

SECTION 5.0 ARCHAEOLOGICAL SURVEY

5.1 Assessment of Archaeological Resources Sensitivity

The assessment of archaeological resources sensitivity is based on two allied concepts: the potential for archaeological sites to exist in a given area, and the sensitivity of that area to contain intact cultural resources. In areas where no sites are documented, the potential presence of prehistoric resources is based primarily on environmental setting: topography, proximity to water, and soil quality. The potential presence of historic resources is usually determined through analysis of historic sources and historic cartographic materials. The presence of historic roads documented on historic maps also increases the potential for historic sites.

Prehistoric Archaeological Sensitivity

Archaeological evidence indicates that the Mid-Peninsular Drainage Divide was occupied from the Paleo-Indian period to the present (Custer 1984, 1996; Custer and Wallace 1983; Wise 1983). Custer's predictive model suggests that micro-band base camps/seasonal camps and procurement camps are the site types most likely to exist in the Lums Pond area. Procurement camps are defined as small-group, short-term, specialized-purpose occupations characterized by low artifact density and diversity. Debitage is expected to be small-sized pieces representative of tool maintenance, and few tool types may be represented in the assemblage. Micro-band base camps are defined by their larger size and greater artifact density and diversity, which suggest occupation by larger groups over more extended time periods. Debitage ranges across all production stages on micro-band base camps, and a wider array of tool types representative of more varied site activities is present.

A review of registered sites for the S.R. 896 corridor indicated that of the 34 sites within and adjacent to the Mid-Peninsular Drainage Divide, 31 were located within 200 meters of a watercourse (Lothrop et al. 1987:29). Paleo-Indian sites were also located in proximity to high-quality cryptocrystalline sources of the Delaware Chalcedony Complex, which includes Iron Hill and Chestnut Hill. Archaic period sites correlate with the locations of bay-basin features and the margins of poorly-drained swamps and include a range of sites types from procurement sites through macro-band sites. Woodland I sites are commonly located along major river floodplains and estuarine swamps where large occupations are documented. Other preferred locations for Woodland I sites are well-drained uplands in proximity to swamps and streams where micro-band camps and procurement sites may be expected.

Background research indicates that six prehistoric sites are located within 1,500 feet (457.2 meters) of the APE, in similar upland settings adjacent to tributaries and wetlands (see Table 4.1). These sites are characterized as either micro-band camps or procurement sites and range in age from the Archaic through the Woodland II periods, and two sites contain multiple occupations from two or more time periods. An additional 11 prehistoric sites are located within one mile of the APE. In total, 15 of the 17 prehistoric archaeological sites within one mile of the APE are focused on the headwaters tributaries of St. George's Creek impounded to create Lums Pond and wetlands associated with these tributaries.

Based on the presence of several known sites nearby, the topographic setting, and proximity to St. George's Creek, the undisturbed portions of the APE have a high sensitivity for prehistoric resources, particularly small seasonal procurement sites and micro-band camp sites.

Historic Archaeological Sensitivity

Historic occupation of Pencader Hundred dates to as early as the eighteenth century. S.R. 896 between Summit Bridge and Porter Road is situated within its early eighteenth century roadbed (Lothrop et al. 1987:45). Lums Pond was created in the mid-eighteenth century as part of a mill complex that served early farmers in the area (Petraglia et al. 1998). Documented historic resources in the vicinity of the APE include buildings and sites associated with prominent nineteenth century families in Pencader Hundred: the Bouldens, Howells, and Caziers. The National Register listed White Hall historic property is located adjacent to the APE (see Figure 1.2).

The S.R. 896 survey (Lothrop et al. 1987) identified three historic cultural resources in proximity to the APE: M.H. Paxson House, School House #57 (N-5014), and Bellview Farm (N-3975). School House #57, a late nineteenth to early twentieth century building near the northeast corner of the intersection of S.R. 896 and Howell School Road, was demolished sometime after the 1986 S.R. 896 survey. This building replaced an earlier, mid-nineteenth century building located further east along the north side of Howell School Road. A review of nineteenth century maps identified structures in proximity to the APE attributed to "A. Eliason" (Rea and Price 1849; Beers 1868; Hopkins 1881; Baist 1893; see Figures 4.2–4.5), "G. Millward"/"R.W. Griffith"/"W. Barron" (Rea and Price 1849; Beers 1868; Hopkins 1881; Baist 1893; see Figures 4.2–4.5), "School House No. 57" (Rea and Price 1849; Beers 1868; Hopkins 1881; Baist 1893; see Figures 4.2–4.5), and "M.H.P."/"B. Ustick" (Beers 1868; Hopkins 1881; Baist 1893; see Figures 4.2–4.5). The area remained rural until the late twentieth century when farms began to be subdivided for residential housing.

Based on the presence of nearby map-documented structures, some of which may remain extant, the presence of the White Hall historic property, the established age of S.R. 896 as an early colonial

travel route and recorded historic archaeological sites in the vicinity of the APE, the undisturbed portions of the APE have a high sensitivity for historic resources. In particular, portions of the APE near S.R. 896 and map documented structures have the highest potential for historic archaeological resources. Research suggests the potential for domestic and agriculture related historic sites.

5.2 Research Methods

Prior to the initiation of archaeological fieldwork, background research, consisting of an examination of archaeological site files, cultural resources surveys, and relevant state-wide historic contexts, was conducted at the DESHPO. Archaeological fieldwork included the portions of the APE selected by DelDOT for subsurface testing (email dated September 7, 2011). The rest of the APE was determined to have a low archaeological potential due to disturbance (i.e. roadside), or consist of minimal impact areas that are too small to contain archaeological sites.

Archaeological testing consisted of the excavation of 143 shovel test pits (STPs) spaced at 15-meter (49.21 feet) intervals in a linear pattern within the portions of the APE considered by Del DOT to have archaeological potential as depicted on the construction plans. Sixteen bracket STPs placed at 3-meter intervals from positive STPs were excavated around four STPs where prehistoric artifacts were recovered. Six judgmentally placed STPs were excavated at 7.5-meter intervals around a cluster of STPs that contained early historic materials to supplement the planned STPs and further define the limits of the historic deposit.

Shovel test pits measured 50 centimeters (19.7 inches) in diameter and were hand excavated with round nosed shovels. Each STP was excavated into subsoils to a depth of at least 60 centimeters (23.2 inches) below ground surface. Where necessary, the depth of STPs was extended with a four-inch diameter bucket auger. All STP locations were plotted on project base maps. Archaeological testing was not completed in disturbed areas; however, these areas were documented with field notes and digital photography. Descriptions of each stratum, including Munsell color, texture, thickness, sediments, and presence or absence of cultural material, were recorded on standardized STP forms. Soil removed was separated by stratum and screened through ¼-inch wire mesh hardware cloth to recover artifacts. Recovered artifacts were bagged separately by provenience and placed in re-sealable polyethylene bags with an accompanying tag that listed the appropriate provenience information. Following the completion of excavation, each STP was back-filled and the ground returned to as close to original contours as possible. Daily field notes were maintained by the field supervisor and crew. A shovel test pit log is provided in Appendix B. Representative photographs of all field activities were taken and plotted on project base maps (see Section 5.3).

A sample of twentieth-century artifacts was retained. The remainder were described in field notes, listed as Not Retained and discarded. Artifacts were taken to an off-site laboratory in Cranbury, New Jersey for cleaning and analysis. Artifacts were sorted by material/artifact type and placed into a clean four millimeter-thick re-sealable polyethylene bag.

