

SUPPLEMENTAL DATA FOR SOIL SURVEY REPORT OF  
GREENSVILLE COUNTY, VIRGINIA

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## INTRODUCTION

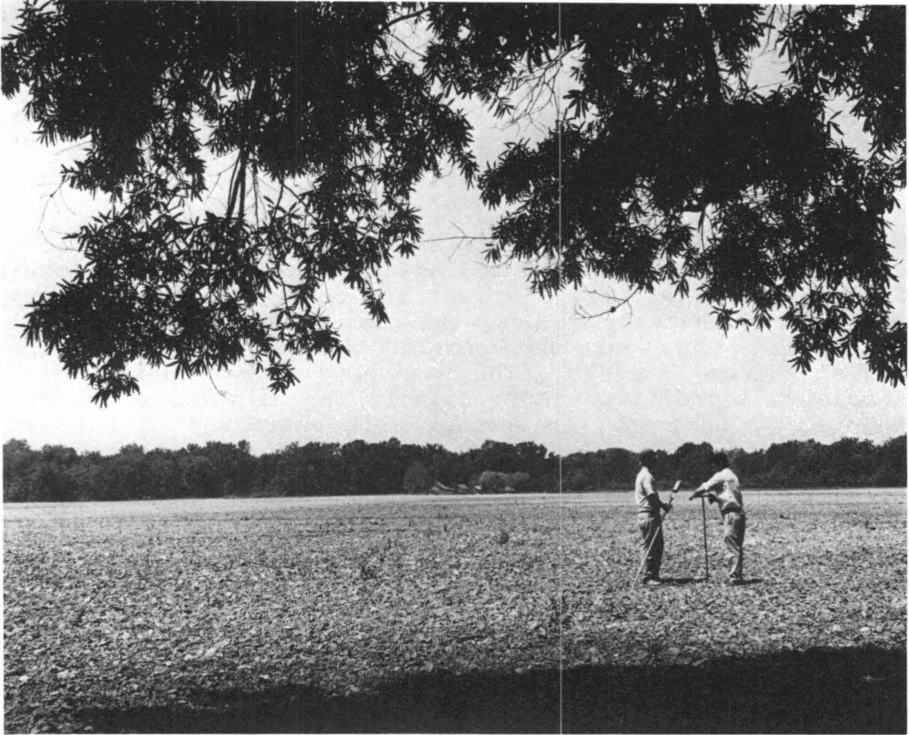
A soil survey of Greensville County was completed in 1984 by the Agronomy Department of Virginia Polytechnic Institute and State University, Research Division, in Cooperation with the Soil Conservation Service of the United States Department of Agriculture, the J. R. Horsley Soil and Water Conservation District, and the Greensville County Board of Supervisors.

This survey was made to determine the kinds of soils within Greensville County and how they can be used to their fullest potential. Soil scientists observed the steepness, length, and shape of slopes; the size of streams and general pattern of drainage; the kinds of native plants or crops; and the kinds of rocks. They dug many pits to describe and sample soil profiles. A profile is the sequence of natural layers, or horizons, in a soil. It extends from the land surface down into the parent material, i.e. weathered rock or unconsolidated sediments which have been changed little by plant roots.

Soil maps are produced when soil scientists draw boundaries, on aerial photographs, of the kinds of soils observed in the survey area. These photographs show trees, buildings, fields, roads, and other natural and cultural features that were used to locate these soil boundaries.

Mapping units are collections of delineations identified by a single symbol on soil maps. Most mapping units represent natural soil bodies composed of one kind of soil or of soils with similar properties and responses to use and management. Other mapping units are made up of two or more kinds of soils.

Since the Soil Survey of Greensville County, Virginia, does not include the actual laboratory data used to characterize, classify and interpret the soils within the mapping units, this supplemental report presents these data.



Soil scientists locating soil boundaries in the field using hand augers to observe soil horizons.



## MATERIALS AND METHODS

The data for typical and supplemental soil profiles within the mapping units are presented in the following order:

### I. Morphological descriptions

The morphology of each soil profile was described according to National Cooperative Soil Survey standards specified by the Soil Survey Manual (Soil Survey Staff, 1951), Soil Taxonomy (Soil Survey Staff, 1975), and the National Soils Handbook (USDA, 1983)

### II. Laboratory data

The laboratory data for the profiles described and sampled are presented in the following tables:

- A - Particle size distribution
- B - Chemical properties
- C - Soil test data
- D - Sand and/or clay mineralogy
- E - Other physical properties

#### Table A - Particle-size distribution

Table A gives the percent of:

1. very coarse sand (2.0 - 1.0 mm)
2. coarse sand (1.0 - 0.5 mm)
3. medium sand (0.5 - 0.25 mm)
4. fine sand (0.25 - 0.1 mm)
5. very fine sand (0.1 - 0.05 mm)
6. silt (0.05 - 0.002 mm)
7. clay ( < 0.002 mm)
8. USDA textural class

These particle sizes were determined by the hydrometer method of Bouyoucos (1962) or the pipette method of Day (1965).

Table B - Chemical properties

Table B gives:

1. pH
2. % organic matter
3.  $\text{NH}_4\text{OAc}$ , pH 7.0, extractable  $\text{Ca}^{2+}$ ,  $\text{Mg}^{2+}$ , and  $\text{K}^+$  in milliequivalents per 100 grams of soil.
4. exchange acidity,  $\text{H}^+$ , in milliequivalents per 100 grams of soil
5.  $\text{Al}^{3+}$  extracted by 1 N  $\text{KCl}$  in milliequivalents per 100 grams soil.
6. cation exchange capacity, total, by sum of  $\text{Ca}^{2+}$ ,  $\text{Mg}^{2+}$ ,  $\text{K}^+$ , and  $\text{H}^+$ .
7. percent base saturation was estimated by the sum of exchangeable bases ( $\text{Ca}^{2+}$ ,  $\text{Mg}^{2+}$ , and  $\text{K}^+$ ) divided by the cation exchange capacity, i.e. total cations ( $\text{Ca}^{2+}$ ,  $\text{Mg}^{2+}$ ,  $\text{K}^+$ , and  $\text{H}^+$ ), times 100.

The pH was determined for 1:1 soil:water suspension using a combination calomel-glass electrode. The percent organic matter was determined by the acid-dichromate digestion method of Allison (1965). Exchangeable bases ( $\text{Ca}^{2+}$ ,  $\text{Mg}^{2+}$ , and  $\text{K}^+$ ) were determined by N  $\text{NH}_4\text{OAc}$ , pH 7.0, extraction with quantification by atomic absorption spectroscopy (SCS, 1972). Exchangeable  $\text{Al}^{3+}$  was determined by the method of McLean (1965). Exchange acidity ( $\text{H}^+$ ) was determined by the method of Peech (1965). Percent base saturation was determined by the sum of cations ( $\text{Ca}^{2+}$ ,  $\text{Mg}^{2+}$ ,  $\text{K}^+$ , and  $\text{H}^+$ ), using  $\text{BaCl}_2\text{-TEA}$ , pH 8.2, method (SCS, 1972).

Table C - Soil test data

Table C gives:

1. pH
2.  $\text{CaO}$  in lbs/acre
3.  $\text{MgO}$  in lbs/acre
4. percent organic matter
5.  $\text{P}_2\text{O}_5$  in lbs/acre
6.  $\text{K}_2\text{O}$  in lbs/acre
7. Zinc in ppm
8. Manganese in ppm

These properties were determined by the procedures used by the Soil Testing Laboratory, Agronomy Department, VPI&SU, Blacksburg, Virginia 24061 (Donohue and McCoy, 1972).

Table D - Sand and/or clay mineralogy

Table D gives minerals present in the sand and/or clay fractions.

Samples for mineralogical analysis were pretreated with  $H_2O_2$  and NaOAc adjusted to pH 5.0 followed by citrate-dithionite-bicarbonate to remove organic matter and oxide coatings.

Each sample was fractionated into sand, silt, and clay. Sand-size fraction was separated by sieving. Clay was separated from silt by centrifugation and decantation using dilute  $Na_2CO_3$ , adjusted to pH 9.5, as a dispersant (Tanner and Jackson, 1947; Jackson et al., 1950; Day, 1965; Jackson, 1979).

Sand-size minerals were identified using a Ziess polarizing microscope. Grain mounts were prepared using that portion of the sand fraction that passed a 40-mesh sieve, i.e. the 0.40 mm to 0.05 mm fraction, which constituted the major portion of the total sand fraction and was assumed to be representative. Grain counts were determined by the line-count method of Galehouse (1971) and frequency normalized to grains per one-hundred grains.

Semiquantitative determinations of the amount of gibbsite and kaolinite in clay fractions were made by integrating areas under respective differential scanning calorimeter endothermic peaks at approximately 280°C and 520°C and comparing with endothermic peaks of Reynolds synthetic gibbsite RH-31F and poorly crystalline Georgia kaolinite obtained from the University of Missouri clay mineral repository. Estimates of other clay minerals were made by proportioning integrated peak areas of appropriate x-ray diffractograms, using gibbsite and kaolinite as internal standards, and assuming minerals detected were equal to 100 percent.

Table E - Other physical properties

Table E gives:

1. swell index in lbs/ft<sup>2</sup>
2. liquid limit
3. plasticity index

These properties were determined by the procedures given by Holtz (1965) and Sowers (1965).

III. Percolation tests

Percolation tests were performed for selected soils according to procedures given by Virginia Department of Health (1982). These data are given in Appendix A.

IV. Site indices

Site indices for loblolly pine were determined for selected soils using dominant trees and determining their height and age. These data are given in Appendix B.

V. Spatial distribution of physical properties (Dothan & Mattaponi soils)

Samples were collected according to random grid intersections and within selected delineations of Dothan and Mattaponi soils and analysed for particle-size distribution and selected physical properties. These data are reported in Appendix C.

## CLASSIFICATION OF THE SOILS

"When the fixed limits of soil taxa are superimposed on the fixed pattern of soils in nature, limits of taxonomic classes rarely, if ever, coincide precisely with mappable areas" (USDA, 1983, P. 602-3). Therefore, only the typical profile is required to classify the same as the soil series used to name the mapping unit. Supplemental profiles may classify in different taxa at any level in the hierarchical system of Soil Taxonomy (Soil Survey Staff, 1975).

This supplemental report is to be used in conjunction with the Soil Survey of Greensville County, Virginia. Therefore, no interpretations for the mapping unit or data are presented.

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GREENSVILLE COUNTY IDENTIFICATION LEGEND  
AUGUST, 1983

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Rec.* Pub. Field Map Sym. Symbol(s)	Map Unit Name
1B 164B	Abell loam, 2 to 7 percent slopes
2A 125	Altavista fine sandy loam, 0 to 3 percent slopes
3A 12B(112B)	Altavista fine sandy loam, frequently flooded, 0 to 2 percent slopes
4B 257B3(177B3)	Appling sandy clay loam, 2 to 7 percent slopes, severely eroded
4C 257C3(257D3, 177D3,177D3)	Appling sandy clay loam, 7 to 15 percent slopes, severely eroded
5B 57B(77B)	Appling gravelly coarse sandy loam, 2 to 7 percent slopes
6B 157B	Appling-Louisburg gravelly coarse sandy loams, 2 to 7 percent slopes
6C 157C(157D)	Appling-Louisburg gravelly coarse sandy loams, 7 to 15 percent slopes
7B 58B	Appling-Mattaponi complex, 2 to 7 percent slopes
7C 58C(58D)	Appling-Mattaponi complex, 7 to 15 percent slopes
8A 7B(107B)	Bojac loamy fine sand, frequently flooded, 0 to 2 percent slopes
9A 4A	Chenneby silt loam, frequently flooded, 0 to 2 percent slopes
10B 236B3	Craven clay loam, 2 to 6 percent slopes, severely eroded

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\*Rec. Pub. Sym. = Recommended Publication Symbol in the published Greenville County Soil Survey Report

GREENSVILLE COUNTY IDENTIFICATION LEGEND cont.  
AUGUST, 1983

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Rec. Pub. Field Map Sym. Symbol(s)	Map Unit Name
10C 236C3(236D3, 236E3)	Craven clay loam, 6 to 12 percent slopes, severely eroded
11A 123(23A)	Dothan loamy sand, 0 to 2 percent slopes
12B 37B	Emporia loamy fine sand, 2 to 6 percent slopes
13A 31A(30A)	Faceville loamy sand, 0 to 2 percent slopes
14B 66B(71B)	Fluvanna loam, 2 to 7 percent slopes
15B 166B3	Fluvanna clay loam, 2 to 7 percent slopes, severely eroded
15C 166C(166D3)	Fluvanna clay loam, 7 to 15 percent slopes, severely eroded
16B 171B3	Fluvanna-Goldston complex, 2 to 7 percent slopes, severely eroded
16C 171C3(171D3)	Fluvanna-Goldston complex, 7 to 15 percent slopes, severely eroded
17B 68B(78B)	Fluvanna-Mattaponi complex, 2 to 7 percent slopes
17C 68C(68D,78C, 78D)	Fluvanna-Mattaponi complex, 7 to 15 percent slopes
18B 61B(50B,70B)	Georgeville loam, 2 to 7 percent slopes
19B 161B3(170B3)	Georgeville clay loam, 2 to 7 percent slopes, severely eroded
19C 161C3(161D3, 170C3,170D3)	Georgeville clay loam, 7 to 15 percent slopes, severely eroded

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GREENSVILLE COUNTY IDENTIFICATION LEGEND cont.  
AUGUST, 1983

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Rec. Pub. Field Map Sym. Symbol(s)	Map Unit Name
20B 64B(53B)	Helena gravelly coarse sandy loam, 2 to 7 percent slopes
21B 63B	Iredell loam, 2 to 7 percent slopes
22C 163C3	Iredell clay loam, 7 to 15 percent slopes, severely eroded
23D 55	Louisburg-Rock outcrop complex, 2 to 25 percent slopes
24B 36B	Mattaponi sandy loam, 2 to 6 percent slopes
25B 136B	Mattaponi gravelly sandy loam, 2 to 6 percent slopes
25C 136C	Mattaponi gravelly sandy loam, 6 to 15 percent slopes
26A 21A	Orangeburg loamy sand, 0 to 2 percent slopes
27A 42A	Peawick loam, 0 to 3 percent slopes
28B 336B3(336B)	Peawick clay loam, 2 to 6 percent slopes, severely eroded
28C 336C3(336D3, 336E3,336C, 336D,336E)	Peawick clay loam, 6 to 12 percent slopes, severely eroded
29 18	Pits quarry
30A 5A	Riverview silt loam, frequently flooded, 0 to 2 percent slopes
31A 235A(1B,10, 10A,103A)	Roanoke loam, frequently flooded, 0 to 2 percent slopes

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GREENSVILLE COUNTY IDENTIFICATION LEGEND cont.  
AUGUST, 1983

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Rec. Pub. Field Map Sym. Symbol(s)	Map Unit Name
32A 2	Roanoke silt loam, ponded, 0 to 2 percent slopes
33A 25B	Slagle fine sandy loam, 0 to 3 percent slopes
34A 137B	State loamy sand, 0 to 3 percent slopes
35A 6B(106B, 115B,215B)	Tarboro loamy sand, frequently flooded, 0 to 2 percent slopes
36B 91B(8B,9B, 89B,90B, 223A)	Uchee loamy sand, 0 to 6 percent slopes
37 11,15	Udorthents smoothed, 0 to 25 percent slopes
38A 214B	Wickham fine sandy loam, 0 to 3 percent slopes
39A 14B(113B, 114B)	Wickham sandy loam, frequently flooded, 0 to 2 percent slopes
40A 135A(101A)	Woodington fine sandy loam, 0 to 2 percent slopes

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## ABELL SERIES

Soils of the Abell series are very deep and moderately well drained. They formed in unconsolidated sediments. They are on uplands in the Piedmont physiographic province. Slopes range from 2 to 7 percent.

A typical profile of Abell loam, 2 to 7 percent slopes, located about 0.9 miles northeast of the junction of Highway VA-601 and the Brunswick County line and 370 yards west northwest of Highway VA-601, about 2 miles north of Barley.

Oi--2 to 0 inches, partially decomposed leaves and twigs.

A--0 to 1 inches, very dark grayish brown (10YR 3/2) loam; moderate medium and fine granular structure; very friable, slightly sticky, slightly plastic; many fine, medium, and coarse roots; 1 percent gravel; very strongly acid; abrupt smooth boundary.

E--1 to 9 inches, light yellowish brown (10YR 6/4) loam; weak medium and fine granular structure; friable, slightly sticky, slightly plastic; many fine, medium, and coarse roots; 2 percent gravel; very strongly acid; clear smooth boundary.

Bt1--9 to 14 inches, yellowish brown (10YR 5/6) loam, common medium distinct light yellowish brown (2.5Y 6/4) mottles; weak medium subangular blocky structure; friable, sticky, plastic; common fine and medium roots; many distinct clay films on faces of peds; 1 percent gravel; very strongly acid; gradual smooth boundary.

Bt2--14 to 28 inches, yellowish brown (10YR 5/6) clay loam, many medium distinct light yellowish brown (2.5Y 6/4) and light gray (10YR 7/1) mottles; moderate medium and fine subangular blocky structure; friable, sticky, plastic; common fine and medium roots; many distinct clay films on faces of peds; very strongly acid; gradual smooth boundary.

Bt3--28 to 40 inches, yellowish brown (10YR 5/6) clay loam, many medium distinct yellowish red (5YR 5/8), light yellowish brown (2.5Y 6/4), and light gray (10YR 7/1) mottles; moderate very coarse platy structure parting to moderate medium and fine subangular blocky; friable, sticky, plastic; common fine and medium roots; many distinct clay films on faces of peds; 20 percent highly weathered shale fragments that crush easily to soil material; very strongly acid; diffuse smooth boundary.

C--40 to 65 inches, mottled brownish yellow (10YR 6/6), light gray (5Y 7/1), and red (2.5YR 4/6) sandy loam; massive; friable, sticky, plastic; few fine and medium roots; 90 percent highly weathered shale fragments that crush easily to soil material; very strongly acid.

Table A: Particle size distribution\* for Abell loam, 2 to 7 percent slopes

Horizon	Depth (in.)	Sand			Clay			Textural Class		
		Very Coarse	Coarse	Medium	Fine	Very Fine	Total		Silt	Clay
E	1-9	2.65	5.29	9.02	11.72	8.75	37.43	46.5	16.1	I
Bt1	9-14	2.33	4.43	7.65	10.85	8.02	33.28	44.5	22.2	I
Bt2	14-28	1.14	2.60	5.25	7.62	6.32	22.93	41.9	35.2	CI
Bt3	28-40	0.27	1.74	5.11	9.89	8.04	25.05	39.2	35.8	CI
C	40-65	3.33	12.49	16.69	19.88	11.20	63.59	29.8	6.6	SI

\*by hydrometer method, Bouyoucos (1962).

Table B: Chemical properties for Abell loam, 2 to 7 percent slopes

Lab No.	Horizon	Depth (in.)	pH	Organic Matter (%)	Exchangeable Cations (meq/100 gram)					Base Saturation (%)	
					Ca	Mg	K	H	Al		Total
73-688	E	1-9	4.9	0.26	0.03	0.03	0.06	3.90	1.03	1.15	10.44
73-689	Bt1	9-14	4.7	0.19	0.06	0.10	0.13	6.33	3.18	6.62	4.38
73-690	Bt2	14-28	4.8	0.11	ND	0.52	0.14	12.93	8.33	13.58	4.82
73-691	Bt3	28-40	4.9	0.10	ND	0.62	0.18	17.26	11.76	18.05	4.40
73-692	C	40-65	4.9	0.04	ND	0.59	0.14	14.83	10.73	15.56	4.69

Table E: Other physical properties for Abell loam,  
2 to 7 percent slopes

Horizon	Depth (in.)	Swell Index*	Liquid Limit	Plasticity Index
Bt3	28-40	3271	44.28	16.17

\*lbs/square foot



## ABELL SUPPLEMENTAL PROFILE 1

Supplemental profile 1 of Abell gravelly loam, in an area of Abell loam, 2 to 7 percent slopes, is located about 735 yards north northeast of the junction of Highway VA-608 and the N&W Railroad and 0.8 miles east northeast of the junction of Highway VA-608 and the Greensville Brunswick-County line.

- Ap -- 0 to 6 inches, very pale brown (10YR 7/3) gravelly loam, weak fine granular structure; very friable; many fine, medium, and coarse roots; 20 percent gravel; very strongly acid; abrupt smooth boundary.
- Bt1 -- 6 to 10 inches, yellow (10YR 7/6) clay loam, common fine faint very pale brown (10YR 7/4) mottles; weak coarse subangular blocky structure; friable, slightly sticky, slightly plastic; many fine, medium, and coarse roots; many distinct clay films and bridges on sand grains; 10 percent gravel; very strongly acid; clear smooth boundary.
- Bt2 -- 10 to 21 inches, yellow (10YR 7/6) clay loam, common medium faint very pale brown (10YR 7/3) mottles; moderate medium subangular blocky structure; friable, slightly sticky, plastic; common fine and medium roots; common faint clay films on faces of peds; 2 percent gravel; very strongly acid; clear smooth boundary.
- Bt3 -- 21 to 26 inches, reddish yellow (7.5YR 7/6) clay loam, many medium distinct very pale brown (10YR 7/3) mottles; weak medium subangular blocky structure; friable, slightly sticky, slightly plastic; common fine roots; common faint clay films on faces of peds; 2 percent gravel; very strongly acid; clear smooth boundary.
- C -- 26 to 60 inches, reddish yellow (7.5YR 7/6) loam, many fine faint pinkish white (7.5YR 8/2) mottles; massive; friable, slightly sticky; few fine roots; 2 percent gravel; very strongly acid.

Table A: Particle size distribution\* for Abell gravelly loam, 2 to 7 percent slopes (Supplemental profile 1)

Horizon	Depth (in.)	Sand			Very Fine		Total	Silt	Clay	Textural Class
		Very Coarse	Coarse	Medium	Fine	%				
Ap	0-6	13.93	10.75	7.57	6.75	6.12	45.12	46.08	8.8	grl
Bt1	6-10	8.96	10.08	7.60	6.24	3.65	36.53	37.27	26.2	cl
Bt2	10-21	5.46	7.78	5.58	4.26	2.95	26.03	38.37	35.6	cl
Bt3	21-26	5.91	9.24	6.31	5.32	4.10	30.88	37.32	31.8	cl
C	26-60	7.52	12.03	10.82	10.16	6.12	46.65	34.75	18.6	l

\*by hydrometer method, Bouyoucos (1962)

Table C: Soil test data for Abell gravelly loam, 2 to 7 percent slopes (Supplemental profile 1)

Horizon	Depth (in.)	pH	CaO*	MgO*	O.M. (%)	P205*	K20*	Zn ppm	Mn ppm
Ap	0-6	4.6	202	44	0.3	17	52	1.0	2.8
Bt1	6-10	4.6	168	96	0.3	6	45	0.8	1.1
Bt2	10-21	4.7	---	---	0.2	---	---	0.6	0.6
Bt3	21-26	4.9	168	267	0.1	6	41	0.7	0.3
C	26-60	4.9	134	211	0.1	4	26	0.6	0.3

\*lbs/acre

## ALTAVISTA SERIES

Soils of the Altavista series are very deep and moderately well drained. They formed in loamy unconsolidated fluvial sediments. They are on floodplains and stream terraces in the Coastal Plain and Piedmont physiographic provinces. Slopes range from 0 to 3 percent.

A typical profile of Altavista fine sandy loam, 0 to 3 percent slopes, located about 700 yards east of junction of Highways VA-730 and VA-622 (Bryants Corner), and about 6 miles east of Skippers.

Ap--0 to 7 inches, grayish brown (2.5Y 5/2) fine sandy loam; massive; friable; common fine roots; slightly acid; abrupt smooth boundary.

E--7 to 10 inches, light yellowish brown (2.5Y 6/4) fine sandy loam; massive; firm, slightly sticky, slightly plastic; few fine roots; moderately acid; clear smooth boundary.

Bt1--10 to 17 inches, olive yellow (2.5Y 6/6) clay loam; weak medium subangular blocky structure; friable, sticky, plastic; few fine roots; many distinct clay films and bridges on sand grains, few faint clay films on faces of peds; very strongly acid; diffuse smooth boundary.

Bt2--17 to 30 inches, yellowish brown (10YR 5/8) clay loam; weak medium subangular blocky structure; friable, sticky, plastic; few fine roots; many distinct clay films and bridges on sand grains, few faint clay films on faces of peds; strongly acid; diffuse smooth boundary.

Bt3--30 to 50 inches, brownish yellow (10YR 6/8) sandy clay loam, many medium distinct light gray (2.5Y 7/2) mottles; weak medium subangular blocky structure; friable, slightly sticky, slightly plastic; few fine roots; many distinct clay films and bridges on sand grains, few faint clay films on faces of peds; very strongly acid; clear wavy boundary.

2C--50 to 68 inches, mottled light gray (2.5Y 7/2) and reddish yellow (7.5YR 6/8) clay; massive; firm, sticky, plastic; few fine roots; very strongly acid.

Table A: Particle size distribution\* for Altavista fine sandy loam, 0 to 3 percent slopes

Horizon	Depth (in.)	Sand					Total	Silt	Clay	Textural Class
		Very Coarse	Coarse	Medium	Fine	Very Fine				
Ap	0-7	0.65	3.34	7.20	30.23	26.06	67.48	27.22	5.30	fsl
E	7-10	0.59	3.17	5.70	24.00	22.93	56.39	30.31	13.30	fsl
Bt1	10-17	0.83	2.59	4.35	18.29	18.44	44.80	27.60	27.60	cl
Bt2	17-30	0.56	2.88	4.87	18.76	17.47	44.54	25.86	29.60	cl
Bt3	30-50	1.21	5.69	8.95	22.04	17.43	55.32	21.09	23.60	sc1
2C	50-68	0.44	2.09	3.41	9.20	7.60	22.74	27.66	49.60	c

\*by hydrometer method Bouyoucos (1962)

Table C: Soil test data for Altavista fine sandy loam, 0 to 3 percent slopes

Horizon	Depth (in.)	pH	CaO*	MgO*	O.M. (%)	P205*	K20*	Zn ppm	Mn ppm
Ap	0-7	6.2	1045	56	---	138	89	---	---
E	7-10	6.0	413	83	---	16	72	---	---
Bt1	10-17	5.0	633	119	---	2	80	---	---
Bt2	17-30	5.1	523	119	---	2	41	---	---
Bt3	30-50	5.0	138	76	---	2	17	---	---
2C	50-68	4.8	303	206	---	2	29	---	---

\*lbs/acre

## ALTAVISTA SUPPLEMENTAL PROFILE 1

Supplemental profile 1 of Altavista fine sandy loam, in an area of Altavista fine sandy loam, 0 to 3 percent slopes, is located about 350 yards west of the junction of Highways VA-625 and VA-622 and 20 yards north of Highway VA-625.

Oi--1 to 0 inches, partially decomposed leaves and twigs.

Ap--0 to 6 inches, grayish brown (2.5Y 5/2) fine sandy loam; massive; friable, slightly sticky, slightly plastic; many fine, medium, and coarse roots; few fine flakes of mica; very strongly acid; abrupt smooth boundary.

E--6 to 15 inches, light yellowish brown (2.5Y 6/4) fine sandy loam; massive; friable, slightly sticky, slightly plastic; few fine, medium, and coarse roots; few fine flakes of mica; very strongly acid; clear smooth boundary.

Bt1--15 to 21 inches, olive yellow (2.5Y 6/8) sandy clay loam, many medium distinct light yellowish brown (2.5Y 6/4) mottles; weak medium subangular blocky structure; friable, slightly sticky, slightly plastic; few fine, medium, and coarse roots; many distinct clay films and bridges on sand grains, common faint clay films on faces of peds; few fine flakes of mica; very strongly acid; gradual smooth boundary.

Bt2--21 to 33 inches, light olive brown (2.5Y 5/6) sandy clay loam; moderate medium subangular blocky structure; friable, sticky, plastic; few fine, medium, and coarse roots; many distinct clay films and bridges on sand grains, many distinct clay films on faces of peds; few fine flakes of mica; very strongly acid; diffuse smooth boundary.

Bt3--33 to 48 inches, mottled olive yellow (2.5Y 6/6), red (10R 4/6), and light gray (10YR 7/1) clay; moderate coarse and medium subangular blocky structure; firm, sticky, plastic; few fine, medium, and coarse roots; many distinct clay films and bridges on sand grains, many distinct clay films on faces of peds; many fine flakes of mica; very strongly acid; diffuse smooth boundary.

Bt4--48 to 57 inches, mottled light gray (10YR 7/1), yellowish brown (10YR 5/6), and weak red (10R 4/4) sandy clay; weak medium subangular blocky structure; friable, slightly sticky, slightly plastic; few fine roots; many distinct clay films and bridges on sand grains, common faint clay films on faces of peds; many fine flakes of mica; very strongly acid; diffuse smooth boundary.

C--57 to 67 inches, mottled light gray (10YR 7/1), yellowish brown (10YR 5/6), and weak red (10R 4/4) sandy clay loam; massive; friable, slightly sticky, slightly plastic; few fine roots; many fine flakes of mica; very strongly acid.

Table A: Particle size distribution\* for Altavista fine sandy loam, 0 to 3 percent slopes (Supplemental profile 1)

Horizon	Depth (in.)	Sand					Total	Silt	Clay	Textural Class
		Very Coarse	Coarse	Medium	Fine	Very Fine				
Ap	0-6	0.23	1.44	8.91	34.91	23.89	69.38	24.02	6.60	fsl
E	6-15	0.25	1.06	7.30	32.22	21.86	62.96	26.44	10.60	fsl
Bt1	15-21	0.21	0.84	5.99	27.69	19.77	54.50	23.30	22.20	sci
Bt2	21-33	0.12	0.68	5.43	25.89	15.55	47.67	19.13	33.20	sci
Bt3	33-48	0.09	0.36	4.59	24.79	12.30	42.13	17.67	40.20	C
Bt4	48-57	0.01	0.41	7.56	31.81	10.82	50.61	10.19	39.20	sc
C	57-67	0.03	0.98	17.57	38.87	6.78	64.23	6.57	29.20	sci

\*by hydrometer method Bouyoucos (1962)

Table B: Chemical properties for Altavista fine sandy loam, 0 to 3 percent slopes (Supplemental Profile 1)

Lab No.	Horizon	Depth (in.)	pH	Organic Matter (%)	Exchangeable Cations (meq/100 gram)					Base Saturation (%)	
					Ca	Mg	K	H	Al		Total
74-584	Ap	0-6	4.6	1.81	0.08	0.04	0.10	5.50	0.96	5.72	3.85
74-585	E	6-15	4.9	0.28	0.02	ND	0.05	2.00	0.39	2.07	3.38
74-586	Bt1	15-21	4.8	0.25	0.55	0.08	0.09	4.75	1.35	5.47	13.16
74-587	Bt2	21-33	4.8	0.25	0.84	0.21	0.11	7.25	1.93	8.41	13.47
74-588	Bt3	33-48	4.8	0.17	0.31	0.65	0.12	9.50	3.57	10.58	10.21
74-589	Bt4	48-57	4.8	0.17	0.12	0.40	0.12	8.00	3.28	8.64	7.35
74-590	C	57-67	4.7	0.17	0.12	0.32	0.11	7.50	3.09	8.05	6.77



Table C: Soil test data for Altavista fine sandy loam, 0 to 3 percent slopes (Supplemental Profile 1)

Horizon	Depth (in.)	pH	CaO*	MgO*	O.M. (%)	P2O5*	K2O*	Zn ppm	Mn ppm
Ap	0-6	4.5	110	20	0.1	57	43	---	---
E	6-15	4.6	110	16	0.1	7	22	---	---
Bt1	15-21	4.6	165	26	0.1	5	29	---	---
Bt2	21-33	4.6	385	63	0.1	5	31	---	---
Bt3	33-48	4.5	138	156	0.1	2	41	---	---
Bt4	48-57	4.4	138	113	0.1	2	48	---	---
C	57-67	4.5	110	73	0.1	0	36	---	---

\*lbs/acre

Table D: Sand mineralogy for Altavista fine sandy loam, 0 to 3 percent slopes (Supplemental profile 1)

Horizon	Depth (in.)	Percent Minerals Present*
Bt2	21-33	QZ 75, Fd 20, M 2, HM 3
Bt3	33-48	QZ 70, Fd 20, M 8, HM 2

\*QZ = Quartz; Fd = Feldspar; M = Mica; HM = Heavy minerals including magnetite, zircon, ilmenite

## ALTAVISTA SUPPLEMENTAL PROFILE 2

Supplemental profile 2 of Altavista fine sandy loam, in an area of Altavista fine sandy loam, frequently flooded, 0 to 2 percent slopes, is located about 2 miles west southwest of the junction of Highways VA-625 and VA-622 and about 0.9 miles south of Highway VA-625.

Ap--0 to 10 inches, dark grayish brown (10YR 4/2) fine sandy loam; massive; very friable; many fine roots; moderately acid; abrupt smooth boundary.

Bt1--10 to 14 inches, brownish yellow (10YR 6/6) fine sandy loam, many medium distinct light yellowish brown (10YR 6/4) mottles; weak medium subangular blocky structure; very friable, slightly sticky, slightly plastic; common fine and medium roots; many distinct clay films and bridges on sand grains, few faint clay films on faces of peds; moderately acid; gradual smooth boundary.

Bt2--14 to 20 inches, brownish yellow (10YR 6/6) sandy clay loam, many medium distinct yellowish brown (10YR 5/6) mottles; weak medium subangular blocky structure; very friable, slightly sticky, slightly plastic; common fine, and medium roots; many distinct clay films and bridges on sand grains, many distinct clay films on faces of peds; few fine flakes of mica; very strongly acid; diffuse smooth boundary.

Bt3--20 to 45 inches, mottled strong brown (7.5YR 5/8), very pale brown (10YR 7/3), and light gray (2.5Y 7/2) fine sandy loam; weak medium subangular blocky structure; very friable, slightly sticky, slightly plastic; common fine and medium roots; many distinct clay films and bridges on sand grains, common faint clay films on faces of peds; few fine flakes of mica; very strongly acid; diffuse smooth boundary.

C--45 to 65 inches, mottled brownish yellow (10YR 6/8), white (2.5Y 8/2), and light gray (N 7/) loamy fine sand; massive; very friable; common fine flakes of mica; very strongly acid.

Table A: Particle size distribution\* for Altavista fine sandy loam, frequently flooded, 0 to 2 percent slopes (Supplemental profile 2)

Horizon	Depth (in.)	Sand					Total	Silt	Clay	Textural Class
		Very Coarse	Coarse	Medium	Fine	Very Fine				
Ap	0-10	0.46	1.75	11.34	37.19	17.71	68.45	23.15	8.40	fsl
Bt1	10-14	0.31	1.19	7.59	31.41	20.87	61.37	22.23	16.40	fsl
Bt2	14-20	0.19	0.92	6.96	29.84	14.98	52.89	25.71	21.40	scl
Bt3	20-45	0.16	0.71	4.63	39.46	18.64	63.60	21.00	15.40	fsl
C	45-65	0.11	0.78	8.39	55.01	20.64	84.93	10.37	4.70	lfs

\*by hydrometer method, Bouyoucos (1962).

Table B: Chemical properties for Altavista fine sandy loam, frequently flooded, 0 to 2 percent slopes (Supplemental profile 2)

Lab No.	Horizon	Depth (in.)	pH	Organic Matter (%)	Exchangeable Cations (meq/100 gram)					Base Saturation (%)	
					Ca	Mg	K	H	Al		Total
74-134	Ap	0-10	5.6	0.74	1.30	0.13	0.11	4.00	0.17	5.54	27.73
74-135	Bt1	10-14	5.8	0.25	1.53	0.38	0.22	2.78	0.09	4.90	43.26
74-136	Bt2	14-20	4.7	0.23	0.99	0.40	0.12	6.61	1.80	8.12	18.60
74-137	Bt3	20-45	4.5	0.08	0.75	0.32	0.04	5.04	1.97	6.15	18.05
74-138	C	45-65	4.5	0.06	0.31	0.23	0.03	2.96	1.12	3.53	16.15

Table C: Soil test data for Altavista fine sandy loam, frequently flooded, 0 to 2 percent slopes (Supplemental profile 2)

Horizon	Depth (in.)	pH	CaO*	MgO*	O.M. (%)	P2O5*	K2O*	Zn ppm	Mn ppm
Ap	0-10	6.1	633	40	---	60	63	---	---
Bt1	10-14	6.4	688	106	---	9	130	---	---
Bt2	14-20	5.3	660	123	---	2	67	---	---
Bt3	20-45	4.8	413	86	---	2	22	---	---
C	45-65	4.8	110	56	---	2	10	---	---

\* lbs/acre

Table D: Sand mineralogy for Altavista fine sandy loam, frequently flooded, 0 to 2 percent slopes (Supplemental profile 2)

Horizon	Depth (in.)	Percent Minerals Present*
Bt3	20-45	Qz 66, Fd 26, M 3, HM 5

\*Qz = Quartz; Fd = Feldspar; M = Mica; HM = Heavy minerals including magnetite, zircon, ilmenite

## ALTAVISTA SUPPLEMENTAL PROFILE 3

Supplemental profile 3 of Altavista sandy loam, in an area of Altavista sandy loam, frequently flooded, 0 to 2 percent slopes, is located about 1.4 miles northeast of the junction of Highways VA-730 and VA-660 and about 1.4 miles east of Claesville Church.

Ap--0 to 5 inches, dark brown (7.5YR 4/4) sandy loam; moderate medium granular structure; friable, slightly sticky, slightly plastic; many fine, medium, and coarse roots; few fine flakes of mica; strongly acid; abrupt smooth boundary.

Bt1--5 to 19 inches, yellowish red (5YR 5/6) clay loam, common fine distinct reddish brown (5YR 4/3) mottles; moderate medium subangular blocky structure; friable, slightly sticky, slightly plastic; many fine and medium roots; many distinct clay films on faces of peds; few fine flakes of mica; strongly acid; gradual smooth boundary.

Bt2--19 to 29 inches, strong brown (7.5YR 5/6) loam, common medium distinct light gray (10YR 7/2) and yellowish red (5YR 4/6) mottles; weak medium subangular blocky structure; friable, slightly sticky, slightly plastic; common fine and medium roots; many distinct clay films and bridges on sand grains, few faint clay films on faces of peds; many fine flakes of mica; strongly acid; diffuse smooth boundary.

Bt3--29 to 40 inches, mottled light gray (10YR 7/2), yellow (10YR 7/6), and red (2.5YR 4/6) sandy loam; weak medium subangular blocky structure; friable, slightly sticky, slightly plastic; common fine and medium roots; many distinct clay films and bridges on sand grains, few faint clay films on faces of peds; many fine flakes of mica; strongly acid; clear smooth boundary.

C--40 to 60 inches, mottled yellowish red (5YR 4/6) and light gray (10YR 7/1) sandy loam; weak medium platy structure; very friable; many fine flakes of mica; strongly acid.

Table A: Particle size distribution\* for Altavista sandy loam, frequently flooded, 0 to 2 percent slopes (Supplemental Profile 3)

Horizon	Depth (in.)	Sand					Total	Silt	Clay	Textural Class
		Very Coarse	Coarse	Medium	Fine	Very Fine				
Ap	0-5	---	---	---	---	54.4	32.0	13.6	sl	
Bt1	5-19	---	---	---	---	35.4	28.2	36.4	cl	
Bt2	19-29	---	---	---	---	44.4	28.2	27.4	l	
Bt3	29-40	---	---	---	---	62.4	19.2	18.4	sl	
C	40-60	---	---	---	---	76.4	13.2	10.4	sl	

\*by hydrometer method Bouyoucos (1962)

Table B: Chemical properties for Altavista sandy loam, frequently flooded, 0 to 2 percent slopes (Supplemental profile 3)

Lab No.	Horizon	Depth (in.)	pH	Organic Matter (%)	Exchangeable Cations (meq/100 gram)					Base Saturation (%)	
					Ca	Mg	K	H	Al		Total
71-678	Ap	0-5	5.1	4.07	0.83	0.56	0.11	5.99	0.99	7.49	20.03
71-679	Bt1	5-19	5.5	1.55	1.80	1.75	0.11	6.70	0.50	10.36	35.30
71-680	Bt2	19-29	5.5	0.65	0.82	2.00	0.09	5.99	1.58	8.90	32.67
71-681	Bt3	29-40	5.4	0.73	0.62	1.50	0.08	5.47	1.19	7.67	28.72
71-682	C	40-60	5.4	0.65	0.48	0.75	0.08	4.41	0.79	5.72	22.84

Table C: Soil test data for Altavista sandy loam, frequently flooded, 0 to 2 percent slopes (Supplemental profile 3)

Horizon	Depth (in.)	pH	CaO*	MgO*	O.M. (%)	P2O5*	k2O*	Zn ppm	Mn ppm
Ap	0-5	5.1	385	179	0.9	7	48	---	---
Bt1	5-19	5.7	770	398+	0.2	2	24	---	---
Bt2	19-29	5.4	330	398+	0.1	7	24	---	---
Bt3	29-40	5.4	165	398+	0.1	7	29	---	---
C	40-60	5.3	138	328	0.1	9	24	---	---

\*lbs/acre.

Table D: Sand mineralogy for Altavista sandy loam, frequently flooded, 0 to 2 percent slopes (Supplemental Profile 3)

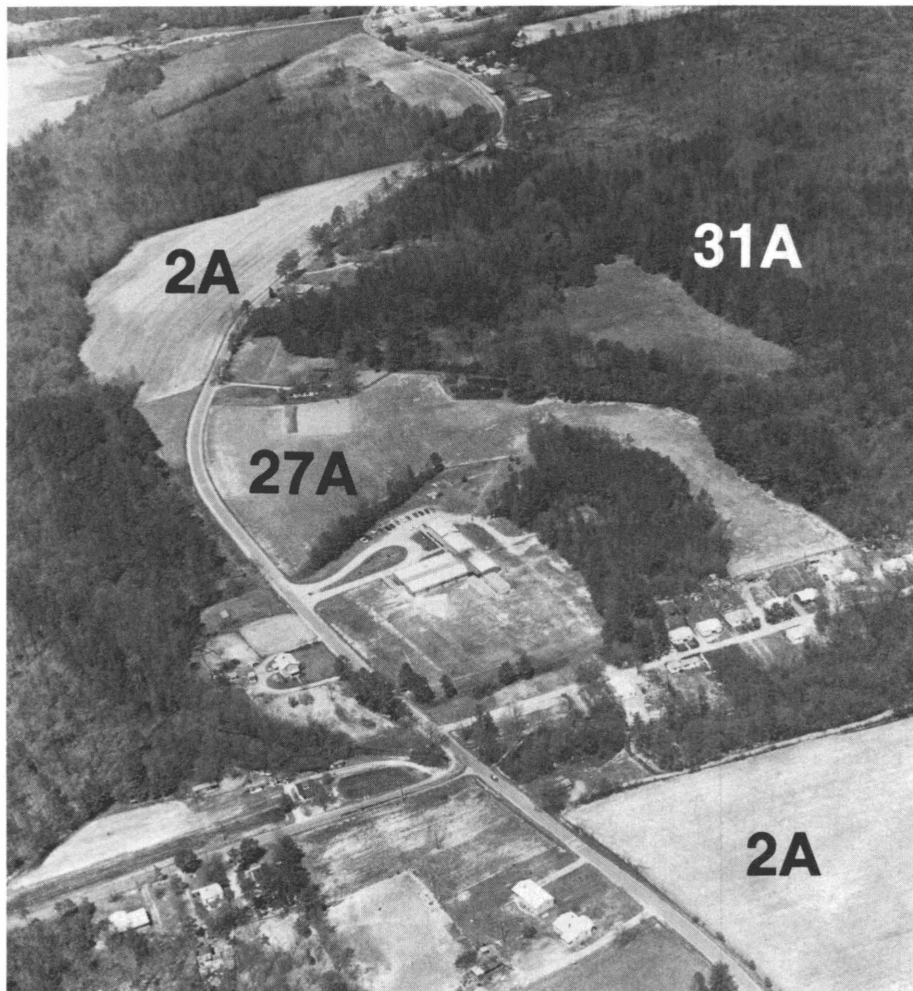
Horizon	Depth (in.)	Percent Minerals Present*
Bt2	19-29	QZ 46, Fd 18, M 33, HM 3

\*QZ = Quartz; Fd = Feldspar; M = Mica; HM = Heavy minerals including magnetite, zircon, ilmenite



Stunted peanuts on 3A - Altavista fine sandy loam, frequently flooded, 0 to 2 percent slopes, and normal growth on 8A - Bojac loamy fine sand, frequently flooded, 0 to 2 percent slopes, in the foreground and 35A - Tarboro loamy sand, frequently flooded, 0 to 2 percent slopes with the lighter colored surface in the middle ground.

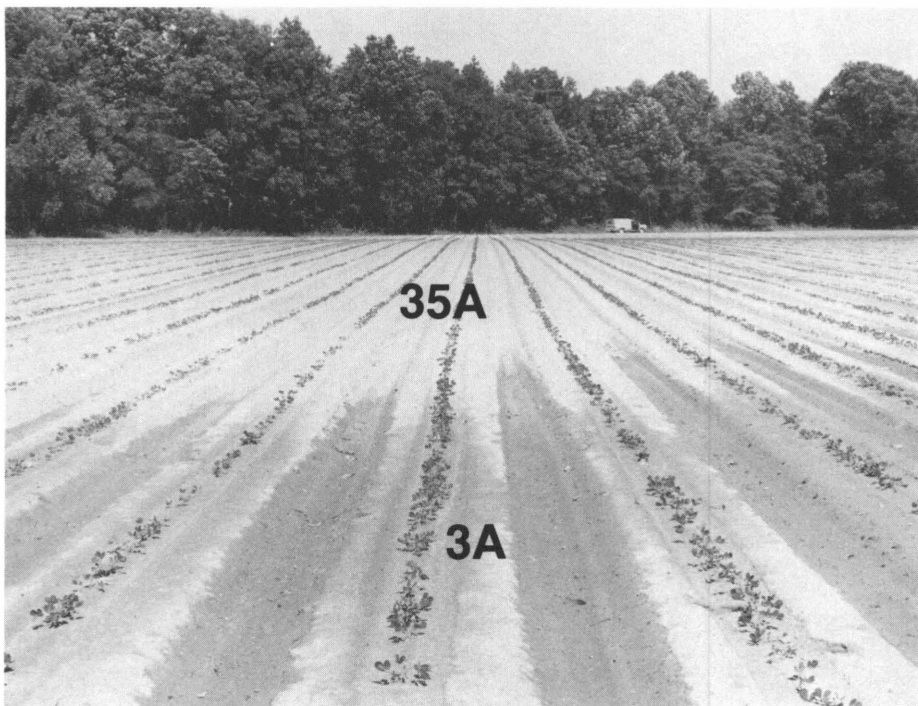




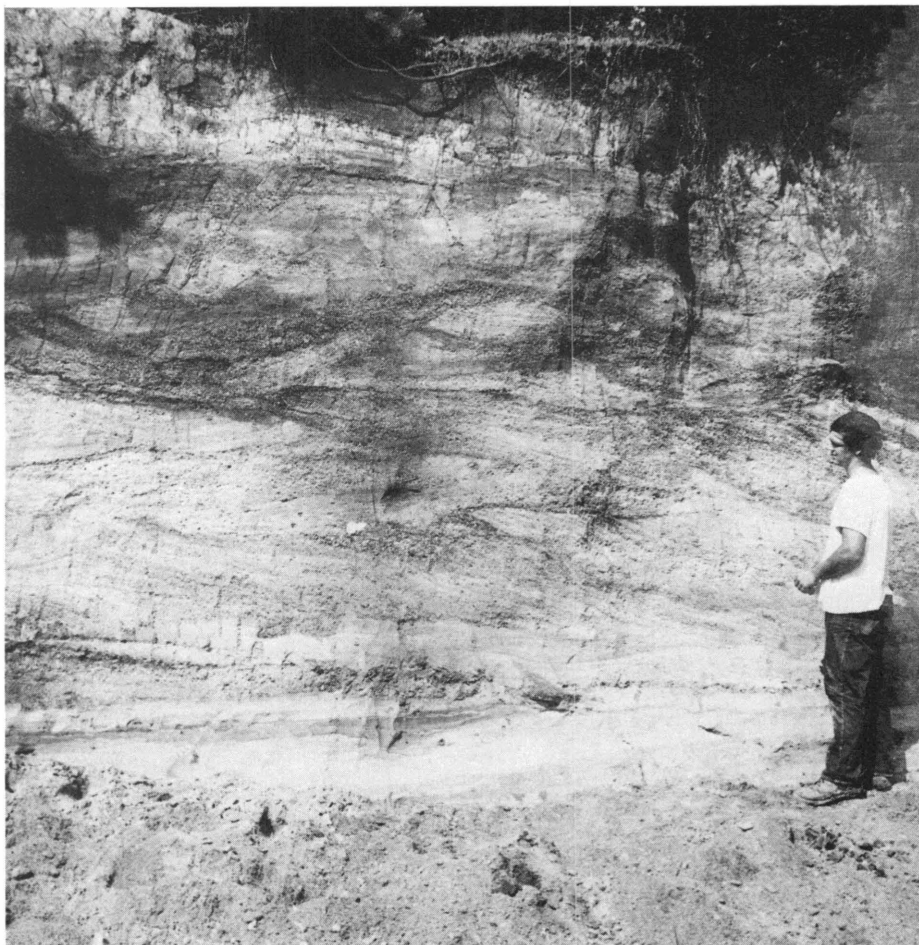
Cultivated fields of 2A - Altavista fine sandy loam, 0 to 3 percent slopes, and 27A - Peawick loam, 0 to 3 percent slopes, and forests on 31A - Roanoke loam, frequently flooded, 0 to 2 percent slopes.



Corn on 2A - Altavista fine sandy loam, 0 to 3 percent slopes.



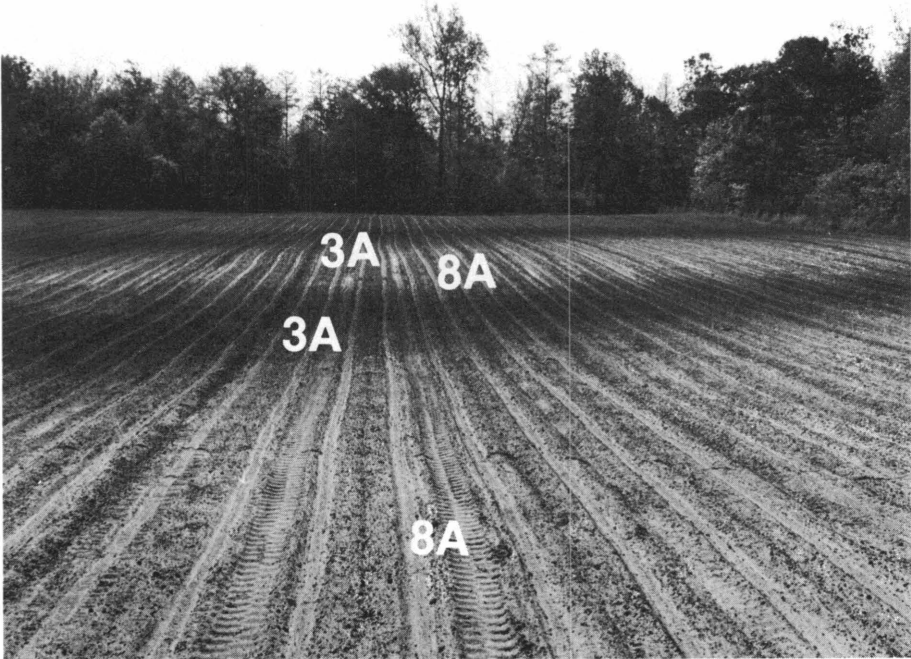
Peanuts on 3A - Altavista fine sandy loam, frequently flooded, 0 to 2 percent slopes, in the foreground and 35A - Tarboro loamy sand, frequently flooded, 0 to 2 percent slopes in the background.



Unconsolidated sediments deposited by streams in which the Altavista, Bojac, Tarboro, and Wickham soils developed.



Sand borrowed from the sandy substratum of the Altavista, Bojac, Tarboro, and Wickham soils.



Areas with lighter colored surfaces are 8A - Bojac loamy fine sand, frequently flooded, 0 to 2 percent slopes, and areas with darker colored surfaces are 3A - Altavista fine sandy loam, frequently flooded, 0 to 2 percent slopes.

## APPLING SERIES

Soils of the Appling series are very deep and well drained. They formed in materials weathered from acid crystalline rocks. They are on uplands in the Piedmont physiographic province. Slopes range from 2 to 15 percent.

A typical profile of Appling gravelly coarse sandy loam, 2 to 7 percent slopes, is located about 1 mile south of the junction of Highways VA-627 and VA-633 and 85 yards west of Highway VA-633, about 1 mile south of Brink.

Oi--2 to 0 inches, partially decomposed leaves and twigs.

A--0 to 1 inches, dark grayish brown (10YR 4/2) gravelly coarse sandy loam; moderate fine granular structure; very friable; many fine, medium, and coarse roots; 20 percent gravel; very strongly acid; abrupt smooth boundary.

E--1 to 12 inches, light yellowish brown (10YR 6/4) gravelly coarse sandy loam; massive; friable; many fine, medium, and coarse roots; 20 percent gravel; very strongly acid; clear smooth boundary.

Bt1--12 to 24 inches, yellowish red (5YR 5/8) clay; moderate medium and coarse subangular blocky structure; firm, sticky, plastic; common fine and medium roots; many prominent clay films on faces of peds; 4 percent gravel; strongly acid; diffuse smooth boundary.

Bt2--24 to 30 inches, yellowish red (5YR 5/8) clay, common medium distinct light yellowish brown (10YR 6/4) mottles; moderate medium subangular blocky structure; firm, sticky, plastic; common fine and medium roots; many prominent clay films on faces of peds; 5 percent gravel; strongly acid; gradual smooth boundary.

Bt3--30 to 43 inches, yellowish red (5YR 5/8) clay, common medium distinct reddish yellow (7.5YR 6/6) mottles; weak medium subangular blocky structure; friable, sticky, plastic; common fine and medium roots; many prominent clay films on faces of peds; 5 percent gravel; very strongly acid; diffuse smooth boundary.

C--43 to 63 inches, yellowish red (5YR 5/8) sandy loam, common medium distinct reddish yellow (7.5YR 6/6) mottles; massive; friable, slightly sticky, slightly plastic; few fine roots; 5 percent gravel; very strongly acid.



Table A: Particle size distribution\* for Applying gravelly coarse sandy loam, 2 to 7 percent slopes

Horizon	Depth (in.)	Sand					Total	Silt	Clay	Textural Class
		Very Coarse	Coarse	Medium	Fine	Very Fine				
E	1-12	30.66	8.34	9.59	13.53	7.43	69.55	24.50	5.94	gr-cos l
Bt1	12-24	7.51	3.28	2.44	3.99	3.59	20.81	15.55	63.63	c
Bt2	24-30	7.66	3.33	2.38	4.48	6.69	24.54	18.05	57.41	c
Bt3	30-43	8.06	3.20	2.29	4.16	10.59	24.10	20.26	55.65	c
C	43-63	16.07	8.36	10.52	10.46	12.59	58.00	24.00	18.00	sl

\*by pipette method Day (1965)

Table C: Soil test data for Applying gravelly coarse sandy loam, 2 to 7 percent slopes

Horizon	Depth (in.)	pH	CaO*	MgO*	O.M. (%)	P205*	K20*	Zn ppm	Mn ppm
E	1-12	4.9	82	46	1.1	18	0	---	---
Bt1	12-24	5.1	192	322	0.3	14	178	---	---
Bt2	24-30	5.2	138	438	0.3	9	212	---	---
Bt3	30-43	4.9	138	119	0.2	101	149	---	---
C	43-63	4.9	28	73	0.1	34	89	---	---

#lbs/acre

Table E: Other physical properties for Applying  
 gravelly coarse sandy loam, 2 to 7 percent  
 slopes

Horizon	Depth (in.)	Swell Index*	Liquid Limit	Plasticity Index
Bt2	24-30	2950	74.03	30.19
Bt3	30-43	2675	75.20	29.89
C	43-63	1150	47.00	3.75

\*lbs/square foot

## APPLING SUPPLEMENTAL PROFILE 1

Supplemental profile 1 of Appling fine sandy loam, in an area of Appling gravelly coarse sandy loam, 2 to 7 percent slopes, is located about 0.5 miles east southeast of the southern junction of Highways VA-627 and VA-600 and 135 yards north of Highway VA-600.

Oi--1 to 0 inches, partially decomposed leaves and twigs.

Apl--0 to 2 inches, light olive brown (2.5Y 5/4) fine sandy loam; massive; very friable; many fine, medium, and coarse roots; 10 percent rounded and angular quartz pebbles; strongly acid; clear smooth boundary.

Ap2--2 to 8 inches, light yellowish brown (2.5Y 6/4) fine sandy loam; massive; friable, slightly sticky, slightly plastic; many fine, medium, and coarse roots; 10 percent rounded and angular quartz pebbles; very strongly acid; clear smooth boundary.

Bt1--8 to 26 inches, strong brown (7.5YR 5/8) clay, few medium distinct dark red (10R 3/6) mottles; moderate medium subangular blocky structure; friable, sticky, plastic; many fine, medium, and coarse roots; many prominent clay films on faces of peds; 2 percent angular quartz pebbles; strongly acid; gradual smooth boundary.

Bt2--26 to 33 inches, mottled yellowish red (5YR 4/8), dark red (10R 3/6), and yellow (10YR 7/8) clay; weak coarse platy structure parting to moderate medium and fine subangular blocky; friable, sticky, plastic; common fine and medium roots; many prominent clay films on faces of peds; 2 percent angular quartz pebbles; very strongly acid; diffuse smooth boundary.

Bt3--33 to 47 inches, dark red (10R 3/6) loam, many fine distinct weak red (10R 5/4) and common medium distinct brownish yellow (10YR 6/6), strong brown (7.5YR 5/8), white (10YR 8/1), and black (10YR 2/1) mottles; massive; friable, slightly sticky, slightly plastic; few fine roots; few prominent clay flows up to 0.5 inches thick; 2 percent angular quartz pebbles; strongly acid; diffuse smooth boundary.

2C--47 to 65 inches, dark red (10R 3/6) loam, many fine distinct weak red (10R 5/4) and common medium distinct brownish yellow (10YR 6/6), strong brown (7.5YR 5/8), white (10YR 8/1), and black (10YR 2/1) mottles; massive; friable, slightly sticky, slightly plastic; 2 percent angular quartz pebbles; strongly acid.

Table A: Particle size distribution\* for Appling fine sandy loam, 2 to 7 percent slopes (Supplemental profile 1)

Horizon	Depth (in.)	Sand					Total	Silt	Clay	Textural Class
		Very Coarse	Coarse	Medium	Fine	Very Fine				
Ap2	2-8	4.00	7.26	15.01	26.43	11.79	64.49	28.17	7.33	fsl
Bt1	8-26	1.27	6.41	8.63	7.63	2.76	26.70	24.29	49.01	c
Bt2	26-33	2.22	9.63	10.10	5.52	1.74	29.21	29.53	41.25	c
Bt3	33-47	5.19	13.52	12.79	6.06	1.73	39.29	36.95	23.75	l
2C	47-65	4.80	13.11	16.22	8.78	3.33	46.18	46.24	12.57	l

\*by pipette method Day (1965)

Table B: Chemical properties for Appling fine sandy loam, 2 to 7 percent slopes (Supplemental profile 1)

Lab No.	Horizon	Depth (in.)	pH	Organic Matter (%)	Exchangeable Cations (meq/100 gram)				Total	Base Saturation (%)	
					Ca	Mg	K	H			
73-707	Ap2	2-8	5.0	0.21	ND	0.02	0.02	2.60	0.26	2.64	1.52
73-708	Bt1	8-26	5.2	0.17	0.06	0.68	0.06	10.93	2.58	11.73	6.78
73-709	Bt2	26-33	5.0	0.18	0.03	0.24	0.05	9.54	3.00	9.86	3.20
73-710	Bt3	33-47	5.2	0.04	0.04	0.10	0.04	4.69	1.89	4.87	3.60
73-711	2C	47-65	5.1	0.01	0.03	0.06	0.02	3.99	1.55	4.10	2.68

Table E: Other physical properties for Applying fine sandy loam, 2 to 7 percent slopes (Supplemental profile 1)

Horizon	Depth (in.)	Swell Index*	Liquid Limit	Plasticity Index
Bt1	8-26	3425	74.95	37.59
Bt3	33-47	1075	51.08	22.32

\*lbs/square foot

## APPLING SUPPLEMENTAL PROFILE 2

Supplemental profile 2 of Appling coarse sandy loam, in an area of Appling gravelly coarse sandy loam, 2 to 7 percent slopes, is located about 1.6 miles east northeast of the junction of Highways US-58 and VA-605 and 2 miles north northeast of the junction of Highways VA-605 and VA-607.

- A -- 0 to 1 inches, dark grayish brown (10YR 4/2) coarse sandy loam; weak fine granular structure; friable; many fine, medium, and coarse roots; 10 percent gravel; extremely acid; abrupt smooth boundary.
- E -- 1 to 4 inches, light yellowish brown (10YR 6/4) coarse sandy loam; massive; friable; many fine, medium, and coarse roots; 10 percent gravel; extremely acid; clear smooth boundary.
- Bt1 -- 4 to 24 inches, yellowish red (5YR 5/6) clay, common medium distinct reddish yellow (7.5YR 6/6) mottles; moderate medium subangular blocky structure; friable, sticky, plastic; common fine and medium roots; many prominent clay films on faces of peds; common fine and medium flakes of mica; 1 percent gravel; extremely acid; gradual smooth boundary.
- Bt2 -- 24 to 30 inches, yellowish red (5YR 5/6) clay, many medium distinct reddish yellow (7.5YR 6/6) and pink (5YR 7/3) mottles; weak medium subangular blocky structure; friable, sticky, plastic; few fine roots; many prominent clay films on faces of peds; many fine and medium flakes of mica; 1 percent gravel; extremely acid; gradual smooth boundary.
- C1 -- 30 to 40 inches, mottled yellowish red (5YR 5/6), pink (5YR 7/3), and reddish yellow (7.5YR 6/6) sandy clay loam; massive; friable, slightly sticky, slightly plastic; many fine and medium flakes of mica; 1 percent gravel; very strongly acid; diffuse smooth boundary.
- C2 -- 40 to 65 inches, mottled reddish yellow (7.5YR 6/6), yellowish red (5YR 5/6), and pink (5YR 7/3) sandy clay loam; massive; friable, slightly sticky, slightly plastic; many fine and medium flakes of mica; 2 percent gravel; very strongly acid.

Table A: Particle size distribution\* for Appling coarse sandy loam, 2 to 7 percent slopes (Supplemental profile 2)

Horizon	Depth (in.)	Sand					Total	Silt	Clay	Textural Class
		Very Coarse	Coarse	Medium	Fine	Very Fine				
A&E	0-4	11.36	16.28	18.97	14.88	5.78	67.27	18.13	14.6	cosl
Bt1	4-24	2.93	10.82	12.05	7.80	3.15	36.75	20.65	42.6	c
Bt2	24-30	2.95	12.22	10.96	6.31	2.62	35.06	21.34	43.6	c
C1	30-40	1.47	14.32	16.33	9.81	4.33	46.26	25.14	28.6	sci
C2	40-65	5.69	15.32	15.65	10.30	4.92	51.88	25.52	22.6	sci

\*by hydrometer method Bouyoucos (1962)

Table B: Chemical properties for Appling coarse sandy loam, 2 to 7 percent slopes (Supplemental profile 2)

Lab No.	Horizon	Depth (in.)	pH	Organic Matter (%)	Exchangeable Cations (meq/100 gram)					Base Saturation (%)	
					Ca	Mg	K	H	Al		Total
79-751	A&E	0-4	4.02	2.76	0.14	0.08	0.08	6.40	1.55	6.70	4.48
79-752	Bt1	4-24	4.30	0.30	0.05	0.55	0.25	6.40	1.85	7.25	11.72
79-753	Bt2	24-30	4.32	0.04	0.04	0.39	0.31	8.60	2.65	9.34	7.92
79-754	C1	30-40	4.58	0.11	0.00	0.17	0.26	6.80	2.25	7.23	5.95
79-755	C2	40-65	4.76	0.17	0.00	0.12	0.15	7.40	2.45	7.67	3.52



Table C: Soil test data for Applying coarse sandy loam, 2 to 7 percent slopes (Supplemental profile 2)

Horizon	Depth (in.)	pH	CaO*	MgO*	O.M. (%)	P2O5*	K2O*	Zn ppm	Mn ppm
A&E	0-4	4.5	134	40	2.3	40	15	2.1	16.0
Bt1	4-24	5.0	134	187	0.2	15	67	1.3	1.5
Bt2	24-30	5.0	67	119	0.1	7	158	1.6	0.8
C1	30-40	5.2	101	76	0.1	11	165	1.3	0.5
C2	40-65	5.4	67	52	0.1	11	71	1.1	0.4

\*lbs/acre



Quarrying granite in an area of 29 - Pits quarry. The Appling and Louisburg soils have developed in materials weathered from granite.

## BOJAC SERIES

Soils of the Bojac series are very deep and well drained. They formed in loamy and sandy unconsolidated fluvial sediments. They are on floodplains in the Coastal Plain and Piedmont physiographic provinces. Slopes range from 0 to 2 percent.

