PREPARED IN COOPERATION WITH
THE DELAWARE GEOLOGICAL SURVEY
AND THE DELAWARE STATE HIGHWAY DEPARTMENT

Base by U.S. Geological Survey, 1954
Roads revised by State Highway Department, in black

APPROXIMATE MEAN DECLINATION, 1964

SCALE 1:24 000

CONTOUR INTERVAL 10 FEET
DATUM IS MEAN SEA LEVEL

Engineering soils mapped by J. K. Adams, Delaware Geological Survey, C. F. Davis and W. H. Tewelow, U.S. Geological Survey.
Water table and surface-drainage mapped by D. H. Boggess and O. J. Coskery, U.S. Geological Survey

EXPLANATION

AM23
Nonplastic sandy soil derived from fluvial deposits of Pleistocene age

AM4
Slightly plastic silty and clayey soil derived from fluvial deposits of Pleistocene age

AM46
Slightly plastic to highly plastic silty and clayey soil derived from fluvial deposits of Pleistocene age

U
Urban areas where soil has been altered by man

AR/Z
Flood-plain deposits associated with swamp deposits

AM2/23
Nonplastic to slightly plastic sandy soil derived from fluvial deposits of Pleistocene age associated with AM23 soil

AM2/24
Nonplastic to slightly plastic sandy soil associated with nonplastic to slightly plastic sandy and silty soil derived from fluvial deposits of Pleistocene age

AM23/24
AM23 soil associated with nonplastic to slightly plastic sandy and silty soil derived from fluvial deposits of Pleistocene age

AM24/26
Nonplastic to slightly plastic sandy and silty soil associated with nonplastic to highly plastic sandy and clayey soil derived from fluvial deposits of Pleistocene age

AM24/46
Nonplastic to slightly plastic sandy and silty soil derived from fluvial deposits of Pleistocene age associated with AM46 soil

Z/AM2
Swamp deposits underlain by nonplastic to slightly plastic sandy soil derived from fluvial deposits of Pleistocene age

Z/AM23
Swamp deposits underlain by AM23 soil

245
Soil sample pit
Location and number of pit from which soil samples were obtained for laboratory analyses (See table 3). General characteristics are summarized in table 4

2B
Soil sample site
Location and number of secondary soil sample sites. Samples were collected with one-inch-diameter long-core soil sampler. For results of laboratory analyses see table 3; for general characteristics see table 4

45/41–48
Secondary observation well
Numerator is altitude of water table in October 1960. Denominator shows estimated range in altitude of water table during 1950–62 based on measurements from 1959 to 1962 and comparison with primary observation-well records

44/41–47
Domestic or farm well
Numerator is altitude of water table in October 1962. Denominator, where given, shows estimated range in altitude of water table during 1950–62, based on 2 or 3 measurements and comparison with primary and secondary observation-well records

40
Water-table contour
Number shows altitude of water table in feet above mean sea level. Contour interval 10 feet. Relative position of water table in October 1960 is shown in hydrograph (figure 2)

Perennial stream
Bottom of stream channel almost always below water table

Intermittent stream
Bottom of stream channel above water table part of the time and below water table part of the time

