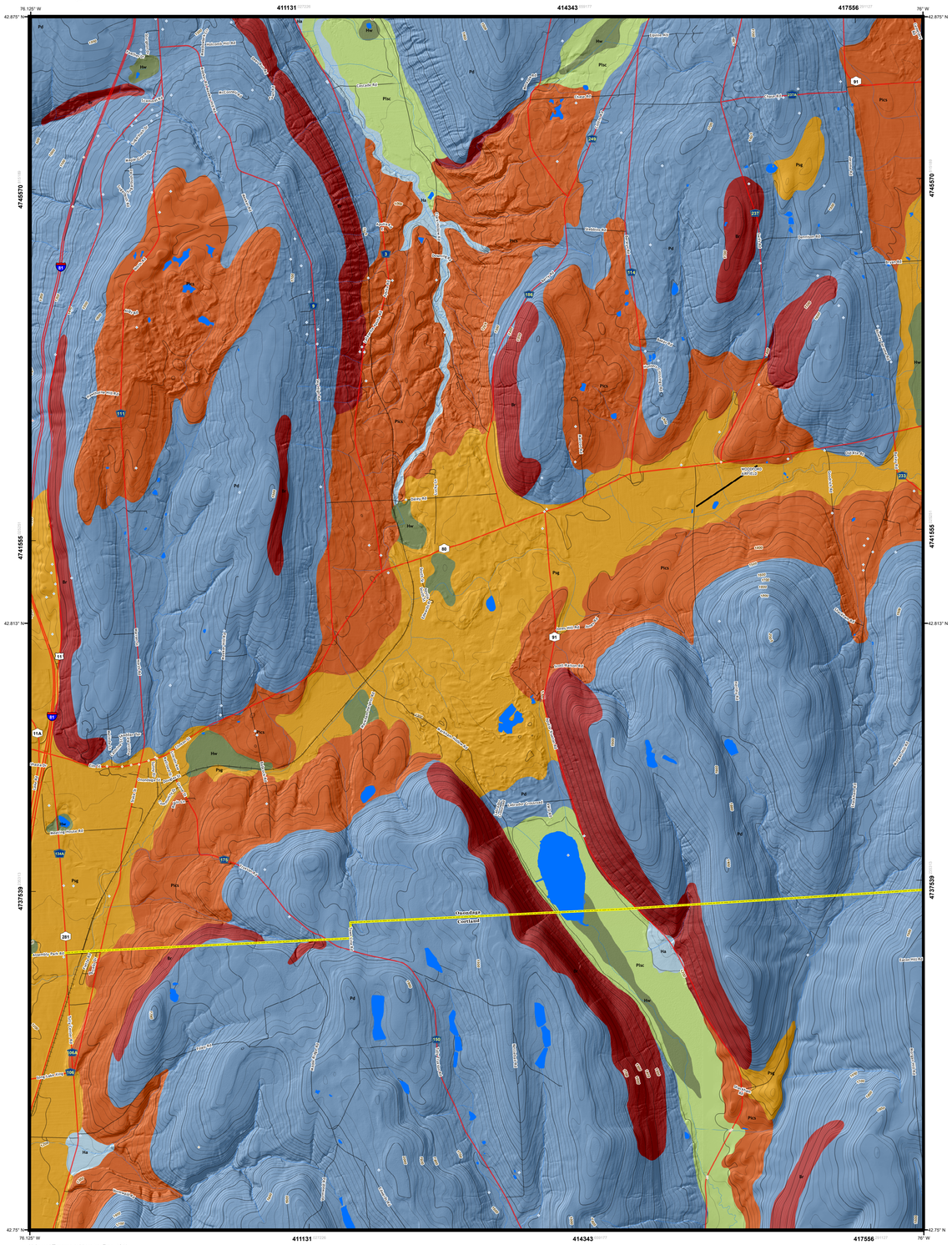
New York State Museum
Mark Schaming, Director

New York State Geological Survey



Universal Transverse Mercator, Zone 18 N
North American Datum of 1983

Hygrology, and planimetry layers from the New York State DOT Raster Quadrangle separates for Cortland, Madison and Onondaga Counties (https://gis.ny.gov/gisdata/inventories/member.cfm?OrganizationID=108)
Geographic data layers from 2020 TIGER/Line shapes for transportation and hydrography (https://www.census.gov/cgi-bin/geo/shapefiles/index.php)

Shaded relief from 2003 Onondaga County 3m, 2015 Madison and Otsego County 1m and NYS 10m DEM (http://gis.ny.gov/elevation/index.cfm)

Magnetic declination from the NOAA online Declination Calculator: http://www.ngdc.noaa.gov/geomag-web/#declination

SCALE 1:24,000

1 0.5 0 KILOMETERS 1 2
1000 500 0 METERS 1000 2000
1 0.5 0 1
MILES
1000 500 0 1000 2000 3000 4000 5000 6000 7000 8000 9000 10000
FEET

CONTOUR INTERVAL: 10 FEET

Geologic mapping by D. Pair, 1997
Digital data and cartography, J. Manchester and K. Backhaus, 2010 & 2021.

