

GEOLOGIC SECTIONS
(Locations of sections are shown in plate 1)

This sheet shows two geologic sections through the south-western part of the Fort Drum military reservation; they are based primarily on the geologic logs of the reservation supply wells. Since there is a lack of reliable drillhole data outside the limits of the main cantonment area (the primary base facilities in the southwest part of the reservation, pl. 1), stratigraphic relationships and unit thicknesses in these areas are extrapolated from areas of the base having adequate drillhole control. Therefore, contacts between stratigraphic units along some parts of the sections are inferred.

Sections A-A' and B-B' show the stratigraphic relationship of the Pine Plains delta to the underlying bedrock units. The delta reaches a maximum thickness of about 120 feet in the vicinity of Wheeler Sack Field and overlies a silt and clay unit of varying thickness. The large thickness of the delta here is due, in part, to an east-west-trending bedrock channel just north of the Black River (section B-B'), from which the limestone units of the Black River Group have been eroded. The underlying Theresa Formation and Potsdam Sandstone subcrop northeast of the reservation (section A-A') and are mantled with glacial till and lake-bottom deposits of silt and clay. These units rest on Precambrian igneous and metamorphic basement rocks of granite and gneiss.

EXPLANATION

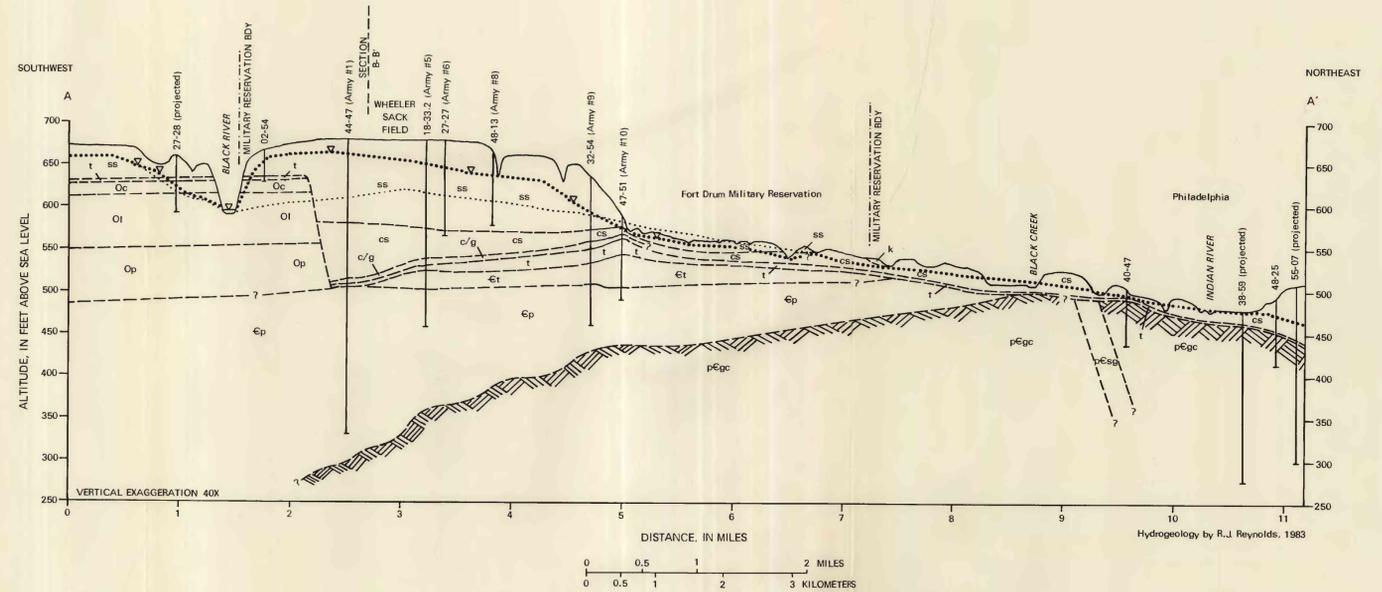
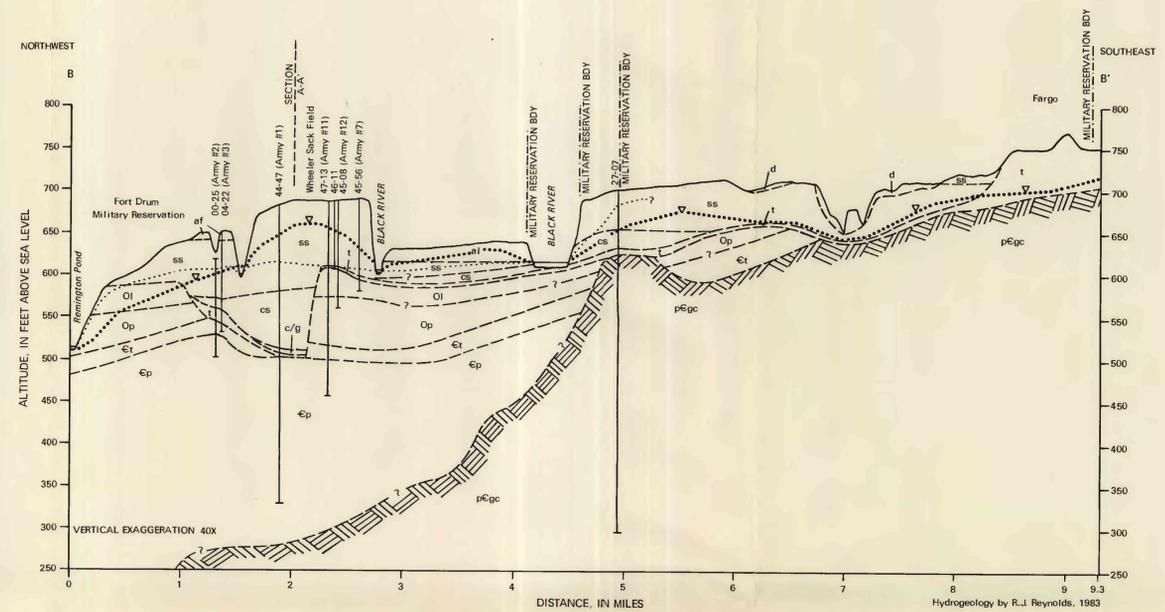
Unconsolidated Units

