate age; agricultural field with minor plow disturbance; well drained soils (EvA); adjacent to Custer's high probability area; within same drainage as previously identified archaeological sites 7S-K-75 and 7S-K-77 ca. 1.0 km (0.6 mi) northwest</p> <p>property use not identified as 50+ years</p> |
| N | no testing | none | paving; disturbances by structures and landscaping; buried utilities; Custer's high probability area |
| Test Area 13 | surface collection, if possible, or 6 STPs | <p>precontact - small to large; temporary or permanent occupation; single to multiple uses</p> <p>historic - rural, domestic?</p> | <p>precontact - <i>in situ</i> soils of appropriate age; agricultural field with minor plow disturbance; adjacent to Custer's high probability area; well and poorly drained soils (EvA, Fa⁵); within same drainage as previously identified archaeological sites 7S-K-75 and 7S-K-77 ca. 1.0 km (0.6 mi) northwest</p> <p>Esther Hudson House (S-2470); not evaluated for NRHP; demolished or removed</p> |
| O | no testing | none | paving; disturbances by commercial/industrial development; structures and landscaping; front yards of modern residences; buried utilities; roads; graded areas; wet areas; poorly drained soils; ditches; Custer's low and moderate probability area |

TABLE 1.
PROPOSED PHASE I ARCHAEOLOGY SURVEY OF S.R. 26 (CLARKSVILLE TO ASSAWOMAN CANAL)
(Continued)

| Project APE Segment | Testing Methodology* | Expected Resources | Justification |
|----------------------------|---|---|---|
| Test Area 14 | 5 STPs at 30 m intervals | precontact - small, temporary, single to multiple uses historic - domestic; urbanization and early suburbanization; ca. 1915-recent past | <i>in situ</i> soils of appropriate age; one of few lightly disturbed properties on south side of S.R. 26 in this portion of project APE; poorly drained soils (Fa); Custer's low probability area Franklin S. and Diane M. Bennett Property (S-2450); potentially NRHP eligible |
| P | no testing | none | paving; disturbances by structures and landscaping; front yards of modern residences; roads; Custer's moderate probability area |
| Test Area 15 | 4 STPs at 30 m intervals | precontact - small to large; temporary or permanent occupation; single to multiple uses historic - none | <i>in situ</i> soils of appropriate age; adjacent to wetland; poorly drained soils (Pm ^e); Custer's low and moderate probability areas; within same drainage as previously identified archaeological site 7S-K-54 ca. 0.6 km (0.4 mi) northeast property use not identified as 50+ years |
| Q | no testing | none | paving; disturbances by structures and landscaping; road |
| Test Area 16 | surface collection, if possible, or 3 STPs | precontact - small to large; temporary or permanent occupation; single to multiple uses historic - none | <i>in situ</i> soils of appropriate age; agricultural field with minor plow disturbance; well drained soils (EvA); Custer's low probability area; within same drainage as previously identified archaeological site 7S-K-54 ca. 0.6 km (0.4 mi) northeast property use not identified as 50+ years |
| R | no testing | none | paving; disturbances by structures and landscaping; road; Custer's low probability area |
| Test Area 17 | surface collection, if possible, or 11 STPs | precontact - small, temporary, single to multiple uses historic - rural agriculture; ca. 1850-recent past | <i>in situ</i> soils of appropriate age; agricultural field with minor plow disturbance; well drained soils (EvA, Wo); Custer's low probability area Pearl G. Robinson Property (S-9121); only corn crib is potentially NRHP eligible |
| S | no testing | none | paving; disturbances by structures and landscaping; buried utilities; road; Custer's low probability area |