Artifacts were cataloged according to provenience. Within each provenience, historic artifacts were cataloged according to functional group, material, class, and type. Where appropriate, a detailed description of artifacts was made. Where possible a temporal designation was assigned to artifacts with known manufacture dates. Prehistoric artifacts recovered were cataloged by provenience, artifact type and material. Lithic data included a detailed inventory that contained descriptive and numerical data. Where possible, date ranges were assigned to diagnostic tools. Where appropriate, data from lithic analysis included length, width, thickness, cortex, heat treatment and whole flake termination and platform description subfields. Separate artifact catalogs were prepared for historic and prehistoric artifacts and included in Appendix C.

Data analysis included the delineation of preliminary site boundaries on project maps. Archaeological site forms will be prepared upon review and approval of this report by DelDOT and DESHPO.

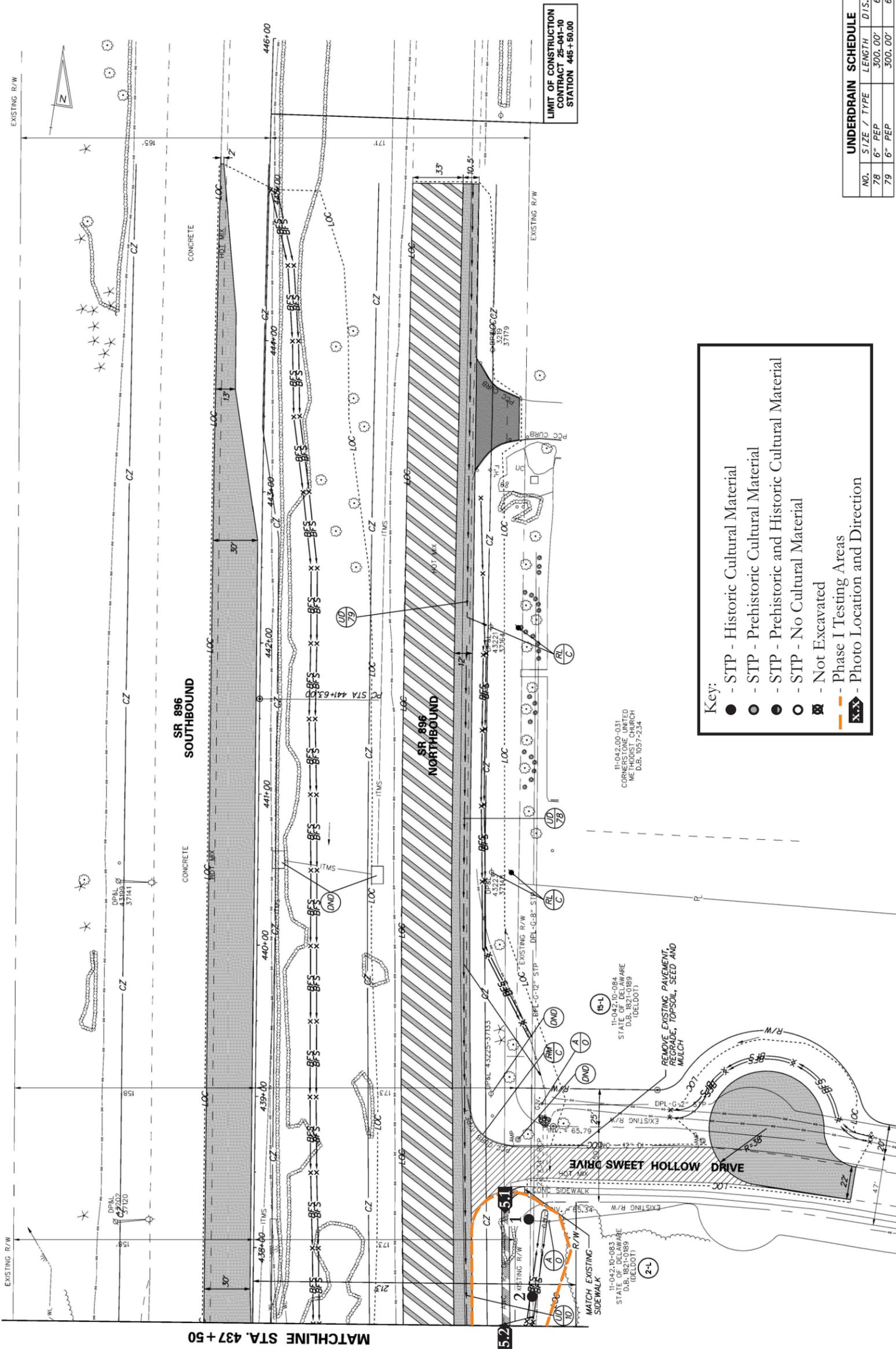
All artifacts recovered and project documents are temporarily stored at the office of RGA, in Cranbury, New Jersey. The research design was considered sufficient to determine if any potentially significant archaeological resources were present in the APE.

5.3 Results

Archaeological fieldwork was conducted from November 28 to December 2, 2011 and consisted of a visual reconnaissance of the APE and the excavation of 165 STPs (see Figures 5.1a-g). For ease of discussion, archaeological fieldwork results have been divided in testing areas.

S.R. 896 STA 438.50 to 432.50

Shovel testing began on the northbound side of S.R. 896 adjacent to its intersection with Sweet Hollow Drive (STA 438.50) and extended south 167.6 meters (550 feet) to a tributary of St. George's Creek, immediately north of STA 432.50. The width of the APE in this area ranges from approximately 20 to approximately 18.3 meters (60 feet) (see Figures 5.1a-b). The portion of the APE closest to S.R. 896 has been comprehensively disturbed by the installation of underground utilities and the excavation of a stormwater drainage ditch approximately 1.2 meters (4.2 feet) deep



UNDERDRAIN SCHEDULE			
NO.	SIZE / TYPE	LENGTH	D/S. EL.
78	6" PEP	300.00'	66.70
79	6" PEP	300.00'	68.97

- Key:**
- - STP - Historic Cultural Material
 - - STP - Prehistoric Cultural Material
 - ⊙ - STP - Prehistoric and Historic Cultural Material
 - - STP - No Cultural Material
 - ⊠ - Not Excavated
 - - Phase I Testing Areas
 - ⊠ - Photo Location and Direction

CONTRACT	BRIDGE NO.	SHEET NO.
25-04-10		31
COUNTY	DESIGNED BY:	TOTAL SHTS.
NEW CASTLE	TAM / MAG	127
	CHECKED BY:	
	PAH	

CONSTRUCTION PLAN	
N54, HOWELL SCHOOL ROAD FROM SR 896 TO SR 71	

SCALE	0 30 60 90
	FEET

ADDITIONS / REVISIONS

DEPARTMENT OF TRANSPORTATION

DEPARTMENT OF TRANSPORTATION

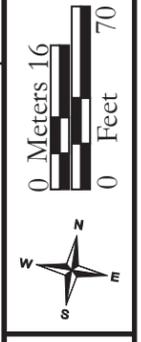
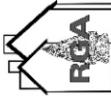


Figure 5.1a:

Construction Plan showing the Area of Potential Effects, Phase I Testing Areas, locations of shovel test pits, and photo locations.