MN 12° 18' 217 MILS
GN 0° 47' 13 MILS

UTM GRID AND 2019 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

SURFICIAL GEOLOGY OF THE TULLY 7.5-MINUTE QUADRANGLE, CORTLAND AND ONONDAGA COUNTIES, NEW YORK

Donald L. Pair
2007

SURFICIAL GEOLOGY OF THE TULLY 7.5-MINUTE QUADRANGLE, CORTLAND AND ONONDAGA COUNTIES, NEW YORK

prepared by
Donald L. Pair, Karl J. Backhaus and Janet Manchester

Supported in part by the U.S Geological Survey Cooperative Agreement Number 01HQAAG0052
National Cooperative Geologic Mapping Program (STATEMAP)

DESCRIPTION OF MAP UNITS

Holocene

Ha — **Stratified silt, sand and gravel (Ha)**
Sorted and stratified silt, sand, and gravel, deposited by rivers and streams. May include cobbles and boulders. Inferred as post-glacial alluvium and includes modern channel, over-bank and fan deposits

Hw — **Wetland Deposit (Hw)**
Peat, muck, marl, silt, clay or sand deposited in association with wetland environments. Various sediments can be present at transitional boundaries from one facies to another

Pleistocene

Plsc — **Silt and Clay (Psc)**
Stratified, fine-grained sediment consisting of fine sand, silt and clay size particles. Inferred to be deposited in mid shore to deepwater settings of glacial lakes. May include marl, rythmites, and varves.

Pics — **Cobbles to Sand (Pics)**
Stratified ice contacted deposits, variable coarse-grained sediment consisting of boulders to sand size particles. Inferred to be deposited along an ice-margin. May include, interbedded coarse lenses of gravel and clast supported diamictons (flow tills).

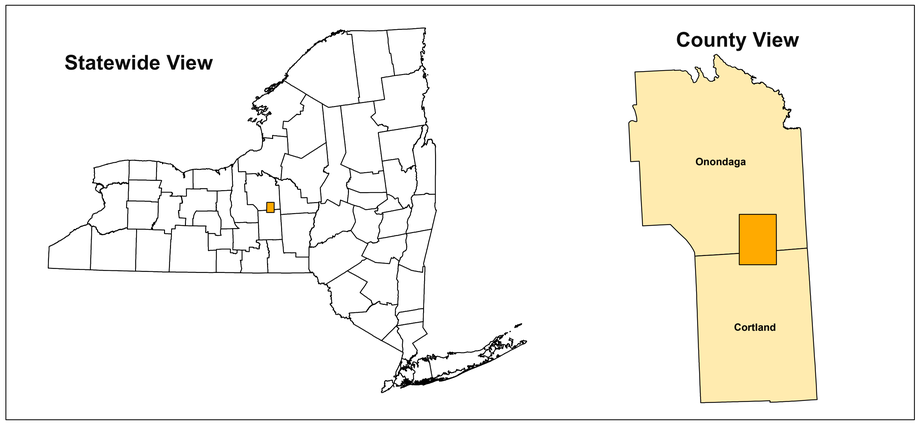
Psg — **Stratified sand and gravel (Psg)**
Well-sorted and stratified sand and gravel. May include cobbles and boulders. Inferred to be delta, fan or lag deposits in glacial channels or near former ice margins.

Pd — **Diamicton (Pd)**
An admixture of unsorted sediment ranging from clay to boulders. Generally matrix supported, massive and clast-rich.

Pre-Pleistocene

Br — **Bedrock (Br)**
Non-glacially derived, hard rock, pre-pleistocene in age. May be covered up to a meter in diamicton, sand and gravel, or sand and clay in areas marked as Br.

QUADRANGLE LOCATION



SYMBOLS

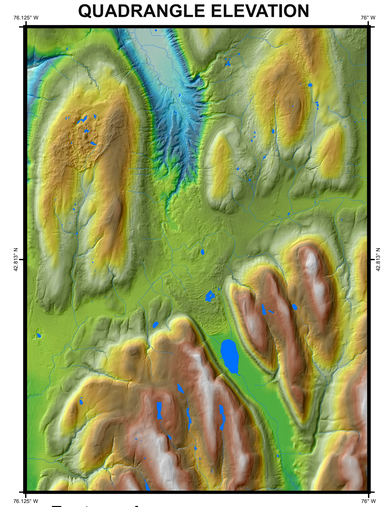
- Streets
- Highways
- Railroads
- Airport Runway
- County Lines
- Water Bodies
- Streams
- Contours
- NYSGS Borehole Location*
- NYSDEC Water Well Location
- NYSDOT Boring Location
- NYSDEC Oil & Gas Well Location

*Kozlowski, A.L., Bird, B. C., Lowell, T. V., Smith, C. A., Feranec, R. S., and Graham, B.L., 2018, Minimum age of the Mapleton, Tully, and Labrador Hollow moraines indicates correlation with the Port Huron Phase in central New York State, Geological Society of America, Special Papers, Vol. 530, pp. 191-216.

ADJOINING QUADRANGLES

South Onondaga	Jamesville	Oran
Otisco Valley	Tully	DeRuyter
Homer	Truxton	Cuyler

QUADRANGLE ELEVATION



Feet-amsl
740 2020

1:75,000 scale; 2x vertical exaggeration

Shaded relief generated from 2003 Onondaga County 3m and NYS 10m lidar data sets.

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