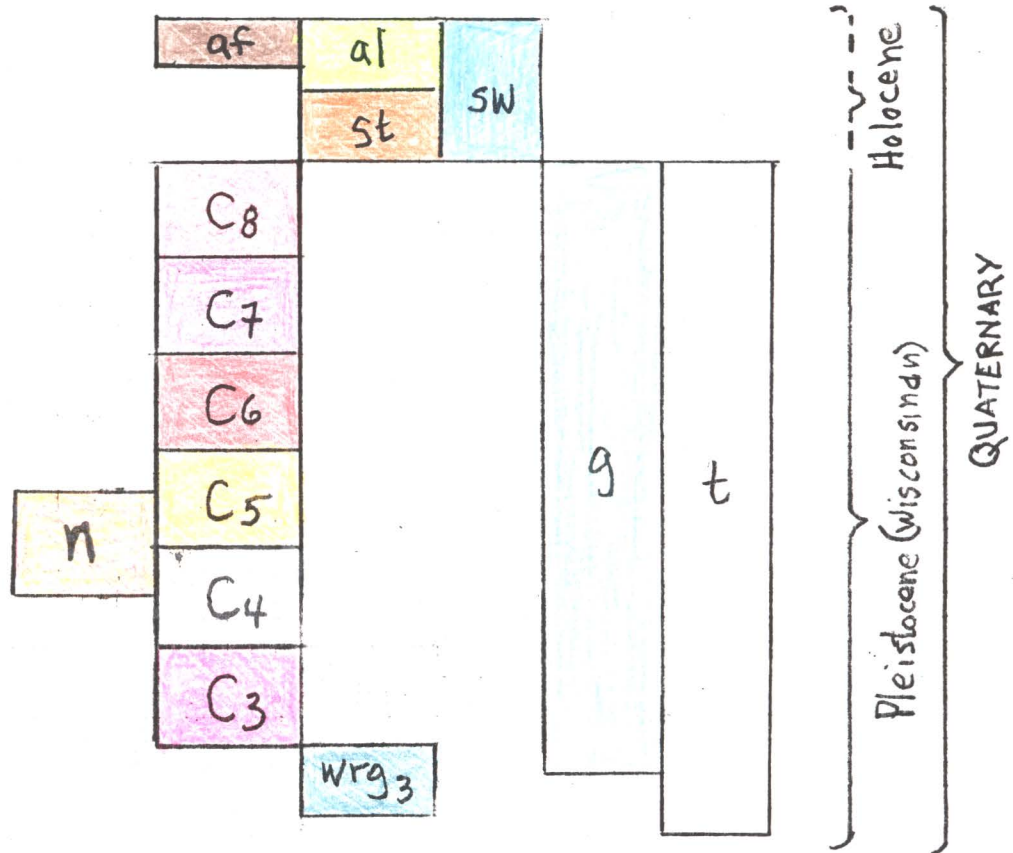


SURFICIAL GEOLOGY OF THE PETERBOROUGH NORTH QUADRANGLE, HILLSBOROUGH AND CHESHIRE COUNTIES, NEW HAMPSHIRE

CORRELATION OF MAP UNITS



By Carol T. Hildreth

SURFICIAL GEOLOGY OF THE PETERBOROUGH NORTH QUADRANGLE, HILLSBOROUGH AND CHESHIRE COUNTIES, NEW HAMPSHIRE

DESCRIPTION OF MAP UNITS

**(NOTE ALL UNITS ARE QUATERNARY IN AGE AND SYMBOLS NORMALLY WOULD
BE PRECEDED BY A "Q")**

(Mapped in 1993 and 1994)

A layer of windblown sand and silt, generally mixed with underlying glacial deposits, is present over much of the map area but is not shown.

NOTE: Correlation between isolated deposits and between map units is tentative

- af ARTIFICIAL CUT AND FILL--Manmade. Material of fill varies from natural sand and gravel to quarry wastes to sanitary landfill. Depth of cuts and thickness of fill variable.
- al ALLUVIUM (HOLOCENE)--Sand, silt, gravel and minor muck in flood plains along present rivers and streams. As much as 10 feet thick. Extent of alluvium indicates most areas flooded in the past which may be subject to future flooding. In places, indistinguishable from swamp deposits, sw.
- sw SWAMP DEPOSITS (HOLOCENE)--Muck, peat, silt, and sand. Generally 1 to 10 feet thick. In places, indistinguishable from alluvium, al.
- st STREAM-TERRACE DEPOSITS (HOLOCENE AND PLEISTOCENE)--Sand and gravel, generally on terraces cut into former glacial-lake or glacial-stream deposits. Formed in part during late-glacial time. From 1/2 to 25 feet thick.

GLACIAL-LAKE AND GLACIAL-STREAM DEPOSITS OF GLACIAL LAKE CONTOOCOOK (PLEISTOCENE)-- Sand, gravel, silt, and clay deposited in contact with or beyond adjacent ice, representing different stages of a glacial lake within the Contoocook River valley. Units c₈₋₆ are graded to an 820-840 foot channel carved in deposits of Unit c₅ at the east edge of the quadrangle in downtown Greenfield, whence meltwaters flowed eastward toward the Piscataquog River Valley. Units c₅ and c₄ are graded partly to a gap in the hills just east of the quadrangle at 860-880 feet elevation, whence the glacial meltwaters flowed eastward into the Greenfield area (then south through a 840-860 foot elevation bedrock-floored divide near Russell), and partly directly to that divide near Russell. Unit c₃ deposits are graded to a 940-960 foot elevation un-named bedrock gorge (contains a plunge pool) in the Greenfield quadrangle, just east of this quadrangle, whence the glacial meltwater flowed eastward into Russell thence southward down Stony Brook. [Units c₁₊₂ are found south of this quadrangle.]