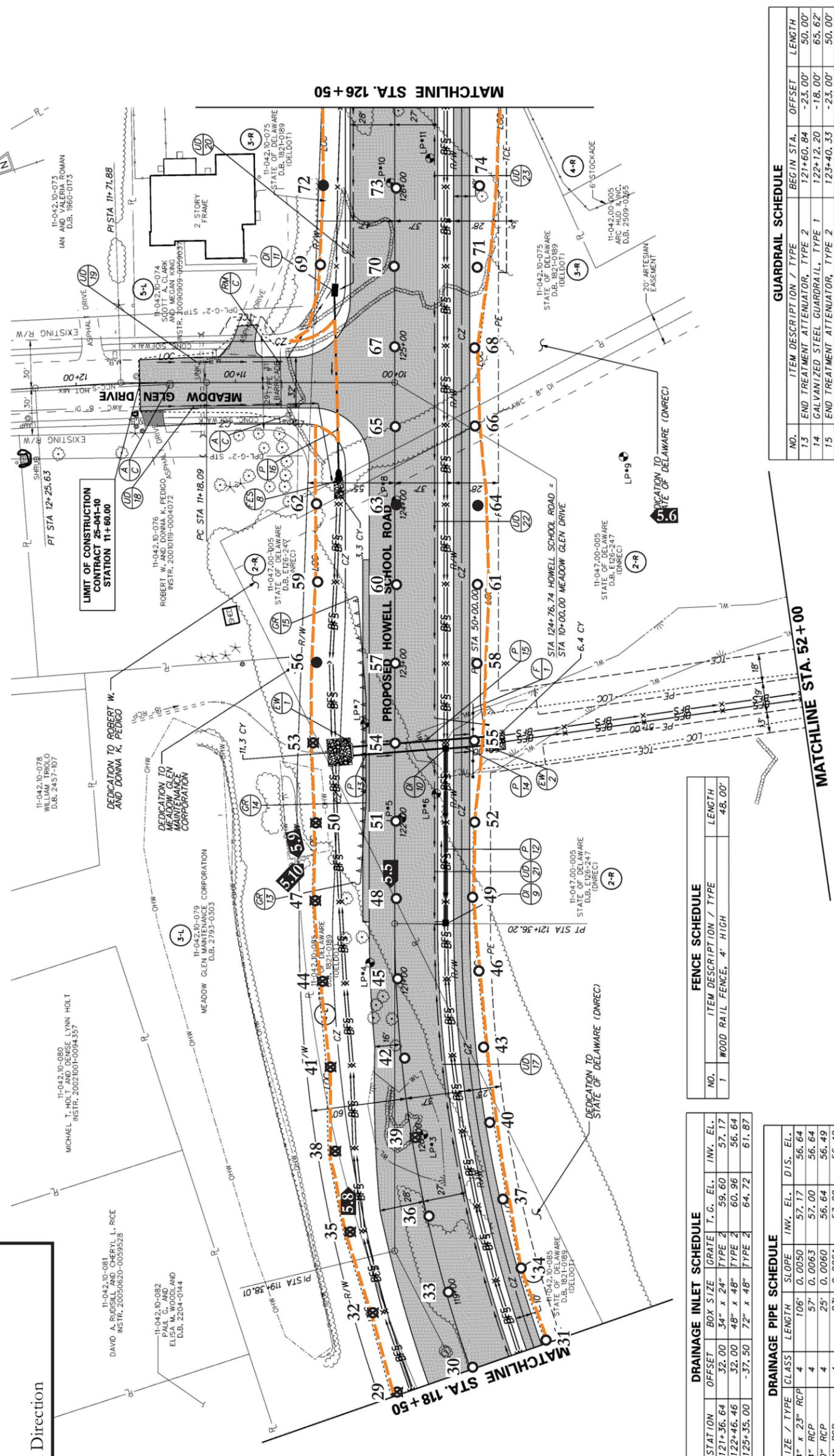
Key:

- - STP - Historic Cultural Material
- - STP - Prehistoric Cultural Material
- ◐ - STP - Prehistoric and Historic Cultural Material
- - STP - No Cultural Material
- ⊠ - Not Excavated
- Phase I Testing Areas
- Site Limits
- ⊠ - Photo Location and Direction

ENDWALL SCHEDULE			
NO.	SIZE / TYPE	SKEW	SAFETY GRATE
EW 1	2'-24" DW	90	YES
EW 2	24" x 30" DW	90	NO

FLARED END SECTION SCHEDULE			
NO.	SIZE / TYPE	SLOPE	SAFETY GRATE
8	14" x 23" RCP	0.0040	NO

ENERGY DISSIPATOR SCHEDULE						
STATION	OFFSET	RIP RAP SIZE	D	T	W1	W2
122+45	-27'	R4	2.0	1.2	8.0	8.0
124+15	-35'	R4	0.5	1.2	3.0	3.0
122+52	57'	R4	0.5	1.2	9.0	9.0
					10.0	10.0
					56.49	56.60



DRAINAGE INLET SCHEDULE				
NO.	STATION	OFFSET	BOX SIZE	GRATE
9	121+36.64	32.00	34" x 24"	TYPE 2
10	122+46.46	32.00	48" x 48"	TYPE 2
11	125+35.00	-37.50	72" x 48"	TYPE 2

FENCE SCHEDULE		
NO.	ITEM DESCRIPTION / TYPE	LENGTH
1	WOOD RAIL FENCE, 4' HIGH	48.00'

DRAINAGE PIPE SCHEDULE				
NO.	SIZE / TYPE	CLASS	LENGTH	SLOPE
12	14" x 23" RCP	4	106'	0.0050
13	24" RCP	4	57'	0.0063
14	30" RCP	4	25'	0.0060
15	24" RCP	4	83'	0.0061
16	14" x 23" RCP	4	112'	0.0040

GUARDRAIL SCHEDULE				
NO.	ITEM DESCRIPTION / TYPE	BEGIN STA.	OFFSET	LENGTH
13	END TREATMENT ATTENUATOR, TYPE 2	121+60.84	-23.00'	50.00'
14	GALVANIZED STEEL GUARDRAIL, TYPE 1	122+12.20	-18.00'	65.62'
15	END TREATMENT ATTENUATOR, TYPE 2	123+40.33	-23.00'	50.00'

DELAWARE
DEPARTMENT OF TRANSPORTATION

ADDENDUMS / REVISIONS

N54, HOWELL SCHOOL ROAD
FROM SR 896 TO SR 71

CONTRACT: 25-041-10
DESIGNED BY: TAM / MAG
COUNTY: NEW CASTLE
CHECKED BY: PAH

SHEET NO. 21
TOTAL SHEETS 127

CONSTRUCTION PLAN

0 Meters 16
0 Feet 70



Figure 5.1c:

Construction Plan showing the Area of Potential Effects, Phase I Testing Areas, locations of shovel test pits, and photo locations.