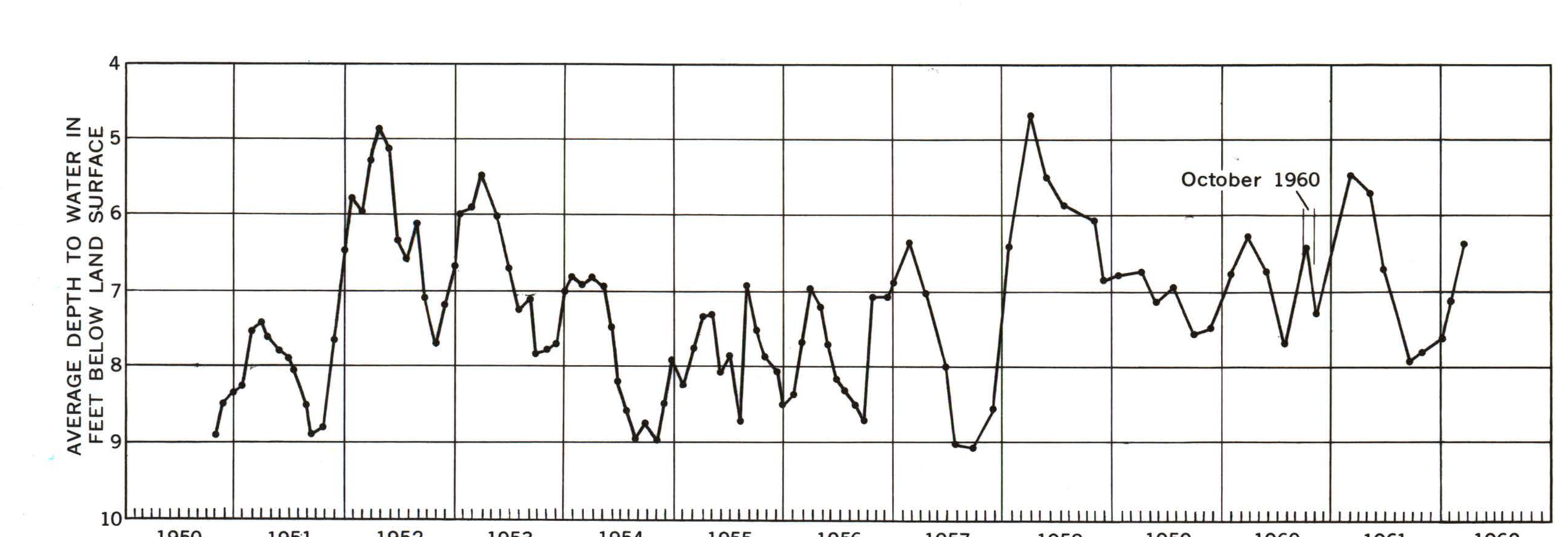

FIGURE 2.—*Hydrograph showing average depth to water in 15 water-table wells in Delaware*

SOIL SYMBOLS

The map symbols used in this report to designate the various types of soils are a modification of the system used in the engineering soil survey of New Jersey (Rogers, 1955). The first part of the symbol is a letter, or group of letters, which identifies the parent material according to the classification developed by Lueder (1950) (see table 1). The second part of the symbol is a number which identifies the soil group according to the classification system adopted by the Highway Research Board (Allen and others, 1945) and used with some modifications by the Delaware State Highway Department (see table 2). A two-digit number indicates that two soil types are present within the same soil profile; for example, the symbol AM23 implies that both A-2 and A-3 soils are present in the same soil profile, but usually in different horizons.

Two different soil symbols may be combined by either a horizontal bar or a diagonal bar. A horizontal bar (Z/AM2) indicates that the soil designated by the denominator underlies the soil designated by the numerator within a depth of 20 to 72 inches. If a letter symbol is used only in the numerator, it also applies to the denominator. A diagonal bar (AM2/24) indicates that two soil types (AM2 and AM24) are present within the same area, but not necessarily in the same profile. The two soils are so finely interspersed that they cannot be mapped separately.

TABLE 1. —*Explanation of letter symbols*

Symbol	Explanation
AM	Surficial alluvial mantle, Pleistocene age.
AR	Recent alluvial deposit.
U	Urban area.
Z	Swamp deposit.

REFERENCES

Allen, Harold, and others, 1945, Report of committee on classification of materials for subgrades and granular type roads: Highway Research Board, 25th Ann. Mtg., Oklahoma City, 1946, Highway Research Board Proc., v. 25, p. 375-388, Washington.
Lueder, D. R., 1950, A system for designating map-units on engineering soil-maps in soil exploration and mapping: Highway Research Board Bull. 28, p. 17-35, Washington.
Rogers, F. C., 1955, Engineering soil survey of New Jersey, Report No. 1: Rutgers Univ. Eng. Research Bull. 15, 114 p., New Brunswick, N. J.