A typical profile of Bojac loamy fine sand, frequently flooded, 0 to 2 percent slopes, is located about 1.3 mile west southwest of the junction of Highways VA-625 and VA-622 and 0.5 miles south of Highway VA-625, about 2 miles southwest of Bryants Corner.

Ap--0 to 8 inches, brown (10YR 4/3) loamy fine sand; single grain; loose; many fine roots; neutral; abrupt smooth boundary.

Bt1--8 to 13 inches, yellowish brown (10YR 5/6) fine sandy loam, many medium faint dark yellowish brown (10YR 4/4) mottles; weak fine subangular blocky structure; very friable; common fine roots; many distinct clay films and bridges on sand grains; strongly acid; diffuse smooth boundary.

Bt2--13 to 25 inches, yellowish brown (10YR 5/6) fine sandy loam; weak medium subangular blocky structure; very friable; few fine roots; many distinct clay films and bridges on sand grains; very strongly acid; diffuse smooth boundary.

Bt3--25 to 37 inches, strong brown (7.5YR 5/6) fine sandy loam; weak medium subangular blocky structure; very friable; few fine roots; many distinct clay films and bridges on sand grains; very strongly acid; diffuse smooth boundary.

Bt4--37 to 47 inches, yellowish brown (10YR 5/8) fine sandy loam, many medium distinct very pale brown (10YR 7/4) mottles; weak medium subangular blocky structure; very friable; many distinct clay films and bridges on sand grains; very strongly acid; diffuse smooth boundary.

C1--47 to 70 inches, very pale brown (10YR 7/3) loamy fine sand; single grain; loose; strongly acid; diffuse smooth boundary.

C2--70 to 85 inches, yellow (10YR 7/6) coarse sand, common medium faint yellowish brown (10YR 5/6) mottles; single grain; loose; 2 percent rounded pebbles; very strongly acid.

Table A: Particle size distribution\* for Bojac loamy fine sand, frequently flooded, 0 to 2 percent slopes

Horizon	Depth (in.)	Sand					Total	Silt	Clay	Textural Class
		Very Coarse	Coarse	Medium	Fine	Very Fine				
Ap	0-8	0.91	3.99	22.58	51.39	7.08	85.95	9.85	4.20	lfs
Bt1	8-13	0.97	3.67	20.94	48.23	5.59	79.40	10.90	9.70	fsi
Bt2	13-25	0.84	2.86	19.57	47.00	5.83	76.10	13.20	10.70	fsi
Bt3	25-37	0.43	2.62	28.59	47.79	3.37	82.80	1.50	15.70	fsi
Bt4	37-47	0.25	1.56	14.79	47.26	5.30	69.16	20.14	10.70	fsi
C1	47-70	0.91	5.61	17.92	44.26	5.54	74.24	25.06	0.70	lfs
C2	70-85	9.27	15.79	46.79	20.58	1.18	93.61	4.19	2.20	cos

\* by hydrometer method Bouyoucos (1962)

Table B: Chemical properties for Bojac loamy fine sand, frequently flooded, 0 to 2 percent slopes

Lab No.	Horizon	Depth (in.)	pH	Organic Matter (%)	Exchangeable Cations (meq/100 gram)					Base Saturation (%)	
					Ca	Mg	K	H	Al		Total
74-163	Ap	0-8	6.8	0.17	1.98	0.50	0.15	2.61	ND	5.24	50.14
74-164	Bt1	8-13	5.5	0.05	0.78	0.32	0.17	3.30	0.17	4.57	27.79
74-165	Bt2	13-25	5.0	0.05	0.76	0.28	0.16	3.65	0.51	4.85	24.74
74-166	Bt3	25-37	4.9	0.05	1.60	0.38	0.20	5.04	0.69	7.22	30.14
74-167	Bt4	37-47	4.7	0.03	0.83	0.16	0.10	3.48	0.86	4.57	23.77
74-168	C1	47-70	5.0	0.02	0.37	0.05	0.04	1.91	0.26	2.37	19.24
74-169	C2	70-85	4.9	0.02	0.37	0.07	0.06	1.56	0.43	2.06	24.09

Table C: Soil test data for Bojac loamy fine sand, frequently flooded, 0 to 2 percent slopes

Horizon	Depth (in.)	pH	CaO*	MgO*	O.M. (%)	P2O5*	K2O*	Zn ppm	Mn ppm
Ap	0-8	6.5	1568	285	---	275+	94	---	---
Bt1	8-13	6.4	426	136	---	101	130	---	---
Bt2	13-25	5.6	358	103	---	41	89	---	---
Bt3	25-37	5.4	688	123	---	69	87	---	---
Bt4	37-47	5.1	426	60	---	55	60	---	---
C1	47-70	5.4	192	16	---	16	22	---	---
C2	70-85	5.4	165	20	---	16	24	---	---

\*lbs/acre

Table D: Sand mineralogy for Bojac loamy fine sand, frequently flooded, 0 to 2 percent slopes

Horizon	Depth (in.)	Percent Minerals Present*
Bt3	25-37	Qz 73, Fd 21, M 3, Hm 3

\*Qz = Quartz; Fd = Feldspar; M = Mica; HM = Heavy minerals including magnetite, zircon, ilmenite

## BOJAC SUPPLEMENTAL PROFILE 1

Supplemental profile 1 of Bojac loamy sand, in an area of Bojac loamy fine sand, frequently flooded, 0 to 2 percent slopes, is located about 1.3 miles east northeast of the junction of Highways VA-625 and VA-622 and 700 yards south of Highway VA-625.

Ap--0 to 9 inches, dark brown (10YR 3/3) loamy sand; massive; very friable; many fine roots; slightly acid; abrupt smooth boundary.

E--9 to 13 inches, yellowish brown (10YR 5/4) sandy loam; massive; friable; common fine roots; neutral; gradual smooth boundary.

Bt1--13 to 18 inches, brown (7.5YR 4/4) sandy loam; weak medium subangular blocky structure; friable, slightly sticky, slightly plastic; common fine roots; many distinct clay films and bridges on sand grains, common faint clay films on faces of peds; neutral; gradual smooth boundary.

Bt2--18 to 38 inches, brown (7.5YR 4/4) sandy loam; weak medium subangular blocky structure; friable, slightly sticky, slightly plastic; common fine roots; many distinct clay films and bridges on sand grains, many distinct clay films on faces of peds; slightly acid; diffuse smooth boundary.

Bt3--38 to 44 inches, strong brown (7.5YR 5/6) sandy loam; massive; very friable; few fine roots; many distinct clay films and bridges on sand grains, slightly acid; diffuse smooth boundary.

2C1--44 to 60 inches, strong brown (7.5YR 5/8) coarse sand; single grain; loose; few fine roots; 10 percent gravel; neutral; diffuse smooth boundary.

3C2--60 to 86 inches, brownish yellow (10YR 6/8) gravelly coarse sand; single grain; loose; 25 percent gravel; very strongly acid; diffuse smooth boundary.

3Cg--86 to 100 inches, gray (10YR 6/1) gravelly coarse sand, many medium distinct yellow (10YR 7/6) mottles; single grain; loose; 30 percent gravel; strongly acid.

Remarks: High values for pH, base saturation, CaO, P<sub>2</sub>O<sub>5</sub>, and K<sub>2</sub>O are probably the result of being located about 20 feet from a homesite.



Table A: Particle size distribution\* for Bojac loamy sand, frequently flooded, 0 to 2 percent slopes (Supplemental Profile 1)

Horizon	Depth (in.)	Sand					Total	Silt	Clay	Textural Class
		Very Coarse	Coarse	Medium	Fine	Very Fine				
Ap	0-9	2.94	15.69	29.26	23.31	11.38	82.58	13.62	3.80	ls
E	9-13	3.47	15.00	25.30	18.68	8.33	70.78	20.22	9.00	sl
Bt1	13-18	2.71	16.01	24.58	16.53	7.15	66.98	20.02	13.00	sl
Bt2	18-38	2.64	10.54	19.52	16.49	7.96	57.15	23.85	19.00	sl
Bt3	38-44	4.67	17.70	26.80	16.46	6.43	72.06	13.24	14.70	sl
2C1	44-60	7.44	24.46	36.06	18.39	3.67	90.02	6.98	3.00	cos
3C2	60-86	20.09	33.79	34.52	7.57	0.60	96.57	3.43	0.00	grcos
3C9	86-100	24.18	31.67	28.50	9.85	1.36	95.56	2.74	1.70	grcos

\* by hydrometer method Bouyoucos (1962)

Table B: Chemical properties for Bojac loamy sand, frequently flooded, 0 to 2 percent slopes (Supplemental profile 1)

Lab No.	Horizon	Depth (in.)	pH	Organic Matter (%)	Exchangeable Cations (meq/100 gram)					Base Saturation (%)	
					Ca	Mg	K	H	Al		Total
74-177	Ap	0-9	6.5	0.25	3.00	0.46	0.20	2.61	ND	6.27	58.34
74-178	E	9-13	6.8	0.05	1.53	0.34	0.30	2.09	ND	4.25	50.76
74-179	Bt1	13-18	6.7	0.05	3.15	0.53	0.74	3.30	ND	7.72	57.25
74-180	Bt2	18-38	6.3	0.05	3.70	0.97	2.00	4.69	ND	11.36	58.71
74-181	Bt3	38-44	6.4	0.03	1.83	0.45	0.43	3.13	ND	5.83	46.31
74-182	2C1	44-60	6.9	0.02	0.78	0.16	0.15	1.91	ND	3.00	36.33
74-183	3C2	60-86	5.0	0.02	0.30	0.10	0.08	1.91	0.17	2.39	20.08
74-184	3C9	86-100	5.2	0.02	0.33	0.13	0.04	1.39	0.09	1.89	26.45

Table C: Soil test data for Bojac loamy sand, frequently flooded, 0 to 2 percent slopes (Supplemental profile 1)

Horizon	Depth (in.)	pH	CaO*	MgO*	O.M. %	P2O5*	K2O*	Zn ppm	Mn ppm
Ap	0-9	6.1	2944	249	---	275+	137	---	---
E	9-13	6.8	770	139	---	275+	198	---	---
Bt1	13-18	6.9	1265	159	---	275+	306	---	---
Bt2	18-38	6.9	1651	328	---	268	377+	---	---
Bt3	38-44	7.1	798	156	---	275+	272	---	---
2C1	44-60	7.2	426	80	---	197	149	---	---
3C2	60-86	6.0	192	36	---	44	63	---	---
3Cg	86-100	5.9	192	53	---	23	24	---	---

\*lbs/acre

Table D: Sand mineralogy for Bojac loamy sand, frequently flooded, 0 to 2 percent slopes (Supplemental profile 1)

Horizon	Depth (in.)	Percent Minerals Present*
Bt2	18-38	QZ 75, Fd 20, M 3, HM 2

\*QZ = Quartz; Fd = Feldspar; M = Mica; HM = Heavy minerals including magnetite, zircon, ilmenite

## BOJAC SUPPLEMENTAL PROFILE 2

Supplemental profile 2 of Bojac loamy sand, in an area of Bojac loamy fine sand, frequently flooded, 0 to 2 percent slopes, is located about 2.5 miles southeast of the junction of Highways VA-625 and VA-628 and 70 yards south of farm pond.

Ap--0 to 9 inches, light olive brown (2.5Y 5/4) loamy sand; massive; very friable; many fine roots; moderately acid; abrupt smooth boundary.

E--9 to 18 inches, light yellowish brown (10YR 6/4) loamy sand; massive; very friable; common fine roots; moderately acid; gradual smooth boundary.

Bt1--18 to 25 inches, yellowish brown (10YR 5/6) fine sandy loam; weak medium subangular blocky structure; very friable; few fine roots; many distinct clay films and bridges on sand grains; strongly acid; diffuse smooth boundary.

Bt2--25 to 40 inches, strong brown (7.5YR 5/6) fine sandy loam; weak medium subangular blocky structure; very friable; few fine roots; many distinct clay films and bridges on sand grains; very strongly acid; diffuse smooth boundary.

Bt3--40 to 50 inches, strong brown (7.5YR 5/8) sandy loam; weak medium subangular blocky structure; very friable; many distinct clay films and bridges on sand grains, few faint clay films on faces of peds; 3 percent gravel; very strongly acid; diffuse smooth boundary.

Bt4--50 to 65 inches, yellowish brown (10YR 5/8) sandy loam, many medium distinct light gray (2.5Y 7/2) mottles; weak medium subangular blocky structure; very friable; many distinct clay films and bridges on sand grains; 2 percent gravel; very strongly acid; diffuse smooth boundary.

C--65 to 114 inches, mottled yellow (10YR 7/8) and pale yellow (2.5Y 7/4) sand; massive; loose; 3 percent gravel; strongly acid.

Table A: Particle size distribution\* for Bojac loamy sand, frequently flooded, 0 to 2 percent slopes (Supplemental profile 2)

Horizon	Depth (in.)	Sand					Total	Silt	Clay	Textural Class
		Very Coarse	Coarse	Medium	Fine	Very Fine				
Ap	0-9	0.97	5.17	20.79	30.61	19.58	77.12	18.86	4.20	Is
E	9-18	1.06	4.75	20.72	32.00	18.41	76.94	14.86	8.20	Is
Bt1	18-25	2.04	4.95	18.79	25.60	15.48	66.86	18.94	14.20	fsl
Bt2	25-40	.70	3.08	17.99	26.47	16.58	64.82	17.98	17.20	fsl
Bt3	40-50	2.63	7.81	26.51	28.25	11.11	76.31	13.49	10.20	sl
Bt4	50-65	1.61	4.96	26.60	28.82	12.82	73.81	17.99	8.20	sl
C	65-114	1.99	14.57	36.87	29.83	7.60	90.86	7.34	1.80	s

\* by hydrometer method Bouyoucos (1962)

Table B: Chemical properties for Bojac loamy sand, frequently flooded, 0 to 2 percent slopes (Supplemental profile 2)

Lab No.	Horizon	Depth (in.)	pH	Organic Matter (%)	Exchangeable Cations (meq/100 gram)					Base Saturation (%)	
					Ca	Mg	K	H	Al		Total
74-170	Ap	0-9	5.5	0.14	0.80	0.06	0.14	2.96	0.17	3.96	25.16
74-171	E	9-18	5.6	0.03	0.75	0.04	0.09	2.09	0.09	2.97	29.51
74-172	Bt1	18-25	5.1	0.03	1.30	0.13	0.11	3.48	0.26	5.02	30.61
74-173	Bt2	25-40	4.9	0.03	1.50	0.14	0.11	4.87	0.69	6.62	26.38
74-174	Bt3	40-50	4.9	0.02	0.86	0.17	0.06	3.48	0.69	4.57	23.77
74-175	Bt4	50-65	4.8	0.02	0.86	0.49	0.06	4.52	0.86	5.93	33.77
74-176	C1	65-114	5.1	0.02	0.58	0.34	0.06	1.91	0.17	2.88	33.68

Table C: Soil test data for Bojac loamy sand, frequently flooded  
0 to 2 percent slopes, (Supplemental profile 2)

Horizon	Depth (in.)	pH	CaO*	MgO*	O.M. (%)	P2O5*	K2O*	Zn ppm	Mn ppm
Ap	0-9	5.3	385	16	---	67	104	---	---
E	9-18	5.6	385	16	---	7	53	---	---
Bt1	18-25	5.2	633	40	---	0	55	---	---
Bt2	25-40	5.1	715	36	---	0	48	---	---
Bt3	40-50	5.1	426	76	---	5	24	---	---
Bt4	50-65	5.0	426	152	---	5	29	---	---
C	65-114	5.1	220	169	---	2	31	---	---

\* lbs/acre

Table D: Sand mineralogy for Bojac loamy  
sand, frequently flooded, 0 to 2  
percent slopes (Supplemental  
profile 2)

Horizon	Depth (in.)	Percent Minerals Present*
Bt2	25-40	Qz 68, Fd 25, M 3, HM 4

\*Qz = Quartz; Fd = Feldspar; M = Mica; HM =  
Heavy minerals including magnetite, zircon,  
ilmenite



Peanuts on 8A - Bojac loamy fine sand, frequently flooded, 0 to 2 percent slopes.

## CHENNEBY SERIES

Soils of the Chenneby series are very deep and somewhat poorly drained. They formed in silty unconsolidated fluvial sediments. They are on floodplains in the Coastal Plain and Piedmont physiographic provinces. Slopes range from 0 to 2 percent.

A typical profile of Chenneby silt loam, frequently flooded, 0 to 2 percent slopes, is located about 1.8 miles north northeast of the junction of Highways VA-730 and VA-629 and 20 yards south of the Meherrin River, about 4 miles southeast of Emporia.

Oi--1 to 0 inches, undecomposed and partially decomposed leaves and twigs.

A--0 to 3 inches, dark yellowish brown (10YR 4/4) silt loam; weak fine granular structure; friable, slightly sticky, slightly plastic; many fine, medium, and coarse roots; common fine flakes of mica; very strongly acid; clear smooth boundary.

Bw1--3 to 13 inches, brown (7.5YR 4/4) silt loam; weak medium subangular blocky structure; friable, slightly sticky, slightly plastic; many fine, medium, and coarse roots; common fine flakes of mica; very strongly acid; clear smooth boundary.

Bw2--13 to 20 inches, dark brown (7.5YR 3/2) silt loam; weak medium subangular blocky structure; friable, slightly sticky, slightly plastic; many fine and medium roots; common fine flakes of mica; strongly acid; gradual smooth boundary.

Bw3--20 to 32 inches, mottled brown (10YR 4/3), grayish brown (2.5Y 5/2), and black (N 2/) silty clay loam; weak medium and fine subangular blocky structure; friable, sticky, plastic; many fine roots; common fine flakes of mica; few fine black concretions; strongly acid; diffuse smooth boundary.

Bw4--32 to 47 inches, mottled brown (7.5YR 4/4), light gray (10YR 7/2), and black (N 2/) silty clay loam; weak medium and coarse subangular blocky structure; friable, sticky, plastic; many fine roots; common fine flakes of mica; common fine black concretions; very strongly acid; gradual smooth boundary.

C--47 to 62 inches, mottled light gray (2.5Y 7/2), brown (7.5YR 4/4), and black (10YR 2/1) loam; massive; friable, slightly sticky, slightly plastic; few fine roots; many fine flakes of mica; common fine black concretions; very strongly acid.



Table A: Particle size distribution\* for Chenneby silt loam, frequently flooded, 0 to 2 percent slopes

Horizon	Depth (in.)	Sand					Very Fine			Clay	Textural Class
		Very Coarse	Coarse	Medium	Fine	Very Fine	Total	Silt			
A	0-3	0.82	0.20	1.02	7.14	10.30	19.47	57.49	23.04	sil	
Bw1	3-13	0.10	0.30	2.43	15.49	14.78	33.10	50.51	16.40	sil	
Bw2	13-20	0.00	0.61	2.43	11.96	13.98	28.98	51.77	19.25	sil	
Bw3	20-32	0.00	0.10	1.12	3.47	8.38	13.07	56.49	30.44	sicl	
Bw4	32-47	0.00	0.10	0.92	4.29	7.35	12.67	55.26	32.07	sicl	
C	47-62	0.00	0.20	2.84	18.15	15.62	36.82	42.70	20.49	l	

\* by pipette method Day (1965)

Table B: Chemical properties for Chenneby silt loam, frequently flooded, 0 to 2 percent slopes

Lab No.	Horizon	Depth (in.)	pH	Organic Matter (%)	Exchangeable Cations (meq/100 gram)				Base Saturation (%)	
					Ca	Mg	K	Al		
75-530	A	0-3	4.5	5.46	1.10	1.09	0.20	16.56	3.72	18.95
75-531	Bw1	3-13	4.5	1.15	0.72	0.70	0.06	7.27	1.76	8.75
75-532	Bw2	13-20	5.1	1.01	2.00	1.01	0.06	9.13	1.37	12.20
75-533	Bw3	20-32	5.1	0.58	2.77	1.89	0.08	11.83	1.66	16.57
75-534	Bw4	32-47	4.8	0.29	1.68	2.14	0.06	13.86	3.91	17.74
75-535	C	47-62	4.9	0.15	0.88	1.65	0.06	10.98	3.82	13.57

Table C: Soil test data for Chenneby silt loam, frequently flooded,  
0 to 2 percent slopes

Horizon	Depth (in.)	pH	CaO*	MgO*	O. M. (%)	P2O5*	K2O*	Zn ppm	Mn ppm
A	0-3	4.8	303	216	0.9	9	89	5.4	12.0+
Bw1	3-13	4.9	192	156	0.8	2	24	0.8	12.0+
Bw2	13-20	5.2	523	239	0.3	5	22	0.9	12.0+
Bw3	20-32	5.4	688	395	0.5	11	24	0.6	12.0+
Bw4	32-47	5.3	440	398+	0.3	23	17	0.8	6.0
C	47-62	5.2	550	398+	3.5	23	17	1.0	6.0

\*lbs/acre

Table D: Sand and clay mineralogy for Chenneby silt loam, frequently flooded, 0 to 2 percent slopes

Horizon	Depth (in.)	Percent	
		Sand Minerals Present	Clay Minerals Present
Bw1	3-13	Qz 67, Fd 17, Mica 7, HM 9	Ch.V. 35, Mica 2, Kao 35, Qz 10, Gibb. 0.5, Int. Str. Trace, Goe. 0.5
Bw2	13-20	Qz 64, Fd 20, Mica 5, HM 10	Ch.V. 40, Mica 2, Kao 37, Qz 4, Gibb. 0.5, Int. Str. Trace
Bw3	20-32	Qz 65, Fd 17, Mica 5, HM 12	Ch.V. 50, Mica 2, Kao 30, Qz 5, Int. Str. Trace, Geo. 1
Bw4	32-47	Qz 71, Fd 14.5, Mica 6.5, HM 8	Ch.V. 52, Mica 3, Kao 36, Qz 8, Int. Str. Trace, Goe 0.5
C	47-62	Qz 66, Fd 21.5, Mica 4.5, HM 8	Ch.V. 55, Mica 3, Kao 35, Qz 5, Mont. Trace, Goe. 1, Int. Str. Trace

\*Qz = Quartz; Fd = Feldspar; HM = Heavy minerals including magnetite, zircon, ilmenite, Ch.V. = Chloritized Vermiculite; Kao = Kaolinite; Mont. = Montmorillonite; Gibb. = Gibbsite, Goe. = Goethite, Int. Str. = Interstratified

Table E: Other physical properties for Chenneby silt loam, frequently flooded, 0 to 2 percent slopes

Horizon	Depth (in.)	Swell Index*	Liquid Limit	Plasticity Index
Bw3	20-32	3128	41.28	14.82

\*lbs/square foot

## CHENNEBY SUPPLEMENTAL PROFILE 1

Supplemental profile 1 of Chenneby loam, in an area of Chenneby silt loam, frequently flooded, 0 to 2 percent slopes, is located about 2.4 miles north northeast of the junction of Highways VA-730 and VA-668 at Fountain Grove Church and 35 yards from the Meherrin River at Devils Elbow.

Oi--2 to 0 inches, partially decomposed leaves and twigs.

A--0 to 4 inches, dark brown (10YR 3/3) loam; moderate fine granular structure; friable, slightly sticky, slightly plastic; many fine, medium, and coarse roots; very strongly acid; abrupt smooth boundary.

E--4 to 8 inches, dark yellowish brown (10YR 4/4) loam; moderate fine granular structure; friable, slightly sticky, slightly plastic; many fine, medium, and coarse roots; very strongly acid; clear smooth boundary.

Bw1--8 to 13 inches, dark yellowish brown (10YR 4/4) clay loam; weak medium subangular blocky structure; friable, slightly sticky, slightly plastic; many fine, medium, and coarse roots; very strongly acid; clear smooth boundary.

Bw2--13 to 23 inches, brown (7.5YR 4/4) clay loam, few fine distinct light gray (2.5Y 7/2) mottles; moderate medium subangular blocky structure; friable, slightly sticky, slightly plastic; many fine and medium roots; common faint silt coatings on faces of peds; very strongly acid; clear smooth boundary.

Bw3--23 to 40 inches, yellowish brown (10YR 5/4) clay loam, many medium distinct light brownish gray (2.5Y 6/2) mottles; weak coarse subangular blocky structure; friable, slightly sticky, slightly plastic; common fine and medium roots; common faint silt coatings on faces of peds; very strongly acid; diffuse smooth boundary.

C1--40 to 56 inches, mottled light olive gray (5Y 6/2), yellowish brown (10YR 5/6), and black (10YR 2/1) loam; massive; friable, slightly sticky, slightly plastic; common fine roots; very strongly acid; diffuse smooth boundary.

C2--56 to 67 inches, mottled pale olive (5Y 6/3), yellowish brown (10YR 5/6), and black (10YR 2/1) sandy clay loam; massive; friable, slightly sticky, slightly plastic; very strongly acid.

Table A: Particle size distribution\* for Chenneby loam, frequently flooded, 0 to 2 percent slopes (Supplemental profile 1)

Horizon	Depth (in.)	Very Coarse			Sand			Very Fine			Clay	Textural Class
		Coarse	Coarse	Very Coarse	Medium	Fine	Total	Total	Silt	Clay		
A	0-4	0.07	0.39	2.37	21.46	18.30	42.59	33.81	23.60	I		
E	4-8	0.02	0.07	4.17	32.98	13.32	50.56	27.84	21.60	I		
Bw1	8-13	0.02	0.06	1.60	17.99	13.63	33.30	35.10	31.60	cl		
Bw2	13-23	0.02	0.11	0.48	7.79	16.62	25.02	42.38	32.60	cl		
Bw3	23-40	0.02	0.14	1.48	11.80	14.52	27.96	38.44	32.60	cl		
C1	40-56	0.22	0.72	3.11	23.47	16.67	44.19	33.21	22.60	I		
C2	56-67	0.05	0.21	3.51	29.75	18.11	51.63	26.97	21.40	scI		

\*by hydrometer method Bouyoucos (1962)

Table B: Chemical properties for Chenneby loam, frequently flooded, 0 to 2 percent slopes (Supplemental profile 1)

Lab No.	Horizon	Depth (in.)	pH	Organic Matter (%)	Exchangeable Cations (meq/100 gram)					Base Saturation (%)	
					Ca	Mg	K	H	Al		Total
75-046	A	0-4	4.7	--	2.35	1.44	0.25	14.75	--	18.785	21.48
75-047	E	4-8	4.8	--	1.40	0.99	0.06	6.25	--	8.70	28.16
75-048	Bw1	8-13	4.9	--	1.90	1.37	0.07	7.50	--	10.84	30.81
75-049	Bw2	13-23	4.8	--	1.55	1.42	0.06	9.75	--	12.78	23.71
75-050	Bw3	23-40	4.9	--	0.86	1.33	0.04	10.75	--	12.98	17.18
75-051	C1	40-56	4.9	--	0.31	0.92	0.04	8.75	--	10.02	12.67
75-052	C2	56-67	4.9	--	0.16	1.71	0.06	7.50	--	9.43	20.47

Table C: Soil test data for Chenneby loam, frequently flooded, 0 to 2 percent slopes (Supplemental profile 1)

Horizon	Depth (in.)	pH	CaO*	MgO*	O.M. (%)	P205*	K20*	Zn ppm	Mn ppm
A	0-4	5.0	825	335	---	11	108	---	---
E	4-8	5.4	633	292	---	2	24	---	---
Bw1	8-13	5.4	770	375	---	2	22	---	---
Bw2	13-23	5.4	660	385	---	2	22	---	---
Bw3	23-40	5.4	413	398	---	2	10	---	---
C1	40-56	5.5	192	288	---	2	10	---	---
C2	56-67	5.5	138	398	---	2	14	---	---

\*lbs/acre

## CHENNEBY SUPPLEMENTAL PROFILE 2

Supplemental profile 2 of Chenneby silty clay loam, in an area of Chenneby silt loam, frequently flooded, 0 to 2 percent slopes, is located about 1.1 miles south southeast of the junction of Highway VA-730 and the Meherrin River at Haley's Bridge and 0.7 miles east northeast of the junction of Fountain Creek and Highway VA-624.

A--0 to 4 inches, dark brown (10YR 4/3) silty clay loam; moderate fine granular structure; friable, slightly sticky, slightly plastic; many fine, medium, and coarse roots; many fine flakes of mica; strongly acid; clear smooth boundary.

Bw1--4 to 19 inches, dark brown (7.5YR 4/4) silty clay loam, common medium distinct brown (10YR 4/3) mottles; weak medium and fine subangular blocky structure; friable, slightly sticky, slightly plastic; many fine, medium, and coarse roots; many fine flakes of mica; very strongly acid; diffuse smooth boundary.

Bw2--19 to 30 inches, dark brown (7.5YR 4/4) clay loam, many medium distinct light olive brown (2.5Y 5/4), light brownish gray (2.5Y 6/2), and black (10YR 2/1) mottles; weak medium and fine subangular blocky structure; friable, slightly sticky, slightly plastic; common fine, medium, and coarse roots; common fine flakes of mica; few fine black concretions; very strongly acid; gradual smooth boundary.

Bgc--30 to 60 inches, light gray (N 7/) gravelly loam, many medium distinct black (N 2/) and brownish yellow (10YR 6/6) mottles; weak medium and fine subangular blocky structure; friable, slightly sticky, slightly plastic; few medium roots; common fine flakes of mica; many fine and medium black concretions; very strongly acid.



Table A: Particle size distribution\* for Chenneby silty clay loam, frequently flooded, 0 to 2 percent slopes (Supplemental profile 2)

Horizon	Depth (in.)	Sand					Total	Silt	Clay	Textural Class
		Very Coarse	Coarse	Medium	Fine	Very Fine				
A	0-4	0.10	0.61	1.69	3.93	9.95	16.28	52.72	31.00	sicl
Bw1	4-19	0.06	0.25	0.76	1.95	11.76	14.78	52.22	33.00	sicl
Bw2	19-30	0.15	0.65	2.15	8.24	8.94	20.13	41.87	38.00	cl
Bgc	30-60	3.50	4.15	4.12	13.12	10.21	35.10	38.90	26.00	gr-l

\*by hydrometer method Bouyoucos (1962)

Table B: Chemical properties for Chenneby silty clay loam, frequently flooded, 0 to 2 percent slopes (Supplemental profile 2)

Lab No.	Horizon	Depth (in.)	pH	Organic Matter (%)	Exchangeable Cations (meq/100 gram)					Base Saturation (%)	
					Ca	Mg	K	H	Al		Total
75-042	A	0-4	5.3	4.91	4.95	2.58	0.19	12.50	--	20.22	38.18
75-043	Bw1	4-19	4.9	1.30	2.13	1.42	0.07	10.00	--	13.62	26.55
75-044	Bw2	19-30	4.9	1.42	2.35	1.80	0.08	10.75	--	14.98	28.21
75-045	Bgc	30-60	4.8	0.32	1.40	2.64	0.06	10.25	--	14.35	28.55

Table C: Soil test data for Chenneby silty clay loam, frequently flooded, 0 to 2 percent slopes (Supplemental profile 2)

Horizon	Depth (in.)	pH	CaO*	MgO*	O.M. (%)	P205*	K20*	Zn ppm	Mn ppm
A	0-4	5.6	1861	398+	---	69	67	---	---
Bw1	4-19	5.3	853	368	---	7	17	---	---
Bw2	19-30	5.3	853	398+	---	2	17	---	---
Bgc	30-60	5.4	578	398+	---	2	17	---	---

\*lbs/acre

## CHENNEBY SUPPLEMENTAL PROFILE 3

Supplemental profile 3 of Chenneby silty clay loam, in an area of Chenneby silt loam, frequently flooded, 0 to 2 percent slopes, is located about 0.8 miles northeast of the junction of Highways VA-730 and VA-622 at Lanes Corner and 1.5 miles east of the junction of Highways U.S. 301 and VA-730.

Apc--0 to 7 inches, dark brown (7.5YR 4/4) silty clay loam; weak fine granular structure; friable, slightly sticky, slightly plastic; many fine and medium roots; many fine and medium flakes of mica; common fine black concretions; strongly acid; abrupt smooth boundary.

Bwc1--7 to 15 inches, brown (7.5YR 4/4) loam; weak medium subangular blocky structure; many fine, medium, and coarse roots; many fine and medium flakes of mica; many fine black concretions; strongly acid; clear smooth boundary.

Bwc2--15 to 20 inches, dark yellowish brown (10YR 4/4) very fine sandy loam; weak medium subangular blocky structure; friable, slightly sticky, slightly plastic; many fine and medium roots; many fine and medium flakes of mica; many fine black concretions; moderately acid; clear smooth boundary.

Bwc3--20 to 24 inches, mottled dark grayish brown (2.5Y 4/2), dark brown (10YR 3/3), and dark yellowish brown (10YR 4/4) loam; weak medium subangular blocky structure; friable, slightly sticky, slightly plastic; many fine and medium roots; many fine and medium flakes of mica; many fine black concretions; moderately acid; clear smooth boundary.

Abc--24 to 28 inches, dark grayish brown (10YR 4/2) silt loam, common fine faint dark yellowish brown (10YR 4/4) mottles; moderate fine granular structure; friable, slightly sticky, slightly plastic; many fine and medium roots; many fine flakes of mica; many fine black concretions; medium acid; clear smooth boundary.

Btbcl--28 to 45 inches, pale olive (5Y 6/3) silty clay loam, many fine distinct yellowish brown (10YR 5/8) and light gray (N 7/) mottles; moderate medium subangular blocky structure; firm, sticky, plastic; few fine and medium roots; many fine and medium flakes of mica; many distinct clay films on faces of peds; common fine black concretions; strongly acid; gradual smooth boundary.

Btbc2--45 to 76 inches, strong brown (7.5YR 5/6) clay loam, many medium distinct light gray (10YR 7/1) and black (10YR 2/1) mottles; weak medium subangular blocky structure; friable, sticky, plastic; few fine roots; many fine and medium flakes of mica; many distinct clay films on faces of peds; common fine black concretions; strongly acid; gradual smooth boundary.

Cbc1--76 to 108 inches, mottled light gray (10YR 7/1), brown (7.5YR 4/4), yellowish brown (10YR 5/8), and black (10YR 2/1) loam; massive; friable, slightly sticky, slightly plastic; many fine and medium flakes of mica; many fine black concretions; moderately acid; diffuse wavy boundary.

Cbc2--108 to 121 inches, mottled light gray (10YR 7/2), yellowish brown (10YR 5/8), and black (10YR 2/1) loam; massive; friable, slightly sticky, slightly plastic; many fine and medium flakes of mica; many fine black concretions; moderately acid.

Table A: Particle size distribution\* for Chenneby silty clay loam, frequently flooded, 0 to 2 percent slopes (Supplemental profile 3)

Horizon	Depth (in.)	Sand					Fine %	Very Fine	Total	Silt	Clay	Textural Class
		Very Coarse	Coarse	Medium	Fine	Very Fine						
ApC	0-7	0.03	0.22	1.36	5.64	7.58	14.83	57.97	27.20	sicl		
BwC1	7-15	0.32	2.78	14.66	19.54	13.61	50.91	31.89	17.20	l		
BwC2	15-20	0.02	0.11	0.75	17.96	33.96	52.80	31.00	16.20	vfsi		
BwC3	20-24	0.02	0.29	0.63	8.29	26.84	36.07	46.73	17.20	l		
AbC	24-28	0.07	0.63	1.36	4.49	16.36	22.91	51.89	25.20	sil		
Btbc1	28-45	0.30	1.50	1.66	1.92	7.83	13.21	54.59	32.20	sicl		
Btbc2	45-76	0.25	1.24	1.34	3.94	15.08	21.81	49.95	28.20	cl		
Cbc1	76-108	0.24	1.18	1.49	17.75	22.02	42.68	35.92	21.40	l		
Cbc2	108-121	0.22	1.15	2.33	22.51	20.92	47.17	33.63	19.20	l		

\*by hydrometer method Bouyoucos (1962)

Table C: Soil test data for Chenneby silty clay loam, frequently flooded, 0 to 2 percent slopes (Supplemental profile 3)

Horizon	Depth (in.)	pH	CaO*	MgO*	O.M. (%)	P205*	K20*	Zn ppm	Mn ppm
ApC	0-7	5.2	523	371	---	0	22	1.5	12.0
BwC1	7-15	5.4	578	288	---	9	17	0.8	8.9
BwC2	15-20	5.7	633	216	---	0	14	0.8	7.1
BwC3	20-24	5.8	990	302	---	0	14	1.3	8.0
AbC	24-28	5.7	1348	388	---	0	14	1.3	11.1
Btbc1	28-45	5.5	688	355	---	16	10	1.0	3.7
Btbc2	45-76	5.5	633	398+	---	23	14	1.2	6.2
Cbc1	76-108	5.9	633	398+	---	41	10	1.4	8.5
Cbc2	108-121	5.9	660	398+	---	48	10	1.6	13.0

\*lbs/acre

## CHENNEBY SUPPLEMENTAL PROFILE 4

Supplemental profile 4 of Chenneby silty clay loam, in an area of Chenneby silt loam, frequently flooded, 0 to 2 percent slopes, is located about 3.1 miles east northeast of the junction of Highways VA-730 and VA-660 at Claesville and 4 miles north northeast of the junction of Highways VA-730 and VA-622 at Bryants Corner.

A--0 to 5 inches, dark brown (10YR 4/3) silty clay loam; moderate fine and medium granular structure; friable, slightly sticky, slightly plastic; many fine, medium, and coarse roots; many fine flakes of mica; strongly acid; clear smooth boundary.

Bw1--5 to 19 inches, brown (7.5YR 4/4) silty clay loam; weak coarse platy structure parting to weak fine granular; friable, slightly sticky, slightly plastic; common fine, medium, and coarse roots; few silt coatings on faces of peds; strongly acid; diffuse smooth boundary.

Bw2--19 to 40 inches, dark yellowish brown (10YR 4/4) silty clay loam, common medium distinct grayish brown (2.5Y 5/2) mottles; weak fine subangular blocky structure; friable, slightly sticky, slightly plastic; common fine, medium, and coarse roots; few gray silt coatings in pores and on faces of peds; many fine flakes of mica; moderately acid; diffuse smooth boundary.

Bw3--40 to 53 inches, mottled dark yellowish brown (10YR 3/4), grayish brown (10YR 5/2), and black (10YR 2/1) silty clay loam; moderate fine subangular blocky structure; friable, slightly sticky, slightly plastic; common fine, medium, and coarse roots; many gray and black silt coatings in pores and on faces of peds; many fine flakes of mica; moderately acid; diffuse smooth boundary.

Bw4--53 to 65 inches, dark yellowish brown (10YR 3/4) silty clay loam, many fine distinct grayish brown (10YR 5/2) and black (10YR 2/1) mottles; weak medium subangular blocky structure; friable, slightly sticky, slightly plastic; common fine, medium, and coarse roots; many gray and black silt coating in pores; many fine flakes of mica; moderately acid.

Table A: Particle size distribution\* for Chenneby silty clay loam, frequently flooded, 0 to 2 percent slopes (Supplemental profile 4)

Horizon	Depth (in.)	Sand					Fine %	Very Fine	Total	Silt	Clay	Textural Class
		Very Coarse	Coarse	Medium	Fine	Very Fine						
A	0-5	0.06	0.37	0.47	0.67	1.35	2.92	59.30	37.77	sici		
Bw1	5-19	0.02	0.07	0.18	1.34	4.45	6.06	63.01	30.97	sici		
Bw2	19-40	0.01	0.03	0.12	0.60	1.17	1.93	61.54	36.56	sici		
Bw3	40-53	0.00	0.03	0.10	1.00	1.82	2.95	58.95	38.11	sici		
Bw4	53-65	0.01	0.04	0.10	1.04	3.58	4.77	59.48	35.77	sici		

\*by pipette method Day (1965)

Table C: Soil test data for Chenneby silty clay loam, frequently flooded, 0 to 2 percent slopes (Supplemental profile 4)

Horizon	Depth (in.)	pH	CaO*	MgO*	O.M. (%)	P205*	K20*	Zn ppm	Mn ppm
A	0-5	5.5	1293	398+	2.9	9	41	4.5	12+
Bw1	5-19	5.5	1073	335	1.1	5	14	1.1	7.2
Bw2	19-40	5.7	1155	398+	0.9	7	14	1.3	8.3
Bw3	40-53	5.7	1293	398+	1.2	9	10	1.5	9.7
Bw4	53-65	5.8	1238	398+	1.0	18	10	1.6	11.4

## CRAVEN SERIES

Soils of the Craven series are very deep and moderately-well drained. They formed in clayey unconsolidated fluvial and marine sediments on uplands in the Coastal Plain physiographic province. Slopes range from 2 to 12 percent.

A typical profile of Craven clay loam, 6 to 12 percent slopes, severely eroded, is located about 0.9 miles west northwest of the junction of Highway VA-632 and Vepco power line and 1.2 miles northeast of the junction of Highways VA-633 and VA-632, about 2.8 miles south of Brink.

Ap--0 to 4 inches, brown (10YR 5/3) clay loam; weak fine granular structure; friable, sticky, plastic; many fine roots; strongly acid; abrupt smooth boundary.

Bt1--4 to 12 inches, yellowish brown (10YR 5/6) clay, many medium distinct red (10R 4/6) and pale yellow (2.5Y 7/4) mottles; weak medium subangular blocky structure; firm, sticky, plastic; many fine roots; many distinct clay films on faces of peds; very strongly acid; gradual smooth boundary.

Bt2--12 to 28 inches, mottled red (10R 4/6), strong brown (7.5YR 5/8), and gray (10YR 6/1) clay; weak medium subangular blocky structure; firm, sticky, plastic; common fine roots; many distinct clay films on faces of peds; very strongly acid; diffuse smooth boundary.

Bt3--28 to 35 inches, mottled red (10R 4/6), gray (10YR 6/1), and yellowish brown (10YR 5/8) clay; weak medium subangular blocky structure; firm, sticky, plastic; common fine roots; many distinct clay films on faces of peds; very strongly acid; diffuse smooth boundary.

Bt4--35 to 42 inches, mottled light gray (10YR 7/1) and red (10R 4/6) sandy clay; weak coarse subangular blocky structure; firm, sticky, plastic; many distinct clay films on faces of peds; very strongly acid; diffuse smooth boundary.

C--42 to 60 inches, mottled light gray (10YR 7/1), dusky red (10R 3/3), and yellowish brown (10YR 5/6) clay loam; massive; firm, sticky, plastic; very strongly acid.



Table A: Particle size distribution\* for Craven clay loam, 6 to 12 percent slopes, severely eroded

Horizon	Depth (in.)	Sand					Total	Silt	Clay	Textural Class
		Very Coarse	Coarse	Medium	Fine	Very Fine				
Ap	0-4	1.02	4.80	16.11	16.52	5.33	43.78	21.22	35.0	cl
Bt1	4-12	0.91	3.78	8.89	9.00	4.70	27.28	26.72	46.0	c
Bt2	12-28	1.07	2.48	5.11	5.94	4.06	18.66	31.34	50.0	c
Bt3	28-35	1.16	5.24	10.91	8.13	3.22	28.66	27.64	43.7	c
Bt4	35-42	2.59	11.25	20.67	9.30	2.12	45.93	11.07	43.0	sc
C	42-60	1.22	6.10	13.29	9.16	3.40	33.17	33.87	33.0	cl

\*by hydrometer method Bouyoucos (1962)

## CRAVEN SUPPLEMENTAL PROFILE 1

Supplemental profile 1 of Craven clay loam, in an area of Craven clay loam, 6 to 12 percent slopes, severely eroded, is located about 0.8 miles south southeast of the junction of Highways US-301 and VA-629 and 30 yards west of Highway US-301.

- Ap -- 0 to 3 inches, very dark grayish brown (10YR 3/2) clay loam, many medium distinct yellowish red (5YR 4/6) mottles; weak medium and coarse granular structure; friable, sticky, plastic; many fine, medium, and coarse roots; 2 percent gravel; very strongly acid; clear smooth boundary.
- Bt1 -- 3 to 9 inches, yellowish red (5YR 4/6) clay, many medium distinct black (10YR 2/1) mottles; weak fine and medium subangular blocky structure; friable, sticky, plastic; many fine and medium roots; 2 percent gravel; many distinct clay films on faces of peds; strongly acid; clear wavy boundary.
- Bt2 -- 9 to 30 inches, yellowish red (5YR 5/6) clay, many medium distinct light gray (10YR 7/1) and brownish yellow (10YR 6/8) mottles; moderate fine and medium subangular blocky structure; firm, sticky, plastic; common fine roots; many distinct clay films on faces of peds; common fine flakes of mica; strongly acid; clear wavy boundary.
- Bt3 -- 30 to 37 inches, mottled yellowish brown (10YR 5/6), light gray (10YR 7/2) and dark red (10R 3/6) clay; moderate fine and medium subangular blocky structure; firm, sticky, plastic; common fine roots; many distinct clay films on faces of peds; common fine flakes of mica; strongly acid; gradual smooth boundary.
- C1 -- 37 to 51 inches, yellowish brown (10YR 5/8) clay, common medium distinct dark brown (7.5YR 4/4) and light gray (10YR 7/1) mottles; moderate medium platy structure; friable, sticky, plastic; few fine roots; 5 percent gravel; few fine flakes of mica; strongly acid; clear smooth boundary.

C2 -- 51 to 72 inches, dark yellowish brown (10YR 4/4) sandy clay loam, many medium distinct pinkish white (5YR 8/2) and yellowish brown (10YR 5/8) mottles; massive; friable, slightly sticky, slightly plastic; few fine flakes of mica; very strongly acid.

Table A: Particle size distribution\* for Craven clay loam, 6 to 12 percent slopes, severely eroded (Supplemental profile 1)

Horizon	Depth (in.)	Sand					Total	Silt	Clay	Textural Class
		Very Coarse	Coarse	Medium	Fine	Very Fine				
Ap	0-3	1.18	1.73	3.83	13.81	15.19	35.74	30.66	33.60	cl
Bt1	3-9	0.60	1.22	2.08	8.13	10.03	22.06	26.34	51.60	c
Bt2	9-30	0.15	0.50	1.38	7.03	9.16	18.22	23.18	58.60	c
Bt3	30-37	0.10	0.37	1.02	7.12	8.25	16.86	20.54	62.60	c
C1	37-51	1.08	3.87	4.36	14.32	13.54	37.17	20.23	42.60	c
C2	51-72	0.05	0.37	6.30	33.57	19.20	59.49	11.91	28.60	sci

\*by hydrometer method Bouyoucos (1962)

Table C: Soil test data for Craven clay loam, 6 to 12 percent slopes, severely eroded (Supplemental profile 1)

Horizon	Depth (in.)	pH	CaO*	MgO*	O.M. (%)	P205*	K20*	Zn ppm	Mn ppm
Ap	0-3	4.5	165	79	----	5	82	1.6	2.5
Bt1	3-9	---	55	206	----	11	31	0.6	0.2
Bt2	9-30	5.2	28	162	----	5	17	0.4	0
Bt3	30-37	5.1	28	83	----	2	10	0.3	0
C1	37-51	5.1	28	60	----	2	10	0.4	0
C2	51-72	4.9	82	43	----	9	17	0.6	0.1

\*lbs/acre

## CRAVEN SUPPLEMENTAL PROFILE 2

Supplemental profile 2 of Craven very fine sandy loam, in an area of Craven clay loam, 6 to 12 percent slopes, severely eroded, is located about 0.8 miles south southeast of the junction of Highways US-301 and VA-629 and 35 yards west of Highway US-301.

- Ap -- 0 to 5 inches, dark grayish brown (2.5Y 4/2) very fine sandy loam, common medium distinct yellowish brown (10YR 5/4) mottles; weak medium granular structure; very friable; many fine, medium, and coarse roots; 2 percent iron concretions; very strongly acid; clear smooth boundary.
- E -- 5 to 13 inches, yellowish brown (10YR 5/4) very fine sandy loam; massive; friable; many fine, medium, and coarse roots; 2 percent iron concretions; strongly acid; clear smooth boundary.
- Bt1 -- 13 to 17 inches, yellowish brown (10YR 5/8) loam, many medium faint yellowish brown (10YR 5/4) mottles; weak medium subangular blocky structure; friable, sticky, plastic; common fine, medium, and coarse roots; 2 percent iron concretions; common faint clay films on faces of peds; very strongly acid; clear smooth boundary.
- Bt2 -- 17 to 24 inches, yellowish brown (10YR 5/8) clay loam; weak medium subangular blocky structure; friable, sticky, plastic; common fine and medium roots; 2 percent iron concretions; many distinct clay films on faces of peds; very strongly acid; clear smooth boundary.
- Bt3 -- 24 to 27 inches, strong brown (7.5YR 5/6) clay, common medium distinct red (10R 4/6) mottles; moderate medium subangular blocky structure; friable, sticky, plastic; few fine roots; many distinct clay films on faces of peds; strongly acid; clear smooth boundary.
- Bt4 -- 27 to 47 inches, strong brown (7.5YR 5/6) clay, common medium distinct red (10R 4/4), black (10YR 2/1), and light gray (10YR 7/2) mottles; weak medium

subangular blocky structure; friable, slightly sticky, slightly plastic; few fine roots; 2 percent iron concretions; many distinct clay films on faces of peds; strongly acid; clear wavy boundary.

C -- 47 to 54 inches, mottled strong brown (7.5YR 5/8), pinkish gray (7.5YR 7/2), weak red (10R 4/4), and light red (10R 6/6) clay loam; massive; friable, slightly sticky, slightly plastic; few fine roots; very strongly acid; clear wavy boundary.

Cc -- 54 to 59 inches, strong brown (7.5YR 5/8) sandy clay loam; weak medium and coarse platy structure; friable, slightly sticky, slightly plastic; 25 percent iron concretions; strongly acid; clear wavy boundary.

C -- 59 to 72 inches, yellowish brown (10YR 5/8) fine sandy loam, light gray (10YR 7/2) and weak red (10R 5/4) mottles; massive; friable, slightly sticky, slightly plastic; very strongly acid.

Table A: Particle size distribution\* for Craven very fine sandy loam, 6 to 12 percent slopes, severely eroded (Supplemental profile 2)

Horizon	Depth (in.)	Sand				Total	Silt	Clay	Textural Class
		Very Coarse	Coarse	Medium	Fine				
Ap	0-5	0.68	1.96	5.14	24.00	59.49	32.11	8.40	vfsi
E	5-13	0.38	1.60	4.58	22.82	55.50	36.90	7.60	vfsi
Bt1	13-17	0.69	1.29	3.52	18.64	44.96	32.44	22.60	l
Bt2	17-24	0.29	0.93	2.80	17.21	36.27	26.13	37.60	cl
Bt3	24-27	0.33	0.96	2.66	19.18	36.09	21.11	42.80	c
Bt4	27-47	0.41	1.11	5.82	18.07	37.32	20.88	40.80	c
C	47-54	0.20	0.91	6.01	22.62	41.32	22.48	36.20	cl
Cc	54-59	2.30	5.28	9.35	21.84	49.58	22.22	28.20	scl
C	59-72	1.40	5.60	23.12	29.95	66.87	15.93	17.20	fsi

\*by hydrometer method Bouyoucos (1962)

Table C: Soil test data for Craven very fine sandy loam, 6 to 12 percent slopes, severely eroded (Supplemental profile 2)

Horizon	Depth (in.)	pH	CaO*	MgO*	O.M. (%)	P205*	K20*	Zn ppm	Mn ppm
Ap	0-5	4.8	138	30	---	2	31	1.2	3.4
E	5-13	5.2	110	36	---	0	24	0.9	1.2
Bt1	13-17	4.9	110	30	---	2	48	0.4	0.5
Bt2	17-24	5.0	165	73	---	0	60	0.4	1.1
Bt3	24-27	5.5	275	322	---	2	31	0.4	0.2
Bt4	27-47	5.2	82	126	---	2	22	0.3	0
C	47-54	4.9	55	70	---	2	24	0.3	0
Cc	54-59	5.1	55	70	---	2	17	0.3	0
C	59-72	4.9	55	60	---	2	22	0.3	0

\* lbs/acre

## CRAVEN SUPPLEMENTAL PROFILE 3

Supplemental profile 3 of Craven sandy loam, in an area of Craven clay loam, 6 to 12 percent slopes, severely eroded, is located about 1.8 miles west southwest of the junction of Highways VA-603 and VA-631 and 570 yards north northeast of Highway VA-632.

Oi -- 3 to 0 inches, undecomposed and partially decomposed leaves and twigs

A -- 0 to 4 inches, grayish brown (2.5Y 5/2) sandy loam; massive; very friable; many fine, medium, and coarse roots; 1 percent gravel; very strongly acid; clear smooth boundary.

Bw -- 4 to 13 inches, very pale brown (10YR 7/3) sandy loam; massive; friable; common fine and medium roots; 1 percent gravel; very strongly acid; gradual smooth boundary.

Bx1 -- 13 to 24 inches, very pale brown (10YR 7/3) sandy loam, common fine faint yellowish brown (10YR 5/4) mottles; massive; brittle, compact, firm; few fine and medium roots; 2 percent gravel; very strongly acid; clear smooth boundary.

2Bx2 -- 24 to 43 inches, very pale brown (10YR 7/3) gravelly sandy loam, common medium distinct yellowish brown (10YR 5/6) mottles; massive; brittle, compact, firm; 20 percent gravel; moderately acid; gradual smooth boundary.

2Bt -- 43 to 70 inches, strong brown (7.5YR 5/8) gravelly sandy clay loam, many medium distinct weak red (10R 4/4) and light gray (10YR 7/1) mottles; weak medium subangular blocky structure; firm, sticky, plastic; 30 percent gravel; many distinct clay films on faces of peds; strongly acid.



Table A: Particle size distribution\* for Craven sandy loam, 6 to 12 percent slopes, severely eroded (Supplemental profile 3)

Horizon	Depth (in.)	Sand					Total	Silt	Clay	Textural Class
		Very Coarse	Coarse	Medium	Fine	Very Fine				
A	0-4	3.80	14.20	24.61	24.19	8.29	75.09	16.71	8.20	sl
Bw	4-13	3.54	14.89	25.28	22.95	7.70	74.36	17.84	7.80	sl
Bx1	13-24	4.63	14.80	23.79	22.13	7.39	72.74	19.56	7.70	sl
2Bx2	24-43	11.08	16.55	22.46	19.42	6.51	76.02	16.78	7.20	gr-sl
2Bt	43-70	15.85	26.77	16.80	5.99	1.95	67.36	9.24	23.40	gr-sl

\*by hydrometer method Bouyoucos (1962)

Table C: Soil test data for Craven sandy loam, 6 to 12 percent slopes, severely eroded (Supplemental profile 3)

Horizon	Depth (in.)	pH	CaO*	MgO*	O.M. (%)	P205*	K20*	Zn ppm	Mn ppm
A	0-4	4.8	28	3	---	9	10	0.3	3.0
Bw	4-13	4.5	28	7	---	9	22	0.8	5.0
Bx1	13-24	5.0	28	10	---	9	10	0.1	2.2
2Bx2	24-43	5.6	110	26	---	9	17	0.1	0.9
2Bt	43-70	5.4	908	202	---	9	53	0.2	1.1

#lbs/acre

## CRAVEN SUPPLEMENTAL PROFILE 4

Supplemental profile 4 of Craven sand, in an area of Craven clay loam, 6 to 12 percent slopes, severely eroded, is located about 0.7 miles east northeast of the junction of Jack's Swamp and Virginia-North Carolina state line and 2.6 miles southwest of the junction of Highways VA-625 and VA-730.

- Ap1 -- 0 to 8 inches, light yellowish brown (10YR 6/4) sand; single grain; loose; few fine and medium roots; 2 percent gravel; slightly acid; abrupt smooth boundary.
- Ap2 -- 8 to 15 inches, mottled brown (10YR 5/3) and light yellowish brown (10YR 6/4) loamy sand; single grain; loose; few fine roots; 3 percent gravel; moderately acid; clear smooth boundary.
- A -- 15 to 24 inches, dark grayish brown (10YR 4/2) loamy sand, many medium faint light yellowish brown (10YR 6/4) mottles; single grain; loose; few fine roots; moderately acid; clear smooth boundary.
- Bw -- 24 to 30 inches, pale brown (10YR 6/3) sandy loam; weak medium subangular blocky structure; friable, slightly sticky, slightly plastic; few fine roots; few fine charcoal fragments; moderately acid; gradual smooth boundary.
- 2Eb -- 30 to 38 inches, pale brown (10YR 6/3) loamy sand, common medium faint yellowish brown (10YR 5/4) mottles; massive; brittle, friable; 1 percent gravel; moderately acid; clear smooth boundary.
- 2Btb1 -- 38 to 49 inches, yellowish brown (10YR 5/6) sandy clay loam, many medium distinct light yellowish brown (10YR 6/4) mottles; weak medium subangular blocky structure; friable, sticky, slightly plastic; many distinct clay films on faces of peds; 5 percent gravel; strongly acid; diffuse smooth boundary.

- 2Btb2 -- 49 to 70 inches, mottled yellowish brown (10YR 5/8) and light gray (N 7/) sandy clay loam; weak medium subangular blocky structure; friable, sticky, plastic; many distinct clay films on faces of peds; 5 percent gravel; very strongly acid; diffuse smooth boundary.
- 3Cb1 -- 70 to 81 inches, mottled yellowish brown (10YR 5/6) and light gray (5Y 7/1) gravelly sandy loam; massive; friable, slightly sticky, slightly plastic; 20 percent gravel; very strongly acid; clear smooth boundary.
- 4Cb2 -- 81 to 103 inches, mottled yellowish brown (10YR 5/8), red (2.5YR 4/6), and light gray (5Y 7/1) clay; massive; firm, sticky, plastic; common fine flakes of mica; extremely acid.

Table A: Particle size distribution for Craven sand, 6 to 12 percent slopes, severely eroded (Supplemental profile 4)

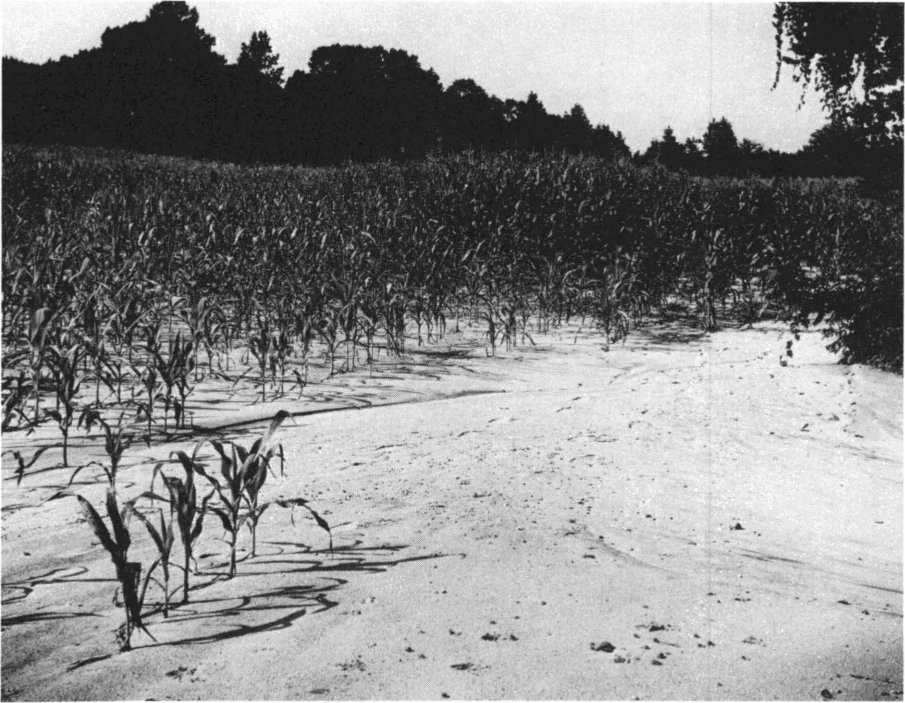
Horizon	Depth (in.)	Sand					Total	Silt	Clay	Textural Class
		Very Coarse	Coarse	Medium	Fine	Very Fine				
Ap1	0-8	6.14	17.72	26.15	24.66	12.34	87.01	9.59	3.4	s
Ap2	8-15	5.30	15.40	29.26	20.46	11.77	82.21	13.39	4.4	ls
A	15-24	4.71	20.12	30.64	17.59	8.30	81.36	12.74	5.9	ls
Bw	24-30	3.51	19.33	27.16	16.06	9.15	75.21	16.89	7.9	sl
2Eb	30-38	4.09	19.72	36.11	15.62	8.98	84.52	7.68	7.8	ls
2Btb1	38-49	8.88	17.89	19.01	10.79	6.71	63.28	14.12	22.6	sci
2Btb2	49-70	4.84	15.75	15.61	10.46	8.22	54.88	12.32	32.8	sci
3Cb1	70-81	11.51	35.10	22.59	6.30	3.09	78.59	19.81	11.6	gr-s
4Cb2	81-103	0.46	1.14	0.85	4.65	8.94	16.04	31.16	52.8	c

\*by hydrometer method Bouyoucos (1962)

Table C: Soil test data for Craven sand, 6 to 12 percent slopes, severely eroded (Supplemental profile 4)

Horizon	Depth (in.)	pH	CaO*	MgO*	O.M. (%)	P205*	K20*	Zn ppm	Mn ppm
Ap1	0-8	6.4	303	100	---	124	31	0.6	2.0
Ap2	8-15	5.7	192	26	---	124	43	0.5	2.7
A	15-24	6.0	385	43	---	48	60	0.3	4.0
Bw	24-30	6.0	330	20	---	16	31	0.2	0.8
2Eb	30-38	5.8	303	20	---	5	41	0.1	1.2
2Btb1	38-49	5.1	853	169	---	5	118	0.2	0.8
2Btb2	49-70	4.9	770	239	---	9	104	0.1	0.3
3Cb1	70-81	4.7	275	106	---	5	53	0.2	0.2
4Cb2	81-103	4.4	426	242	---	41	130	0.6	0.8

#lbs/acre



Top soil eroded from 10B - Craven clay loam, 2 to 6 percent slopes, severely eroded.

## DOTHAN SERIES

Soils of the Dothan series are very deep and well drained. They formed in loamy unconsolidated fluvial and marine sediments. They are on uplands in the Coastal Plain physiographic province. Slopes range from 0 to 2 percent.

A typical profile of Dothan loamy sand, 0 to 2 percent slopes, is located about 145 yards west of the junction of Highways VA-627 and VA-675, and 70 yards south of Highway VA-675, about 5 miles southwest of Emporia.

Ap--0 to 9 inches, brown (10YR 5/3) loamy sand; massive; very friable; many fine roots; moderately acid; abrupt smooth boundary.

E--9 to 17 inches, pale brown (10YR 6/3) sandy loam; massive; friable; common fine roots; strongly acid; clear smooth boundary.

Bt1--17 to 31 inches, yellowish brown (10YR 5/6) sandy clay loam; weak medium subangular blocky structure; friable, sticky, slightly plastic; common fine roots; many distinct clay films and bridges on sand grains, few faint clay films on faces of peds; 4 percent rounded pebbles and iron concretions; very strongly acid; diffuse smooth boundary.

Bt2--31 to 44 inches, yellowish brown (10YR 5/6) sandy clay loam, common medium distinct red (2.5YR 4/8) mottles; weak medium subangular blocky structure; friable, sticky, slightly plastic; common fine roots; many distinct clay films and bridges on sand grains, few faint clay films on faces of peds; 4 percent rounded pebbles and iron concretions; very strongly acid; clear wavy boundary.

Btvl--44 to 63 inches, mottled red (2.5YR 4/6), yellowish brown (10YR 5/8), light gray (10YR 7/2), and dark red (10R 3/6) sandy clay; moderate very thick platy structure parting to weak coarse subangular blocky;

firm, sticky, slightly plastic; many distinct clay films and bridges on sand grains, many distinct clay films on faces of peds; 10 percent nonindurated plinthite nodules; very strongly acid; diffuse wavy boundary.

Btv2--63 to 78 inches, mottled red (2.5YR 4/6), yellowish brown (10YR 5/8), and light gray (10YR 7/2) sandy clay loam; moderate very thick platy structure parting to weak coarse subangular blocky; firm, sticky, slightly plastic; many distinct clay films and bridges on sand grains, many distinct clay films on faces of peds; 5 percent nonindurated plinthite nodules; very strongly acid.