DRAINAGE PIPE SCHEDULE						
NO.	SIZE / TYPE	CLASS	LENGTH	SLOPE	INV. EL.	DIS. EL.
33	19" X 30" RCP	4	36'	0.0100	58.87	58.51
34	19" X 30" RCP	4	147'	0.0100	60.34	58.87
35	18" RCP	4	26'	0.0100	60.60	60.34
36	18" RCP	4	6'	0.0200	60.72	60.60
37	19" X 30" RCP	4	226'	0.0100	62.60	60.34
38	18" RCP	4	26'	0.0100	62.86	62.60
39	14" X 23" RCP	4	19'	0.0500	64.41	63.46
40	18" RCP	4	296'	0.0100	65.66	62.70

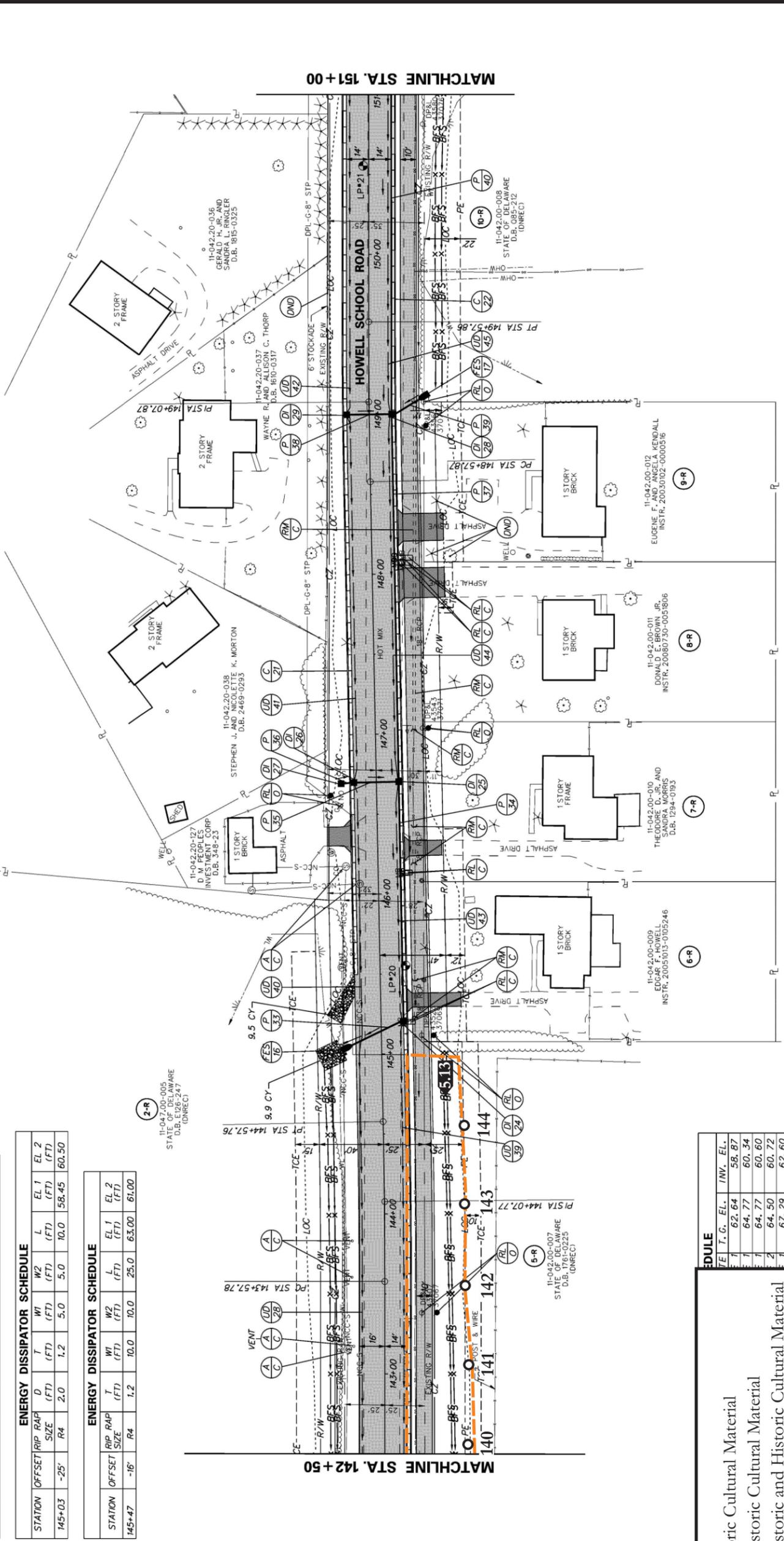
ENERGY DISSIPATOR SCHEDULE									
STATION	OFFSET	RIP SIZE	D	T	W1	W2	L	EL 1	EL 2
	(FT)	(FT)	(FT)	(FT)	(FT)	(FT)	(FT)	(FT)	(FT)
145+03	-25'	R4	2.0	1.2	5.0	5.0	10.0	58.45	60.50

ENERGY DISSIPATOR SCHEDULE								
STATION	OFFSET	RIP SIZE	T	W1	W2	L	EL 1	EL 2
	(FT)	(FT)	(FT)	(FT)	(FT)	(FT)	(FT)	(FT)
145+47	-16'	R4	1.2	10.0	10.0	25.0	63.00	61.00

CURB SCHEDULE			
NO.	ITEM DESCRIPTION / TYPE	LENGTH	551.00
21	INTEGRAL PCC CURB AND GUTTER, TYPE 4	850.00	
22	INTEGRAL PCC CURB AND GUTTER, TYPE 4	850.00	

FLARED END SECTION SCHEDULE			
NO.	SIZE / TYPE	SLOPE	SAFETY GRATE
16	19" X 30" RCP	0.0100	NO
17	14" X 23" RCP	0.0500	YES

UNDERDRAIN SCHEDULE			
NO.	SIZE / TYPE	LENGTH	DIS. EL.
40	6" PEP	175.00'	59.65
41	6" PEP	228.00'	62.20
42	6" PEP	300.00'	64.70
43	6" PEP	147.00'	60.05
44	6" PEP	225.00'	62.20
45	6" PEP	300.00'	64.70



ELEVATION		
PT	T.C. EL.	INV. EL.
1	62.64	58.87
2	64.77	60.34
3	64.77	60.60
4	64.50	60.72
5	67.29	62.60
6	67.29	62.86

Key:

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- - STP - Prehistoric and Historic Cultural Material
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- Phase I Testing Areas
- Site Limits
- Photo Location and Direction

ADDENDUMS / REVISIONS		CONTRACT		BRIDGE NO.		SHEET NO.	
		25-04F-10				24	
		COUNTY		DESIGNED BY		TOTAL SHEETS	
		NEW CASTLE		TAM / MAG		127	
				CHECKED BY			
				PAH			
N54, HOWELL SCHOOL ROAD				CONSTRUCTION PLAN			
FROM SR 896 TO SR 71							



Figure 5.1f:
Construction Plan showing the Area of Potential Effects, Phase I Testing Areas, locations of shovel test pits, and photo locations.

