



GOVERNMENT OF
NEWFOUNDLAND AND LABRADOR
Department of Mines and Energy

Surficial Geology of the Stephenville and Bay of Islands Map Areas (NTS 12B and 12G)

Map 93 - 80

LEGEND

- Exposed bedrock:** exposed bedrock with little or no sediment or vegetation cover; patches of till and other surficial sediment present but rare; topography and relief variable, and bedrock controlled.
- Concealed bedrock:** bedrock, mainly concealed by vegetation; patches of till, sand and gravel, and bog (usually less than 1.5 m thick) and exposed bedrock are common, but form less than 50 percent of the unit.
- Till veneer:** thin (< 1.5 m) discontinuous sheet of diamicton (poorly sorted sediment containing a mixture of grain-sizes from clay to boulders) overlying bedrock; patches of exposed bedrock, and thicker sediment cover common; diamicton generally contains from 20 percent to 90 percent matrix (sand size or finer), and 80 percent to 10 percent clasts (greater than sand size); matrices generally dominated by sand with less than 20 percent silt and clay; maximum clast sizes 1 to 2 m diameter, but clasts mostly granules (0.2 to 0.4 cm diameter) and pebbles (0.4 to 6.4 cm diameter); relief and topography variable, and bedrock controlled.
- Till blanket:** continuous diamicton cover with either a smooth or channeled surface topography between 1.5 and 15 m thick; diamicton of similar composition to Unit 3 (till veneer); where channeled, sand and gravel are common at the surface within channels; channeled areas form when a till blanket has been eroded by glacial meltwater; smooth areas are either directly basally deposited by ice, or are pre-last glacial surfaces that have had topography smoothed by periglacial processes
- Hummocky terrain:** a blanket of diamicton or sand and gravel, 1.5 to 15 m thick, having irregular hummocky topography and relief of 2 to 10 m; hummocks are mainly composed of diamicton, but some contain poorly sorted sand and gravel; diamicton is of similar composition to Unit 3 (till veneer); bog is commonly found in low areas between hummocks; this unit was mainly deposited by ice disintegration and stagnation during deglaciation.
- Ridged till:** a blanket of diamicton, 1.5 to 20 m thick, with a topography consisting of streamlined elongate ridges 1.5 to 20 m high, and 0.2 to 5 km long (flutings, drumlins and crag-and-tail landforms); some examples are composed mainly of sand and gravel, or bedrock; where composed of diamicton, it is of similar composition to Unit 3 (till veneer); this unit is thought to have been deposited under actively flowing ice, with the long axis of ridges paralleling ice flow.
- Glaciofluvial gravel and sand:** poorly to well sorted gravel and sand, 1.5 to 80 m thick, with a diverse surface topography; gravel is pebble to cobble sized, and forms 50 to 95 percent of the sediment; incorporated into this unit are eskers (sinuous elongate ridges 3 to 15 m high, and up to 10 km long); kames (moderate to steep sided mounds 3 to 30 m high), kame terraces (terraces along valley sides, 3 to 20 m thick, and up to 10 km long); outwash plains (plains with low relief, and a channeled surface, 3 to 50 m thick, and up to 20 km long), and deltas (fan shaped mounds, up to 80 m thick and 2 km diameter).
- Marine clay, sand, gravel and diamicton:** this unit consists of a wide range of sediment types, deposited in a marine or glaciomarine environment; moderately to well sorted gravel and sand, up to 10 m thick, is found in marine terraces and raised beaches; diamicton is the main sediment type in raised ice-proximal glaciomarine deposits that form low relief plains; diamicton is of similar composition to Unit 3 (till veneer) with a higher proportion of silt and clay in the matrix; well sorted clay and silt is found in raised ice-distal glaciomarine deposits, which form low relief plains; all these sediments have been raised to their present elevation by isostatic rebound, resulting in relative sea level fall following deglaciation
- Alluvium:** low relief plains with channeled surfaces close to modern rivers, consisting of moderate to well sorted gravel, sand, silt and clay, deposited in modern river systems.
- Colluvium:** a mixture of rock debris and unconsolidated sediment deposited by mass movement and slope failure and forming aprons at the base of steep slopes.
- Bog:** accumulations of degraded organic matter deposited in poorly drained low lying areas.

This legend was developed in preparation of the 1:500 000 surficial map of the island of Newfoundland, and is designed to accommodate the common elements of legends of existing 1:50 000 maps with minimal modification. Sizes and thicknesses refer to the entire open file rather than this specific map. Each unit represents the dominant surficial sediment cover for the area assigned to it. In practice, most areas are covered by a mixture of sediment types, but are mainly composed of the type designated in the legend. For example, an area mapped as hummocky terrain will consist mainly of hummocky terrain, but will include minor areas of ridged till, till veneer, concealed bedrock, and bog. For more detailed information, users should consult appropriate 1:50 000 maps. Users are cautioned that this map is based mainly on aerial photograph interpretation without extensive ground truthing.

Recommended Citation:

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SOURCES

The map was compiled from the following sources:

- Grant, D.R.
1974: Surficial geology, NTS 12G/8. Geological Survey of Canada Open File 244. Scale 1:50 000.
- 1986: Surficial geology, Sandy Lake, Newfoundland. Geological Survey of Canada map 1664A. Scale 1:250 000.
- 1991: Surficial geology, Stephenville-Port aux Basques, Newfoundland. Geological Survey of Canada map 1737A. Scale 1:250 000.
- Kirby, F.T., Ricketts, R.J., and Vanderveer, D.G.
1989: Selected geomorphological maps of Newfoundland. Government of Newfoundland and Labrador, Department of Mines and Energy, Geological Survey Open File NFLD (1693). 121 maps, scale 1:50 000.
- Vanderveer, D.G.
1977: Surficial and glacial geology; and gravel resource inventory of southwestern Newfoundland. Government of Newfoundland and Labrador, Department of Mines and Energy, Geological Survey Open File NFLD (959). Scale 1:50 000.
- 1987: Landform classification maps covering NTS 12B/7,9,10,11 and 12A/13. Government of Newfoundland and Labrador, Department of Mines and Energy, Geological Survey Open File NFLD (1576). Scale 1:50 000.

Additional original aerial photograph interpretation, to resolve legend differences and boundary disputes, by David Liverman.

Digital map preparation by Pauline Honarvar and Peter Bruce.

This map is subject to review and revision. Comments concerning errors or omissions are invited and initially should be addressed to the Assistant Deputy Minister, Geological Survey Branch, Department of Mines and Energy, P.O. Box 8700, St. John's, Newfoundland, A1B 4J6.

Copies of this map may be obtained from the Publications and Information Section, Department of Mines and Energy, P.O. Box 8700, St. John's, Newfoundland, A1B 4J6.

