# Surficial Geologic Map and Cross-Sections of the Mt Ellen 7.5-minute Quadrangle, Vermont

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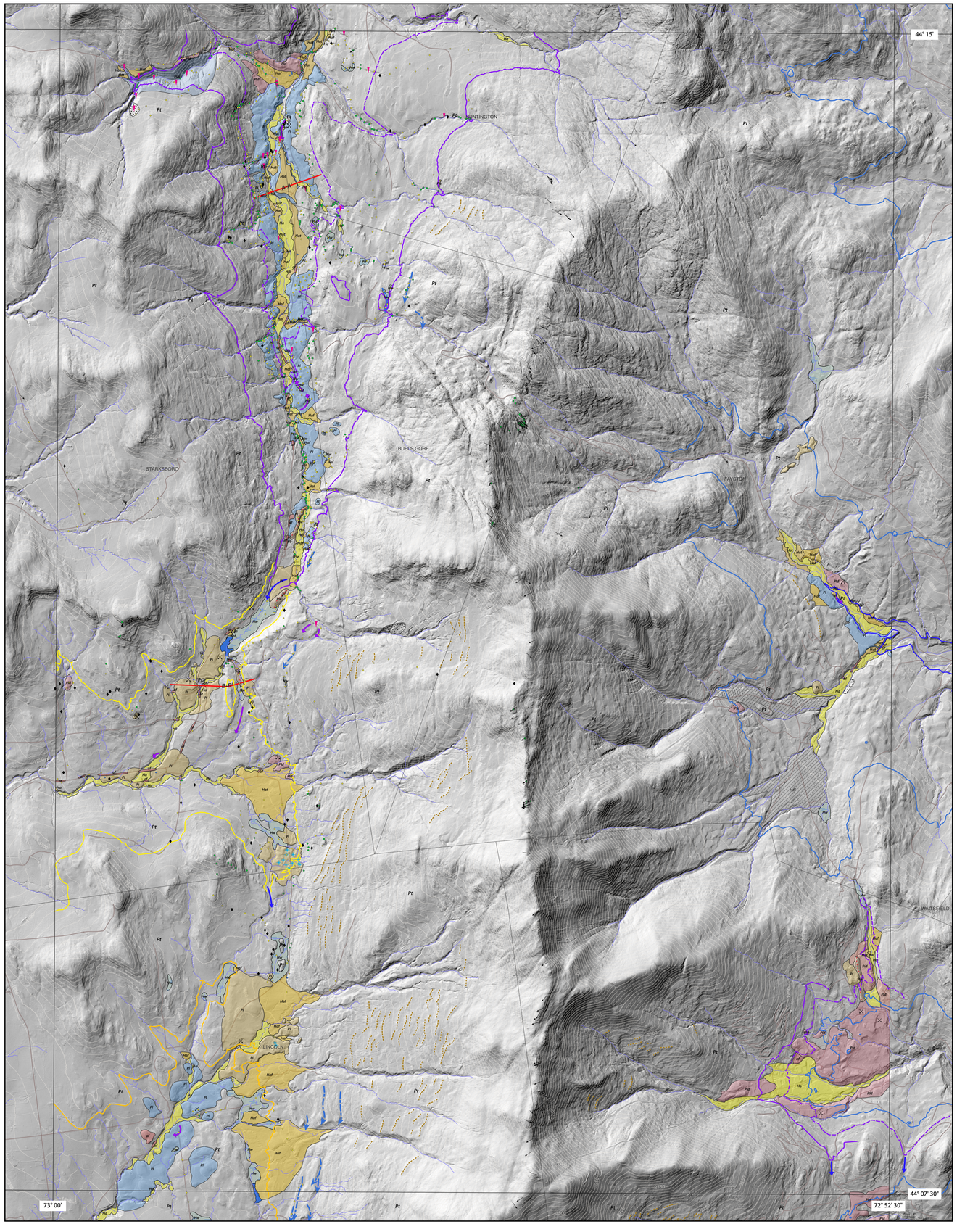