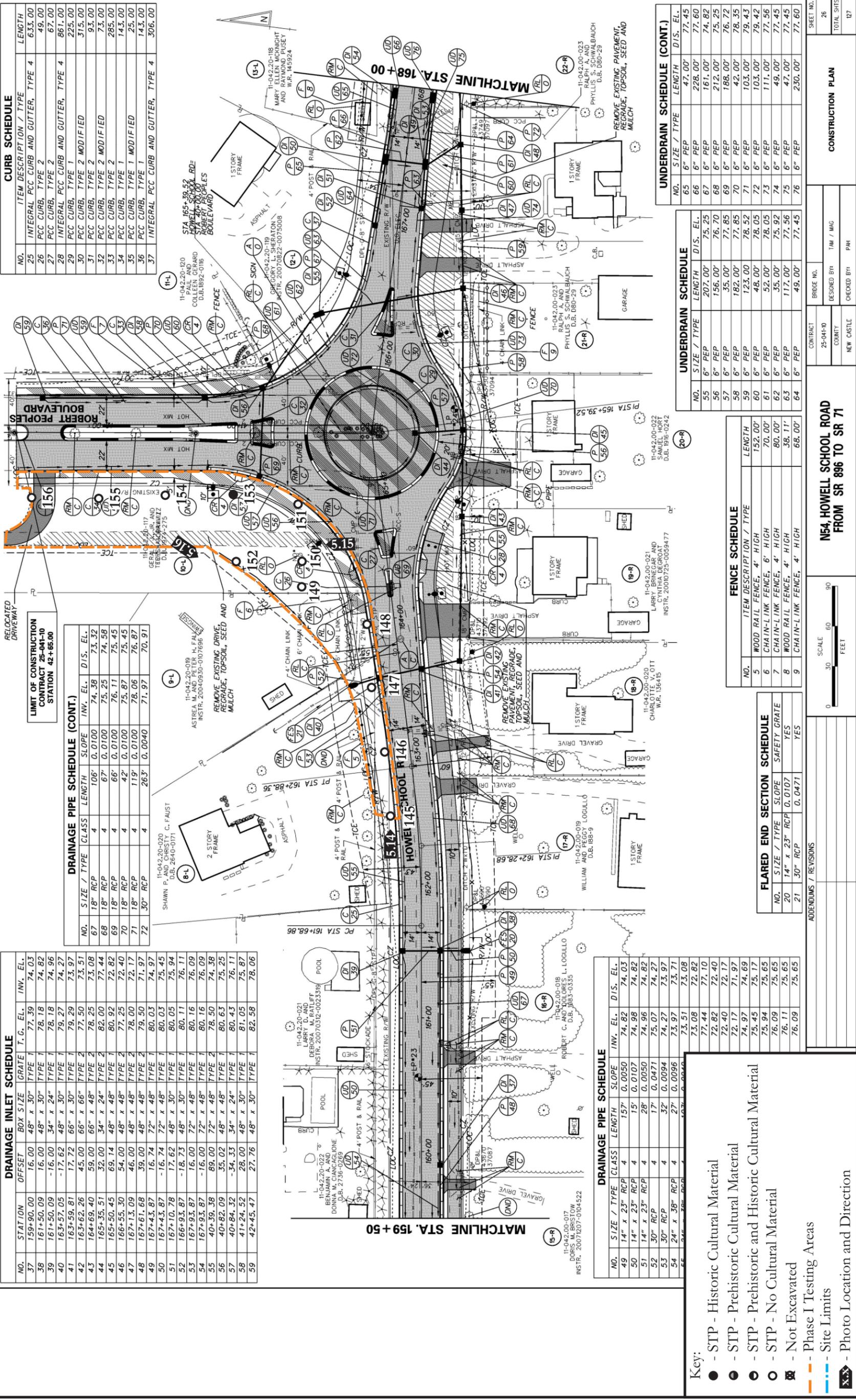


Figure 5.1g:

Construction Plan showing the Area of Potential Effects, Phase I Testing Areas, locations of shovel test pits, and photo locations.



and 1.5 meters (4.9 feet) wide that parallels the roadway (Figure 5.1a; Plates 5.1-5.3). An artificial berm constructed on the east side of the drainage ditch, which rises approximately one meter above the natural grade, borders the drainage ditch (see Plate 5.1). The drainage ditch and berm are vegetated in manicured turf grass. Along the eastern fringe of the APE, vegetation transitions into secondary growth successional hardwood forest with a dense understory of shrubs and vines (Plates 5.4-5.5). Eleven 15-meter (49.2-foot) interval STPs were completed in this portion of the APE. One STP (12) was not completed because its position fell in a stream bed.

Both artificial and natural soil profiles were encountered in STPs in this area (see Appendix B). Five STPs (2, 6, 9, 10, and 11) contained profiles composed of stacked layers of fill that ranged in thickness from 12 to 57 centimeters (4.7 to 22.4 inches), in color from dark grayish brown (10YR 4/4) to brownish yellow (10YR 6/6) and in texture from silt loam to coarse sand. One of these STPs (10) was stopped by concrete before the limits of the fill deposits were reached. Three STPs (1, 3 and 5) contained profiles composed of fill overlying natural soil layers. Fills in these STPs ranged in thickness from 14 to 35 centimeters (5.5 to 13.8 inches), in color from dark grayish brown (10YR 4/4) to brownish yellow (10YR 6/8), and in texture from sandy clay loam to loamy sand. In STP 1, stacked fills overlaid a truncated subsoil (B horizon) encountered at 78 centimeters (30.7 inches) below ground surface and described as a strong brown (7.5YR 5/6) loamy sand. In STP 3, fill deposits extended to a depth of 105 centimeters (41.3 inches) below ground surface where a mottled brown (10YR 5/3) and dark yellowish brown (10YR 4/4) sandy clay loam C horizon was encountered. Shovel test pit 5 contained a thin surface layer of fill over a 27-centimeter (10.6-inch) thick very dark grayish brown (10YR 3/2) sandy loam buried A horizon and a light olive brown (2.5Y 5/6) sandy loam subsoil. Two STPs (4 and 8) contained natural profiles described as brown (10YR 4/3) sandy loam A horizon that was 18 to 24 centimeters (7.1 to 9.5 inches) thick underlain by a dark yellowish brown (10YR 4/6) to light olive brown (2.5Y 5/6) sandy loam to coarse sand B horizon (see Appendix B).

Six STPs (1-6) contained historic cultural material (n=90) found primarily in fill contexts; however, artifacts were also recovered in natural soils in two STPs (4 and 5) (see Appendix C). Domestic, architectural, biological, hardware and miscellaneous historic artifacts dated from the seventeenth through the mid-nineteenth century were recovered to depths up 105 centimeters (41.3 inches) below ground surface, although the majority (60%) of the recovered artifacts were recovered in the upper 48 centimeters (18.9 inches). These materials included Philadelphia style black glazed and slip-trailed redwares, late Creamware/early whiteware, underglaze blue handpainted pearlware, blue and green shell-edged pearlwares, mottled dark brown glazed redware, dark olive black glass, hand forged nails, and blue slip-banded mochaware (see Appendix C). Further discussion of the extent of this cultural deposit is presented below.



Plate 5.1:

Overview of a drainage ditch and artificial berm along S.R. 896 south of Sweet Hollow Drive.

Photo view: South

Photographer: Sharon D. White

Date: November 28, 2011



Plate 5.2:

Overview of a drainage ditch and culvert along S.R. 896 at its intersection with Sweet Hollow Drive.

Photo view: North

Photographer: Sharon D. White

Date: November 28, 2011



Plate 5.3:

Overview of the southern limit of the APE along S.R. 896 south of the proposed Howell School Road alignment.

Photo view: North

Photographer: Sharon D. White

Date: November 28, 2011

Howell School Road STA 115.00 to 134.00

The centerline for the proposed Howell School Road alignment intersected with the S.R. 896 line of STPs opposite the intersection of Denny Road and S.R. 896. Shovel testing extended east at a 90 degree angle through undeveloped secondary growth successional hardwood forest (see Figure 5.1b; Plates 5.4-5.5). The width of the APE in this area ranges from approximately 15 to 41.1 meters (49.2 to 135 feet). Three transects oriented parallel to the centerline in a rectilinear grid were excavated at 15-meter (49.2-foot) intervals in this portion of the APE, which extended from S.R. 896 east-southeast toward the existing alignment of Howell School Road through both forested fields and recently harvested agricultural fields (Plates 5.6-5.7). The proposed Howell School Road alignment is approximately 565 meters (1,853.7 feet) in length and extends from STA 115.00 to STA 134.00 (see Figures 5.1b-e). Ninety-one 15-meter (49.2-foot) interval STPs 14 bracket STPs were completed in this portion of the APE. Ten STPs (29, 32, 35, 38, 39, 41, 44, 47, 50, and 53) were not excavated in this area, following consultation with DelDOT archaeologist David Clarke, because they fell on an artificial berm and a detention basin of a stormwater management system (Plates 5.8-5.10). A pedestrian reconnaissance of this portion of the APE noted outfall piping and PVC conduit that bisected portions of the artificial berm. A secondary detention basin lined with rip-rap was noted on the northern limit of the APE near the planned position of STP 50 (see Figure 5.1c).

