

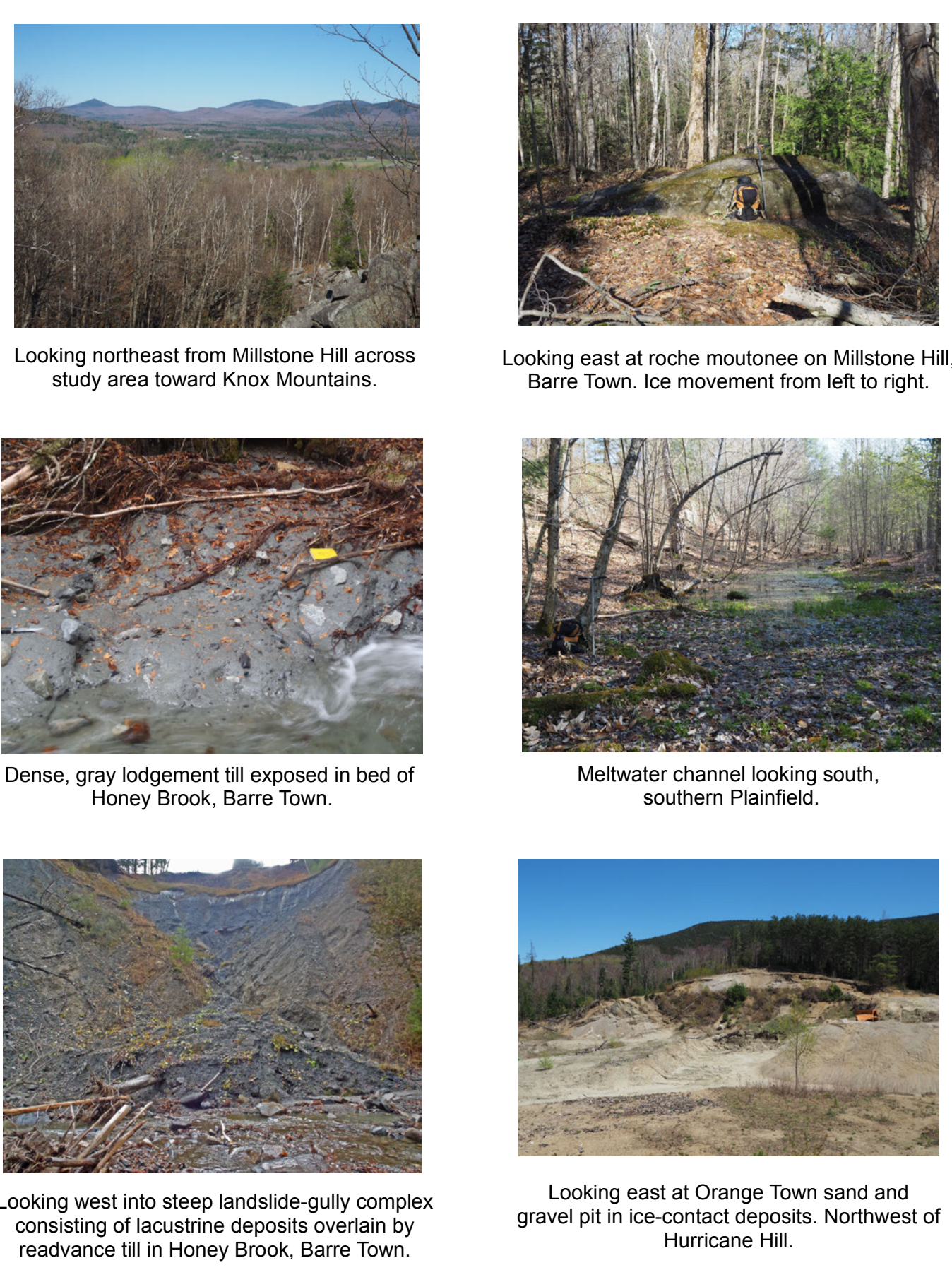
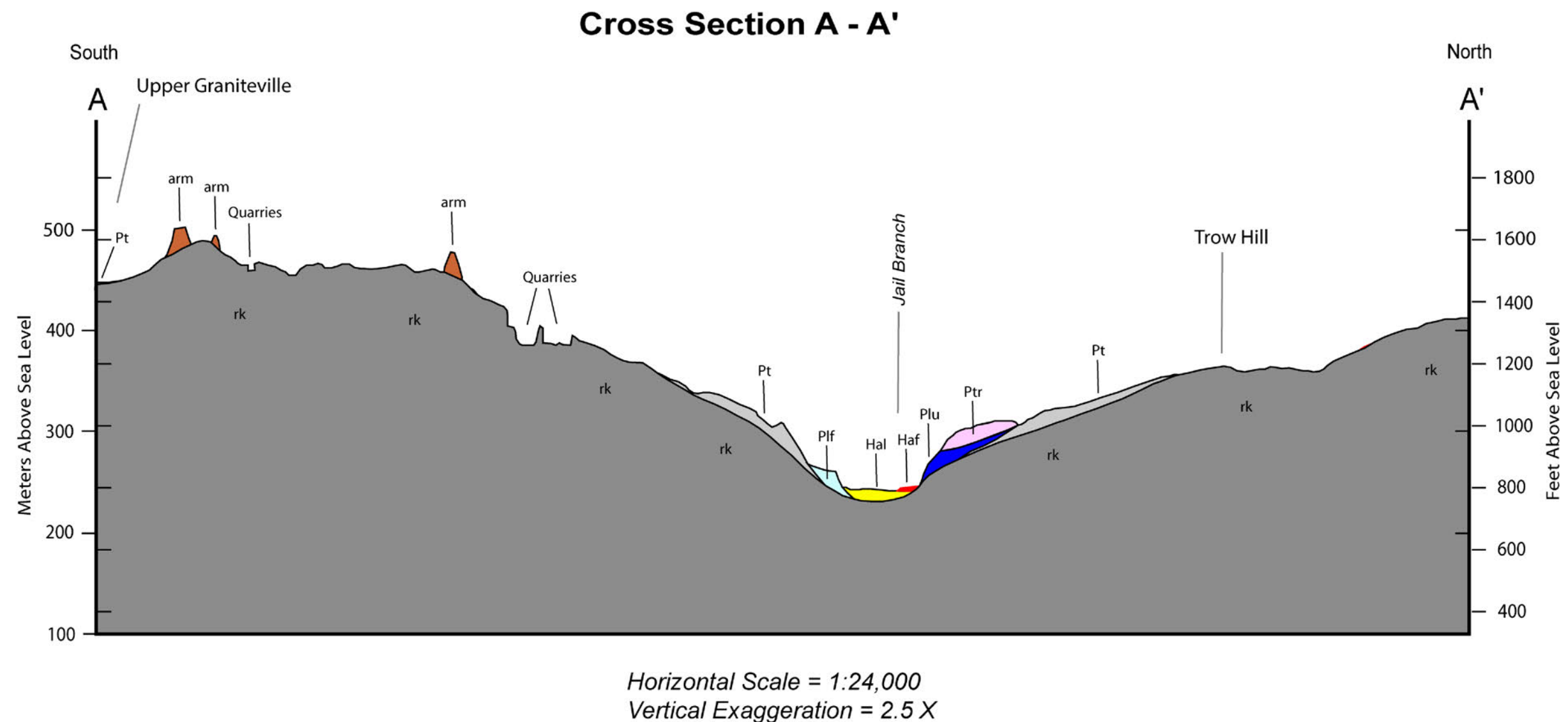