Table A: Particle size distribution\* for Dothan loamy sand, 0 to 2 percent slopes

Horizon	Depth (in.)	Sand					Total	Silt	Clay	Textural Class
		Very Coarse	Coarse	Medium	Fine	Very Fine				
Ap	0-9	1.12	12.64	27.75	33.08	7.29	81.88	11.82	6.30	Is
E	9-17	1.34	11.24	23.68	29.10	6.46	71.82	19.18	9.00	SI
Bt1	17-31	2.55	10.94	19.40	21.56	4.62	59.07	15.93	25.00	SCI
Bt2	31-44	2.86	11.40	18.86	19.88	4.18	57.18	14.82	28.00	SCI
BtV1	44-63	2.92	10.30	15.47	13.76	4.35	46.98	12.02	41.00	SC
BtV2	63-78	4.32	14.20	21.63	16.32	3.17	59.64	10.36	30.00	SCI

\*by hydrometer method Bouyoucos (1962)

Table B: Chemical properties for Dothan loamy sand, 0 to 2 percent slopes

Lab No.	Horizon	Depth (in.)	pH	Organic Matter (%)	Exchangeable Cations (meq/100 gram)				Base Saturation (%)		
					Ca	Mg	K	H			
75-142	Ap	0-9	5.8	0.72	0.77	0.08	0.08	2.25	ND	3.18	29.13
75-143	E	9-17	5.5	0.18	0.33	0.09	0.09	1.75	0.19	2.26	22.57
74-144	Bt1	17-31	5.0	0.18	0.94	0.42	0.26	6.00	0.87	7.61	21.16
75-145	Bt2	31-44	4.8	0.09	0.71	0.41	0.08	7.00	1.64	8.20	14.63
75-146	BtV1	44-63	4.6	0.14	0.28	0.46	0.13	11.00	3.09	11.87	7.29
75-145	BtV2	63-78	4.9	0.05	0.19	0.19	0.09	7.00	2.12	7.47	6.29



Table C: Soil test data for Dothan loamy sand, 0 to 2 percent slopes

Horizon	Depth (in.)	pH	CaO*	MgO*	O.M. (%)	P2O5*	K2O*	Zn ppm	Mn ppm
Ap	0-9	5.8	688	46	0.6	255	24	1.2	2.5
E	9-17	5.9	220	40	0.1	32	55	0.4	0.8
Bt1	17-31	5.1	688	133	0.2	2	137	0.1	0.3
Bt2	31-44	4.9	440	113	0.2	2	31	0.0	0.1
Btv1	44-63	4.5	220	100	0.2	2	41	0.0	0.1
Btv2	63-78	4.5	138	56	0.1	2	43	0.0	0.1

\*lbs/acre

## DOTHAN SUPPLEMENTAL PROFILE 1

Supplemental profile 1 of Dothan loamy sand, in an area of Dothan loamy sand, 0 to 2 percent slopes, is located about 530 yards north northwest of the junction of Highways VA-627 and VA-675 and 270 yards east of Highway VA-675.

Ap--0 to 10 inches, light olive brown (2.5Y 5/4) loamy sand; massive; very friable; common fine, medium, and coarse roots; moderately acid; abrupt smooth boundary.

Bt1--10 to 16 inches, light yellowish brown (2.5Y 6/4) sandy clay loam; weak medium subangular blocky structure; friable, slightly sticky, slightly plastic; common fine roots; many distinct clay films and bridges on sand grains, few faint clay films on faces of peds; very strongly acid; gradual smooth boundary.

Bt2--16 to 30 inches, yellowish brown (10YR 5/6) sandy clay loam; weak medium subangular blocky structure; friable, sticky, slightly plastic; common fine roots; many distinct clay films and bridges on sand grains, few faint clay films on faces of peds; very strongly acid; gradual smooth boundary.

Bt3--30 to 49 inches, mottled yellowish brown (10YR 5/8) and red (2.5YR 4/6) clay; weak medium subangular blocky structure; friable, sticky, slightly plastic; few fine roots; many distinct clay films and bridges on sand grains, few faint clay films on faces of peds; very strongly acid; gradual smooth boundary.

Btv--49 to 80 inches, mottled red (10R 4/6) and light gray (5Y 7/2) clay; moderate very thick platy structure; firm, sticky, slightly plastic; many distinct clay films and bridges on sand grains, few faint clay films on faces of peds; 15 percent nonindurated plinthite nodules; very strongly acid.

Table A: Particle size distribution\* for Dothan loamy sand, 0 to 2 percent slopes (Supplemental profile 1)

Horizon	Depth (in.)	Sand				Total	Silt	Clay	Textural Class
		Very Coarse	Coarse	Medium	Fine				
Ap	0-10	0.75	9.12	26.86	38.81	83.00	12.00	5.00	Is
Bt1	10-16	0.86	7.71	20.48	28.10	62.46	13.54	24.00	sci
Bt2	16-30	0.91	7.61	21.38	29.50	64.74	12.26	23.00	sci
Bt3	30-49	2.05	6.78	15.06	17.30	44.56	15.44	40.00	c
Btv	49-80	1.63	7.52	16.65	15.28	44.13	7.47	48.40	c

\*by hydrometer method Bouyoucos (1962)

Table B: Chemical properties for Dothan loamy sand, 0 to 2 percent slopes (Supplemental profile 1)

Lab No.	Horizon	Depth (in.)	pH	Organic Matter (%)	Exchangeable Cations (meq/100 gram)				Base Saturation (%)		
					Ca	Mg	K	H			
75-094	Ap	0-10	5.7	0.79	0.65	0.10	0.13	2.50	0.10	3.38	25.93
75-095	Bt1	10-16	4.8	0.63	0.64	0.20	0.24	4.75	1.16	5.83	18.45
75-096	Bt2	16-30	4.8	0.23	0.81	0.31	0.25	6.00	1.06	7.37	18.53
75-097	Bt3	30-49	4.6	0.17	0.70	0.47	0.13	9.50	2.03	10.80	12.04
75-098	Btv	49-80	5.0	0.12	0.05	0.28	0.08	8.75	1.93	9.15	4.37

Table C: Soil test data for Dothan loamy sand, 0 to 2 percent slopes  
(Supplemental profile 1)

Horizon	Depth (in.)	pH	CaO*	MgO*	O.M. (%)	P205*	K20*	Zn ppm	Mn ppm
Ap	0-10	6.1	440	30	0.2	172	72	0.5	1.4
Bt1	10-16	5.3	303	53	0.2	5	123	0.1	0.7
Bt2	16-30	5.1	413	86	0.1	2	101	0.1	0.4
Bt3	30-49	4.6	220	96	0.1	2	29	0.1	0.1
Btv	49-80	4.8	82	53	0.2	5	22	0.1	0.0

\*lbs/acre

Table D: Sand mineralogy for Dothan loamy  
sand, 0 to 2 percent slopes  
(Supplemental profile 1)

Horizon	Depth (in.)	Percent Minerals Present*
Bt1	10-16	Qz 87, Fd 1, HM 12
Bt2	16-30	Qz 92, HM 8

\*Qz = Quartz; Fd = Feldspar; M = Mica; HM =  
Heavy minerals including magnetite, zircon,  
ilmenite

## DOTHAN SUPPLEMENTAL PROFILE 2

Supplemental profile 2 of Dothan loamy sand, in an area of Dothan loamy sand, 0 to 2 percent slopes, is located about 0.4 mile east southeast of the junction of Highways VA-627 and VA-675 and 700 yards northeast of the junction of Highways VA-627 and VA-633 at Brink.

Ap--0 to 6 inches, dark grayish brown (10YR 4/2) loamy sand; massive; very friable; many fine roots; very strongly acid; abrupt wavy boundary.

E1--6 to 14 inches, light yellowish brown (10YR 6/4) fine sandy loam; massive; very friable; few fine roots; very strongly acid; gradual smooth boundary.

E2--14 to 22 inches, light yellowish brown (10YR 6/4) fine sandy loam, few medium distinct yellowish brown (10YR 5/6) mottles; weak fine granular structure; slightly brittle, slightly sticky; very strongly acid; gradual smooth boundary.

Bt1--22 to 33 inches, yellowish brown (10YR 5/6) sandy clay loam; weak medium subangular blocky structure; friable, sticky, slightly plastic; many distinct clay films and bridges on sand grains, common faint clay films on faces of peds; very strongly acid; gradual smooth boundary.

Bt2--33 to 42 inches, yellowish brown (10YR 5/6) sandy clay loam, few medium distinct strong brown (7.5YR 5/8) mottles; weak medium subangular blocky structure; friable, sticky, slightly plastic; many distinct clay films and bridges on sand grains, common faint clay films on faces of peds; very strongly acid; diffuse smooth boundary.

Btv--42 to 56 inches, yellowish brown (10YR 5/6) sandy clay, many coarse distinct yellowish red (5YR 4/6), red (2.5YR 4/6), and light gray (10YR 7/2) mottles; weak medium subangular blocky structure; friable and firm, sticky, slightly plastic; many distinct clay films and bridges on sand grains, few faint clay films on faces of peds; 10 percent nonindurated plinthite nodules; very strongly acid; diffuse smooth boundary.

C--56 to 99 inches, red (2.5YR 4/6) sandy clay, many medium distinct yellowish brown (10YR 5/8) and light gray (10YR 7/2) mottles; massive; firm, slightly brittle, sticky, slightly plastic; strongly acid.

Table A: Particle size distribution\* for Dothan loamy sand, 0 to 2 percent slopes (Supplemental profile 2)

Horizon	Depth (in.)	Sand				Total	Silt	Clay	Textural Class
		Very Coarse	Coarse	Medium	Fine				
Ap	0-6	0.45	4.31	24.69	42.85	79.93	16.82	3.24	ls
E1	6-14	0.37	3.88	24.63	37.08	73.99	21.25	4.76	fsl
E2	14-22	0.67	3.38	23.16	34.28	68.44	25.35	6.21	fsl
Bt1	22-33	0.49	3.32	18.96	28.93	57.92	18.06	24.02	sci
Bt2	33-42	0.64	3.57	17.09	26.51	52.37	12.54	35.06	sci
Btv	42-56	0.62	2.89	17.13	26.64	51.69	11.28	37.01	sc
C	56-99	0.93	2.75	16.81	22.07	46.56	9.68	43.73	sc

\*by pipette method Day (1965)

Table B: Chemical properties for Dothan loamy sand, 0 to 2 percent slopes (Supplemental profile 2)

Lab No.	Horizon	Depth (in.)	pH	Organic Matter (%)	Exchangeable Cations (meq/100 gram)				Base Saturation (%)		
					Ca	Mg	K	H			
-----	Ap	0-6	4.9	2.85	0.04	0.02	0.04	4.04	0.69	4.14	2.42
-----	E1	6-14	4.8	0.41	0.02	0.02	0.03	1.80	0.50	1.87	3.49
-----	E2	14-22	4.5	0.17	0.08	0.02	0.05	2.15	0.59	2.30	6.52
-----	Bt1	22-33	4.9	0.49	1.31	0.35	0.15	6.61	1.19	8.37	21.03
-----	Bt2	33-42	4.9	0.08	0.10	0.28	0.08	9.71	2.58	10.17	4.48
-----	Btv	42-56	4.9	0.08	0.10	0.28	0.08	9.71	2.58	10.17	4.48
-----	C	56-99	5.4	0.08	0.03	0.19	0.08	12.63	3.86	12.93	2.28

Table E: Other physical properties for Dothan loamy sand, 0 to 2 percent slopes (Supplemental profile 2)

Horizon	Depth (in.)	Swell Index*	Liquid Limit	Plasticity Index
Bt1	22-33	775	30.83	12.62
Bt2	33-42	1000	35.05	11.03
Btv	42-56	50	42.05	16.08
C	56-99	2500	48.06	18.05

\*lbs/square foot



## DOTHAN SUPPLEMENTAL PROFILE 3

Supplemental profile 3 of Dothan loamy sand, in an area of Dothan loamy sand, 0 to 2 percent slopes, is located about 530 yards west northwest of the junction of Highways VA-627 and VA-675 and 90 yards north of Highway VA-675.

- Ap--0 to 10 inches, brown (10YR 5/3) loamy sand; massive; very friable; common fine and medium roots; moderately acid; abrupt smooth boundary.
- Bt1--10 to 16 inches, yellowish brown (10YR 5/4) fine sandy loam; massive; very friable; few fine roots; many distinct clay films and bridges on sand grains; moderately acid; gradual smooth boundary.
- Bt2--16 to 22 inches, yellowish brown (10YR 5/6) sandy clay loam; weak medium subangular blocky structure; friable, slightly sticky; few fine roots; many distinct clay films and bridges on sand grains; moderately acid; gradual smooth boundary.
- Bt3--22 to 40 inches, yellowish brown (10YR 5/6) sandy clay loam; weak medium subangular blocky structure; friable, slightly sticky; few fine roots; many distinct clay films and bridges on sand grains, few faint clay films on faces of peds; strongly acid; gradual smooth boundary.
- Bt4--40 to 50 inches, strong brown (7.5YR 5/8) sandy clay loam, few fine distinct red (2.5YR 4/6) mottles; weak medium subangular blocky structure; friable, sticky, plastic; few fine roots; many distinct clay films and bridges on sand grains, common faint clay films on faces of peds; very strongly acid; gradual smooth boundary.
- Bt5--50 to 65 inches, strong brown (7.5YR 5/8) sandy clay, common medium distinct red (2.5YR 4/6) mottles; moderate very thick platy structure; friable, sticky, plastic; many distinct clay films and bridges on sand grains, common faint clay films on faces of peds; very strongly acid; gradual smooth boundary.

Btv--65 to 72 inches, yellowish red (5YR 5/6) sandy clay, many medium distinct brownish yellow (10YR 6/8) and dark red (10R 3/6) mottles; moderate very thick platy structure; firm, sticky, plastic; many distinct clay films and bridges on sand grains, common faint clay films on faces of peds; 10 percent nonindurated plinthite nodules; very strongly acid.

Table A: Particle size distribution\* for Dothan loamy sand, 0 to 2 percent slopes (Supplemental profile 3)

Horizon	Depth (in.)	Sand					Total	Silt	Clay	Textural Class
		Very Coarse	Coarse	Medium	Fine	Very Fine				
Ap	0-10	0.86	9.88	27.50	37.31	6.70	82.25	11.05	6.70	ls
Bt1	10-16	1.14	8.90	23.25	32.10	6.16	71.55	14.05	14.40	fsl
Bt2	16-22	0.66	7.14	20.74	28.81	5.38	62.73	15.27	22.00	sci
Bt3	22-40	1.36	8.07	20.27	27.06	4.60	60.82	13.18	26.00	sci
Bt4	40-50	1.32	7.42	18.58	25.08	4.42	56.82	14.58	28.60	sci
Bt5	50-65	1.69	7.25	17.16	20.66	3.40	50.16	8.84	41.00	sc
Btv	65-72	2.05	7.48	17.39	19.45	3.44	49.81	10.19	40.00	sc

\*by hydrometer method Bouyoucos (1962)

Table B: Chemical properties for Dothan loamy sand, 0 to 2 percent slopes (Supplemental profile 3)

Lab No.	Horizon	Depth (in.)	pH	Organic Matter (%)	Exchangeable Cations (meg/100 gram)					Base Saturation (%)	
					Ca	Mg	K	H	Al		Total
75-099	Ap	0-10	6.0	1.06	0.85	0.10	0.11	1.50	0.10	2.56	41.41
75-100	Bt1	10-16	5.6	0.28	0.46	0.14	0.17	2.25	0.19	3.01	25.25
75-101	Bt2	16-22	5.7	0.32	1.05	0.33	0.35	3.75	0.10	5.48	31.57
75-102	Bt3	22-40	5.3	0.23	1.28	0.50	0.23	5.25	0.39	7.25	27.59
75-103	Bt4	40-50	5.0	0.17	1.25	0.56	0.08	6.50	0.7	8.38	22.43
75-104	Bt5	50-65	4.8	0.23	1.43	0.53	0.08	8.50	1.06	10.53	19.24
75-105	Btv	65-72	4.8	0.23	0.60	0.25	0.08	8.25	1.45	9.17	10.03

Table C: Soil test data for Dothan loamy sand, 0 to 2 percent slopes  
(Supplemental profile 3)

Horizon	Depth (in.)	pH	CaO*	MgO*	O.M. (%)	P205*	K20*	Zn ppm	Mn ppm
Ap	0-10	5.9	770	46	0.7	197	63	0.8	2.7
Bt1	10-16	6.1	330	46	0.3	2	89	0.0	1.3
Bt2	16-22	5.8	495	83	0.2	0	169	0.1	0.7
Bt3	22-40	5.5	825	143	0.2	0	87	0.1	0.1
Bt4	40-50	5.2	688	133	0.2	0	17	0.2	0.1
Bt5	50-65	5.0	715	93	0.1	0	14	0.2	0.1
Btv	65-72	4.6	275	46	0.1	0	14	0.1	0.1

\*lbs/acre

Table D: Sand mineralogy for Dothan loamy  
sand, 0 to 2 percent slopes  
(Supplemental profile 3)

Horizon	Depth (in.)	Percent Minerals Present*
Bt2	16-22	Qz 90; Fd 0.5; HM 9.5

\*Qz = Quartz; Fd = Feldspar; M = Mica; HM =  
Heavy minerals including magnetite, zircon,  
ilmenite

## DOTHAN SUPPLEMENTAL PROFILE 4

Supplemental profile 4 of Dothan fine sandy loam, in an area of Dothan loamy sand, 0 to 2 percent slopes, is located about 1.5 miles east of the junction of Highways VA-603 and VA-631 on the VA-NC state line.

Oi--1 to 0 inches, partially decomposed leaves and twigs.

A--0 to 1 inches, gray (10YR 6/1) fine sandy loam; massive; very friable; many fine roots; strongly acid; clear smooth boundary.

E1--1 to 15 inches, pale olive (5Y 6/3) fine sandy loam; massive; very friable; common fine and medium roots; strongly acid; diffuse smooth boundary.

E2--15 to 22 inches, pale olive (5Y 6/3) fine sandy loam; massive; friable, slightly brittle; few fine and medium roots; strongly acid; clear smooth boundary.

Bt1--22 to 27 inches, olive yellow (2.5Y 6/6) fine sandy loam, many medium faint light yellowish brown (2.5Y 6/4) mottles; weak medium subangular blocky structure; friable, slightly sticky, slightly plastic; many fine and medium roots; many distinct clay films and bridges on sand grains, few faint clay films on faces of peds; very strongly acid; gradual smooth boundary.

Bt2--27 to 40 inches, yellowish brown (10YR 5/6) sandy clay loam; weak medium subangular blocky structure; friable, slightly sticky, slightly plastic; common fine and medium roots; many distinct clay films and bridges on sand grains, common distinct clay films on faces of peds; strongly acid; diffuse smooth boundary.

Bt3--40 to 53 inches, yellowish brown (10YR 5/6) sandy clay loam, many medium distinct yellowish red (5YR 4/8) mottles; weak medium subangular blocky structure; friable, sticky, plastic; few fine roots; many distinct clay films and bridges on sand grains, many distinct clay films on faces of peds; strongly acid; diffuse smooth boundary.

Bt4--53 to 66 inches, mottled light gray (2.5Y 7/2), brownish yellow (10YR 6/6), and reddish brown (2.5YR 5/4) sandy clay loam; weak medium subangular blocky structure; friable, sticky, plastic; few fine roots; many distinct clay films and bridges on sand grains, many distinct clay films on faces of peds; strongly acid; diffuse smooth boundary.

C--66 to 74 inches, mottled light gray (2.5Y 7/2), brownish yellow (10YR 6/6), and reddish brown (2.5YR 5/4) sandy clay loam; massive; friable, slightly sticky, slightly plastic; many fine and medium roots; strongly acid.

Table A: Particle size distribution\* for Dothan fine sandy loam, 0 to 2 percent slopes (Supplemental profile 4)

Horizon	Depth (in.)	Sand					Total	Silt	Clay	Textural Class
		Very Coarse	Coarse	Medium	Fine	Very Fine				
E1	1-15	1.24	5.56	15.66	31.70	12.69	66.85	27.91	5.24	fsl
E2	15-22	1.59	5.88	13.81	29.93	13.23	64.44	29.12	6.44	fsl
Bt1	22-27	4.66	6.55	12.32	27.49	11.58	62.60	23.87	13.53	fsl
Bt2	27-40	3.60	5.26	10.97	27.71	10.35	57.89	19.60	22.51	sci
Bt3	40-53	3.03	5.41	10.61	24.67	8.92	52.64	16.25	31.09	sci
Bt4	53-66	2.21	5.06	11.06	24.59	9.35	52.27	14.02	33.70	sci
C	66-74	6.81	11.36	16.35	25.36	6.86	66.94	9.64	23.42	sci

\*by pipette method Day (1965)

Table B: Chemical properties for Dothan fine sandy loam, 0 to 2 percent slopes (Supplemental profile 4)

Lab No.	Horizon	Depth (in.)	pH	Organic Matter (%)	Exchangeable Cations (meq/100 gram)				Total	Base Saturation (%)	
					Ca	Mg	K	H			
73-403	E1	1-15	5.1	0.19	0.05	0.01	0.02	1.09	0.59	1.17	6.44
73-404	E2	15-22	5.1	0.08	0.04	ND	0.03	1.56	0.69	1.63	4.00
73-405	Bt1	22-27	4.7	0.11	0.12	0.05	0.06	3.75	1.98	3.98	5.78
73-406	Bt2	27-40	5.1	0.09	0.64	0.30	0.09	4.53	1.68	5.55	18.38
73-407	Bt3	40-53	5.3	0.04	0.41	0.37	0.08	6.56	3.47	7.42	11.59
73-408	Bt4	53-66	5.2	0.09	0.12	0.37	0.08	7.65	5.25	8.22	6.93
73-409	C	66-74	5.1	0.05	0.10	0.21	0.05	4.84	3.76	5.19	6.74

Table E: Other physical properties for Dothan fine sandy loam, 0 to 2 percent slopes (Supplemental profile 4)

Horizon	Depth (in.)	Swell Index*	Liquid Limit	Plasticity Index
Bt2	27-40	850	33.22	10.61
Bt3	40-53	2350	48.05	21.15
C	66-74	1150	44.27	23.51

\*lbs/square foot



## DOTHAN SUPPLEMENTAL PROFILE 5

Supplemental profile 5 of Dothan loamy sand, in an area of Dothan loamy fine sand, 0 to 2 percent slopes, is located about 0.5 miles south of VA-627 and 0.8 miles north of VA-659.

- Ap -- 0 to 8 inches, grayish brown (10YR 5/2) loamy fine sand; single grain; loose; few fine roots; moderately acid; abrupt smooth boundary.
- E1 -- 8 to 15 inches, light yellowish brown (2.5Y 6/4) fine sandy loam; single grain; loose; few fine roots; strongly acid; gradual smooth boundary.
- E2 -- 15 to 19 inches, light yellowish brown (2.5Y 6/4) fine sandy loam, many medium distinct yellowish brown (10YR 5/6) mottles; massive; slightly brittle, friable, slightly sticky, slightly plastic; few fine and medium roots; very strongly acid; gradual smooth boundary.
- Bt1 -- 19 to 27 inches, yellowish brown (10YR 5/6) clay loam; weak medium subangular blocky structure; friable, sticky, plastic; few fine, medium, and coarse roots; many distinct clay films and bridges on sand grains; very strongly acid; diffuse smooth boundary.
- Bt2 -- 27 to 40 inches, yellowish brown (10YR 5/6) sandy clay, many medium distinct yellowish red (5YR 5/6) mottles; weak medium subangular blocky structure; friable, sticky, plastic; few fine, medium, and coarse roots; many distinct clay films and bridges on sand grains, few faint clay films on faces of peds; very strongly acid; diffuse smooth boundary.
- Bt3 -- 40 to 60 inches, yellowish brown (10YR 5/6) sandy clay, many medium distinct strong brown (7.5YR 5/6) mottles; weak medium subangular blocky structure; friable, sticky, plastic; many distinct clay films and bridges on sand grains, few faint clay films on faces of peds; extremely acid; diffuse smooth boundary.

Bt4 -- 60 to 84 inches, mottled yellowish brown (10YR 5/6), yellowish red (5YR 5/6), red (2.5YR 4/8), and light yellowish brown (10YR 6/4) sandy clay; weak medium subangular blocky structure; friable, sticky, plastic; many distinct clay films and bridges on sand grains, few faint clay films on faces of peds; extremely acid.

Table A: Particle size distribution\* for Dothan loamy fine sand, 0 to 2 percent slopes  
(Supplemental profile 5)

Horizon	Depth (in.)	Sand				Total	Silt	Clay	Textural Class
		Very Coarse	Coarse	Medium	Fine				
					%				
Ap	0-8	0.30	3.98	18.08	32.97	76.21	19.00	4.80	lfs
E1	8-15	0.46	3.43	18.11	28.66	66.68	25.52	7.81	fsl
E2	15-19	0.31	3.18	16.46	29.89	66.41	24.99	8.61	fsl
Bt1	19-27	0.56	2.88	13.23	12.90	42.35	26.58	31.06	cl
Bt2	27-40	0.66	2.98	13.27	22.47	49.87	13.64	36.46	sc
Bt3	40-60	0.39	3.06	12.48	22.11	48.74	12.35	38.89	sc
Bt4	60-84	0.62	3.40	14.60	22.40	50.84	10.33	38.82	sc

\*by pipette method Day (1965)

Table C: Soil test data for Dothan loamy fine sand, 0 to 2 percent  
slopes (Supplemental profile 5)

Horizon	Depth (in.)	pH	CaO*	MgO*	O.M. (%)	P2O5*	K2O*	Zn ppm	Mn ppm
Ap	0-8	5.7	413	43	1.2	133	55	---	---
E1	8-15	5.4	165	43	0.3	0	63	---	---
E2	15-19	5.0	220	73	0.2	0	152	---	---
Bt1	19-27	4.7	385	96	0.2	0	169	---	---
Bt2	27-40	4.7	633	156	0.1	2	48	---	---
Bt3	40-60	4.3	138	123	0.2	0	48	---	---
Bt4	60-84	4.3	110	70	0.2	0	41	---	---

\*lbs/acre

Table E: Other physical properties for Dothan loamy fine sand, 0 to 2 percent slopes (Supplemental profile 5)

Horizon	Depth (in.)	Swell Index*	Liquid Limit	Plasticity Index
Bt1	19-27	1400	33.53	14.92
Bt2	27-40	1350	43.40	24.56
Bt3	40-60	150	42.13	16.43
Bt4	60-84	200	42.63	16.98

\*lbs/square foot

## DOTHAN SUPPLEMENTAL PROFILE 6

Supplemental profile 6 of Dothan loamy fine sand, in an area of Dothan loamy sand, 0 to 2 percent slopes, is located about 1.1 mile north northwest of the junction of Highways VA-675 and VA-627 and 1.7 miles east of the junction of Highways VA-633 and VA-693.

Ap -- 0 to 9 inches, brown (10YR 5/3) loamy fine sand, common medium distinct light yellowish brown (10YR 6/4) mottles; massive; very friable; many very fine and fine roots; strongly acid; clear smooth boundary.

E -- 9 to 15 inches, light yellowish brown (10YR 6/4) fine sandy loam, common medium distinct yellowish brown (10YR 5/6) mottles; massive; friable; common very fine and fine roots; very strongly acid; clear smooth boundary.

Bt1 -- 15 to 23 inches, yellowish brown (10YR 5/6) sandy clay loam, many medium and coarse distinct yellowish red (5YR 4/6) mottles; weak medium and coarse subangular blocky structure; friable, slightly sticky, slightly plastic; common very fine and fine roots; many distinct clay films and bridges on sand grains, common faint clay films on faces of peds; very strongly acid; gradual smooth boundary.

Bt2 -- 23 to 33 inches, strong brown (7.5YR 5/6) sandy clay loam; weak medium subangular blocky structure; friable, sticky, plastic; common very fine and fine roots; many distinct clay films and bridges on sand grains, many prominent clay films on faces of peds; strongly acid; gradual smooth boundary.

Bt3 -- 33 to 44 inches, strong brown (7.5YR 5/6) sandy clay loam, common medium distinct yellowish brown (10YR 5/6) and yellowish red (5YR 4/6) mottles; weak medium subangular blocky structure; friable, sticky, plastic; common very fine and fine roots; many distinct clay films and bridges on sand grains, many prominent clay films on faces of peds; very strongly acid; gradual smooth boundary.

- Bt4 -- 44 to 55 inches, strong brown (7.5YR 5/6) sandy clay loam, common fine and medium distinct yellowish red (5YR 4/6) and brownish yellow (10YR 6/6) mottles; weak medium and coarse subangular blocky structure; friable, firm, sticky, slightly plastic; few very fine and fine roots; many distinct clay films and bridges on sand grains, common distinct clay films on faces of peds; very strongly acid; diffuse smooth boundary.
- Bt5 -- 55 to 72 inches, strong brown (7.5YR 5/6) sandy clay loam, common fine and medium distinct yellowish red (5YR 4/6) and yellowish brown (10YR 5/6) mottles; weak coarse subangular blocky structure; friable, firm, sticky, slightly plastic; many distinct clay films and bridges on sand grains, common faint clay films on faces of peds; extremely acid.

Table A: Particle size distribution\* for Dothan loamy fine sand, 0 to 2 percent slopes (Supplemental profile 6)

Horizon	Depth (in.)	Sand					Total	Silt	Clay	Textural Class
		Very Coarse	Coarse	Medium	Fine	Very Fine				
Ap	0-9	0.38	2.39	9.57	59.28	10.65	11.73	6.0	lfs	
E	9-15	0.32	1.87	8.96	54.47	9.47	14.41	10.5	fsl	
Bt1	15-23	0.40	1.86	7.57	46.13	7.70	13.34	23.0	sci	
Bt2	23-33	0.43	1.53	7.01	42.64	6.61	10.78	31.0	sci	
Bt3	33-44	0.49	1.56	7.03	43.36	6.35	9.21	32.0	sci	
Bt4	44-55	0.52	1.35	6.90	47.01	6.88	8.34	29.0	sci	
Bt5	55-72	0.78	1.82	7.70	45.66	5.84	9.20	29.0	sci	

\*by hydrometer method Bouyoucos (1962)

Table B: Chemical properties for Dothan loamy fine sand, 0 to 2 percent slopes (Supplemental profile 6)

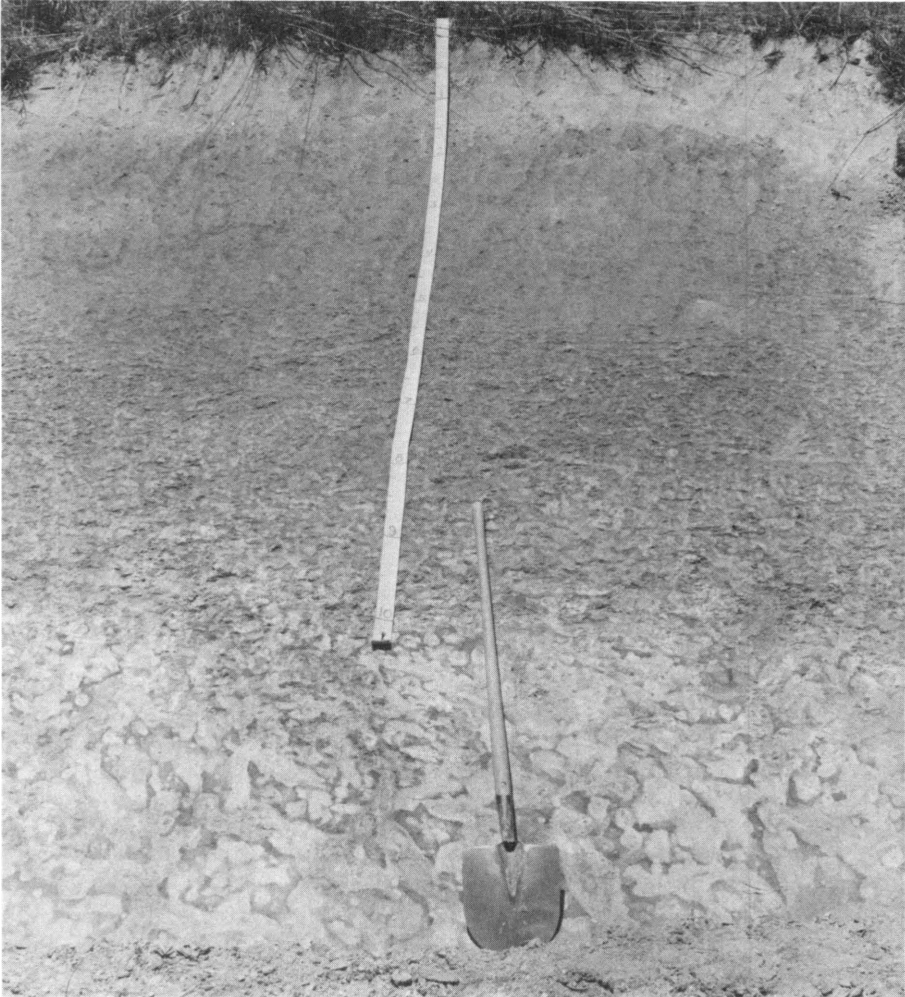
Lab No.	Horizon	Depth (in.)	pH	Organic Matter (%)	Exchangeable Cations (meq/100 gram)					Base Saturation (%)	
					Ca	Mg	K	H	Al		Total
79-756	Ap	0-9	5.42	0.61	0.43	0.12	0.09	2.60	0.25	3.24	19.75
79-757	E	9-15	4.96	0.14	0.13	0.02	0.10	1.00	0.25	1.25	20.00
79-758	Bt1	15-23	4.98	0.17	1.03	0.15	0.37	3.20	0.35	4.75	32.63
79-759	Bt2	23-33	5.18	0.33	2.32	0.55	0.36	3.40	0.25	6.63	48.72
79-760	Bt3	33-44	4.96	0.20	2.28	0.31	0.16	5.00	0.65	7.75	35.48
79-761	Bt4	44-55	4.64	0.08	1.51	0.21	0.07	5.20	1.05	6.99	25.61
79-762	Bt5	55-72	4.22	0.20	0.65	0.17	0.08	6.00	1.65	6.90	13.04

Table C: Soil test data for Dothan loamy fine sand, 0 to 2 percent slopes (Supplemental profile 6)

Horizon	Depth (in.)	pH	CaO*	MgO*	O.M. (%)	P205*	K2O*	Zn ppm	Mn ppm
Ap	0-9	6.0	437	88	0.5	68	67	1.6	3.5
E	9-15	5.5	168	20	0.2	13	60	0.9	1.6
Bt1	15-23	5.3	604	72	0.2	4	223	1.1	2.0
Bt2	23-33	5.5	1074	183	0.1	4	139	1.0	0.3
Bt3	33-44	5.2	1108	115	0.1	6	52	0.8	0.3
Bt4	44-55	5.0	739	92	0.1	28	23	0.9	0.2
Bt5	55-72	4.6	336	76	0.1	6	23	0.8	0.1

\*lbs/acre





A profile of 11A - Dothan loamy sand, 0 to 2 percent slopes.

## EMPORIA SERIES

Soils of the Emporia series are very deep and well drained. They formed in loamy unconsolidated fluvial and marine sediments. They are on uplands in the Coastal Plain and Piedmont physiographic provinces. Slopes range from 2 to 6 percent.

A typical profile of Emporia loamy fine sand, 2 to 6 percent slopes, is located about 0.5 miles west of the junction of Highways US-301 and VA-642 and 35 yards north of Highway VA-642, about 2 miles south of Skippers.

Ap--0 to 6 inches, pale brown (10YR 6/3) loamy fine sand; weak fine granular structure; very friable; many fine, medium, and coarse roots; strongly acid; clear smooth boundary.

E--6 to 15 inches, pale brown (10YR 6/3) fine sandy loam; weak fine granular structure; very friable; common fine and medium roots; strongly acid; gradual smooth boundary.

Bt1--15 to 32 inches, yellowish brown (10YR 5/6) sandy clay loam, few medium distinct yellowish red (5YR 5/8) mottles; weak medium subangular blocky structure; friable, slightly sticky, slightly plastic; few fine and medium roots; many distinct clay films and bridges on sand grains, few faint clay films on faces of peds; strongly acid; diffuse smooth boundary.

Bt2--32 to 44 inches, yellowish brown (10YR 5/6) clay loam, many medium prominent red (10R 4/8) mottles; weak very thick platy structure parting to moderate medium subangular blocky; friable, sticky, slightly plastic; few fine and medium roots; many distinct clay films and bridges on sand grains, many distinct clay films on faces of peds; very strongly acid; diffuse smooth boundary.

Bt3--44 to 57 inches, yellowish brown (10YR 5/6) sandy clay loam, many medium distinct light gray (10YR 7/1) and red (2.5YR 5/8) mottles; weak very thick platy structure parting to weak medium subangular blocky; friable, firm, slightly sticky, slightly plastic; many distinct clay films and bridges on sand grains, common distinct clay films on faces of peds; very strongly acid; diffuse smooth boundary.

C--57 to 70 inches, mottled yellow (2.5Y 7/6), light gray (10YR 7/1), and reddish brown (2.5YR 5/4) sandy clay loam; massive; friable, firm, slightly sticky, slightly plastic; very strongly acid.

Table A: Particle size distribution\* for Emporia loamy fine sand, 2 to 6 percent slopes

Horizon	Depth (in.)	Sand					Total	Silt	Clay	Textural Class
		Very Coarse	Coarse	Medium	Fine	Very Fine				
Ap	0-6	0.46	3.44	15.64	37.31	20.98	77.83	17.07	5.10	lfs
E	6-15	0.26	3.47	15.36	30.57	16.05	65.71	23.19	11.10	fsl
Bt1	15-32	0.39	3.23	12.78	23.02	14.51	53.93	19.87	26.20	sci
Bt2	32-44	0.31	1.96	7.11	19.79	13.20	42.37	20.43	37.20	cl
Bt3	44-57	1.51	4.82	11.17	21.00	12.90	51.40	19.40	29.20	sci
C	57-70	1.54	8.15	20.03	19.95	9.70	59.37	17.43	23.20	sci

\*by hydrometer method Bouyoucos (1962)

Table B: Chemical properties for Emporia loamy fine sand, 2 to 6 percent slopes

Lab No.	Horizon	Depth (in.)	pH	Organic Matter (%)	Exchangeable Cations (meq/100 gram)					Base Saturation (%)	
					Ca	Mg	K	H	Al		Total
73-772	Ap	0-6	5.1	0.19	0.16	0.02	0.04	0.60	ND	0.82	26.38
73-773	E	6-15	5.1	0.13	0.13	0.03	0.05	0.60	0.17	0.80	25.00
73-774	Bt1	15-32	5.0	0.12	1.45	0.54	0.10	5.26	1.72	7.35	28.44
73-775	Bt2	32-44	4.9	0.11	0.35	0.39	0.13	8.19	4.29	9.05	9.50
73-776	Bt3	44-57	4.8	0.07	0.08	0.25	0.09	7.15	4.21	7.57	5.49
73-777	C	57-70	4.8	0.08	0.17	0.16	0.06	4.22	3.35	4.61	8.46

3: Soil test data for Emporia loamy fine sand, 2 to 6 percent slopes

Depth (in.)	pH	CaO*	MgO*	O.M. (%)	P2O5*	K2O*	Zn ppm	Mn ppm
0-6	5.1	110	16	---	39	31	---	---
6-15	5.1	138	23	---	7	36	---	---
15-32	5.1	770	162	---	5	43	---	---
32-44	4.9	192	106	---	5	43	---	---
44-57	5.0	192	76	---	11	53	---	---
57-70	4.9	165	46	---	18	43	---	---

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Table D: Sand mineralogy for Emporia loamy fine sand, 2 to 6 percent slopes.

Horizon	Depth (in.)	Percent Minerals Present*
Bt1	15-32	Qz 94, Fd 3, M 1, HM 2
t2	32-44	Qz 93, Fd 2, M 2, HM 3

\* = Quartz; Fd = Feldspar; M = Mica; HM = Heavy minerals including magnetite, zircon, etc.

## EMPORIA SUPPLEMENTAL PROFILE 1

Supplemental profile 1 of Emporia fine sandy loam, in an area of Emporia loamy fine sand, 2 to 6 percent slopes, is located about 1 mile south of the junction of Highways VA-628 and VA-625 and 35 yards west of Highway VA-628.

Ap--0 to 7 inches, light olive brown (2.5Y 5/4) fine sandy loam; massive; very friable; many fine roots; slightly acid; clear smooth boundary.

Bt1--7 to 18 inches, yellowish brown (10YR 5/6) loam; weak medium subangular blocky structure; friable, slightly sticky, slightly plastic; many fine roots; many distinct clay films on faces of peds; strongly acid; gradual smooth boundary.

Bt2--18 to 27 inches, yellowish brown (10YR 5/6) clay loam, many medium strong brown (7.5YR 5/6) and brownish yellow (10YR 6/6) mottles; moderate medium subangular blocky structure; firm, sticky, plastic; many fine roots; many distinct clay films on faces of peds; very strongly acid; diffuse smooth boundary.

Bt3--27 to 39 inches, strong brown (7.5YR 5/6) clay, many medium faint yellowish brown (10YR 5/8) mottles; firm, sticky, plastic; few fine roots; many distinct clay films on faces of peds; very strongly acid; gradual smooth boundary.

2Bt4--39 to 50 inches, mottled strong brown (7.5YR 5/6), red (2.5YR 4/8), reddish brown (2.5YR 5/4), and light gray (5Y 7/2) sandy clay; weak medium subangular blocky structure; friable, sticky, plastic; many distinct clay films on faces of peds; very strongly acid; gradual smooth boundary.

2C--50 to 66 inches, mottled red (2.5YR 4/8), pinkish gray (5YR 7/2), dark red (10R 3/6), and light yellowish brown (2.5Y 6/4) sandy clay loam; massive; friable, slightly brittle, slightly sticky, slightly plastic; 5 percent gravel; common fine flakes of mica; strongly acid.

Table A: Particle size distribution\* for Emporia fine sandy loam, 2 to 6 percent slopes (Supplemental profile 1)

Horizon	Depth (in.)	Sand				Total	Silt	Clay	Textural Class
		Very Coarse	Coarse	Medium	Fine				
Ap	0-7	0.93	4.50	12.75	32.31	74.83	19.65	5.52	fsl
Bt1	7-18	1.18	3.33	7.26	17.61	45.96	28.44	25.61	l
Bt2	18-27	1.27	2.90	5.63	13.41	38.16	23.74	38.09	cl
Bt3	27-39	0.61	2.11	3.97	10.44	28.36	19.86	51.76	c
2Bt4	39-50	7.03	15.47	13.59	14.48	55.37	8.07	36.56	sc
2C	50-66	7.34	25.69	23.59	8.65	67.07	5.02	27.90	sci

\*by pipette method Day (1965)

Table B: Chemical properties for Emporia fine sandy loam, 2 to 6 percent slopes (Supplemental profile 1)

Lab No.	Horizon	Depth (in.)	pH	Organic Matter (%)	Exchangeable Cations (meq/100 gram)				Base Saturation (%)		
					Ca	Mg	K	H			
73-397	Ap	0-7	6.5	0.17	1.35	0.58	0.05	1.56	0.10	3.54	55.93
73-398	Bt1	7-18	5.1	0.15	1.27	0.80	0.10	5.78	1.19	7.95	27.25
73-399	Bt2	18-27	4.8	0.03	0.81	0.51	0.09	7.34	3.57	8.74	16.02
73-400	Bt3	27-39	4.9	0.06	0.26	0.40	0.10	10.31	5.94	11.07	6.87
73-401	2Bt4	39-50	4.9	0.03	0.21	0.22	0.07	7.19	4.46	7.69	6.44
73-402	2C	50-66	5.1	0.01	0.12	0.15	0.05	6.25	4.46	6.57	4.80

Table D: Sand mineralogy for Emporia fine sandy loam, 2 to 6 percent slopes (Supplemental profile 1)

Horizon	Depth (in.)	Percent Minerals Present*
Bt1	7-18	Qz 95, Fd 1, HM 4
Bt2	18-27	Qz 94; Fd 1; Hm 5

\*Qz = Quartz; Fd = Feldspar; M = Mica; HM = Heavy minerals including magnetite, zircon, ilmenite

Table E: Other physical properties for Emporia fine sandy loam, 2 to 6 percent slopes (Supplemental profile 1)

Horizon	Depth (in.)	Swell Index*	Liquid Limit	Plasticity Index
Bt1	7-18	1475	35.30	17.00
Bt2	18-27	2375	53.69	24.56
2C	50-66	1875	60.02	27.51

\*lbs/square foot



## EMPORIA SUPPLEMENTAL PROFILE 2

Supplemental profile 2 of Emporia loamy sand, in an area of Emporia loamy fine sand, 2 to 6 percent slopes, is located about 530 yards north northeast of the junction of Highways VA-627 and VA-675 and 165 yards west of Highway VA-627.

Ap--0 to 8 inches, dark brown (10YR 4/3) loamy sand; weak fine granular structure; very friable; many fine and medium roots; moderately acid; abrupt wavy boundary.

E--8 to 19 inches, light yellowish brown (2.5Y 6/4) loamy sand; massive; very friable; common fine and medium roots; strongly acid; clear wavy boundary.

Bt1--19 to 32 inches, yellowish brown (10YR 5/6) sandy clay loam; weak medium subangular blocky structure; friable, sticky, plastic; common fine, medium, and coarse roots; many distinct clay films and bridges on sand grains, common faint clay films on faces of peds; 2 percent gravel; very strongly acid; diffuse smooth boundary.

Bt2--32 to 44 inches, yellowish brown (10YR 5/6) sandy clay loam, many medium distinct red (2.5YR 4/6) mottles; weak very thick platy structure parting to weak medium subangular blocky; firm, sticky, plastic; many distinct clay films and bridges on sand grains, common faint clay films on faces of peds; very strongly acid; diffuse smooth boundary.

C--44 to 67 inches, mottled red (10R 4/6), yellowish brown (10YR 5/6), light gray (10YR 7/2), and light yellowish brown (2.5Y 6/4) sandy clay loam; moderate very thick platy structure; firm; very strongly acid.

Table A: Particle size distribution\* for Emporia loamy sand, 2 to 6 percent slopes (Supplemental profile 2)

Horizon	Depth (in.)	Sand					Total	Silt	Clay	Textural Class
		Very Coarse	Coarse	Medium	Fine	Very Fine				
Ap	0-8	0.85	11.00	33.42	31.69	5.47	82.43	10.27	7.30	Is
E	8-19	1.06	11.42	32.56	29.78	4.99	79.81	11.89	8.30	Is
Bt1	19-32	2.23	12.29	38.05	21.74	3.66	67.97	8.43	23.60	sci
Bt2	32-44	0.66	10.98	26.98	16.71	2.18	57.51	7.89	34.60	sci
C	44-67	0.22	10.68	37.63	17.33	1.45	67.31	6.09	26.60	sci

\*by hydrometer method Bouyoucos (1962)

Table B: Chemical properties for Emporia loamy sand, 2 to 6 percent slopes (Supplemental profile 2)

Lab No.	Horizon	Depth (in.)	pH	Organic Matter (%)	Exchangeable Cations (meq/100 gram)					Base Saturation (%)	
					Ca	Mg	K	H	Al		Total
75-137	Ap	0-8	5.9	0.78	0.97	0.04	0.08	2.00	ND	3.09	35.17
75-138	E	8-19	5.1	0.21	0.08	0.08	0.12	1.75	0.29	2.03	13.79
75-139	Bt1	19-32	4.7	0.18	0.52	0.44	0.26	5.75	1.06	6.97	17.44
75-140	Bt2	32-44	4.6	0.14	0.38	0.37	0.19	8.75	2.32	9.69	9.70
75-141	C	44-67	4.6	0.09	0.08	0.21	0.05	6.00	1.83	6.34	5.36

Table C: Soil test data for Emporia loamy sand, 2 to 6 percent slopes  
(Supplemental profile 2)

Horizon	Depth (in.)	pH	CaO*	MgO*	O.M. (%)	P205*	K20*	Zn ppm	Mn ppm
Ap	0-8	5.8	908	43	0.8	151	41	0.5	2.8
E	8-19	5.2	165	30	0.1	124	75	0.1	0.4
Bt1	19-32	4.8	385	100	0.2	5	267	0.1	0.3
Bt2	32-44	4.5	165	46	0.2	7	53	0.0	0.3
C	44-67	4.3	82	26	0.1	5	17	0.0	0.2

\*lbs/acre

Table D: Sand mineralogy for Emporia loamy  
sand, 2 to 6 percent slopes  
(Supplemental profile 2)

Horizon	Depth (in.)	Percent Minerals Present*
Bt1	19-32	Qz 91, Mica 1, HM 8

\*Qz = Quartz; Fd = Feldspar; M = Mica; HM =  
Heavy minerals including magnetite, zircon,  
ilmenite

## EMPORIA SUPPLEMENTAL PROFILE 3

Supplemental profile 3 of Emporia fine sandy loam, in an area of Emporia loamy fine sand, 2 to 6 percent slopes, is located about 0.5 miles south of the junction of Three Creek and the SCL Railroad and about 530 yards east of railroad.

Ap--0 to 8 inches, grayish brown (2.5Y 5/2) fine sandy loam; massive; friable, slightly sticky, slightly plastic; many fine roots; very strongly acid; abrupt smooth boundary.

E1--8 to 12 inches, light yellowish brown (2.5Y 6/4) fine sandy loam; massive; friable, slightly sticky, slightly plastic; many fine roots; strongly acid; clear smooth boundary.

E2--12 to 15 inches, pale brown (10YR 6/3) loam; common distinct yellowish brown (10YR 5/8) mottles; friable, slightly sticky, slightly plastic; many fine roots; strongly acid; clear smooth boundary.

Bt1--15 to 26 inches, strong brown (7.5YR 5/6) clay loam; moderate medium subangular blocky structure; friable, sticky, plastic; common fine roots; many distinct clay films and bridges on sand grains, many faint clay films on faces of peds; very strongly acid; diffuse smooth boundary.

Bt2--26 to 47 inches, mottled strong brown (7.5YR 5/6), yellowish brown (10YR 5/6), and yellowish red (5YR 4/6) clay loam; weak medium subangular blocky structure; friable, sticky, plastic; common fine roots; many distinct clay films and bridges on sand grains, many faint clay films on faces of peds; extremely acid; diffuse smooth boundary.

Bt3--47 to 59 inches, yellowish brown (10YR 5/8) clay loam, many medium distinct red (2.5YR 4/8) and gray (10YR 6/1) mottles; weak medium subangular blocky structure; firm, sticky, plastic; few fine roots; many distinct clay films and bridges on sand grains, common faint clay films on faces of peds; very strongly acid; diffuse smooth boundary.

Bt4--59 to 76 inches, mottled yellowish brown (10YR 5/8), red (2.5YR 4/8), and gray (10YR 6/1) clay loam; weak medium subangular blocky structure; firm, slightly brittle, sticky, plastic; many distinct clay films and bridges on sand grains, common faint clay films on faces of peds; very strongly acid.

Table A: Particle size distribution\* for Emporia fine sandy loam, 2 to 6 percent slopes (Supplemental profile 3)

Horizon	Depth (in.)	Sand				Very Fine			Silt	Clay	Textural Class
		Very Coarse	Coarse	Medium	Fine	Very Fine	Total	Total			
Ap	0-8	0.84	6.28	13.83	25.92	22.57	69.44	25.26	5.30	fsl	
E1	8-12	0.64	4.76	11.12	20.18	18.04	54.74	32.96	12.30	fsl	
E2	12-15	0.85	4.71	9.70	16.96	15.68	47.90	31.30	20.80	l	
Bt1	15-26	0.86	3.98	8.24	14.83	12.46	40.37	27.03	32.60	cl	
Bt2	26-47	0.93	4.16	8.67	15.05	12.47	41.28	26.12	32.60	cl	
Bt3	47-59	0.71	4.25	8.72	14.00	11.46	39.14	22.26	38.60	cl	
Bt4	59-76	0.38	2.98	7.76	14.53	12.73	38.38	25.02	36.60	cl	

\*by hydrometer method Bouyoucos (1962)

Table B: Chemical properties for Emporia fine sandy loam, 2 to 6 percent slopes (Supplemental profile 3)

Lab No.	Horizon	Depth (in.)	pH	Organic Matter (%)	Exchangeable Cations (meq/100 gram)				Base Saturation (%)	
					Ca	Mg	K	H		Al
75-053	Ap	0-8	4.7	---	0.25	0.04	0.06	2.25	---	13.46
75-054	E1	8-12	5.2	---	0.35	0.04	0.12	1.75	---	22.39
75-055	E2	12-15	5.2	---	0.91	0.14	0.24	3.25	---	28.33
75-056	Bt1	15-26	4.8	---	2.00	0.30	0.39	7.00	---	27.69
75-057	Bt2	26-47	4.4	---	1.10	0.48	0.16	9.25	---	15.76
75-058	Bt3	47-59	4.7	---	0.68	0.32	0.16	9.75	---	10.55
75-059	Bt4	59-76	4.7	---	0.35	0.20	0.11	9.00	---	6.83

Table C: Soil test data for Emporia fine sandy loam, 2 to 6 percent slopes (Supplemental profile 3)

Horizon	Depth (in.)	pH	CaO*	MgO*	O.M. (%)	P2O5*	K2O*	Zn ppm	Mn ppm
Ap	0-8	5.0	330	16	---	193	36	---	---
E1	8-12	5.4	275	16	---	92	60	---	---
E2	12-15	5.4	523	40	---	16	152	---	---
Bt1	15-26	5.1	880	73	---	2	198	---	---
Bt2	26-47	4.7	605	106	---	2	48	---	---
Bt3	47-59	4.6	165	60	---	2	53	---	---
Bt4	59-76	4.6	165	53	---	2	43	---	---

\*lbs/acre

Table D: Sand mineralogy for Emporia fine sandy loam, 2 to 6 percent slopes (Supplemental profile 3)

Horizon	Depth (in.)	Percent Minerals Present*
Bt1	15-26	Qz 96, Fd 0.5, M 1.5, HM 2
Bt2	26-47	Qz 93, Fd 0.5, M 2.5, HM 4

\*Qz = Quartz; Fd = Feldspar; M = Mica; HM = Heavy minerals including magnetite, zircon, ilmenite

## EMPORIA SUPPLEMENTAL PROFILE 4

Supplemental profile 4 of Emporia fine sandy loam, in an area of Emporia loamy fine sand, 2 to 6 percent slopes, is located about 785 yards east (115°) of the junction of Highways VA-656 and VA-626 and about 65 yards south of Highway VA-626.

- Oi -- 1 to 0 inches, undecomposed and partially decomposed leaves and twigs.
- Ap -- 0 to 7 inches, grayish brown (2.5Y 5/2) fine sandy loam; massive; friable; common fine, medium, and coarse roots; strongly acid; abrupt smooth boundary.
- E1 -- 7 to 14 inches, light yellowish brown (2.5Y 6/4) fine sandy loam; massive; friable; common fine and medium roots; few fine concretions; strongly acid; diffuse smooth boundary.
- E2 -- 14 to 20 inches, light yellowish brown (2.5Y 6/4) fine sandy loam; massive; friable; common fine and medium roots; few fine concretions; strongly acid; clear smooth boundary.
- Bt1' -- 20 to 25 inches, yellowish brown (10YR 5/6) sandy clay loam, few medium distinct light yellowish brown (10YR 6/4) mottles; weak medium subangular blocky structure; friable, sticky, plastic; few fine roots; many distinct clay films and bridges on sand grains, common distinct clay films on faces of peds; very strongly acid; clear smooth boundary.
- Bt2 -- 25 to 40 inches, mottled yellowish red (5YR 4/8), yellowish brown (10YR 5/6), and red (2.5YR 4/6) clay; weak medium subangular blocky structure; firm, sticky, plastic; few fine roots; many distinct clay films and bridges on sand grains, many distinct clay films on faces of peds; strongly acid; diffuse smooth boundary.



- Bt3 -- 40 to 53 inches, mottled yellowish red (5YR 4/8), brownish yellow (10YR 6/6) and red (2.5YR 4/6) clay; weak medium subangular blocky structure; firm, sticky, plastic; few fine roots; many distinct clay films and bridges on sand grains, many distinct clay films on faces of peds; very strongly acid; gradual smooth boundary.
- Bt4 -- 53 to 63 inches, mottled yellowish red (5YR 4/8), brownish yellow (10YR 6/6), and red (2.5YR 4/6) sandy clay; weak medium subangular blocky structure; firm, sticky, slightly plastic; few fine roots; many distinct clay films and bridges on sand grains, many distinct clay films on faces of peds; very strongly acid; gradual smooth boundary.
- 2C -- 63 to 73 inches, mottled yellowish red (5YR 4/8), yellowish brown (10YR 5/6), red (2.5YR 4/6), and white (10YR 8/2) sandy clay loam; massive; firm, slightly sticky; 2 percent rounded gravel; very strongly acid.

Table A: Particle size distribution\* for Emporia fine sandy loam, 2 to 6 percent slopes (Supplemental profile 4)

Horizon	Depth (in.)	Sand					Total	Silt	Clay	Textural Class
		Very Coarse	Coarse	Medium	Fine	Very Fine				
Ap	0-7	1.08	4.55	11.06	29.71	24.28	70.68	24.52	4.80	fsl
E1	7-14	0.92	4.52	10.74	27.38	21.16	64.72	28.48	6.80	fsl
E2	14-20	1.28	4.11	9.67	26.19	19.47	60.72	30.48	8.80	fsl
Bt1	20-25	1.14	3.52	7.55	20.58	15.68	48.47	23.73	27.80	sci
Bt2	25-40	1.06	2.42	6.02	20.63	12.01	42.14	17.06	40.80	c
Bt3	40-53	0.63	0.87	6.89	19.65	9.65	37.69	13.51	48.80	c
Bt4	53-63	0.90	4.73	10.02	20.36	10.75	46.76	11.44	41.80	sc
2C	63-73	2.98	17.28	25.25	17.53	4.63	67.67	6.53	25.80	sci

\*by hydrometer method Bouyoucos (1962)

Table B: Chemical properties for Emporia fine sandy loam, 2 to 6 percent slopes (Supplemental profile 4)

Lab No.	Horizon	Depth (in.)	pH	Organic Matter (%)	Exchangeable Cations (meq/100 gram)				Base Saturation (%)		
					Ca	Mg	K	H			
74-734	2C	70	---	---	0.08	0.08	0.03	5.62	---	5.81	3.38

Table C: Soil test data for Emporia fine sandy loam, 2 to 6 percent slopes (Supplemental profile 4)

Horizon	Depth (in.)	pH	CaO*	MgO*	O.M. (%)	P2O5*	K2O*	Zn ppm	Mn ppm
Ap	0-7	5.3	82	10	---	32	14	---	---
E1	7-14	5.5	55	7	---	7	10	---	---
E2	14-20	5.4	138	7	---	0	10	---	---
Bt1	20-25	5.0	413	20	---	0	17	---	---
Bt2	25-40	5.1	275	76	---	0	22	---	---
Bt3	40-53	5.0	28	43	---	0	22	---	---
Bt4	53-63	5.0	55	30	---	0	14	---	---
2C	63-73	4.9	0	16	---	0	10	---	---

\*lbs/acre

Table D: Sand and clay mineralogy for Emporia fine sandy loam, 2 to 6 percent slopes (Supplemental 4)

Horizon	Depth (in.)	----- Percent Sand Minerals* Present	----- Clay Minerals** Present
Bt1	20-25	Qz. 96, Fd. 1.5 Mica. 0.5 HM. 2.0	Instr. Min (Trace), Ch.V. (5), Kao 4, Geo (1), Qz (trace)
Bt2	25-40	----	Ch.V. (4), Kao (5), Gibb (1), Goe (trace), Qz (trace)

\*Qz = Quartz; Fd = Feldspar; M = Mica; HM = Heavy minerals including magnetite, zircon, ilmenite  
 \*\*Ch.V. = chloritized vermiculite, Kao = kaolinite,  
 Qz = quartz, Goe. = goethite, Instr. Min = interstratified minerals, Gibb = Gibbsite

## EMPORIA SUPPLEMENTAL PROFILE 5

Supplemental profile 5 of Emporia fine sandy loam, in an area of Emporia loamy fine sand, 2 to 6 percent slopes, is located about 1.4 miles north of the junction of Highways I-95 and VA-631 and 165 yards west of Highway I-95.

Ap -- 0 to 5 inches, olive (5Y 5/3) fine sandy loam; massive; very friable; many fine and medium roots; moderately acid; abrupt smooth boundary.

E -- 5 to 11 inches, pale olive (5Y 6/3) fine sandy loam; massive; very friable; many fine roots; slightly acid; gradual smooth boundary.

Bt1 -- 11 to 18 inches, yellowish brown (10YR 5/8) fine sandy loam, many medium distinct pale olive (5Y 6/3) mottles; weak medium subangular blocky structure; friable, slightly sticky, slightly plastic; common fine roots; many distinct clay films and bridges on sand grains, common distinct clay films on faces of peds; moderately acid; gradual smooth boundary.

Bt2 -- 18 to 36 inches, mottled yellowish brown (10YR 5/6), light yellowish brown (2.5Y 6/4), and strong brown (7.5YR 5/6) sandy clay loam; weak medium subangular blocky structure; friable, slightly sticky, slightly plastic; few fine roots; many distinct clay films and bridges on sand grains, many distinct clay films on faces of peds; very strongly acid; diffuse smooth boundary.

2Bt3 -- 36 to 50 inches, mottled strong brown (7.5YR 5/6), yellowish brown (10YR 5/6), and light brownish gray (2.5Y 6/2) sandy clay loam; weak coarse platy structure parting to weak medium subangular blocky; friable, slightly sticky, slightly plastic; few fine roots; many distinct clay films and bridges on sand grains, many distinct clay films on faces of peds; very strongly acid; clear smooth boundary.

3C -- 50 to 70 inches, mottled strong brown (7.5YR 5/6) and yellowish brown (10YR 5/6) sandy loam; massive; firm; very strongly acid.

Table A: Particle size distribution\* for Emporia fine sandy loam, 2 to 6 percent slopes (Supplemental profile 5)

Horizon	Depth (in.)	Sand					Total	Silt	Clay	Textural Class
		Very Coarse	Coarse	Medium	Fine	Very Fine				
Ap	0-5	0.95	5.56	14.50	32.73	18.56	72.28	23.22	4.50	fsl
E	5-11	0.55	4.90	12.84	30.50	15.41	64.20	27.80	8.00	fsl
Bt1	11-18	0.74	4.07	10.84	22.66	16.30	54.61	30.79	14.60	fsl
Bt2	18-36	0.55	2.93	9.56	24.51	14.27	51.83	25.57	22.60	sci
2Bt3	36-50	0.23	1.77	8.18	31.50	13.47	55.15	21.25	23.60	sci
3C	50-70	2.30	18.04	28.49	16.76	4.16	69.74	12.46	17.80	sl

\*by hydrometer method Bouyoucos (1962)

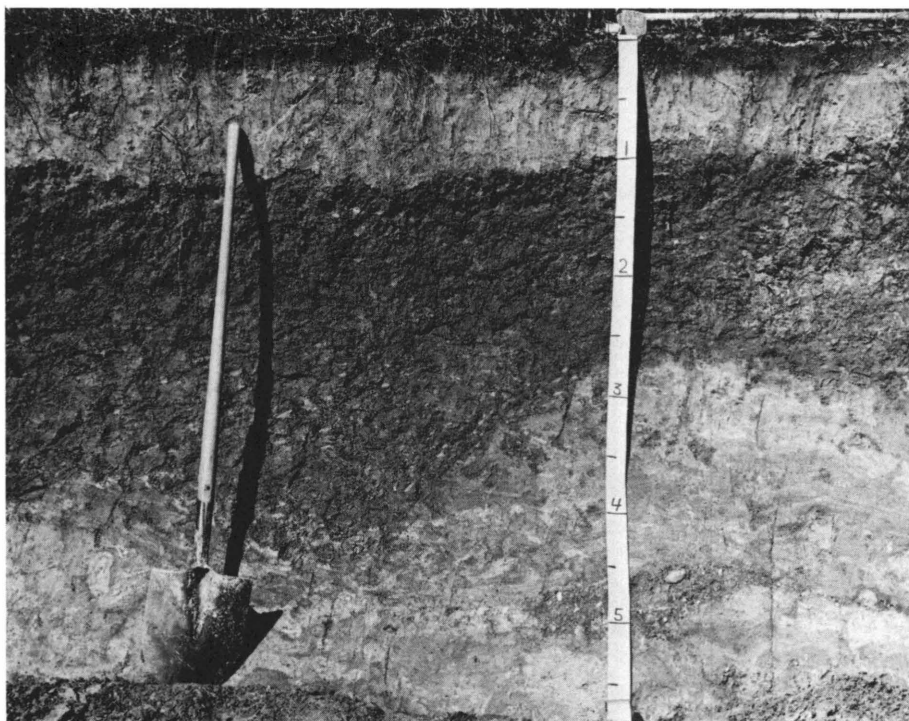
Table B: Chemical properties for Emporia fine sandy loam, 2 to 6 percent slopes (Supplemental profile 5)

Lab No.	Horizon	Depth (in.)	pH	Organic Matter (%)	Exchangeable Cations (meq/100 gram)					Base Saturation (%)	
					Ca	Mg	K	H	Al		Total
---	Ap	0-5	5.9	0.31	0.83	0.17	0.08	1.81	0.09	2.89	37.37
---	E	5-11	6.2	0.09	0.44	0.17	0.06	1.29	ND	1.95	33.85
---	Bt1	11-18	5.9	0.05	0.94	0.39	0.23	1.98	0.09	3.44	42.36
---	Bt2	18-36	4.8	0.05	1.10	0.27	0.17	5.43	1.89	6.97	22.04
---	2Bt3	36-50	4.6	0.04	0.85	0.55	0.20	6.29	2.49	7.89	20.28
---	3C	50-70	4.8	0.04	0.21	0.17	0.15	5.26	2.32	5.79	9.08

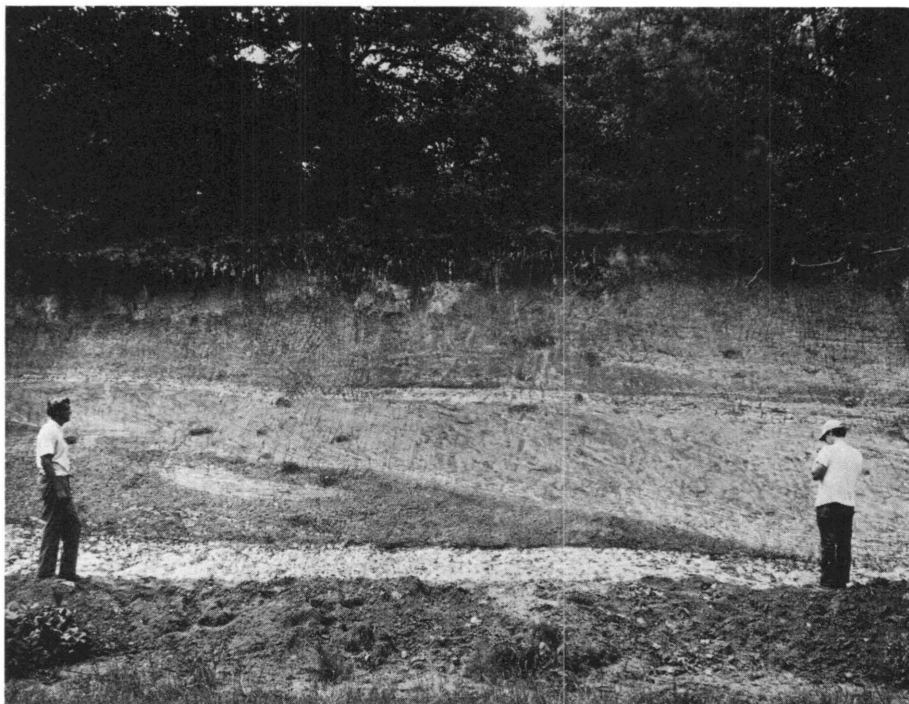
Table C: Soil test data for Emporia fine sandy loam, 2 to 6 percent slopes (Supplemental profile 5)

Horizon	Depth (in.)	pH	CaO*	MgO*	O.M. (%)	P205*	K20*	Zn ppm	Mn ppm
Ap	0-5	6.0	605	86	---	55	67	---	---
E	5-11	6.1	330	76	---	2	53	---	---
Bt1	11-18	5.9	550	143	---	2	75	---	---
Bt2	18-36	4.8	688	96	---	2	101	---	---
2Bt3	36-50	4.7	275	106	---	0	108	---	---
3C	50-70	4.8	138	53	---	0	89	---	---

\* lbs/acre

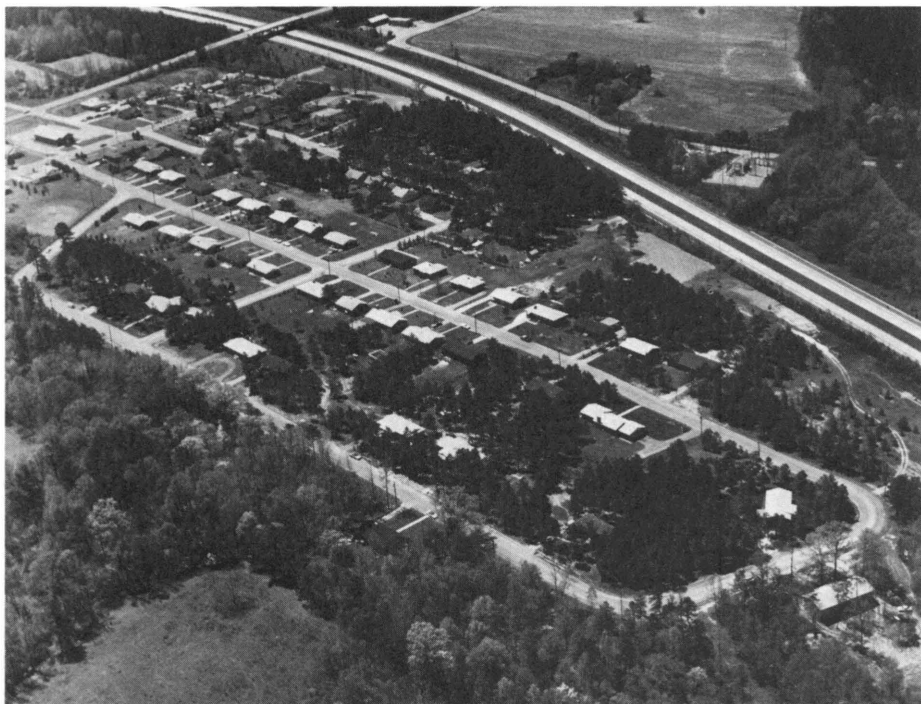


A profile of 12B - Emporia loamy fine sand, 2 to 6 percent slopes.