## Explanation

- **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.
- **Hw** Hw Wetlands: 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. Larger deposits are shown.
- **Ha** 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** Hat Fluvial Terrace: 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. May include late Pleistocene alluvial sediment deposited onto freshly-drained glacial lake bottoms before the main stream and its tributaries incised down into the lacustrine deposits. Commonly less than 5 m thick.
- **Haf** Haf Alluvial Fan: Boulder, cobble, and pebble gravel, pebbly sand, and diamict deposited at sites where steep, stream gradients are sharply reduced. Holocene alluvial fans (Haf) are common at the mouths of steep tributaries where they meet the main stream.
- Landslide: Large landslides and debris flows
- **Pld** Pld Glacial Lake Delta: Well-sorted sand and gravel deposited in a glacial lake at the mouth of a tributary stream. Ilncludes topset, foreset, and proximal bottomset beds.
- **Plf** Plf Lacustrine Deposits, Fine-grained: Clay, silt, and very-fine to fine sand deposited in quiet-water environments of a glacial lake. Commonly laminated.
- **Pl** Pl Lacustrine Deposits, Undifferentiated: Coarse- to fine-grained sediment deposited in a glacial lake, generally in an ice-proximal environment. Grain size generally decreases up-section, but marked changes in grain size occur over short distances both laterally and vertically.
- **Pldi** Pldi Lacustrine Stratified Diamict: Interbedded massive diamict layers and sandy layers fining upwards to silt-clay layers. Dropstones may be common in the stratified layers. Interpreted to represent subaqueous debris flows and turbidity flows deposited in an ice-proximal setting. Diamict layers may merge with subair above shoreline.
- **Pi** Pi 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 topography.
- **Pid** Pid Ice-Contact Delta: Well-sorted sand and gravel deposited directly into a glacial lake from a glacial margin. Includes topset, foreset, and proximal bottomset beds. Collapse features are common.
- **Pik** Pik Kame Terrace Deposits: Composed primarily of stratified sand and gravel, deposited between an ice-sheet and the adjacent side of the valley. Sediment is derived primarily from meltwater, with variable contributions from the valley sides. May include subaqueous grain flows and debris flows. Materials may be some combination of lacustrine and fluvial deposits.
- Esker
- **Pie** 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.
- **Pt** Pt Glacial 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. Surface boulders are generally common. Thickness is highly variable, from less than 3 meters to greater than 30 meters.

**Glacial Lakes East**

- Glacial Lake Winooski
- Glacial Lake Clay Brook Late
- Glacial Lake Clay Brook Early
- Glacial Lake Granville

**Glacial Lakes West**

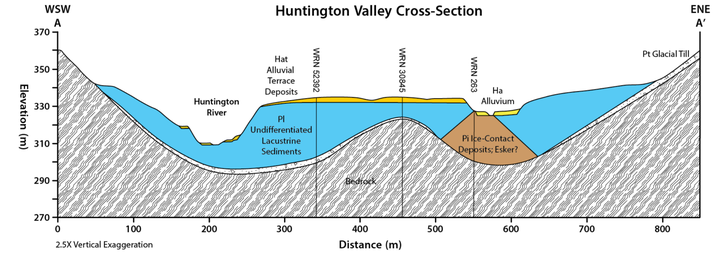
- Glacial Lake Huntington (Lower Stage)

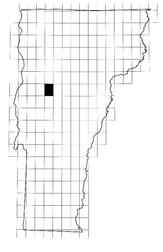
**Glacial Lake Huntington (Early: 462 m Outlet)**

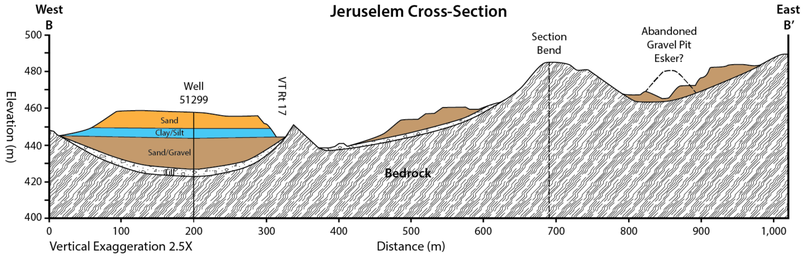
- Glacial Lake Jeruselem (474 m Outlet)
- Glacial Lake (Alder Brook Outlet, 434 m )

**Symbols**

- Surficial Field Site
- Bedrock Outcrop
- Water Well
- Large (>4 m) Erratic
- Glacial Striation: Arrow points in the direction of ice flow
- Landslide (Small)
- Abandoned Channel
- Abandoned Spillway — Abandoned Outlet Channel
- Ice-Marginal Channel
- Moraines
- Kettle
- Sand:Gravel Pit
- Geologic Cross-section



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Geologic units, contacts, and glacial lake outlines in tributary valleys on the eastern flank of the Green Mountains are modified from Dunn et al., 2007.

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