

# **Geo-Sci Consultants LLC**

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**GEOARCHAEOLOGICAL INTERPRETATIONS  
OF SOIL CORE BORINGS AT SELECTED LOCATIONS  
AT FEDERAL TRIANGLE SOUTH  
WASHINGTON, D.C.**

Submitted to  
The Louis Berger Group, Inc.

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## **Introduction and Methods**

The following is a discussion of observations and interpretations regarding the nature of soil materials examined at selected locations within the Cotton Annex portion of Federal Triangle South in Washington, D.C. Investigations were directed toward the characterization of deposit types as well as the identification of any original land surfaces or other intact natural soils that might once have been available for occupation and are now potentially preserved in buried contexts beneath introduced fill materials. The main goal of this investigation was therefore to assess evidence of past human activities that may have occurred within the area.

Investigation efforts entailed 12 mechanical Geoprobe borings distributed throughout the project area. Cores were made to varying depths depending on materials encountered. Rubble fills typically resulted in coring refusal at relatively shallow depths, but in the absence of this material borings were made to depths of 10 to as much as 20 ft in attempts to intercept natural strata. In most instances the depths were insufficient to accomplish this. Examined soil materials were described in accordance with standard pedological techniques and nomenclature for the field characterization of soil, and the compiled descriptions are attached at the end of the report.

## **Geomorphic Setting**

As with almost all of Washington, D.C. east of Rock Creek, the study location is situated within the Coastal Plain Physiographic Province. Geologically, this province is characterized by unconsolidated sediments that can range widely both in composition as well as age. Sediments as old as Lower Cretaceous are predominant throughout the broader region, and form the bulk of the deeper substrata in the vicinity of the project area. These ancient sediments are often capped by younger deposits of Quaternary age. Many Quaternary sediments were derived by fluvial processes and tend to have mixed compositions characterized by sandy and gravelly strata interbedded with layers of loamy, silty or even clayey sediments. Additionally, across gently sloping positions relatively thin (<3 ft) surficial deposits of eolian silt or sand are also often present. Lower Cretaceous strata underlying the various Quaternary deposits can also be of mixed composition, but the most common textures are usually quite fine, typically clustering in the clay loam, silty clay loam, and clay classes.

Independent of the deposit types, all of the regional upland landscapes are very old, and most of the original site soils would have had very prolonged histories of weathering usually greatly predating even the earliest human presence in the region. This has important implications for both prehistoric and early historic cultural resources since, as would be the case for all landscapes of such antiquity, any cultural materials should occur only at or near the level of original surfaces. Hence, in most instances integrity of

the original surfaces is of paramount importance, and disturbances or destruction of surfaces also translate to comparable impacts on archaeological deposits. A notable exception to this general rule is where land surfaces formerly available to Paleoindians have been protectively buried at levels below those of modern disturbance by eolian deposits of late Pleistocene origin. Such deposits, usually consisting of loess (wind-blown silt) are sporadically but widely distributed throughout the Coastal Plain portion of Washington, D.C. and appear to correlate with the Younger Dryas cold reversal period which closely coincided with the interval between Clovis and Early Archaic occupations

## Results and Conclusions

Based on the 12 examined soil borings, the entire project area has suffered varying degrees of disturbance typically entailing both grading and filling. Mixed earthen fills not uncommonly containing brick rubble or cinders mantle the entire site to depths ranging from about 2.4 ft (Boring CA2) to as much as 16.8 ft (Boring CA 5). As a general rule where fill materials are the thickest original soils have also been the most deeply truncated so that pedogenically unweathered Coastal Plain substrata are all that remain of natural strata. Examples are Borings CA-3, CA-5, CA-9, and CA-12 where not only are original surface horizons missing but also any underlying pedogenic subsoil. These soils as well as others where fill deposits are at least 6 ft thick have been graded to depths of in excess of 5 ft. Such degrees of truncation would readily have destroyed any cultural material once present.

At several locations (Borings CA-4, CA-6 and CA-10) depths of truncation are only on the order of about 2 ft or so, and lower argillic subsoil horizons (Bt) of the original site soils still remain. Nonetheless, as previously discussed since the Pleistocene age of regional uplands forces an almost total near-surface restriction on cultural deposits, even such lesser degrees of truncation would still have been sufficient to have accomplished destruction of the vast majority of cultural materials, certainly those dating from the Holocene to modern time. The only remaining prospect is that upper subsoil horizons are of silt loam textures suggesting the presence of post-Paleoindian loess. However, none of the borings displayed any indications of preservation of underlying paleosol surfaces prior to deposition of the loess; and the apparent erosion of these surfaces greatly diminishes the possibility of Paleoindian material.

At only a single location (Boring CA-2) was the original soil found to be mostly intact beneath the introduced fill material. Even here some minor disturbances other than burial by fill have occurred. A surface plow zone is evidence of a past history of cultivation, and some mixing of the dark colored (10YR 3/3) surface horizon soil with more brownish upper subsoil (10YR 4/4) is likely indicative of a limited degree of grading disturbance, probably when the fill was being laid down. Although both of these activities would have partially compromised the integrity of cultural material, they are not wholly destructive actions, and some potential for both prehistoric and early cultural

resources exists. Also, the soil at this location clearly contains a loess mantle comprising the upper 64 cm of the original profile. Similar to the above discussion, however, no indications of a preserved underlying paleosol surface were observed, thus again suggesting a low potential for subsoil Paleoindian deposits.

