

LANDFORMS MAP OF VIENNA QUADRANGLE, VIRGINIA AND MARYLAND

by

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This map shows landforms by three major subdivisions: lowlands (Units 1a and 1b), uplands (Units 3b and 3c), and the valley walls (Units 2c and 2d). The landform categories are closely related to general slope; thus, categories designated by "a" have slopes generally less than 3%, "b" indicates slopes generally from 3% to 8%, "c" indicates those from 8% to 15%, and "d" indicates slopes generally more than 15%.

The Vienna quadrangle lies in the Piedmont Physiographic Province, and is characterized by undulating to hilly uplands that rise to a peak of 503 feet at Pender in the southwestern corner of the quadrangle. Almost all of the area is within the watershed of Difficult Run, which drains north-northeastward to the Potomac River, which flows across the northeastern part of the quadrangle at an elevation of about 100 feet. The dendritic stream pattern is characterized by both broad, flat-bottomed valleys and narrow, deeply incised gorges. Difficult Run, for example, flows for the most part through an alluvial valley 500 to 2,000 feet wide, but in seven places is constricted to narrow, rocky gorges.

The dominant geomorphic processes that affect the landforms are closely related to the major landform categories. Fluvial processes dominate in the lowlands, and mass movement is dominant on the valley walls. In the uplands, chemical weathering is significant, but mass movement is also important in the more rolling areas.

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This report is preliminary and has not been edited or reviewed for conformity with Geological Survey

Possible Uses of the Map: This map permits a rapid evaluation of terrain suitability for specific uses. Valley bottoms, steep slopes, or flat uplands all have markedly differing potentialities for land use. For example, the uplands (Units 3b, 3c, and 3d) may be suitable for building construction, but the floodplains of Unit 1a are obviously not. The map gains added utility when used in conjunction with maps of other aspects of the environment. For example, when this map is used in conjunction with The Surface Materials Map, the correlation reveals important potential problems in the combination of steep slopes with naturally unstable materials. Steep slopes of Unit 2d that are underlain by a deep layer of saprolite are very susceptible to erosion if they are denuded of vegetation for any reason, whether by farming or by construction. In addition, where steep slopes coincide with crystalline bedrock outcrops, rockfalls may be likely.

EXPLANATION OF MAP UNITS

Landform Unit	General Slopes	Description
Lowlands:		
1a	Less than 3%	Nearly level flood plains of major streams, underlain by alluvium and subject to periodic flooding of varying intensity. In northeastern corner of quadrangle includes long abandoned alluvial meander of the Potomac River.
1b	Less than 8%	Gently sloping plains, differentiated from Unit 1a by somewhat greater local relief. Locally underlain by alluvium and subject to flooding by major streams.
Valley Walls		
2c	8% to 15%	Moderately sloping valley walls, transitional between valley flood plains and the adjacent uplands. Local relief usually no more than 100 feet.
2d	15% or more	Includes the steeper valley walls, with slopes generally 15% to 30%, but even steeper slopes occur in sharply incised gorges in the central part of the quadrangle and in the northeastern corner near the Potomac River.
Uplands:		
3b	3% to 8%	Undulating upland, typically at altitudes of 300 to 500 feet, with local relief generally less than 50 feet. Dissected by streams that have cut valleys of varying width to depths of 50 to 100 feet, except near the Potomac River. Upland crests rise in a few places to 150 feet or more above the adjacent valleys.
3c	8% to 15%	Rolling to hilly upland, differentiated from Unit 3b by steeper slopes and somewhat greater local relief. This category includes small patches of flatter upland, comparable to Unit 3b, but intermingled with rougher terrain.

*Virginia (Vienna quad.). Physical Divisions. 1:24,000. 1975
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