

Houlton North Quadrangle, Maine

Surficial materials mapping by
Daniel B. Locke

Digital cartography by:
Michael E. Foley

Robert G. Marvinney
State Geologist

Cartographic design and editing by:
Robert D. Tucker

Funding for the preparation of this map was provided in part by the
U. S. Geological Survey.



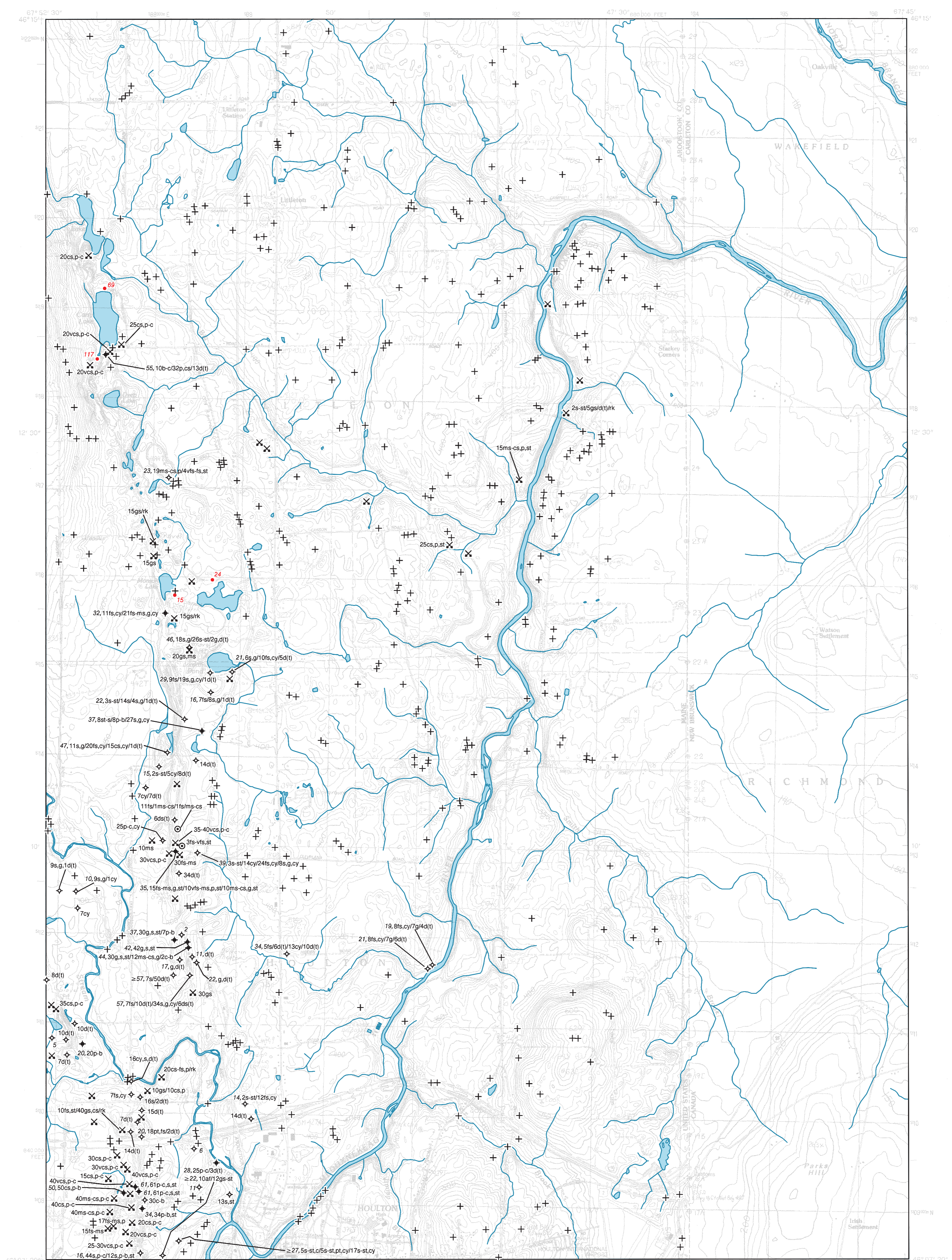
Maine Geological Survey

Address: 22 State House Station, Augusta, Maine 04333
Telephone: 207-287-2801 E-mail: mgs@maine.gov
Home page: http://www.maine.gov/doc/nrmc/nrmc.htm

Open-File No. 01-97

2001

Surficial Materials



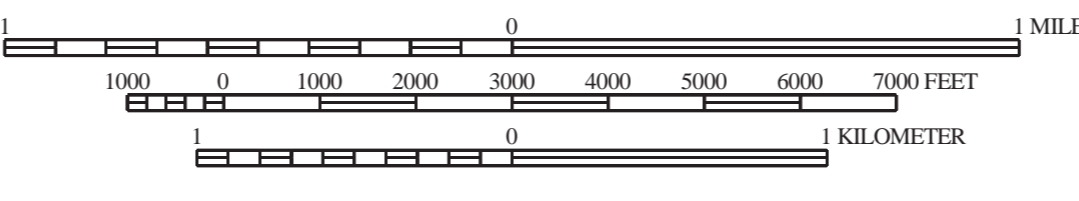
SOURCES OF INFORMATION

Materials mapping by Daniel B. Locke completed during the 1992 field season. Supplemental materials data were collected by Maine Geological Survey field assistants during the 1992 field season. Additional materials data sources include, but are not limited to, municipal water company records, U.S. Geological Survey Basic-Data Reports, Maine Geological Survey bedrock well database and published bedrock geology maps, Maine Department of Environmental Protection site files, Maine Department of Transportation highway construction records, and the Maine Department of Human Services public water-supply well database.