TABLE 2. —*Soils classification*

General classification	Granular materials (35 percent or less passing a No. 200 sieve)							Silt-clay materials (more than 35 percent passing a No. 200 sieve)					
Group classification	A-1		A-3	A-2				A-4	A-5	A-6	A-7		A-8
	a	b		4	5	6	7				[1]5	[2]6	
Sieve analysis Percent passing No. 10 sieve No. 40 sieve No. 200 sieve	50 max. 30 max. 15 max.	50 max. 25 max.	51 min. 10 max.	35 max.	35 max.	35 max.	35 max.	36 min.	36 min.	36 min.	36 min.	36 min.	
Characteristics of fraction passing No. 40 sieve Liquid limit Plasticity index	6 max.	6 max.	Nonplastic	40 max. 10 max.	41 min. 10 max.	40 max. 11 min.	41 min. 11 min.	40 max. 10 max.	41 min. 10 max.	40 max. 11 min.	41 min. 11 min.	40 min. 11 min.	42–400 0–60
Group index[3]	0		0	0		4 max.		8 max.	12 max.	16 max.	20 max.		
General subgrade rating.	Excellent		Good	Good		Fair		Poor	Poor	Poor	Very poor		Unsatisfactory.
Material	Well-graded gravel and sand.		Clean sand and gravelly sand.	Poorly graded, silty or clayey sand and gravel.				Silty soil	Plastic silt.	Plastic clay.	Expansive plastic clay.		Muck-peat.

[1]Plasticity index of A-7-5 subgroup is equal to or less than the liquid limit minus 30.
[2]Plasticity index of A-7-6 subgroup is greater than the liquid limit minus 30.
[3]The group index is calculated according to the following formula: Group index = 0.2a + 0.005ac + 0.01 bd
in which: a = That portion of the percentage passing No. 200 sieve greater than 35 percent and not exceeding 75 percent, expressed as a positive whole number (1 to 40).
b = That portion of the percentage passing No. 200 sieve greater than 15 percent and not exceeding 55 percent, expressed as a positive whole number (1 to 40).
c = That portion of the numerical liquid limit greater than 40 and not exceeding 60, expressed as a positive whole number (1 to 20).
d = That portion of the numerical plasticity index greater than 10 and not exceeding 30, expressed as a positive whole number (1 to 20).

