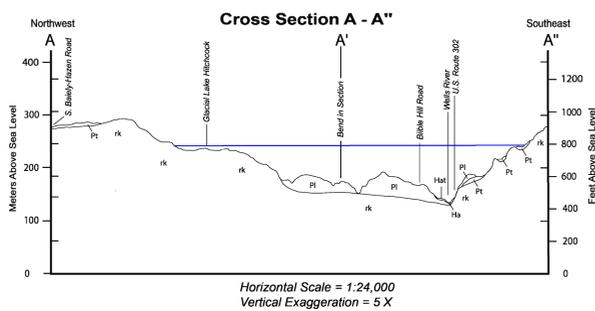


Magnetic declination
14.4 degrees west, 2022



Horizontal Scale = 1:24,000
Vertical Exaggeration = 5 X

Description of Map Units

- Holocene Deposits**
- af** Artificial Fill. Artificially-emplaced material along road beds, embankments and in developed areas. Material varies from natural sand, gravel, or till to various artificial waste materials. Thickness varies.
 - Ha** Alluvium. Silt, sand, and gravel deposited by modern streams. Includes stream channel, bar, and floodplain deposits. Wetland deposits are common within these areas and are not distinguished. Thickness in tributary valleys is typically less than 3 meters, although the depth may be much greater in the valleys of the larger streams.
 - Hat** Alluvial Terrace Deposits. Silt, sand, and gravel deposited on terraces above the modern floodplains of streams. They are composed of a variety of channel, bar, and floodplain deposits. Generally less than 5 meters thick.
 - Haf** Alluvial Fan Deposits. Boulder, pebble, and cobble gravel and pebbly sand deposited at sites where steep, stream gradients are sharply reduced. Common at the mouths of steep tributaries where they meet the main stream. Generally less than 5 meters thick.
 - Hta** Talus. Fans or aprons of fallen blocks of angular rock at the bases of bedrock cliffs. May contain colluvial (slope-wash) deposits as well. Of variable thickness.
 - Hw** Wetland Deposits. Accumulations of organic matter and/or clastic sediment in low-lying areas. Includes a wide variety of wetland types. Commonly overlying other deposits such as alluvium, lacustrine sediment, or till. Only larger deposits are shown.
- Pleistocene Deposits**
- Pl** Lacustrine Deposits, Undifferentiated. Coarse- to fine-grained sediment deposited in a proglacial lake.
 - Plch** Lacustrine Deposits, Delta. Well-sorted sand and gravel deposited in glacial Lake Hitchcock at the mouth of a tributary stream. Includes topset and foreset beds. A possible delta is located in the Joes Brook valley in the northern part of the quadrangle.
 - Ple** Esker Deposits. Elongate ridge of ice-contact stratified sand and gravel deposited by glacial meltwater streams in tunnels within or beneath the glacial ice. Eskers segments are found in the Passumpsic River valley in the northeastern corner of the quadrangle. These appear to be the southernmost pieces of the extensive Passumpsic Valley Esker System.
 - Ptm** Moraine Deposits. Composed primarily of till with variable amounts of stratified sand and gravel. Deposited in the vicinity of an ice margin, primarily from the direct melting of glacial ice.
 - Pt** Till. Very dense to loose, unsorted to very poorly sorted material deposited directly from glacial ice. Contains a wide range of grain sizes, from clay or silt up to large boulders. The till matrix texture ranges from fine sand to clayey silt. Surface boulders are very common. Thickness is highly variable, from less than 3 meters to greater than 30 meters. Areas near the tops of hills that are mapped as till may include colluvium and talus deposits and/or have less than one meter to bedrock.
- Older Deposits**
- rk** Area of extensive bedrock exposures.

Map Symbols

- Surficial Field Station
- Bedrock Outcrop
- Bedrock Point
- Shallow Bedrock
- Wells
- × Quarry
- × Sand and Gravel Pit
- × Sand and Gravel Inventory Site
- + Cross Section Point
- Abandoned Channel
- Crag and Tail Landform
- Esker
- Meltwater Channel
- Contacts (All are Approximate)
- Line of Cross Section
- Quadrangle
- Glacial Lake Hitchcock
- Town Boundaries
- ▲ Summits (feet)
- Interstates
- Roads, Major
- Roads, Minor
- Water Bodies
- Streams
- Index Contours (100 foot)
- Contours (20 foot)

Definitions

- Abandoned Channel.** A segment of stream channel that is still exposed at the Earth's surface that has been cut off from the remainder of the stream. Includes oxbows and other abandoned channel segments on modern floodplains as well as older features preserved on alluvial terraces.
- Crag and Tail Landform.** A streamlined hill or ridge, consisting of a knob of resistant bedrock with an elongate body of more erodible bedrock, till, or both, on its lee side.
- Meltwater Channel.** A channel cut by glacial meltwater flowing under, along, or in front of an ice margin. Lateral ice-marginal channels commonly run across a hillside, beginning and end abruptly, with limited modern-day drainage areas. These channels commonly occur in down-stepping sets on moderate to gentle till slopes and probably formed as the ice-margin retreated progressively down slope.

Coordinate System: Vermont State Plane, FIPS 4400, NAD 83.
Geographic coordinates shown at topo corners are in NAD 83.
Grid overlay on map is UTM, Zone 18N, NAD83.
Base map data from the Vermont Center for Geographic Information (VCGI).
Contours and shaded relief layer derived from 0.7 m lidar DEM, downloaded as a 5.0 m DEM from VCGI.
Digital cartography by George Springston, Norwich University, Dept. Earth and Environmental Sciences, April, 2022.

Additional bedrock outcrops are derived from the Vermont Geological Survey layer "Bedrock Outcrops" hosted by VCGI.

This map and explanatory information is submitted for publication with the understanding that the United States Government is authorized to reproduce and distribute reprints for governmental use.

Research supported by the U. S. Geological Survey, National Cooperative Geologic Mapping Program, under USGS award number G521AS00006. The views and conclusions contained in this document are those of the authors and should not be interpreted as necessarily representing the official policies, either expressed or implied, of the U. S. Government.

Published by:
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**Surficial Geologic Map of the Woodsville
7 1/2 Minute Quadrangle, Vermont**

by
George E. Springston
2022