**TABLE 1.
PROPOSED PHASE I ARCHAEOLOGY SURVEY OF S.R. 26 (CLARKSVILLE TO ASSAWOMAN CANAL)
(Continued)**

| Project APE Segment | Testing Methodology* | Expected Resources | Justification |
|----------------------------|--|--|---|
| Test Area 18 | 4 STPs | precontact - small, temporary, single to multiple uses historic - none | <i>in situ</i> soils of appropriate age; well-drained soils (EvA); Custer's moderate probability area property use not identified as 50+ years |
| T | no testing | none | paving; disturbances by structures and landscaping; wetland; slope adjacent to drainage; Custer's low, moderate, and high probability areas |
| Test Area 19 | 5 STPs | precontact - small to large; temporary or permanent occupation; single to multiple uses historic - none | <i>in situ</i> soils of appropriate age; wooded; Custer's high probability area; adjacent to wetland area and nearby stream; well drained soils (KI ¹); within same drainage as previously identified archaeological sites 7S-K-29 and 7S-K-103 ca. 1.3 km (0.8 mi) north property use not identified as 50+ years |
| U | no testing | none | paving; disturbances by structures and landscaping; front yards of modern residences; well drained soils (KI); Custer's high probability area |
| Test Area 20 | 3 STPs | precontact - small, temporary, single to multiple uses historic - none | <i>in situ</i> soils of appropriate age; wooded; well drained soils (KI); Custer's high probability area; previously recorded archaeological site 7S-K-101 located nearby property use not identified as 50+ years |
| V | no testing | none | paving; disturbances by structures and landscaping; road; well-drained soils (KI); Custer's low and high probability areas |
| Test Area 21 | need to determine exact relationship of project APE to existing cemetery boundary (scraping to determine if unmarked graves exist) | precontact - none historic - potential unmarked graves | proximity to Mariners Bethel United Methodist Church Cemetery; established ca. 1899; not NRHP eligible |

**TABLE 1.
PROPOSED PHASE I ARCHAEOLOGY SURVEY OF S.R. 26 (CLARKSVILLE TO ASSAWOMAN CANAL)
(Continued)**

| Project APE Segment | Testing Methodology* | Expected Resources | Justification |
|------------------------------------|-----------------------------|---|---|
| W | no testing | none | paving; disturbances by structures and landscaping; front yards of modern residences; roads; buried utilities; Custer's low probability area |
| Test Area 22 | 6 STPs | precontact - small, temporary, single to multiple uses historic - none | <i>in situ</i> soils of appropriate age; well-drained soils (Wo); Custer's low probability area property use not identified as 50+ years; within non-NRHP eligible Ocean View potential historic district |
| X | no testing | none | paving; disturbances by structures and landscaping; graded areas; buried utilities; Custer's low probability area |
| Test Area 23 | 5 STPs | precontact - small, temporary, single to multiple uses historic - none | <i>in situ</i> soils of appropriate age; wooded area; well drained soils (Wo); Custer's moderate probability area; stormwater management facility is located well off of existing S.R. 26 in undisturbed soils property use not identified as 50+ years; within non-NRHP eligible Ocean View potential historic district |
| Windmill Road | | | |
| Test Area 24 (at Windmill Road) | 5 STPs | precontact - small, temporary, single to multiple uses historic - rural; agriculture | <i>in situ</i> soils of appropriate age; well and poorly drained soils (EvA, Pm); Custer's moderate probability area property use identified as 50+ years |

*maximum number of STPs based on a 15.0 m STP interval, unless otherwise stated.

EvB² = Evesboro loamy sand, loamy substratum, 2 to 5 percent slopes

EvA³ = Evesboro loamy sand, loamy substratum, 0 to 2 percent slopes

Wo⁴ = Woodstown sandy loam

Fa⁵ = Fallsington sandy loam

Pm⁶ = Pocomoke sandy loam

Kl⁷ = Klej loamy sand

Due to the constricted width of the project APE, there do not appear to be areas within the project APE that would be amenable to plowing/discing strictly for the archaeological resources research; therefore, the survey will utilize STPs spaced at 15.0 m (49.2 ft) intervals along a single transect that is located approximately 12.0-13.0 m (39.4-42.7 ft) off of the existing roadway centerline within testable portions of the project APE. Should the ground surface visibility of any area exceed 85 percent due to landowner plowing/discing, surface reconnaissance may be used in concert with the excavation of STPs. A minimal number of STPs will be excavated in order to adequately characterize the subsurface profile of the area being surface collected. Should artifacts be found during the STP excavations or surface collection, the boundaries of the artifact distribution will be delineated by lessening the STP interval. Judgmental STPs may also be used in areas where field observations warrant their emplacement. The STPs will measure 50.0 cm (19.7 in) in diameter and will be excavated to sterile subsoil. All sediments removed from the STPs will be screened through 0.64 cm (0.25 in) mesh hardware cloth. This proposal includes the excavation of a maximum of 120 STPs within the S.R. 26 Improvements project APE.

