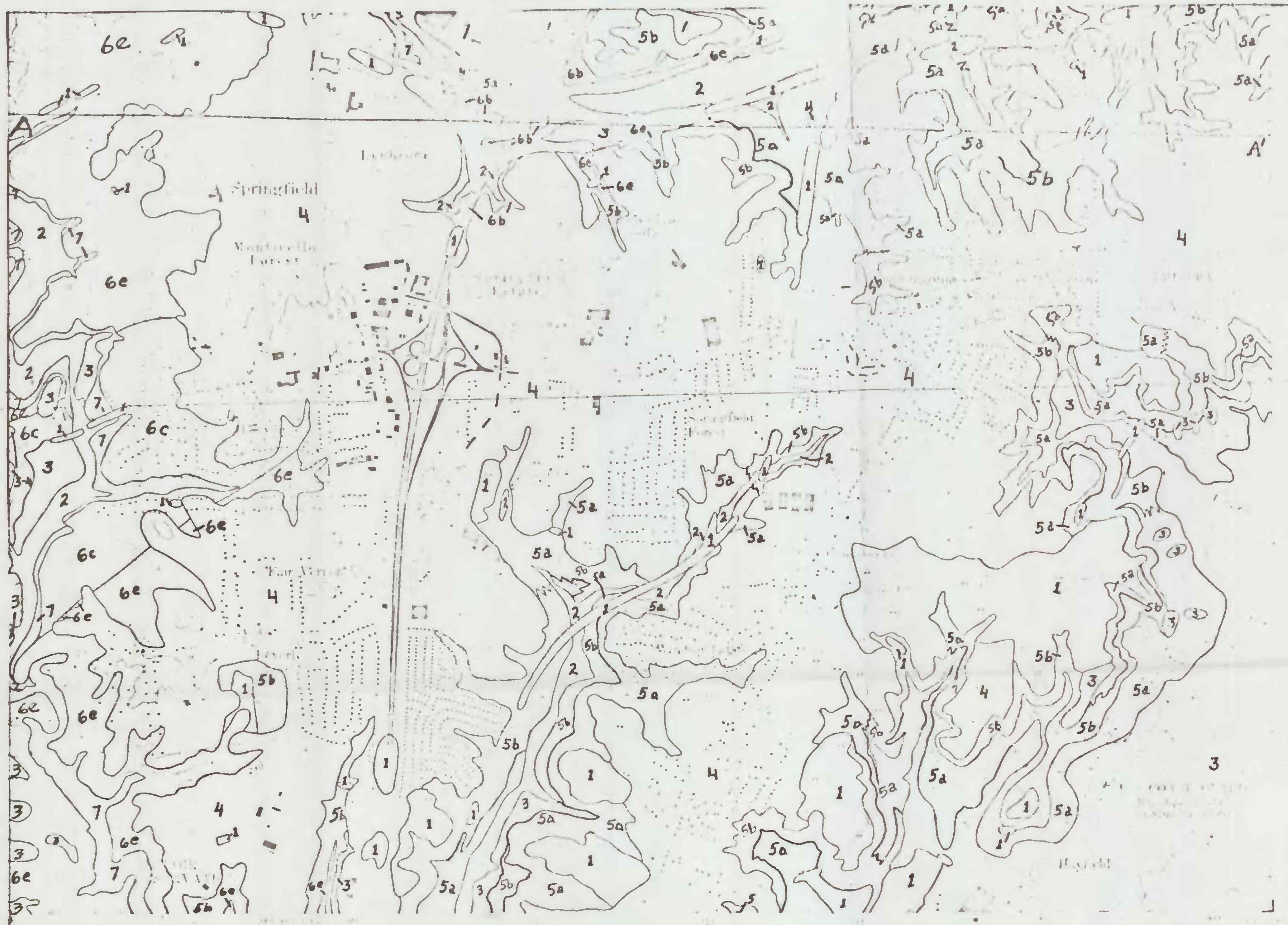
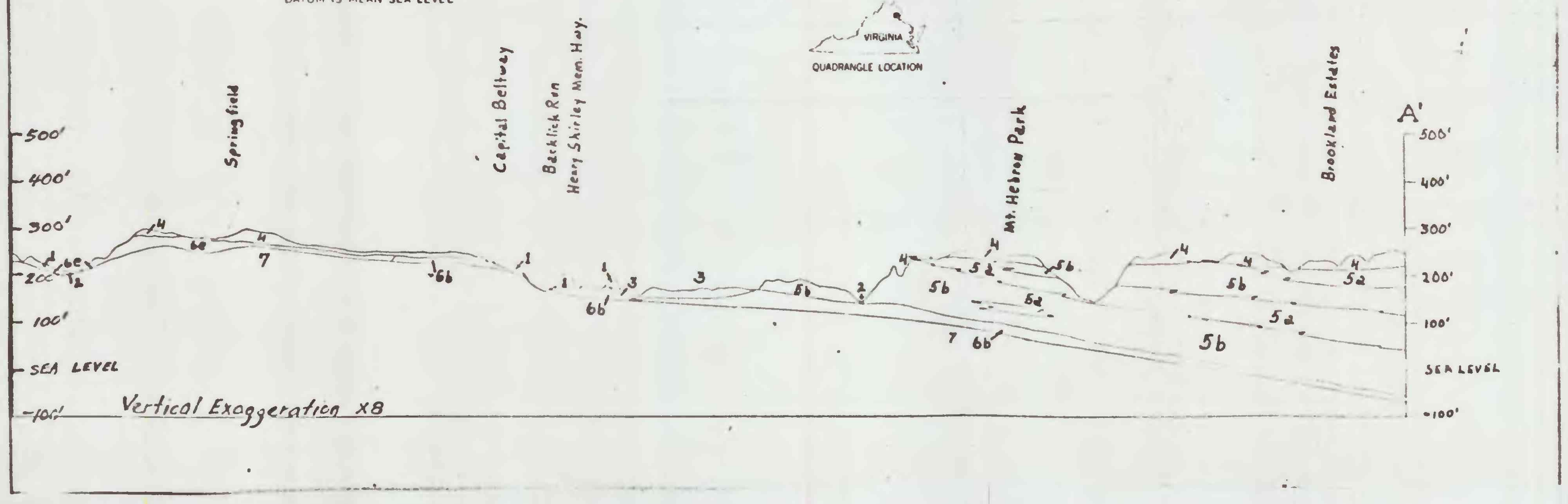