### **Descriptions of Core Borings**

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| <b>Depth (ft)</b>                              | <b>Pedologic Horizon<br/>(if present)</b> | <b>Characteristics</b>  |
|--|---|---|
| <b>Boring CA-1</b>                             |   |   |
| 0 - 2.5  |   | Brick rubble  |
| <b>Boring CA-2</b>                             |   |   |
| 0 - 1.4  |   | Mixed earthen fill  |
| 1.4 - 2.4                                      |   | Brick rubble  |
| 2.4 - 2.9                                      | Ap  | Dark brown (10YR 3/3), brown (10YR 4/3), and dark yellowish brown (10YR 4/4) silt loam; disturbed probably by local grading |
| 2.9 - 4.5                                      | Bt  | Dark yellowish brown (10YR 4/6) heavy silt loam   |
| 4.5 - 6.4                                      | 2Bt1                                      | Strong brown (7.5YR 4/6) heavy loam   |
| 6.4 - 7.8                                      | 2Bt2                                      | Strong brown (7.5YR 4/6) loam   |
| 7.8 - 10.0+                                    | 2BC                                       | Strong brown (7.5YR 4/6) heavy sandy loam   |
| Comments: Original surface partially disturbed |   |   |
| <b>Boring CA-3</b>                             |   |   |
| 0 - 2.0  |   | Brick rubble with cinders at top  |
| 2.0 - 3.1                                      |   | Mixed earthen fill  |
| 3.1 - 3.3                                      |   | Shell layer   |
| 3.3 - 6.7                                      |   | Mixed earthen fill  |
| 6.7 - 10.0+                                    | C   | Coastal Plain substrata, mostly strong brown (7.5YR 4/6) sandy loam   |
| Comments: Soil deeply truncated, >5 ft         |   |   |

**Boring CA-4**

|             |      |   |
|-------------|------|---|
| 0 - 2.4     |      | Brick rubble                                    |
| 2.4 - 3.3   |      | Mixed earthen fill                              |
| 3.3 - 5.6   | Bt   | Dark yellowish brown (10YR 4/6) heavy silt loam |
| 5.6 - 7.3   | 2Bt1 | Strong brown (7.5YR 4/6) heavy loam             |
| 7.3 - 8.6   | 2Bt2 | Strong brown (7.5YR 4/6) loam                   |
| 8.6 - 10.0+ | 2BC  | Strong brown (7.5YR 4/6) heavy sandy loam       |

Comments: Soil truncated ~1-2 ft

**Boring CA-5**

|              |   |  |
|--------------|---|--|
| 0 - 16.8     |   | Mixed earthen fill   |
| 16.8 - 20.0+ | C | Coastal Plain substrata, mostly strong brown (7.5YR 4/6) sandy loam and loamy sand |

Comments: Soil deeply truncated, >5 ft

**Boring CA-6**

|             |    |  |
|-------------|----|--|
| 0 - 5.5     |    | Earthen fill with brick rubble   |
| 5.5 - 6.9   | Bt | Strong brown (7.5YR 4/6) loam  |
| 6.9 - 8.7   | BC | Strong brown (7.5YR 4/6) heavy sandy loam  |
| 8.7 - 10.0+ | C  | Coastal Plain substrata, mostly strong brown (7.5YR 4/6) sandy loam and loamy sand |

Comments: Soil truncated ~3-4 ft

**Boring CA-7**

|         |  |                          |
|---------|--|--------------------------|
| 0 - 6.0 |  | Cindery and earthen fill |
|---------|--|--------------------------|

**Boring CA-8**

|         |  |                           |
|---------|--|---------------------------|
| 0 - 6.0 |  | Cindery and gravelly fill |
|---------|--|---------------------------|

**Boring CA-9**

|             |   |  |
|-------------|---|--|
| 0 - 8.8     |   | Cindery and earthen fill with brick rubble   |
| 8.8 - 15.0+ | C | Coastal Plain substrata, mostly strong brown (7.5YR 4/6) sandy loam and loamy sand |

Comments: Soil deeply truncated, >5 ft

**Boring CA-10**

|              |     |  |
|--------------|-----|--|
| 0 - 6.8      |     | Cindery and earthen fill with brick rubble and shell |
| 6.8 - 10.2   | Bt  | Dark yellowish brown (10YR 4/6) heavy silt loam      |
| 10.2 - 15.0+ | 2Bt | Strong brown (7.5YR 4/6) heavy loam                  |

Comments: Soil truncated ~1-2 ft

**Boring CA-11**

|         |  |                          |
|---------|--|--------------------------|
| 0 - 7.0 |  | Cindery and earthen fill |
|---------|--|--------------------------|

**Boring CA-12**

|              |   |   |
|--------------|---|---|
| 0 - 12.4     |   | Cindery and gravelly fill   |
| 12.4 - 15.0+ | C | Coastal Plain substrata, mostly strong brown<br>(7.5YR 4/6) sandy loam and loamy sand |

Comments: Soil deeply truncated, >5 ft