- c₈ Ice-channel filling, kame-terrace, kame-delta and lake-bottom deposits; as much as 100 feet thick.
- c₇ Ice-channel filling, kame-delta, kame-terrace and lake-bottom deposits; as much as 90 feet thick.
- c₆ Ice-channel filling, kame-terrace, kame-delta and lake-bottom deposits; as much as 130 feet thick.
- c₅ Ice-channel filling, kame-terrace, kame-delta and lake-bottom deposits; as much as 100 feet thick.
- c₄ Ice-channel filling, kame-terrace, kame-delta and lake-bottom deposits ; as much as 80 feet thick.
- c₃ Ice-channel filling, kame-terrace, kame-delta and lake-bottom deposits; as much as 60 feet thick.

GLACIAL-STREAM AND GLACIAL-LAKE DEPOSITS IN THE UPPER NUBANUSIT RIVER BASIN--Sand, gravel, silt and clay deposited in contact with or beyond adjacent ice. Unit n was graded to approximately 950 elevation at the south end of of Halfmoon Pond basin, where the Nubanusit Brook passes under a road just above McDowell Reservoir.

n Outwash and lake-bottom deposits; as much as 35 feet thick.

GLACIAL-STREAM AND GLACIAL-LAKE DEPOSITS ALONG THE WEST EDGE OF THE WAPACK RANGE (PLEISTOCENE)--Sand, gravel, and minor silt deposited in contact with or beyond adjacent ice. Unit wrg₃ was graded over ice to 1060-1080 foot elevation. [Units wrg₁₊₂ are in the Peterborough South quadrangle.]

wrg₃ Kame-terrace and/or kame-delta deposits; as much as 30 feet thick.

g **UNCORRELATED GLACIAL-STREAM AND GLACIAL-LAKE DEPOSITS (PLEISTOCENE)--Mixed sand, gravel, and minor silt and clay in isolated deposits not correlated with other sorted materials; as much as 15 feet thick.**

t **TILL (PLEISTOCENE)--Light- to dark-gray, nonsorted to poorly sorted mixture of clay, silt, sand, pebbles, cobbles, and boulders; contains some gravel. Thickness varies but generally is less than 20 feet. May be more than 50 feet under the crests of drumlins.**

BEDROCK EXPOSURES--Individual outcrops not shown completely. Ruled pattern indicates areas of abundant exposures and areas where surficial deposits are less than 10 feet thick. Extent of ruled pattern mapped in part from aerial photos and in part from Soils Survey (Handler, 1982; Rosenberg, 1985; and Simmons, 1953).

MATERIALS OBSERVATIONS--Surficial materials in exposures, well holes, and test holes. Letters indicated texture in decreasing order of abundance. Number indicates thickness in feet.

- b boulder
- c cobble
- p pebble
- s sand (as separate beds; not including sand in matrix of gravel)
- § silt
- ¢ clay
- t till
- st sandy till
- st silty till

WELL-HOLE AND TEST-HOLE DATA--Materials for some holes described. Approximately located from computer printout from US Geological Survey Water Resources Division data file, Bow, N.H., 1993.





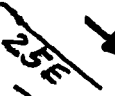


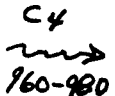
140 SP
50±

● Well or test hole that reached bedrock or refusal at depth indicated (in feet below surface).

○ 103 Well or test hole that did not reach bedrock or refusal. Depth reached indicated (in feet).

TEXTURE OF STRATIFIED DEPOSITS --Indicated to a depth of at least 3 feet.

| | |
|--|--------------------------|
| | Pebble to boulder gravel |
| | Mixed sand and gravel |
| | Sand and minor silt |
| | Silt, sand and clay |

-  Borrow pit (small)
-  Borrow pit (small) - abandoned
-  Borrow pit (large) or cut bank
-  Direction of dip of delta foresets
-  Glacial striations. Point of observation is at southern end of line.
-  Glacial groove. Point of observation is at south end of line.
-  Drumlin form (indicates general direction of glacial ice movement)
-  Threshold to which designated glacial deposits are graded. Number gives approximate elevation in feet.

REFERENCES:

Greene, R.C., 1970, The geology of the Peterborough quadrangle, New Hampshire: New Hampshire Dept. Res. and Econ. Dev. Bull. 4, 88 p., scale 1:62,500.

Handler, J.F., 1982, Soil survey of Hillsborough County New Hampshire, western part: U.S. Soil Conservation Service Pub., 141 p., 32 plates.

Hildreth, C.T., (mapped in 1991), Surficial geology of the Greenfield quadrangle, Hillsborough County, New Hampshire: New Hampshire Dept. Res. and Econ. Dev. Open-file Rept., scale 1:24,000.

Hildreth, C.T., (mapped in 1992) Surficial geology of the Peterborough South quadrangle, Hillsborough and Cheshire Counties, New Hampshire: New Hampshire Dept. Res. and Econ. Dev. Open-file Rept., scale 1:24,000.

Rosenberg, G.L., 1985, Soil Survey of Cheshire County, New Hampshire: U.S. Soil Conservation Service Pub., 262 p., 48 plates.

Simmons, C.S., 1953, Soil Survey of Hillsborough County, New Hampshire: U.S. Dept. Agriculture Soil Conservation Service Series 1940, No. 13, 113 p., map scale 1:63,360.