Three test areas, Test Areas 7, 10, and 21, are portions of the proposed roadway improvements project that are adjacent to existing historic cemeteries. These three test areas will need to be surveyed to make sure that no unmarked graves will be disturbed by the proposed construction. No marked graves are present in the proposed project APE, but it is possible that unmarked graves may be present. The purposes of the cemetery boundary delineation will be to determine if any graves are present in the project APE, and to plot any discovered graves on project mapping. Although there are numerous remote sensing methods for identifying possible grave locations, the delineation method with the highest clarity is the removal of the plowzone/topsoil. By limiting soil removal to just the topsoil, it is highly unlikely that any coffin, coffin hardware, or human remains will be disturbed during the delineation. The exposed subsoil will be manually shovel-shaved, and all soil anomalies will be transit-mapped. The delineation will not include the excavation or removal of any human remains and only minimal archival research to help delineate the approximate period of the burial(s) will be accomplished under this task. No scraping will occur outside the project APE.

Due to the small size of the three test areas adjacent to the cemeteries and their proximity to heavily traveled roadways and intersections, the stripping of the topsoil will be accomplished either by hand or by using a small Bobcat®-like mechanical backhoe/bulldozer. The exact method of stripping to be used at each cemetery location will need to be determined in the field based on various areal factors such as type of sediments, obstacles, paving, etc. that are present; safety of the field crew and machine operator during stripping operations due to traffic; time of year when the stripping is accomplished; and availability of mechanical equipment rental. Whatever the method of stripping, the areas that will be stripped will include those which are only inside the proposed project APE and adjacent to the three cemeteries. Based on current mapping, the areas to be stripped appear to total approximately 938.9 m² (10,106.6 ft²).

The backdirt will be temporarily stored on adjacent, non-cemetery areas during the delineation. This will preclude machine impact to the remainder of the cemetery. The contours of the project APE will be restored after completion of the stripping. Reseeding or sodding will be the responsibility of DelDOT personnel.

Daily notes will be recorded and photographs will be taken of the archaeological resources research. The results of the geomorphology and Phase I survey fieldwork will be presented in a Phase I archaeology report. The report will include an overview of the background and field methods, plan view maps, representative profiles, plotting of suspected grave stains, and drawings and photographs of the stains. Any recovered artifacts will be preliminarily analyzed in order to allow questions of site integrity and occupation span to be addressed. A NRHP eligibility discussion including any Phase II recommendations will be presented for each site identified. If Phase II studies are recommended or unmarked graves are identified, additional research concerning these will need to be covered under a supplement to this agreement.

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1984a Bethany Beach, Delaware topographic map, 7.5 minute quadrangle (Revised 1991). U.S. Geological Survey, Denver.

1984b Frankford, Delaware topographic map, 7.5 minute quadrangle (Revised 1991). U.S. Geological Survey, Denver.

APPENDIX A
SOIL PROFILES

SOIL PROFILE

Auger Boring A1

Date: June 2, 2003

Soil Description By: M.G. Sams, CPSS

County: Sussex County, Delaware

Project Location: S.R. 26 Improvements (Clarksville to Assawoman Canal)

| Horizon/Depth | SOIL COLOR | | Texture | Structure | Consistence | Boundary | Comments |
|--------------------------------------|-----------------------------|----------|------------|----------------------|-------------|----------|----------|
| | Matrix | Mottling | | | | | |
| Ap / 0-25.0 cm (0-9.8 in) | 10YR 4/3 Brown | | sandy loam | weak medium granular | friable | clear | |
| Bw / 25.0-40.0 cm+ (9.8-15.8 in+) | 10YR 5/4 Yellowish brown | | sandy loam | weak medium blocky | friable | | |

Additional Notes: Upland, grassy area near intersection. Relatively undisturbed soil profile.