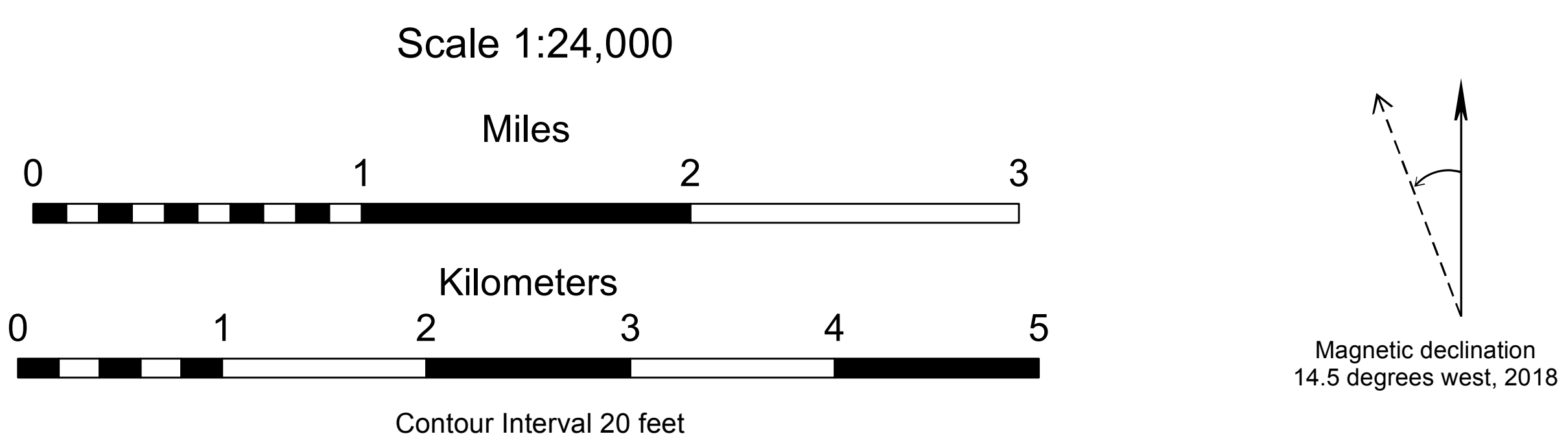


