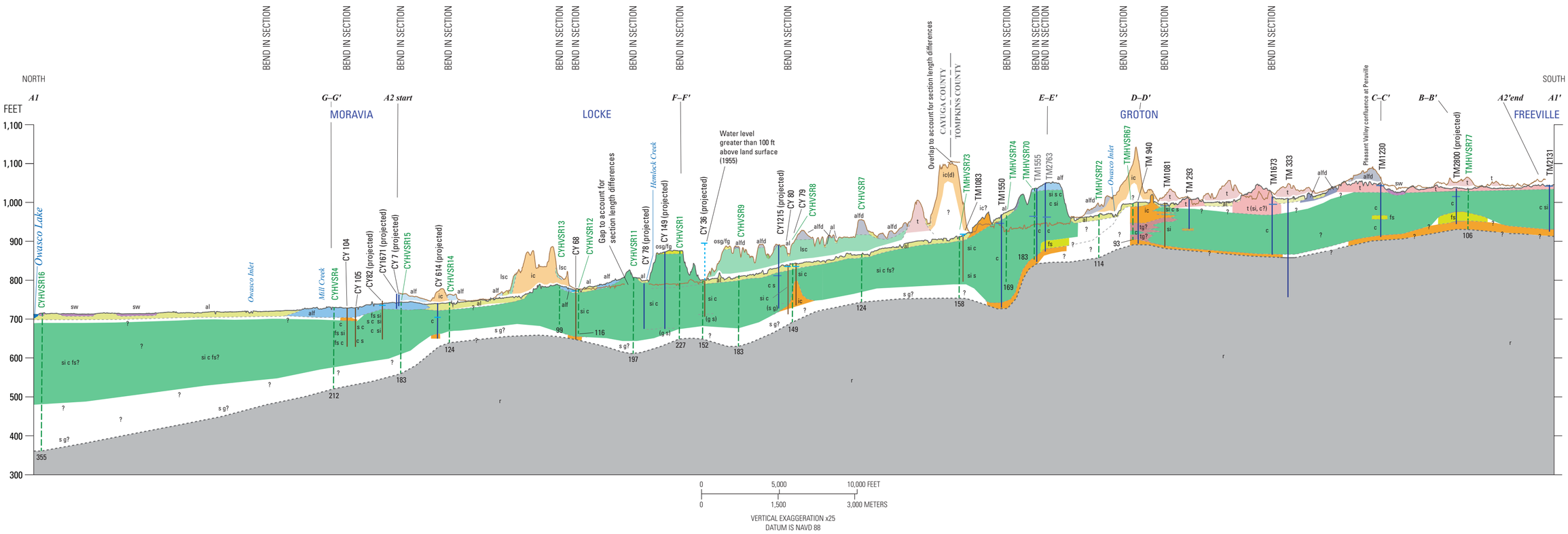
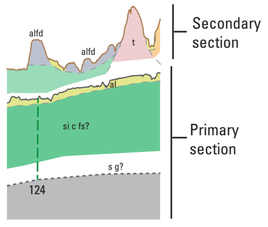
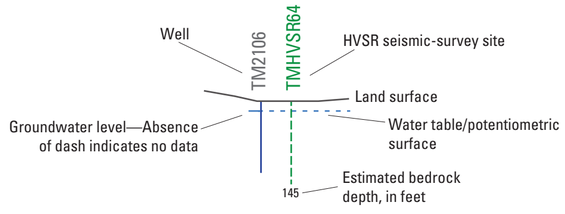


EXPLANATION

Primary and secondary sections—A single section along the Owasco Inlet valley cannot show both a continuous floodplain and glacial deposits of interest along the valley walls. To capture more valley features, two longitudinal section lines were incorporated in this figure: *A1*, a standard hydrogeologic section, indicated by the gray land-surface line and more intense color, and *A2*, a secondary or "background" section, with a brown land-surface line and muted colors corresponding to the same geologic units as the primary section. The secondary section is partial in that it only shows geologic units where they are higher in elevation (above) the primary section. The brown line of the secondary is shown over the primary section to show as complete a floodplain profile along the valley as possible. Wells along the secondary section (for example, CY1010, CY1215) are shown on the primary section for context, but they are typically closer to the valley wall, shallower, and completed in sand and gravel that are not present at corresponding depths in the primary section

Primary (*A1–A1'*) and secondary (*A2–A2'*) cross sections





Geologic contacts—Dashed where inferred; queried to emphasize greater uncertainty

Contact between bedrock and unconsolidated deposits

Contact between different unconsolidated deposits

Subsurface units

[Based on well-log descriptions. Apart from a few fine-sand units, these sediment mixtures are indicated by a single color only. Sediment labels for fine-grained units are placed adjacent to the wells from which the description originated, as descriptions within a unit are not always uniform. Queried where uncertain]