- | | | |
|-------------|---|--|
| HOLOCENE | af | ARTIFICIAL FILL--landfilled areas both active and secured. |
| | al | ALLUVIUM--sand, silt, and clay deposited along modern streams. |
| | d | DUNE SAND--areas of delta sand that was reworked by wind to form dune fields. |
| | t | TILL--sheet till with little or no morainal topography. Generally sandy with boulders. |
| PLEISTOCENE | c/g | CLAYEY GRAVEL--variably silty and clayey gravel generally underlying lacustrine silt and clay deposits. Thickness generally less than 10 feet. |
| | k | KAME GRAVEL--kames, kame moraines, eskers, and kame terraces consisting of ice-contact stratified sand, silt, clay, gravel, and cobbles. |
| | ss | SILTY SAND--deltaic deposits forming the Black River delta (Pine Plains). Generally consists of fine sand, variably silty. Upper zones are generally less silty, with silt and clay content increasing with depth. |
| cs | CLAY, SILTY--lacustrine clay and silt representing lake-bottom deposits which formed in the deeper parts of Lake Iroquois. Underlies the more permeable sand deposits of the Black River delta. | |

Bedrock Units

- | | | |
|-------------|------|---|
| ORDOVICIAN | Oc | CHAUMONT FORMATION of Kay (1929) of Black River Group--massive, gray, finely textured, cherty limestone with silicified fossils. |
| | Ol | LOWVILLE FORMATION of Black River Group--fine- to medium-textured, gray, conchoidally fracturing limestone. |
| | Op | PAMELIA FORMATION of Black River Group--principally greenish-gray and medium-gray conchoidally fracturing dolomite with some gray limestone interbeds. Basal few feet may be more quartzose or feldspathic. |
| CAMBRIAN | Et | THERESA FORMATION--hard, bluish-gray, thinly bedded dolomite and calcareous sandstone. Upper beds range from calcareous and dolomitic sandstone to sandy dolomite. Dolomite beds exhibit bedding-plane calcite seams and fossils. |
| | Ep | POTSDAM SANDSTONE--medium- to thickly bedded tan to grayish-white quartz sandstone with siliceous and calcareous cement. Basal few feet may be conglomeratic and (or) feldspathic and may be stained reddish from iron or greenish from chlorite. This formation, together with the overlying Theresa Formation, forms one of the principal bedrock aquifers in the Fort Drum region. |
| PRECAMBRIAN | pEgc | GRANITE GNEISS--granite intrusion commonly appearing as coarse porphyritic dikes within older syenite gneisses. Believed to be an intensely metamorphosed part of the Grenville Complex. |
| | pEsg | HORNBLende-SYENITE GNEISS--coarsely porphyritic reddish gneiss, weathers to light gray. A younger igneous rock that is found as intrusions into the older Grenville Complex. |

- CONTACT BETWEEN STRATIGRAPHIC UNITS--approximately located, dashed where inferred.
- 04-22 | WELL--provides hydrogeologic data for construction of geologic sections. (Well locations and trace of sections shown on pl. 1.)
-v..... WATER-TABLE SURFACE--shows approximate altitude of water table in surficial sand aquifer in August 1967 and 1968 under static conditions. Datum is sea level.
- POTENTIOMETRIC SURFACE--approximate altitude of potentiometric surface of the bedrock aquifer in August 1967 and 1968 under static conditions. Datum in sea level.



HYDROGEOLOGY OF THE FORT DRUM AREA, JEFFERSON, LEWIS, AND ST. LAWRENCE COUNTIES, NEW YORK

By
Richard J. Reynolds
GEOLOGIC SECTIONS