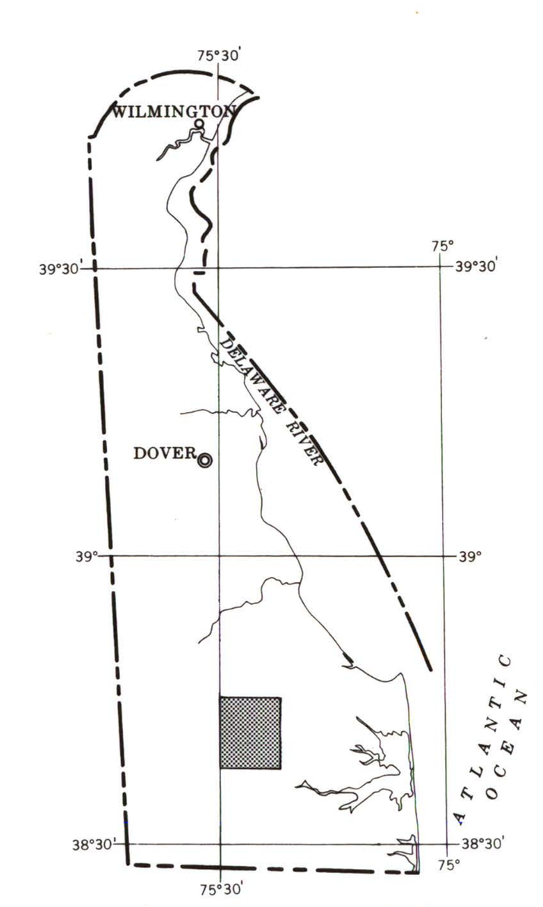

FIGURE 1.—*Index map of Delaware showing location of the Georgetown quadrangle*

TABLE 3. —*Results of laboratory analyses of soil samples*

Liquid limit: NL, nonliquid. Plasticity index: NP, nonplastic

Sample pit and site nos.	Depth of interval sampled (inches)	Mechanical analyses: Cumulative percent by weight passing sieve— 3/4 in.	No. 4 (4.7 mm.)	No. 10 (2.0 mm.)	No. 40 (0.42 mm.)	No. 200 (0.074 mm.)	Percent by weight: Silt (0.062 to 0.0039mm.)	Clay (<0.0039mm.)	Liquid limit[1]	Plasticity index[2]	Moisture-density[3]: Maximum density (lbs. per cu. ft.)	Optimum moisture (percent by weight)	Classification: HRB[4]	Map symbol
242	0–4	100	99.5	98.8	75.8	21.4	-----	-----	NL	NP	-----	-----	A-2-4 (0)	AM2
	4–21	100	97.8	95.8	73.6	21.2	-----	-----	NL	NP	133	7	A-2-4 (0)	
	21–33	100	99.6	99.1	90.0	31.7	6	25	26	6	123	11	A-2-4 (0)	
	33–40	100	92.4	84.4	72.0	34.8	6	28	31	8	119	12	A-2-4 (0)	
243	0–6	100	100	100	88.6	21.6	-----	-----	NL	NP	-----	-----	A-2-4 (0)	AM23
	6–36	100	100	99.9	85.4	11.3	-----	-----	NL	NP	-----	-----	A-2-4 (0)	
	36–48	100	100	100	84.2	6.6	-----	-----	NL	NP	-----	-----	A-3 (0)	
244	0–6	100	100	99.9	76.7	14.1	-----	-----	NL	NP	-----	-----	A-2-4 (0)	AM2
	6–36	100	100	99.7	77.7	14.4	-----	-----	NL	NP	-----	-----	A-2-4 (0)	
	36–44	99.9	99.2	96.1	58.6	14.8	-----	-----	NL	NP	-----	-----	A-2-4 (0)	
245	0–10	100	100	100	83.6	19.2	-----	-----	NL	NP	-----	-----	A-2-4 (0)	AM23
	10–22	100	100	100	78.1	7.2	-----	-----	NL	NP	113	Indefinite	A-3 (0)	
	22–42	100	100	99.9	79.5	11.8	-----	-----	NL	NP	120	Indefinite	A-2-4 (0)	
246	0–8	100	99.8	99.3	67.0	51.6	-----	-----	NL	NP	-----	-----	A-4 (3)	AM24
	23–36	99.9	98.8	96.1	63.4	21.6	-----	-----	19	NP	-----	-----	A-2-4 (0)	
	36–49	100	99.2	97.5	52.6	14.1	-----	-----	NL	NP	-----	-----	A-2-4 (0)	
247	0–18	100	99.8	99.2	82.1	20.9	-----	-----	NL	NP	-----	-----	A-2-4 (0)	AM23
	26–38	100	100	99.9	90.8	6.9	-----	-----	NL	NP	-----	-----	A-3 (0)	
	46–56	100	96.5	95.6	81.4	27.6	9	18	NL	NP	-----	-----	A-2-4 (0)	
248	0–11	100	99.9	99.7	91.0	30.4	-----	-----	26	2	-----	-----	A-2-4 (0)	AM24
	18–34	100	100	99.9	96.2	36.1	-----	-----	21	1	-----	-----	A-4 (0)	
	38–58	100	100	100	98.8	34.4	-----	-----	NL	NP	-----	-----	A-2-4 (0)	