Quadrangle Location

SCALE 1 : 24,000



CONTOUR INTERVAL 10 FEET



Topographic base from U.S. Geological Survey Houlton North quadrangle, scale 1:24,000 using standard U.S. Geological Survey topographic map symbols.

The use of industry, firm, or local government names on this map is for location purposes only and does not implicate responsibility for any present or potential effects on the natural resources.

This map shows the textures of surficial sediments in the quadrangle, independent of interpretations regarding their origin. For example, poorly sorted sediments deposited directly from glacial ice are shown here as "diamiction," although they may be genetically classified as "till."

The symbols listed below indicate materials observed in borrow pits and other surface exposures, as well as subsurface data from various sources. Where more than one textural class is present, materials are separated by commas and listed in decreasing order of abundance (e.g. s, st, cy). Individual materials may occur in distinct layers, or they may be mixed. Hyphens show the ranges of particle sizes present where their relative abundances are uncertain (e.g. st-c). Slash marks indicate superposition of materials; thicknesses are in feet (e.g. 10s/5cy). "Σ" indicates a significant stratigraphic sequence of interbedded materials. Some borrow pits and other localities may be designated by numbers that refer to descriptions in the quadrangle text. Not all symbols will necessarily be found on the map.

GRAVEL **g** Undifferentiated gravel, used as a general term. Can be subdivided by size as follows:

- b** Boulder gravel >256 mm (10")
- c** Cobble gravel 64-256 mm (2.5-10")
- p** Pebble gravel 2-64 mm (0.1-2.5")

MIXED UNITS **gs** Gravely sand (this is a special case for sand with lesser amounts of intermixed gravel, i.e. pebbly sand, cobbly sand, or bouldery sand)

sg Sand and gravel (used only to describe slumped face or other site where relative abundances of sand vs. gravel are unknown)

SAND **s** Undifferentiated sand, used as a general term. Can be subdivided by size as follows:

- vcs** Very coarse sand (1-2 mm)
- cs** Coarse sand (0.5-1 mm)
- ms** Medium sand (0.25-0.5 mm)
- fs** Fine sand (0.125-0.25 mm)
- vfs** Very fine sand (0.0625-0.125 mm)

SILT **st** Silt (0.002-0.0625 mm)

CLAY **cy** Clay (<0.002 mm)

DIAMICTION **d** Undifferentiated diamiction (poorly-sorted sediment in which particle sizes may range from clay to boulders). Used as a general term or subdivided as follows:

- dg** Gravely-matrix diamiction
- ds** Sandy-matrix diamiction
- dt** Silty-matrix diamiction
- dy** Clayey-matrix diamiction

Note: Diamictions of glacial origin may be classified as one of the following varieties of till (shown on the map in parentheses):

- t** Till, undifferentiated. Usually of late Wisconsinan age (deposited by the last glacial ice sheet).
- ta** Ablation till. Deposited during retreat of the late Wisconsinan ice sheet. Typically sandy, stony, and not very compact.
- tl** Lodgement till. Inferred to have been deposited at the base of the late Wisconsinan ice sheet. Usually very compact.
- tf** Flowtill. Deposited by slumping adjacent to glacial ice.
- T** Variably weathered till (usually a lodgment facies) of inferred pre-late Wisconsinan age.

ORGANIC MATERIALS **og** Organic-rich sediment (can be any organic material, including forest litter, wood, shells, etc.)

pt Peat (reserved for actual fibrous peat)

OTHER MATERIALS **af** Artificial fill (e.g. road fills, building sites, dumps)

bd Scattered boulders; interpreted as till where followed by (t)

rk Bedrock (observed in pit floor, boring, or natural exposure)

rs Rottenstone, disintegrated or weathered bedrock, saprolite.

u Unknown (material unidentified)

R Refusal (in test boring or well)

(f) Fossiliferous (used to indicate fossiliferous units within a sequence).

8s-b Materials data from shovel hole, hand-auger hole, natural exposure, or excavation (other than borrow pit).

56 Depth to bedrock from well (Σ is used to indicate minimum depth to bedrock), in feet below land surface

• Bedrock well

⊖ Drilled overburden well

■ Dug well

↓ Driven point

◆ 20fs,st Observation well with materials data

◆ 10gs/rk Test boring with materials data

⊗ 8s-b Borrow pit, recently active at time of mapping, with materials data.

⊗ 8s-p Borrow pit, evidently abandoned or in long disuse at time of mapping, with materials data.

⊗ Quarry

⊗ Location of site for which a data sheet is on file at the Maine Geological Survey.

• 56 Depth to bedrock from seismic line, in feet below land surface

⊕ Bedrock outcrop

OTHER SOURCES OF INFORMATION

- Brewer, T., 1981, Reconnaissance surficial geology of the Houlton North 15' quadrangle, Maine: Maine Geological Survey, Open-File Map 01-97.
- Neil, C. D., and Locke, D. B. (compilers), 2001, Significant sand and gravel aquifers in the Houlton North quadrangle, Maine: Maine Geological Survey, Open-File Map 01-96.
- Thompson, W. B., 1979, Surficial geology handbook for coastal Maine: Maine Geological Survey, 68p. (out of print)
- Thompson, W. B., and Borns, H. W., Jr., 1985, Surficial geologic map of Maine: Maine Geological Survey, scale 1:500,000.