DESCRIPTION OF MAP UNITS

- Holocene Deposits
- ar** 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.
  - arm** Artificial Fill, Mine and Quarry Waste. Extensive piles of granite quarry waste, locally known as "grout piles."
  - Hal** 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.
  - Ha1** Alluvial Terrace Deposits. Silt, sand, and gravel deposited on terraces above the modern floodplains of streams. Composed of a variety of channel, bar, and floodplain deposits. Generally less than 5 meters thick.
  - Ha2** 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.
  - 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 a few larger deposits are shown.
  - Hco** Colluvium. Fans or aprons of slope-wash sediment that have accumulated at the base of steep slope segments. Thickness is highly variable, although usually less than 3 meters.
- Pleistocene Deposits
- Plu** Lacustrine Deposits, Undifferentiated. Muds, sands, or gravels deposited in a proglacial lake. Deposits on northeast side of Jail Branch include a wide variety of ice-proximal sediments interpreted to have been deposited in the vicinity of readvancing late Wisconsinan ice.
  - Plc** Lacustrine Deposits, Coarse-grained. Well-sorted sand, pebbly sand and/or sandy gravel deposited in shoreline, shallow water, or lake bottom environments of a glacial lake.
  - Plf** Lacustrine Deposits, Fine-grained. Clay, silt, and very fine to fine sand deposited in deeper waters. Commonly laminated. Plfv (varved) where clear indications of annual layers are present. Deposited in distal lake bottom environment of a proglacial lake.
  - Plfv** Lacustrine Deposits, Delta of glacial Lake Winooski. Well-sorted sand and gravel topset and foreset beds interpreted to have been deposited in glacial Lake Winooski at the mouth of the Jail Branch.
  - Pldw** Lacustrine Deposits, Delta of glacial Lake Winooski. Well-sorted sand and gravel deposited in streams in locations out beyond the glacial margin.
  - Po** Outwash Deposits. Glacial meltwater deposits composed of stratified sand and gravel deposited in streams in locations out beyond the glacial margin.
  - Plu** Ice-contact Deposits, undifferentiated. Unsorted to poorly-sorted stratified sand, gravel, and silt deposited in contact with glacial ice. Surface may contain scattered kettle holes formed by melting of buried ice blocks or be a highly complex kame and kettle.
  - Pie** Esker Deposits. Elongate ridge of ice-contact stratified sand and gravel deposited by glacial meltwater streams in tunnels within or beneath the glacial ice.
  - Ptr** Readvance Till. Dense till deposited during a late Wisconsinan readvance of ice into the study area. Similar to till described below. Sites have been identified in the Jail Branch and Great Brook valleys.
  - 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. Matrix commonly dominated by the silt or sand fraction. Boulders of the local Knox Mountain Granite common in the eastern half of the study area and those of the Barre Granite common in the southwestern portion. Thickness is highly variable, from less than 3 meters to greater than 30 meters.
- Quaternary Deposits
- Qg** Sand and Gravel, Undifferentiated. Encompasses a wide variety of coarse-grained surficial materials in cases where information is inadequate to determine age and environment of deposition.

DESCRIPTION OF MAP SYMBOLS

- Surficial Field Stations
- Bedrock Outcrops
- Wells
- Borings
- ↑ Glacial Striations
- Shallow Bedrock
- Glacial Readvance Sites
- Glacial Erratics
- × Sand and Gravel Pits
- × Bedrock Quarries
- Line of Cross Section
- Abandoned Channels
- Spillways
- Meltwater Channels
- Moraines
- Crag and Tail Landforms
- Study Area
- Town Boundaries
- Quadrangle Boundaries
- E911 Sites
- ▲ Summits (feet)
- Roads, Major
- Roads, Minor
- Water Bodies
- Streams
- Index Contours (100 foot)
- Contours (20 foot)



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 4.0 m DEM from VCGI. Digital cartography by George Springston, Norwich University, Dept. Earth and Environmental Sciences, May 28, 2018.

Additional bedrock outcrops are derived from Murthy (1957) and the Vermont Geological Survey layer "Bedrock Outcrops" hosted by VCGI.

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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.

Reference:  
Murthy, V.R., 1957, Bed rock geology of the East Barre area, Vermont Geological Survey Bulletin no. 10, Montpelier, 121 p. plus 3 plates (1:62,500).

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Surficial Geologic Map of the Barre East  
7 1/2 Minute Quadrangle, Vermont  
by  
George E. Springston  
2018