249	0–8	100	99.9	99.8	83.3	20.9	-----	-----	NL	NP	-----	-----	A-2-4 (0)	AM2
	8–27	100	99.9	99.8	85.3	24.1	-----	-----	NL	NP	132	8	A-2-4 (0)	
	27–48	100	99.9	99.1	78.6	22.7	-----	-----	NL	NP	131	8	A-2-4 (0)	
250	0–7	100	99.1	98.4	57.4	17.8	-----	-----	NL	NP	-----	-----	A-2-4 (0)	AM2
	20–29	100	97.9	94.5	63.9	32.7	8	24	31	15	127	10	A-2-6 (1)	
	29–37	100	98.7	96.4	64.4	32.8	9	23	35	16	124	11	A-2-6 (1)	
251	0–8	100	99.0	98.6	80.6	29.5	-----	-----	NL	NP	-----	-----	A-2-4 (0)	AM2
	19–32	100	94.3	91.3	79.2	29.6	11	18	24	10	-----	-----	A-2-4 (0)	
	38–48	99.6	87.3	81.7	68.6	27.6	10	18	24	12	-----	-----	A-2-6 (0)	
1A	0–14	-----	-----	99.0	70.4	19.3	-----	-----	<40	<10	-----	-----	A-2-4 (0)	AM2
	14–48	-----	-----	98.1	71.1	22.9	-----	-----	<40	<10	-----	-----	A-2-4 (0)	
	48–72	-----	-----	99.9	76.1	19.2	-----	-----	NL	NP	-----	-----	A-2-4 (0)	
1B	0–12	-----	-----	100	78.0	22.8	-----	-----	<40	<10	-----	-----	A-2-4 (0)	AM2
	12–36	-----	-----	99.6	88.2	35.2	-----	-----	<40	NP	-----	-----	A-2-4 (0)	
	36–72	-----	-----	98.4	74.2	21.7	-----	-----	24	7	-----	-----	A-2-4 (0)	
1C	0–12	-----	-----	99.1	69.3	17.9	-----	-----	<40	<10	-----	-----	A-2-4 (0)	AM2
	12–42	-----	-----	98.0	73.4	17.8	-----	-----	NL	NP	-----	-----	A-2-4 (0)	
	42–72	-----	-----	97.1	59.9	20.8	-----	-----	22	3	-----	-----	A-2-4 (0)	
1D	0–20	-----	-----	99.6	79.3	17.5	-----	-----	<40	<10	-----	-----	A-2-4 (0)	AM27
	20–50	-----	-----	95.4	65.2	26.2	-----	-----	23	9	-----	-----	A-2-4 (0)	
	50–72	-----	-----	100	95.2	82.6	-----	-----	53	30	-----	-----	A-7-6 (19)	
2A	0–6	-----	-----	100	80.8	13.2	-----	-----	<40	<10	-----	-----	A-2-4 (0)	AM2
	6–48	-----	-----	100	83.8	18.2	-----	-----	<40	<10	-----	-----	A-2-4 (0)	
	48–72	-----	-----	97.5	67.5	12.3	-----	-----	<40	<10	-----	-----	A-2-4 (0)	
2B	0–12	-----	-----	99.9	76.9	13.3	-----	-----	<40	<10	-----	-----	A-2-4 (0)	AM2
	12–44	-----	-----	99.9	78.4	14.0	-----	-----	<40	<10	-----	-----	A-2-4 (0)	
	44–72	-----	-----	94.7	60.8	21.1	-----	-----	24	7	-----	-----	A-2-4 (0)	
2C	0–10	-----	-----	99.9	76.3	15.7	-----	-----	<40	<10	-----	-----	A-2-4 (0)	AM2
	10–32	-----	-----	100	79.3	16.6	-----	-----	<40	<10	-----	-----	A-2-4 (0)	
	32–72	-----	-----	99.7	82.8	12.7	-----	-----	<40	<10	-----	-----	A-2-4 (0)	