Both artificial and natural soil profiles were encountered in STPs in this area. Twenty-eight STPs (30, 33, 34, 36, 37, 40, 45, 65, 67, 68, 69, 70, 71, 72, 73, 74, 79, 80, 81, 82, 105, 105A, 105B, 105C, 106, 108, 110 and 112C) contained profiles composed of one or more layers of fill that ranged in thickness from eight to 100 centimeters (3.2 to 39.4 inches), in color from very dark grayish brown (10YR 3/2) to yellowish brown (10YR 5/8) and in texture from silty clay loam to loamy sand. In four STPs (33, 36, 65, and 71) fill extended to the limit of excavation. In STP 71, excavation was halted when an impenetrable layer of asphalt was encountered at 15 centimeters (5.9 inches) below ground surface. In 18 STPs (30, 34, 37, 40, 45, 68, 69, 70, 72, 74, 79, 80, 105, 105A, 105B, 105C, 108, and 110) fill overlaid a truncated subsoil described as a strong brown to yellowish brown (7.5YR 5/6 to 10YR 5/8) sandy loam to loamy sand. In six STPs (67, 73, 81, 82, 106, and 112C) fill overlaid a natural soil profile composed of a dark brown (10YR 3/3) sandy loam buried A horizon underlain by a yellowish brown (10YR 5/6) silty clay loam to sandy loam subsoil (B horizon) (see Appendix B).

Finally, 77 STPs contained natural soil profiles. In 13 STPs (13, 16, 26, 28, 59, 109, 111-112B, 112D-115), a thin eight to 16 centimeter (3.2 to 6.3 inch), very dark brown (10YR 2/2) highly decomposed silty or sandy O horizon overlaid an olive brown to brown (2.5Y 4/4 to 10YR 4/3) sandy loam A horizon 16 to 26 centimeters (6.3 to 10.2 inches) thick and one or two light olive brown to strong



Plate 5.4:

Overview of the western terminus of the proposed Howell School Road alignment at the alignment centerline.

Photo view: East

Photographer: Sharon D. White

Date: November 28, 2011



Plate 5.5:

Overview of the proposed Howell School Road alignment at the alignment centerline.

Photo view: West

Photographer: Michael Insetta

Date: November 29, 2011



Plate 5.6:

Overview of the central portion of the proposed Howell School Road alignment looking north from Howell School Road.

Photo view: North

Photographer: Sharon D. White

Date: November 28, 2011



Plate 5.7:

Overview of the eastern portion of the proposed Howell School Road alignment at the alignment centerline.

Photo view: West

Photographer: Sharon D. White

Date: November 28, 2011



Plate 5.8:

Overview of an artificial berm and stormwater management system in the north limits of the APE south of the Meadow Glen residential subdivision.

Photo view: East

Photographer: Michael Inetta

Date: November 29, 2011



Plate 5.9:

Overview of an artificial berm and stormwater management system in the north limits of the APE south of the Meadow Glen residential subdivision.

Photo view: West

Photographer: Michael Inetta

Date: November 29, 2011



Plate 5.10:

Overview of a part of a stormwater management system in the north limits of the APE south of the Meadow Glen residential subdivision.

Photo view: Southeast

Photographer: Michael Inetta

Date: November 29, 2011

brown (2.5Y 5/6 to 7.5 YR 5/8) sandy loam to sand subsoils (B horizons). In 61 STPs (14, 15, 17-25, 27, 31, 42, 43, 46, 48, 49, 51, 52, 54-58, 60-63, 66, 76, 77, 83-91, 93, 94, 97, 99-101, 103, and 104), a brown (10YR 4/3) sandy loam A horizon 16 to 26 centimeters (6.3 to 10.2 inches) thick overlaid one to two dark yellowish brown to yellowish brown (10YR 4/6 to 10YR 5/8) silty clay loam to sandy loam subsoils (B horizon). Finally, in three STPs (64, 92, and 95) two stacked brown (10YR 4/2 to 10YR 5/3) sandy loam plowed A horizons overlaid a gray to brownish yellow (10YR 5/1 to 10YR 6/6) sandy loam subsoil (see Appendix B).

In this section, 19 STPs (17, 17A, 17B, 18, 23, 24, 26, 28, 56, 63, 64, 72, 76, 77, 101, 103, 105, 112, and 115) contained historic cultural material (n=30), found primarily in natural soil contexts, and four STPs (105, 112, 112B and 112D) contained prehistoric cultural materials found in fill, A horizon, B1 horizon and B2 horizon contexts. Prehistoric cultural materials recovered included a gray chert flake fragment, found in STP 105 and interpreted as an isolated find, and a cluster of 14 chalcedony, gray chert, Delaware Chalcedony Complex jasper, and pebble jasper debitage recovered in three STPs at depths of five to 93 centimeters (36.6 inches) below ground surface (see Appendix C). Historic cultural materials recovered included domestic, architectural, and fuel-related historic artifacts dated from the seventeenth through the mid-nineteenth century found in the A horizon at depths up 34 centimeters (13.4 inches) below ground surface or in fill contexts at depths up to 45 centimeters (17.7 inches) below ground surface. These materials included dark brown to black glazed and slip-trailed redwares, late creamware/early whiteware, possible Chinese export porcelain, dark blue decorated pearlware, white salt glazed ceramics and aqua bottle glass (see Appendix C). One cluster of historic artifacts was located in the westernmost STPs (17, 17A, 17B, 18, 23, 24, 26, 28) adjacent to a series of STPs (1-6) positive for historic materials along S.R. 896 (see Figure 5.1b). The remainder of historic artifacts was found in dispersed contexts throughout this segment of the APE.

Howell School Road STA 135.00 to 145.00

Shovel testing continued along the existing alignment of Howell School Road in undisturbed upland segments on both the north and south shoulders between STA 135.00 and STA 145.00 (Figures 5.1e-f; Plates 5.11-5.13). The width of the APE in this area ranges from approximately 4.6 meters (15 feet) to approximately 13.7 meters (45 feet). Vegetation in this area consisted of both hardwood forest and manicured turf grass lawns. Twenty-eight 15-meter (49.2-foot) interval STPs (116-144) and eight bracket STPs (134A-D and 136A-D) were completed in this portion of the APE.

Both artificial and natural soil profiles were encountered in STPs in this area. Five STPs (127-129, 136D and 139) contained profiles composed of one or more layers of fill that ranged in thickness from six to 55 centimeters (2.4 to 21.7 inches), in color from very dark brown (10YR 2/2) to



Plate 5.11:

Overview of the junction of the proposed Howell School Road alignment with Howell School Road.

Photo view: East

Photographer: Michael Insetta

Date: November 30, 2011



Plate 5.12:

Overview of the south shoulder of Howell School Road adjacent to the Lums Pond State Park Equestrian Center.