SCALE 1:24 000

CONTOUR INTERVAL 10 FEET
DATUM IS MEAN SEA LEVEL

FIGURE 5
SURFACE MATERIALS MAP, FRANCONIA AREA

L.M. Force and A.J. Froelich
1975



EXPLANATION
Characteristics of Surface Materials, Franconia Area

Surface Materials Map Symbol	Name of Unit	Preliminary Geologic Map Symbol	Grain Size Distribution^1,2 Unified Soil Classif.	A, B, Sorting, Good, Moderate Poor	Color	Predominant Mineralogy	Topographic Form	Maximum Thickness of Unit in Feet	Permeability	Mode of Occurrence	Rippability	Special Problems³	Uses and Possible Uses
1	Artificially Changed Ground	Af As Dg	Variable ML, CL Variable	A or B - Poor A - Moderate A or B Moderate to Poor	Variable	Variable Kaolinite, Montmorillonite Variable	Narrow dams or wedges Flat Variable	50' 10'? 30'	Good to fair Poor Variable	Where roads & railroads cross stream and saddles: extensions of flat land for buildings. In artificial ponds near gravel washing plants. Material moved by power equipment, visible in air photos, obscures natural surface materials	Easily moved with heavy power equipment	Easily erodible --- Changes natural drainage	Road building and base of light structures. --- ---
2	Alluvium	Qal	SW, GP SM, SP	B Moderate to Good	Variable	Variable	Nearly level plains along streams	50'	Excessive to Good	River deposits in modern channels & flood-plains	"	---	Water storage, base for light to heavy structures.
3	Terraces and Colluvium	Qt, Q/Tc	GP, GM SP, SM	B Moderate to Poor	Variable	Variable	Nearly level plains	30'	Excessive to Good	Terraces are river deposits, older than 2, younger than 3; colluvium includes slump and creep zone deposits on slopes, lag gravel on flat uplands.	"	---	Aggregate and road metal if fresh & sized; base for heavy structures if low in clay; clayey zones may be used as base for light structures.
4	Upland Gravel	Ugl	GP, GM SP, SM	B Moderate to Poor	Usually red, brown or yellowish brown matrix	Predominantly quartz, minor feldspars, kaolinite, iron oxides	Extensive flat plateaus with eroded borders	30-50'	Excessive to good except through hard pan, hard-pan may change seasonally (Kirby & others 1967)	Older river deposits.	"	Removing hard pan in 4 may permit water to enter underlying swelling clays	"
5a	Unconsolidated Sands and Clays: Clay & Silt	Kpc	CL, CH	A Moderate to Good	Unweathered lt. gray to lt. olive gray; weathered, reddish brown	Montmorillonite (weathers to kaolinite); minor qtz, illite, kaolinite	Gently southeast sloping surface locally dissected by modern streams; outcrops are found in steep sides of valleys and scarps between upland and lowland surfaces.	120'	Poor	-	Easy to moderately difficult with heavy power equipment, depending on soil stiffness	Expands when wet, shrinks when dry, landslide prone, tends to crack foundations	"
5b	Unconsolidated Sands and Clays: Sand and Gravel	Kps	SW, SM, SC	B or A Moderate to Poor	Unweathered, lt. gray, weathered: brn, reddish brn, yellowish brown	Qtz, feldspar, clays		150'	Good	Oldest (lowest) river channel and floodplain deposits; may be deltaic in part.	Easy with power equipment	Porous, readily absorbs surface water	Potential aquifers; aggregate in concrete where fresh or washed.
6a	Saprolite	Wds	SM, SL, ML, CL	----		Quartz, clay minerals, micas, feldspars	Rolling, hilly upland surfaces, gentle to steep sided valleys	80±	Fair to poor	Saprolite (weathered rock) more than 10 feet thick on various fresh crystalline bedrock types	Easy to moderately difficult with heavy power equipment, depending on rock hardness	Used as fill, tends to slump due to high clay content	May be used in concrete if washed; some types good for drain fields. Significant amounts of ground water stored in porous, relatively permeable units.
6c		Wms	SM, SC, ML, CL		Usually red brown to yellow brown			80±	Fair to poor				
6e		Grs	SM, SC, ML		Gray to gray brown			120±	Fair to good				
7	Fresh Bedrock	Wd, Wm, Gr	----	----	Variable	Quartz, feldspars, micas, hornblende etc	Walls or ledges in sides of large valleys and in smaller stream banks	----	Poor, except through joints	Fresh bedrock with less than 10 feet of overburden	Difficult; usually requires blasting.	Must be crushed for use as aggregate, etc. Generally poor as road metal due to rapid weathering characteristics	Crushed rock may be used as aggregate, granite formerly quarried; some ground water available in fractures and joints
X	Outcrop												

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[1] Unified Soil Classification

[2] Distribution of particle sizes in Surface Materials

[3] All unconsolidated surface materials may collapse during excavation under conditions which vary according to the material. Temporary or permanent shearing or retaining walls are essential to prevent collapse.