2D	0–16	-----	-----	100	82.0	19.7	-----	-----	<40	<10	-----	-----	A-2-4 (0)	AM2
	16–36	-----	-----	100	82.0	16.7	-----	-----	<40	<10	-----	-----	A-2-4 (0)	
	36–72	-----	-----	100	78.8	11.9	-----	-----	<40	<10	-----	-----	A-2-4 (0)	
2E	0–12	-----	-----	100	78.0	5.6	-----	-----	<40	NP	-----	-----	A-3 (0)	AM3
	12–36	-----	-----	100	80.0	3.5	-----	-----	<40	NP	-----	-----	A-3 (0)	
	36–72	-----	-----	100	76.7	3.7	-----	-----	<40	NP	-----	-----	A-3 (0)	
3A	0–10	-----	-----	99.9	77.5	18.8	-----	-----	<40	<10	-----	-----	A-2-4 (0)	AM2
	10–44	-----	-----	99.8	78.1	16.9	-----	-----	<40	<10	-----	-----	A-2-4 (0)	
	44–72	-----	-----	100	85.6	20.1	-----	-----	NL	NP	-----	-----	A-2-4 (0)	
3B	0–10	-----	-----	99.3	70.9	23.2	-----	-----	<40	<10	-----	-----	A-2-4 (0)	AM2
	10–40	-----	-----	93.0	58.4	11.5	-----	-----	NL	NP	-----	-----	A-2-4 (0)	
	40–72	-----	-----	98.3	79.0	22.3	-----	-----	NL	NP	-----	-----	A-2-4 (0)	
3C	0–12	-----	-----	100	82.5	20.2	-----	-----	<40	<10	-----	-----	A-2-4 (0)	AM2
	12–48	-----	-----	100	85.0	24.7	-----	-----	<40	<10	-----	-----	A-2-4 (0)	
	48–72	-----	-----	100	90.8	30.8	-----	-----	NL	NP	-----	-----	A-2-4 (0)	
3D	0–16	-----	-----	99.9	83.8	20.3	-----	-----	<40	<10	-----	-----	A-2-4 (0)	AM2
	16–32	-----	-----	100	83.6	19.7	-----	-----	<40	<10	-----	-----	A-2-4 (0)	
	32–72	-----	-----	100	80.6	12.7	-----	-----	<40	<10	-----	-----	A-2-4 (0)	
3E	0–12	-----	-----	98.6	76.2	22.3	-----	-----	<40	<10	-----	-----	A-2-4 (0)	AM2
	12–36	-----	-----	99.8	82.5	26.7	-----	-----	<40	<10	-----	-----	A-2-4 (0)	
	36–72	-----	-----	99.6	89.0	23.8	-----	-----	NL	NP	-----	-----	A-2-4 (0)	
4A	0–12	-----	-----	100	86.0	7.4	-----	-----	<40	NP	-----	-----	A-3 (0)	AM23
	12–62	-----	-----	99.4	80.2	12.6	-----	-----	<40	<10	-----	-----	A-2-4 (0)	
	62–72	-----	-----	81.0	54.2	14.6	-----	-----	<40	NP	-----	-----	A-2-4 (0)	
4B	0–10	-----	-----	100	80.4	16.4	-----	-----	<40	<10	-----	-----	A-2-4 (0)	AM2
	10–36	-----	-----	99.3	80.3	14.8	-----	-----	<40	<10	-----	-----	A-2-4 (0)	
	36–72	-----	-----	99.8	83.5	13.4	-----	-----	<40	<10	-----	-----	A-2-4 (0)	
4C	0–12	-----	-----	99.2	80.5	24.0	-----	-----	<40	<10	-----	-----	A-2-4 (0)	AM2
	12–38	-----	-----	98.2	76.2	23.2	-----	-----	NL	NP	-----	-----	A-2-4 (0)	