Photo view: East

Photographer: Michael Inetta

Date: November 30, 2011



Plate 5.13:

Overview of the south shoulder of Howell School Road adjacent to the Lums
Pond State Park Equestrian Center.

Photo view: West

Photographer: Michael Insetta

Date: December 1, 2011

brownish yellow (10YR 6/8) and in texture from sandy clay to loamy sand, which overlaid truncated natural soils. In STPs 127, 136D and 139, a buried A horizon was encountered at depths ranging from six to 50 centimeters (2.4 to 19.7 inches) below ground surface, described as a black (10YR 2/1) to dark grayish brown (10YR 4/2) silt loam to loamy sand underlain by a B horizon variously described as a mottled gray and bluish gray (10YR 5/1 and 10B 5/1) sandy clay loam, a grayish brown (2.5Y 5/2) sandy loam or a light brownish gray (10YR 6/2) sand. In STPs 128 and 129 fill deposits overlaid a truncated subsoil described as a mottled dark greenish gray and yellowish brown (10GY 5/1 and 10YR 5/6) sandy clay, a dark gray (10YR 4/1) sandy loam underlain by a mottled gray (10YR 6/1) and brownish yellow (10YR 6/8) sand (see Appendix B). In STP 125 excavation was halted at 30 centimeters (11.8 inches) below ground surface when PVC pipes were encountered. In STP 126 fill deposits extended to the limits of excavations and were composed of mottled brown to yellowish brown to light gray sandy loam and gravel.

Twenty-nine STPs contained natural soil profiles. In eight STPs (116, 117, 119, 120, 121, 122, 123, and 131), a thin eight to 20 centimeter (3.2 to 7.9 inches), very dark brown (10YR 2/2) highly decomposed silty or sandy O horizon overlaid a dark grayish brown to brown (2.5Y 4/2 to 10YR 4/3) sandy loam to loamy sand A horizon 11 to 42 centimeters (4.3 to 16.5 inches) thick and a subsoil (B horizon) variously described as a olive yellow (2.5Y 6/6) to dark grayish brown (10YR 4/2) sandy loam or a mottled olive yellow and light gray (2.5Y 6/8 and 2.5Y 7/2) or light brownish gray (10YR 6/2) coarse sand. In 21 STPs (118, 130, 132, 133, 134, 134A-D, 135-137, and 140-144), a brown (10YR 4/3) sandy loam A horizon 22 to 47 centimeters (8.7 to 18.5 inches) thick overlaid a yellowish brown to light brownish gray (10YR 5/4 to 10YR 6/2) sandy loam to sand subsoil (B horizon) (see Appendix B). In STP 124, excavation was halted at 10 centimeters (3.9 inches) below ground surface when ground water inundated the test. Shovel test pit 138 was not excavated since it fell on an asphalt driveway.

In this section, seven STPs (134B, 134C, 134D, 136A, 136C, 136D and 153) contained historic cultural material (n=12), found in A horizon contexts, and six STPs (134, 134A, 134C, 134D, 136, and 136C) contained prehistoric cultural materials found in fill or A horizon contexts. Prehistoric cultural materials recovered included a cluster of 11 chalcedony, quartz, quartzite, sandstone, Delaware Chalcedony Complex jasper and Hardyston jasper debitage, four quartzite and sandstone fire-cracked rock fragments and one quartz Teardrop biface recovered in six STPs to a maximum depth of 47 centimeters (18.5 inches) below ground surface (see Appendix C). Historic cultural materials recovered included domestic, architectural, hardware-related, biological and fuel-related historic artifacts dated from the eighteenth through the mid-nineteenth century found in the A horizon at depths up 52 centimeters (20.5 inches) below ground surface. These materials included window glass, coal, metal wire, lead glazed redware, and a fence staple recovered in low densities

(see Appendix C).

Howell School Road STA 162.50 to 165.00

Shovel testing was completed in the east-central portion of the project area along the existing alignment of Robert Peoples Boulevard and its intersection with Howell School Road where intersection improvements are proposed (Figure 5.1g; Plates 5.14-5.16). The National Registered listed White Hall historic property is located on the northwestern side of the intersection of Howell School Road and Robert Peoples Boulevard. Testing was conducted in the front lot of the White Hall parcel and along the north side of Howell School Road in parcels to the west of White Hall. The width of the APE in this area ranges from approximately 4.6 to 21.3 meters (15 to 70 feet). Vegetation in this area consisted of manicured turf grass lawns. Eleven 15-meter (49.2-foot) interval STPs and one judgmentally positioned STP were completed in this portion of the APE.

Both artificial and natural soil profiles were encountered in STPs in this area. Seven STPs contained profiles composed of fill overlying natural soils. Fill deposits ranged in thickness from 13 to 30 centimeters (5.1 to 11.8 inches), in color from brown (10YR 4/3) to yellowish brown (10YR 5/8) and in texture from silty clay loam to sandy loam. In six STPs (146, 148, 151, 153, 154, and 156) the fill deposit was underlain by a buried A horizon, approximately 13 centimeters (5.1 inches) thick, described as a very dark grayish brown (10YR 3/2) to brown (10YR 5/3), sometimes mottled, silty clay loam to sandy loam. In STP 147, fill deposits overlaid a truncated subsoil (B1 horizon) encountered at a depth of 25 centimeters (9.8 inches) below ground surface and described as a light yellowish brown (2.5Y 6/3) silty clay loam underlain by a B2 horizon variously described as a mottled gray and strong brown (10YR 6/1 and 7.5YR 5/6) silty clay. Five STPs (145, 149, 150, 152, and 155) contained natural soil profiles described as a dark brown to brown (10YR 3/3 to 10YR 4/3) sandy clay loam to sandy loam A horizon 21 to 43 centimeters (8.3 to 16.9 inches) thick underlain by a light olive brown to brownish yellow (2.5Y 5/3 to 10YR 6/6) sandy clay loam to clay loam subsoil (B horizon) (see Appendix B).

Only one of the STPs excavated in this eastern section (STP 153) contained cultural material. One late nineteenth century colorless bottle glass fragment was recovered in the Ap horizon and was interpreted as an isolated find (see Appendix C). No archaeological resources potentially contributing to the significance of White Hall were identified.

Summary of Identified Archaeological Resources

The excavation of 165 STPs yielded 134 historic artifacts from 33 STPs and 31 prehistoric artifacts from 10 STPs. One concentration of historic cultural material, two concentrations of prehistoric cultural material and 19 dispersed find locations were identified in the APE. Historic Site 1 was



Plate 5.14:

Overview of the north shoulder of Howell School Road near its intersection with Robert Peoples Boulevard.

Photo view:

Photographer: Michael Inetta

Date: December 1, 2011



Plate 5.15:

Overview of APE west of Robert Peoples Boulevard on the White Hall historic property.

Photo view: North

Photographer: Michael Insetta

Date: December 1, 2011



Plate 5.16:

Overview of the western limits of the APE at Robert Peoples Boulevard showing fencing for adjacent residential properties.

