UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

PREPARED IN COOPERATION WITH
NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

WATER RESOURCES INVESTIGATIONS REPORT 84-4031
PLATE 3- SURFICIAL GEOLOGY AND GEOLOGIC SECTIONS

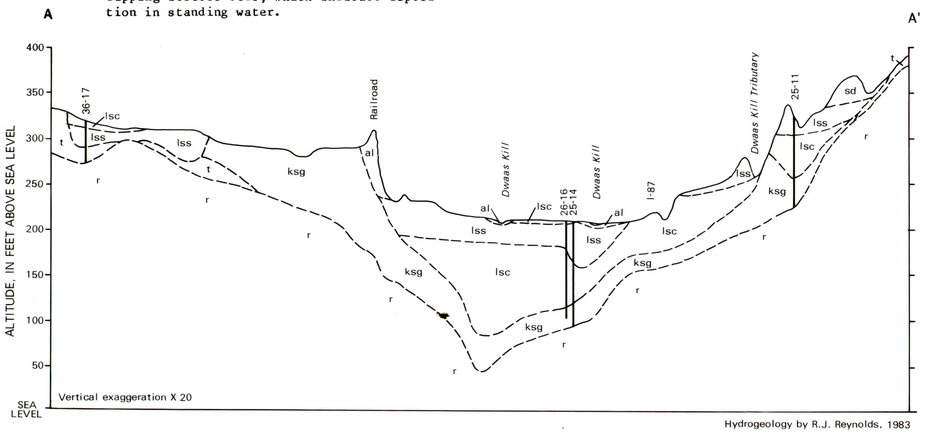
## SURFICIAL GEOLOGY AND GEOLOGIC SECTIONS

The surficial material in the Clifton Park area is predominantly lake sands and sand dunes interspersed with several exposures of kame and esker deposits (Hanson, 1977). The lake sand was originally deposited as nearshore lake sediment in glacial Lake Albany and was reworked by wind, after the lake had drained, to form well-sorted blanket lake sands and dune fields. These permeable dunes and blanket sands overlie a thick sequence of relatively impermeable lacustrine silt and clay that was deposited as lake-bottom sediment. The surficial lake sand thus forms a shallow water-table aquifer where saturated.

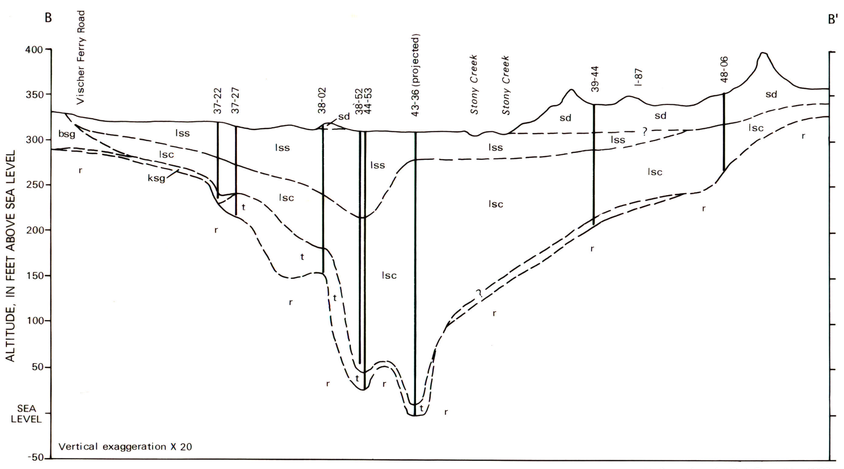
Kames and eskers are stratified ice-contact deposits containing interbedded layers of sand, gravel, cobbles, and silt that were deposited atop, against, or beneath glacial ice by meltwater streams. Kame deltas and esker deltas are glaciofluvial deposits that formed wherever meltwater streams deposited their sediment loads into glacial Lake Albany. These kame-delta and esker-delta deposits are hydrologically significant because they form a discontinuous but highly productive aquifer where they extend into the preglacial Colonie bedrock channel. These glaciofluvial and ice-contact deposits are, in most places, overlain by a thick sequence of Lake Albany silt and clay and thus form a confined (artesian) aquifer. The permeability of these ice-contact deposits varies locally as a result of their characteristic thinly bedded structure but is generally greatest in coarser fractions. This aquifer is recharged by precipitation in areas where the underlying ice-contact or glaciofluvial material is exposed at land surface and is also recharged from adjacent or overlying deposits of less permeable lake sands.