Profile of the unconsolidated sediments in which the Emporia and Slagle soils developed.





Houses on 12B - Emporia loamy fine sand, 2 to 6 percent slopes, and 10B - Craven clay loam, 2 to 6 percent slopes, severely eroded.



Corn and soybeans on 12B - Emporia loamy fine sand, 2 to 6 percent slopes.



Sorghum on 12B - Emporia loamy fine sand, 2 to 6 percent slopes.

## FACEVILLE SERIES

Soils of the Faceville series are very deep and well drained. They formed in clayey unconsolidated fluvial and marine sediments. They are on uplands in the Coastal Plain physiographic province. Slopes range from 0 to 2 percent.

A typical profile of Faceville loamy sand, 0 to 2 percent slopes, is located about 1 mile south southeast of the junction of Highways VA-627 and VA-603, and 1.2 miles south southwest of the junction of Highways VA-627 and VA-659, about 3.5 miles west southwest of Brink.

Ap--0 to 8 inches, yellowish brown (10YR 5/4) loamy sand; massive; very friable; few fine roots; moderately acid; abrupt smooth boundary.

E--8 to 11 inches, light yellowish brown (10YR 6/4) sandy loam; massive; very friable, slightly sticky; few fine roots; slightly acid; clear smooth boundary.

Bt1--11 to 25 inches, yellowish red (5YR 5/8) sandy clay; moderate medium subangular blocky structure; friable, sticky, plastic; few fine roots; many distinct clay films and bridges on sand grains, few faint clay films on faces of peds; strongly acid; diffuse smooth boundary.

Bt2--25 to 44 inches, yellowish red (5YR 5/8) sandy clay; moderate medium subangular blocky structure; friable, sticky, plastic; many distinct clay films and bridges on sand grains, few faint clay films on faces of peds; very strongly acid; diffuse smooth boundary.

Bt3--44 to 57 inches, red (2.5YR 4/8) sandy clay, common medium distinct reddish yellow (7.5YR 6/8) and brownish yellow (10YR 6/6) mottles; moderate medium subangular blocky structure; friable, sticky, plastic; many distinct clay films and bridges on sand grains, few faint clay films on faces of peds; very strongly acid; diffuse smooth boundary.

Bt4--57 to 68 inches, red (2.5YR 4/8) sandy clay, common medium distinct reddish yellow (7.5YR 6/8), brownish yellow (10YR 6/6), and very pale brown (10YR 7/3) mottles; moderate medium subangular blocky structure; friable, sticky, plastic; many distinct clay films and bridges on sand grains, few faint clay films on faces of peds; very strongly acid.

Table A: Particle size distribution\* for Faceville loamy sand, 0 to 2 percent slopes

Horizon	Depth (in.)	Sand					Total	Silt	Clay	Textural Class
		Very Coarse	Coarse	Medium	Fine	Very Fine				
Ap	0-8	---	---	---	---	79.5	13.9	6.6	ls	
E	8-11	---	---	---	---	67.0	17.9	15.9	sl	
Bt1	11-25	---	---	---	---	56.0	8.8	35.2	sc	
Bt2	25-44	---	---	---	---	51.0	8.8	40.2	sc	
Bt3	44-57	---	---	---	---	46.0	9.2	44.8	sc	
Bt4	57-68	---	---	---	---	46.0	6.2	47.8	sc	

\*by hydrometer method Bouyoucos (1962)

Table C: Soil test data for Faceville loamy sand, 0 to 2 percent slopes

Horizon	Depth (in.)	pH	CaO*	MgO*	O.M. (%)	P205*	K20*	Zn ppm	Mn ppm
Ap	0-8	5.7	426	53	0.9	202	60	---	---
E	8-11	6.1	275	36	0.2	9	128	---	---
Bt1	11-25	5.1	578	113	0.1	0	132	---	---
Bt2	25-44	4.7	426	103	0.0	2	53	---	---
Bt3	44-57	4.6	165	63	0.1	2	53	---	---
Bt4	57-68	4.7	82	53	0.1	7	55	---	---

\*lbs/acre

## FACEVILLE SUPPLEMENTAL PROFILE 1

Supplemental profile 1 of Faceville sandy loam, in an area of Faceville loamy sand, 0 to 2 percent slopes, is located about 0.8 miles south southeast of the junction of Highways VA-605 and VA-620 and 350 yards north of the Meherrin River.

Oi--2 to 0 inches, partially decomposed leaves and twigs.

A--0 to 6 inches, brown (7.5YR 5/4) sandy loam; massive; loose; common fine and medium roots; strongly acid; clear smooth boundary.

Bt1--6 to 11 inches, red (2.5YR 4/6) sandy clay loam, many medium distinct brown (7.5YR 5/4) mottles; weak medium subangular blocky structure; friable, sticky, plastic; common fine roots; few distinct clay films on faces of peds; strongly acid; gradual smooth boundary.

Bt2--11 to 22 inches, red (2.5YR 4/6) clay, few medium distinct reddish yellow (7.5YR 6/8) mottles; weak medium subangular blocky structure; friable, sticky, plastic; common fine roots; many distinct clay films on faces of peds; moderately acid; diffuse smooth boundary.

Bt3--22 to 39 inches, red (2.5YR 4/6) clay, few medium distinct reddish yellow (7.5YR 6/8) mottles; weak medium subangular blocky structure; friable, sticky, plastic; few fine roots; common distinct clay films on faces of peds; moderately acid; diffuse smooth boundary.

Bt4--39 to 57 inches, red (2.5YR 4/6) clay, few medium distinct reddish yellow (7.5YR 6/8) mottles; weak medium subangular blocky structure; friable, sticky, plastic; few fine roots; common distinct clay films on faces of peds; slightly acid; diffuse smooth boundary.

Bt5--57 to 68 inches, red (2.5YR 4/6) clay, few medium distinct reddish yellow (7.5YR 6/8) mottles; weak medium subangular blocky structure; friable, sticky, plastic; few fine roots; common distinct clay films on faces of peds; moderately acid.

Table A: Particle size distribution\* for Faceville sandy loam, 0 to 2 percent slopes (Supplemental profile 1)

Horizon	Depth (in.)	Sand				Total	Silt	Clay	Textural Class
		Very Coarse	Coarse	Medium	Fine				
A	0-6	4.11	10.98	24.07	22.23	73.30	18.50	8.20	sl
Bt1	6-11	2.69	9.38	19.19	16.07	55.94	19.86	24.20	sci
Bt2	11-22	1.93	6.53	13.80	11.19	39.67	18.13	42.20	c
Bt3	22-39	1.68	6.88	15.06	11.93	41.73	13.07	45.20	c
Bt4	39-57	1.81	7.71	15.57	12.22	43.27	14.53	42.20	c
Bt5	57-68	1.88	8.56	17.88	13.16	47.80	10.00	42.20	c

\*by hydrometer method Bouyoucos (1962)

Table B: Chemical properties for Faceville sandy loam, 0 to 2 percent slopes (Supplemental profile 1)

Lab No.	Horizon	Depth (in.)	pH	Organic Matter (%)	Exchangeable Cations (meq/100 gram)					Base Saturation (%)	
					Ca	Mg	K	H	Al		
76-805	A	0-6	5.2	0.68	0.20	0.10	0.10	2.04	0.27	2.44	16.39
76-806	Bt1	6-11	5.1	0.59	2.50	0.70	0.21	3.94	0.18	7.35	46.39
76-807	Bt2	11-22	5.7	0.36	4.70	1.00	0.33	4.67	ND	10.70	56.36
76-808	Bt3	22-39	6.0	0.14	4.20	1.05	0.40	3.80	ND	9.45	59.79
76-809	Bt4	39-57	6.2	0.11	3.70	1.10	0.72	3.65	ND	9.17	60.20
76-810	Bt5	57-68	5.7	0.11	2.40	1.00	0.87	3.94	ND	8.21	52.01



Table C: Soil test data for Faceville sandy loam, 0 to 2 percent slopes (Supplemental profile 1)

Horizon	Depth (in.)	pH	CaO*	MgO*	O.M. (%)	P205*	K20*	Zn ppm	Mn ppm
A	0-6	5.6	220	30	1.1	2	60	—	—
Bt1	6-11	6.0	980	192	0.9	5	94	—	—
Bt2	11-22	6.1	1376	269	0.8	5	128	—	—
Bt3	22-39	6.4	1293	285	0.2	2	178	—	—
Bt4	39-57	6.5	1183	322	0.3	9	301	—	—
Bt5	57-68	6.2	1100	288	0.2	5	5	—	—

\* lbs/acre

## FLUVANNA SERIES

Soils of the Fluvanna series are very deep and well drained. They formed in materials weathered from basic crystalline rocks and consolidated metasediments. They are on uplands in the Piedmont physiographic province. Slopes range from 2 to 15 percent.

A typical profile of Fluvanna fine sandy loam, in an area of Fluvanna-Mattaponi complex, 2 to 7 percent slopes, is located about 0.9 miles north of the junction of Highways VA-633 and VA-603 and 0.5 miles west of Highway VA-633, about 3 miles southwest of Brink.

Oi--3 to 0 inches, partially decomposed leaves and twigs.

A--0 to 1 inches, very dark grayish brown (10YR 3/2) fine sandy loam; moderate fine granular structure; very friable; many fine, medium, and coarse roots; 4 percent gravel; very strongly acid; clear smooth boundary.

E--1 to 5 inches, yellowish brown (10YR 5/4) fine sandy loam; moderate fine granular structure; friable; many fine, medium, and coarse roots; 4 percent gravel; very strongly acid; clear smooth boundary.

Bt1--5 to 11 inches, strong brown (7.5YR 5/6) clay loam, many medium distinct yellowish brown (10YR 5/4) mottles; moderate medium subangular blocky structure; friable, sticky, plastic; many fine, medium, and coarse roots; many distinct clay films on faces of peds; 2 percent gravel; very strongly acid; gradual smooth boundary.

Bt2--11 to 23 inches, strong brown (7.5YR 5/6) clay, common medium distinct yellowish red (5YR 4/6) mottles; moderate medium subangular blocky structure; friable, sticky, plastic; common fine and medium roots; many prominent clay films on faces of peds; 1 percent gravel; very strongly acid; gradual smooth boundary.

- Bt3--23 to 44 inches, yellowish red (5YR 4/8) clay, common medium distinct strong brown (7.5YR 5/6) mottles; moderate medium subangular blocky structure; firm, sticky, plastic; common fine and medium roots; many prominent clay films on faces of peds; very strongly acid; gradual smooth boundary.
- Bt4--44 to 55 inches, yellowish red (5YR 5/6) silty clay, many medium distinct brownish yellow (10YR 6/6), and dark red (10R 3/6) mottles; moderate coarse platy structure parting to moderate medium subangular blocky; firm, sticky, plastic; few fine roots; many prominent clay films on faces of peds; 10 percent gravel; very strongly acid; diffuse smooth boundary.
- C1--55 to 70 inches, mottled dark red (10R 3/6), yellowish red (5YR 4/6), and brownish yellow (10YR 6/6) silty clay loam; massive; friable, sticky, plastic; few fine roots; 10 percent gravel; very strongly acid; diffuse smooth boundary.
- C2--70 to 99 inches, mottled brownish yellow (10YR 6/6), black (10YR 2/1), and dark red (10R 3/6) silty clay loam; massive; friable, sticky, plastic; 10 percent gravel; very strongly acid.

Table A: Particle size distribution\* for Fluvanna fine sandy loam, 2 to 7 percent slopes

Horizon	Depth (in.)	Sand					Total	Silt	Clay	Textural Class
		Very Coarse	Coarse	Medium	Fine	Very Fine				
E	1-5	3.90	6.46	12.66	26.32	9.97	59.31	29.83	10.85	fsl
Bt1	5-11	2.13	4.61	9.33	20.47	6.92	43.46	28.04	28.48	cl
Bt2	11-23	1.27	1.73	3.12	6.48	2.83	15.43	19.60	64.99	c
Bt3	23-44	0.23	0.81	1.05	2.15	2.02	6.26	31.82	61.93	c
Bt4	44-55	0.00	0.46	0.83	2.89	3.43	7.61	42.01	50.35	sic
C1	55-70	0.40	0.73	1.03	1.73	2.30	6.19	56.61	37.20	sicl
C2	70-99	0.02	0.28	0.83	2.30	2.64	6.07	54.70	39.23	sicl

\*by pipette method Day (1965)

Table B: Chemical properties for Fluvanna fine sandy loam, 2 to 7 percent slopes

Lab No.	Horizon	Depth (in.)	pH	Organic Matter (%)	Exchangeable Cations (meq/100 gram)					Base Saturation (%)	
					Ca	Mg	K	H	Al Total		
72-256	E	1-5	4.1	1.90	0.26	0.16	0.16	10.86	3.27	11.44	5.07
72-257	Bt1	5-11	4.5	0.36	0.05	0.51	0.12	10.54	3.76	11.22	6.02
72-258	Bt2	11-23	4.4	0.21	0.04	0.74	0.16	14.92	4.55	15.86	5.90
72-259	Bt3	23-44	4.9	0.20	ND	0.97	0.14	15.54	6.44	16.65	6.67
72-260	Bt4	44-55	4.8	0.04	0.04	0.59	0.14	14.29	8.22	15.06	5.08
72-261	C1	55-70	4.8	0.01	0.03	0.46	0.16	13.20	8.52	13.84	4.62
72-262	C2	70-99	4.7	0.04	0.03	0.49	0.17	14.45	10.60	15.12	4.53

Table D: Clay mineralogy for Fluvanna fine sandy loam, 2 to 7 percent slopes

Horizon	Depth (in.)	Percent Minerals Present*
Bt3	23-44	Mont 5-10, Ch.V. 10-20, Kao 45-55, Goe 10-15, M 5-10, Qz 5-10

\*Ch.V. = Chloritized Vermiculite; Kao = Kaolinite;  
 Mont. = Montmorillonite; Gibb. = Gibbsite;  
 Goe. = Goethite; Qz = Quartz

Table E. Other physical properties for Fluvanna fine sandy loam, 2 to 7 percent slopes

Horizon	Depth (in.)	Swell Index*	Liquid Limit	Plasticity Index
Bt3	23-44	3200	96.70	46.83
Bt4	44-55	4250	82.37	32.70
C1	55-70	3950	88.02	35.55
C2	70-99	4650	84.40	36.71

\*lbs/square foot

## FLUVANNA SUPPLEMENTAL PROFILE 1

Supplemental profile 1 of Fluvanna loam, in an area of Fluvanna-Mattaponi complex, 2 to 7 percent slopes, is located about 0.7 miles east northeast of the junction of the N&W Railroad and 1.2 miles west northwest of the intersection of Highways VA-605 and VA-608.

Oi--1 to 0 inches, partially decomposed leaves, twigs, and grass.

Ap--0 to 3 inches, brown (10YR 5/3) loam; weak fine granular structure; friable, slightly sticky; many fine, medium, and coarse roots; 5 percent rounded and angular gravel; very strongly acid; abrupt smooth boundary.

E--3 to 8 inches, brownish yellow (10YR 6/4) loam; weak medium subangular blocky structure; friable, slightly sticky; many fine, medium, and coarse roots; 5 percent rounded and angular gravel; very strongly acid; clear wavy boundary.

Bt1--8 to 18 inches, strong brown (7.5YR 5/6) clay; moderate fine and medium subangular blocky structure; friable, slightly sticky, slightly plastic; many fine, medium, and coarse roots; many distinct clay films on faces of peds; very strongly acid; diffuse smooth boundary.

Bt2--18 to 30 inches, reddish yellow (5YR 6/6) clay, few fine distinct red (2.5YR 5/6) mottles; moderate fine and medium subangular blocky structure; friable, sticky, plastic; common fine, medium, and coarse roots; many prominent clay films on faces of peds; very strongly acid; gradual wavy boundary.

Bt3--30 to 41 inches, reddish yellow (5YR 6/8) clay, many fine and medium distinct red (2.5YR 5/6) mottles; weak medium subangular blocky structure; firm, slightly sticky, slightly plastic; few fine and medium roots; many prominent clay films on faces of peds; extremely acid; gradual wavy boundary.  
and reddish yellow (7.5YR 7/8) silty clay; massive; firm, slightly sticky, slightly plastic; few fine roots; extremely acid.

Table A: Particle size distribution\* for Fluvanna loam, 2 to 7 percent slopes (Supplemental profile 1)

Horizon	Depth (in.)	Sand					Total	Silt	Clay	Textural Class
		Very Coarse	Coarse	Medium	Fine	Very Fine				
Ap	0-3	3.02	5.53	8.27	17.13	11.33	45.28	45.12	9.6	I
E	3-8	2.41	4.94	7.81	16.82	11.43	43.41	43.99	12.6	I
Bt1	8-18	2.48	4.17	4.08	5.17	3.39	19.29	30.11	50.6	C
Bt2	18-30	1.07	2.20	3.15	4.23	2.77	13.42	25.98	60.6	C
Bt3	30-41	0.31	1.37	2.10	3.31	2.45	9.54	36.86	53.6	C
C	41-63	0.34	0.98	1.49	3.27	3.19	9.27	40.13	50.6	sic

\*by hydrometer method Bouyoucos (1962)

Table B: Chemical properties\* for Fluvanna loam, 2 to 7 percent slopes (Supplemental profile 1)

Lab No.	Horizon	Depth (in.)	pH	Organic Matter (%)	Exchangeable Cations (meq/100 gram)					Base Saturation (%)	
					Ca	Mg	K	H	Al		Total
79-763	Ap	0-3	4.80	7.13	1.84	0.23	0.18	10.40	1.05	12.65	17.79
79-764	E	3-8	4.70	1.63	0.06	0.02	0.05	5.00	1.05	5.13	2.53
79-765	Bt1	8-18	4.62	0.49	0.10	0.96	0.11	11.60	4.35	12.77	9.16
79-766	Bt2	18-30	4.76	0.33	0.04	0.92	0.10	12.60	5.65	13.66	7.76
79-767	Bt3	30-41	4.15	0.39	0.07	0.63	0.10	14.40	6.85	15.20	5.26
79-768	C	41-63	4.28	0.39	0.00	0.24	0.03	14.40	7.75	14.67	1.84

e C: Soil test data for Fluvanna loam, 2 to 7 percent slopes  
(Supplemental profile 1)

zon	Depth (in.)	pH	CaO*	MgO*	O.M. (%)	P2O5*	K2O*	Zn ppm	Mn ppm
	0-3	5.0	839	76	5.3	17	60	2.6	16.0
	3-8	5.0	101	24	1.4	13	26	1.1	7.0
	8-18	5.0	134	271	0.2	4	30	0.9	0.8
	18-30	5.1	101	239	0.2	4	23	1.4	0.2
	30-41	5.1	134	163	0.1	4	30	1.1	0.4
	41-63	5.0	67	64	0.1	18	8	0.8	0.2

/acre

Table D: Clay mineralogy for Fluvanna loam, 2 to 7 percent slopes  
(Supplemental profile 1)

Horizon	Depth (in.)	Percent Minerals Present*
Bt1	8-18	Ch.V. 30, Kao 42, Qz 5, Mont. 20, Gibb. Tr.
Bt2	18-30	Ch.V. 39, kao 48, Qz 5, Mont. .5, Verm. 5

\*Ch.V. = Chloritized Vermiculite, Kao =  
Kaolinite, Mont. = Montmorillonite, Gibb. =  
Gibbsite, Goe. = Goethite, Qz = Quartz



## FLUVANNA SUPPLEMENTAL PROFILE 2

Supplemental profile 2 of Fluvanna silt loam, in an area of Fluvanna-Goldston complex, 2 to 7 percent slopes, severely eroded, is located about 0.8 miles north northwest of the junction of Highways VA-600 and VA-627 and 1.1 miles east of the junction of Highway VA-600 and Brunswick-Greenville County line.

Oi--3 to 0 inches, partially decomposed leaves and twigs.

Ap--0 to 6 inches, yellowish brown (10YR 5/4) silt loam; moderate fine granular structure; friable, slightly sticky, slightly plastic; many fine, medium, and coarse roots; 7 percent slate fragments; very strongly acid; clear smooth boundary.

Bt1--6 to 25 inches, yellowish red (5YR 4/6) silty clay, many medium distinct strong brown (7.5YR 5/6) mottles; moderate fine and medium subangular blocky structure; friable, sticky, plastic; many fine, medium, and coarse roots; many prominent clay films on faces of peds; 2 percent slate fragments; very strongly acid; gradual smooth boundary.

Bt2--25 to 30 inches, yellowish red (5YR 4/6) very channery silty clay loam, many medium distinct strong brown (7.5YR 5/6) and pale yellow (5Y 7/3) mottles; moderate medium subangular blocky structure; friable, sticky, plastic; common fine, medium, and coarse roots; many prominent clay films on faces of peds; 40 percent slate fragments; strongly acid; gradual smooth boundary.

C--30 to 64 inches, mottled pale olive (5Y 6/4), olive (5Y 5/6), and light reddish brown (5YR 6/4) extremely channery silt loam; massive; friable, slightly sticky, slightly plastic; few fine roots; 90 percent slate fragments; strongly acid.

Table A: Particle size distribution\* for Fluvanna silt loam, 2 to 7 percent slopes, severely eroded (Supplemental profile 2)

Horizon	Depth (in.)	Sand					Total	Silt	Clay	Textural Class
		Very Coarse	Coarse	Medium	Fine	Very Fine				
Ap	0-6	1.08	2.10	5.00	8.07	5.48	21.73	65.20	13.06	sil
Bt1	6-25	0.48	0.31	0.79	1.80	1.41	4.79	50.34	44.84	sic
Bt2	25-30	0.84	0.80	1.04	1.94	2.14	6.76	55.54	37.65	sic
C	30-64	0.06	0.39	1.04	2.88	4.90	9.27	79.81	10.89	sil

\*by pipette method Day (1965)

Table B: Chemical properties for Fluvanna silt loam, 2 to 7 percent slopes, severely eroded (Supplemental profile 2)

Lab No.	Horizon	Depth (in.)	pH	Organic Matter (%)	Exchangeable Cations (meq/100 gram)					Base Saturation (%)	
					Ca	Mg	K	H	Al		Total
73-457	Ap	0-6	5.0	0.98	0.27	0.11	0.16	8.28	3.37	8.82	6.12
73-458	Bt1	6-25	5.0	0.35	0.29	0.75	0.41	14.21	8.12	15.66	9.26
73-459	Bt2	25-30	5.1	0.25	0.03	1.90	0.27	16.40	11.78	18.60	11.83
73-460	C	30-64	5.1	0.05	ND	0.62	0.18	11.90	9.11	12.70	6.30

Table D: Other physical properties for Fluvanna silt loam, 2 to 7 percent slopes, severely eroded (Supplemental profile 2)

Horizon	Depth (in.)	Swell Index*	Liquid Limit	Plasticity Index
Bt1	6-25	4200	65.85	36.05
Bt2	25-30	6100	55.95	25.39
C	30-64	800	43.50	9.62

\*lbs/square foot



Landfill in 14B - Fluvanna loam, 2 to 7 percent slopes.

## GEORGEVILLE SERIES

Soils of the Georgeville series are very deep and well drained. They formed in materials weathered from acid crystalline rocks and consolidated metasediments. They are on uplands in the Piedmont physiographic province. Slopes range from 2 to 15 percent.

A typical profile of Georgeville loam, 2 to 7 percent slopes, is located about 0.4 miles east of the junction of the Greenville-Brunswick County line and Highway VA-602 and 35 yards north of Highway VA-602, about 5 miles west of Brink.

Ap--0 to 8 inches, yellowish brown (10YR 5/6) loam; moderate medium and fine granular structure; friable, slightly sticky, slightly plastic; many fine and medium roots; 5 percent rounded gravel; strongly acid; abrupt smooth boundary.

Bt1--8 to 12 inches, yellowish red (5YR 5/8) silty clay loam; weak medium subangular blocky structure; friable, sticky, plastic; many fine and medium roots; many prominent clay films on faces of peds; strongly acid; clear smooth boundary.

Bt2--12 to 25 inches, red (2.5YR 4/8) clay; moderate medium subangular blocky structure; friable, sticky, plastic; common fine and medium roots; many prominent clay films on faces of peds; strongly acid; diffuse smooth boundary.

Bt3--25 to 36 inches, red (2.5YR 4/8) clay, few fine distinct brownish yellow (10YR 6/6) mottles; moderate medium subangular blocky structure; friable, sticky, plastic; common fine and medium roots; many prominent clay films on faces of peds; strongly acid; gradual smooth boundary.

Bt4--36 to 45 inches, red (2.5YR 4/8) silty clay, many medium distinct brownish yellow (10YR 6/6) mottles; weak coarse subangular blocky structure; friable, slightly sticky, slightly plastic; few fine and medium roots; many prominent clay films on faces of peds; strongly acid; diffuse smooth boundary.

C--45 to 60 inches, mottled brownish yellow (10YR 6/6), red (10R 4/8), white (10YR 8/2), and weak red (10R 5/4) loam; massive; friable, slightly sticky, slightly plastic; few fine roots; strongly acid.

Table A: Particle size distribution\* for Georgeville loam, 2 to 7 percent slopes

Horizon	Depth (in.)	Sand				Very Fine	Total	Silt	Clay	Textural Class
		Very Coarse	Coarse	Medium	Fine					
Ap	0-8	0.8	4.6	13.8	16.2	5.6	41.0	40.4	18.6	
Bt1	8-12	0.4	2.8	7.6	1.8	4.0	16.6	46.0	37.4	sicl
Bt2	12-25	0.2	0.8	3.2	4.2	2.6	11.0	30.6	58.4	c
Bt3	25-36	0.4	1.0	1.4	4.4	3.2	10.4	32.2	57.4	c
Bt4	36-45	0.4	2.2	2.2	5.6	4.8	14.0	40.6	45.4	sic
C	45-60	0.2	5.3	12.9	11.3	4.9	34.6	41.5	23.9	

\*by hydrometer method Bouyoucos (1962)

Table D: Clay mineralogy for Georgeville loam, 2 to 7 percent slopes

Horizon	Depth (in.)	Percent Minerals Present*
Bt1 & Bt2	8-25	Ch.V. 40, M 8, Kao 42, Qz 5, Mont. 4, Gibb 1

\*Ch.V. = chloritized vermiculite, kao = kaolinite, Mont. = montmorillonite, Gibb = Gibbsite, M = mica, Qz = quartz

## GEORGEVILLE SUPPLEMENTAL PROFILE 1

Supplemental profile 1 of Georgeville sandy loam, in an area of Georgeville loam, 2 to 7 percent slopes, is located about 0.7 miles north from the junction of Highways VA-605 and VA-606 and 530 yards west of Highway VA-605.

- Oi- 2 to 0 inches, undecomposed and partially decomposed leaves and twigs.
- A -- 0 to 4 inches, brown (7.5YR 5/4) sandy loam; moderate fine granular structure; friable, slightly sticky, slightly plastic; many fine, medium, and coarse roots; 14 percent gravel; very strongly acid; abrupt smooth boundary.
- Bt1 -- 4 to 9 inches, red (2.5YR 5/8) clay, common medium distinct brown (7.5YR 5/4) mottles; moderate fine and medium subangular blocky structure; friable, sticky, plastic; many fine, medium, and coarse roots; common distinct clay films on faces of peds; 5 percent gravel; very strongly acid; clear smooth boundary.
- Bt2 -- 9 to 23 inches, red (2.5YR 4/6) clay; strong fine and medium subangular blocky structure; friable, sticky, plastic; common fine and medium roots; many prominent clay films on faces of peds; 2 percent gravel; strongly acid; diffuse smooth boundary.
- Bt3 -- 23 to 39 inches, red (2.5YR 4/8) clay, common medium distinct reddish yellow (7.5YR 7/8) mottles; moderate fine and medium subangular blocky structure; friable, sticky, plastic; few fine roots; many prominent clay films on faces of peds; 2 percent gravel; strongly acid; gradual smooth boundary.
- Bt4 -- 39 to 55 inches, red (2.5YR 4/8) clay loam, many medium distinct reddish yellow (7.5YR 7/8), white (2.5Y 8/2), and pale red (10R 6/4) mottles; weak medium subangular blocky structure; firm, slightly sticky, slightly plastic; few fine roots; many distinct clay films on faces of peds; 3 percent gravel; strongly acid; clear smooth boundary.

C -- 55 to 65 inches, red (2.5YR 4/8) loam, many medium distinct reddish yellow (7.5YR 7/8), white (2.5Y 8/2), and pale red (10R 6/4) mottles; massive; firm, slightly sticky, slightly plastic; 2 percent gravel; strongly acid.



Table A: Particle size distribution\* for Georgeville sandy loam, 2 to 7 percent slopes (Supplemental profile 1)

Horizon	Depth (in.)	Sand				Total	Silt	Clay	Textural Class
		Very Coarse	Coarse	Medium	Fine				
A	0-4	22.40	19.84	11.41	9.03	67.11	15.29	17.6	sl
Bt1	4-9	9.08	10.06	7.19	6.03	36.98	22.40	40.6	c
Bt2	9-23	2.17	2.94	1.92	2.10	12.02	27.38	60.6	c
Bt3	23-39	6.19	8.39	4.85	2.79	24.88	31.10	44.0	c
Bt4	39-55	10.88	10.49	5.51	3.14	32.75	37.20	30.0	cl
C	55-65	11.71	13.77	7.40	3.81	39.50	38.50	22.0	l

\*by hydrometer method Bouyoucos (1962)

Table B: Chemical properties for Georgeville sandy loam, 2 to 7 percent slopes (Supplemental profile 1)

Lab No.	Horizon	Depth (in.)	pH	Organic Matter (%)	Exchangeable Cations (meq/100 gram)				Base Saturation (%)		
					Ca	Mg	K	H			
76-368	A	0-4	4.8	2.12	0.10	0.06	0.05	5.88	1.56	6.09	3.45
76-369	Bt1	4-9	4.9	0.79	0.20	0.26	0.05	6.38	2.54	6.89	7.40
76-370	Bt2	9-23	5.3	ND	1.00	0.56	0.07	8.90	2.83	10.53	15.48
76-371	Bt3	23-39	5.4	0.17	0.10	0.26	0.03	6.55	2.64	6.94	5.62
76-372	Bt4	39-55	5.1	0.10	0.10	0.16	0.02	5.38	2.83	5.66	4.95
76-373	C	55-65	5.2	0.04	0.10	0.12	0.02	4.37	2.34	4.61	5.21

Table C: Soil test data for Georgeville sandy loam, 2 to 7 percent slopes (Supplemental profile 1)

Horizon	Depth (in.)	pH	CaO*	MgO*	O.M. (%)	P205*	K20*	Zn ppm	Mn ppm
A	0-4	4.4	55	20	---	23	31	1.3	11.5
Bt1	4-9	4.9	28	46	---	9	14	0.4	0.1
Bt2	9-23	5.0	220	126	---	5	31	0.2	0.3
Bt3	23-39	4.6	55	36	---	9	36	0.7	3.8
Bt4	39-55	4.8	28	23	---	9	14	0.2	0.1
C	55-65	4.7	28	20	---	9	14	0.1	0.1

\*lbs/acre

Table D: Clay mineralogy for Georgeville sandy loam, 2 to 7 percent slopes (Supplemental profile 1)

Horizon	Depth (in.)	Percent Minerals Present*
Bt2 & Bt3	9-39	Ch.V. 38, Kao 55, QZ 5, Goe. 2

\*Ch.V. = chloritized vermiculite, kao = kaolinite, QZ = quartz, Goe. = goethite

Table E: Other physical properties for Georgeville sandy loam, 2 to 7 percent slopes (Supplemental profile 1)

Horizon	Depth (in.)	Swell Index*	Liquid Limit	Plasticity Index
Bt2	9-23	3365	71.19	39.71
Bt3	23-39	3239	65.36	43.87

\*lbs/square foot

## GEORGEVILLE SUPPLEMENTAL PROFILE 2

Supplemental profile 2 of Georgeville silty clay loam, in an area of Georgeville clay loam, 2 to 7 percent slopes, severely eroded, is located about 470 yards south southeast of the junction of Highway VA-608 and N&W Railroad and 0.5 miles south southwest of Zion Baptist Church.

Ap -- 0 to 7 inches, yellowish red (5YR 4/6) silty clay loam; massive; firm, slightly sticky, slightly plastic; many fine, medium, and coarse roots; 10 percent gravel; very strongly acid; gradual smooth boundary.

Bt1 -- 7 to 23 inches, red (2.5YR 4/8) silty clay; moderate fine and medium subangular blocky structure; friable, sticky, plastic; common fine and medium roots; many prominent clay films on faces of peds; strongly acid; gradual smooth boundary.

Bt2 -- 23 to 46 inches, red (2.5YR 4/8) silty clay, few fine distinct reddish yellow (5YR 6/8) mottles; moderate medium subangular blocky structure; friable, sticky, plastic; few fine and medium roots; many prominent clay films on faces of peds; strongly acid; clear wavy boundary.

Bt3 -- 46 to 59 inches, red (2.5YR 4/8) silty clay, common fine distinct reddish yellow (5YR 6/8) mottles; weak medium subangular blocky structure; friable, slightly sticky, slightly plastic; few fine and medium roots; many distinct clay films on faces of peds; strongly acid; gradual smooth boundary.

C -- 59 to 72 inches, mottled reddish yellow (5YR 6/8) and red (2.5YR 4/8) silty clay loam; massive; friable, slightly sticky, slightly plastic; few fine roots; 5 percent gravel; strongly acid.

Table A: Particle-size distribution\* for Georgeville silty clay loam, 2 to 7 percent slopes; severely eroded (Supplemental profile 2)

Horizon	Depth (in.)	Sand					Total	Silt	Clay	Textural Class
		Very Coarse	Coarse	Medium	Fine	Very Fine				
Ap	0-7	0.67	1.14	1.80	3.02	2.59	9.22	54.78	36.0	sicl
Bt1	7-23	0.17	0.30	0.55	0.95	1.10	3.07	45.93	51.0	sic
Bt2	23-46	0.06	0.23	0.33	0.66	1.18	2.46	48.54	49.0	sic
Bt3	46-59	0.02	0.12	0.28	0.81	1.91	3.14	54.86	42.0	sic
C	59-72	0.01	0.09	0.30	1.87	4.32	6.59	66.41	27.0	sicl

\*by hydrometer method Bouyoucos (1962)

Table C: Soil test data for Georgeville silty clay loam, 2 to 7 percent slopes, severely eroded (Supplemental profile 2)

Horizon	Depth (in.)	pH	Ca0*	Mg0*	O.M. (%)	P205*	K20*	Zn ppm	Mn ppm
Ap	0-7	4.9	---	---	0.5	---	---	0.9	8.2
Bt1	7-23	5.2	---	---	0.1	---	---	0.8	0.7
Bt2	23-46	5.3	---	---	0.1	---	---	0.6	0.4
Bt3	46-59	5.2	---	---	0.1	---	---	0.6	0.1
C	59-72	5.2	---	---	0.1	---	---	0.6	0.3

\*lbs/acre

## GEORGEVILLE SUPPLEMENTAL PROFILE 3

Supplemental profile 3 of Georgeville loamy sand, in an area of Georgeville loam, 2 to 7 percent slopes, is located about 1 mile southwest of the junction of Highways VA-633 and VA-621 and 1 mile southeast of the junction of Highways VA-659 and VA-627.

Oi -- 1 to 0 inches, undecomposed and partially decomposed pine needles and oak leaves.

A -- 0 to 5 inches, dark yellowish brown (10YR 4/4) loamy sand; weak fine granular structure; friable; many fine, medium, and coarse roots; 10 percent gravel; very strongly acid; clear smooth boundary.

Bt1 -- 5 to 25 inches, red (2.5YR 4/6) clay; moderate and strong medium subangular blocky structure; firm, slightly sticky, slightly plastic; many fine, medium, and coarse roots; many prominent clay films on faces of peds; 2 percent gravel; very strongly acid; distinct smooth boundary.

Bt2 -- 25 to 42 inches, red (2.5YR 4/6) clay, few fine distinct reddish yellow (7.5YR 6/6) mottles; moderate and coarse medium angular blocky structure; firm, slightly sticky, slightly plastic; few fine roots; many prominent clay films on faces of peds; 2 percent gravel; very strongly acid; diffuse wavy boundary.

Bt3 -- 42 to 61 inches, red (2.5YR 4/6) clay, common medium distinct brownish yellow (10YR 6/6) mottles; moderate medium subangular blocky structure; firm, slightly sticky, slightly plastic; few fine roots; many prominent clay films on faces of peds; very strongly acid; gradual wavy boundary.

Bt4 -- 61 to 74 inches, red (2.5YR 4/6) clay, many medium distinct reddish yellow (7.5YR 6/6) mottles; weak medium and coarse subangular blocky structure; firm, slightly sticky, slightly plastic; many prominent clay films on faces of peds; very strongly acid; diffuse wavy boundary.

- C1 -- 74 to 160 inches, mottled brownish yellow (10YR 6/6) very pale brown (10YR 8/4), and red (10R 4/6) silt loam; rock controlled structure; friable, slightly sticky, slightly plastic; very strongly acid; diffuse smooth boundary.
- C2 -- 160 to 192 inches, mottled weak red (10R 4/3), very pale brown (10YR 7/4), and yellow (10YR 7/8) silty clay loam; rock controlled structure; friable, slightly sticky, slightly plastic; very strongly acid; diffuse smooth boundary.
- C3 -- 192 to 260 inches, mottled brownish yellow (10YR 6/8), very pale brown (10YR 8/4), red (10R 4/6), and black (10YR 2/1) silt loam; rock controlled structure; friable, slightly sticky, slightly plastic; very strongly acid.

Table A: Particle-size distribution\* for Georgeville loamy sand, 2 to 7 percent slopes, severely eroded (Supplemental profile 3)

Horizon	Depth (in.)	Sand					Clay	Textural Class
		Very Coarse	Coarse	Medium	Fine	Very Fine		
A	0-5	---	---	---	---	---	11.6	ls
Bt1	5-25	---	---	---	---	---	16.6	C
Bt2	25-42	---	---	---	---	---	25.6	C
Bt3	42-61	---	---	---	---	---	29.0	C
Bt4	61-74	---	---	---	---	---	36.6	C
C1	74-160	---	---	---	---	---	48.2	sil
C2	160-192	---	---	---	---	---	50.2	sil
C3	192-260	---	---	---	---	---	50.6	sil
		Total		Total		Total		
		80.4		80.4		80.4		

\*by hydrometer method Bouyoucos (1962)

Table B: Chemical properties for Georgeville loamy sand, 2 to 7 percent slopes, severely eroded (Supplemental profile 3)

Lab No.	Horizon	Depth (in.)	pH	Organic Matter (%)	Exchangeable Cations (meq/100 gram)					Base Saturation (%)	
					Ca	Mg	K	H	Al		Total
---	A	0-5	4.7	0.50	0.41	0.22	0.15	3.28	0.89	4.06	19.11
---	Bt1	5-25	4.7	0.15	0.73	1.98	0.38	8.59	1.58	11.68	26.42
---	Bt2	25-42	4.8	0.13	0.16	1.14	0.33	10.00	3.76	11.63	13.98
---	Bt3	42-61	4.7	0.03	0.04	0.27	0.20	11.40	5.05	11.91	4.28
---	Bt4	61-74	4.7	0.04	0.05	0.23	0.20	10.00	5.15	10.48	4.53
---	C1	74-160	4.7	0.01	0.05	0.30	0.19	7.65	4.36	8.19	6.54
---	C2	160-192	4.8	0.06	0.04	0.51	0.20	8.12	5.35	8.87	8.46
---	C3	192-260	4.8	0.01	0.52	1.21	0.20	6.56	4.65	8.49	22.73

Table C: Soil test data for Georgeville loamy sand, 2 to 7 percent slopes (Supplemental profile 3)

Horizon	Depth (in.)	pH	CaO*	MgO*	O. M. (%)	P2O5*	K2O*	Zn ppm	Mn ppm
A	0-5	5.1	303	80	0.5	9	67	---	---
Bt1	5-25	5.5	303	398	0.3	5	140	---	---
Bt2	25-42	5.3	138	222	0.1	9	82	---	---
Bt3	42-61	5.1	220	73	0.0	14	60	---	---
Bt4	61-74	5.0	165	53	0.0	7	41	---	---
C1	74-160	5.0	82	73	0.2	7	10	---	---
C2	160-192	5.0	110	93	0.1	11	14	---	---
C3	192-260	5.0	165	189	0.1	9	10	---	---

\*lbs/acre



## GOLDSTON SERIES

Soils of the Goldston series are shallow and well drained. They formed in materials weathered from consolidated metasediments. They are on uplands in the Piedmont physiographic province. Slopes range from 2 to 15 percent.

A typical profile of Goldston channery silt loam, in an area of Fluvanna-Goldston complex, 7 to 15 percent slopes, severely eroded, is located about 0.8 miles south southeast of the junction of Highway VA-601 and the Greenville-Brunswick County line, about 1.6 miles northwest of Barley.

Ap--0 to 6 inches, grayish brown (10YR 5/2) channery silt loam; moderate fine granular structure; friable; many fine, medium, and coarse roots; 35 percent slate fragments; strongly acid; clear wavy boundary.

Bw--6 to 19 inches, light yellowish brown (10YR 6/4) very channery silt loam; weak fine subangular blocky structure; friable; many fine and medium roots; many silt coatings on slate fragments; 75 percent highly weathered slate fragments that break down to about 40 percent; strongly acid; diffuse wavy boundary.

Cr--19 to 26 inches, 95 percent highly weathered slate fragments; light gray (10YR 7/1) extremely channery silt loam; massive; friable; few fine roots down cracks greater than 4 inches apart; common silt coatings on slate fragments; very strongly acid; gradual wavy boundary.

R--26 inches, light gray (10YR 7/1) hard slate.

Table A: Particle size distribution\* for Goldston channery silt loam, 7 to 15 percent slopes severely eroded

Horizon	Depth (in.)	Sand					Total	Silt	Clay	Textural Class
		Very Coarse	Coarse	Medium	Fine	Very Fine				
Ap	0-6	8.89	9.62	6.76	6.32	3.20	34.79	51.01	14.2	ch-sil
Bw	6-19	7.76	8.50	6.66	4.94	2.70	30.56	50.04	19.4	vch-sil
Cr	19-26	-----	-----	-----	-----	-----	-----	-----	-----	-----
R	26+	-----	-----	-----	-----	-----	-----	-----	-----	-----

\*by hydrometer method Bouyoucos (1962)

## GOLDSTON SUPPLEMENTAL PROFILE 1

Supplemental profile 1 of Goldston channery silt, in an area of Fluvanna-Goldston complex, 7 to 15 percent slopes, severely eroded, is located about 1 mile north of the junction of Highways VA-627 and VA-600 and 1 mile east of Brunswick-Greenville County line.

Oi--1 to 0 inches, partially decomposed leaves and twigs.

Ap--0 to 4 inches, yellowish brown (10YR 5/4) channery silt; moderate fine granular structure; very friable, slightly sticky, slightly plastic; many fine and medium roots; 20 to 30 percent slate fragments; strongly acid; clear wavy boundary.

Bw--4 to 25 inches, yellowish brown (10YR 5/8) extremely channery silt; weak very fine subangular blocky structure; interrupted with strong brown (7.5YR 5/8) silt that has moderate very fine subangular blocky structure; many fine and medium roots; few silt coatings on slate; 60 to 75 percent highly weathered weak red (10R 4/3) and olive yellow (2.5Y 6/6) slate or siltstone fragments; strongly acid; diffuse wavy boundary.

Cr--25 to 44 inches, mottled weak red (10R 4/3), olive yellow (2.5Y 6/6), yellowish brown (10YR 5/8), and pale yellow (5Y 7/3) extremely channery silt; rock controlled structure; friable, slightly sticky, slightly plastic; common fine and medium roots; 80 percent highly weathered slate or siltstone fragments; very strongly acid; diffuse wavy boundary.

R--44+ inches, mottled weak red (10R 4/3), olive yellow (2.5Y 6/6), and yellowish brown (10YR 5/8) hard slate or siltstone.



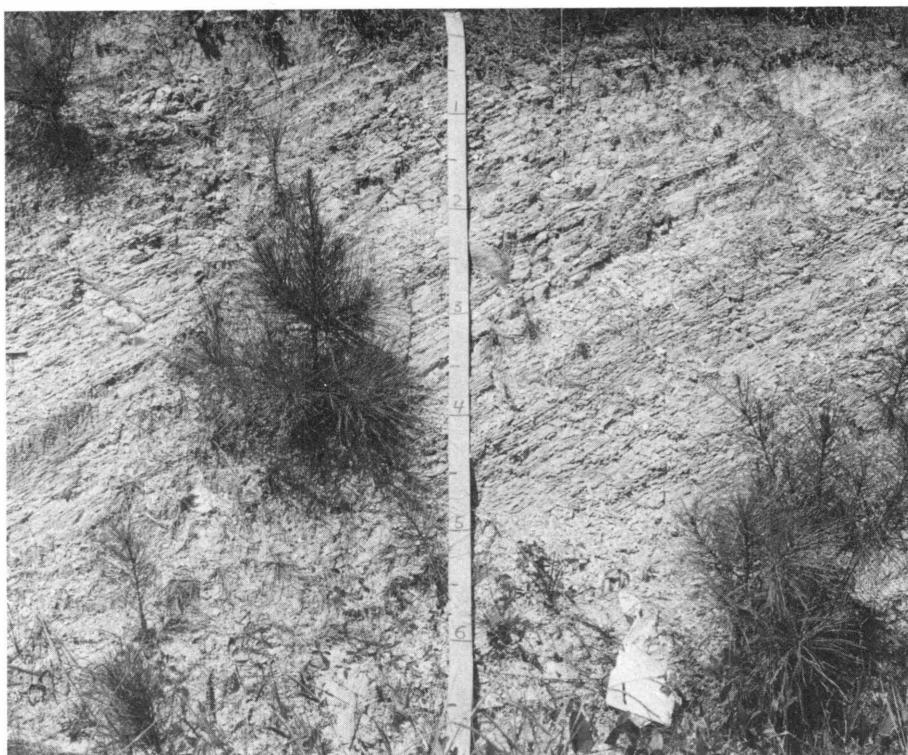
Table E: Other physical properties for Goldston channery silt, 7 to 15 percent slopes, severely eroded (Supplemental profile 1)

Horizon	Depth (in.)	Swell Index*	Liquid Limit	Plasticity Index
Bw	4-25	2300	40.83	13.16
Cyclic Bt	----	2825	40.85	13.57
Cr	25-44	300	41.65	15.45

\*lbs/square foot



A profile in an area of 16B - Fluvanna - Goldston complex, 2 to 7 percent slopes, severely eroded, shows a Goldston soil overlain by fluvial, unconsolidated sediments.



A profile of a Goldston soil in an areas of 16B - Fluvanna - Goldston complex, 2 to 7 percent slopes, severely eroded.

## HELENA SERIES

Soils of the Helena series are deep and very deep and moderately-well drained. They formed in materials weathered from acid crystalline rocks. They are on uplands in the Piedmont physiographic province. Slopes range from 2 to 7 percent.

A typical profile of Helena gravelly coarse sandy loam, 2 to 7 percent slopes, is located about 565 yards west southwest of the junction of Highways VA-659 and VA-603 and 1.4 miles south southwest of the junction of Highways VA-627 and VA-603, about 3 miles east of Barley.

Ap--0 to 6 inches, dark brown (10YR 4/3) gravelly coarse sandy loam; moderate medium granular structure; friable, slightly sticky, slightly plastic; many fine roots; 25 percent gravel; strongly acid; abrupt smooth boundary.

Bt1--6 to 18 inches, yellowish brown (10YR 5/6) clay; moderate medium and coarse subangular blocky structure; firm, sticky, plastic, common fine roots; many prominent clay films on faces of peds; 5 percent gravel; strongly acid; gradual smooth boundary.

Bt2--18 to 30 inches, mottled yellowish brown (10YR 5/8), light gray (10YR 7/1), and red (10R 4/6) clay; moderate medium and coarse subangular blocky structure; firm, sticky, plastic; few fine roots; many prominent clay films on faces of peds; 5 percent gravel; very strongly acid; gradual smooth boundary.

C--30 to 50 inches, mottled light gray (10YR 7/1), brownish yellow (10YR 6/8), and red (10R 5/8) clay loam; massive; firm, sticky, plastic; 5 percent gravel; very strongly acid; diffuse smooth boundary.

Cg--50 to 60 inches, white (N 8/) clay loam, common medium distinct brownish yellow (10YR 6/8) mottles; massive; firm, sticky, plastic; 5 percent gravel; very strongly acid.

Table A: Particle size distribution\* for Helena gravelly coarse sandy loam, 2 to 7 percent slopes

Horizon	Depth (in.)	Sand					Total	Silt	Clay	Textural Class
		Very Coarse	Coarse	Medium	Fine	Very Fine				
Ap	0-6	16.27	17.53	14.43	11.70	4.85	64.78	21.42	13.80	gr-cosl
Bt1	6-18	8.25	12.29	7.48	3.86	1.63	33.51	20.13	46.60	c
Bt2	18-30	5.93	11.00	7.02	3.73	1.97	29.65	23.73	46.60	c
C	30-50	8.04	13.26	7.63	5.96	2.12	37.01	30.39	32.60	cl
Cg	50-60	9.07	13.21	7.37	4.33	2.42	36.40	36.00	27.60	cl

\*by hydrometer method Bouyoucos (1962)

Table C: Soil test data for Helena gravelly coarse sandy loam, 2 to 7 percent slopes

Horizon	Depth (in.)	pH	CaO*	MgO*	O.M. (%)	P2O5*	K2O*	Zn ppm	Mn ppm
Ap	0-6	5.5	715	96	---	99	130	---	---
Bt1	6-18	5.1	798	143	---	2	60	---	---
Bt2	18-30	4.9	330	103	---	0	55	---	---
C	30-50	4.8	28	43	---	0	53	---	---
Cg	50-60	4.7	0	30	---	0	60	---	---

\*lbs/acre



## HELENA SUPPLEMENTAL PROFILE 1

Supplemental profile 1 of Helena gravelly coarse sandy loam, in an area of Helena coarse sandy loam, 2 to 7 percent slopes, is located about 0.7 miles west northwest of the junction of Highways VA-627 and VA-601 and 15 yards south of Highway VA-601.

Oi--2 to 0 inches, undecomposed and partially decomposed leaves and twigs.

A--0 to 4 inches, dark grayish brown (10YR 4/2) gravelly coarse sandy loam, common medium distinct reddish brown (2.5YR 5/4) mottles; massive; friable; common fine and medium roots; 35 percent gravel; strongly acid; abrupt smooth boundary.

Bt1--4 to 11 inches, olive yellow (2.5Y 6/6) gravelly sandy clay loam, many medium distinct strong brown (7.5YR 5/8) mottles; weak medium subangular blocky structure; firm, slightly sticky, slightly plastic; common fine and medium roots; common distinct clay films on faces of peds; 15 percent gravel; very strongly acid; gradual smooth boundary.

Bt2--11 to 22 inches, yellowish brown (10YR 5/6) gravelly clay, many medium distinct red (2.5YR 4/8) mottles; weak medium subangular blocky structure; friable, sticky, plastic; common fine, medium and coarse roots; many prominent clay films on faces of peds; 15 percent gravel; very strongly acid; diffuse smooth boundary.

Bt3--22 to 35 inches, strong brown (7.5YR 5/6) clay, many medium distinct brownish yellow (10YR 6/8), white (10YR 8/2), and red (2.5YR 4/8) mottles; weak medium subangular blocky structure; friable, sticky, plastic; few fine roots; many prominent clay films on faces of peds; 10 percent gravel; very strongly acid; clear wavy boundary.

Bt4--35 to 40 inches, strong brown (7.5YR 5/6) gravelly clay, many medium distinct white (10YR 8/1), brownish yellow (10YR 6/8), and red (2.5YR 4/6) mottles; moderate fine and medium subangular blocky structure;

firm, sticky, plastic; few fine roots; many prominent clay films on faces of peds; 5 percent gravel; very strongly acid; clear wavy boundary.

C--40 to 64 inches, brownish yellow (10YR 6/6) sandy clay loam, many medium distinct white (10YR 8/1), strong brown (7.5YR 5/8), and red (10R 4/8) mottles; massive; friable, slightly sticky, slightly plastic; 10 percent gravel; very strongly acid.

Table A: Particle size distribution\* for Helena gravelly coarse sandy loam, 2 to 7 percent slopes (Supplemental profile 1)

Horizon	Depth (in.)	Sand					Total	Silt	Clay	Textural Class
		Very Coarse	Coarse	Medium	Fine	Very Fine				
A	0-4	18.51	17.78	12.34	12.91	7.43	68.97	23.63	9.40	gr-cos l
Bt1	4-11	11.49	16.05	10.69	9.38	5.45	53.05	23.55	23.40	gr-scl
Bt2	11-22	4.34	4.76	3.22	2.84	1.68	16.81	19.79	63.40	gr-c
Bt3	22-35	5.30	8.05	5.01	3.66	2.12	24.14	27.86	48.00	c
Bt4	35-40	2.03	1.95	1.42	1.14	0.02	6.56	17.44	76.00	c
C	40-64	8.82	12.16	10.91	9.41	6.47	47.77	23.23	29.00	scl

\* by hydrometer method Bouyoucos (1962)

Table B: Chemical properties for Helena gravelly coarse sandy loam, 2 to 7 percent slopes (Supplemental profile 1)

Lab No.	Horizon	Depth (in.)	pH	Organic Matter (%)	Exchangeable Cations (meq/100 gram)					Base Saturation (%)	
					Ca	Mg	K	H	Al Total		
----	A	0-4	5.4	0.98	0.95	1.12	0.16	4.74	0.17	5.96	20.47
----	Bt1	4-11	4.8	0.09	0.26	0.26	0.09	5.60	2.49	6.21	9.82
----	Bt2	11-22	4.8	0.24	0.72	0.86	0.18	11.81	5.58	13.57	12.97
----	Bt3	22-35	4.8	0.11	0.16	0.53	0.14	12.67	6.27	13.50	6.15
----	Bt4	35-40	4.8	0.17	0.16	0.55	0.18	16.81	8.84	17.70	5.00
----	C	40-64	4.7	ND	0.06	0.13	0.09	6.12	3.61	6.40	4.30

Table C: Soil test data for Helena gravelly coarse sandy loam, 2 to 7 percent slopes (Supplemental profile 1)

Horizon	Depth (in.)	pH	CaO*	MgO*	O.M. (%)	P2O5*	K2O*	Zn ppm	Mn ppm
A	0-4	5.5	550	40	---	7	94	---	---
Bt1	4-11	5.2	138	56	---	5	43	---	---
Bt2	11-22	5.2	303	192	---	69	60	---	---
Bt3	22-35	5.3	55	103	---	5	41	---	---
Bt4	35-40	5.3	28	100	---	2	36	---	---
C	40-64	5.1	28	30	---	5	41	---	---

\* lbs/acre

Table E: Other physical properties for Helena gravelly coarse sandy loam, 2 to 7 percent slopes (Supplemental profile 1)

Horizon	Depth (in.)	Swell Index*	Liquid Limit	Plasticity Index
Bt2	11-22	3034	72.22	33.21

#lbs/square foot

## IREDELL SERIES

Soils of the Iredell series are deep and very deep and somewhat-poorly drained. They formed in materials weathered from basic crystalline rocks. They are on uplands in the Piedmont physiographic province. Slopes range from 2 to 15 percent.

A typical profile of Iredell loam, 2 to 7 percent slopes, is located about 530 yards northwest of the junction of Highways VA-603 and VA-604 and 200 yards west of Highway VA-603, about 4 miles west of Brink.

A--0 to 3 inches, grayish brown (10YR 5/2) loam; weak fine granular structure; friable; many fine, medium, and coarse roots; 2 percent fine black concretions; very strongly acid; clear smooth boundary.

Ec--3 to 7 inches, light gray (10YR 7/2) loam, common medium distinct strong brown (7.5YR 5/8) mottles; massive; friable; common fine, medium, and coarse roots; 6 percent fine black concretions; strongly acid; clear smooth boundary.

Bt1--7 to 26 inches, yellowish brown (10YR 5/6) clay, common medium distinct yellow (10YR 7/6) mottles; moderate medium subangular blocky structure; firm, very sticky, very plastic; few fine and medium roots; many prominent clay films on faces of peds; common slickensides and pressure faces; slightly acid; gradual smooth boundary.

Bt2--26 to 31 inches, yellowish brown (10YR 5/6) clay, common medium distinct light gray (10YR 6/1) and yellow (10YR 7/6) mottles; moderate medium subangular blocky structure; firm, very sticky, very plastic; few fine and medium roots; many prominent clay films on faces of peds; common slickensides and pressure faces; slight effervescence; neutral; clear wavy boundary.

C--31 to 60 inches, strong brown (7.5YR 5/6) silty clay loam, many medium prominent black (N 2/) mottles; massive; very firm, sticky, plastic; many prominent black coatings along fracture planes; slight effervescence; neutral.

Table A: Particle size distribution\* for IredeII loam, 2 to 7 percent slopes

Horizon	Depth (in.)	Sand					Total	Silt	Clay	Textural Class
		Very Coarse	Coarse	Medium	Fine	Very Fine				
A	0-3	2.42	6.30	8.21	13.59	15.20	45.72	44.78	9.50	I
Ec	3-7	7.23	6.93	7.24	11.68	14.14	47.22	45.18	7.60	I
Bt1	7-26	0.93	2.02	2.35	4.65	7.24	17.19	36.61	46.20	C
Bt2	26-31	0.53	1.40	1.68	3.33	5.36	12.30	37.90	49.80	C
C	31-60	0.79	3.29	4.11	4.67	6.27	19.13	45.86	35.00	sicl

\*by hydrometer method Bouyoucos (1962)

Table B: Chemical properties for IredeII loam, 2 to 7 percent slopes

Lab No.	Horizon	Depth (in.)	pH	Organic Matter (%)	Exchangeable Cations (meq/100 gram)					Base Saturation (%)	
					Ca	Mg	K	H	Al		Total
---	A	0-3	4.8	2.74	0.90	0.30	0.09	4.70	0.98	5.99	21.54
---	Ec	3-7	5.3	1.06	0.35	0.18	0.03	2.69	0.59	3.25	17.23
---	Bt1	7-26	6.2	0.50	5.55	3.60	0.06	3.36	0.10	12.57	73.27
---	Bt2	26-31	7.3	0.19	8.40	5.10	0.05	1.51	ND	15.06	89.97
---	C	31-60	6.6	0.13	19.50	6.10	0.04	3.70	0.88	29.34	87.39

Table C: Soil test data for Iredell loam, 2 to 7 percent slopes

Horizon	Depth (in.)	pH	CaO*	MgO*	O.M. (%)	P2O5*	K2O*	Zn ppm	Mn ppm
A	0-3	4.9	330	60	---	0	48	---	8.5
Ec	3-7	5.5	138	30	---	0	17	---	8.0
Bt1	7-26	7.0	1568	398	---	0	17	---	2.5
Bt2	26-31	7.5	1981	398	---	0	22	---	1.4
C	31-60	7.0	2888	398	---	0	17	---	8.3

\*lbs/acre

Table D: Clay mineralogy for Iredell loam, 2 to 7 percent slopes

Horizon	Depth (in.)	Percent Minerals Present*
Bt1	7-26	Ch.V. 20, kao 25, Qz 3, Mont. 50, Goe 2

\*Ch.V. = Chloritized Vermiculite, kao = kaolinite, Mont. = Montmorillonite: Gibb. = Gibbsite, Goe. = Goethite, Qz = Quartz

Table E: Other physical properties for Iredell loam, 2 to 7 percent slopes

Horizon	Depth (in.)	Swell Index*	Liquid Limit	Plasticity Index
Bt1	7-26	3476	49.67	27.98
Bt2	26-31	4629	42.50	18.43

\*lbs/square foot

## IREDELL SUPPLEMENTAL PROFILE 1

Supplemental profile 1 of Iredell loam, in an area of Iredell loam, 2 to 7 percent slopes, is located about 1.4 miles east of the junction of Highways U.S. 58 and VA-605.

Ap--0 to 8 inches, grayish brown (10YR 5/2) loam; weak fine granular structure; friable; common fine, medium, and coarse roots; 5 percent gravel; strongly acid; clear smooth boundary.

Btc--8 to 18 inches, yellowish brown (10YR 5/4) gravelly loam, few fine faint grayish brown (10YR 5/2) and black (10YR 2/1) mottles; weak fine subangular blocky structure; friable, sticky, plastic; common fine and medium roots; many prominent clay films on concretions and faces of peds; few fine flakes of mica; 20 percent fine concretions; neutral; clear wavy boundary.

2Bt1--18 to 28 inches, yellowish brown (10YR 5/4) clay, few fine distinct light yellowish brown (2.5Y 6/4) and black (10YR 2/1) mottles; moderate medium subangular blocky structure; friable reverts to very firm when kneaded, very sticky, very plastic; few fine and medium roots; many prominent clay films and/or slickensides; 8 percent concretions; neutral; gradual wavy boundary.

2Bt2--28 to 38 inches, yellowish brown (10YR 5/6) clay, common fine and medium distinct light olive brown (2.5Y 5/4) and black (10YR 2/1) mottles; moderate medium subangular blocky structure; friable reverts to very firm when kneaded, very sticky, very plastic; few fine and medium roots; many prominent clay films on faces of peds; common slickensides and pressure faces; common fine flakes of mica; neutral; slight effervescence with 10 percent HCl; gradual wavy boundary.

3Cr--38 to 65 inches, strong brown (7.5YR 5/6) gravelly sandy loam, many medium and coarse distinct brown (7.5YR 4/4), black (10YR 2/1), and white (10YR 8/1) mottles; massive; firm, sticky, plastic; few fine roots down seams less than 4 in. apart; many fine flakes of mica; 35 percent highly weathered gravel; violent effervescence with 10 percent HCl; moderately alkaline.