Photo view: Southwest

Photographer: Michael Insetta

Date: December 1, 2011

identified near the western terminus of the APE south of Sweet Hollow Drive and east of S.R. 896 (see Figure 5.1a-b). Historic Site 1 encompasses an area of approximately 2,229.7 square meters (24,000 square feet). Fourteen STPs (1-6, 17-17B, 18, 23, 24, 26, and 28) in this area contained 103 architectural, domestic, personal, biological, hardware-related and miscellaneous historic materials (Figures 5.2 and 5.3). Domestic (n=71; 68.9%) and architectural (n=20; 19.4%) materials dominated the historic assemblage. Architectural materials included brick, window glass, and hand forged nails (see Appendix C). Domestic materials included black glazed red-bodied ware, white-slipped interior lead glazed redware, mottled brown lead glazed redware, late creamware/early whiteware, slip-banded mochaware, blue transfer printed, blue underglaze handpainted, and blue and green shell-edged pearlware, possible Chinese export porcelain, black decorated whiteware, light blue transfer printed whiteware, mold blown glassware, dark olive black glass, mold blown aqua glass and possible bone utensil handles (see Appendix C). Architectural materials included brick, hand forged nails, and flat glass. The remainder of the historic assemblage was comprised of biological materials (n=5; 4.9%), one miscellaneous material (0.9%) classified as a hand forged handle, one hardware related material (0.9%), classified as a metal fragment and one personal item (n=1; 0.9%), a smoking pipe fragment. Artifacts were recovered to a depth of 105 centimeters (41.3 inches) below ground surface; however, the majority (60%) was recovered between to a depth of 48 centimeters (18.9 inches) below ground surface.

Approximately, 56 percent of Historic Site 1 was temporally diagnostic. These artifacts potentially range in age from the seventeenth through nineteenth centuries. Ten historic artifacts recovered from the site date from as early as the seventeenth century, including olive black glass, white slip-trailed redware, and mottled brown glazed redware. An additional 25 historic artifacts date from as early as the mid-eighteenth century, such as black glazed red hard-bodied ware, hand forged nails, Philadelphia style white slip-trailed redware, and manganese mottled interior lead glazed redware. Eighteen historic artifacts date to as early as the late eighteenth century, and include pearlwares, late creamwares/early whitewares, and mochaware. Finally, a small number (n=3) of historic artifacts date to the early nineteenth century. Overall, the assemblage from Historic Site 1 appears to represent an eighteenth to early nineteenth century domestic deposit related to the occupation of the property by Roger Williams documented in archival research (see Section 4.4). While the western section of the site (STPs 1-6) appears to lack integrity due to extensive previous disturbance from the construction of a stormwater management feature, the remainder of Historic Site 1 appears to remain intact.

Two concentrations of prehistoric artifacts were also identified. Prehistoric Site 1 was identified in the wooded, west-central portion of the APE north-northwest of the entrance to Lums Pond State



Figure 5.2:

Historic Artifacts recovered from the western portion of Historic Site 1

Top Row, Left to Right: Dark olive bottle glass (Cat. # 1); Flask fragment (Cat. # 6); Pearlware fragment (Cat. # 6); Pearlware fragment (Cat. # 7); Pipe fragment (Cat. # 7).
 Pipe fragment (Cat. # 7); Redware fragment (Cat. # 8); Redware fragment (Cat. # 8).
 Bottom Row, Left to Right: Nail (Cat. # 6); Nail (Cat. # 7); Pearlware fragment (Cat. # 9); Mocha fragment (Cat. # 10); Pearlware fragment (Cat. # 12).





Figure 5.3:

Historic Artifacts recovered from the eastern portion of Historic Site 1

Left to Right: Porcelain plate fragment (Cat. # 14); Late creamware/ early whiteware fragment (Cat. # 15); Redware fragment (Cat. # 16); Redware fragment (Cat. # 16); Redware pan (Cat. # 17).

Park. Prehistoric Site 1 encompasses an area of approximately 501.7 square meters (5,400 square feet) (see Figure 5.1d). This site consisted of a cluster of 14 chalcedony, gray chert, Delaware Chalcedony Complex jasper, and pebble jasper debitage recovered in three STPs (112, 112B and 112D) at depths of five to 93 centimeters (36.6 inches) below ground surface (see Appendix C; Figure 5.4). Five prehistoric artifacts (35.7% of the site assemblage) were recovered in subsoil deposits in the B1 and B2 horizons. Prehistoric Site 1 is situated on the north aspect of a low ridge near wetlands associated with a former feeder tributary of St. George's Creek. One piece of undated flat glass also was recovered in STP 112. Prehistoric deposits at Prehistoric Site 1 appear to retain a high degree of integrity as well as a potential for deeply buried cultural material. The proximity of Prehistoric Site 1 to the Lums Pond Prehistoric Site (7-NC-F-18; N-3778) suggests that the two sites may be related. Prehistoric Site 1 may represent a procurement site or a specialized activity area or a peripheral locus of the 7-NC-F-18 micro-band site.

Prehistoric Site 2 was identified on the grounds of the Lums Pond State Park Equestrian Center in the west-central portion of the APE, east of the entrance to Lums Pond State Park. Prehistoric Site 2 is situated on the north aspect of a low knoll south and east of wetlands associated with tributaries of St. George's Creek. Prehistoric Site 2 encompasses an area of approximately 836.1 square meters (9,000 square feet) (see Figure 5.1e). This site consisted of a cluster of 11 chalcedony, quartz, quartzite, sandstone, Delaware Chalcedony Complex jasper and Hardyston jasper debitage, four quartzite and sandstone fire-cracked rock and one quartz Teardrop biface recovered in the A horizon of six STPs (134, 134A, 134C, 134D, 136, 136C) to a maximum depth of 47 centimeters below ground surface (see Appendix C; Figure 5.5). A limited quantity of historic materials (n=12) dating from the eighteenth through nineteenth century also was recovered in five STPs (134B, 134D, 136A, 136C, and 136D) excavated at Prehistoric Site 2. These artifacts included window glass, redware, coal, mammal bone, and wire fence staple, chain and unidentifiable fragments. Overall, prehistoric deposits at Prehistoric Site 2 appear to retain integrity and a potential for temporally diagnostic materials related to the Woodland I period. The proximity of Prehistoric Site 2 to the Lums Pond Prehistoric Site (7-NC-F-18; N-3778) suggests that the two sites may be related. Prehistoric Site 2 may represent a procurement site or a specialized activity area or a peripheral locus of the 7-NC-F-18 micro-band site.

Dispersed cultural materials were recovered in several STPs within the APE (see Appendix C). In total, 18 historic finds and one prehistoric find were recovered in 12 STPs, and included brick, window glass, pearlware, white salt glazed ceramic, whiteware, bottle glass and unidentified vessel glass, dated from the eighteenth through late nineteenth centuries. These materials are low-density and widely dispersed deposits.



Figure 5.4:

Prehistoric Artifacts recovered from Prehistoric Site 1

Top Row, Left to Right: Chalcedony flake (Cat. # 31); Chert flake (Cat. # 32); Jasper flake (Cat. # 32); Jasper flake (Cat. # 33); Jasper flake (Cat. # 33).

Bottom Row, Left to Right: Chert flake (Cat. # 33); Jasper angular debris (Cat. # 34); Jasper flake (Cat. # 34); Jasper flake (Cat. # 34).





Figure 5.5:

Prehistoric Artifacts recovered from Prehistoric Site 2

Top Row, Left to Right: Jasper flake (Cat. # 38); Jasper flake (Cat. # 38); Sandstone flake (Cat. # 40); Quartzite flake (Cat. # 11); Quartz biface (Cat. # 41); Chalcedony flake; (Cat. # 42); Jasper flake (Cat. # 42).

Bottom Row, Left to Right: FCR (Cat. # 41); FCR (Cat. # 41).