	38–72	-----	-----	99.7	63.2	11.1	-----	-----	<40	<10	-----	-----	A-2-4 (0)	
4D	0–14	-----	-----	99.3	83.2	30.0	-----	-----	<40	<10	-----	-----	A-2-4 (0)	AM26
	14–24	-----	-----	100	82.7	33.0	-----	-----	<40	<10	-----	-----	A-2-4 (0)	
	24–72	-----	-----	95.8	81.6	43.2	-----	-----	22	12	-----	-----	A-6 (3)	
4E	0–12	-----	-----	99.8	85.1	32.1	-----	-----	<40	<10	-----	-----	A-2-4 (0)	AM2
	12–22	-----	-----	99.6	73.4	17.4	-----	-----	<40	<10	-----	-----	A-2-4 (0)	
	22–72	-----	-----	98.4	79.7	17.3	-----	-----	<40	<10	-----	-----	A-2-4 (0)	
5B	0–12	-----	-----	99.8	67.4	19.0	-----	-----	<40	<10	-----	-----	A-2-4 (0)	AM24
	12–36	-----	-----	98.8	69.0	15.6	-----	-----	<40	<10	-----	-----	A-2-4 (0)	
	36–72	-----	-----	99.7	91.9	55.9	-----	-----	23	7	-----	-----	A-4 (4)	
5C	0–17	-----	-----	99.7	73.3	23.8	-----	-----	<40	<10	-----	-----	A-2-4 (0)	AM26
	17-62	-----	-----	99.9	97.7	75.6	-----	-----	34	14	-----	-----	A-6 (10)	
	62–72	-----	-----	99.6	98.6	42.6	-----	-----	<40	NP	-----	-----	A-4 (2)	
5D	0–16	-----	-----	100	84.0	21.8	-----	-----	<40	<10	-----	-----	A-2-4 (0)	AM24
	16–38	-----	-----	100	88.5	9.1	-----	-----	<40	NP	-----	-----	A-3 (0)	
	38–48	-----	-----	99.4	92.0	61.6	-----	-----	<40	<10	-----	-----	A-4 (5)	
	48–72	-----	-----	94.6	81.5	19.3	-----	-----	<40	<10	-----	-----	A-2-4 (0)	
5E	0–22	-----	-----	100	78.6	20.8	-----	-----	NL	NP	-----	-----	A-2-4 (0)	AM24
	22–38	-----	-----	100	84.6	38.4	-----	-----	22	10	-----	-----	A-4 (1)	
	38–72	-----	-----	100	74.9	17.1	-----	-----	<40	<10	-----	-----	A-2-4 (0)	
6A	0–12	-----	-----	99.9	74.9	18.5	-----	-----	<40	<10	-----	-----	A-2-4 (0)	AM23
	12–24	-----	-----	100	75.6	21.6	-----	-----	<40	<10	-----	-----	A-2-4 (0)	
	24–72	-----	-----	99.6	77.9	7.6	-----	-----	<40	NP	-----	-----	A-3 (0)	
6C	0–12	-----	-----	96.9	80.4	29.6	-----	-----	<40	<10	-----	-----	A-2-4 (0)	AM2
	12–36	-----	-----	97.9	76.9	24.2	-----	-----	NL	NP	-----	-----	A-2-4 (0)	
	36–72	-----	-----	99.5	91.1	19.9	-----	-----	<40	<10	-----	-----	A-2-4 (0)	
6E	0–22	-----	-----	98.3	79.1	26.7	-----	-----	<40	<10	-----	-----	A-2-4 (0)	AM2
	22–60	-----	-----	97.9	72.7	28.6	-----	-----	<40	<10	-----	-----	A-2-4 (0)	
	60–72	-----	-----	99.6	89.4	23.9	-----	-----	<40	<10	-----	-----	A-2-4 (0)	

