
 GOVERNMENT OF
 NEWFOUNDLAND AND LABRADOR
 Department of Mines and Energy
 Geological Survey Branch

SURFICIAL GEOLOGY

OF THE
 ST. JOHN'S AND TREPASSEY
 MAP AREAS (NTS 1N AND 1K)
 Map 94-230

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 diamiction (poorly sorted sediment containing a mixture of grain-sizes from clay to boulders) overlying bedrock; patches of exposed bedrock, and thicker sediment cover common; diamiction generally contains from 20 percent to 80 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 diamiction cover with either a smooth or channelled surface topography between 1.5 and 15 m thick, diamiction of similar composition to Unit 3 (till veneer); where channelled, sand and gravel are common at the surface within channels; channelled 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 diamiction 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 diamiction, but some contain poorly sorted sand and gravel; diamiction 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 diamiction, 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 diamiction, 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 channelled 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 diamiction:** 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; diamiction is the main sediment type in raised ice-proximal glaciomarine deposits that form low relief plains; diamiction 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 channelled 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.

REFERENCE LIST

The sources of map information used in the compilation are listed below.

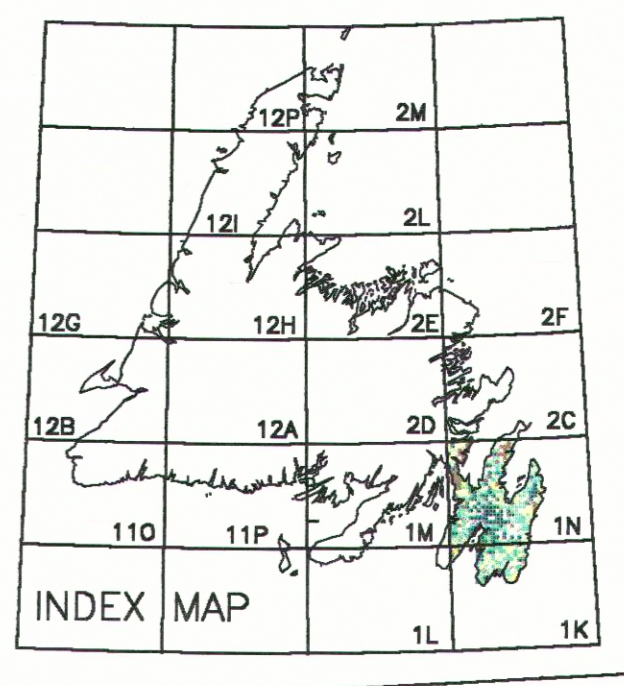
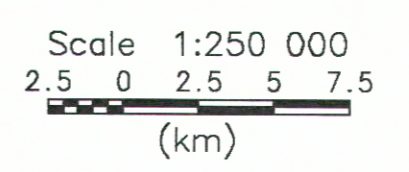
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In some cases additional aerial photograph interpretation was made to resolve boundary disputes and to accommodate differences in legends.
 Digital map preparation by Pauline Honarar and Peter Bruce.

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.



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 Liverman, D., and Taylor, D. 1994: Surficial Geology of the St. John's (NTS 1N) and Trepassey (NTS 1K) Map Areas. Government of Newfoundland and Labrador, Department of Mines and Energy, Geological Survey Open File NFLD (2422), Map 94-230, Scale 1:250 000.