Table A: Particle size distribution\* for IredeII loam, 2 to 7 percent slopes (Supplemental profile 1)

Horizon	Depth (in.)	Sand				Total	Silt	Clay	Textural Class
		Very Coarse	Coarse	Medium	Fine				
Ap	0-8	5.04	7.80	9.67	14.01	46.36	44.64	9.00	I
Btc	8-18	18.34	7.15	3.93	7.07	43.32	35.68	21.00	gr-I
2Bt1	18-28	5.72	3.57	2.69	5.33	23.02	33.98	43.00	C
2Bt2	28-38	1.94	2.76	3.59	7.55	23.89	29.11	47.00	C
3Cr	38-65	12.08	14.30	9.79	12.99	60.46	25.54	14.00	grsl

\*by hydrometer method Bouyoucos (1962)

Table B: Chemical properties for IredeII loam, 2 to 7 percent slopes (Supplemental profile 1)

Lab No.	Horizon	Depth (in.)	pH	Organic Matter (%)	Exchangeable Cations (meq/100 gram)				Base Saturation (%)		
					Ca	Mg	K	H			
76-210	Ap	0-8	5.2	1.37	0.20	0.32	0.02	3.19	0.78	3.73	14.48
76-211	Btc	8-18	6.6	0.29	1.90	6.80	0.05	1.85	ND	10.60	82.55
76-212	2Bt1	18-28	6.9	0.32	4.20	15.20	0.10	1.85	ND	21.35	91.33
76-213	2Bt2	28-38	7.3	0.22	6.40	15.00	0.11	1.68	ND	23.19	92.76
76-214	3Cr	38-65	7.9	0.10	13.20	16.20	0.03	1.68	0.10	31.11	94.60

Table C: Soil test data for Iredell loam, 2 to 7 percent slopes  
(Supplemental profile 1)

Horizon	Depth (in.)	pH	CaO*	MgO*	O.M. (%)	P205*	K20*	Zn ppm	Mn ppm
Ap	0-8	4.6	110	63	---	2	17	---	8.1
Btc	8-18	6.9	523	398	---	0	17	---	---
2Bt1	18-28	7.8	935	398	---	0	31	---	---
2Bt2	28-38	8.0	2448	398	---	5	41	---	---
3Cr	38-65	7.9	3191	398	---	23	17	---	---

#lbs/acre

Table D: Clay mineralogy for Iredell loam, 2 to 7 percent slopes  
(Supplemental profile 1)

Horizon	Depth (in.)	Percent Minerals Present*
Btc	8-18	Ch.V. 25, Kao 10, Qz 10, Mont. 52, Goe 3
2Bt1	18-28	Ch.V. 10, kao 15, Qz 12, Mont. 52, Goe 3, Fd 3

\*Ch.V. = Chloritized Vermiculite, Kao = Kaolinite, Mont. = Montmorillonite: Gibb. = Gibbsite, Goe. = Goethite, Qz = Quartz

Table E: Other physical properties for Iredell loam, 2 to 7 percent slopes (Supplemental profile 1)

Horizon	Depth (in.)	Swell Index*	Liquid Limit	Plasticity Index
Btc	8-18	600	31.05	14.36
2Bt1	18-28	2858	74.64	49.08

\*lbs/square foot

## IREDELL SUPPLEMENTAL PROFILE 2

Supplemental profile 2 of Iredell sandy loam, in an area of Iredell loam, 2 to 7 percent slopes, is located about 1.1 miles southwest of the junction of Highways VA-623 and VA-629 and 65 yards northwest of Highway VA-623.

Oi--2 to 0 inches, partially decomposed leaves and twigs.

A--0 to 5 inches, dark grayish brown (10YR 4/2) sandy loam; moderate fine and medium granular structure; very friable; many fine, medium, and coarse roots; 5 percent gravel; very strongly acid; clear smooth boundary.

E-- 5 to 9 inches, pale olive (5Y 6/3) fine sandy loam, many medium distinct brownish yellow (10YR 6/6) and reddish yellow (7.5YR 7/6) mottles; massive; friable, slightly sticky, slightly plastic; many fine, medium, and coarse roots; 5 percent gravel; strongly acid; gradual smooth boundary.

Bt1--9 to 16 inches, olive yellow (2.5Y 6/6) loam; many medium distinct pale olive (5Y 6/3) and strong brown (7.5YR 5/6) mottles; weak medium subangular blocky structure; friable, sticky, plastic; many fine, medium, and coarse roots; common distinct clay films on faces of peds; 5 percent gravel; strongly acid; gradual smooth boundary.

Bt2--16 to 27 inches, yellowish brown (10YR 5/8) clay, common medium distinct light gray (5Y 6/1) mottles; weak medium subangular blocky structure; very firm, very sticky, very plastic; many fine, medium, and coarse roots; many prominent clay films on faces of peds; 1 percent gravel; strongly acid; diffuse smooth boundary.

Bt3--27 to 40 inches, yellowish brown (10YR 5/8) clay, common medium distinct light gray (5Y 6/1) mottles; weak medium subangular blocky structure; very firm, very sticky, very plastic; many fine and medium roots; many distinct clay films on faces of peds; 1 percent gravel; neutral; gradual wavy boundary.

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C--40 to 44 inches, pale olive (5Y 6/3) clay, many medium distinct olive gray (5Y 5/2) mottles; massive; firm, very sticky, very plastic; many fine roots; 2 percent gravel; neutral; clear smooth boundary.

R--44+ inches, diorite rock.



Table E: Other physical properties for Iredell sandy loam, 2 to 7 percent slopes (Supplemental profile 2)

Horizon	Depth (in.)	Swell Index*	Liquid Limit	Plasticity Index
Bt1	9-16	425	20.79	7.61
Bt2	16-27	4850	93.80	71.29
Bt3	27-40	5750	70.45	43.92

\*lbs/square foot

## IREDELL SUPPLEMENTAL PROFILE 3

Supplemental profile 3 of Iredell fine sandy loam, in an area of Iredell loam, 2 to 7 percent slopes, is located about 500 yards east of the junction of Highways VA-650 and VA-679 and 735 yards north of the junction of Highway VA-650 and Trego Quarry entrance.

Oi--1 to 0 inches, partially decomposed leaves and twigs.

Ap--0 to 6 inches, yellowish brown (10YR 5/4) fine sandy loam, many medium faint light yellowish brown (10YR 6/4) mottles; massive; friable; common fine, medium, and coarse roots; 5 percent gravel; very strongly acid; abrupt smooth boundary.

Bt1--6 to 13 inches, yellowish brown (10YR 5/8) clay loam, many medium distinct red (2.5YR 4/8) and light yellowish brown (10YR 6/4) mottles; moderate medium subangular blocky structure; very firm, sticky, plastic; common fine, medium, and coarse roots; common distinct clay films on faces of peds; 5 percent gravel; moderately acid; clear smooth boundary.

2Bt2--13 to 19 inches, yellowish brown (10YR 5/8) clay, many medium prominent red (10R 4/6) mottles; moderate medium subangular blocky structure; very firm, very sticky, very plastic; common fine, medium, and coarse roots; many prominent clay films on faces of peds; 5 percent gravel; strongly acid; gradual smooth boundary.

2Bt3--19 to 24 inches, mottled yellowish brown (10YR 5/8), red (2.5YR 4/8), and light gray (10YR 7/2) clay; moderate medium subangular blocky structure; very firm, very sticky, very plastic; common fine, medium, and coarse roots; many prominent clay films on faces of peds; 5 percent gravel; strongly acid; gradual smooth boundary.

3Bt4--24 to 35 inches, yellowish brown (10YR 5/6) clay, many medium distinct red (2.5YR 4/8) and light gray (10YR 7/2) mottles; moderate medium and coarse subangular blocky structure; very firm, very sticky, very plastic; common fine, medium, and coarse roots; many prominent

clay films on faces of peds; many slickensides and pressure faces; 5 percent gravel; very strongly acid; gradual smooth boundary.

3Btg1--35 to 46 inches, light brownish gray (5Y 6/2) clay, many medium distinct yellowish brown (10YR 5/6) mottles; moderate medium and coarse subangular blocky structure; very firm, very sticky, very plastic; few fine and medium roots; many prominent clay films on faces of peds; many slickensides; very strongly acid; gradual smooth boundary.

3Btg2--46 to 55 inches, light brownish gray (5Y 6/2) clay, few medium distinct yellowish brown (10YR 5/6) mottles; moderate medium and coarse subangular blocky structure; very firm, very sticky, very plastic; few fine and medium roots; many prominent clay films on faces of peds; many slickensides; very strongly acid; gradual smooth boundary.

3Btg3--55 to 68 inches, pinkish gray (5YR 6/2) clay, many medium distinct yellowish brown (10YR 5/6) mottles; moderate medium and coarse subangular blocky structure; very firm, very sticky, very plastic; few fine roots; many prominent clay films on faces of peds; many slickensides; strongly acid.



Table A: Particle size distribution\* for Iredell fine sandy loam, 2 to 7 percent slopes (Supplemental profile 3)

Horizon	Depth (in.)	Sand					Total	Silt	Clay	Textural Class
		Very Coarse	Coarse	Medium	Fine	Very Fine				
Ap	0-6	4.73	10.26	14.30	24.22	16.73	70.24	23.56	6.20	fsl
Bt1	6-13	5.25	6.76	5.61	11.35	10.17	39.14	28.66	32.20	cl
2Bt2	13-19	7.31	5.88	3.44	6.01	5.19	27.83	17.97	54.20	c
2Bt3	19-24	7.61	8.22	5.41	5.92	4.74	31.90	18.90	49.20	c
3Bt4	24-35	2.39	2.98	3.73	4.61	3.44	17.15	19.65	63.20	c
3Btg1	35-46	0.42	2.29	6.14	8.32	4.22	21.39	18.41	60.20	c
3Btg2	46-55	0.61	2.55	6.08	7.59	5.00	21.83	21.77	56.40	c
3Btg3	55-68	0.11	0.46	1.77	6.50	14.12	22.96	30.64	46.40	c

\*by hydrometer method Bouyoucos (1962)

Table B: Chemical properties for Iredell fine sandy loam, 2 to 7 percent slopes (Supplemental profile 3)

Lab No.	Horizon	Depth (in.)	pH	Organic Matter (%)	Exchangeable Cations (meq/100 gram)				Total	Base Saturation (%)	
					Ca	Mg	K	H			
75-542	Ap	0-6	4.8	0.72	0.40	0.22	0.06	3.21	0.88	3.89	17.48
75-543	Bt1	6-13	4.9	0.29	3.45	3.35	0.09	8.28	2.64	15.17	45.42
75-544	2Bt2	13-19	4.6	0.34	4.06	5.65	0.17	15.38	6.85	25.26	39.11
75-545	2Bt3	19-24	4.4	0.34	4.72	7.20	0.24	16.39	8.22	28.55	42.59
75-546	3Bt4	24-35	4.1	0.39	8.76	12.70	0.50	19.94	11.55	41.90	52.41
75-547	3Btg1	35-46	4.0	0.24	13.95	19.90	0.68	14.70	8.81	49.23	70.14

Table C: Soil test data for Iredell fine sandy loam, 2 to 7 percent slopes (Supplemental profile 3)

Horizon	Depth (in.)	pH	CaO*	MgO*	O.M. (%)	P2O5*	K2O*	Zn ppm	Mn ppm
Ap	0-6	5.1	138	70	----	9	29	0.7	11.7
Bt1	6-13	5.6	550	398	----	0	24	0.4	2.5
2Bt2	13-19	5.5	770	398	----	0	17	0.5	3.3
2Bt3	19-24	5.4	633	398	----	0	17	0.4	0.7
3Bt4	24-35	5.0	798	398	----	0	24	0.4	0.8
3Btg1	35-46	4.7	963	398	----	0	43	0.3	0.7
3Btg2	46-55	4.7	1045	398	----	9	72	0.4	0.7
3Btg3	55-68	5.1	1100	398	----	41	63	0.4	1.1

## IREDELL SUPPLEMENTAL PROFILE 4

Supplemental profile 4 of Iredell loamy sand, in an area of Iredell loam, 2 to 7 percent slopes, is located about 1.4 miles southeast of the junction of Highways VA-627 and VA-600 and 0.5 miles south of VA-600 and east of Beaver Pond Creek.

Oi--3 to 2 inches, mixed partially decomposed oak leaves and pine needles.

Oe--2 to 0 inches, mixed decomposed oak leaves and pine needles.

A--0 to 3 inches, gray (10YR 5/1) loamy sand; moderate fine granular structure; friable; many fine, medium, and coarse roots; very strongly acid; clear smooth boundary.

E--3 to 9 inches, pale yellow (2.5Y 7/4) sandy loam, many medium distinct grayish brown (2.5Y 5/2) mottles; weak fine granular structure; friable; many fine and medium roots; very strongly acid; gradual smooth boundary.

Bt1--9 to 16 inches, pale yellow (2.5Y 7/4) sandy loam, many medium distinct brownish yellow (10YR 6/6) mottles; weak medium subangular blocky structure; friable, slightly sticky, slightly plastic; many fine and medium roots; few faint clay films on faces of peds; very strongly acid; clear smooth boundary.

2Bt2--16 to 35 inches, brownish yellow (10YR 6/6) clay loam, many medium distinct light gray (10YR 7/1) mottles; moderate coarse subangular blocky structure; firm, sticky, plastic; many fine and medium roots; many prominent clay films on faces of peds; neutral; gradual smooth boundary.

2Btg1--35 to 48 inches, white (N 8/) sandy clay loam, many medium distinct brownish yellow (10YR 6/6) mottles; moderate coarse prismatic structure parting to moderate coarse subangular blocky; firm, slightly sticky, plastic; common fine and medium roots; many prominent

clay films on faces of peds; few carbonate concretions; strongly alkaline; slight effervesence; diffuse smooth boundary.

2Btg2--48 to 68 inches, white (N 8/) sandy clay loam, many medium distinct brownish yellow (10YR 6/6) mottles; moderate coarse prismatic structure parting to moderate coarse subangular blocky structure; firm, slightly sticky, plastic; common fine and medium roots; many prominent clay films on faces of peds; few carbonate concretions; strongly alkaline; strong effervesence; diffuse smooth boundary.

2Cg--68 to 75 inches, mottled white (N 8/), brownish yellow (10YR 6/6), and brown (7.5YR 4/4) sandy clay loam; rock controlled structure; friable, slightly sticky, plastic; few fine roots; few carbonate concretions; moderately alkaline; strong effervesence.

Table A: Particle size distribution\* for Iredell loamy sand, 2 to 7 percent slopes (Supplemental profile 4)

Horizon	Depth (in.)	Sand					Total	Silt	Clay	Textural Class
		Very Coarse	Coarse	Medium	Fine	Very Fine				
A	0-3	---	---	---	---	---	15.6	5.4	Is	
E	3-9	---	---	---	---	---	15.6	11.4	SI	
Bt1	9-16	---	---	---	---	---	16.4	19.4	SI	
2Bt2	16-35	---	---	---	---	---	28.3	40.3	CI	
2Btg1	35-48	---	---	---	---	---	20.0	30.6	SCI	
2Btg2	48-68	---	---	---	---	---	26.0	34.6	SCI	
2Cg	68-75	---	---	---	---	---	28.5	28.5	SCI	

\*by hydrometer method Bouyoucos (1962)

Table B: Chemical properties for Iredell loamy sand, 2 to 7 percent slopes (Supplemental profile 4)

Lab No.	Horizon	Depth (in.)	pH	Organic Matter (%)	Exchangeable Cations (meq/100 gram)				Base Saturation (%)		
					Ca	Mg	K	H			
---	A	0-3	4.5	---	0.48	0.20	0.07	6.52	1.39	7.30	10.67
---	E	3-9	4.9	---	0.15	0.06	0.10	3.70	0.69	4.05	8.71
---	Bt1	9-16	4.5	---	0.14	0.09	0.19	4.23	1.39	4.58	7.58
---	2Bt2	16-35	6.9	---	6.50	3.75	0.08	3.35	0.00	14.58	77.02
---	2Btg1	35-48	8.6	---	6.00	4.00	0.09	0.70	0.10	11.54	93.93
---	2Btg2	48-68	8.6	---	15.00	5.50	0.15	0.70	0.20	22.50	96.89
---	2Cg	68-75	8.3	---	9.50	5.00	0.16	1.41	0.00	16.97	91.69

Table C: Soil test data for Iredell loamy sand, 2 to 7 percent slopes  
(Supplemental profile 4)

Horizon	Depth (in.)	pH	CaO*	MgO*	O.M. (%)	P205*	K20*	Zn ppm	Mn ppm
A	0-3	4.6	523	93	1.5	2	55	---	---
E	3-9	5.0	138	46	0.5	0	53	---	---
Bt1	9-16	4.7	138	60	0.2	0	31	---	---
2Bt2	16-35	4.7	2696	398	0.1	0	24	---	---
2Btg1	35-48	8.9	3301	398	0.1	5	22	---	---
2Btg2	48-68	8.9	3301	398	0.1	9	22	---	---
2Cg	68-75	8.5	3301	398	0.1	16	31	---	---

\*lbs/acre

## LOUISBURG SERIES

Soils of the Louisburg series are deep and very deep and well drained. They formed in materials weathered from acid crystalline rocks. They are on uplands in the Piedmont physiographic province. Slopes range from 2 to 25 percent.

A typical profile of Louisburg gravelly coarse sandy loam, in an area of Appling-Louisburg gravelly coarse sandy loams, 7 to 15 percent slopes, is located about 1.5 miles west of the junction of Highways VA-627 and VA-633, and 1 mile north of Highway VA-627, about 1.5 miles west of Brink.

Oe--1 to 0 inches, partially decomposed leaves and twigs.

A--0 to 5 inches, dark grayish brown (10YR 4/2) gravelly coarse sandy loam; weak medium and fine granular structure; very friable; many fine, medium, and coarse roots; 20 percent gravel; very strongly acid; clear smooth boundary.

E--5 to 11 inches, yellowish brown (10YR 5/4) gravelly coarse sandy loam; massive; friable; many fine, medium, and coarse roots; 25 percent gravel; strongly acid; gradual smooth boundary.

Bw and Bt--11 to 24 inches, brownish yellow (10YR 6/6) gravelly coarse sandy loam; weak medium subangular blocky structure interrupted by lenses and irregular shaped bodies of yellowish brown (10YR 5/8) gravelly sandy clay loam with moderate fine subangular blocky structure and many distinct clay films on faces of peds; friable, slightly sticky, slightly plastic; common fine and medium roots; 25 percent gravel; moderately acid; diffuse smooth boundary.

C1--24 to 39 inches, mottled brownish yellow (10YR 6/6) and strong brown (7.5YR 5/6) partially decomposed granite rock that crushes to gravelly coarse sandy loam under moderate pressure; massive; firm, slightly sticky, slightly plastic; common fine and medium roots; 30 percent gravel; strongly acid; diffuse smooth boundary.

C2--39 to 60 inches, mottled brownish yellow (10YR 6/6) and strong brown (7.5YR 5/6) partially decomposed granite rock that crushes to gravelly coarse sandy loam under moderate pressure; massive; firm, slightly sticky, slightly plastic; few fine and medium roots; 30 percent gravel; strongly acid.



Table A: Particle size distribution\* for Louisburg gravelly coarse sandy loam, 7 to 15 percent slopes

Horizon	Depth (in.)	Sand					Total	Silt	Clay	Textural Class
		Very Coarse	Coarse	Medium	Fine	Very Fine				
A	0-5	13.7	16.0	12.0	11.4	4.9	58.0	33.1	8.9	gr-cosl
E	5-11	21.1	16.8	10.9	9.4	6.3	64.5	25.4	10.1	gr-cosl
Bw and Bt	11-24	19.1	21.7	11.4	9.2	5.5	66.9	21.2	11.9	gr-cosl
C1	24-39	18.2	25.1	14.1	11.2	5.4	74.0	14.1	11.9	gr-cosl
C2	39-60	16.1	22.4	14.7	12.8	5.9	71.9	16.0	12.1	gr-cosl

\*by hydrometer method Bouyoucos (1962)



A profile of 6B - Appling - Louisburg gravelly coarse sandy loams, 2 to 7 percent slopes. The deeper Appling soil is on the right and the shallower Louisburg soil is on the left.



An area of 23D - Louisburg - Rock outcrop complex, 2 to 25 percent slopes.

## MATTAPONI SERIES

Soils of the Mattaponi series are very deep and moderately-well drained. They formed in clayey and loamy unconsolidated fluvial and marine sediments. They are on uplands in the Coastal Plain and Piedmont physiographic provinces. Slopes range from 2 to 15 percent.

A typical profile of Mattaponi sandy loam, 2 to 6 percent slopes, is located about 525 yards northeast of the junction of Highways VA-629 and VA-626 and 65 yards southeast of Highway VA-629.

Oe--2 to 0 inches, partially decomposed leaves and twigs.

A--0 to 4 inches, dark grayish brown (10YR 4/2) sandy loam; massive; very friable; many fine, medium, and coarse roots; very strongly acid; clear smooth boundary.

E--4 to 15 inches, light yellowish brown (2.5Y 6/4) sandy loam; massive; very friable; many fine, medium, and coarse roots; very strongly acid; gradual smooth boundary.

Bt1--15 to 28 inches, yellowish brown (10YR 5/6) clay loam; moderate medium subangular blocky structure; friable, sticky, plastic; common fine and medium roots; many distinct clay films on faces of peds; very strongly acid; diffuse smooth boundary.

Bt2--28 to 41 inches, yellowish brown (10YR 5/6) clay; moderate medium and coarse platy structure parting to moderate medium subangular blocky; friable, sticky, plastic; many fine and medium roots; many distinct clay films on faces of peds; strongly acid; diffuse smooth boundary.

Bt3--41 to 51 inches, yellowish brown (10YR 5/6) clay, many medium distinct red (2.5YR 4/6) mottles; weak coarse subangular blocky structure; friable, slightly sticky, slightly plastic; few fine roots; many distinct clay films on faces of peds; few fine flakes of mica; strongly acid; diffuse wavy boundary.

Bt4--51 to 60 inches, mottled red (2.5YR 4/8), yellowish brown (10YR 5/6), and light gray (10YR 7/1) sandy clay; weak medium subangular blocky structure; friable, slightly sticky, slightly plastic; few fine roots; common distinct clay films on faces of peds; few fine and medium flakes of mica; strongly acid; clear smooth boundary.

C--60 to 69 inches, mottled red (2.5YR 4/8), brownish yellow (10YR 6/6), and light gray (10YR 7/1) sandy clay loam; massive; friable, slightly sticky; strongly acid.

Table A: Particle size distribution\* for Mattaponi sandy loam, 2 to 6 percent slopes

Horizon	Depth (in.)	Sand					Total	Silt	Clay	Textural Class
		Very Coarse	Coarse	Medium	Fine	Very Fine				
A	0-4	0.73	5.92	12.51	23.29	19.25	61.70	29.70	8.60	fsl
E	4-15	0.71	4.63	11.18	21.73	18.77	57.02	31.38	11.60	fsl
Bt1	15-28	0.92	4.15	8.04	14.85	13.25	41.21	23.19	35.60	cl
Bt2	28-41	0.76	3.98	8.86	14.57	8.54	36.71	17.69	45.60	c
Bt3	41-51	0.68	5.49	14.92	17.15	5.87	44.21	13.79	42.00	c
Bt4	51-60	0.31	2.47	10.00	25.04	9.41	47.23	14.17	38.60	sc
C	60-69	0.58	8.34	27.78	27.70	5.07	69.49	7.13	23.40	sc1

\*by hydrometer method Bouyoucos (1962)

Table B: Chemical properties for Mattaponi sandy loam, 2 to 6 percent slopes

Lab No.	Horizon	Depth (in.)	pH	Organic Matter (%)	Exchangeable Cations (meq/100 gram)					Total	Base Saturation (%)
					Ca	Mg	K	H	Al		
73-892	A	0-4	4.6	1.16	0.10	0.06	0.08	7.07	1.55	7.31	3.22
73-893	E	4-15	4.9	0.25	0.06	0.02	0.05	3.62	0.77	3.75	3.47
73-894	Bt1	15-28	4.9	0.14	0.13	0.52	0.20	8.96	3.43	9.81	8.62
73-895	Bt2	28-41	5.2	0.10	0.05	0.36	0.11	10.69	4.12	11.21	4.60
73-896	Bt3	41-51	5.1	0.10	0.04	0.20	0.07	9.83	3.95	10.14	3.01
73-987	Bt4	51-60	5.2	0.08	0.03	0.12	0.06	8.79	3.61	9.00	2.33
73-898	C	60-69	5.2	0.04	0.03	0.04	0.03	5.34	1.80	5.44	1.84

Table C: Soil test data for Mattaponi sandy loam, 2 to 6 percent slopes

Horizon	Depth (in.)	pH	CaO*	MgO*	O.M. (%)	P205*	K20*	Zn ppm	Mn ppm
A	0-4	4.6	110	23	---	5	36	---	---
E	4-15	5.0	82	20	---	5	22	---	---
Bt1	15-28	4.9	110	162	---	5	72	---	---
Bt2	28-41	5.2	55	113	---	9	29	---	---
Bt3	41-51	5.1	165	60	---	5	24	---	---
Bt4	51-60	5.1	82	36	---	2	17	---	---
C	60-69	5.1	55	20	---	5	24	---	---

\* lbs/acre

## MATTAPONI SUPPLEMENTAL PROFILE 1

Supplemental profile 1 of Mattaponi sandy loam, in an area of Mattaponi fine sandy loam, 2 to 6 percent slopes, is located about 2.8 miles east northeast of the junction of Highways US-301 and VA-622 and 2.5 miles southwest of Bryants Mill Pond.

Oe--2 to 0 inches, partially decomposed leaves and twigs.

A--0 to 2 inches, very dark grayish brown (10YR 3/2) fine sandy loam; weak fine granular structure; very friable; many fine, medium, and coarse roots; very strongly acid; clear smooth boundary.

E--2 to 17 inches, light yellowish brown (10YR 6/4) fine sandy loam; massive; very friable; many fine, medium, and coarse roots; very strongly acid; clear smooth boundary.

Bt1--17 to 23 inches, yellowish brown (10YR 5/6) sandy clay loam; weak medium subangular blocky structure; friable, slightly sticky, slightly plastic; many fine, medium, and coarse roots; many distinct clay films and bridges on sand grains; very strongly acid; gradual smooth boundary.

Bt2--23 to 35 inches, yellowish red (5YR 5/6) clay, many medium distinct brownish yellow (10YR 6/6) mottles; moderate medium subangular blocky structure; friable, sticky, plastic; many fine, medium, and coarse roots; many distinct clay films and bridges on sand grains, many distinct clay films on faces of peds; very strongly acid; diffuse smooth boundary.

Bt3--35 to 48 inches, yellowish red (5YR 5/6) clay, moderate medium distinct brownish yellow (10YR 6/6) mottles; moderate coarse platy structure parting to moderate medium subangular blocky; friable, sticky, plastic; few fine roots; many distinct clay films and bridges on sand grains, many distinct clay films on faces of peds; very strongly acid; clear smooth boundary.



2C1--48 to 62 inches, yellowish red (5YR 4/8) sandy clay, common coarse distinct yellow (2.5Y 7/6) mottles; massive; friable, slightly sticky, slightly plastic; very strongly acid; diffuse smooth boundary.

2C2--62 to 75 inches, yellowish red (5YR 4/8) sandy clay loam, common coarse distinct yellow (2.5Y 7/6) mottles; massive; friable, slightly sticky, slightly plastic; very strongly acid.

Table A: Particle size distribution\* for Mattaponi fine sandy loam, 2 to 6 percent slopes (Supplemental profile 1)

Horizon	Depth (in.)	Sand				Total	Silt	Clay	Textural Class
		Very Coarse	Coarse	Medium	Fine				
E	2-17	1.10	6.83	9.40	31.75	69.29	20.71	10.00	fsl
Bt1	17-23	1.43	5.73	7.22	25.26	55.33	17.67	27.00	sci
Bt2	23-35	0.73	3.14	5.03	22.53	43.52	14.48	42.00	c
Bt3	35-48	0.32	2.57	4.33	20.85	40.77	13.23	46.00	c
2C1	48-62	2.80	19.06	18.64	9.39	55.06	8.94	36.00	sc
2C2	62-75	4.50	10.33	18.75	23.51	61.50	8.50	30.00	sci

\*by hydrometer method Bouyoucos (1962)

Table B: Chemical properties for Mattaponi fine sandy loam, 2 to 6 percent slopes (Supplemental profile 1)

Lab No.	Horizon	Depth (in.)	pH	Organic Matter (%)	Exchangeable Cations (meq/100 gram)					Base Saturation (%)	
					Ca	Mg	K	H	Al		
73-899	E	2-17	4.9	0.12	0.02	ND	0.03	2.59	0.43	2.64	1.89
73-900	Bt1	17-23	4.6	0.15	0.07	0.23	0.08	6.21	2.23	6.59	5.77
73-901	Bt2	23-35	5.0	0.11	0.05	0.52	0.09	8.79	3.52	9.45	6.98
73-902	Bt3	35-48	5.0	0.08	0.22	0.07	10.52	4.64	10.83	2.82	2.82
73-903	2C1	48-62	5.0	0.07	0.02	0.08	0.05	5.34	2.83	5.49	2.73
73-904	2C2	62-75	5.0	0.06	0.04	0.09	0.06	6.72	3.00	6.90	2.61

Table C: Soil test data for Mattaponi fine sandy loam, 2 to 6 percent slopes (Supplemental profile 1)

Horizon	Depth (in.)	pH	CaO*	MgO*	O.M. (%)	P2O5*	K2O*	Zn ppm	Mn ppm
A	0-2	4.1	82	23	---	2	36	---	---
E	2-17	4.6	55	10	---	5	17	---	---
Bt1	17-23	4.9	55	56	---	2	22	---	---
Bt2	23-35	5.1	55	100	---	0	17	---	---
Bt3	35-48	5.1	55	46	---	0	14	---	---
2C1	48-62	5.0	55	23	---	0	14	---	---
2C2	62-75	5.0	55	26	---	2	14	---	---

\* lbs/acre

## MATTAPONI SUPPLEMENTAL PROFILE 2

A typical profile of Mattaponi sandy loam, in an area of Mattaponi fine sandy loam, 2 to 6 percent slopes, is located about 350 yards north northwest of the junction of Highways VA-627 and VA-675, and 200 yards north of Highway VA-675, about 2 miles northeast of Brink.

Ap--0 to 8 inches, brown (10YR 5/3) fine sandy loam; massive; very friable; many fine roots; strongly acid; abrupt smooth boundary.

Bt1--8 to 27 inches, yellowish red (5YR 4/6) clay, many medium distinct strong brown (7.5YR 5/8) mottles; moderate medium subangular blocky structure; friable, sticky, plastic; many fine roots; many distinct clay films and bridges on sand grains, common faint clay films on faces of peds; very strongly acid; gradual smooth boundary.

Bt2--27 to 40 inches, yellowish red (5YR 4/8) sandy clay, many medium distinct yellowish brown (10YR 5/8) mottles; weak medium subangular blocky structure; firm, slightly sticky; many distinct clay films and bridges on sand grains, few faint clay films on faces of peds; very strongly acid; diffuse smooth boundary.

C--40 to 72 inches, yellowish red (5YR 5/8) sandy loam, many medium prominent yellowish brown (10YR 5/8) and light gray (5Y 7/2) mottles; massive; firm; very strongly acid.

Table A: Particle size distribution\* for Mattaponi fine sandy loam, 2 to 6 percent slopes (Supplemental profile 2)

Horizon	Depth (in.)	Sand				Total	Silt	Clay	Textural Class
		Very Coarse	Coarse	Medium	Fine				
Ap	0-8	1.68	9.83	28.80	32.26	78.78	10.22	11.00	fs l
Bt1	8-27	1.40	5.53	14.86	12.71	37.13	14.87	48.00	c
Bt2	27-40	0.94	8.02	23.70	13.64	48.79	10.21	41.00	sc
C	40-72	0.41	10.89	41.67	19.49	73.76	6.24	20.00	sl

\*by hydrometer method Bouyoucos (1962)

Table B: Chemical properties for Mattaponi fine sandy loam, 2 to 6 percent slopes (Supplemental profile 2)

Lab No.	Horizon	Depth (in.)	pH	Organic Matter (%)	Exchangeable Cations (meq/100 gram)				Base Saturation (%)		
					Ca	Mg	K	H			
75-111	Ap	0-8	5.2	0.98	0.55	0.07	0.25	3.25	0.29	4.12	21.02
75-112	Bt1	8-27	4.8	0.19	1.25	0.68	0.25	11.75	1.45	13.93	15.65
75-113	Bt2	27-40	4.7	0.19	0.28	0.39	0.09	10.25	2.70	11.01	6.90
75-114	C	40-72	4.7	0.10	0.16	0.08	0.05	4.50	1.25	4.79	6.05

Table C: Soil test data for Mattaponi fine sandy loam, 2 to 6 percent slopes (Supplemental profile 2)

Horizon	Depth (in.)	pH	CaO*	MgO*	O.M. (%)	P205*	K20*	Zn ppm	Mn ppm
Ap	0-8	5.8	385	26	0.5	92	89	0.2	1.6
Bt1	8-27	5.0	853	143	0.2	5	72	0.0	0.5
Bt2	27-40	4.5	192	83	0.1	2	22	0.0	0.2
C	40-72	4.5	138	43	0.1	2	22	0.1	0.2

\*lbs/acre

Table D: Sand and clay mineralogy for Mattaponi fine sandy loam, 2 to 6 percent slopes (Supplemental profile 2)

Horizon	Depth (in.)	Percent Sand Minerals Present*	Percent Clay Minerals Present*
Bt1	8-27	Qz, 91; Fd, 0.5; Mi, 1; Hm 7.5 (Fe-minerals, goethite, epidote and zircon)	Mont, (trace); Verm., (3); Kao., (2); Gibb., (3) Goethite, (1); Qz, (1)

\*Qz = Quartz; Fd = Feldspar; Mi=mica; Hm = Heavy minerals including magnetite, zircon, ilmenite, Verm. = Vermiculite; Kao = kaolinite; Mont. = Montmorillonite; Gibb. = Gibbsite, Goe. = Goethite

## MATTAPONI SUPPLEMENTAL PROFILE 3

Supplemental profile 3 of Mattaponi loamy sand, in an area of Mattaponi fine sandy loam, 2 to 6 percent slopes, is located about 0.7 miles south of the junction of Highways VA-633 and VA-603 and 1.2 miles northwest of the junction of Highways VA-603 and VA-631.

Oe--1 to 0 inches, undecomposed and partially decomposed leaves and twigs.

Ap--0 to 6 inches, light olive brown (2.5Y 5/4) loamy sand; massive; friable; common fine, medium, and coarse roots; strongly acid; abrupt wavy boundary.

E--6 to 14 inches, light yellowish brown (2.5Y 6/4) sandy loam; massive; friable; common fine, medium, and coarse roots; strongly acid; clear smooth boundary.

Bt1--14 to 22 inches, yellowish brown (10YR 5/6) clay, few coarse distinct dark red (10R 3/6) mottles; weak medium subangular blocky structure; firm, sticky, plastic; common fine, medium, and coarse roots; common faint clay films on faces of peds; strongly acid; gradual smooth boundary.

Bt2--22 to 29 inches, strong brown (7.5YR 5/6) sandy clay, many medium distinct red (2.5YR 4/8) and light gray (10YR 7/1) mottles; weak coarse platy structure; firm, sticky, plastic; few fine and medium roots; common faint clay films on faces of peds; strongly acid; diffuse smooth boundary.

Bt3--29 to 38 inches, mottled red (2.5YR 4/8), yellowish brown (10YR 5/8), light gray (10YR 7/1), and dark red (10R 4/8) sandy clay; weak, medium, and coarse platy structure; firm, slightly sticky, slightly plastic; few fine and medium roots; common faint clay films on faces of peds; few fine flakes of mica; strongly acid; diffuse smooth boundary.

C1--38 to 52 inches, red (2.5YR 4/8) sandy clay loam, many coarse distinct yellowish brown (10YR 6/6) and light gray (10YR 7/1) mottles; massive; friable, slightly sticky, slightly plastic; few fine and medium roots; few fine flakes of mica; strongly acid; diffuse smooth boundary.

C2--52 to 65 inches, red (2.5YR 4/8) sandy clay loam, many coarse distinct yellowish brown (10YR 6/6) and light gray (10YR 7/1) mottles; massive; friable, slightly sticky, slightly plastic; few fine flakes of mica; very strongly acid.



Table A: Particle size distribution\* for Mattaponi loamy sand, 2 to 6 percent slopes (Supplemental profile 3)

Horizon	Depth (in.)	Sand						Total	Silt	Clay	Textural Class
		Very Coarse	Coarse	Medium	Fine	Very Fine	%				
Ap	0-6	5.99	27.25	21.50	16.57	4.77	76.08	17.78	6.14	Is	
E	6-14	5.98	29.70	23.62	12.23	3.84	75.37	18.70	5.93	sl	
Bt1	14-22	2.44	17.16	15.61	6.56	2.00	43.77	7.97	48.24	c	
Bt2	22-29	3.39	20.29	17.48	3.95	1.37	46.48	4.38	49.13	sc	
Bt3	29-38	2.08	24.22	26.61	3.42	0.99	57.32	3.41	39.27	sc	
C1	38-52	2.98	29.94	27.69	4.00	1.47	66.08	3.11	30.80	scl	
C2	52-65	10.63	41.96	17.83	5.28	1.34	77.04	2.23	20.12	scl	

\*by pipette method Day (1965)

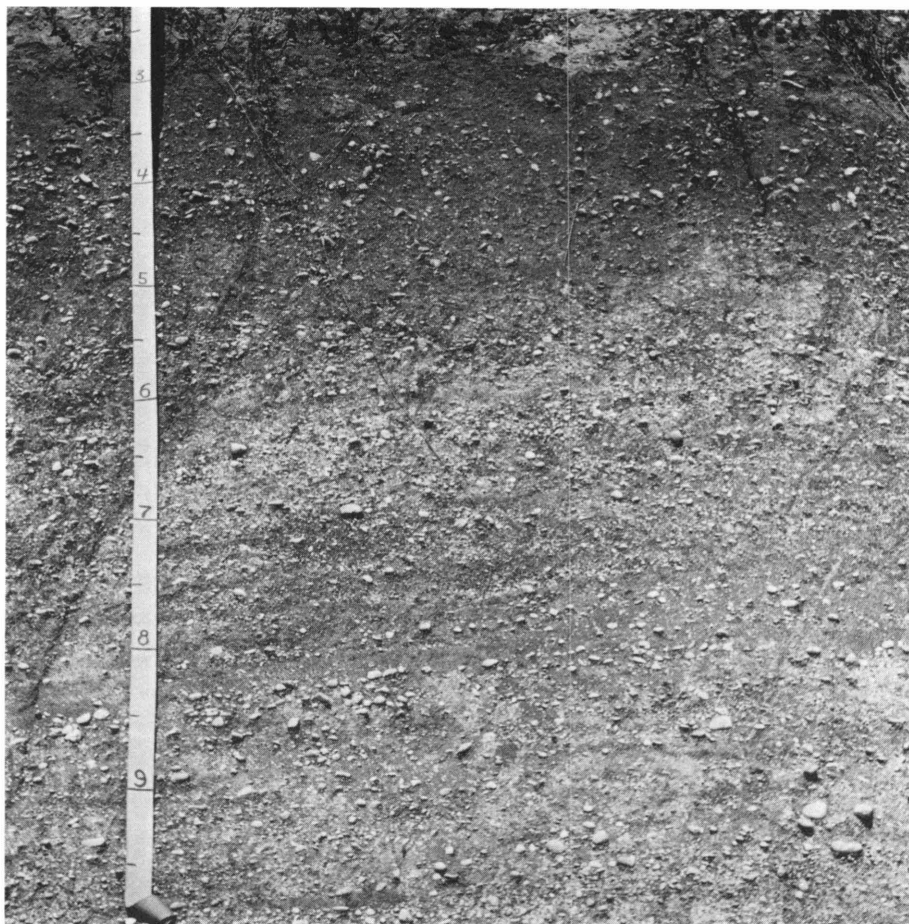
Table B: Chemical properties for Mattaponi loamy sand, 2 to 6 percent slopes (Supplemental profile 3)

Lab No.	Horizon	Depth (in.)	pH	Organic Matter (%)	Exchangeable Cations (meq/100 gram)					Base Saturation (%)	
					Ca	Mg	K	H	Al		Total
---	Ap	0-6	5.1	0.54	0.28	0.30	0.03	0.94	0.79	1.28	26.56
---	E	6-14	5.3	0.08	0.30	0.04	0.03	0.16	0.30	0.53	69.52
---	Bt1	14-22	5.5	0.09	2.35	0.71	0.07	5.47	0.10	8.60	36.36
---	Bt2	22-29	5.3	0.08	0.85	0.44	0.08	6.56	1.19	7.92	17.17
---	Bt3	29-38	5.3	0.05	0.16	0.16	0.07	5.47	1.78	5.85	6.50
---	C1	38-52	5.1	0.10	0.04	0.07	0.05	5.62	1.39	5.77	2.60
---	C2	52-65	5.0	0.10	0.04	0.03	0.05	3.28	0.89	3.40	3.39

Table E: Other physical properties for Mattaponi loamy sand, 2 to 6 percent slopes (Supplemental profile 3)

Horizon	Depth (in.)	Swell Index*	Liquid Limit	Plasticity Index
Bt2	22-29	2050	63.03	20.35
C1	38-52	375	57.80	19.48

\*lbs/square foot



Profile of 25B - Mattaponi gravelly sandy loam, 2 to 6 percent slopes.



Cotton on 25B - Mattaponi gravelly sandy loam, 2 to 6 percent slopes.



Peanuts on 24B - Mattaponi sandy loam, 2 to 6 percent slopes.



Cotton on 24B - Mattaponi sandy loam, 2 to 6 percent slopes.

## ORANGEBURG SERIES

Soils of the Orangeburg series are very deep and well drained. They formed in loamy unconsolidated fluvial and marine sediments on uplands in the Coastal Plain physiographic province. Slopes range from 0 to 2 percent.

A typical profile of Orangeburg loamy sand, 0 to 2 percent slopes, is located about 0.4 miles north northwest of the junction of Highways VA-627 and VA-675 and 35 yards east of Highway VA-675, about 5 miles southwest of Emporia.

Ap--0 to 10 inches, brown (10YR 5/3) loamy sand; massive; very friable; many fine and medium roots; moderately acid; abrupt smooth boundary.

E--10 to 16 inches, yellowish brown (10YR 5/6) fine sandy loam; massive; friable, slightly sticky; common fine roots; strongly acid; clear smooth boundary.

Bt1--16 to 37 inches, yellowish red (5YR 4/8) sandy clay loam; weak medium subangular blocky structure; friable, sticky, slightly plastic; common fine roots; many distinct clay films and bridges on sand grains, few faint clay films on faces of peds; very strongly acid; gradual smooth boundary.

Bt2--37 to 57 inches, red (2.5YR 4/6) sandy clay loam; weak medium subangular blocky structure; friable, sticky, slightly plastic; few fine roots; many distinct clay films and bridges on sand grains, few faint clay films on faces of peds; very strongly acid; diffuse smooth boundary.

Bt3--57 to 71 inches, red (2.5YR 4/6) sandy clay; weak medium subangular blocky structure; friable, sticky, slightly plastic; few fine roots; many distinct clay films and bridges on sand grains, few faint clay films on faces of peds; very strongly acid.

Table A: Particle size distribution\* for Orangeburg loamy sand, 0 to 2 percent slopes

Horizon	Depth (in.)	Sand					Total	Silt	Clay	Textural Class
		Very Coarse	Coarse	Medium	Fine	Very Fine				
Ap	0-10	0.57	7.05	23.61	44.46	7.70	83.39	11.81	4.80	ls
E	10-16	0.52	4.92	18.65	41.19	7.62	73.62	16.78	9.60	fsl
Bt1	16-37	0.65	4.44	15.24	31.81	5.67	57.81	9.19	33.00	scI
Bt2	37-57	0.83	4.95	25.61	30.25	4.98	56.62	8.78	34.60	scI
Bt3	57-71	0.99	3.97	13.20	25.58	4.12	47.86	9.54	42.60	sc

\*by hydrometer method Bouyoucos (1962)

Table B: Chemical properties for Orangeburg loamy sand, 0 to 2 percent slopes

Lab No.	Horizon	Depth (in.)	pH	Organic Matter (%)	Exchangeable Cations (meq/100 gram)					Base Saturation (%)	
					Ca	Mg	K	H	Al		Total
75-083	Ap	0-10	5.9	0.90	0.67	0.08	0.31	3.00	0.10	4.05	25.93
75-084	E	10-16	5.4	0.32	0.43	0.07	0.30	2.25	0.19	3.05	26.11
75-085	Bt1	16-37	5.0	0.32	1.30	0.39	0.53	5.75	0.29	7.97	27.81
75-086	Bt2	37-57	5.0	0.17	1.25	0.59	0.18	7.00	0.58	9.02	22.39
75-087	Bt3	57-71	4.9	0.21	0.93	0.63	0.14	8.00	0.87	9.70	17.53

Table C: Soil test data for Orangeburg loamy sand, 0 to 2 percent slopes

Horizon	Depth (in.)	pH	CaO*	MgO*	O. M. (%)	P205*	K20*	Zn ppm	Mn ppm
Ap	0-10	6.1	605	36	0.9	275+	169	1.2	2.5
E	10-16	5.9	220	23	0.2	25	157	0.4	1.2
Bt1	16-37	5.5	660	100	0.2	2	183	0.2	0.4
Bt2	37-57	5.2	633	123	0.1	0	67	0.0	0.1
Bt3	57-71	4.9	495	139	0.1	2	22	0.1	0.0

\* lbs/acre

Table D: Sand mineralogy for Orangeburg loamy sand, 0 to 2 percent slopes

Horizon	Depth (in.)	Percent Minerals Present*
Bt1	16-37	Qz 89, Fd 0.5, Hm 10.5

\*Qz = quartz, Fd = feldspar, Hm = heavy minerals

Table E: Other physical properties for Orangeburg loamy sand, 0 to 2 percent slopes

Horizon	Depth (in.)	Swell Index*	Liquid Limit	Plasticity Index
Bt1	16-37	972	28.66	13.66

\* lbs/square foot



## ORANGEBURG SUPPLEMENTAL PROFILE 1

Supplemental profile 1 of Orangeburg sand, in an area of Orangeburg loamy sand, 0 to 2 percent slopes, is located about 530 yards west northwest of the junction of Highways VA-627 and VA-675 and 25 yards north of Highway VA-675.

Ap--0 to 10 inches, brown (10YR 5/3) sand; single grain; loose; few fine and medium roots; neutral; abrupt smooth boundary.

Bt1--10 to 17 inches, strong brown (7.5YR 5/6) fine sandy loam; weak medium subangular blocky structure; very friable; few fine roots; many distinct clay films and bridges on sand grains; slightly acid; gradual smooth boundary.

Bt2--17 to 33 inches, yellowish red (5YR 5/6) sandy clay loam; weak medium subangular blocky structure; friable, slightly sticky, slightly plastic; few fine roots; many distinct clay films and bridges on sand grains, few faint clay films on faces of peds; strongly acid; gradual smooth boundary.

Bt3--33 to 48 inches, red (2.5YR 4/6) sandy clay loam; weak medium subangular blocky structure; friable, sticky, slightly plastic; few fine roots; many distinct clay films and bridges on sand grains, few faint clay films on faces of peds; strongly acid; diffuse smooth boundary.

Bt4--48 to 72 inches, red (2.5YR 4/6) sandy clay; weak medium subangular blocky structure; friable, sticky, slightly plastic; few fine roots; many distinct clay films and bridges on sand grains, few faint clay films on faces of peds; very strongly acid.

Table A: Particle size distribution\* for Orangeburg sand, 0 to 2 percent slopes (Supplemental profile 1)

Horizon	Depth (in.)	Sand				Total	Silt	Clay	Textural Class
		Very Coarse	Coarse	Medium	Fine				
Ap	0-10	0.19	9.01	21.44	48.99	88.29	8.21	3.50	s
Bt1	10-17	0.79	6.39	17.14	41.90	74.07	14.93	11.00	fsl
Bt2	17-33	1.24	5.53	12.79	32.18	58.29	10.71	31.00	sci
Bt3	33-48	1.26	5.74	12.93	31.30	57.23	8.77	34.00	sci
Bt4	48-72	1.61	4.97	11.90	28.13	51.25	9.75	39.00	sc

\*by hydrometer method Bouyoucos (1962)

Table B: Chemical properties for Orangeburg sand, 0 to 2 percent slopes (Supplemental profile 1)

Lab No.	Horizon	Depth (in.)	pH	Organic Matter (%)	Exchangeable Cations (meq/100 gram)					Base Saturation (%)	
					Ca	Mg	K	H	Al		Total
75-106	Ap	0-10	6.6	0.69	0.67	0.13	0.11	1.25	0.10	2.16	42.13
75-107	Bt1	10-17	6.3	0.27	0.52	0.15	0.19	1.50	ND	2.36	36.44
75-108	Bt2	17-33	5.1	0.27	1.15	0.60	0.36	6.00	0.39	8.11	26.02
75-109	Bt3	33-48	5.2	0.13	1.20	0.47	0.11	5.50	0.48	7.28	24.40
75-110	Bt4	48-72	4.9	0.16	1.00	0.49	0.09	7.25	0.58	8.83	17.89

Table C: Soil test data for Orangeburg sand, 0 to 2 percent slopes  
(Supplemental profile 1)

Horizon	Depth (in.)	pH	CaO*	MgO*	O.M. (%)	P205*	K2O*	Zn ppm	Mn ppm
Ap	0-10	6.3	715	60	0.5	193	72	0.9	1.9
Bt1	10-17	6.1	330	56	0.2	7	128	0.1	1.3
Bt2	17-33	5.4	715	152	0.2	0	164	0.1	0.3
Bt3	33-48	5.3	715	116	0.1	2	48	0.0	0.2
Bt4	48-72	4.8	426	96	0.2	2	17	0.1	0.0

\* lbs/acre

## ORANGEBURG SUPPLEMENTAL PROFILE 2

Supplemental profile 2 of Orangeburg loamy sand, in an area of Orangeburg loamy sand, 0 to 2 percent slopes, is located about 0.6 miles north northwest of the junction of Highways VA-627 and VA-675 and 65 yards east of Highway VA-675.

Ap--0 to 5 inches, dark brown (10YR 4/3) loamy sand; massive; very friable; many fine and medium roots; slightly acid; abrupt smooth boundary.

E1--5 to 10 inches, yellowish brown (10YR 5/4) loamy sand; massive; very friable; few medium roots; very strongly acid; diffuse smooth boundary.

E2--10 to 20 inches, yellowish brown (10YR 5/4) loamy sand; massive; very friable; few fine roots; very strongly acid; clear smooth boundary.

Bt1--20 to 40 inches, red (2.5YR 4/6) sandy clay; weak medium subangular blocky structure; friable, sticky, slightly plastic; few fine roots; many distinct clay films and bridges on sand grains, few faint clay films on faces of peds; very strongly acid; gradual smooth boundary.

Bt2--40 to 60 inches, red (2.5YR 4/6) sandy clay loam; weak medium subangular blocky structure; friable, sticky, slightly plastic; few fine roots; many distinct clay films and bridges on sand grains, few faint clay films on faces of peds; moderately acid; diffuse smooth boundary.

Bt3--60 to 82 inches, red (2.5YR 4/6) sandy clay; weak medium subangular blocky structure; friable, sticky, slightly plastic; few fine roots; many distinct clay films and bridges on sand grains, few faint clay films on faces of peds; strongly acid.

Table A: Particle size distribution\* for Orangeburg loamy sand, 0 to 2 percent slopes (Supplemental profile 2)

Horizon	Depth (in.)	Sand					Total	Silt	Clay	Textural Class
		Very Coarse	Coarse	Medium	Fine	Very Fine				
Ap	0-5	6.55	23.66	48.78	7.38	86.87	8.33	4.80	Is	
E1	5-10	7.44	23.76	48.25	6.45	86.85	7.85	5.30	Is	
E2	10-20	7.82	24.19	47.24	6.34	86.50	8.20	5.30	Is	
Bt1	20-40	5.41	17.42	30.13	4.75	58.11	6.29	35.60	Sc	
Bt2	40-60	5.49	18.69	31.18	5.19	61.11	9.88	29.00	ScI	
Bt3	60-82	4.39	15.54	27.22	4.96	52.84	9.16	38.00	Sc	

\*by hydrometer method Bouyoucos (1962)

Table B: Chemical properties for Orangeburg loamy sand, 0 to 2 percent slopes (Supplemental profile 2)

Lab No.	Horizon	Depth (in.)	pH	Organic Matter (%)	Exchangeable Cations (meq/100 gram)				Base Saturation (%)		
					Ca	Mg	K	H			
75-088	Ap	0-5	6.1	1.72	0.80	0.48	0.15	2.50	0.10	3.93	36.31
75-089	E1	5-10	4.7	0.45	0.05	0.03	0.03	3.00	0.48	3.11	3.38
75-090	E2	10-20	4.6	0.21	0.05	0.02	0.04	2.50	0.29	2.61	4.21
75-091	Bt1	20-40	4.7	0.12	0.31	1.00	0.18	7.00	0.87	8.49	17.50
75-092	Bt2	40-60	5.6	0.12	0.10	0.36	0.14	5.75	0.77	6.35	9.38
75-093	Bt3	60-82	5.3	0.14	0.09	0.34	0.11	8.25	1.16	8.79	6.09

Table C: Soil test data for Orangeburg loamy sand, 0 to 2 percent slopes (Supplemental profile 2)

Horizon	Depth (in.)	pH	CaO*	MgO*	O.M. (%)	P2O5*	K2O*	Zn ppm	Mn ppm
Ap	0-5	6.0	550	219	1.1	50	24	1.4	3.5
E1	5-10	5.0	82	16	0.1	2	17	0.2	0.6
E2	10-20	4.9	82	16	0.2	2	17	0.2	0.7
Bt1	20-40	4.7	165	235	0.1	2	53	0.0	1.9
Bt2	40-60	5.3	82	96	0.1	2	41	0.1	0.1
Bt3	60-82	6.5	55	80	0.1	2	29	0.2	0.0

\* lbs/acre

## PEAWICK SERIES

Soils of the Peawick series are very deep and moderately well drained. They formed in clayey unconsolidated fluvial sediments. They are on stream terraces in the Coastal Plain physiographic province. Slopes range from 0 to 12 percent.

A typical profile of Peawick loam, 0 to 3 percent slopes, is located about 0.5 miles north northwest of the junction of Highways VA-622 and VA-625 and 20 yards west of Highway VA-622, about 9 miles southeast of Emporia.

Oe--2 to 0 inches, partially decomposed leaves and twigs.

Ap--0 to 4 inches, yellowish brown (10YR 5/4) loam; massive; friable, slightly sticky, slightly plastic; many fine, medium, and coarse roots; extremely acid; clear smooth boundary.

Bt1--4 to 10 inches, strong brown (7.5YR 5/6) clay, few medium distinct red (2.5YR 4/6) mottles; moderate fine and medium subangular blocky structure; firm, sticky, plastic; many fine, medium, and coarse roots; many distinct clay films on faces of peds; very strongly acid; gradual smooth boundary.

Bt2--10 to 17 inches, yellowish brown (10YR 5/8) clay, few medium distinct red (2.5YR 4/8) mottles; moderate fine and medium subangular blocky structure; firm, sticky, plastic; many fine, medium, and coarse roots; many distinct clay films on faces of peds; very strongly acid; diffuse smooth boundary.

Bt3--17 to 33 inches, yellowish brown (10YR 5/6) clay, many medium distinct light gray (5Y 7/2) and yellowish red (5YR 4/8) mottles; moderate medium subangular blocky structure; firm, sticky, plastic; common fine and medium roots; many distinct clay films on faces of peds; very strongly acid; diffuse smooth boundary.

Bt4--33 to 48 inches, mottled light gray (5Y 7/2) and yellowish brown (10YR 5/8) clay; moderate medium and coarse subangular blocky structure; firm, sticky, plastic; common fine and medium roots; many distinct clay films on faces of peds; extremely acid; diffuse smooth boundary.

Bt5--48 to 65 inches, yellowish brown (10YR 5/6) clay, many medium prominent light gray (5Y 7/2) mottles; weak medium subangular blocky structure; very firm, sticky, plastic; few fine and medium roots; many distinct clay films on faces of peds; few black and brown fine concretions; extremely acid.



Table A: Particle size distribution\* for Peawick loam, 0 to 3 percent slopes

Horizon	Depth (in.)	Sand				Total	Silt	Clay	Textural Class
		Very Coarse	Coarse	Medium	Fine				
Ap	0-4	0.22	0.71	1.44	15.68	44.72	43.68	11.60	I
Bt1	4-10	0.06	0.13	0.47	6.04	21.78	36.62	41.60	C
Bt2	10-17	0.04	0.04	0.28	4.85	16.58	34.82	48.60	C
Bt3	17-33	0.00	0.02	0.15	2.89	9.11	35.23	55.60	C
Bt4	33-48	0.04	0.20	0.58	5.31	11.10	35.30	53.60	C
Bt5	48-65	0.08	0.84	1.34	11.75	23.69	28.71	47.60	C

\*by hydrometer method Bouyoucos (1962)

Table B: Chemical properties for Peawick loam, 0 to 3 percent slopes

Lab No.	Horizon	Depth (in.)	pH	Organic Matter (%)	Exchangeable Cations (meq/100 gram)				Base Saturation (%)	
					Ca	Mg	K	H		
74-340	Ap	0-4	4.2	0.60	0.40	0.10	0.05	7.22	1.63	7.77
74-341	Bt1	4-10	4.7	0.19	0.39	0.47	0.05	13.55	4.81	14.46
74-342	Bt2	10-17	4.7	0.10	0.44	0.71	0.05	15.32	6.27	16.52
74-343	Bt3	17-33	4.5	0.05	0.16	1.75	0.10	19.37	9.61	21.38
74-344	Bt4	33-48	4.3	0.02	0.25	2.25	0.13	17.85	10.30	20.48
74-345	Bt5	48-65	4.3	0.05	0.50	2.00	0.09	14.56	7.55	17.15

Table C: Soil test data for Peawick loam, 0 to 3 percent slopes

Horizon	Depth (in.)	pH	CaO*	MgO*	O.M. (%)	P205*	K20*	Zn ppm	Mn ppm
Ap	0-4	4.5	220	46	---	2	31	---	---
Bt1	4-10	5.0	192	116	---	0	14	---	---
Bt2	10-17	5.1	192	169	---	0	14	---	---
Bt3	17-33	5.1	138	288	---	0	22	---	---
Bt4	33-48	5.0	165	398	---	2	29	---	---
Bt5	48-65	5.0	192	378	---	2	22	---	---

\* lbs/acre

Table D: Sand and clay mineralogy for Peawick loam, 0 to 3 percent slopes

Horizon	Depth (in.)	Percent	
		Sand Minerals Present*	Clay Minerals Present*
Bt2	10-17	QZ 86, Fd 9, M 4, HM 1%	Mont. 15-20, Ch.V. 10-15, Kao 50-65, Goe 5-10

\*Qz = Quartz, Fd = Feldspar, M = Mica, HM = Heavy minerals including magnetite, zircon, and ilmenite, Ch.V. = Chloritized Vermiculite, kao = kaolinite, Mont. = Montmorillonite; Gibb. = Gibbsite, Goe. = Goethite, Qz = Quartz

Table E: Other physical properties for Peawick loam,  
0 to 3 percent slopes

Horizon	Depth (in.)	Swell Index*	Liquid Limit	Plasticity Index
Bt3	17-33	6509	66.67	37.26

\*lbs/square foot

## PEAWICK SUPPLEMENTAL PROFILE 1

Supplemental profile 1 of Peawick fine sandy loam, in an area of Peawick loam, 0 to 3 percent slopes, is located about 1 mile west northwest of the junction of Highways VA-730 and VA-622 and 1.1 miles north northeast of the junction of Highways VA-625 and VA-622.

Ap--0 to 8 inches, light yellowish brown (2.5Y 6/4) fine sandy loam; massive; friable, slightly sticky, slightly plastic; many fine roots; moderately acid; gradual smooth boundary.

Bt1--8 to 14 inches, yellowish brown (10YR 5/6) clay loam, common medium distinct light yellowish brown (10YR 6/4) mottles; weak medium subangular blocky structure; firm, sticky, plastic; common fine roots; many distinct clay films on faces of peds; moderately acid; gradual smooth boundary.

Bt2--14 to 28 inches, yellowish brown (10YR 5/6) clay, common medium distinct red (2.5YR 4/8) mottles; moderate medium subangular blocky structure; firm, sticky, plastic; few fine roots; many distinct clay films on faces of peds; strongly acid; diffuse smooth boundary.

Bt3--28 to 41 inches, mottled red (2.5YR 4/8), reddish yellow (7.5YR 6/6), and light gray (10YR 7/1) clay; moderate medium angular blocky structure; firm, sticky, plastic; many distinct clay films on faces of peds; moderately acid; clear smooth boundary.

Bt4--41 to 62 inches, mottled red (2.5YR 4/8), brownish yellow (10YR 6/6), and light gray (10YR 7/1) clay loam; weak coarse subangular blocky structure; firm, slightly sticky, slightly plastic; many distinct clay films on faces of peds; strongly acid.

Table A: Particle size distribution\* for Peawick fine sandy loam, 0 to 3 percent slopes (Supplemental profile 1)

Horizon	Depth (in.)	Sand				Fine %	Very Fine	Total	Silt	Clay	Textural Class
		Very Coarse	Coarse	Medium	Fine						
Ap	0-8	0.51	2.10	9.06	32.77	23.30	67.74	26.96	5.30	fsl	
Bt1	8-14	0.61	1.42	4.91	17.02	12.91	36.86	31.53	31.60	cl	
Bt2	14-28	0.41	1.04	3.13	10.57	7.99	23.14	30.25	46.60	c	
Bt3	28-41	1.41	2.20	2.86	10.40	10.82	27.71	28.69	43.60	c	
Bt4	41-62	0.05	0.22	1.46	19.83	21.95	43.51	28.89	27.60	cl	

\*by hydrometer method Bouyoucos (1962)

Table C: Soil test data for Peawick fine sandy loam, 0 to 3 percent slopes (Supplemental profile 1)

Horizon	Depth (in.)	pH	CaO*	MgO*	O.M. (%)	P205*	k20*	Zn ppm	Mn ppm
Ap	0-8	5.7	550	46	---	41	53	---	---
Bt1	8-14	5.9	990	126	---	5	108	---	---
Bt2	14-28	5.1	1486	192	---	2	36	---	---
Bt3	28-41	5.8	523	113	---	2	55	---	---
Bt4	41-62	5.1	165	46	---	5	55	---	---

#lbs/acre

Table E: Other physical properties for Peawick fine sandy loam, 0 to 3 percent slopes (Supplemental profile 1)

Horizon	Depth (in.)	Swell Index*	Liquid Limit	Plasticity Index
Bt1	8-14	400	29.70	14.50
Bt2	14-28	2950	65.20	35.48
Bt3	28-41	3200	67.90	32.83
Bt4	41-62	1700	43.60	17.14

\*lbs/square foot

## PEAWICK SUPPLEMENTAL PROFILE 2

Supplemental profile 2 of Peawick fine sandy loam, in an area of Peawick loam, 0 to 3 percent slopes, is located about 350 yards north of the junction of Fountain Creek and SCL Railroad and 65 yards east of the railroad.

Oi--2 to 0 inches, undecomposed and partially decomposed leaves and twigs.

A--0 to 2 inches, very dark grayish brown (10YR 3/2) fine sandy loam; weak fine granular structure; very friable; many fine, medium, and coarse roots; extremely acid; abrupt wavy boundary.

E--2 to 14 inches, light yellowish brown (2.5Y 6/4) fine sandy loam, many medium faint olive (5Y 5/3) mottles; massive; very friable; many fine medium and coarse roots; very strongly acid; gradual wavy boundary.

Bt1--14 to 27 inches, yellowish brown (10YR 5/6) clay loam; moderate fine and medium subangular blocky structure; friable, sticky, plastic; common fine and medium roots; common faint clay films on faces of peds; very strongly acid; diffuse smooth boundary.

Bt2--27 to 39 inches, yellowish brown (10YR 5/6) clay, common medium distinct light gray (10YR 7/1) and red (2.5YR 4/8) mottles; moderate medium subangular blocky structure; firm, sticky, plastic; common fine and medium roots; many distinct clay films on faces of peds; very strongly acid; diffuse smooth boundary.

Bt3--39 to 51 inches, light gray (10YR 7/1) silty clay loam, many medium distinct brownish yellow (10YR 6/6) and red (2.5YR 4/8) mottles; moderate coarse subangular blocky structure; firm, sticky, plastic; few fine roots; many distinct clay films on faces of peds; very strongly acid; diffuse smooth boundary.

Bt4--51 to 66 inches, mottled yellowish brown (10YR 5/8), light gray (10YR 7/1), and brownish yellow (10YR 6/6) silty clay loam; weak coarse subangular blocky

structure; friable, slightly sticky, slightly plastic; few fine roots; many distinct clay films on faces of peds; very strongly acid; diffuse smooth boundary.