[1]Based on AASHO (American Association of State Highway Officials) Designation: T89-49.
[2]Based on AASHO Designation: T91-49.
[3]Based on AASHO Designation: T180-57.
[4]Highway Research Board system (see table 2); group index given in parentheses.

TABLE 4. —*Characteristics of the engineering soil types in the Georgetown quadrangle*

Soil type[1]	Description	Origin	Engineering properties: In place — Suitability as a subgrade[3]	In place — Suitability as a wearing surface[4]	Disturbed[2] — Suitability as embankment material	Disturbed[2] — Compaction characteristics	Suitable compaction equipment
AM2	Nonplastic to slightly plastic sandy soil.	Fluvial deposits of Pleistocene age.	Good	Excellent to good depending on binder present.	Good	Good	Rubber-tired equipment.
AM23	Nonplastic, generally poorly graded sandy soil.	Fluvial deposits of Pleistocene age.	Good to fair	Excellent to good depending on binder present if surface is A-2. Fair if surface is A-3.	Good if predominant material is A-2. Fair if predominant material is A-3.	Good if predominant material is A-2. Poor if predominant material is A-3.	Rubber-tired equipment for soil which is predominantly A-2. Vibratory equipment for soil which is predominantly A-3.
AM24	Nonplastic to slightly plastic, sandy and silty soil.	Fluvial deposits of Pleistocene age.	Good if material left after grading is predominantly A-2. Fair if material left after grading is predominantly A-4.	Excellent to good depending on binder present, if surface is A-2. Fair to poor if surface is A-4.	Good if predominant material is A-2. Fair if predominant material is A-4.	Good if predominant material is A-2. Fair if predominant material is A-4.	Rubber-tired equipment.
AM26	Nonplastic to highly plastic, sandy and clayey soil.	Fluvial deposits of Pleistocene age.	Good if material left after grading is predominantly A-2. Poor if material left after grading is predominantly A-6 or poorly drained A-2.	Good if surface is A-2. Poor if surface is poorly drained A-2. Very poor if surface is A-6.	Fair if predominant material is A-2. Very poor if predominant material is A-6.	Fair if predominant material is A-2. Poor if predominant material is A-6.	Rubber-tired equipment for soil which is predominantly A-2. Sheep's-foot rollers for soil which is predominantly A-6.
AM4	Slightly plastic, silty and clayey soil.	Fluvial and possibly eolian deposits of Pleistocene age.	Fair to poor	Fair to poor	Fair to poor	Fair to poor	Rubber-tired equipment.
AM46	Slightly plastic to highly plastic, silty and clayey soil.	Fluvial, paludal, and lacustrine deposits of Pleistocene age.	Poor if material left after grading is predominantly A-4. Very poor if material left after grading is predominantly A-6.	Poor if surface is A-4. Very poor if surface is A-6.	Poor if predominant material is A-4. Very poor if predominant material is A-6.	Poor	Sheep's-foot rollers.
AR	Alluvial gravel, sand, silt and clay.	Alluvium of Recent age.	Variable	Variable	Variable	Variable	Variable.
U	Urban areas where soil has been altered extensively by man.	Undetermined	Variable	Variable	Variable	Variable	Variable.
Z	Soil rich in organic material and frequently poorly drained. May be underlain at shallow depths by gravel, sand, or clay.	Swamp deposits of Recent age.	Variable	Variable	Variable	Variable	Variable.

[1]Two different soil types may be combined into a single map symbol (AM2/24), but the engineering characteristics of the individual soil types are described separately.
[2]For soil types designated by two-digit numbers, these columns refer to the composite soil.
[3]When not subject to frost action. Frost will affect soils that contain appreciable silt and clay and have a high moisture content.
[4]Untreated. Additives may aid in stabilization of the sandy soils and minimize dusty conditions.

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WATER-TABLE, SURFACE-DRAINAGE, AND ENGINEERING SOILS MAP OF THE GEORGETOWN QUADRANGLE, DELAWARE

By
Durward H. Boggess, John K. Adams, and Christian F. Davis

1964

For sale by U.S. Geological Survey, price 75 cents