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SOIL PROFILE

Auger Boring A5

Date: June 2, 2003

Soil Description By: M.G. Sams, CPSS

County: Sussex County, Delaware

Project Location: S.R. 26 Improvements (Clarksville to Assawoman Canal)

| Horizon/Depth | SOIL COLOR | | Texture | Structure | Consistence | Boundary | Comments |
|---------------------------------------|-----------------------------|----------|------------|----------------------|-------------|----------|----------|
| | Matrix | Mottling | | | | | |
| Ap / 0-30.0 cm (0-11.8 in) | 10YR 4/2 Dark grayish brown | | sandy loam | weak medium granular | friable | clear | |
| Bw / 30.0-40.0 cm+ (11.8-15.8 in+) | 10YR 5/3 Brown | | sandy loam | weak medium blocky | friable | | |

Additional Notes: Upland. Relatively undisturbed soil profile.

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SOIL PROFILE

Auger Boring A6

Date: June 2, 2003

Soil Description By: M.G. Sams, CPSS

County: Sussex County, Delaware

Project Location: S.R. 26 Improvements (Clarksville to Assawoman Canal)

| Horizon/Depth | SOIL COLOR | | Texture | Structure | Consistence | Boundary | Comments |
|------------------------------------|---------------------|----------|------------------------|----------------|-------------|----------|-------------------------------------|
| | Matrix | Mottling | | | | | |
| fill / 0-10.0 cm (0-3.9 in) | | | asphalt chips and sand | | | | fill from roadside |
| C / 10.0-25.0 cm+ (3.9-9.8 in+) | 10YR 6/3 Pale brown | | sand | single grained | loose | | deep subsoil from truncated profile |

Additional Notes: Upland, margin of crop field. Area was excavated to deep subsoil (C horizon), then covered with fill.

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SOIL PROFILE

Auger Boring A13

Date: June 2, 2003

Soil Description By: M.G. Sams, CPSS

County: Sussex County, Delaware

Project Location: S.R. 26 Improvements (Clarksville to Assawoman Canal)

| Horizon/Depth | SOIL COLOR | | Texture | Structure | Consistence | Boundary | Comments |
|--|-------------------------------|--|-----------------------------|------------------------------|------------------|----------|--|
| | Matrix | Mottling | | | | | |
| fill / 0-30.0 cm (0-11.8 in) | 10YR 4/1 Dark gray | common: 10YR 6/1 Gray 5YR 4/4 Reddish brown | loamy sand | very weak medium granular | very friable | abrupt | fill for lawn extension |
| Cg / 30.0-100.0 cm+ (11.8-39.4 in+) | 10YR 3/1 Very dark gray | | highly organic clay loam | massive | plastic, flowing | | saturated; former wetland deposition |

Additional Notes: Former wetland area, now covered with fill.

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SOIL PROFILE

Auger Boring A17

Date: June 2, 2003

Soil Description By: M.G. Sams, CPSS

County: Sussex County, Delaware

Project Location: S.R. 26 Improvements (Clarksville to Assawoman Canal)

| Horizon/Depth | SOIL COLOR | | Texture | Structure | Consistence | Boundary | Comments |
|--|--|-----------------------------|--|----------------|---------------------|----------|-----------|
| | Matrix | Mottling | | | | | |
| fill 1 / 0-45.0 cm (0-17.7 in) | 10YR 4/1 Dark gray | 5YR 4/4 Reddish brown | sand with 20% fine pebbles | single grained | loose | abrupt | |
| fill 2 / 45.0-100.0 cm+ (17.7-39.4 in+) | 10YR 2/1 Very dark gray (50%) 5G 4/1 Dark greenish gray (50%) | | lenses of fill obtained from wetland sediments | massive | plastic, flowing | | saturated |

Additional Notes: Former wetland area, now covered with fill.

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