C--66 to 74 inches, mottled yellowish brown (10YR 5/6), light gray (10YR 7/1), and brownish yellow (10YR 6/6) loam; massive; friable, slightly sticky, slightly plastic; few fine roots; very strongly acid.



Table A: Particle size distribution\* for Peawick fine sandy loam, 0 to 3 percent slopes (Supplemental profile 2)

Horizon	Depth (in.)	Sand				Fine %	Very Fine	Total	Silt	Clay	Textural Class
		Very Coarse	Coarse	Medium	Fine						
A	0-2	1.76	5.33	12.05	31.14	17.78	68.06	24.54	7.40	fsl	
E	2-14	0.80	3.89	9.37	31.60	19.88	65.54	23.06	11.40	fsl	
Bt1	14-27	0.78	1.35	3.65	19.45	12.59	37.82	26.78	35.40	cl	
Bt2	27-39	0.34	0.80	2.08	10.50	10.16	23.88	36.12	40.00	c	
Bt3	39-51	0.00	0.07	0.52	5.45	11.46	17.50	46.90	35.60	sicl	
Bt4	51-66	0.08	0.23	1.50	7.45	8.81	17.62	46.38	36.00	sicl	
C	66-74	0.00	0.10	3.47	24.31	12.45	40.31	34.29	25.40	l	

\*by hydrometer method Bouyoucos (1962)

Table B: Chemical properties for Peawick fine sandy loam, 0 to 3 percent slopes (Supplemental profile 2)

Lab No.	Horizon	Depth (in.)	pH	Organic Matter (%)	Exchangeable Cations (meq/100 gram)				Base Saturation (%)		
					Ca	Mg	K	Total			
73-863	A	0-2	4.2	2.04	0.22	0.09	0.13	9.14	2.06	9.58	4.59
73-864	E	2-14	4.6	0.28	0.04	0.02	0.04	3.28	0.69	3.38	2.81
73-865	Bt1	14-27	4.7	0.12	0.34	0.38	0.11	8.10	4.03	8.93	9.24
73-866	Bt2	27-39	4.7	0.06	0.39	0.53	0.15	11.03	6.09	12.10	8.84
73-867	Bt3	39-51	4.7	0.06	0.10	0.27	0.10	9.65	6.18	10.12	4.64
73-868	Bt4	51-66	4.7	0.04	0.04	0.16	0.09	10.17	5.84	10.46	2.73
73-869	C	66-74	4.5	0.04	0.03	0.08	0.07	8.10	4.81	8.28	2.17

Table C: Soil test data for Peawick fine sandy loam, 0 to 3 percent slopes (Supplemental profile 2)

Horizon	Depth (in.)	pH	CaO*	MgO*	O.M. (%)	P205*	K20*	Zn ppm	Mn ppm
A	0-2	4.4	0	23	---	2	53	---	---
E	2-14	4.9	0	23	---	7	17	---	---
Bt1	14-27	4.9	55	116	---	5	36	---	---
Bt2	27-39	4.9	82	126	---	7	55	---	---
Bt3	39-51	4.9	28	60	---	2	43	---	---
Bt4	51-66	4.7	28	20	---	2	22	---	---
C	66-74	4.8	55	40	---	2	29	---	---

\* lbs/acre



Cultivated fields of 27A - Peawick loam, 0 to 3 percent slopes, and forests on 31A - Roanoke loam, frequently flooded, 0 to 2 percent slopes.



Corn on 27A - Peawick loam, 0 to 3 percent slopes.



V-drainage ditch in 27A - Peawick loam, 0 to 3 percent slopes.

## RIVERVIEW SERIES

Soils of the Riverview series are very deep and well drained. They formed in loamy unconsolidated fluvial sediments. They are on floodplains in the Coastal Plain physiographic province. Slopes range from 0 to 2 percent.

A typical profile of Riverview silt loam, frequently flooded, 0 to 2 percent slopes, is located about 0.9 miles northeast of the junction of Highways VA-730 and VA-622 and 175 yards west of the Meherrin River, about 2.5 miles southeast of Claesville.

Oi--2 to 0 inches, partially decomposed leaves and twigs.

A--0 to 6 inches, brown (10YR 4/3) silt loam; weak fine and medium granular structure; friable, slightly sticky, slightly plastic; many fine, medium, and coarse roots; many fine flakes of mica; moderately acid; abrupt smooth boundary.

Bw1--6 to 21 inches, dark yellowish brown (10YR 4/4) silty clay loam; weak medium subangular blocky structure; friable, slightly sticky, slightly plastic; many fine, medium, and coarse roots; many faint silt coatings on faces of peds; many fine flakes of mica; moderately acid; diffuse smooth boundary.

Bw2--21 to 38 inches, dark yellowish brown (10YR 4/4) loam; weak fine and medium subangular blocky structure; friable, slightly sticky, slightly plastic; many fine, medium, and coarse roots; many silt coatings on faces of peds; many fine flakes of mica; strongly acid; diffuse smooth boundary.

C1--38 to 56 inches, very pale brown (10YR 7/4) sand, many medium distinct yellowish brown (10YR 5/6) and black (10YR 2/1) mottles; single grain; loose; common fine and medium roots; many fine and medium flakes of mica; moderately acid; clear smooth boundary.

C2--56 to 69 inches, dark yellowish brown (10YR 4/4) fine sandy loam, many medium distinct light olive gray (5Y 6/2) mottles; massive; very friable; common fine and medium roots; many fine flakes of mica; strongly acid; clear smooth boundary.

C3--69 to 81 inches, mottled very pale brown (10YR 7/3), yellow (10YR 7/6), and black (10YR 2/1) fine sand; massive; loose; few fine roots; many fine and medium flakes of mica; strongly acid.

Table A: Particle size distribution\* for Riverview silt loam, frequently flooded, 0 to 2 percent slopes

Horizon	Depth (in.)	Sand				Very Fine		Silt	Clay	Textural Class
		Very Coarse	Coarse	Medium	Fine	Fine	Total			
A	0-6	0.02	0.10	0.49	3.06	5.59	9.26	64.94	25.80	sil
Bw1	6-21	0.01	0.04	0.31	4.72	9.49	14.57	47.63	37.80	sic1
Bw2	21-38	0.02	0.78	5.54	18.98	21.14	46.46	33.14	20.40	l
C1	38-56	0.64	10.92	46.30	35.70	2.42	95.98	3.42	0.60	s
C2	56-69	0.01	0.13	2.16	32.50	32.23	67.03	23.77	9.20	fs1
C3	69-81	0.01	0.81	25.59	56.30	8.16	90.87	4.53	4.60	fs

\*by hydrometer method Bouyoucos (1962)

Table B: Chemical properties for Riverview silt loam, frequently flooded, 0 to 2 percent slopes

Lab No.	Horizon	Depth (in.)	pH	Organic Matter (%)	Exchangeable Cations (meq/100 gram)					Base Saturation (%)	
					Ca	Mg	K	H	AI		Total
75-536	A	0-6	5.6	2.55	5.33	1.24	0.16	9.46	0.29	16.19	41.57
75-537	Bw1	6-21	5.6	1.34	5.34	1.14	0.08	8.11	0.20	14.67	44.72
75-538	Bw2	21-38	5.5	0.91	3.16	0.78	0.06	5.92	0.39	9.92	40.32
75-539	C1	38-56	5.9	0.15	0.46	0.14	0.02	0.68	0.10	1.30	47.69
75-540	C2	56-69	5.4	0.58	2.34	0.62	0.05	4.39	0.39	7.40	40.68
75-541	C3	69-81	5.4	0.24	0.73	0.20	0.02	1.35	0.20	2.30	41.30



Table C: Soil test data for Riverview silt loam, frequently flooded, 0 to 2 percent slopes

Horizon	Depth (in.)	pH	CaO*	MgO*	O.M. (%)	P2O5*	K2O*	Zn ppm	Mn ppm
A	0-6	5.5	1540	302	1.4	18	48	2.2	12+
Bw1	6-21	5.7	1788	338	0.9	9	24	1.5	12+
Bw2	21-38	5.7	908	189	0.3	23	17	1.3	8.1
C1	38-56	5.7	192	43	0.2	23	29	0.3	2.2
C2	56-69	5.5	715	169	0.2	41	14	1.0	5.2
C3	69-81	5.7	385	83	0.1	34	14	0.6	3.2

\*lbs/acre

Table D: Sand mineralogy for Riverview silt loam, frequently flooded, 0 to 2 percent slopes

Horizon	Depth (in.)	Percent Minerals Present*
Bw1	6-21	Qz 68, Fd 21, M 5, HM 8
Bw2	21-38	Qz 68.5, Fd 14, M 7, HM 10.5
C1	38-56	Qz 72, Fd 16: M 3, HM 9
C2	56-69	Qz 66, Fd 15.5, M 6.5, HM 12
C3	69-81	Qz 72.5, Md 15.5, M 3, HM 9

\*Qz = Quartz, Fd = Feldspar, M = Mica, HM = Heavy minerals including magnetite, zircon, and ilmenite

Table E: Other physical properties for Riverview silt loam, frequently flooded, 0 to 2 percent slopes

Horizon	Depth (in.)	Swell Index*	Liquid Limit	Plasticity Index
Bw2	21-38	427	24.48	4.81

\*lbs/square foot

## RIVERVIEW SUPPLEMENTAL PROFILE 1

Supplemental profile 1 of Riverview fine sandy loam, in an area of Riverview silt loam, frequently flooded, 0 to 2 percent slopes, is located about 1.7 miles west northwest of the junction of the SCL Railroad and the Virginia-North Carolina state line and 350 yards south of the Meherrin River.

A--0 to 6 inches, dark brown (10YR 4/3) fine sandy loam; weak fine granular structure; very friable, slightly sticky, slightly plastic; many fine and medium roots; common fine flakes of mica; very strongly acid; clear smooth boundary.

Bw1--6 to 17 inches, brown (7.5YR 4/4) fine sandy loam; weak medium subangular blocky structure; very friable, slightly sticky, slightly plastic; many fine, medium, and coarse roots; common fine flakes of mica; very strongly acid; clear smooth boundary.

Bw2--17 to 26 inches, strong brown (7.5YR 5/6) fine sandy loam; weak medium subangular blocky structure; very friable, loose; few fine roots; common fine flakes of mica; very strongly acid; clear smooth boundary.

Bw3--26 to 44 inches, brown (7.5YR 4/4) fine sandy loam; weak medium subangular blocky structure; very friable, slightly sticky, slightly plastic; many fine, medium, and coarse roots; common fine flakes of mica; very strongly acid; clear smooth boundary.

C--44 to 70 inches, yellowish brown (10YR 5/6) fine sand; single grain; loose; common fine flakes of mica; strongly acid.

Table A: Particle size distribution\* for Riverview fine sandy loam, frequently flooded, 0 to 2 percent slopes (Supplemental profile 1)

Horizon	Depth (in.)	Sand					Total	Silt	Clay	Textural Class
		Very Coarse	Coarse	Medium	Fine	Very Fine				
A	0-6	0.02	0.35	5.11	41.03	17.31	63.82	18.18	18.00	fsl
Bw1	6-17	0.00	0.09	6.02	47.57	14.92	68.60	14.90	16.50	fsl
Bw2	17-26	0.02	0.10	5.48	50.00	20.00	75.60	12.90	11.50	fsl
Bw3	26-44	0.01	0.04	2.49	28.97	25.38	56.89	26.11	17.00	fsl
C	44-70	0.00	0.05	6.72	69.27	14.25	90.29	5.71	4.00	fs

\*by hydrometer method Bouyoucos (1962)

Table B: Chemical properties for Riverview fine sandy loam, frequently flooded, 0 to 2 percent slopes (Supplemental profile 1)

Lab No.	Horizon	Depth (in.)	pH	Organic Matter (%)	Exchangeable Cations (meq/100 gram)				Base Saturation (%)	
					Ca	Mg	K	H		
75-037	A	0-6	4.6	2.52	1.00	0.71	0.13	8.75	10.59	17.33
75-038	Bw1	6-17	4.8	0.61	0.47	0.48	0.05	5.25	6.25	15.93
75-039	Bw2	17-26	4.8	0.35	0.53	0.49	0.03	3.75	4.80	21.79
75-040	Bw3	26-44	4.5	0.32	0.60	0.60	0.06	6.50	7.76	16.24
75-041	C	44-70	5.1	0.15	0.35	0.28	0.03	2.00	2.66	24.67

Table C: Soil test data for Riverview fine sandy loam, frequently flooded, 0 to 2 percent slopes (Supplemental profile 1)

Horizon	Depth (in.)	pH	CaO*	MgO*	O.M. (%)	P2O5*	K2O*	Zn ppm	Mn ppm
A	0-6	5.1	358	159	0	2	36	---	---
Bw1	6-17	5.2	192	159	0	2	17	---	---
Bw2	17-26	5.5	303	162	0	7	14	---	---
Bw3	26-44	5.4	413	239	0	9	29	---	---
C	44-70	5.6	275	119	0	16	17	---	---

\*lbs/acre

## RIVERVIEW SUPPLEMENTAL PROFILE 2

Supplemental profile 2 of Riverview fine sandy loam, in an area of Riverview silt loam, frequently flooded, 0 to 2 percent slopes, is located about 1 mile east northeast of Zion school and 0.7 miles east southeast of Emporia Sewage Lagoon.

Ap--0 to 11 inches, dark yellowish brown (10YR 4/4) fine sandy loam; moderate fine and medium granular structure; friable; many fine, medium, and coarse roots; many fine and medium flakes of mica; moderately acid; abrupt smooth boundary.

Bw1--11 to 16 inches, dark brown (10YR 3/3) loam, common medium faint dark yellowish brown (10YR 4/4) mottles; weak fine and medium granular structure; friable; common fine roots; many fine, medium, and coarse flakes of mica; moderately acid; gradual smooth boundary.

Bw2--16 to 22 inches, dark yellowish brown (10YR 4/4) loam; weak medium subangular blocky structure; friable; common fine roots; many fine, medium, and coarse flakes of mica; moderately acid; clear smooth boundary.

Bw3--22 to 40 inches, dark yellowish brown (10YR 4/4) very fine sandy loam; weak medium subangular blocky structure; friable; common fine roots; many fine, medium, and coarse flakes of mica; moderately acid; clear smooth boundary.

C1--40 to 43 inches, yellowish brown (10YR 5/4) very fine sandy loam, few fine distinct very pale brown (10YR 7/4) mottles; massive; very friable; common fine roots; many fine, medium, and coarse flakes of mica; moderately acid; clear smooth boundary.

C2--43 to 63 inches, dark yellowish brown (10YR 4/4) very fine sandy loam, few fine distinct very pale brown (10YR 7/4) mottles; massive; very friable; few fine roots; many fine, medium, and coarse flakes of mica; moderately acid; gradual smooth boundary.

C3--63 to 83 inches, dark yellowish brown (10YR 4/4) fine sandy loam, many fine distinct very pale brown (10YR 7/4) mottles; massive; very friable; few fine roots; many fine, medium, and coarse flakes of mica; moderately acid; gradual smooth boundary.

C4--83 to 95 inches, mottled dark yellowish brown (10YR 4/4), light gray (10YR 7/2), and very pale brown (10YR 7/4) sand; single grain; loose; many fine, medium, and coarse flakes of mica; moderately acid.

Table A: Particle size distribution\* for Riverview fine sandy loam, frequently flooded, 0 to 2 percent slopes (Supplemental profile 2)

Horizon	Depth (in.)	Sand					Total	Silt	Clay	Textural Class
		Very Coarse	Coarse	Medium	Fine	Very Fine				
Ap	0-11	0.10	0.24	3.96	28.47	21.65	54.42	29.18	16.40	fsl
Bw1	11-16	0.01	0.07	0.89	16.91	33.71	51.59	34.81	13.60	l
Bw2	16-22	0.02	0.04	0.40	15.91	33.11	49.48	35.92	14.60	l
Bw3	22-40	0.01	0.01	0.47	22.40	30.82	53.71	31.69	14.60	vfsl
C1	40-43	0.03	0.02	1.27	36.40	31.47	69.19	21.21	9.60	vfsl
C2	43-63	0.00	0.07	1.60	25.13	29.45	56.25	31.15	12.60	vfsl
C3	63-83	0.28	2.80	17.68	36.01	18.59	75.36	17.04	7.60	fsl
C4	83-95	0.05	4.92	39.20	37.35	8.09	89.61	7.59	2.80	s

\*by hydrometer method Bouyoucos (1962)

Table C: Soil test data for Riverview fine sandy loam, frequently flooded, 0 to 2 percent slopes (Supplemental profile 2)

Horizon	Depth (in.)	pH	Ca0*	Mg0*	O.M. (%)	P205*	K20*	Zn ppm	Mn ppm
Ap	0-11	5.8	798	149	0.7	16	36	1.3	5.7
Bw1	11-16	5.8	1348	272	0.2	5	43	0.8	4.0
Bw2	16-22	5.9	1348	222	3.3	5	10	0.6	3.6
Bw3	22-40	6.0	1348	176	1.4	11	14	0.5	3.0
C1	40-43	6.0	1073	143	0.2	39	17	0.7	2.6
C2	43-63	5.9	1265	176	0.1	41	14	0.8	3.1
C3	63-83	6.0	853	126	0.9	41	14	0.5	2.8
C4	83-95	6.0	523	70	0.7	39	10	0.3	1.8

\*lbs/acre

## ROANOKE SERIES

Soils of the Roanoke series are very deep and poorly and very poorly drained. They formed in clayey unconsolidated fluvial sediments. They are on floodplains in the Coastal Plain and Piedmont physiographic provinces. Slopes range from 0 to 2 percent.

A typical profile of Roanoke loam, frequently flooded, 0 to 2 percent slopes, is located about 175 yards west northwest of the junction of Highways US-301 and VA-628 and 100 yards west of Highway US-301.

Ap--0 to 5 inches, grayish brown (2.5Y 5/2) loam, many medium distinct light olive brown (2.5Y 5/4) mottles; massive; friable, sticky, plastic; many fine roots; strongly acid; abrupt smooth boundary.

Btg1--5 to 16 inches, mottled light brownish gray (2.5Y 6/2), yellowish brown (10YR 5/6), light yellowish brown (2.5Y 6/4), and yellowish red (5YR 4/8) clay loam; moderate coarse subangular blocky structure; firm, sticky, plastic; common fine roots; many distinct clay films on faces of peds; very strongly acid; diffuse smooth boundary.

Btg2--16 to 26 inches, mottled light olive gray (5Y 6/2), yellowish red (5YR 4/8), and yellowish brown (10YR 5/6) clay loam; moderate coarse subangular blocky structure; firm, sticky, plastic; few fine roots; many distinct clay films on faces of peds; very strongly acid; diffuse smooth boundary.

Btg3--26 to 43 inches, mottled light gray (5Y 6/1), yellowish red (5YR 4/8), and brownish yellow (10YR 6/6) clay; moderate coarse subangular blocky structure; firm, sticky, plastic; many distinct clay films on faces of peds; very strongly acid; diffuse smooth boundary.

Cg--43 to 74 inches, mottled light gray (N 7/), gray (10YR 5/1), and yellowish brown (10YR 5/6) clay; massive; firm, sticky, plastic; very strongly acid.



Table A: Particle size distribution\* for Roanoke loam, frequently flooded, 0 to 2 percent slopes

Horizon	Depth (in.)	Sand				Total	Silt	Clay	Textural Class
		Very Coarse	Coarse	Medium	Fine				
Ap	0-5	0.35	2.38	7.81	23.33	46.84	34.16	19.00	I
Btg1	5-16	0.47	2.54	8.90	17.04	37.90	25.10	37.00	cl
Btg2	16-26	0.32	2.90	10.10	18.47	39.60	21.40	39.00	cl
Btg3	26-43	0.25	2.94	9.80	18.44	38.90	19.10	42.00	c
Cg	43-74	0.13	0.78	2.81	6.16	14.06	32.54	53.40	C

\*by hydrometer method Bouyoucos (1962)

Table B: Chemical properties for Roanoke loam, frequently flooded, 0 to 2 percent slopes

Lab No.	Horizon	Depth (in.)	pH	Organic Matter (%)	Exchangeable Cations (meq/100 gram)					Base Saturation (%)	
					Ca	Mg	K	H	Al		Total
----	Ap	0-5	5.2	0.54	0.87	0.19	0.14	5.60	1.03	6.80	17.59
----	Btg1	5-16	4.8	0.20	0.97	0.20	0.13	8.88	3.18	10.18	12.73
----	Btg2	16-26	4.9	0.05	0.87	0.22	0.12	9.57	4.12	10.78	11.22
----	Btg3	26-43	4.9	0.05	0.26	0.15	0.09	9.74	4.55	10.24	4.88
----	Cg	43-74	4.7	0.11	ND	0.07	0.10	11.90	9.44	12.07	1.41

Table C: Soil test data for Roanoke loam, frequently flooded, 0 to 2 percent slopes

Horizon	Depth (in.)	pH	CaO*	MgO*	O.M. (%)	P2O5*	K2O*	Zn ppm	Mn ppm
Ap	0-5	5.4	495	73	---	60	60	---	---
Btg1	5-16	5.0	426	56	---	9	48	---	---
Btg2	16-26	4.9	413	80	---	5	63	---	---
Btg3	26-43	5.0	165	40	---	5	41	---	---
Cg	43-74	5.1	110	16	---	11	36	---	---

\*lbs/acre

## ROANOKE SUPPLEMENTAL PROFILE 1

Supplemental profile 1 of Roanoke clay, in an area of Roanoke loam, frequently flooded, 0 to 2 percent slopes, is located about 1.4 miles northeast of the junction of Highways VA-730 and VA-666 and 2 miles north of the junction of Highways VA-730 and VA-638.

Oe--1 to 0 inches, partially decomposed leaves and twigs.

A--0 to 7 inches, grayish brown (2.5Y 5/2) clay, many medium prominent reddish gray (5YR 5/2) mottles; weak medium subangular blocky structure; firm, sticky, plastic; many fine and medium roots; few fine flakes of mica; very strongly acid; gradual smooth boundary.

Btg1--7 to 21 inches, gray (5Y 5/1) clay, many fine prominent brown (7.5YR 4/4) mottles; moderate coarse subangular blocky structure; firm, sticky, plastic; many fine and medium roots; many distinct clay films on faces of peds; few fine flakes of mica; extremely acid; diffuse smooth boundary.

Btg2--21 to 36 inches, gray (5Y 5/1) clay, few fine prominent brown (7.5YR 4/4) mottles; moderate coarse subangular blocky structure; firm, sticky, plastic; common fine roots; many distinct clay films on faces of peds; common flakes of mica; very strongly acid; diffuse smooth boundary.

Btg3--36 to 53 inches, mottled gray (N 6/) and brown (7.5YR 4/4) clay; moderate coarse subangular blocky structure; firm, sticky, plastic; few fine roots; many distinct clay films on faces of peds; common flakes of mica; very strongly acid; clear smooth boundary.

Btg4--53 to 59 inches, gray (N 5/) sandy clay loam, many medium faint light gray (N 7/) sandy loam mottles; weak coarse subangular blocky structure; firm, sticky, plastic; few fine roots; common distinct clay films on faces of peds; many fine flakes of mica; 2 percent rounded and angular gravel; very strongly acid; diffuse smooth boundary.

Cg--59 to 72 inches, gray (5Y 6/1) loamy sand; massive; friable; many fine flakes of mica; 2 percent rounded and angular gravel; strongly acid.

Table A: Particle size distribution\* for Roanoke clay, frequently flooded, 0 to 2 percent slopes (Supplemental profile 1)

Horizon	Depth (in.)	Sand				Total	Silt	Clay	Textural Class
		Very Coarse	Coarse	Medium	Fine				
A	0-7	---	---	---	---	24.6	24.2	51.2	C
Btg1	7-21	---	---	---	---	38.4	19.2	42.4	C
Btg2	21-36	---	---	---	---	37.4	19.2	43.4	C
Btg3	36-53	---	---	---	---	36.4	18.2	45.4	C
Btg4	53-59	---	---	---	---	49.4	19.6	31.4	scl
Cg	59-72	---	---	---	---	80.4	9.2	10.4	ls

\*by hydrometer method Bouyoucos (1962)

Table B: Chemical properties for Roanoke clay, frequently flooded, 0 to 2 percent slopes (Supplemental profile 1)

Lab No.	Horizon	Depth (in.)	pH	Organic Matter (%)	Exchangeable Cations (meq/100 gram)				Base Saturation (%)		
					Ca	Mg	K	H			
71-666	A	0-7	4.5	8.96	1.10	0.75	0.12	15.51	3.17	17.48	11.26
71-667	Btg1	7-21	4.4	2.85	1.73	1.50	0.05	10.58	2.38	13.86	23.68
71-668	Btg2	21-36	4.7	2.77	2.00	2.50	0.06	8.82	1.88	13.38	34.06
71-669	Btg3	36-53	4.8	1.87	3.62	5.25	0.10	10.23	1.88	19.20	46.72
71-670	Btg4	53-59	4.9	2.04	2.95	3.50	0.10	6.70	0.89	13.25	49.43
71-671	Cg	59-72	5.4	0.98	0.87	0.75	0.09	3.35	0.20	5.06	33.82

Table C: Soil test data for Roanoke clay, frequently flooded, 0 to 2 percent slopes (Supplemental profile 1)

Horizon	Depth (in.)	pH	CaO*	MgO*	O.M. (%)	P205*	K20*	Zn ppm	Mn ppm
A	0-7	4.8	550	355	---	23	41	---	---
Btg1	7-21	5.0	660	398+	---	23	29	---	---
Btg2	21-36	5.2	715	398+	---	21	29	---	---
Btg3	36-53	5.2	1100	398+	---	9	41	---	---
Btg4	53-59	5.5	935	398+	---	34	43	---	---
Cg	59-72	6.0	426	352	---	16	41	---	---

\* lbs/acre



An area of 32A - Roanoke silt loam, ponded, 0 to 2 percent slopes.



An area of 31A - Roanoke loam, frequently flooded, 0 to 2 percent slopes.

## SLAGLE SERIES

Soils of the Slagle series are very deep and moderately well drained. They formed in loamy unconsolidated fluvial and marine sediments. They are on uplands in the Coastal Plain and Piedmont physiographic provinces. Slopes range from 0 to 3 percent.

A typical profile of Slagle fine sandy loam, 0 to 3 percent slopes, is located about 0.5 miles north of the junction of Highways I-95 and VA-631 and 135 yards west of I-95, about 8.3 miles south of Emporia.

Ap--0 to 9 inches, pale brown (10YR 6/3) fine sandy loam; weak fine granular structure; very friable; many fine, medium, and coarse roots; 3 percent rounded and angular pebbles; very strongly acid; clear smooth boundary.

Bt1--9 to 14 inches, yellowish brown (10YR 5/6) loam, many medium faint very pale brown (10YR 7/4) mottles; weak medium subangular blocky structure; friable, slightly sticky, slightly plastic; common fine, medium, and coarse roots; few faint clay films on faces of peds; 3 percent rounded and angular pebbles; very strongly acid; gradual smooth boundary.

Bt2--14 to 20 inches, yellowish brown (10YR 5/6) clay loam; weak medium subangular blocky structure; friable, sticky, plastic; common fine, medium, and coarse roots; few faint clay films on faces of peds; 3 percent rounded and angular pebbles; very strongly acid; gradual smooth boundary.

Bt3--20 to 30 inches, yellowish brown (10YR 5/8) clay loam, many medium distinct light gray (10YR 7/1) and yellowish red (5YR 4/8) mottles; moderate medium subangular blocky structure; friable, sticky, plastic; common fine, medium, and coarse roots; many distinct clay films on faces of peds; few fine flakes of mica; 3 percent rounded and angular pebbles; very strongly acid; diffuse smooth boundary.



Bt4--30 to 55 inches, mottled yellowish brown (10YR 5/8), light gray (N 7/), and light yellowish brown (2.5Y 6/4) sandy clay loam; weak medium subangular blocky structure; firm, sticky, plastic; few fine roots; many distinct clay films on faces of peds; few fine flakes of mica; 3 percent rounded and angular pebbles; very strongly acid; diffuse smooth boundary.

C--55 to 66 inches, mottled yellowish brown (10YR 5/8) and light gray (N 7/) sandy clay loam; massive; friable, slightly sticky, slightly plastic; few fine roots; few fine flakes of mica; 3 percent rounded and angular pebbles; very strongly acid.

Table A: Particle size distribution\* for Slagle fine sandy loam, 0 to 3 percent slopes

Horizon	Depth (in.)	Sand				Very Fine	Total	Silt	Clay	Textural Class
		Very Coarse	Coarse	Medium	Fine					
Ap	0-9	1.65	5.24	10.90	26.38	14.45	58.62	30.88	10.50	fsl
Bt1	9-14	2.57	4.58	8.87	20.76	11.84	48.62	31.58	19.80	l
Bt2	14-20	2.48	4.21	7.67	17.90	10.01	42.27	29.93	27.80	cl
Bt3	20-30	2.71	3.70	6.58	15.87	7.77	36.63	24.17	39.20	cl
Bt4	30-55	1.24	3.57	9.49	25.73	8.71	48.74	19.26	32.00	scl
C	55-66	2.07	5.13	11.28	31.99	9.72	60.19	15.81	24.00	scl

\*by hydrometer method Bouyoucos (1962)

Table B: Chemical properties for Slagle fine sandy loam, 0 to 3 percent slopes

Lab No.	Horizon	Depth (in.)	pH	Organic Matter (%)	Exchangeable Cations (meq/100 gram)					Base Saturation (%)	
					Ca	Mg	K	H	Al		Total
73-742	Ap	0-9	5.0	0.17	0.10	0.04	0.05	2.33	0.34	2.52	7.54
73-743	Bt1	9-14	4.5	0.05	0.13	0.07	0.06	3.71	1.72	1.98	11.39
73-744	Bt2	14-20	4.6	0.08	0.19	0.27	0.08	7.15	3.09	7.69	6.96
73-745	Bt3	20-30	4.6	0.07	0.28	0.75	0.09	10.26	5.58	11.38	9.84
73-746	Bt4	30-55	4.6	0.05	0.13	0.42	0.08	8.88	5.58	9.50	6.53
73-747	C	55-66	4.5	0.04	0.04	0.23	0.60	6.98	4.46	7.31	4.51

Table C: Soil test data for Slagle fine sandy loam, 0 to 3 percent slopes

Horizon	Depth (in.)	pH	CaO*	MgO*	O.M. (%)	P2O5*	K2O*	Zn ppm	Mn ppm
Ap	0-9	5.3	110	20	---	2	24	---	---
Bt1	9-14	4.9	82	20	---	2	29	---	---
Bt2	14-20	5.0	110	80	---	2	29	---	---
Bt3	20-30	5.1	110	152	---	2	29	---	---
Bt4	30-55	5.0	55	80	---	5	22	---	---
C	55-66	5.0	55	46	---	9	22	---	---

\*lbs/acre

Table D: Sand mineralogy for Slagle fine sandy loam, 0 to 3 percent slopes

Horizon	Depth (in.)	Percent Minerals Present*
Bt1	9-14	Qz 93, Fd 4, HM 3
Bt2	14-20	Qz 94, Fd 3, HM 3

\*Qz = Quartz, Fd = Feldspar, M = Mica, HM = Heavy minerals including magnetite, zircon, ilmenite

Table E: Other physical properties for Slagle fine sandy loam, 0 to 3 percent slopes

Horizon	Depth (in.)	Swell Index*	Liquid Limit	Plasticity Index
Bt3	20-30	2038	51.14	26.48

\*lbs/square foot

## SLAGLE SUPPLEMENTAL PROFILE 1

Supplemental profile 1 of Slagle fine sandy loam, in an area of Slagle fine sandy loam, 0 to 3 percent slopes, is located about 1.3 miles southwest of the junction of Highways VA-677 and VA-632.

Oe--2 to 0 inches, partially decomposed leaves and twigs.

A--0 to 3 inches, very dark grayish brown (10YR 3/2) fine sandy loam; weak fine granular structure; very friable; many fine, medium, and coarse roots; extremely acid; abrupt smooth boundary.

E--3 to 13 inches, light olive brown (2.5Y 5/3) fine sandy loam; weak fine granular structure; very friable; common fine, medium, and coarse roots; strongly acid; gradual smooth boundary.

Bt1--13 to 28 inches, yellowish brown (10YR 5/6) sandy clay loam; weak medium subangular blocky structure; friable, sticky, plastic; common fine, medium, and coarse roots; common distinct clay films on faces of peds; very strongly acid; gradual smooth boundary.

Bt2--28 to 50 inches, mottled olive (5Y 5/4), yellowish brown (10YR 5/6), and gray (10YR 6/1) sandy clay loam; weak medium subangular blocky structure; friable, sticky, plastic; few fine and medium roots; many distinct clay films on faces of peds; strongly acid; gradual smooth boundary.

Cg--50 to 68 inches, gray (5Y 5/1) sandy clay loam, common medium distinct yellowish brown (10YR 5/8) and red (10R 4/6) mottles; massive; friable, sticky, plastic; few fine and medium roots; strongly acid.

Table A: Particle size distribution\* for Slagle fine sandy loam, 0 to 3 percent slopes (Supplemental profile 1)

Horizon	Depth (in.)	Sand					Total	Silt	Clay	Textural Class
		Very Coarse	Coarse	Medium	Fine	Very Fine				
E	3-13	0.50	7.55	21.33	25.57	8.09	63.04	26.70	10.26	fsl
Bt1	13-28	1.17	6.22	17.33	18.69	7.98	51.39	23.53	25.08	sci
Bt2	28-50	0.97	5.44	16.93	18.21	7.78	49.33	23.98	26.68	sci
Cg	50-68	1.16	8.78	22.12	20.22	6.27	58.55	16.82	24.64	sci

\*by pipette method Day (1965)

Table B: Chemical properties for Slagle fine sandy loam, 0 to 3 percent slopes (Supplemental profile 1)

Lab No.	Horizon	Depth (in.)	pH	Organic Matter (%)	Exchangeable Cations (meq/100 gram)					Base Saturation (%)	
					Ca	Mg	K	H	AI		Total
73-422	A	0-3	4.2	1.93	0.21	0.14	0.05	8.90	3.86	9.30	4.30
73-423	E	3-13	5.1	0.47	0.03	0.02	0.03	4.84	1.78	4.92	1.53
73-424	Bt1	13-28	4.8	0.18	0.03	0.09	0.03	6.87	3.96	7.02	2.14
73-425	Bt2	28-50	5.2	0.08	0.05	0.16	0.03	6.25	3.37	6.49	3.62
73-426	Cg	50-68	5.4	0.10	0.04	0.13	0.02	5.47	3.27	5.66	3.36

Table E: Other physical properties for Slagle fine sandy loam, 0 to 3 percent slopes (Supplemental profile 1)

Horizon	Depth (in.)	Swell Index*	Liquid Limit	Plasticity Index
Bt1	13-28	1500	33.70	19.41
Bt2	28-50	1325	38.62	17.90
Cg	50-68	1825	41.19	21.12

\*lbs/sq ft

## SLAGLE SUPPLEMENTAL PROFILE 2

Supplemental profile 2 of Slagle loamy sand, in an area of Slagle fine sandy loam, 0 to 3 percent slopes, is located about 0.4 miles north northeast of the junction of Highways VA-628 and US-301 and 25 yards east of Highway VA-628.

Oe--2 to 0 inches, undecomposed and partially decomposed leaves and twigs.

Ap--0 to 5 inches, pale olive (5Y 6/4) loamy sand; massive; friable; common fine and medium roots; extremely acid; clear smooth boundary.

Bt1--5 to 12 inches, yellowish brown (10YR 5/6) sandy loam, many medium distinct pale olive (5Y 6/4) mottles; weak medium subangular blocky structure; friable, slightly sticky, slightly plastic; common fine roots; many distinct clay films and bridges on sand grains, few faint clay films on faces of peds; moderately acid; gradual wavy boundary.

Bt2--12 to 26 inches, yellowish brown (10YR 5/6) clay loam, few fine faint light yellowish brown (10YR 6/4) mottles; moderate medium and coarse subangular blocky structure; firm, sticky, plastic; few fine roots; many distinct clay films on faces of peds; few fine flakes of mica; very strongly acid; gradual smooth boundary.

Bt3--26 to 36 inches, yellowish brown (10YR 5/6) clay loam, many medium distinct light gray (10YR 7/1) mottles; weak coarse subangular blocky structure; firm, sticky, plastic; few fine roots; many distinct clay films on faces of peds; few fine flakes of mica; very strongly acid; clear smooth boundary.

Bt4--36 to 42 inches, mottled yellowish brown (10YR 5/8), light gray (N 7/), and yellowish red (5YR 5/8) sandy clay loam; weak medium and coarse subangular blocky structure; friable, slightly sticky, slightly plastic; few fine roots; few faint clay films on faces of peds; common fine and medium flakes of mica; very strongly acid; clear smooth boundary.

Bt5--42 to 50 inches, mottled light gray (10YR 7/1), yellowish brown (10YR 5/6), and olive yellow (2.5Y 6/6) clay loam; weak coarse subangular blocky structure; friable, slightly sticky, slightly plastic; few fine roots; common distinct clay films on faces of peds; common fine flakes of mica; very strongly acid; clear smooth boundary.

C1--50 to 58 inches, mottled yellowish brown (10YR 6/6), yellowish red (5YR 5/8), and light gray (10YR 7/1) fine sandy loam; massive; friable; common fine and medium flakes of mica; very strongly acid; abrupt wavy boundary.

C2--58 to 67 inches, yellowish brown (10YR 5/8) sandy loam; massive; very friable; few fine and medium flakes of mica; very strongly acid.



Table A: Particle size distribution\* for Slagle loamy sand, 0 to 3 percent slopes (Supplemental profile 2)

Horizon	Depth (in.)	Sand					Total	Silt	Clay	Textural Class
		Very Coarse	Coarse	Medium	Fine	Very Fine				
Ap	0-5	5.66	14.60	23.82	24.92	13.62	82.62	14.38	3.00	ls
Bt1	5-12	4.96	11.68	17.08	15.12	8.66	57.50	25.50	17.00	sl
Bt2	12-26	3.46	7.74	8.14	8.44	7.04	34.82	26.58	38.60	cl
Bt3	26-36	3.04	5.20	6.86	15.82	12.30	43.22	24.18	32.60	cl
Bt4	36-42	0.77	2.84	8.19	25.54	17.85	55.19	22.21	22.60	scl
Bt5	42-50	0.49	1.69	3.39	13.02	15.69	34.28	35.12	30.60	cl
C1	50-58	0.09	0.84	6.89	33.17	22.28	63.27	18.13	18.60	fsl
C2	58-67	1.47	9.86	35.20	29.93	4.26	80.72	5.68	13.60	sl

\*by hydrometer method Bouyoucos (1962)

Table B: Chemical properties for Slagle loamy sand, 0 to 3 percent slopes (Supplemental profile 2)

Lab No.	Horizon	Depth (in.)	pH	Organic Matter (%)	Exchangeable Cations (meq/100 gram)					Base Saturation (%)	
					Ca	Mg	K	H	Al		Total
73-870	Ap	0-5	4.4	0.25	0.13	0.04	0.05	2.76	0.52	2.98	7.38
73-871	Bt1	5-12	5.8	0.08	1.36	0.42	0.13	2.76	0.09	4.67	40.90
73-872	Bt2	12-26	4.9	0.07	1.56	0.87	0.16	6.90	1.97	9.49	27.25
73-873	Bt3	26-36	4.8	0.07	0.59	0.68	0.16	7.24	3.26	8.67	16.45
73-874	Bt4	36-42	4.8	0.04	0.39	0.43	0.18	5.17	3.09	6.17	16.14
73-875	Bt5	42-50	4.9	0.06	0.38	0.53	0.21	7.76	4.38	8.88	12.61
73-876	C1	50-58	4.9	0.04	0.17	0.22	0.17	5.00	2.83	5.56	10.07
73-877	C2	58-67	5.0	0.04	0.18	0.15	0.10	4.14	1.46	5.56	9.21

Table C: Soil test data for Slagle loamy sand, 0 to 3 percent slopes  
(Supplemental profile 2)

Horizon	Depth (in.)	pH	CaO*	MgO*	O.M. (%)	P2O5*	K2O*	Zn ppm	Mn ppm
Ap	0-5	4.6	28	16	---	2	29	---	---
Bt1	5-12	5.9	633	139	---	7	60	---	---
Bt2	12-26	5.2	426	196	---	2	63	---	---
Bt3	26-36	5.0	192	143	---	7	63	---	---
Bt4	36-42	5.1	138	100	---	5	72	---	---
Bt5	42-50	5.1	82	113	---	7	87	---	---
C1	50-58	5.2	28	56	---	5	48	---	---
C2	58-67	5.2	24	43	---	2	48	---	---

\* lbs/acre

## SLAGLE SUPPLEMENTAL PROFILE 3

Supplemental profile 3 of Slagle fine sandy loam, in an area of Slagle fine sandy loam, 0 to 3 percent slopes, is located about 1 mile south of the junction of Highways VA-627 and VA-659 at Fountain Creek Church and 435 yards west of Highway VA-659.

Oe--4 to 0 inches, undecomposed and partially decomposed leaves and twigs.

A--0 to 3 inches, very dark grayish brown (10YR 3/2) fine sandy loam; moderate fine granular structure; very friable; many fine, medium, and coarse roots; extremely acid; abrupt smooth boundary.

E--3 to 8 inches, light olive brown (2.5Y 5/4) fine sandy loam; weak medium granular structure; very friable; many fine, medium, and coarse roots; very strongly acid; clear smooth boundary.

Bt1--8 to 12 inches, light olive brown (2.5Y 5/4) fine sandy loam; weak medium subangular blocky structure; friable, slightly sticky; many fine, medium, and coarse roots; many distinct clay films and bridges on sand grains, few faint clay films on faces of peds; very strongly acid; gradual smooth boundary.

Bt2--12 to 20 inches, yellowish brown (10YR 5/6) sandy clay loam; weak medium subangular blocky structure; friable, slightly sticky, slightly plastic; many fine, medium, and coarse roots; very strongly acid; clear smooth boundary.

Bxg1--20 to 48 inches, gray (10YR 6/1) fine sandy loam polygons 2 to 5 feet across that are massive; very strongly brittle, very hard, and extremely firm; yellowish red (5YR 5/8) fine sandy loam massive soil material in polygonal cracks; friable; few fine and medium roots in polygonal cracks; very strongly acid; diffuse smooth boundary.

Bxg2--48 to 64 inches, gray (10YR 6/1) fine sandy loam polygons 2 to 5 feet across that are massive; very strongly brittle, very hard, and extremely firm; strong brown (7.5YR 5/6) and yellowish red (5YR 5/8) fine sandy loam massive soil material in polygonal cracks; friable; few fine roots in polygonal cracks; very strongly acid; diffuse smooth boundary.

Bxg3--64 to 86 inches, gray (10YR 6/1) fine sandy loam polygons 2 to 5 feet across that are massive; very strongly brittle, hard, and firm; strong brown (7.5YR 5/6) and yellowish red (5YR 5/8) fine sandy loam massive soil material in polygonal cracks; friable; few fine roots in polygonal cracks; very strongly acid.

Table A: Particle size distribution\* for Slagle fine sandy loam, 0 to 3 percent slopes  
(Supplemental profile 3)

Horizon	Depth (in.)	Sand			Fine %	Very Fine	Total	Silt	Clay	Textural Class
		Very Coarse	Coarse	Medium						
A	0-3	0.28	6.90	21.44	29.80	10.97	69.39	22.01	8.60	fsl
E	3-8	0.41	6.24	21.03	29.78	11.59	69.05	19.35	11.60	fsl
Bt1	8-12	0.25	5.57	19.92	29.29	11.83	66.86	21.94	11.20	fsl
Bt2	12-20	0.26	4.75	16.95	25.00	10.38	57.34	21.46	21.20	sci
Bxg1	20-48	0.34	5.88	20.81	31.05	12.57	70.65	22.25	7.10	fsl
Cracks		0.40	6.00	19.83	30.67	12.70	69.60	20.10	10.30	fsl
Polygon	48-64	0.28	5.34	19.58	29.69	11.61	66.77	22.93	10.30	fsl
Bxg2	64-86	0.57	6.82	22.78	32.07	10.87	73.11	14.59	12.30	fsl
Bxg3		0.64	7.51	23.83	36.12	10.69	78.79	9.91	11.30	fsl

\*by hydrometer method Bouyoucos (1962)

Table C: Soil test data for Slagle fine sandy loam, 0 to 3 percent slopes (Supplemental profile 3)

Horizon	Depth (in.)	pH	CaO*	MgO*	O.M. (%)	P205*	K20*	Zn ppm	Mn ppm
A	0-3	4.1	28	23	---	2	53	---	---
E	3-8	4.7	28	10	---	2	17	---	---
Bt1	8-12	4.7	0	16	---	2	14	---	---
Bt2	12-20	4.7	0	26	---	2	10	---	---
Bxg2	20-48	4.9	0	10	---	2	10	---	---
Bxg2	48-64	4.9	28	23	---	0	17	---	---
Bxg3	64-86	5.0	55	26	---	0	17	---	---

\*lbs/acre

## STATE SERIES

Soils of the State series are very deep and well drained. They formed in loamy unconsolidated fluvial sediments. They are on stream terraces in the Coastal Plain and Piedmont physiographic provinces. Slopes range from 0 to 3 percent.

A typical profile of State loamy sand, 0 to 3 percent slopes, is located about 2 miles east of the junction of Highways VA-625 and VA-660 and 165 yards south of Highway VA-625, about 4 miles southeast of Skippers.

Ap--0 to 11 inches, grayish brown (10YR 5/2) loamy sand; massive; very friable; few fine roots; few fine flakes of mica; moderately acid; abrupt smooth boundary.

E--11 to 20 inches, light yellowish brown (10YR 6/4) sandy loam; massive; firm, few fine roots; common fine flakes of mica; slightly acid; gradual smooth boundary.

Bt1--20 to 28 inches, yellowish brown (10YR 5/6) sandy clay loam, common medium distinct light yellowish brown (10YR 6/4) mottles in the upper part; weak medium subangular blocky structure; friable, slightly sticky, slightly plastic; few fine roots; few faint clay films on faces of peds; common fine flakes of mica; strongly acid; diffuse smooth boundary.

Bt2--28 to 48 inches, yellowish brown (10YR 5/6) sandy clay loam, common medium distinct yellowish red (5YR 5/8) mottles; weak medium subangular blocky structure; friable, slightly sticky, slightly plastic; few fine roots; many distinct clay films on faces of peds; common fine flakes of mica; very strongly acid; diffuse smooth boundary.

C--48 to 63 inches, yellowish brown (10YR 5/8) sandy loam, many medium distinct yellowish red (5YR 5/8) mottles; massive; firm, slightly sticky, slightly plastic; common fine flakes of mica; 2 percent gravel; very strongly acid.

Table A: Particle size distribution\* for State loamy sand, 0 to 3 percent slopes

Horizon	Depth (in.)	Sand					Total	Silt	Clay	Textural Class
		Very Coarse	Coarse	Medium	Fine	Very Fine				
Ap	0-11	0.52	6.37	27.80	27.50	15.84	78.03	18.97	3.0	Is
E	11-20	0.54	6.61	26.66	23.30	11.20	68.31	24.69	7.0	SI
Bt1	20-28	0.80	5.76	20.36	16.67	10.83	54.42	22.58	23.0	scl
Bt2	28-48	0.90	6.63	25.45	12.96	6.79	52.73	16.27	31.0	scl
2C	48-63	2.69	13.89	38.01	15.20	3.23	73.02	9.98	17.0	SI

\*by hydrometer method Bouyoucos (1962)

Table B: Chemical properties for State loamy sand, 0 to 3 percent slopes

Lab No.	Horizon	Depth (in.)	pH	Organic Matter (%)	Exchangeable Cations (meq/100 gram)				Total	Base Saturation (%)	
					Ca	Mg	K	H			
74-139	Ap	0-11	5.8	0.40	0.93	0.09	0.07	2.09	ND	3.18	34.28
74-140	E	11-20	6.4	0.09	0.66	0.09	0.10	1.39	ND	2.24	37.81
74-141	Bt1	20-28	5.5	0.14	2.48	0.61	0.33	3.48	0.17	6.89	49.45
74-142	Bt2	28-48	4.8	0.08	3.15	0.57	0.19	6.43	0.69	10.34	37.78
74-143	2C	48-63	4.7	0.05	0.91	0.40	0.06	4.52	0.77	5.89	23.26

Table C: Soil test data for State loamy sand, 0 to 3 percent slopes

Horizon	Depth (in.)	pH	CaO*	MgO*	O.M. (%)	P205*	K20*	Zn ppm	Mn ppm
Ap	0-11	5.5	935	46	---	275+	53	---	---
E	11-20	5.8	385	40	---	5	63	---	---
Bt1	20-28	5.6	908	212	---	0	200	---	---
Bt2	28-48	5.2	1100	176	---	0	101	---	---
2C	48-63	4.8	578	136	---	0	29	---	---

Table D: Sand mineralogy for State loamy sand, 0 to 3 percent slopes

Horizon	Depth (in.)	Percent Minerals Present
Bt1	20-28	Qz 83, Fd 15, M 1, HM 1.
Bt2	28-48	Qz 74, Fd 19, M 6, HM 1

\*Qz = Quartz, Fd = Feldspar, M = Mica, HM = Heavy minerals including magnetite, Zircon, ilmenite

Table E: Other physical properties for State loamy sand, 0 to 3 percent slopes

Horizon	Depth (in.)	Swell Index*	Liquid Limit	Plasticity Index
Bt2	28-48	1106	41.26	20.42

#lbs/square foot



## STATE SUPPLEMENTAL PROFILE 1

Supplemental profile 1 of State fine sandy loam, in an area of State loamy sand, 0 to 3 percent slopes, is located about 0.6 miles south southwest of the junction of Highways VA-730 and VA-622 and 0.5 miles east southeast of Ligons Store on Highway VA-622.

Ap--0 to 12 inches, pale brown (10YR 6/3) fine sandy loam; weak medium granular structure; friable, slightly sticky; many fine roots; strongly acid; abrupt smooth boundary.

Bt1--12 to 17 inches, yellowish brown (10YR 5/6) sandy clay loam, many medium distinct light yellowish brown (2.5Y 6/4) mottles; weak medium subangular blocky structure; friable, brittle, slightly sticky, slightly plastic; common fine and medium roots; common distinct clay films on faces of peds; moderately acid; gradual smooth boundary.

Bt2--17 to 32 inches, yellowish brown (10YR 5/6) sandy clay loam, few medium distinct yellowish red (5YR 5/8) mottles; moderate medium subangular blocky structure; friable, slightly sticky, slightly plastic; common fine and medium roots; many distinct clay films on faces of peds; common flakes of mica; strongly acid; gradual smooth boundary.

Bt3--32 to 45 inches, yellowish brown (10YR 5/6) clay, many medium distinct red (2.5YR 4/6) and brownish yellow (10YR 6/8) mottles; moderate medium subangular blocky structure; friable, slightly sticky, slightly plastic; common fine and medium roots; many distinct clay films on faces of peds; common flakes of mica; strongly acid; gradual smooth boundary.

Bt4--45 to 54 inches, yellowish brown (10YR 5/6) sandy clay loam, many medium distinct yellowish red (5YR 5/6) mottles; weak medium subangular blocky structure; friable, slightly sticky, slightly plastic; common distinct clay films on faces of peds; common flakes of mica; very strongly acid; gradual smooth boundary.

C--54 to 69 inches, yellowish brown (10YR 5/6) sandy clay loam, many medium distinct yellowish red (5YR 5/6) and brownish yellow (10YR 6/8) mottles; massive; friable, slightly sticky, slightly plastic; common flakes of mica; very strongly acid.

**Table A: Particle size distribution\* for State fine sandy loam, 0 to 3 percent slopes (Supplemental profile 1)**

Horizon	Depth (in.)	Sand					Total	Silt	Clay	Textural Class
		Very Coarse	Coarse	Medium	Fine	Very Fine				
Ap	0-12	1.30	3.51	11.02	36.47	19.24	71.54	22.64	5.81	fsl
Bt1	12-17	0.60	2.21	7.55	25.45	17.40	53.21	24.04	22.74	sci
Bt2	17-32	0.71	1.82	6.98	24.37	15.47	49.35	18.10	32.56	sci
Bt3	32-45	0.10	0.01	4.66	27.05	0.20	33.02	25.83	41.13	C
Bt4	45-54	0.30	0.71	7.50	39.01	11.65	59.17	7.80	33.03	sci
C	54-69	0.71	4.54	25.83	35.22	2.93	69.23	2.72	28.05	sci

\*by pipette method Day (1965)

**Table B: Chemical properties for State fine sandy loam, 0 to 3 percent slopes (Supplemental profile 1)**

Lab No.	Horizon	Depth (in.)	pH	Organic Matter (%)	Exchangeable Cations (meq/100 gram)					Base Saturation (%)	
					Ca	Mg	K	H	Al Total		
77-458	Ap	0-12	5.5	0.6	1.0	0.1	0.1	1.6	ND	2.8	42.9
77-459	Bt1	12-17	5.9	0.2	2.1	0.8	0.2	2.7	ND	5.8	53.4
77-460	Bt2	17-32	5.5	0.2	3.8	0.8	0.2	4.6	0.2	9.4	51.1
77-461	Bt3	32-45	5.2	0.2	3.9	1.0	0.1	5.5	0.4	10.5	47.6
77-462	Bt4	45-54	4.7	0.1	1.9	1.2	0.1	5.8	1.3	9.0	35.6
77-463	C	54-69	4.6	0.1	0.7	0.8	0.1	5.5	1.9	7.1	22.5

Table C: Soil test data for State fine sandy loam, 0 to 3 percent slopes (Supplemental profile 1)

Horizon	Depth (in.)	pH	CaO*	MgO*	O.M. (%)	P2O5*	K2O*	Zn ppm	Mn ppm
Ap	0-12	6.5	739	68	---	170	52	1.6	14.7
Bt1	12-17	6.0	940	211	---	46	150	0.2	6.0
Bt2	17-32	5.5	1377	211	---	15	52	0.3	0.6
Bt3	32-45	5.3	1209	203	---	17	37	0.3	0.2
Bt4	45-54	4.8	672	267	---	15	37	0.3	0.1
C	54-69	4.7	336	211	---	15	34	0.4	0.3

Table D: Sand mineralogy for State fine sandy loam, 0 to 3 percent slopes (Supplemental profile 1)

Horizon	Depth (in.)	Percent Minerals Present
Bt2	17-32	Qz 81, Fd 16, M 1, HM 2

Qz = Quartz, Fd = Feldspar, M = Mica, HM = Heavy minerals including magnetite, zircon, ilmenite

## STATE SUPPLEMENTAL PROFILE 2

Supplemental profile 2 of State loamy sand, in an area of State loamy sand, 0 to 3 percent slopes, is located about 0.6 miles east of the junction of Highways VA-730 and VA-638 and 1 mile north northwest of the junction of Highways VA-730 and VA-622.

A--0 to 6 inches, brown (10YR 4/3) loamy sand; massive; loose; many fine, medium, and coarse roots; strongly acid; clear smooth boundary.

E1--6 to 12 inches, yellowish brown (10YR 5/4) fine sandy loam; massive; loose; few fine, medium, and coarse roots; strongly acid; clear smooth boundary.

E2--12 to 21 inches, mottled pale brown (10YR 6/3) and very pale brown (10YR 7/3) fine sandy loam; massive; friable; few fine, medium, and coarse roots; moderately acid; clear smooth boundary.

Bt1--21 to 28 inches, yellowish brown (10YR 5/8) fine sandy loam, common medium distinct very pale brown (10YR 7/3) mottles; weak medium subangular blocky structure; friable, slightly sticky, slightly plastic; few fine, medium, and coarse roots; many distinct clay films and bridges on sand grains; strongly acid; gradual smooth boundary.

Bt2--28 to 41 inches, strong brown (7.5YR 5/6) fine sandy loam, weak medium subangular blocky structure; friable, slightly sticky, slightly plastic; few fine, medium, and coarse roots; many distinct clay films and bridges on sand grains; common flakes of mica; strongly acid; diffuse smooth boundary.

Bt3--41 to 59 inches, strong brown (7.5YR 5/6) fine sandy loam, weak medium subangular blocky structure; friable, slightly sticky, slightly plastic; few fine, medium, and coarse roots; many distinct clay films and bridges on sand grains; common flakes of mica; moderately acid; gradual smooth boundary.

Bt4--59 to 80 inches, red (2.5YR 5/8) sandy clay loam; weak medium subangular blocky structure; friable, slightly sticky, slightly plastic; few fine and medium roots; many distinct clay films and bridges on sand grains; common flakes of mica; moderately acid; gradual smooth boundary.

C--80 to 95 inches, yellowish red (5YR 5/8) fine sandy loam; massive; friable; common flakes of mica; moderately acid.

Table A: Particle size distribution\* for State loamy sand, 0 to 3 percent slopes (Supplemental profile 2)

Horizon	Depth (in.)	Sand					Total	Silt	Clay	Textural Class
		Very Coarse	Coarse	Medium	Fine	Very Fine				
A	0-6	1.36	11.07	25.00	30.11	10.70	78.24	17.16	4.60	ls
E	6-12	1.15	9.65	24.05	30.77	10.87	76.49	17.41	6.10	fsl
E2	12-21	0.98	8.66	23.16	31.19	11.17	75.16	18.24	6.60	fsl
Bt1	21-28	0.73	6.87	20.04	27.91	10.11	65.66	22.14	12.20	fsl
Bt2	28-41	1.10	7.14	18.33	25.31	9.43	61.31	19.49	19.20	fsl
Bt3	41-59	1.99	7.99	19.50	28.07	9.78	67.33	13.47	19.20	fsl
Bt4	59-80	1.98	8.16	20.74	27.48	8.20	66.56	11.24	22.20	sci
C	80-95	0.75	4.02	24.86	47.86	4.83	82.32	5.08	12.60	fsl

\*by hydrometer method Bouyoucos (1962)

Table C: Soil test data for State loamy sand, 0 to 3 percent slopes (Supplemental profile 2)

Horizon	Depth (in.)	pH	CaO*	MgO*	O.M. (%)	P205*	K20*	Zn ppm	Mn ppm
A	0-6	5.3	220	40	---	7	48	---	---
E	6-12	5.5	110	36	---	5	41	---	---
E2	12-21	5.7	110	56	---	0	43	---	---
Bt1	21-28	5.4	275	159	---	0	75	---	---
Bt2	28-41	5.4	605	113	---	2	96	---	---
Bt3	41-59	5.7	660	106	---	2	53	---	---
Bt4	59-80	5.7	495	76	---	0	48	---	---
C	80-95	5.8	385	53	---	5	48	---	---

\*lbs/acre



Harvesting peanuts on 34A - State loamy sand, 0 to 3 percent slopes.





Harvesting corn on 34A - State loamy sand, 0 to 3 percent slopes.

## TARBORO SERIES

Soils of the Tarboro series are very deep and somewhat excessively drained. They formed in sandy unconsolidated fluvial sediments. They are on floodplains in the Coastal Plain physiographic province. Slopes range from 0 to 2 percent.

A typical profile of Tarboro loamy sand, frequently flooded, 0 to 2 percent slopes, is located about 0.8 miles northeast of the junction of Highways VA-730 and VA-668 and 1 mile northwest of Haleys Bridge.

Ap--0 to 12 inches, dark brown (10YR 4/3) loamy sand; weak coarse granular structure; very friable; few fine flakes of mica; slightly acid; abrupt wavy boundary.

Bw1--12 to 22 inches, yellowish brown (10YR 5/6) loamy sand; weak coarse granular structure; very friable; few fine flakes of mica; strongly acid; diffuse smooth boundary.

Bw2--22 to 32 inches, yellowish brown (10YR 5/6) loamy sand; weak coarse granular structure; very friable; common fine flakes of mica; moderately acid; gradual smooth boundary.

C1--32 to 50 inches, brownish yellow (10YR 6/6) sand; single grain; loose; common fine flakes of mica; slightly acid; diffuse smooth boundary.

C2--50 to 72 inches, brownish yellow (10YR 6/6) sand; single grain; loose; common fine flakes of mica; 2 percent rounded pebbles; moderately acid.

Table A: Particle size distribution\* for Tarboro loamy sand, frequently flooded, 0 to 2 percent slopes

Horizon	Depth (in.)	Sand					Total	Silt	Clay	Textural Class
		Very Coarse	Coarse	Medium	Fine	Very Fine				
Ap	0-12	0.92	10.87	45.66	25.16	3.83	86.44	8.46	5.10	Is
Bw1	12-22	0.75	9.85	44.23	27.35	3.84	86.02	7.88	6.10	Is
Bw2	22-32	0.28	7.96	43.12	29.43	3.80	84.59	8.81	6.60	Is
C1	32-50	0.81	15.00	49.59	33.69	4.73	93.82	5.08	1.10	S
C2	50-72	1.11	12.51	61.54	20.03	1.14	96.33	2.57	1.10	S

\*by hydrometer method Bouyoucos (1962)

Table C: Soil test data for Tarboro loamy sand, frequently flooded, 0 to 2 percent slopes

Horizon	Depth (in.)	pH	CaO*	MgO*	O.M. (%)	P2O5*	K2O*	Zn ppm	Mn ppm
Ap	0-12	6.2	660	113	---	222	94	---	---
Bw1	12-22	5.5	303	96	---	39	75	---	---
Bw2	22-32	5.8	358	80	---	41	72	---	---
C1	32-50	6.3	220	40	---	34	53	---	---
C2	50-72	5.8	192	36	---	39	43	---	---

\*lbs/acre

## TARBORO SUPPLEMENTAL PROFILE 1

Supplemental profile 1 of Tarboro loamy fine sand, in an area of Tarboro loamy sand, frequently flooded, 0 to 2 percent slopes, is located about 1.1 miles west southwest of the junction of Highways VA-642 and U.S. 301 and 0.7 miles north northwest of the junction of a pipeline and Highway VA-628.

Ap--0 to 6 inches, dark brown (10YR 4/3) loamy fine sand; massive; very friable; common fine, medium, and coarse roots; very strongly acid; abrupt smooth boundary.

Bw1--6 to 24 inches, yellowish brown (10YR 5/8) loamy fine sand, many medium distinct very pale brown (10YR 8/4) mottles; weak coarse granular structure; very friable; few fine and medium roots; many distinct clay films and bridges on sand grains; very strongly acid; diffuse smooth boundary.

Bw2--24 to 43 inches, very pale brown (10YR 8/3) loamy fine sand; weak coarse granular structure; loose; few fine and medium roots; many distinct clay films and bridges on sand grains; moderately acid; diffuse smooth boundary.

C1--43 to 62 inches, very pale brown (10YR 8/3) fine sand; single grain; loose; few fine and medium roots; moderately acid; clear wavy boundary.

C2--62 to 66 inches, very pale brown (10YR 8/3) fine sand, many coarse distinct yellowish brown (10YR 5/6) mottles; single grain; loose; sand grains bridged and coated with clay; moderately acid; gradual smooth boundary.

C3--66 to 80 inches, very pale brown (10YR 7/4) fine sand, common coarse faint yellow (10YR 7/6) mottles; single grain; loose; moderately acid; diffuse smooth boundary.

2C4--80 to 107 inches, strong brown (7.5YR 5/8) sand, many coarse distinct very pale brown (10YR 7/4) mottles; single grain; loose; moderately acid; diffuse smooth boundary.

3C5--107 to 127 inches, mottled light gray (10YR 7/1), strong brown (7.5YR 5/6), and yellow (10YR 7/6) gravelly loamy coarse sand; single grain; loose; 20 percent gravel; moderately acid.

Table A: Particle size distribution\* for Tarboro loamy fine sand, frequently flooded, 0 to 2 percent slopes (Supplemental profile 1)

Horizon	Depth (in.)	Sand				Total	Silt	Clay	Textural Class
		Very Coarse	Coarse	Medium	Fine				
Ap	0-6	0.46	2.03	19.70	50.71	84.36	12.14	3.50	lfs
Bw1	6-24	0.31	1.19	13.02	51.71	81.85	12.65	5.50	lfs
Bw2	24-43	0.12	0.40	9.68	52.59	84.86	13.14	2.00	lfs
C1	43-62	0.03	0.20	7.62	62.27	89.95	8.55	1.50	fs
C2	62-66	0.02	0.36	16.19	58.62	88.90	5.60	5.50	fs
C3	66-80	0.04	0.51	8.38	73.85	92.85	5.15	2.00	fs
2C4	80-107	0.46	4.09	30.46	48.42	90.93	4.07	5.00	s
3C5	107-127	15.76	23.40	32.12	13.18	86.33	4.17	9.50	gr-lcos

\*by hydrometer method Bouyoucos (1962)

Table B: Chemical properties for Tarboro loamy fine sand, frequently flooded, 0 to 2 percent slopes (Supplemental profile 1)

Lab No.	Horizon	Depth (in.)	pH	Organic Matter (%)	Exchangeable Cations (meq/100 gram)							Base Saturation (%)
					Ca	Mg	K	H	Al	Total		
74-149	Ap	0-6	4.9	0.21	0.07	0.02	0.06	4.17	0.43	4.32	3.36	
74-150	Bw1	6-24	5.2	0.03	0.16	0.04	0.04	2.61	0.34	2.85	8.42	
74-151	Bw2	24-43	5.6	0.02	0.33	0.04	0.04	1.39	ND	1.80	22.56	
74-152	C1	43-62	5.7	ND	0.31	0.04	0.03	1.22	ND	1.60	23.75	
74-153	C2	62-66	5.9	0.02	0.69	0.07	0.04	1.56	0.09	2.36	33.76	
74-154	C3	66-80	5.9	ND	0.54	0.04	0.04	1.56	ND	2.18	28.28	
74-155	2C4	80-107	5.8	0.02	1.40	0.18	0.07	2.61	ND	4.26	38.66	
74-156	3C5	107-127	5.9	0.02	1.60	0.20	0.07	1.56	ND	3.43	54.45	

Table C: Soil test data for Tarboro loamy fine sand, frequently flooded, 0 to 2 percent slopes (Supplemental profile 1)

Horizon	Depth (in.)	pH	CaO*	MgO*	O.M. (%)	P2O5*	K2O*	Zn ppm	Mn ppm
Ap	0-6	4.9	55	7	---	92	31	---	---
Bw1	6-24	5.0	82	10	---	39	17	---	---
Bw2	24-43	5.9	138	10	---	11	14	---	---
C1	43-62	6.5	192	16	---	25	22	---	---
C2	62-66	6.3	220	20	---	18	17	---	---
C3	66-80	6.3	192	20	---	9	17	---	---
2C4	80-107	6.0	440	46	---	23	29	---	---
3C5	107-127	6.1	853	73	---	18	41	---	---

\*lbs/acre

Table D: Sand mineralogy for Tarboro loamy fine sand, frequently flooded, 0 to 2 percent slopes (Supplemental profile 1)

Horizon	Depth (in.)	Percent Minerals Present*
Bw2	24-43	Qz 69, Fd 24, HM 7

\*Qz = Quartz, Fd = Feldspar, M = Mica, HM = Heavy minerals including magnetite, zircon, ilmenite

## TARBORO SUPPLEMENTAL PROFILE 2

Supplemental profile 2 of Tarboro loamy sand, in an area of Tarboro loamy sand, frequently flooded, 0 to 2 percent slopes, is located about 2.4 miles south southeast of the junction of Highways VA-625 and VA-628 and 0.8 miles south southeast of Highway VA-625.