Glacial deposits of late Wisconsin age

Fine-grained sediment—Typically interpreted as glaciolacustrine in origin

Fine sand (fs)—May also be noted in well logs as quicksand

Clay, silt, sand, and (or) fine sand—As noted in well logs. c, clay; si, silt; fs, fine sand; s, sand

Coarse-grained sediment—Ranges from well-sorted gravels and sands to gravels with nearly equal amounts of silt or clay

Sand and gravel—Sand is not always differentiated in well logs. May include some fines. Gravel and sand beneath lacustrine fines are interpreted as ice-contact deposits; shallower gravel and sand may be of ice-contact, outwash, or early alluvial origin. Constitutes primary aquifer material where sufficiently saturated. Note: wells projected to the section line are often closer to the valley wall than the section line and thus intersect coarse-grained sediments, till, or bedrock at shallower depths than at the section line. Where sand and gravel are interesected, this is noted by a contact line and beneath it, only the letters "s" and "g" in the order of prevalence, if reported, from the well log

Consolidated deposits

r — Bedrock—Typically shale. The late Middle Devonian Tully Limestone outcrops at Fillmore Glen State Park and in former quarries at Moravia

Surficial units

[Units generally correspond to those at the land surface on plate 1]

Postglacial deposits of Holocene age

al — Channel and floodplain alluvium—Stream-deposited gravel, sand, silt, and clay

alf — Fluvially dominated alluvial fan deposits—Gravel, sand, silt, and clay deposited as fans by upland tributaries where they join larger valleys. Some well logs describe these deposits as hardpan or dirty gravel. Fans with large tributary drainage areas shifted from early debris-flow dominated to fluvial-dominated fan development with broad, smooth fan-shaped surfaces with low slopes that smoothly transition to the floodplain, such as at Moravia

alfd — Debris-flow dominated alluvial fan deposits—Early fan development began as soon as valley floors became ice free. Easily erodable glacial deposits on unstable, unvegetated slopes provided an abundant sediment supply for late-glacial meltwater discharges and runoff from early deglacial precipitation. These conditions favored debris-flow dominated fan development. Fans with small watershed areas that were primarily fed by glacial meltwater largely ceased development once ice left the area. These fans have uneven, somewhat lobate surfaces that have been incised by present-day streams and are designated as alfd. The fan at Peruville is an example of this type of fan

sw — Swamp deposits—Chiefly (1) muck, mucky peat, and organic residues mixed with fine sand, silt, and clay or (2) organic debris, muck, and, locally, peat mixed with fine sand, silt, and clay in areas that intermittently are covered by standing water. The deposits are on former lake beds, in abandoned glacial meltwater channels and sluiceways, in ice-block depressions and other shallow depressions, and especially in poorly drained upland areas

Glacial deposits of late Wisconsin age

lsc, lss — Lacustrine deposits—Silt and clay (lsc), and silt and fine sand (lss) deposited in low-energy environments of former glacial lakes. Forms an extensive confining unit in the Owasco Inlet valley

fs — Lacustrine sand—Fine sand deposited in former glacial lakes

ic, ic(d) — Ice-contact sand and gravel—Stratified gravel, sand, and silt deposited by meltwater beneath, within, atop, or adjacent to glacial ice. Large accumulations in the Owasco Inlet valley indicate pauses of ice margin position. Ranges from well-sorted units to poorly sorted "dirty gravels" reported in well logs and some silty to clayey layers. Contorted or faulted bedding is common, caused by meltout of nearby ice. Locally, the ice-contact sediments are overlain by till or resedimented till as thick as 15 ft. ic(d) indicates ice contact delta deposits

t — Till—Poorly sorted clayey to silty matrix with embedded stones deposited by glacial ice. Till may overlie stratified material along valley edges where oversteepened slopes have resulted in downslope movement of the till. Till overlying stratified material in the south end of the valley is derived from lake deposits and is mostly fine grained. This till appears to correspond to a brown layer above gray lacustrine clay in well logs (see fig. 10 for a cross-section of these units). In upland areas, mostly compact and dense lodgment till with subangular to angular clasts (fine pebbles to boulders) of local shale and siltstone embedded in a sandy to clayey matrix. Referred to as hardpan or till by local drillers. Forms a confining unit, where present

tg — Till, gravelly—Commonly referred to in driller's well logs as "hardpan with gravel layers" or "gravelly till." Soil survey (U.S. Department of Agriculture, 2008) commonly indicates till parent material. May include till washed by ice marginal drainage, flow till, till that has moved down valley hillsides as debris flows, slumps, or other mass movements soon after deglaciation, or poorly sorted ice-contact sediments. Late glacial to postglacial

Figure 4. Longitudinal hydrogeologic sections *A1–A1'* and *A2–A2'*, spanning the length of the Owasco Inlet valley, Tompkins and Cayuga Counties, New York. For location of cross section, wells, and other labeled features, see plate 1, available at https://doi.org/10.3133/sir20235031. HVSR, horizontal-to-vertical spectral ratio; NAVD, North American Vertical Datum of 1988.