## EXPLANATION

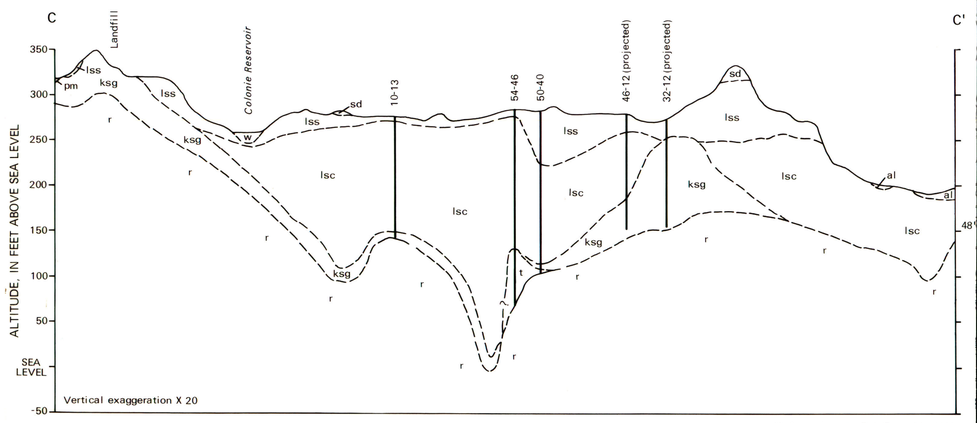
- w — OPEN-WATER AREAS
- al — ALLUVIAL SILT, SAND, AND GRAVEL--deposited by postglacial streams in flood plains and as alluvial fans.
- pm — PEAT, MUCK, ORGANIC SWAMP DEPOSITS
- ftg — FLUVIAL TERRACE GRAVELS--reworked sand and gravel fluvially deposited as terraces along the former course of the Mohawk River during glacial retreat.
- bsg — BEACH SAND AND GRAVEL--well-sorted sand and gravel deposited as beaches around the perimeter of glacial Lake Albany.
- sd — DUNE SAND--reworked lake sand that has been blown into dunes; overlies Lake Albany sand, silt, and clay. Dunes are composed of well-sorted fine to very fine sand and in places exceed 50 ft in height.
- ksg — KAME SAND AND GRAVEL--ice-contact stratified drift consisting of kames, eskers, kame deltas, and esker deltas. Kames and eskers are fluvially deposited ice-contact features that formed as crevasse fillings in the glacial ice or in tunnels beneath it. These deposits are stratified, sinuous, and may contain boulders, cobbles, and sand and gravel interbedded with layers of silt and clay. Kame deltas and esker esker deltas consist of stratified sand and gravel that was fluvially deposited against glacial ice but prograded into glacial Lake Albany. They are distinguished by steeply dipping foreset beds, which indicate deposition in standing water.
- lss — LACUSTRINE SAND AND SILT--moderately well sorted, interbedded fine sand and silt that overlies Lake Albany clay and silt deposits.
- lsc — LACUSTRINE CLAY AND SILT--interbedded clay and silt deposits that formed as bottom sediment in glacial Lake Albany.
- t — TILL--lodgment or ablation till of variable thickness; in this region overlies Ordovician bedrock. Includes several small exposures of flow tills or readvance tills that are interbedded with Lake Albany sediments.
- r — BEDROCK--undifferentiated shale bedrock close to or at land surface.
- GEOLOGIC CONTACT--denotes contact between geomorphological features.
- A——A' TRACE OF SECTION--shows location of accompanying geologic sections.
- ●54-46 WELL OR TEST HOLE--yielded information for construction of geologic sections. Hyphenated number indicates seconds of latitude and longitude of well or test hole. (See explanation on plate 1.)




Hydrogeology by R.J. Reynolds, 1983




Hydrogeology by R.J. Reynolds, 1983




Hydrogeology by R.J. Reynolds, 1983

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Base from New York State Department of Transportation 1:24,000 series: Niskayuna (1974), Round Lake (1974).

Geology from E.L. Hanson (1977); modified by A. Grant, 1983

# HYDROGEOLOGY OF THE CLIFTON PARK AREA, SARATOGA COUNTY, NEW YORK

By
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## SURFICIAL GEOLOGY AND GEOLOGIC SECTIONS