Ap--0 to 7 inches, dark brown (10YR 4/3) loamy sand; massive; very friable; many fine, medium, and coarse roots; very strongly acid; clear smooth boundary.

Bw1--7 to 21 inches, yellowish brown (10YR 5/6) loamy sand, many medium distinct very pale brown (10YR 7/3) mottles; weak coarse granular structure; very friable; many fine, medium, and coarse roots; many distinct clay films and bridges on sand grains; very strongly acid; diffuse smooth boundary.

Bw2--21 to 40 inches, yellowish brown (10YR 5/6) loamy sand, many medium faint very pale brown (10YR 7/3) mottles; weak coarse granular structure; very friable; few medium roots; many distinct clay films and bridges on sand grains; strongly acid; diffuse smooth boundary.

C--40 to 70 inches, mottled very pale brown (10YR 7/4) and brownish yellow (10YR 6/6) sand; single grain; loose; few fine and medium roots; strongly acid.



Table A: Particle size distribution\* for Tarboro loamy sand, frequently flooded, 0 to 2 percent slopes (Supplemental profile 2)

Horizon	Depth (in.)	Sand					Total	Silt	Clay	Textural Class
		Very Coarse	Coarse	Medium	Fine	Very Fine				
Ap	0-7	0.57	6.72	34.66	32.43	8.80	83.18	13.12	3.70	Is
Bw1	7-21	0.59	6.95	40.20	28.97	7.42	84.13	11.17	4.70	Is
Bw2	21-40	0.70	6.36	38.97	32.23	7.01	85.27	11.03	3.70	Is
C	40-70	0.11	2.88	36.71	44.21	7.98	91.89	7.61	0.50	S

\*by hydrometer method Bouyoucos (1962)

Table B: Chemical properties for Tarboro loamy sand, frequently flooded, 0 to 2 percent slopes (Supplemental profile 2)

Lab No.	Horizon	Depth (in.)	pH	Organic Matter (%)	Exchangeable Cations (meq/100 gram)					Base Saturation (%)	
					Ca	Mg	K	H	Al		Total
74-145	Ap	0-7	4.9	0.17	0.16	0.04	0.06	4.69	0.86	4.95	5.16
74-146	Bw1	7-21	4.8	0.04	ND	0.02	0.05	2.61	0.51	2.68	2.43
74-147	Bw2	21-40	5.2	0.03	0.25	0.13	0.05	1.56	0.26	1.99	21.61
74-148	C	40-70	5.4	ND	0.58	0.18	0.05	1.39	0.09	2.20	36.67

Table C: Soil test data for Tarboro loamy sand, frequently flooded, 0 to 2 percent slopes (Supplemental profile 2)

Horizon	Depth (in.)	pH	CaO#	MgO#	O. M. (%)	P205*	K20*	Zn ppm	Mn ppm
Ap	0-7	5.1	82	16	---	94	24	---	---
Bw1	7-21	5.0	55	7	---	23	22	---	---
Bw2	21-40	5.4	110	53	---	23	24	---	---
C	40-70	5.6	165	56	---	16	14	---	---

#lbs/acre

## TARBORO SUPPLEMENTAL PROFILE 3

Supplemental profile 3 of Tarboro loamy sand, in an area of Tarboro loamy sand, frequently flooded, 0 to 2 percent slopes, is located about 0.7 miles west southwest of the junction of Fountain Creek and Highway US-301 and 0.4 miles south of Highway VA-628.

Ap--0 to 8 inches, dark yellowish brown (10YR 4/4) loamy sand; single grain; loose; few fine roots; few fine flakes of mica; 2 percent gravel; strongly acid; abrupt smooth boundary.

Bw--8 to 18 inches, yellowish brown (10YR 5/6) loamy sand; weak coarse granular structure; single grain; loose; few fine roots; few fine flakes of mica; 2 percent gravel; strongly acid; diffuse smooth boundary.

C1--18 to 38 inches, brownish yellow (10YR 6/6) fine sand; single grain; loose; 2 percent gravel; slightly acid; diffuse smooth boundary.

C2--38 to 63 inches, brownish yellow (10YR 6/6) sand; single grain; loose; 10 percent gravel; moderately acid.

Table A: Particle size distribution\* for Tarboro loamy sand, frequently flooded, 0 to 2 percent slopes (Supplemental profile 3)

Horizon	Depth (in.)	Sand				Total	Silt	Clay	Textural Class
		Very Coarse	Coarse	Medium	Fine				
					Very Fine				
					%				
Ap	0-8	1.64	5.40	21.14	47.74	10.47	86.39	7.91	5.70
Bw	8-18	1.64	4.65	19.77	49.50	10.79	86.35	8.95	4.70
C1	18-38	1.40	4.39	21.51	52.91	10.62	90.83	6.97	2.20
C2	38-63	3.09	8.60	33.45	42.87	5.84	93.85	4.45	1.70

\*by hydrometer method Bouyoucos (1962)

Table B: Chemical properties for Tarboro loamy sand, frequently flooded, 0 to 2 percent slopes (Supplemental profile 3)

Lab No.	Horizon	Depth (in.)	pH	Organic Matter (%)	Exchangeable Cations (meq/100 gram)					Base Saturation (%)	
					Ca	Mg	K	H	Al		Total
Ap	0-8	0-8	5.2	0.27	0.16	0.03	0.08	13.88	0.34	14.15	1.87
Bw	8-18	8-18	5.3	0.11	0.17	0.08	0.05	4.05	0.09	4.35	6.79
C1	18-38	18-38	6.4	0.01	0.24	0.07	0.07	2.33	ND	2.71	14.02
C2	38-63	38-63	6.0	0.04	0.38	0.08	0.08	1.64	ND	2.18	24.60

Table C: Soil test data for Tarboro loamy sand, frequently flooded, 0 to 2 percent slopes (Supplemental profile 3)

Horizon	Depth (in.)	pH	CaO*	MgO*	O.M. (%)	P2O5*	K2O*	Zn ppm	Mn ppm
Ap	0-8	4.9	165	40	---	209	48	---	---
Bw	8-18	5.2	165	40	---	44	43	---	---
C1	18-38	6.1	192	20	---	34	48	---	---
C2	38-63	5.7	303	23	---	50	48	---	---

\*lbs/acre

Table D: Sand mineralogy for Tarboro loamy sand, frequently flooded, 0 to 2 percent slopes (Supplemental profile 3)

Horizon	Depth (in.)	Percent Minerals Present*
Bw	8-18	QZ 75; Fd 22; M 1; HM 4

\*QZ = Quartz; Fd = Feldspar; M = Mica; HM = Heavy minerals including magnetite, zircon, ilmenite

## TARBORO SUPPLEMENTAL PROFILE 4

Supplemental profile 4 of Tarboro loamy coarse sand, in an area of Tarboro loamy sand, frequently flooded, 0 to 2 percent slopes, is located about 0.5 miles southwest of the junction of Highways VA-625 and VA-622 and 0.5 miles south of Highway VA-625.

Ap--0 to 8 inches, dark brown (10YR 3/3) loamy coarse sand; massive; loose; many fine and medium roots; 5 percent gravel; very strongly acid; abrupt smooth boundary.

Bw--8 to 17 inches, yellowish brown (10YR 5/6) gravelly loamy coarse sand; weak coarse granular structure; loose; many fine, medium, and coarse roots; many distinct clay films and bridges on sand grains; 15 percent gravel; strongly acid; gradual smooth boundary.

C1--17 to 40 inches, brownish yellow (10YR 6/6) gravelly coarse sand, common medium distinct light gray (10YR 7/1) mottles; single grain; loose; few fine roots; 25 percent gravel; strongly acid; diffuse smooth boundary.

C2--40 to 50 inches, mottled light brownish gray (10YR 6/2) and yellowish red (5YR 4/6) very gravelly coarse sand; single grain; loose; few fine roots; 40 percent gravel; very strongly acid; gradual smooth boundary.

Cg--50 to 65 inches, gray (10YR 6/1) very gravelly coarse sand, common medium distinct very pale brown (10YR 7/4) mottles; single grain; loose; 40 percent gravel; moderately acid.

Table A: Particle size distribution\* for Tarboro loamy coarse sand, frequently flooded, 0 to 2 percent slopes (Supplemental profile 4)

Horizon	Depth (in.)	Sand				Total	Silt	Clay	Textural Class
		Very Coarse	Coarse	Medium	Fine				
Ap	0-8	8.35	18.39	35.48	17.57	84.74	12.46	2.80	lcos
Bw	8-17	12.24	18.11	33.89	17.48	86.20	8.90	4.90	gr-lcos
C1	17-40	10.73	23.56	41.10	16.49	93.76	5.34	0.90	gr-cos
C2	40-50	19.51	26.45	34.15	13.56	97.28	0.82	1.90	vgr-cos
Cg	50-65	22.75	37.89	26.55	9.08	97.68	1.92	0.40	vgr-cos

\*by hydrometer method Bouyoucos (1962)

Table B: Chemical properties for Tarboro loamy coarse sand, frequently flooded, 0 to 2 percent slopes (Supplemental profile 4)

Lab No.	Horizon	Depth (in.)	pH	Organic Matter (%)	Exchangeable Cations (meq/100 gram)					Base Saturation (%)	
					Ca	Mg	K	H	Al		
74-157	Ap	0-8	5.0	0.19	0.16	0.03	0.05	5.91	0.27	6.15	3.82
74-158	Bw	8-17	5.2	0.03	0.16	0.02	0.03	2.26	0.10	2.47	8.50
74-159	C1	17-40	5.1	0.02	0.11	ND	0.03	1.56	0.17	1.70	8.23
74-160	C2	40-50	4.9	0.03	0.07	0.04	0.04	2.61	0.43	2.76	5.43
74-161	Cg	50-65	5.9	ND	0.20	0.03	0.03	1.04	ND	1.29	19.38

Table C: Soil test data for Tarboro loamy coarse sand, frequently flooded, 0 to 2 percent slopes (Supplemental profile 4)

Horizon	Depth (in.)	pH	CaO*	MgO*	O.M. (%)	P2O5*	K2O*	Zn ppm	Mn ppm
Ap	0-8	5.3	138	7	---	275	17	---	---
Bw	8-17	5.6	110	7	---	92	17	---	---
C1	17-40	5.3	55	7	---	50	14	---	---
C2	40-50	5.0	55	7	---	69	14	---	---
Cg	50-65	5.2	82	10	---	9	14	---	---

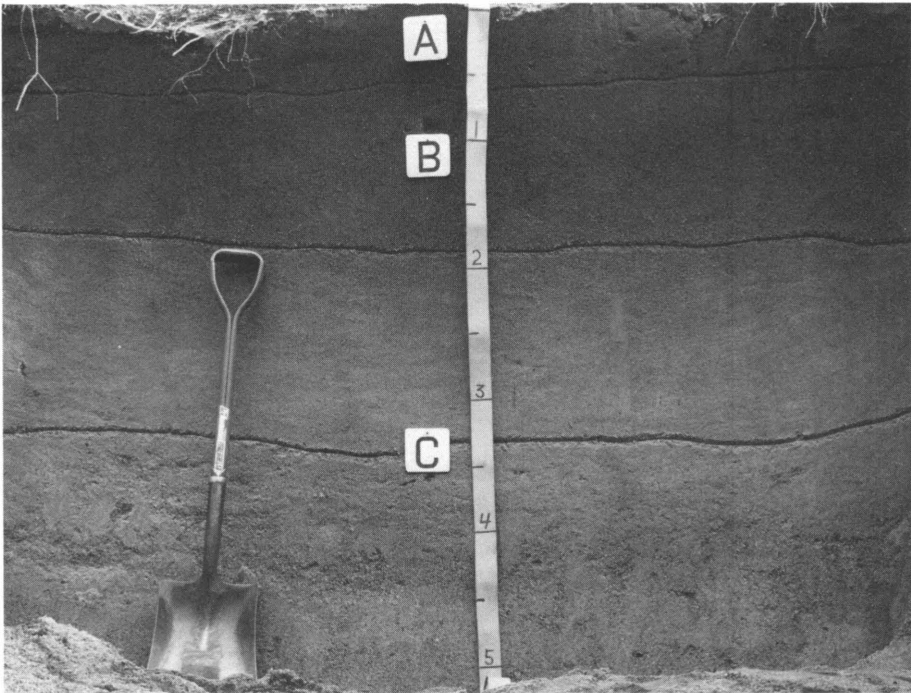
\* lbs/acre

Table D: Sand mineralogy for Tarboro loamy coarse sand, frequently flooded, 0 to 2 percent slopes (Supplemental profile 4)

Horizon	Depth (in.)	Percent Minerals Present*
C1	17-40	Qz 75; Fd 22; M 1; HM 2

\*Qz = Quartz; Fd = Feldspar; M = Mica; HM = Heavy minerals including magnetite, zircon, ilmenite





A profile of 35A - Tarboro loamy sand, frequently flooded, 0 to 2 percent slopes.

## UCHEE SERIES

Soils of the Uchee series are very deep and well drained. They formed in loamy unconsolidated fluvial and marine sediments. They are on uplands in the Coastal Plain physiographic province. Slopes range from 0 to 6 percent.

A typical profile of Uchee loamy sand, 0 to 6 percent slopes, is located about 0.7 miles south southeast of the junction of Caney Swamp and Highway VA-660 and 135 yards east of Highway VA-660, about 3.1 miles southeast of Skippers.

Oi--3 to 0 inches, undecomposed and partially decomposed leaves and twigs.

Ap--0 to 8 inches, grayish brown (10YR 5/2) loamy sand; massive; very friable; many fine, medium, and coarse roots; very strongly acid; abrupt smooth boundary.

E--8 to 25 inches, light yellowish brown (10YR 6/4) loamy sand; massive; very friable; many fine and medium roots; strongly acid; diffuse smooth boundary.

E/B--25 to 34 inches, light yellowish brown (10YR 6/4) loamy sand; massive; very friable E part; with pockets of yellowish brown (10YR 5/8) sandy loam; massive; friable B part; common fine and medium roots; strongly acid; gradual smooth boundary.

Bt1--34 to 40 inches, strong brown (7.5YR 5/6) sandy clay loam; weak medium subangular blocky structure; friable, slightly sticky, slightly plastic; few fine roots; many distinct clay films and bridges on sand grains, few faint clay films on faces of peds; strongly acid; diffuse smooth boundary.

Bt2--40 to 52 inches, strong brown (7.5YR 5/6) sandy clay loam; weak medium subangular blocky structure; friable, slightly sticky; many distinct clay films and bridges on sand grains, few faint clay films on faces of peds; strongly acid; diffuse smooth boundary.

C--52 to 66 inches, strong brown (7.5YR 5/8) sandy clay loam, few fine faint light gray (10YR 7/2) mottles; massive; firm; strongly acid.

Table A: Particle size distribution\* for Uchee loamy sand, 0 to 6 percent slopes

Horizon	Depth (in.)	Sand					Total	Silt	Clay	Textural Class
		Very Coarse	Coarse	Medium	Fine	Very Fine				
Ap	0-8	0.35	5.20	24.24	42.38	11.76	83.93	9.67	6.40	Is
E	8-25	0.34	5.71	27.17	43.17	10.92	87.31	7.29	5.40	Is
E/B (matr.)	25-34	0.36	5.69	26.05	44.41	10.46	86.97	9.03	4.00	Is
E/B (lam.)	25-34	0.39	5.02	22.90	37.97	8.82	75.10	6.90	18.00	sl
Bt1	34-40	0.25	3.62	20.13	34.25	8.07	66.32	4.68	29.00	sl
Bt2	40-52	0.15	1.85	23.33	38.65	7.74	71.72	8.08	20.20	sl
C	52-66	0.85	5.82	13.84	25.75	13.28	59.54	15.46	25.00	sl

\*by hydrometer method Bouyoucos (1962)

Table B: Chemical properties for Uchee loamy sand, 0 to 6 percent slopes

Lab No.	Horizon	Depth (in.)	pH	Organic Matter (%)	Exchangeable Cations (meq/100 gram)				Base Saturation (%)	
					Ca	Mg	K	H		
76-704	Ap	0-8	4.8	1.28	ND	ND	0.04	4.09	0.65	4.13
76-705	E	8-25	5.3	0.23	ND	ND	0.02	1.02	0.18	1.04
76-707	E/B	25-34	5.1	0.04	ND	ND	0.02	1.02	0.18	1.04
76-708	Bt1	34-40	5.1	0.36	1.30	0.45	0.15	5.69	1.02	7.59
76-709	Bt2	40-52	5.4	0.11	0.70	0.50	0.09	4.23	0.65	5.52
76-710	C	52-66	5.4	0.04	0.30	0.50	0.06	3.50	0.65	4.36

Table C: Soil test data for Uchee loamy sand, 0 to 6 percent slopes

Horizon	Depth (in.)	pH	CaO*	MgO*	O.M. (%)	P2O5*	K2O*	Zn ppm	Mn ppm
Ap	0-8	4.7	82	10	---	5	17	0.6	2.7
E	8-25	5.0	55	7	---	9	10	0.4	0.7
E/B	25-34	4.9	55	7	---	9	5	0.1	0.8
Bt1	34-40	5.2	523	136	---	9	31	0.2	0.2
Bt2	40-52	5.3	413	143	---	23	36	0.2	0.2
C	52-66	5.3	220	152	---	5	29	0.1	0.6

\*lbs/acre

Table D: Sand mineralogy for Uchee loamy sand, 0 to 6 percent slopes

Horizon	Depth (in.)	Percent Minerals Present*
Bt2	40-52	Qz 93; Fd 4; M 0.5; HM 2.5

\*Qz = Quartz; Fd = Feldspar; M = Mica; HM = Heavy minerals including magnetite, zircon, and ilmenite

Table E: Other physical properties for Uchee loamy sand, 0 to 6 percent slopes

Horizon	Depth (in.)	Swell Index*	Liquid Limit	Plasticity Index
Bt2	40-52	<1500	26.06	5.48

\*lbs/square foot

## UCHEE SUPPLEMENTAL PROFILE 1

Supplemental profile 1 of Uchee loamy sand, in an area of Uchee loamy sand, 0 to 6 percent slopes, is located about 0.9 miles north northeast of the junction of Highways VA-629 and VA-626 and 133 yards northeast of farm pond.

Oe--2 to 0 inches, partially decomposed pine needles and twigs.

A--0 to 5 inches, grayish brown (2.5Y 5/2) loamy sand; massive; loose; common fine and medium roots; very strongly acid; clear smooth boundary.

E1--5 to 12 inches, light yellowish brown (2.5Y 6/4) loamy sand; massive; loose; few fine and medium roots; very strongly acid; diffuse smooth boundary.

E2-- 12 to 20 inches, light yellowish brown (2.5Y 6/4) loamy sand; massive; loose; very strongly acid; diffuse smooth boundary.

E3--20 to 28 inches, light yellowish brown (2.5Y 6/4) fine sandy loam; massive; loose; few fine roots; very strongly acid; clear smooth boundary.

Bt1--28 to 32 inches, yellowish brown (10YR 5/8) sandy clay loam, few medium distinct light yellowish brown (2.5Y 6/4) mottles; weak medium subangular blocky structure; friable; few fine roots; many distinct clay films and bridges on sand grains; very strongly acid; clear smooth boundary.

Bt2--32 to 43 inches, yellowish brown (10YR 5/8) sandy clay, few medium distinct yellowish red (5YR 5/8) mottles; weak medium subangular blocky structure; friable, slightly sticky, slightly plastic; few fine roots; many distinct clay films and bridges on sand grains; very strongly acid; diffuse smooth boundary.

Bt3--43 to 54 inches, mottled yellowish brown (10YR 5/8), (10YR 5/6), and red (2.5YR 4/6) sandy clay loam; weak medium subangular blocky structure; friable, slightly sticky, slightly plastic; few fine roots; many distinct clay films and bridges on sand grains; very strongly acid; diffuse smooth boundary.

Bt4--54 to 66 inches, mottled red (2.5YR 4/6), yellowish brown (10YR 5/8), and light gray (10YR 7/2) sandy clay loam; weak medium subangular blocky structure; friable, slightly sticky, slightly plastic; many distinct clay films and bridges on sand grains; very strongly acid.

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Table A: Particle size distribution\* for Uchee loamy sand, 0 to 6 percent slopes (Supplemental profile 1)

Horizon	Depth (in.)	Sand					Total	Silt	Clay	Textural Class
		Very Coarse	Coarse	Medium	Fine	Very Fine				
A	0-5	1.21	8.94	23.42	32.56	10.45	76.58	18.79	4.62	Is
E1	5-12	1.61	9.49	22.91	31.99	14.13	80.13	15.65	4.24	Is
E2	12-20	1.70	9.70	21.70	31.70	12.70	77.50	17.10	5.40	Is
E3	20-28	3.22	10.15	19.70	31.26	11.06	75.39	17.99	6.63	fsl
Bt1	28-32	3.71	8.22	16.93	26.25	10.22	65.33	14.03	20.64	scI
Bt2	32-43	2.03	6.49	14.60	23.63	9.23	55.98	8.93	35.09	sc
Bt3	43-54	.91	4.04	11.00	24.02	13.82	53.79	14.12	32.09	scI
Bt4	54-66	4.04	4.45	11.43	22.04	14.76	56.72	15.16	28.11	scI

\*by pipette method Day (1965)

Table B: Chemical properties for Uchee loamy sand, 0 to 6 percent slopes (Supplemental profile 1)

Lab No.	Horizon	Depth (in.)	pH	Organic Matter (%)	Exchangeable Cations (meq/100 gram)					Base Saturation (%)	
					Ca	Mg	K	H	Al Total		
77-393	A	0-5	4.9	2.0	0.1	0.0	0.1	4.6	0.8	4.8	4.2
77-394	E1	5-12	4.7	0.4	0.0	0.0	0.0	2.0	0.3	2.0	0.0
77-395	E2	12-20	4.8	0.2	0.0	0.0	0.0	1.6	0.4	1.6	0.0
77-396	E3	20-28	4.8	0.1	0.0	0.0	0.0	1.7	0.5	1.7	0.0
77-397	Bt1	28-32	4.7	0.3	0.1	0.1	0.1	5.4	2.0	5.7	5.3
77-398	Bt2	32-43	4.9	0.2	0.1	1.0	0.1	7.6	2.5	8.8	13.6
77-399	Bt3	43-54	5.0	0.1	0.0	0.3	0.1	7.2	3.3	7.6	5.3
77-400	Bt4	54-66	5.0	0.1	0.0	0.1	0.0	6.5	3.0	6.6	1.5



Table C: Soil test data for Uchee loamy sand, 0 to 6 percent slopes  
(Supplemental profile 1)

Horizon	Depth (in.)	pH	CaO*	MgO*	O.M. (%)	P2O5*	K2O*	Zn ppm	Mn ppm
A	0-5	5.4	165	23	2.0	2	31	---	---
E1	5-12	5.1	55	3	0.3	2	5	---	---
E2	12-20	5.2	82	3	0.2	2	10	---	---
E3	20-28	5.1	55	3	0.2	2	14	---	---
Bt1	28-32	5.0	110	36	0.2	2	29	---	---
Bt2	32-43	5.2	110	269	0.2	5	31	---	---
Bt3	43-54	5.2	55	83	0.2	5	17	---	---
Bt4	54-66	5.1	55	43	0.2	2	14	---	---

\*lbs/acre

## UCHEE SUPPLEMENTAL PROFILE 2

Supplemental profile 2 of Uchee sand, in an area of Uchee loamy sand, 0 to 6 percent slopes, is located about 530 yards west southwest of the junction of Highways VA-627 and VA-601 and 100 yards west of Highway VA-627.

Ap--0 to 11 inches, dark grayish brown (10YR 4/2) sand; massive; very friable; many fine, medium, and coarse roots; strongly acid; clear smooth boundary.

E1--11 to 21 inches, light yellowish brown (10YR 6/4) loamy sand; massive; very friable; many fine, medium, and coarse roots; strongly acid; diffuse smooth boundary.

E2--21 to 33 inches, light yellowish brown (10YR 6/4) loamy sand, few strong brown (7.5YR 5/6) lamellae; massive; very friable; many fine, medium, and coarse roots; strongly acid; clear smooth boundary.

Bt1--33 to 40 inches, yellowish red (5YR 5/8) sandy clay; weak medium subangular blocky structure; friable, slightly sticky, slightly plastic; many fine, medium, and coarse roots; many distinct clay films and bridges on sand grains; very strongly acid; diffuse smooth boundary.

Bt2--40 to 49 inches, yellowish red (5YR 5/8) sandy clay loam; weak medium subangular blocky structure; friable, slightly sticky, slightly plastic; many distinct clay films and bridges on sand grains; very strongly acid; diffuse smooth boundary.

Bt3--49 to 58 inches, yellowish red (5YR 5/8) sandy clay loam; weak medium subangular blocky structure; friable, slightly sticky; many distinct clay films and bridges on sand grains; strongly acid; diffuse smooth boundary.

Bt4--58 to 67 inches, strong brown (7.5YR 5/6) fine sandy loam; weak medium and coarse subangular blocky structure; friable; many distinct clay films and bridges on sand grains; strongly acid; diffuse smooth boundary.

C--67 to 87 inches, strong brown (7.5YR 5/8) loamy sand; massive; very friable; strongly acid.

Table A: Particle size distribution\* for Uchee sand, 0 to 6 percent slopes (Supplemental profile 2)

Horizon	Depth (in.)	Sand					Total	Silt	Clay	Textural Class
		Very Coarse	Coarse	Medium	Fine	Very Fine				
Ap	0-11	0.27	5.29	38.59	40.65	4.50	89.29	7.11	3.60	s
E1	11-21	0.24	3.92	28.79	45.01	8.21	86.17	9.33	4.50	Is
E2	21-33	0.34	4.82	31.82	43.83	6.12	86.92	7.58	5.50	Is
Bt1	33-40	0.25	3.06	20.29	28.15	3.65	57.39	6.41	36.20	sc
Bt2	40-49	0.32	3.66	22.42	31.76	4.80	62.95	6.85	30.20	scl
Bt3	49-58	0.31	3.58	23.25	35.79	6.38	69.31	6.49	24.20	scl
Bt4	58-67	0.09	3.36	31.73	36.36	5.71	77.25	6.55	16.20	fsl
C	67-87	0.34	5.91	32.17	40.47	8.02	86.89	6.71	6.40	Is

\*by hydrometer method Bouyoucos (1962)

Table B: Chemical properties for Uchee sand, 0 to 6 percent slopes (Supplemental profile 2)

Lab No.	Horizon	Depth (in.)	pH	Organic Matter (%)	Exchangeable Cations (meq/100 gram)					Base Saturation (%)	
					Ca	Mg	K	H	Al		Total
----	Ap	0-11	5.4	0.61	0.88	0.23	0.03	3.53	0.17	4.67	24.33
----	E1	11-21	5.5	0.15	0.19	0.08	0.02	1.29	0.09	1.58	18.35
----	E2	21-33	5.4	0.05	0.19	0.06	0.03	1.12	0.09	1.40	19.71
----	Bt1	33-40	4.7	0.09	1.15	0.68	0.28	7.50	1.80	9.60	21.88
----	Bt2	40-49	4.9	0.01	0.93	1.07	0.29	5.78	1.29	8.07	28.38
----	Bt3	49-58	5.2	0.04	0.29	0.48	0.24	5.09	1.46	6.10	16.56
----	Bt4	58-67	5.3	0.04	0.10	0.27	0.18	3.88	1.29	4.43	10.26
----	C	67-87	5.3	0.04	0.10	1.16	0.09	1.98	0.26	2.33	14.84

Table C: Soil test data for Uchee sand, 0 to 6 percent slopes  
(Supplemental profile 2)

Horizon	Depth (in.)	pH	CaO*	MgO*	O.M. (%)	P205*	K20*	Zn ppm	Mn ppm
Ap	0-11	5.5	523	63	---	241	24	---	---
E1	11-21	5.7	138	26	---	7	17	---	---
E2	21-33	5.6	110	20	---	5	22	---	---
Bt1	33-40	5.2	413	123	---	5	96	---	---
Bt2	40-49	5.1	358	212	---	5	108	---	---
Bt3	49-58	5.4	110	86	---	2	82	---	---
Bt4	58-67	5.7	82	63	---	2	75	---	---
C	67-87	5.6	55	40	---	2	55	---	---

\*lbs/acre

## UCHEE SUPPLEMENTAL PROFILE 3

Supplemental profile 3 of Uchee loamy sand, in an area of Uchee loamy sand, 0 to 6 percent slopes, is located about 0.5 miles northeast of the junction of Highways US-301 and VA-662 and 530 yards north of Highway VA-662.

Oe--2 to 0 inches, partially decomposed leaves and twigs.

A--0 to 2 inches, dark grayish brown (10YR 5/2) loamy sand; weak fine granular structure; very friable; many fine, medium, and coarse roots; very strongly acid; clear smooth boundary.

E1--2 to 20 inches, light yellowish brown (10YR 6/4) loamy sand, common medium distinct yellowish brown (10YR 5/6) mottles; massive; very friable; many fine, medium, and coarse roots; strongly acid; diffuse wavy boundary.

E2--20 to 26 inches, light yellowish brown (10YR 6/4) sandy loam, common medium distinct yellowish brown (10YR 5/6) mottles; massive; friable, slightly brittle; many fine, medium, and coarse roots; strongly acid; gradual smooth boundary.

Bt1--26 to 34 inches, strong brown (7.5YR 5/6) sandy loam; weak medium subangular blocky structure; friable, slightly sticky, slightly plastic; common fine and medium roots; many distinct clay films and bridges on sand grains; 2 percent gravel; very strongly acid; diffuse smooth boundary.

Bt2--34 to 47 inches, yellowish red (5YR 4/8) sandy clay loam; weak medium subangular blocky structure; friable, sticky, plastic; common fine and medium roots; many distinct clay films and bridges on sand grains; 2 percent rounded gravel; very strongly acid; diffuse smooth boundary.

Bt3--47 to 59 inches, yellowish red (5YR 5/8) sandy clay loam; weak medium subangular blocky structure; friable, slightly sticky, slightly plastic; common fine and medium roots; many distinct clay films and bridges on sand grains; 5 percent rounded gravel; strongly acid; gradual smooth boundary.

C--59 to 72 inches, strong brown (7.5YR 5/6) sandy loam; massive; friable; few fine roots; 10 percent gravel; strongly acid.

Table A: Particle size distribution\* for Uchee loamy sand, 0 to 6 percent slopes (Supplemental profile 3)

Horizon	Depth (in.)	Sand				Total	Silt	Clay	Textural Class	
		Very Coarse	Coarse	Medium	Fine					
A	0-2	0.93	13.61	35.09	25.20	9.77	84.60	12.00	3.40	Is
E1	2-20	1.26	10.93	29.53	24.14	11.67	77.53	15.57	6.90	Is
E2	20-26	1.78	11.42	24.51	21.20	10.62	69.53	17.07	13.40	sl
Bt1	26-34	2.80	11.11	21.52	17.56	10.35	63.34	16.86	19.80	sl
Bt2	34-47	3.71	10.41	21.96	16.74	8.77	61.59	16.61	21.80	sci
Bt3	47-59	3.45	11.35	24.16	17.73	6.48	63.17	14.83	22.00	sci
C	59-72	7.23	12.45	27.17	21.17	6.26	74.74	10.26	15.00	sl

\*by hydrometer method Bouyoucos (1962)

Table B: Chemical properties for Uchee loamy sand, 0 to 6 percent slopes (Supplemental profile 3)

Lab No.	Horizon	Depth (in.)	pH	Organic Matter (%)	Exchangeable Cations (meq/100 gram)					Base Saturation (%)	
					Ca	Mg	K	H	Al		
73-879	A	0-2	4.5	1.02	0.88	0.20	0.11	5.17	0.43	6.36	18.71
73-880	E1	2-20	5.2	0.11	0.06	0.02	0.05	2.24	0.34	2.37	5.49
73-881	E2	20-26	5.1	0.08	0.16	0.10	0.10	2.76	0.43	3.12	11.40
73-882	Bt1	26-34	4.9	0.12	0.35	0.54	0.30	6.38	2.06	7.57	15.66
73-883	Bt2	34-47	5.0	0.06	0.22	0.57	0.17	7.76	3.18	8.72	10.96
73-884	Bt3	47-59	5.2	0.06	0.05	0.34	0.10	7.07	3.00	7.55	6.36
73-885	C	59-72	5.1	0.03	0.04	0.16	0.06	3.28	1.63	3.54	7.34

Table C: Soil test data for Uchee loamy sand, 0 to 6 percent slopes  
(Supplemental profile 3)

Horizon	Depth (in.)	pH	CaO*	MgO*	O.M. (%)	P2O5*	K2O*	Zn ppm	Mn ppm
A	0-2	4.6	303	60	---	5	41	---	---
E1	2-20	5.3	138	20	---	7	24	---	---
E2	20-26	5.3	82	40	---	5	48	---	---
Bt1	26-34	5.0	138	133	---	2	101	---	---
Bt2	34-47	4.8	138	123	---	39	63	---	---
Bt3	47-59	5.4	155	100	---	2	0	---	---
C	59-72	5.4	82	63	---	2	29	---	---

\* lbs/acre



## UCHEE SUPPLEMENTAL PROFILE 4

Supplemental profile 4 of Uchee sand, in an area of Uchee loamy sand, 0 to 6 percent slopes, is located about 178 feet north northeast of the junction of Highways VA-627 and VA-675 and 67 yards west of Highway VA-627.

Ap--0 to 11 inches, grayish brown (10YR 5/2) sand; single grain; loose; many fine roots; moderately acid; abrupt wavy boundary.

E--11 to 21 inches, light yellowish brown (2.5Y 6/4) loamy sand; massive; very friable; common fine roots; slightly acid; clear smooth boundary.

EB--21 to 27 inches, pale brown (10YR 6/3) sandy loam, many medium faint yellowish brown (10YR 5/4) mottles; massive; very friable; common fine roots; moderately acid; clear smooth boundary.

Bt1--27 to 43 inches, yellowish brown (10YR 5/6) fine sandy loam; weak medium subangular blocky structure; friable, slightly sticky, slightly plastic; common fine roots; many distinct clay films and bridges on sand grains; strongly acid; gradual smooth boundary.

2Bt2--43 to 53 inches, yellowish brown (10YR 5/6) sandy loam, common medium faint light yellowish brown (10YR 6/4) mottles; weak medium subangular blocky structure; friable, 10 percent brittle, slightly sticky, slightly plastic; few fine roots; many distinct clay films and bridges on sand grains; very strongly acid; gradual smooth boundary.

2Bt3--53 to 66 inches, yellowish brown (10YR 5/6) sandy clay loam, few medium prominent red (10R 4/6) mottles; weak medium subangular blocky structure; friable, sticky, slightly plastic; many distinct clay films and bridges on sand grains; very strongly acid; gradual smooth boundary.

2Bt4--66 to 74 inches, yellowish brown (10YR 5/8) sandy clay, many medium prominent red (10R 4/6) and light yellowish brown (10YR 6/4) mottles; weak very fine platy structure parting to weak medium subangular blocky; firm, sticky, plastic; many distinct clay films and bridges on sand grains; very strongly acid.

Table A: Particle size distribution\* for Uchee sand, 0 to 6 percent slopes (Supplemental profile 4)

Horizon	Depth (in.)	Sand					Total	Silt	Clay	Textural Class
		Very Coarse	Coarse	Medium	Fine	Very Fine				
Ap	0-11	0.87	14.03	32.62	34.00	6.56	88.08	8.82	3.10	s
E	11-21	0.63	12.05	30.11	30.99	5.84	79.62	13.28	7.10	ls
EB	21-27	0.85	12.59	30.12	29.10	5.43	78.09	11.81	10.10	sl
Bt1	27-43	0.91	13.11	29.68	30.34	5.78	79.82	7.98	12.20	fsl
2Bt2	43-53	1.21	12.93	25.89	25.76	4.69	70.48	11.32	18.20	sl
2Bt3	53-66	1.44	11.13	22.04	20.90	3.96	59.47	8.33	32.20	scl
2Bt4	66-74	1.31	10.42	20.09	18.13	3.27	53.22	7.18	39.60	sc

\*by hydrometer method Bouyoucos (1962)

Table B: Chemical properties for Uchee sand, 0 to 6 percent slopes (Supplemental profile 4)

Lab No.	Horizon	Depth (in.)	pH	Organic Matter (%)	Exchangeable Cations (meq/100 gram)					Base Saturation (%)	
					Ca	Mg	K	H	Al		Total
75-120	Ap	0-11	5.7	0.70	0.51	0.07	0.05	2.00	0.10	2.63	23.95
75-121	E	11-21	5.7	0.22	0.31	0.05	0.07	1.50	0.10	1.93	22.08
75-122	EB	21-27	6.1	0.16	0.44	0.09	0.12	1.50	ND	2.15	30.07
75-123	Bt1	27-43	5.1	0.19	0.53	0.13	0.19	3.75	0.77	4.60	18.39
75-124	2Bt2	43-53	4.9	0.13	0.52	0.16	0.16	3.50	0.39	4.34	19.35
75-125	2Bt3	53-66	4.8	0.10	0.80	0.25	0.29	6.25	1.06	7.59	17.65
75-126	2Bt4	66-74	4.8	0.16	0.91	0.47	0.22	8.50	1.25	10.10	15.80

Table C: Soil test data for Uchee sand, 0 to 6 percent slopes  
(Supplemental profile 4)

Horizon	Depth (in.)	pH	CaO*	MgO*	O.M. (%)	P205*	K20*	Zn ppm	Mn ppm
Ap	0-11	5.7	633	23	0.6	275	29	1.9	2.3
E	11-21	6.1	330	20	0.1	41	41	0.2	0.7
EB	21-27	5.8	303	23	0.1	5	55	0.0	0.3
Bt1	27-43	5.3	523	46	0.1	5	145	0.2	0.2
2Bt2	43-53	5.0	413	36	0.1	2	82	0.2	0.2
2Bt3	53-66	5.0	715	70	0.2	2	183	0.2	0.2
2Bt4	66-74	4.9	660	100	0.2	0	72	0.2	0.3

\* lbs/acre

## UCHEE SUPPLEMENTAL PROFILE 5

Supplemental profile 5 of Uchee loamy sand, in an area of Uchee loamy sand, 0 to 6 percent slopes, is located about 380 yards northeast of the junction of Highways VA-627 and VA-675 and 33 yards west of Highway VA-627.

Ap--0 to 11 inches, dark grayish brown (10YR 4/2) loamy sand, common medium distinct light yellowish brown (2.5Y 6/4) mottles; massive; very friable; few fine roots; slightly acid; abrupt smooth boundary.

E--11 to 28 inches, light yellowish brown (2.5Y 6/4) loamy sand; massive; very friable; few fine roots; very strongly acid; clear wavy boundary.

Bt--28 to 47 inches, yellowish brown (10YR 5/6) sandy clay loam, common medium distinct red (2.5YR 4/6) mottles; weak medium subangular blocky structure; friable, sticky, plastic; few fine roots; many distinct clay films and bridges on sand grains, few faint clay films on faces of peds; very strongly acid; gradual wavy boundary.

Btv--47 to 60 inches, red (2.5YR 4/8) sandy clay, many medium distinct yellowish brown (10YR 5/6) and dark red (10R 3/6) mottles; moderate very fine platy structure parting to weak medium subangular blocky; firm, sticky, slightly plastic; 10 to 15 percent nonindurated plinthite nodules; many distinct clay films and bridges on sand grains, common faint clay films on faces of peds; very strongly acid; clear wavy boundary.

Bt--60 to 70 inches, red (2.5YR 4/6) sandy clay, common medium distinct yellowish brown (10YR 5/6) mottles; weak coarse subangular blocky structure; friable, sticky, slightly plastic; many distinct clay films and bridges on sand grains, common faint clay films on faces of peds; very strongly acid.

**Table A: Particle size distribution\* for Uchee loamy sand, 0 to 6 percent slopes (Supplemental profile 5)**

Horizon	Depth (in.)	Sand					Total	Silt	Clay	Textural Class
		Very Coarse	Coarse	Medium	Fine	Very Fine				
Ap	0-11	0.81	12.22	34.06	33.67	5.47	86.23	7.47	6.30	Is
E	11-28	0.69	11.91	32.08	32.07	5.09	81.84	8.86	9.30	Is
Bt	28-47	1.08	10.70	26.66	28.00	3.89	70.33	3.07	26.60	scl
Btv	47-60	1.36	8.57	18.55	18.36	3.21	50.05	11.35	38.60	sc
Bt	60-70	1.12	7.49	19.21	20.79	3.28	51.89	10.51	37.60	sc

\*by hydrometer method Bouyoucos (1962)

**Table B: Chemical properties for Uchee loamy sand, 0 to 6 percent slopes (Supplemental profile 5)**

Lab No.	Horizon	Depth (in.)	pH	Organic Matter (%)	Exchangeable Cations (meq/100 gram)				Base Saturation (%)		
					Ca	Mg	K	H			
---	Ap	0-11	6.2	0.95	0.70	0.14	0.10	1.75	ND	2.69	34.94
---	E	11-28	4.9	0.16	0.19	0.04	0.07	1.75	0.39	2.05	14.42
---	Bt	28-47	4.8	0.16	0.53	0.28	0.21	5.50	1.25	6.52	15.64
---	Btv	47-60	4.9	0.16	0.51	0.37	0.21	9.50	1.74	10.59	10.29
---	Bt	60-70	4.6	0.16	0.23	0.31	0.10	8.75	2.12	9.39	6.82

Table C: Soil test data for Uchee loamy sand, 0 to 6 percent slopes (Supplemental profile 5)

Horizon	Depth (in.)	pH	CaO*	MgO*	O.M. (%)	P2O5*	K2O*	Zn ppm	Mn ppm
Ap	0-11	6.1	413	73	0.8	83	60	0.9	1.7
E	11-28	5.3	138	16	0.1	7	41	0	0.1
Bt	28-47	4.8	426	76	0.1	2	94	0	0.5
Btv	47-60	4.7	303	86	0.1	2	82	0.1	0.3
Bt	60-70	4.5	138	63	0.8	2	36	0	0.1

\*lbs/acre

Table D: Sand mineralogy for Uchee loamy sand, 0 to 6 percent slopes (Supplemental profile 5)

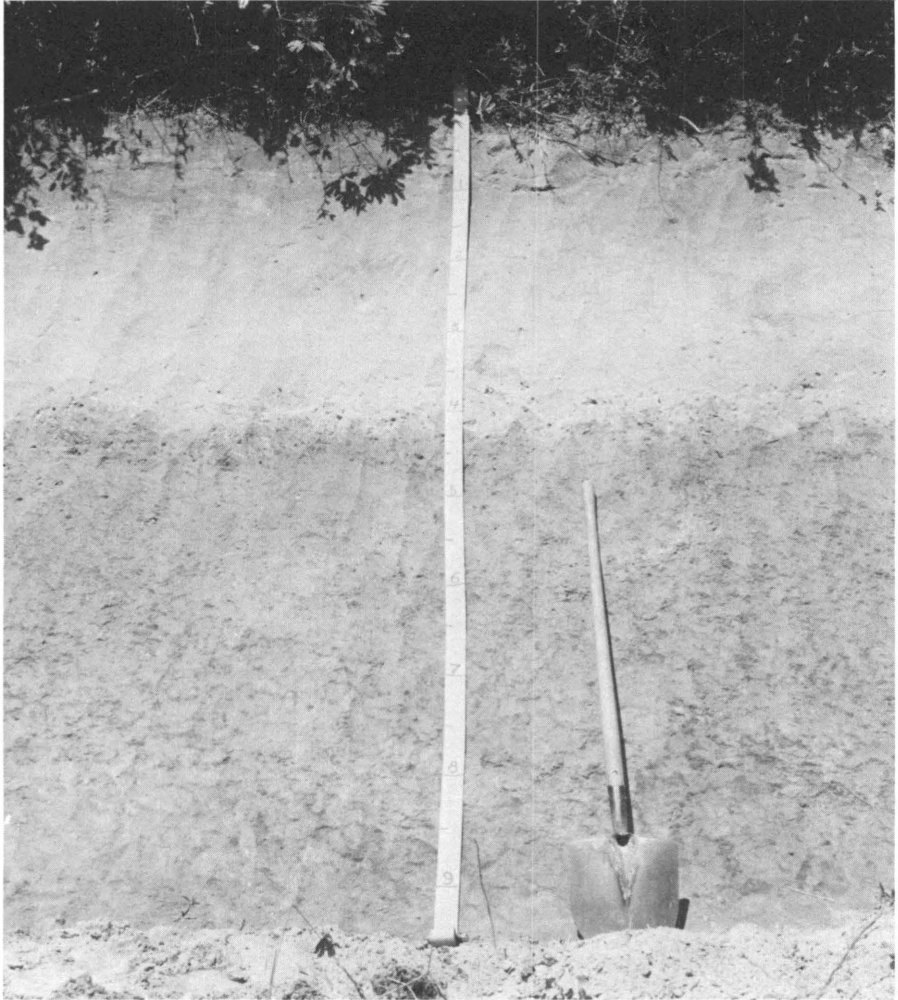
Horizon	Depth (in.)	Percent Minerals Present*
E	11-28	QZ 86; Fd 0.5; HM 13.5
Bt	28-47	QZ 90; Fd 0.5; Mi 0.5; HM 9
Btv	47-60	QZ 88; Mi 0.5; HM 12
Bt	60-70	QZ 87; HM 13

QZ = quartz, Fd = feldspar,  
HM = heavy minerals, Mi = mica

Table E: Other physical properties for Uchee loamy sand, 0 to 6 percent slopes (Supplemental profile 5)

Horizon	Depth (in.)	Swell Index*	Liquid Limit	Plasticity Index
Bt	28-47	474	25.40	9.46

\*lbs/square foot



A profile of 36B - Uchee loamy sand, 0 to 6 percent slopes.





Sand deposited by wind erosion of 36B - Uchee loamy sand, 0 to 6 percent slopes.

## WICKHAM SERIES

Soils of the Wickham series are very deep and well drained. They formed in loamy unconsolidated fluvial sediments. They are on stream terraces and floodplains in the Coastal Plain and Piedmont physiographic provinces. Slopes range from 0 to 3 percent.

A typical profile of Wickham fine sandy loam, 0 to 3 percent slopes, is located about 0.9 miles north northwest of the junction of Highways VA-622 and VA-625 and 350 yards west of Highway VA-622, about 1.3 miles southwest of Bryants Corner.

Ap--0 to 8 inches, pale brown (10YR 6/3) fine sandy loam; massive; friable; many fine roots; few fine flakes of mica; slightly acid; abrupt smooth boundary.

Bt1--8 to 22 inches, yellowish red (5YR 5/8) fine sandy loam, common medium faint strong brown (7.5YR 5/8) mottles; weak medium subangular blocky structure; friable, slightly sticky, slightly plastic; many fine roots; many distinct clay films on faces of peds; few fine flakes of mica; moderately acid; gradual smooth boundary.

Bt2--22 to 37 inches, red (2.5YR 4/8) clay loam, many medium faint yellowish red (5YR 5/8) mottles; moderate medium subangular blocky structure; friable, sticky, plastic; common fine roots; many distinct clay films on faces of peds; few fine flakes of mica; moderately acid; diffuse smooth boundary.

Bt3--37 to 48 inches, red (2.5YR 4/8) clay; moderate medium subangular blocky structure; friable, sticky, plastic; few fine roots; many distinct clay films on faces of peds; many fine flakes of mica; moderately acid; diffuse smooth boundary.

Bt4--48 to 57 inches, red (2.5YR 4/8) clay loam; weak medium subangular blocky structure; friable, slightly sticky, slightly plastic; many distinct clay films on faces of peds; many fine flakes of mica; strongly acid; diffuse smooth boundary.

Bt5--57 to 76 inches, red (2.5YR 4/8) sandy clay; weak medium subangular blocky structure; friable, slightly sticky, slightly plastic; many distinct clay films and bridges on sand grains; many fine flakes of mica; very strongly acid.

Table A: Particle size distribution\* for Wickham fine sandy loam, 0 to 3 percent slopes

Horizon	Depth (in.)	Sand				Total	Silt	Clay	Textural Class
		Very Coarse	Coarse	Medium	Fine				
Ap	0-8	0.45	2.37	10.71	33.77	71.10	15.10	13.80	fsl
Bt1	8-22	0.53	1.65	7.85	25.45	54.22	27.18	18.60	fsl
Bt2	22-37	0.10	0.76	5.11	20.05	42.68	23.72	33.60	cl
Bt3	37-48	0.06	0.26	1.83	11.86	31.74	25.66	42.60	c
Bt4	48-57	0.02	0.23	1.58	14.55	35.01	25.39	39.60	cl
Bt5	57-76	0.04	0.34	2.60	24.23	46.42	14.98	38.60	sc

\*by hydrometer method Bouyoucos (1962)

Table B: Chemical properties for Wickham fine sandy loam, 0 to 3 percent slopes

Lab No.	Horizon	Depth (in.)	pH	Organic Matter (%)	Exchangeable Cations (meq/100 gram)				Base Saturation (%)		
					Ca	Mg	K	H			
74-334	Ap	0-8	6.1	0.13	0.76	0.30	0.19	3.48	ND	4.73	26.35
74-335	Bt1	8-22	5.8	0.08	1.35	0.37	0.52	2.91	ND	5.15	43.49
74-336	Bt2	22-37	5.6	0.03	2.40	0.62	0.13	4.94	ND	8.09	38.94
74-337	Bt3	37-48	5.7	0.02	2.75	1.41	0.11	6.20	ND	10.47	40.78
74-338	Bt4	48-57	5.2	0.03	1.425	2.00	0.14	7.22	0.60	10.78	33.02
74-339	Bt5	57-76	4.8	0.03	0.66	1.01	0.15	7.72	1.12	9.54	19.03

Table C: Soil test data for Wickham fine sandy loam, 0 to 3 percent slopes

Horizon	Depth (in.)	pH	CaO*	MgO*	O. M. (%)	P2O5*	K2O*	Zn ppm	Mn ppm
Ap	0-8	6.3	523	119	---	48	111	---	---
Bt1	8-22	6.0	660	113	---	0	253	---	---
Bt2	22-37	5.9	1018	139	---	0	55	---	---
Bt3	37-48	5.7	1045	262	---	0	29	---	---
Bt4	48-57	5.2	660	342	---	2	36	---	---
Bt5	57-76	5.1	358	249	---	2	43	---	---

\*lbs/acre

Table D: Sand mineralogy for Wickham fine sandy loam, 0 to 3 percent slopes

Horizon	Depth (in.)	Percent Minerals Present*	Horizon	Depth (in.)	Swell Index*	Liquid Limit	Plasticity Index
Bt1	8-22	Qz 75; Fd 22; M 2; HM 1	Bt3	37-48	2639	52.86	28.66

\*Qz = Quartz; Fd = Feldspar; M = Mica; HM = Heavy minerals including magnetite, zircon, and ilmenite

\*lbs/square foot

## WICKHAM SUPPLEMENTAL PROFILE 1

Supplemental profile 1 of Wickham sandy loam, in an area of Wickham sandy loam, frequently flooded, 0 to 2 percent slopes, is located about 1 mile west southwest of the junction of Highways US-58 and VA-623 and 1.2 miles north northeast of the junction of Highways VA-730 and VA-622.

Ap-- 0 to 8 inches, dark brown (10YR 4/3) sandy loam; moderate fine granular structure; very friable; many fine, medium, and coarse roots; 2 percent coarse fragments; strongly acid; abrupt smooth boundary.

Bt1--8 to 12 inches, reddish brown (5YR 4/4) sandy clay loam, few fine distinct brown (10YR 4/3) and black (10YR 2/1) mottles; weak medium subangular blocky structure; friable, slightly sticky, slightly plastic; common fine, medium, and coarse roots; common distinct clay films on faces of peds; few fine black concretions; strongly acid; clear smooth boundary.

Bt2--12 to 28 inches, yellowish red (5YR 4/6) clay loam, common medium distinct black (10YR 2/1) mottles; moderate fine and medium subangular blocky structure; friable, slightly sticky, slightly plastic; common fine and medium roots; many distinct clay films on faces of peds; common medium black concretions; common fine flakes of mica; strongly acid; diffuse smooth boundary.

Bt3--28 to 36 inches, yellowish red (5YR 4/6) sandy clay loam, common medium distinct black (10YR 2/1) mottles; moderate medium subangular blocky structure; friable, slightly sticky, slightly plastic; common fine roots; many distinct clay films on faces of peds; common medium black concretions; common fine flakes of mica; strongly acid; gradual wavy boundary.

Btc--36 to 49 inches, yellowish red (5YR 4/8) sandy clay loam, few fine distinct pale brown (10YR 7/3) and black (10YR 2/1) mottles; weak coarse subangular blocky structure; friable, slightly sticky, slightly plastic; few fine roots; many distinct clay films on faces of peds; many fine black concretions; many fine flakes of mica; strongly acid; diffuse smooth boundary.

Bt--49 to 68 inches, strong brown (7.5YR 5/6) sandy loam, many medium distinct yellowish red (5YR 4/6), pale brown (10YR 7/3), and black (10YR 2/1) mottles; weak coarse subangular blocky structure; very friable; few fine roots; common distinct clay films on faces of peds; few fine black concretions; many fine flakes of mica; strongly acid; clear smooth boundary.

C--68 to 79 inches, reddish yellow (7.5YR 6/6) sandy loam, common medium distinct pale brown (10YR 7/3), strong brown (7.5YR 5/8), and black (10YR 2/1) mottles; massive; very friable; few fine roots; few fine black concretions; many fine flakes of mica; strongly acid.

Table A: Particle size distribution\* for Wickham sandy loam, frequently flooded, 0 to 2 percent slopes (Supplemental profile 1)

Horizon	Depth	Sand					Total	Silt	Clay	Textural Class
		Very Coarse	Coarse	Medium	Fine	Very Fine				
Ap	0-8	0.20	0.54	4.22	27.71	26.98	59.65	32.34	8.02	sl
Bt1	8-12	----	----	----	----	----	----	----	----	----
Bt2	12-28	0.00	0.14	1.19	18.18	25.08	44.59	26.83	28.54	cl
Bt3	28-36	0.00	0.05	1.50	24.95	24.47	50.97	22.08	26.92	sci
Btc	36-49	0.00	0.03	3.99	44.44	18.00	66.46	11.67	21.86	sci
Bt	49-68	0.00	0.03	4.37	50.05	18.42	72.87	11.21	15.90	sl
C	68-79	0.03	3.75	50.95	22.13	1.24	78.10	11.63	10.26	sl

\*by pipette method Day (1965)

Table B: Chemical properties for Wickham sandy loam, frequently flooded, 0 to 2 percent slopes (Supplemental profile 1)

Lab No.	Horizon	Depth (in.)	pH	Organic Matter (%)	Exchangeable Cations (meg/100 gram)					Base Saturation (%)	
					Ca	Mg	K	H	Al Total		
71-683	Ap	0-8	5.4	2.68	0.91	0.33	0.19	3.70	0.30	5.13	27.81
71-684	Bt1	8-12	5.1	2.20	1.52	0.50	0.21	4.76	0.30	6.99	31.87
71-685	Bt2	12-28	5.4	1.06	3.00	0.42	0.15	6.52	0.30	10.09	35.38
71-686	Bt3	28-36	5.4	0.90	2.77	0.42	0.14	5.11	0.30	8.44	39.46
71-687	Btc	36-49	5.4	0.69	2.50	0.52	0.15	4.23	0.20	7.40	42.85
71-688	Bt	49-68	5.4	0.57	1.85	0.32	0.13	3.35	0.20	5.65	40.68
71-689	C	68-79	5.4	0.73	1.45	0.29	0.08	3.00	0.10	4.82	37.70



Table C: Soil test data for Wickham sandy loam, frequently flooded, 0 to 2 percent slopes (Supplemental profile 1)

Horizon	Depth (in.)	pH	CaO*	MgO*	O.M. (%)	P205*	K20*	Zn ppm	Mn ppm
Ap	0-8	6.0	578	136	0.5	46	157	---	---
Bt1	8-12	6.1	880	255	0.3	18	161	---	---
Bt2	12-28	6.3	1458	162	0.1	9	53	---	---
Bt3	28-36	6.2	1348	192	0.1	18	75	---	---
Btc	36-49	6.2	1073	172	0.0	9	30	---	---
Bt	49-68	6.2	903	259	0.0	14	94	---	---
C	68-79	6.3	770	139	0.0	7	67	---	---

\*lbs/acre

Table D: Sand mineralogy for Wickham sandy loam, frequently flooded, 0 to 2 percent slopes (Supplemental profile 1)

Horizon	Depth (in.)	Percent Minerals Present*
Bt2 & Bt3	12-36	Qz 53; Fd 24; M 19; HM 4

\*Qz = Quartz; Fd = Feldspar; M = Mica; HM = Heavy minerals including magnetite, zircon, and ilmenite

Table E: Other physical properties for Wickham sandy loam, frequently flooded, 0 to 2 percent slopes (Supplemental profile 1)

Horizon	Depth (in.)	Swell Index*	Liquid Limit	Plasticity Index
Bt2	12-28	1650	36.09	15.93
Bt3	28-36	1550	33.68	12.68
Btc	36-49	450	nonplastic	nonplastic
Bt	49-68	250	nonplastic	nonplastic
C	68-79	100	nonplastic	nonplastic

\*lbs/square foot

## WICKHAM SUPPLEMENTAL PROFILE 2

Supplemental profile 2 of Wickham fine sandy loam, in an area of Wickham sandy loam, frequently flooded, 0 to 2 percent slopes, is located about 1.1 miles east northeast of the junction of Highways VA-730 and VA-668 and 0.9 miles north northwest of the junction of Highway VA-730 and the Meherrin River.

Ap--0 to 8 inches, brown (10YR 4/3) fine sandy loam; massive; friable; common fine roots; slightly acid; abrupt smooth boundary.

Bt1--8 to 15 inches, yellowish red (5YR 4/6) sandy clay loam; weak coarse subangular blocky structure; friable, slightly sticky, slightly plastic; common fine roots; many distinct clay films and bridges on sand grains; moderately acid; gradual smooth boundary.

Bt2--15 to 27 inches, yellowish red (5YR 4/8) sandy clay loam; moderate medium subangular blocky structure; friable, slightly sticky, slightly plastic; common fine roots; many distinct clay films and bridges on sand grains, common faint clay films on faces of peds; moderately acid; gradual smooth boundary.

Bt3--27 to 40 inches, yellowish red (5YR 4/8) fine sandy loam; weak coarse subangular blocky structure; very friable, slightly sticky; few fine roots; many distinct clay films and bridges on sand grains; 10 percent pebbles; strongly acid; gradual smooth boundary.

C--40 to 62 inches, reddish brown (5YR 4/4) gravelly coarse sand; single grain; loose; 25 percent pebbles; strongly acid.

Table A: Particle size distribution\* for Wickham fine sandy loam, frequently flooded, 0 to 2 percent slopes (Supplemental profile 2)

Horizon	Depth (in.)	Sand					Total	Silt	Clay	Textural Class
		Very Coarse	Coarse	Medium	Fine	Very Fine				
Ap	0-8	1.05	4.71	22.31	32.93	11.69	72.69	17.01	10.30	fsl
Bt1	8-15	1.00	3.04	11.52	28.55	11.80	35.91	21.29	22.80	scl
Bt2	15-27	0.30	1.56	9.46	30.39	10.91	52.62	16.78	30.60	scl
Bt3	27-40	3.73	8.71	23.65	40.10	5.69	81.88	5.82	12.30	fsl
C	40-62	15.25	23.22	31.70	17.14	2.43	89.74	3.96	6.30	gr-cos

\*by hydrometer method Bouyoucos (1962)

Table B: Chemical properties for Wickham fine sandy loam, frequently flooded, 0 to 2 percent slopes (Supplemental profile 2)

Lab No.	Horizon	Depth (in.)	pH	Organic Matter (%)	Exchangeable Cations (meq/100 gram)				Base Saturation (%)		
					Ca	Mg	K	H			
76-800	Ap	0-8	6.1	0.99	1.80	0.50	0.18	2.19	ND	4.67	53.10
76-801	Bt1	8-15	5.9	0.36	2.40	0.90	0.22	2.19	ND	5.71	61.65
76-802	Bt2	15-27	5.7	0.30	4.70	0.90	0.14	4.09	0.09	9.83	58.39
76-803	Bt3	27-40	5.1	0.08	0.20	0.20	0.04	1.75	0.27	2.19	20.09
76-804	C	40-62	5.1	0.08	0.80	0.10	0.04	1.17	0.09	2.11	44.55

Table C: Soil test data for Wickham fine sandy loam, frequently flooded, 0 to 2 percent slopes (Supplemental profile 2)

Horizon	Depth (in.)	pH	CaO*	MgO*	O. M. (%)	P2O5*	K2O*	Zn ppm	Mn ppm
Ap	0-8	6.1	908	192	---	138	101	---	---
Bt1	8-15	6.8	688	206	---	5	43	---	---
Bt2	15-27	5.8	1265	232	---	2	63	---	---
Bt3	27-40	5.0	523	73	---	5	22	---	---
C	40-62	5.0	385	46	---	11	17	---	---

\* lbs/acre

Table E: Other physical properties for Wickham fine sandy loam, frequently flooded, 0 to 2 percent slopes (Supplemental profile 2)

Horizon	Depth (in.)	Swell Index*	Liquid Limit	Plasticity Index
Bt2	15-27	2267	28.88	10.94

\* lbs/square foot

## WICKHAM SUPPLEMENTAL PROFILE 3

Supplemental profile 3 of Wickham fine sandy loam, in an area of Wickham sandy loam, frequently flooded, 0 to 2 percent slopes, is located about 0.8 miles north northwest of the junction of Highway NC-186 and SCL Railroad and 0.5 miles south southwest of the junction of Cypress Creek and Meherrin River.

Ap--0 to 7 inches, light yellowish brown (10YR 6/4) fine sandy loam; massive; very friable, slightly sticky, slightly plastic; many fine roots; moderately acid; abrupt smooth boundary.

Bt1--7 to 27 inches, yellowish red (5YR 4/8) clay loam, common medium distinct strong brown (7.5YR 5/6) mottles; weak medium subangular blocky structure; friable, sticky, plastic; few fine roots; many distinct clay films and bridges on sand grains, few distinct clay films on faces of peds; strongly acid; diffuse smooth boundary.

Bt2--27 to 41 inches, yellowish red (5YR 4/8) sandy clay loam, few fine distinct strong brown (7.5YR 5/6) mottles; weak medium subangular blocky structure; friable, sticky, plastic; few fine roots; many distinct clay films and bridges on sand grains, few faint clay films on faces of peds; strongly acid; gradual smooth boundary.

Bt3--41 to 48 inches, strong brown (7.5YR 5/6) loamy fine sand; massive; very friable, slightly sticky, slightly plastic; few fine roots; many distinct clay films and bridges on sand grains, few faint clay films on faces of peds; strongly acid; clear smooth boundary.

C1--48 to 70 inches, strong brown (7.5YR 5/6) stratified loamy sand, loamy fine sand, sand, fine sand, and fine sandy loam, few fine distinct black (10YR 2/1) mottles; single grain; loose; very friable lamellae; very strongly acid; clear smooth boundary.

2C2--70 to 79 inches, brownish yellow (10YR 6/6) gravelly sand, with black (10YR 2/1) and light gray (10YR 7/2) mottles; single grain; loose; 20 percent gravel; strongly acid; clear smooth boundary.

2C3--79 to 104 inches, brownish yellow (10YR 6/6) gravelly sand laminated with strong brown (7.5YR 5/6) fine sand; single grain; loose; 20 percent gravel; strongly acid.

Table A: Particle size distribution\* for Wickham fine sandy loam, frequently flooded, 0 to 2 percent slopes (Supplemental profile 3)

Horizon	Depth (in.)	Sand					Very Fine	Total	Silt	Clay	Textural Class
		Very Coarse	Coarse	Medium	Fine	%					
Ap	0-7	0.33	1.92	9.37	32.84	26.04	70.50	19.20	10.30	fsl	
Bt1	7-27	0.03	0.20	1.92	20.00	20.31	42.46	23.94	33.60	cl	
Bt2	27-41	0.04	0.25	6.91	38.32	18.53	63.33	14.07	22.60	scl	
Bt3	41-48	0.02	0.48	14.02	51.71	14.96	81.19	9.21	9.60	ifs	
C1	48-51	0.06	0.53	11.38	56.46	15.82	84.25	7.75	8.00	ifs	
	51-55	0.10	1.30	10.08	47.62	18.85	77.95	10.55	11.50	fsl	
	55-61	0.78	4.37	27.92	36.87	23.20	93.14	0.86	6.00	s	
	61-62	0.27	3.36	23.56	47.78	11.09	86.06	4.94	9.00	ls	
	62-70	0.29	2.02	31.30	57.45	5.76	96.82	0.68	2.50	fs	
2C2	70-79	3.72	17.09	50.46	21.57	2.93	95.77	2.73	1.50	gr-s	
2C3	79-87	0.27	2.71	63.43	29.10	1.33	96.84	1.66	1.50	gr-s	
	87-93	0.14	1.09	46.48	38.88	3.23	89.82	2.18	8.00	gr-s	
	93-104	0.03	0.38	30.67	60.23	4.18	95.49	2.51	2.00	fs	

\*by hydrometer method Bouyoucos (1962)

Table B: Chemical properties for Wickham fine sandy loam, frequently flooded, 0 to 2 percent slopes (Supplemental profile 3)

Lab No.	Horizon	Depth (in.)	pH	Organic Matter (%)	Exchangeable Cations (meq/100 gram)					Base Saturation (%)	
					Ca	Mg	K	H	Al		Total
74-346	Ap	0-7	5.7	0.23	0.98	0.34	0.36	2.91	ND	4.59	36.53
74-347	Bt1	7-27	5.3	0.10	2.30	1.48	0.13	5.44	0.17	9.35	41.82
74-348	Bt2	27-41	5.3	0.05	2.68	0.81	0.33	4.94	0.09	8.76	43.57
74-349	Bt3	41-48	5.1	0.05	1.10	0.79	0.07	3.42	ND	5.38	36.43
74-350	C1	48-70	5.0	0.02	0.69	0.51	0.05	2.66	ND	3.91	31.97
74-351	2C2	70-79	5.4	ND	0.25	0.18	0.03	1.65	ND	2.10	21.43
74-352	2C3	79-93	5.4	0.01	0.30	0.22	0.03	1.65	ND	2.20	24.83

Table C: Soil test data for Wickham fine sandy loam, frequently flooded, 0 to 2 percent slopes (Supplemental profile 3)

Horizon	Depth (in.)	pH	CaO*	MgO*	O.M. (%)	P2O5*	K2O*	Zn ppm	Mn ppm
Ap	0-7	5.9	798	126	---	50	210	---	---
Bt1	7-27	5.5	1348	199	---	0	75	---	---
Bt2	27-41	5.5	1045	332	---	0	43	---	---
Bt3	41-48	5.5	550	206	---	2	31	---	---
C1	48-51	5.5	523	176	---	9	31	---	---
	51-55	5.4	523	239	---	7	31	---	---
	55-61	5.4	413	159	---	2	24	---	---
	61-62	5.3	440	216	---	7	29	---	---
	62-70	5.3	275	96	---	2	17	---	---
2C2	70-79	5.4	192	63	---	2	14	---	---
2C3	79-87	5.6	192	70	---	5	14	---	---
	87-93	5.5	426	259	---	112	36	---	---
	93-104	5.6	220	119	---	5	22	---	---

\*lbs/acre

Table D: Sand mineralogy for Wickham fine sandy loam, frequently flooded, 0 to 2 percent slopes (Supplemental profile 3)

Horizon	Depth (in.)	Percent Minerals Present*
Bt1	7-27	QZ 65; Fd 24; M 9; HM 2

\*QZ = Quartz; Fd = Feldspar; M = Mica; HM = Heavy minerals including magnetite, zircon, ilmenite



## WICKHAM SUPPLEMENTAL PROFILE 4

Supplemental profile 4 of Wickham fine sandy loam, in an area of Wickham fine sandy loam, 0 to 3 percent slopes, is located about 1.4 miles west northwest of the junction of Highways US-301 and VA-628 and 0.8 miles north of Highway VA-628.

Ap--0 to 6 inches, brown (10YR 5/3) fine sandy loam; massive; friable; many fine roots; neutral; abrupt smooth boundary.

E--6 to 13 inches, light yellowish brown (10YR 6/4) fine sandy loam; massive; friable; common fine roots; neutral; clear smooth boundary.

Bt1--13 to 19 inches, yellowish brown (10YR 5/6) fine sandy loam, many medium distinct light yellowish brown (2.5Y 6/4) mottles; weak medium subangular blocky structure; friable, slightly sticky, slightly plastic; common fine roots; common distinct clay films on faces of peds; neutral; gradual smooth boundary.

Bt2--19 to 41 inches, red (2.5YR 4/8) sandy clay loam, common medium distinct brownish yellow (10YR 6/6) mottles; moderate medium subangular blocky structure; friable, slightly sticky, slightly plastic; common fine roots; many distinct clay films on faces of peds; very strongly acid; diffuse smooth boundary.

Bt3--41 to 55 inches, yellowish red (5YR 4/8) sandy clay loam, many medium distinct yellowish brown (10YR 5/8) mottles; weak medium subangular blocky structure; friable, slightly sticky, slightly plastic; few fine roots; many distinct clay films on faces of peds; few fine flakes of mica; strongly acid; diffuse smooth boundary.

C--55 to 73 inches, mottled brownish yellow (10YR 6/6), light gray (N 7/), and red (2.5YR 4/8) sandy clay loam; massive; friable, slightly sticky, slightly plastic; few fine flakes of mica; very strongly acid.

Table A: Particle size distribution\* for Wickham fine sandy loam, 0 to 3 percent slopes (Supplemental profile 4)

Horizon	Depth (in.)	Sand					Total	Silt	Clay	Textural Class
		Very Coarse	Coarse	Medium	Fine	Very Fine				
Ap	0-6	0.68	4.11	18.31	33.04	16.71	72.85	21.45	5.70	fsl
E	6-13	0.58	3.93	18.40	30.46	16.39	69.76	22.54	7.70	fsl
Bt1	13-19	0.80	3.44	16.74	27.67	24.32	62.97	22.63	14.40	fsl
Bt2	19-41	0.31	1.79	14.20	24.49	10.93	51.72	17.88	30.40	sci
Bt3	41-55	0.39	3.57	27.56	25.02	5.73	62.27	9.33	28.40	sci
C	55-73	1.66	9.25	27.95	22.53	5.17	66.56	10.04	23.40	sci

\*by hydrometer method Bouyoucos (1962)

Table B: Chemical properties for Wickham fine sandy loam, 0 to 3 percent slopes (Supplemental profile 4)

Lab No.	Horizon	Depth (in.)	pH	Organic Matter (%)	Exchangeable Cations (meq/100 gram)				Base Saturation (%)	
					Ca	Mg	K	H		
----	Ap	0-6	6.9	0.30	0.99	0.54	0.04	1.98	ND	44.23
----	E	6-13	6.9	0.13	0.38	0.29	0.04	1.64	ND	30.06
----	Bt1	13-19	6.9	0.13	0.96	0.67	0.16	2.33	ND	43.45
----	Bt2	19-41	4.9	0.09	2.00	0.72	0.14	7.15	1.37	28.54
----	Bt3	41-55	5.1	0.07	2.20	0.62	0.13	6.12	1.55	32.49
----	C	55-73	5.0	0.08	2.05	0.49	0.15	5.43	1.20	33.13

Table C: Soil test data for Wickham fine sandy loam, 0 to 3 percent slopes (Supplemental profile 4)

Horizon	Depth (in.)	pH	CaO*	MgO*	O.M. (%)	P2O5*	K2O*	Zn ppm	Mn ppm
Ap	0-6	6.9	550	162	---	50	29	---	---
E	6-13	6.9	192	83	---	5	24	---	---
Bt1	13-19	6.9	715	288	---	5	108	---	---
Bt2	19-41	4.9	853	172	---	2	48	---	---
Bt3	41-55	5.0	908	169	---	2	53	---	---
C	55-73	5.0	770	123	---	2	48	---	---

\* lbs/acre

## WICKHAM SUPPLEMENTAL PROFILE 5

Supplemental profile 5 of Wickham fine sandy loam, in an area of Wickham sandy loam, frequently flooded, 0 to 2 percent slopes, is located about 0.5 miles west northwest of the junction of Highways US-301 and VA-642 and 530 yards north of Highway VA-642.

Ap--0 to 9 inches, dark brown (10YR 4/3) fine sandy loam; massive; friable; many fine and medium roots; strongly acid; abrupt wavy boundary.

Bt1--9 to 19 inches, yellowish brown (10YR 5/8) very fine sandy loam, many medium faint dark yellowish brown (10YR 4/4) mottles; weak coarse subangular blocky structure; friable; few fine and medium roots; many distinct clay films and bridges on sand grains; moderately acid; gradual smooth boundary.

Bt2--19 to 25 inches, strong brown (7.5YR 5/6) loam, many medium distinct yellowish brown (10YR 5/8) mottles; weak medium subangular blocky structure; friable, slightly sticky, slightly plastic; many distinct clay films and bridges on sand grains, few faint clay films on faces of peds; 2 percent gravel; moderately acid; gradual smooth boundary.

Bt3--25 to 37 inches, yellowish red (5YR 4/8) loam; moderate medium subangular blocky structure; friable, slightly sticky, slightly plastic; many distinct clay films and bridges on sand grains, common distinct clay films on faces of peds; 2 percent gravel; strongly acid; clear smooth boundary.

Bt4--37 to 44 inches, yellowish red (5YR 5/8) fine sandy loam; moderate medium subangular blocky structure; friable, slightly sticky, slightly plastic; many distinct clay films and bridges on sand grains, common distinct clay films on faces of peds; 10 percent gravel; very strongly acid; clear smooth boundary.

C--44 to 75 inches, yellowish brown (10YR 5/6) fine sandy loam; massive; very friable; strongly acid.

Table A: Particle size distribution\* for Wickham fine sandy loam, frequently flooded, 0 to 2 percent slopes (Supplemental profile 5)

Horizon	Depth (in.)	Sand					Total	Silt	Clay	Textural Class
		Very Coarse	Coarse	Medium	Fine	Very Fine				
Ap	0-9	0.39	1.98	11.58	34.65	18.08	66.60	23.72	9.60	fsl
Bt1	9-19	0.64	2.34	10.15	27.04	16.20	56.37	30.03	13.60	sl
Bt2	19-25	0.78	2.13	8.23	22.02	16.75	49.91	29.89	20.20	l
Bt3	25-37	1.29	2.02	5.59	21.90	18.22	49.02	28.78	22.20	l
Bt4	37-44	9.79	4.17	7.14	26.01	14.84	61.95	19.85	18.20	fsl
C	44-75	0.18	3.59	27.44	43.83	6.54	81.58	6.22	12.20	fsl

\*by hydrometer method Bouyoucos (1962)

Table B: Chemical properties for Wickham fine sandy loam, frequently flooded, 0 to 2 percent slopes (Supplemental profile 5)

Lab No.	Horizon	Depth (in.)	pH	Organic Matter (%)	Exchangeable Cations (meq/100 gram)					Base Saturation (%)	
					Ca	Mg	K	H	Al Total		
----	Ap	0-9	5.5	0.38	0.74	0.15	0.11	3.19	0.26	4.19	23.87
----	Bt1	9-19	5.6	0.17	0.94	0.26	0.09	1.81	0.09	3.10	41.52
----	Bt2	19-25	5.6	0.11	2.20	0.43	0.07	2.67	0.17	5.37	50.28
----	Bt3	25-37	5.1	0.09	1.90	0.29	0.08	4.57	1.37	6.84	33.19
----	Bt4	37-44	4.8	0.05	0.96	0.33	0.07	5.26	2.32	6.62	20.54
----	C	44-75	5.1	0.07	0.89	0.39	0.06	2.67	0.77	4.01	33.33

Table C: Soil test data for Wickham fine sandy loam, frequently flooded, 0 to 2 percent slopes (Supplemental profile 5)

Horizon	Depth (in.)	pH	CaO*	MgO*	O.M. (%)	P2O5*	K2O*	Zn ppm	Mn ppm
Ap	0-9	5.2	192	36	---	7	53	---	---
Bt1	9-19	5.4	303	46	---	7	36	---	---
Bt2	19-25	5.9	633	100	---	227	118	---	---
Bt3	25-37	5.2	550	43	---	7	17	---	---
Bt4	37-44	5.1	303	56	---	5	22	---	---
C	44-75	5.1	192	56	---	9	17	---	---

\*lbs/acre

Table D: Sand mineralogy for Wickham fine sandy loam, frequently flooded, 0 to 2 percent slopes (Supplemental profile 5)

Horizon	Depth (in.)	Percent Minerals Present*
Bt3	25-37	Qz 76, Fd 21, M 1, HM 2

\*Qz = Quartz, Fd = Feldspar, M = Mica, HM = Heavy minerals including magnetite, Zircon, ilmenite

## WICKHAM SUPPLEMENTAL PROFILE 6

Supplemental profile 6 of Wickham very fine sandy loam, in an area of Wickham sandy loam, frequently flooded, 0 to 2 percent slopes, is located about 2.8 miles east of the junction of Highways VA-730 and VA-666 and 1.6 miles south of the Meherrin River.

Oe--1 to 0 inches, partially decomposed leaves, pine needles, and twigs.

Ap--0 to 6 inches, grayish brown (10YR 5/2) very fine sandy loam; weak fine granular structure; friable, slightly sticky; many fine, medium, and coarse roots; strongly acid; clear smooth boundary.

Bt1--6 to 12 inches, yellowish red (5YR 5/6) loam, common medium distinct dark grayish brown (10YR 4/2) mottles; weak medium subangular blocky structure; friable, slightly sticky; many fine and medium roots; many distinct clay films and bridges on sand grains, few faint clay films on faces of peds; few fine flakes of mica; strongly acid; gradual smooth boundary.

Bt2--12 to 29 inches, yellowish red (5YR 4/8) sandy clay loam; moderate medium subangular blocky structure; friable, slightly sticky, slightly plastic; common fine and medium roots; many distinct clay films and bridges on sand grains, many faint clay films on faces of peds; common fine and medium flakes of mica; strongly acid; gradual smooth boundary.

Bt3--29 to 43 inches, mottled yellowish red (5YR 5/8), white (10YR 8/2), and red (2.5YR 4/8) sandy loam; weak coarse subangular blocky structure parting to massive; friable, slightly sticky, slightly plastic; common fine roots; many distinct clay films and bridges on sand grains; many fine and medium flakes of mica; very strongly acid; gradual smooth boundary.

C1-- 43 to 53 inches, yellowish red (5YR 5/6) coarse sand, common medium distinct white (10YR 8/2) mottles; massive; loose; few fine roots; many fine and medium flakes of mica; strongly acid; clear smooth boundary.

2C2--53 to 57 inches, mottled brown (7.5YR 4/4) and very dark gray (N 3/) extremely gravelly coarse sand; massive; loose; many fine and medium flakes of mica; 70 percent gravel; strongly acid; gradual smooth boundary.

2C3--57 to 72 inches, strong brown (7.5YR 5/6) very gravelly coarse sand; massive; loose; many fine and medium flakes of mica; 50 percent gravel; strongly acid.



Table A: Particle size distribution\* for Wickham very fine sandy loam, frequently flooded, 0 to 2 percent slopes (Supplemental profile 6)

Horizon	Depth	Sand					Total	Silt	Clay	Textural Class
		Very Coarse	Coarse	Medium	Fine	Very Fine				
Ap	0-6	0.50	2.01	9.97	20.34	24.67	57.49	26.59	15.91	vfsl
Bt1	6-12	0.30	1.32	7.19	19.13	4.66	32.60	41.70	25.71	l
Bt2	12-29	0.20	0.91	9.95	20.91	20.00	51.97	21.42	26.60	scl
Bt3	29-43	0.71	5.34	29.64	29.64	11.49	76.82	10.89	12.30	sl
C1	43-53	5.61	24.75	49.70	10.22	1.30	91.58	2.20	6.21	cos
2C2	53-57	24.00	19.28	39.56	7.43	1.81	92.08	2.10	5.82	exgr-cos
2C3	57-72	13.87	21.31	47.44	8.64	1.21	92.47	2.10	5.43	vgr-cos

\*by pipette method Day (1965)

Table B: Chemical properties for Wickham very fine sandy loam, frequently flooded, 0 to 2 percent slopes (Supplemental profile 6)

Lab No.	Horizon	Depth (in.)	pH	Organic Matter (%)	Exchangeable Cations (meq/100 gram)					Base Saturation (%)	
					Ca	Mg	K	H	Al Total		
77-490	Ap	0-6	5.2	1.2	1.2	0.4	0.1	5.4	0.7	7.1	23.9
77-491	Bt1	6-12	5.2	0.6	2.4	0.8	0.1	5.4	0.6	8.7	37.9
77-492	Bt2	12-29	5.1	0.2	1.9	1.7	0.1	5.8	1.1	9.5	38.9
77-493	Bt3	29-43	5.0	0.1	0.6	1.5	0.0	3.3	0.6	5.4	38.9
77-494	C1	43-53	5.3	0.1	0.4	0.6	0.0	2.3	0.2	3.3	30.3
77-495	2C2	53-57	5.4	0.1	0.5	0.5	0.0	2.7	0.1	3.7	27.0
77-496	2C3	57-72	5.5	0.1	0.5	0.4	0.0	2.0	0.2	2.9	31.0

Table C: Soil test data for Wickham very fine sandy loam, frequently flooded, 0 to 2 percent slopes (Supplemental profile 6)

Horizon	Depth (in.)	pH	CaO*	MgO*	O.M. (%)	P2O5*	K2O*	Zn ppm	Mn ppm
Ap	0-6	5.4	---	---	---	---	---	0.6	16+
Bt1	6-12	5.5	907	215	---	15	41	0.4	9.4
Bt2	12-29	5.2	571	382	---	15	23	0.4	1.0
Bt3	20-43	5.2	269	350	---	20	23	0.4	3.0
C1	43-53	5.4	235	183	---	26	23	0.3	6.5
2C2	53-57	5.5	302	167	---	33	19	0.4	12.3
2C3	57-72	5.6	269	108	---	39	15	0.3	5.7

\*lbs/acre

Table D: Sand mineralogy for Wickham very fine sandy loam, frequently flooded, 0 to 2 percent slopes (Supplemental profile 6)

Horizon	Depth (in.)	Percent Minerals Present*
Bt1 & Bt2	6-29	Qz 68, Fd 15, M 13, HM 4

\*Qz = Quartz, Fd = Feldspar, M = Mica, HM = Heavy minerals including magnetite, zircon, ilmenite

## WICKHAM SUPPLEMENTAL PROFILE 7

Supplemental profile 7 of Wickham loamy sand, in an area of Wickham sandy loam, frequently flooded, 0 to 2 percent slopes, is located about 600 yards east southeast of the junction of Fountain Creek and Highway US-301 and 400 yards east of Highway US-301.

Oe--2 to 0 inches, undecomposed and partially decomposed pine needles and twigs.

Ap--0 to 8 inches, light olive brown (2.5Y 5/3) loamy sand; massive; very friable; many fine and medium roots; very strongly acid; abrupt wavy boundary.

E--8 to 24 inches, light yellowish brown (2.5Y 6/4) loamy sand; massive; very friable; many fine and medium roots; strongly acid; gradual smooth boundary.

Bt--24 to 42 inches, yellowish brown (10YR 5/8) sandy loam, many medium distinct light yellowish brown (2.5Y 6/4) mottles; weak medium subangular blocky structure; friable, slightly sticky, slightly plastic; common fine and medium roots; many distinct clay films and bridges on sand grains; strongly acid; clear wavy boundary.

C--42 to 76 inches, pale yellow (2.5Y 8/4) sand; single grain; loose; strongly acid.

Table A: Particle size distribution\* for Wickham loamy sand, frequently flooded, 0 to 2 percent slopes (Supplemental profile 7)

Horizon	Depth (in.)	Sand					Total	Silt	Clay	Textural Class
		Very Coarse	Coarse	Medium	Fine	Very Fine				
Ap	0-8	1.91	9.45	25.89	30.80	14.74	82.79	12.91	4.30	ls
E	8-24	3.08	10.22	24.14	26.30	12.38	76.12	16.18	7.70	ls
Bt	24-42	1.37	7.71	20.98	23.57	11.60	65.23	16.87	17.90	sl
C	42-76	2.25	10.58	36.71	38.22	6.94	94.70	4.50	0.80	s

\*by hydrometer method Bouyoucos (1962)

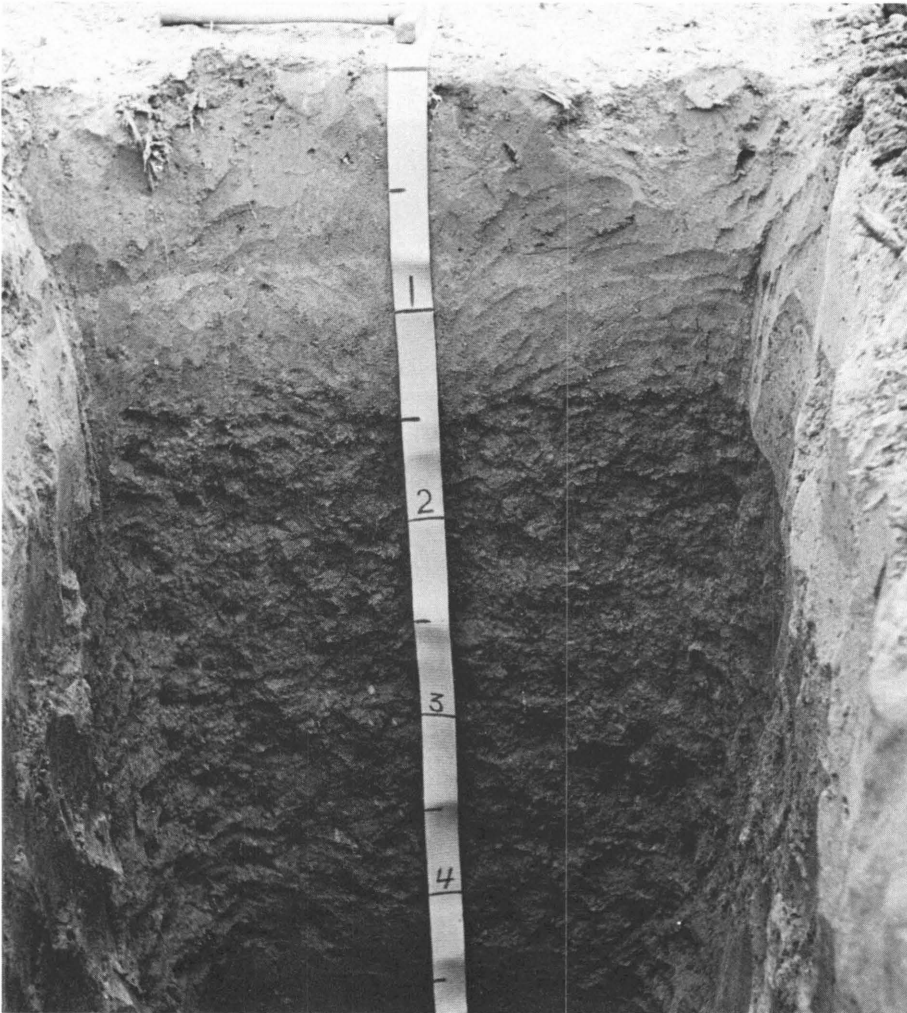
Table B: Chemical properties for Wickham loamy sand, frequently flooded, 0 to 2 percent slopes (Supplemental profile 7)

Lab No.	Horizon	Depth (in.)	pH	Organic Matter (%)	Exchangeable Cations (meq/100 gram)					Base Saturation (%)	
					Ca	Mg	K	H	Al		Total
----	Ap	0-8	4.9	0.18	0.04	0.01	0.03	2.41	0.43	2.49	3.21
----	E	8-24	5.1	0.06	0.11	0.02	0.04	2.07	0.34	2.24	7.59
----	Bt	24-42	5.1	0.07	0.64	0.20	0.11	5.17	1.46	6.12	15.45
----	C	42-76	5.4	ND	0.13	0.02	0.02	1.55	0.17	1.72	9.62

Table C: Soil test data for Wickham loamy sand, frequently flooded, 0 to 2 percent slopes (Supplemental profile 7)

Horizon	Depth (in.)	pH	CaO*	MgO*	O.M. (%)	P205*	K20*	Zn ppm	Mn ppm
Ap	0-8	5.0	138	0	---	7	24	---	---
E	8-24	4.8	110	0	---	25	14	---	---
Bt	24-42	5.2	578	46	---	48	67	---	---
C	42-76	5.3	138	3	---	55	17	---	---

\*lbs/acre



A profile of 39A - Wickham sandy loam, frequently flooded, 0 to 2 percent slopes.



An area of 39A - Wickham sandy loam, frequently flooded, 0 to 2 percent slopes.



Wheat on 39A - Wickham sandy loam, frequently flooded, 0 to 2 percent slopes.



## WOODINGTON SERIES

Soils of the Woodington series are very deep and poorly drained. They formed in loamy unconsolidated fluvial and marine sediments. They are in depressions and along drainageways in the Coastal Plain physiographic province. Slopes range from 0 to 2 percent.

A typical profile of Woodington fine sandy loam, 0 to 2 percent slopes, is located about 1.3 miles southwest of the junction of Highways VA-677 and VA-632 and 35 yards south of Highway VA-632.

Oe--2 to 0 inches, partially decomposed leaves and twigs.

A--0 to 7 inches, very dark grayish brown (10YR 3/2) fine sandy loam; weak fine granular structure; very friable; many fine, medium, and coarse roots; strongly acid; clear smooth boundary.

E--7 to 17 inches, dark gray (10YR 4/1) fine sandy loam, common medium distinct gray (5Y 6/1) mottles; massive; very friable; common fine and medium roots; strongly acid; clear smooth boundary.

Btg1--17 to 29 inches, olive gray (5Y 5/2) sandy loam, common medium distinct yellowish brown (10YR 5/8) mottles; weak medium subangular blocky structure; very friable; common fine and medium roots; many distinct clay films and bridges on sand grains, common faint clay films on faces of peds; 1 percent gravel; very strongly acid; diffuse smooth boundary.

Btg2--29 to 43 inches, gray (5Y 5/1) fine sandy loam, common medium distinct yellowish brown (10YR 5/8) mottles less than 40 percent; weak medium subangular blocky structure; very friable; few fine and medium roots; many distinct clay films and bridges on sand grains, common faint clay films on faces of peds; 1 percent gravel; strongly acid; diffuse wavy boundary.

Btg3--43 to 62 inches, mottled gray (N 6/), strong brown (7.5YR 5/6), and light yellowish brown (2.5Y 6/4) sandy loam; weak medium subangular blocky structure; very friable; few fine roots; many distinct clay films and bridges on sand grains, many faint clay films on faces of peds; strongly acid; diffuse smooth boundary.

Btg4--62 to 76 inches, mottled gray (N 6/), strong brown (7.5YR 5/6), and light yellowish brown (2.5Y 6/4) sandy loam; weak medium subangular blocky structure; very friable; many distinct clay films and bridges on sand grains, many faint clay films on faces of peds; 1 percent gravel; strongly acid.

Table A: Particle size distribution\* for Woodington fine sandy loam, 0 to 2 percent slopes

Horizon	Depth (in.)	Sand					Total	Silt	Clay	Textural Class
		Very Coarse	Coarse	Medium	Fine	Very Fine				
A	0-7	0.50	3.72	11.08	21.46	11.13	47.89	42.58	9.51	I
E	7-17	0.97	5.81	14.77	29.84	16.53	67.92	27.20	4.88	fsI
Btg1	17-29	1.12	7.25	24.07	27.01	9.54	68.99	18.68	12.33	sl
Btg2	29-43	1.76	8.82	28.94	31.77	6.89	78.18	13.06	8.77	fsI
Btg3	43-62	2.72	11.19	28.20	26.75	8.95	77.81	12.79	9.40	sl
Btg4	62-76	1.94	9.76	28.08	28.12	9.14	77.04	13.64	9.32	sl

\*by pipette method Day (1965)

Table B: Chemical properties for Woodington fine sandy loam, 0 to 2 percent slopes

Lab No.	Horizon	Depth (in.)	pH	Organic Matter (%)	Exchangeable Cations (meq/100 gram)					Base Saturation (%)	
					Ca	Mg	K	H	Al		Total
73-433	A	0-7	5.3	1.88	1.00	0.25	0.10	9.06	1.09	10.40	12.88
73-434	E	7-17	5.4	0.50	0.10	0.02	0.02	4.06	1.39	4.20	3.22
73-435	Btg1	17-29	5.0	0.28	0.12	0.04	0.02	5.00	2.58	5.18	3.48
73-436	Btg2	29-43	5.2	0.10	0.10	0.02	0.02	2.81	1.88	2.95	4.58
73-437	Btg3	43-62	5.4	0.10	0.04	0.02	0.01	1.25	1.19	1.32	5.30
73-438	Btg4	62-76	5.2	0.11	0.05	0.04	0.01	1.87	1.39	1.97	5.08

Table E: Other physical properties for Woodington  
fine sandy loam, 0 to 2 percent slopes

Horizon	Depth (in.)	Swell Index*	Liquid Limit	Plasticity Index
Btg1	17-29	300	19.48	6.97
Btg2	29-43	no compaction	---non-plastic--	
Btg3	43-62	no compaction	---non-plastic--	

\*lbs/square foot

## WOODINGTON SUPPLEMENTAL PROFILE 1

Supplemental profile 1 of Woodington fine sandy loam, in an area of Woodington fine sandy loam, 0 to 2 percent slopes, is located about 1.2 miles west northwest of the junction of Highways VA-650 and VA-621 and 17 yards south of Highway VA-621.

Oe--1 to 0 inches, partially decomposed leaves and twigs.

A--0 to 7 inches, dark grayish brown (2.5Y 4/2) fine sandy loam; weak fine and medium granular structure; friable, slightly sticky, slightly plastic; many fine, medium and coarse roots; very strongly acid; abrupt irregular boundary.

Bt--7 to 11 inches, olive (5Y 5/3) sandy clay loam, many medium distinct dark grayish brown (2.5Y 4/2) mottles; weak medium subangular blocky structure; friable, slightly sticky, slightly plastic; many fine, medium, and coarse roots; many distinct clay films and bridges on sand grains, common faint clay films on faces of peds; very strongly acid; gradual wavy boundary.

Btg1--11 to 20 inches, olive gray (5Y 5/2) sandy clay loam, common medium distinct yellowish brown (10YR 5/8) mottles; moderate medium subangular blocky structure; friable, sticky, plastic; many fine and medium roots; many distinct clay films and bridges on sand grains, many distinct clay films on faces of peds; very strongly acid; diffuse wavy boundary.

Btg2--20 to 34 inches, gray (5Y 6/1) sandy clay loam, common medium distinct yellowish brown (10YR 5/6) and red (2.5YR 4/8) mottles; weak medium subangular blocky structure; friable, sticky, plastic; few fine and medium roots; many distinct clay films and bridges on sand grains, common faint clay films on faces of peds; very strongly acid; gradual wavy boundary.

Btg3--34 to 56 inches, light gray (N 7/) sandy clay loam, common medium distinct strong brown (7.5YR 5/6) mottles; weak medium subangular blocky structure; friable, slightly sticky, slightly plastic; many

distinct clay films and bridges on sand grains, few faint clay films on faces of peds; very strongly acid; gradual smooth boundary.

Cg--56 to 75 inches, gray (10YR 6/1) stratified sandy clay loam and fine sandy loam; massive; friable, slightly sticky, slightly plastic; very strongly acid; diffuse smooth boundary.

C--75 to 97 inches, strong brown (7.5YR 5/8) fine sandy loam, many medium distinct gray (10YR 6/1) mottles; massive; very friable; strongly acid.

Table A: Particle size distribution\* for Woodington fine sandy loam, 0 to 2 percent slopes (Supplemental profile 1)

Horizon	Depth (in.)	Sand				Very Fine	Total	Silt	Clay	Textural Class
		Very Coarse	Coarse	Medium	Fine					
A	0-7	1.2	5.2	22.6	24.9	5.5	59.4	23.5	17.1	fsl
Bt	7-11	1.6	4.6	20.8	24.6	5.2	56.8	19.0	24.2	sci
Btg1	11-20	1.6	4.6	20.8	22.8	4.6	54.4	14.4	31.2	sci
Btg2	20-34	1.8	4.8	22.2	24.0	4.6	57.4	16.2	26.4	sci
Btg3	34-56	1.8	7.0	26.4	25.2	4.6	65.0	13.8	21.2	sci
Cg	56-75	1.4	6.2	28.6	25.4	2.6	64.2	8.6	27.2	sci
C	75-97	0.3	3.9	34.7	39.0	2.8	80.7	7.2	12.1	fsl

\*by hydrometer method Bouyoucos (1962)

Table B: Chemical properties for Woodington fine sandy loam, 0 to 2 percent slopes (Supplemental profile 1)

Lab No.	Horizon	Depth (in.)	pH	Organic Matter (%)	Exchangeable Cations (meq/100 gram)				Base Saturation (%)	
					Ca	Mg	K	H		
73-373	A	0-7	4.6	0.94	0.12	0.04	0.05	8.75	2.08	8.96
73-374	Bt	7-11	4.6	0.40	0.18	0.05	0.05	8.43	3.17	8.71
73-375	Btg1	11-20	4.6	0.27	0.23	0.09	0.06	9.06	4.75	9.44
73-376	Btg2	20-34	4.8	0.13	0.21	0.07	0.04	6.87	3.57	7.19
73-377	Btg3	34-56	4.9	0.10	0.23	0.09	0.04	5.94	3.17	6.30
73-378	Cg	56-75	4.9	0.07	0.27	0.09	0.04	4.84	2.48	5.23
73-379	C	75-97	5.1	0.01	0.21	0.06	0.03	3.91	1.78	4.21

## WOODINGTON SUPPLEMENTAL PROFILE 2

Supplemental profile 2 of Woodington silt loam, in an area of Woodington fine sandy loam, 0 to 2 percent slopes, is located about 1.3 miles southwest of the junction of Highways VA-677 and VA-632.

Oe--3 to 0 inches, partially decomposed leaves and twigs.

A--0 to 3 inches, black (10YR 2/1) silt loam; weak fine granular structure; very friable, slightly sticky, slightly plastic; many fine and medium roots; very strongly acid; clear smooth boundary.

E--3 to 7 inches, gray (5Y 5/1) silt loam, common medium distinct very dark grayish brown (2.5Y 3/2) mottles; weak medium granular structure; very friable, slightly sticky, slightly plastic; many fine, medium, and coarse roots; strongly acid; clear wavy boundary.

Btg1--7 to 15 inches, light olive gray (5Y 6/2) loam, common medium distinct yellowish brown (10YR 5/8) mottles; weak medium subangular blocky structure; friable, slightly sticky, slightly plastic; common fine, medium, and coarse roots; many distinct clay films on faces of peds; very strongly acid; diffuse wavy boundary.

Btg2--15 to 38 inches, gray (5Y 6/1) loam, many medium distinct yellowish red (5YR 4/6) and yellowish brown (10YR 5/6) mottles; weak medium subangular blocky structure; friable, slightly sticky, slightly plastic; common fine and medium roots; many distinct clay films on faces of peds; very strongly acid; clear irregular boundary.

Btxg1--38 to 50 inches, mottled gray (10YR 6/1), grayish brown (10YR 5/2), and yellowish brown (10YR 5/6) silt loam; massive; firm, brittle, slightly sticky, slightly plastic; few fine and medium roots; common distinct clay films on faces of peds; strongly acid; clear irregular boundary.



Btxg2--50 to 77 inches, gray (10YR 6/1) silt loam, many medium distinct yellowish brown (10YR 5/8) and pale olive (5Y 6/3) mottles; massive; very firm, brittle, slightly sticky, slightly plastic; common faint clay films on faces of peds; strongly acid.

Table A: Particle size distribution\* for Woodington silt loam, 0 to 2 percent slopes (Supplemental profile 2)

Horizon	Depth (in.)	Sand					Total	Silt	Clay	Textural Class
		Very Coarse	Coarse	Medium	Fine	Very Fine				
E	3-7	0.17	0.82	2.13	9.80	12.18	25.10	65.87	9.03	sil
Btg1	7-15	1.06	4.97	13.47	12.73	6.44	38.67	48.43	12.93	l
Btg2	15-38	1.52	5.84	12.26	12.39	5.17	37.18	46.62	16.20	l
Btxg1	38-50	0.53	4.03	11.23	13.49	6.88	36.16	53.00	10.84	sil
Btxg2	50-77	0.75	3.72	9.96	11.50	5.45	31.38	53.32	15.30	sil

\*by pipette method Day (1965)

Table B: Chemical properties for Woodington silt loam, 0 to 2 percent slopes (Supplemental profile 2)

Lab No.	Horizon	Depth (in.)	pH	Organic Matter (%)	Exchangeable Cations (meq/100 gram)					Base Saturation (%)	
					Ca	Mg	K	H	Al		Total
73-427	A	0-3	4.5	2.84	0.05	0.07	0.04	14.84	5.45	15.00	1.04
73-428	E	3-7	5.0	1.00	0.04	0.04	0.03	8.12	3.07	8.23	1.34
73-429	Btg1	7-15	4.9	0.28	0.05	0.03	0.02	4.37	2.38	4.47	2.24
73-430	Btg2	15-38	4.9	0.11	0.04	0.03	0.03	4.53	2.77	4.63	2.04
73-431	Btxg1	38-50	5.2	0.14	0.04	0.04	0.01	3.28	2.58	3.37	2.67
73-432	Btxg2	50-77	5.5	0.06	0.29	0.18	0.01	0.94	0.89	1.42	33.57

Table E: Other physical properties for Woodington  
silt loam, 0 to 2 percent slopes  
(Supplemental profile 2)

Horizon	Depth (in.)	Swell Index*	Liquid Limit	Plasticity Index
Btg1	7-15	300	19.81	7.34
Btg2	15-38	700	23.09	9.88
Btxg1	38-50	550	18.01	5.66
Btxg2	50-77	0	22.77	10.17

\*lbs/square foot

## WOODINGTON SUPPLEMENTAL PROFILE 3

Supplemental profile 3 of Woodington loamy sand, in an area of Woodington fine sandy loam, 0 to 2 percent slopes, is located about 365 yards north northeast of the junction of Highways VA-603 and VA-659 at Brink.

Oe--4 to 0 inches, dark reddish brown (5YR 2/2) partially decomposed leaves, twigs, and pine needles.

A--0 to 4 inches, dark gray (10YR 4/1) loamy sand; massive; very friable; common fine, medium, and coarse roots; very strongly acid; clear smooth boundary.

E--4 to 7 inches, gray (10YR 6/1) loamy sand; massive; very friable; common fine, medium, and coarse roots; moderately acid; abrupt smooth boundary.

Bh--7 to 9 inches, mottled brown (7.5YR 4/4) and dark reddish brown (5YR 2/2) fine sandy loam; massive; extremely firm; many fine, medium, and coarse roots; strongly acid; clear smooth boundary.

Btg--9 to 22 inches, light olive gray (5Y 6/2) sandy loam, many medium distinct gray (10YR 5/1) and yellowish brown (10YR 5/8) mottles; weak coarse subangular blocky structure; friable, slightly sticky; common fine and medium roots; common faint clay films on faces of peds; 2 percent rounded and angular gravel; slightly acid; clear smooth boundary.

Btxg--22 to 49 inches, gray (10YR 6/1) fine sandy loam, common medium distinct pale yellow (2.5Y 7/4) and strong brown (7.5YR 5/8) mottles; massive; extremely firm, slightly sticky, slightly plastic; few fine and medium roots; few faint clay films on faces of peds; 5 percent rounded and angular gravel; moderately acid; diffuse smooth boundary.

Bt--49 to 70 inches, mottled yellowish brown (10YR 5/8), gray (N 5/), and light yellowish brown (2.5Y 6/4) fine sandy loam; weak medium subangular blocky structure; friable, slightly sticky, slightly plastic; common faint clay films on faces of peds; 5 percent rounded gravel; strongly acid.

Table A: Particle size distribution\* for Woodington loamy sand, 0 to 2 percent slopes (Supplemental profile 3)

Horizon	Depth (in.)	Sand					Total	Silt	Clay	Textural Class
		Very Coarse	Coarse	Medium	Fine	Very Fine				
A	0-4	1.65	8.17	17.19	38.50	15.16	80.67	18.17	1.16	Is
E	4-7	2.06	7.84	15.77	39.75	14.81	80.23	18.60	1.17	Is
Bh	7-9	3.50	7.83	13.98	35.15	14.53	74.99	18.72	6.29	fsl
Btg	9-22	9.02	9.34	14.27	29.98	12.36	74.97	19.28	5.74	sl
Btxg	22-49	3.57	8.18	14.92	34.70	9.88	71.25	22.99	5.72	fsl
Bt	49-70	3.84	6.94	13.45	24.56	12.59	61.38	18.83	19.78	fsl

\*by pipette method Day (1965)

Table B: Chemical properties for Woodington loamy sand, 0 to 2 percent slopes (Supplemental profile 3)

Lab No.	Horizon	Depth (in.)	pH	Organic Matter (%)	Exchangeable Cations (meq/100 gram)					Base Saturation (%)	
					Ca	Mg	K	H	Al Total		
73-439	A	0-4	4.8	0.51	0.05	0.02	0.02	2.81	0.79	2.89	2.77
73-440	E	4-7	5.6	0.15	0.05	ND	0.01	0.47	0.30	0.53	11.30
73-441	Bh	7-9	5.4	0.55	0.03	0.02	0.01	7.81	1.29	7.86	0.64
73-442	Btg	9-22	6.1	0.14	0.05	0.01	0.01	2.03	0.50	2.10	3.10
73-443	Btxg	22-49	5.6	0.02	0.03	0.02	0.01	0.63	0.69	0.68	7.35
73-444	Bt	49-70	5.5	0.09	0.91	0.16	0.01	3.59	2.28	4.67	23.13

Table E: Other physical properties for Woodington  
loamy sand, 0 to 2 percent slopes  
(Supplemental profile 3)

Horizon	Depth (in.)	Swell Index*	Liquid Limit	Plasticity Index
Btxg	22-49	non-compact		non-plastic
Bt	49-70	375	29.70	14.30

\*lbs/square foot

## WOODINGTON SUPPLEMENTAL PROFILE 4

Supplemental profile 4 of Woodington loamy sand, in an area of Woodington fine sandy loam, 0 to 2 percent slopes, is located about 500 yards north northeast of the junction of Highways VA-659 and VA-603 near Slate's Corner.

Oe--2 to 0 inches, partially decomposed leaves, twigs, and pine needles.

A--0 to 5 inches, mottled very dark grayish brown (10YR 3/1) and gray (10YR 6/1) loamy sand; massive; very friable; many fine, medium, and coarse roots; very strongly acid; clear smooth boundary.

E--5 to 9 inches, gray (10YR 5/1) loamy sand, many medium faint light gray (10YR 6/1) mottles; massive; very friable; few fine roots; very strongly acid; clear smooth boundary.

Bh1--9 to 13 inches, dark reddish brown (5YR 2/2) loamy sand; massive; friable; many fine and medium roots; extremely acid; clear irregular boundary.

Bh2--13 to 21 inches, dark brown (7.5YR 4/4) loamy sand, many medium distinct light gray (10YR 7/1) mottles; massive; friable; few fine roots; 2 percent angular quartz fragments; very strongly acid; diffuse smooth boundary.

Cg--21 to 35 inches, light gray (10YR 7/1) loamy sand, many medium distinct brownish yellow (10YR 6/8) mottles; massive; friable; few medium roots; very strongly acid; clear smooth boundary.

Cxg1--35 to 38 inches, light gray (N 7/) sandy loam; massive; very firm; brittle; 4 percent angular quartz gravel; very strongly acid; clear smooth boundary.

Cxg2--38 to 45 inches, light gray (10YR 7/1) sandy loam, few medium distinct yellowish brown (10YR 5/8) mottles; massive; friable; brittle; few fine and medium roots; 1 percent angular quartz gravel; very strongly acid.

Table A: Particle size distribution\* for Woodington loamy sand, 0 to 2 percent slopes (Supplemental profile 4)

Horizon	Depth (in.)	Sand					Total	Silt	Clay	Textural Class
		Very Coarse	Coarse	Medium	Fine	Very Fine				
A	0-5	---	---	---	---	---	84.60	14.00	1.40	Is
E	5-9	---	---	---	---	---	84.40	12.60	3.00	Is
Bh1	9-13	---	---	---	---	---	77.20	19.80	3.00	Is
Bh2	13-21	---	---	---	---	---	86.20	7.20	6.60	Is
Cg	21-35	---	---	---	---	---	84.40	10.60	5.00	Is
Cxg1	35-38	---	---	---	---	---	65.80	28.60	6.60	sl
Cxg2	38-45	---	---	---	---	---	65.00	20.00	15.00	sl

\*by hydrometer method Bouyoucos (1962)

Table B: Chemical properties for Woodington loamy sand, 0 to 2 percent slopes (Supplemental profile 4)

Lab No.	Horizon	Depth (in.)	pH	Organic Matter (%)	Exchangeable Cations (meq/100 gram)					Base Saturation (%)	
					Ca	Mg	K	H	Al		Total
72-234	A	0-5	4.4	0.73	ND	0.03	0.07	0.94	0.99	1.04	9.62
72-235	E	5-9	4.2	0.20	ND	0.01	0.03	2.97	7.03	3.01	1.17
72-236	Bh1	9-13	4.0	2.31	ND	0.05	0.08	24.99	2.08	25.11	0.48
72-237	Bh2	13-21	4.5	0.39	ND	0.01	0.04	6.09	2.08	6.14	0.73
72-238	Cg	21-35	4.3	0.13	0.04	0.01	0.06	3.28	2.87	3.39	3.27
72-239	Cxg1	35-38	4.5	0.09	0.03	0.01	0.03	0.16	0.89	0.22	27.27
72-240	Cxg2	38-45	4.2	0.17	0.04	0.02	0.05	3.91	4.36	4.02	2.74



Table C: Soil test data for Woodington loamy sand, 0 to 2 percent slopes (Supplemental profile 4)

Horizon	Depth (in.)	pH	CaO*	MgO*	O.M. (%)	P2O5*	K2O*	Zn ppm	Mn ppm
A	0-5	4.5	55	10	1.5	11	22	---	---
E	5-9	4.6	28	10	0.5	14	17	---	---
Bh1	9-13	4.4	165	40	4.2	---	53	---	---
Bh2	13-21	4.7	138	16	0.6	21	31	---	---
Cg	21-35	4.6	220	26	0.2	---	31	---	---
Cxg1	35-38	4.8	55	7	0.2	11	22	---	---
Cxg2	38-45	4.5	138	16	0.2	21	24	---	---

\* lbs/acre



A profile of a Spodosol included in 40A - Woodington fine sandy loam, 0 to 2 percent slopes. See "Woodington Supplemental Profile 4" for the description and data for this profile.

APPENDIX A - Percolation Tests

Percolation tests were performed for selected soil series according to procedures given by Virginia Department of Health (1982).

Table 1 - Descriptive statistics for percolation rates\* for selected soils in minutes per inch

Soils	Depth (in.)	n	Mean*	Standard Deviation	Observed	
					Min.	Max.
					-----min./in.-----	
Emporia	21	2	198	250.32	125	375
	22	1	375	---	---	---
	24	1	>960	---	---	---
	30	28	219.9	252.79	18	>960
Faceville	30	1	288	---	---	---
	50	1	103	---	---	---
Fluvanna	27	1	20	---	---	---
	30	4	195.0	90.00	60	240
	50	4	>960.0	0	>960	>960
	73	1	>960	---	---	---
Georgeville	30	2	486.5	669.63	13	>960
	59	1	96	---	---	---
	70	1	42	---	---	---
State Uchee	30	12	19.3	12.98	8	48
	30	1	24	---	---	---

\*Rates of >960 were used as 960 in calculating means

APPENDIX B - Site Indices

Site indices for loblolly pine were determined for selected soils using dominant trees and determining their height and age.

Table 1 - Descriptive statistics of site indices for loblolly pine on selected soils

Soils	n	Mean*	Standard Deviation	Observed	
				Min.	Max.
Altavista	8	99.1	15.32	80	120+
Appling	20	69.3	8.05	52	90
Craven	3	64.0	7.94	58	73
Emporia	8	75.8	10.75	62	92
Faceville	3	65.3	7.09	59	73
Fluvanna	4	60.3	8.66	50	70
Georgeville	8	68.0	13.27	50	85
Helena	10	65.0	6.62	53	75
Iredell	6	75.0	5.76	68	82
Mattaponi	9	63.3	9.34	50	80
Peawick	8	74.7	4.65	70	80
Riverview	5	89.2	4.15	86	96
Roanoke	6	100.0	14.49	75	120+
Slagle	6	81.5	8.48	69	91
Tarboro	7	88.3	10.69	70	100
Uchee	13	55.2	5.86	50	68
Wickham	3	68.0	5.29	62	72
Woodington	8	76.6	5.88	65	83

\*Site indices of 120+ were used as 120 in calculating means

APPENDIX C - Spatial Distribution of Physical Properties (Dothan & Mattaponi)

Samples were collected according to random grid intersections within selected delineations of Dothan and Mattaponi soils and analyzed for particle-size distribution and selected physical properties.

Table 1 - Particle size distribution\* for Dothan loamy sand, 0 to 2 percent slopes

Horizon	Depth	Sand					Total	Silt	Clay	Textural Class
		Very Coarse	Coarse	Medium	Fine	Very Fine				
----- % -----										
Site 1										
Ap	0-9	0.24	2.93	27.13	38.88	9.08	78.26	18.38	3.36	Is
E	9-20	0.06	2.34	26.93	34.56	7.39	71.24	23.00	5.76	fsI
Bt1	20-40	0.11	2.21	19.77	28.22	6.53	56.84	16.96	26.19	scI
Bt2	40-56	0.22	1.98	18.27	22.77	4.49	47.73	12.75	39.51	sc
Site 14										
Ap	0-7	0.48	3.76	26.38	41.01	7.66	79.29	17.07	3.65	Is
E	7-13	0.18	3.29	22.77	38.90	7.39	72.53	22.19	5.28	fsI
Bt	13-40	0.42	2.67	19.97	29.25	5.09	57.40	14.24	28.34	scI
Btv	40-56+	0.51	2.71	16.22	22.44	3.67	45.55	11.03	43.40	sc
Site 35										
Ap	0-5	0.25	4.20	28.05	40.90	7.02	80.42	14.65	4.93	Is
E	5-9	0.32	4.35	26.49	32.62	7.22	71.00	19.04	9.96	fsI
Bt2	9-20	0.66	3.07	20.37	21.15	3.93	49.18	13.85	36.97	sc
Bt3	20-40	0.18	2.52	16.19	15.31	2.30	36.50	8.07	55.41	C
C	40-60	0.41	4.56	23.58	20.59	2.57	51.71	8.08	40.20	sc
Site 46										
Ap	0-7	0.14	2.89	27.43	40.53	8.39	79.38	16.62	4.00	Is
E	7-12	0.08	2.67	21.05	34.43	7.56	65.79	23.65	10.55	fsI
Bt	12-37	0.35	2.75	19.34	28.25	5.44	56.13	16.57	27.28	scI
Btv	37-60+	0.32	2.20	15.35	22.40	3.70	43.97	10.70	45.31	sc
Site 48										
Ap	0-7	0.39	3.83	22.45	38.28	7.47	75.42	18.50	6.09	fsI
E	7-12	0.07	3.15	22.91	35.80	7.06	68.99	22.73	8.29	fsI
Bt1	12-31	0.40	2.30	16.60	17.43	5.26	51.99	16.39	31.59	scI
Bt2	31-49	0.41	1.94	16.95	23.69	5.44	48.43	12.85	38.70	sc
Btv	49-60+	0.27	1.81	16.66	19.82	3.66	42.22	10.58	47.19	C

\*By pipette method (Day, 1965)

Table 2 - Other physical properties for Dothan loamy sand, 0 to 2 percent slopes

Horizon	Depth (in.)	Available Water Capacity (in./in.)	Swell Index (lb./sq. ft.)	Liquid Limit	Plasticity Index
<b>Site 1</b>					
Ap	0-9	0.088	---	---	---
E	9-20	0.170	---	---	---
Bt1	20-40	0.170	1650	32.65	17.09
Bt2	40-56	0.133	2300	46.80	27.45
<b>Site 14</b>					
Ap	0-7	0.087	---	---	---
E	7-13	0.076	---	---	---
Bt	13-40	0.099	1500	30.88	16.72
Btv	40-56	0.084	2750	46.00	24.37
<b>Site 35</b>					
Ap	0-5	0.087	---	---	---
E	5-9	0.161	---	---	---
Bt1	9-20	0.107	1450	42.95	24.86
Bt2	20-40	0.061	2300	57.73	31.35
C	40-60	0.001	1950	43.80	17.78
<b>Site 46</b>					
Ap	0-7	0.091	---	---	---
E	7-12	0.124	---	---	---
Bt	12-37	0.180	1150	35.52	17.69
Btv	37-60	0.081	2275	46.03	23.83
<b>Site 48</b>					
Ap	0-7	0.066	---	---	---
E	7-12	0.062	---	---	---
Bt1	12-31	0.124	---	36.40	19.60
Bt2	31-49	0.073	1300	42.60	23.05
Btv	49-60	0.084	2500	46.05	19.56

Table 3 - Particle size distribution\* for Mattaponi sandy loam, 2 to 6 percent slopes

Horizon	Depth	Sand ----- % -----					Total	Silt	Clay	Textural Class
		Very Coarse	Coarse	Medium	Fine	Very Fine				
Site 22										
Ap	0-12	1.58	8.19	20.31	36.90	12.13	79.11	16.65	4.24	ls
Bt1	12-48	2.03	6.03	13.29	21.63	7.26	50.24	14.25	35.49	sc
Bt2	48-56	1.12	5.57	12.93	18.77	5.74	44.13	10.03	45.82	c
C	56-65	1.30	6.95	14.43	23.77	6.81	53.26	8.40	38.35	sc
Site 24										
Ap	0-9	1.61	7.72	19.57	33.20	13.87	75.97	14.59	9.44	fsl
Bt1	9-24	1.40	6.05	14.05	18.01	5.83	45.34	13.77	40.88	c
Bt2	24-42	2.89	6.54	11.41	16.88	6.33	44.05	12.75	43.19	c
C	42-63	1.03	4.61	7.31	19.68	7.86	40.49	23.27	36.24	cl
Site 33										
Ap	0-7	2.34	5.37	13.08	29.14	13.05	62.98	14.96	22.06	sc1
Bt1	7-14	0.66	1.82	6.11	16.96	4.08	29.63	12.98	57.38	c
Bt2	14-24	0.27	1.34	7.02	24.77	4.89	38.29	12.20	49.50	c
C	24-60	0.17	0.88	9.34	36.24	5.15	51.78	13.30	34.92	sc

\*By pipette method (Day, 1965)

Table 4 - Other physical properties for Mattaponi sandy loam, 2 to 6 percent slopes

Horizon	Depth (in.)	Available			Swell Index (lb./sq. ft.)	Liquid Limit	Plasticity Index
		Water Capacity (in./in.)					
Site 22							
Ap	0-12	0.062	---	---	---	---	---
Bt1	12-48	0.129	1725	41.90	25.01	25.01	25.01
Bt2	48-56	0.056	2500	52.90	28.54	28.54	28.54
C	56-65	0.081	3000	47.85	23.19	23.19	23.19
Site 24							
Ap	0-9	0.061	---	---	---	---	---
Bt1	9-14	0.067	2550	50.15	29.81	29.81	29.81
Bt2	24-42	0.062	3375	56.80	33.57	33.57	33.57
C	42-63	0.031	2875	56.55	29.42	29.42	29.42
Site 33							
Ap	0-7	0.015	---	---	---	---	---
Bt1	7-14	0.025	---	62.50	38.08	38.08	38.08
Bt2	14-24	0.006	3300	56.45	33.00	33.00	33.00
C	24-60	0.058	2550	49.60	26.19	26.19	26.19



APPENDIX D - Mineralogy of the Sand Fraction of the Upper  
20 Inches of the Subsoil

Five samples were collected randomly from each major terrace level (Fig. 1). The minerals observed are reported as grains per 100 grains in Table 1. If we assume that all the terrace levels have the same average quartz content, we can test this assumption statistically using analysis of variance (Table 2).

Because the probability of observing a greater F-value is  $<0.0001$ , we can reject the assumption or hypothesis of equal average quartz content for the four major terrace levels and conclude that at least two of the major terraces have different quartz content. In addition, the probability that we will be wrong in this assumption is about 1 time in 10,000.

Since we observed no feldspar in terrace 1 (Table 1), we cannot perform an analysis of variance for this mineral. However, we can plot the ratio of feldspar to quartz for each terrace (Fig. 2). A ratio of 0.100 represents the approximate taxonomic boundary between siliceous and mixed mineralogy classes (Soil Survey Staff, 1975) because the other mineral contents were low. Therefore, we assume that the soils on terraces 1 and 2 have siliceous mineralogy while those on terraces 3 and 4 have mixed mineralogy. These assumptions were used to classify "loamy soils" in Greenville County.

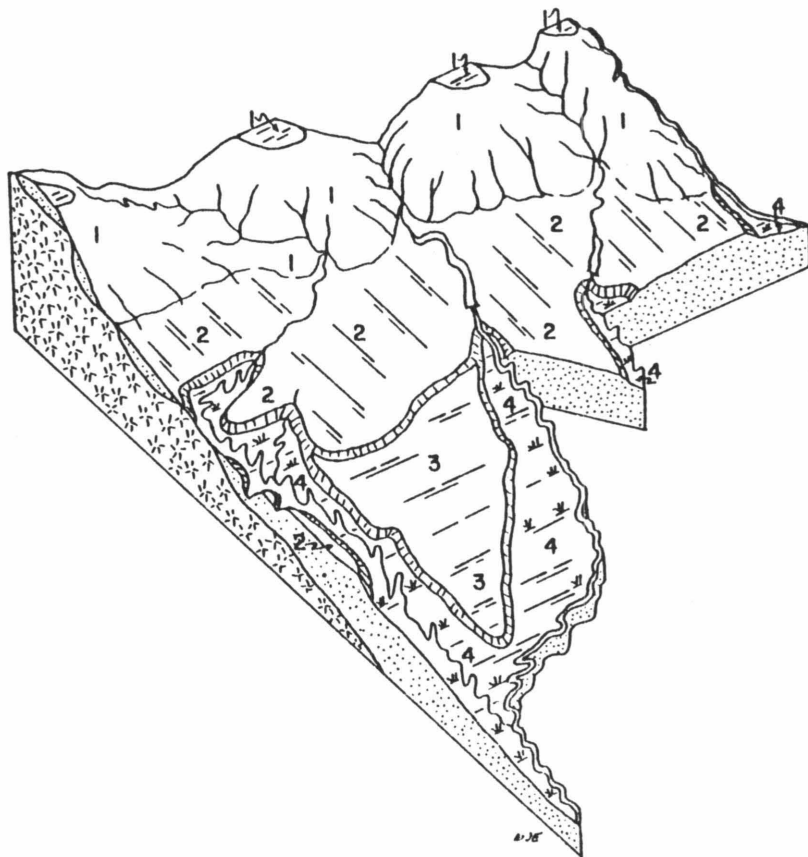


Fig. 1—Distribution of terraces in Greenville County.

Table 1 - Sand mineralogy for four major terrace levels in Greenville County (Fig. 1)

Sample	Qtz	Fld.	Mi.	Opaq.	HM	Rock Fragments
Terrace 1 (170 to 300 feet)						
1	98	Tr	--	Tr	1	--
2	99	--	--	--	1	--
3	96	--	--	1	3	--
4	95	--	--	3	1	1
5	95	--	--	4	1	--
Terrace 2 (100 to 170 feet)						
1	94	--	--	4	1	Tr
2	96	3	--	Tr	Tr	1
3	98	2	--	Tr	Tr	--
4	97	1	--	1	1	--
5	91	7	--	Tr	1	--
Terrace 3 (50 to 100 feet)						
1	89	8	--	2	1	--
2	88	10	Tr	--	2	--
3	86	11	--	1	1	--
4	78	12	7	Tr	Tr	1
5	87	11	--	2	Tr	Tr
Terrace 4 (35 to 100 feet)						
1	71	24	Tr	1	2	Tr
2	80	16	Tr	Tr	1	3
3	66	16	12	2	2	3
4	75	12	Tr	1	Tr	2
5	77	17	2	Tr	2	2

Table 2 - Analysis of variance for the quartz content reported in Table 1

Source	Sum of Squares	Degrees of Freedom	Mean Squares	F-Value	Probability of a greater F value
Terraces	1665.2	3	555.0667	37.0044	<0.0001
Error	240.0	16	15.0000		
Total	1905.2	19			

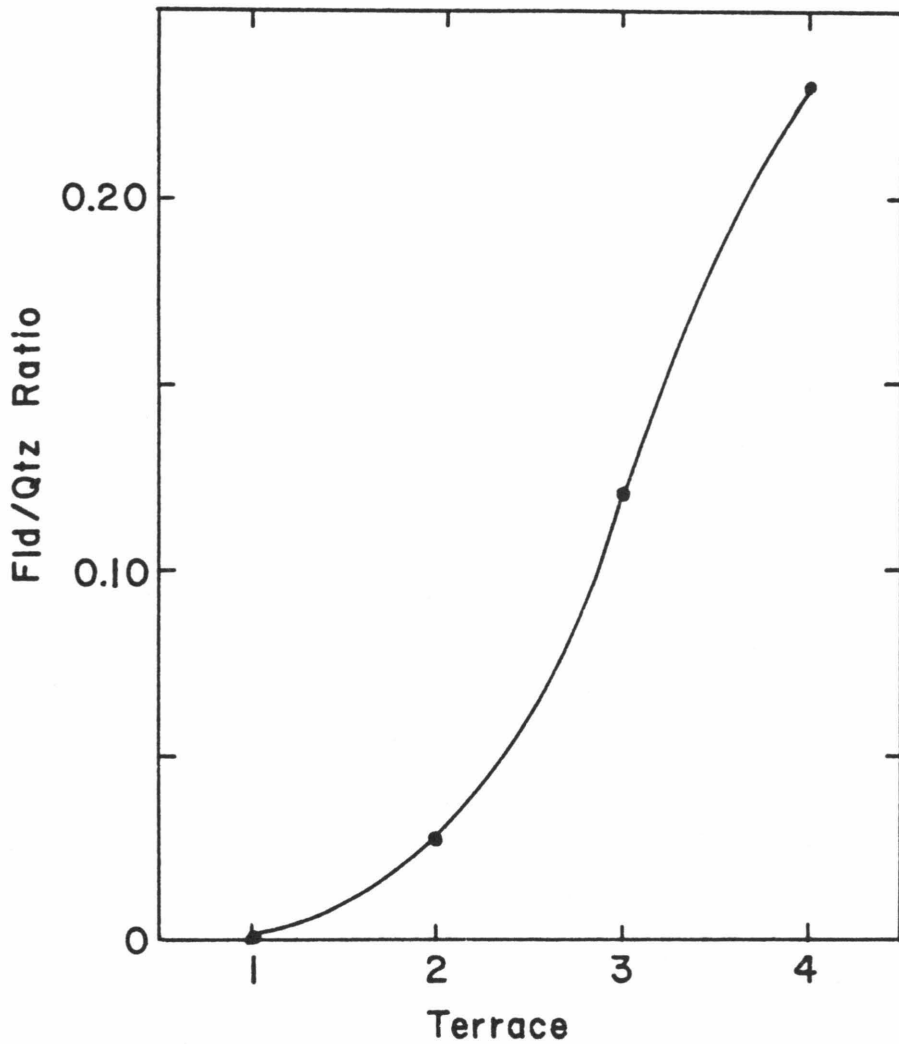


Fig. 2—Ratio of feldspar to quartz in the sand fraction of soils on the four major terraces in Greenville County.

APPENDIX E - Roanoke-Woodington Study

Field observations during mapping led to the hypothesis that wet soils below 100 feet in elevation have clayey textures and those above 100 feet have loamy textures. Therefore, this hypothesis was tested by randomly selecting 12 soil profiles below and 12 soil profiles above 100 feet.

Table 1. Descriptive statistics of the particle size\* for 12 samples collected below 100 feet (Roanoke) and above 100 feet (Woodington)

Variable	N	Mean	Standard Deviation	Observed	
				Min.	Max.
-----%-----					
Roanoke:					
Sand	12	17.4	7.36	4.0	26.7
Silt	12	36.3	2.93	31.1	40.5
Clay	12	46.3	5.30	40.2	56.2
Woodington:					
Sand	12	61.7	14.40	32.2	79.1
Silt	12	22.0	5.48	14.7	31.4
Clay	12	16.3	9.24	6.2	36.4

\*by hydrometer method, Bouyoucos (1962).

Based on the data presented in Table 1, we assume the soils below 100 feet to have family textural class placements of "clayey" and to be members of the Roanoke series and soils above 100 feet to have family textural class placements of "coarse-loamy" or "sandy" and to be members of the Woodington series.