

**SURFICIAL GEOLOGY  
 NORTHEASTERN MANITOBA**

**SURFICIAL DEPOSITS  
 QUATERNARY**

**POSTGLACIAL ENVIRONMENT**

- 7 **ORGANIC DEPOSITS:** lichen-moss, sedge, and woody peat; 1.5 to 3 m thick; may occur at or up to 3 m above the water table; includes both bog peat and fen peat. It should be noted that a veneer of peat (<1m) mantles most deposits.
- 6 **ALLUVIAL DEPOSITS:** sand, silt, and rounded gravel, commonly terraced; thickness ranges from a thin veneer up to 30 m; deposited by streams within active drainage systems since the retreat of the sea, proglacial lakes, or glacial ice; includes floodplains, spits, point bars, and deltas.

**POSTGLACIAL AND GLACIAL ENVIRONMENT**

**MARINE/GLACIOMARINE DEPOSITS:** well sorted, stratified sand to stony silt deposited in the Tyrrell Sea, and glacial deposits modified by marine processes during offlap.

- 5b **Nearshore sediments:** well sorted sand, silt, and gravel; up to 3 m thick; occurs as a series of ridges in the form of beaches, bars, spits, and ice-pushed ridges, or as a flat plain.
- 5a **Offshore sediments:** poorly sorted clayey silt, stony silt, and sand with pockets of nearshore sand and gravel and windblown sand; thickness up to 2 m near marine limit and increasing towards Hudson Bay to a maximum of 7 m; may contain marine fossils and is commonly overlain by organic materials; probably a till plain levelled by filling of depressions and planation by wave action.

**LACUSTRINE/GLACIOLACUSTRINE DEPOSITS:** massive to bedded silt-clay with granules, overlain by a veneer of sand; deposited in glacial Lake Agassiz. Where deposits are thin, they mirror the underlying glacial and bedrock structures, and where thick, they form a flat plain.

- 4b **Nearshore sediments:** well sorted sand and gravel; occurs as a ridge or series of ridges with 1 to 4 m of relief; includes beaches, bars, spits, and ice-pushed ridges.
- 4a **Offshore sediments:** well sorted clay, silt, and sand; thickness ranges from a thin veneer up to 20 m; surface characterized by iceberg scours and extensive areas of peat.

**GLACIAL ENVIRONMENT**

**GLACIOFLUVIAL DEPOSITS:** water sorted, stratified sand and gravelly sand deposited in, around, or near a glacier, largely as a result of meltwater flow.

- 3 **Outwash sediments:** well rounded, cross-stratified sands and gravels, 3 to 20 m thick, characterized by braided channels and kettle depressions; occurs in the bottom of subglacial and proglacial meltwater channels; surfaces are commonly terraced and hummocky.
- 2 **Ice contact stratified drift:** well sorted, poorly stratified sand and gravel kame deposits, 10 to 30 m high, stratified sand and minor gravel esker deposits, 5 to 20 m high, and recessional, end, and interlobate moraines; kames occur as irregular mounds flanking eskers; eskers occur as elongate ridges, generally parallel to the direction of ice movement; surface of features in many areas reworked by lacustrine and/or marine processes and locally overlain by beach deposits.

**GLACIAL DEPOSITS (TILL):** poorly sorted debris deposited at the front of or beneath glaciers or under ice shelves; generally silty and highly calcareous, deposited by an ice mass flowing southwestward from a centre over Hudson Bay basin or Labrador-Ungava; may be locally overlain by lacustrine silt and clay.

- 1b **Till blanket:** silty to sandy, 1 to 10 m thick; masks most of the bedrock features; surface features include drumlins, flutings, ribbed moraine, and hummocks.
- 1a **Till veneer:** silty, usually less than 1 m thick, interspersed with areas of thicker till, bedrock, marine, or lacustrine sediments; surface reflects the underlying bedrock structure.

**BEDROCK  
 PRE-QUATERNARY**

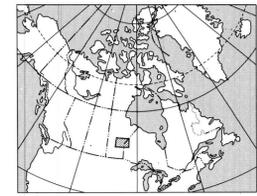
R **Precambrian rock:** largely massive granitic and gneissic rock with isolated bands of volcanic rock.

- geological boundary
- x small bedrock outcrop
- ↖ striae (ice flow direction known, unknown)
- ↔ crossed striae (1 = oldest)
- ⌊ drumlin
- ⌊ fluting
- ↖ crag and tail (direction of ice flow known)
- ⌊ ribbed moraine
- ↖ esker (direction of flow known, unknown)
- ⌊ meltwater channel (large, small)
- ⌊ beach ridge
- ⌊ trimline or terrace slope break
- Tyrrell Sea limit

Geology by M.D. Clarke, 1986-1989

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 SURFICIAL GEOLOGY  
 NORTHEASTERN MANITOBA**

Scale 1:500 000 - Échelle 1/500 000  
 Kilometres 10 0 10 20 30 40 Kilometres



Energy, Mines and Resources Canada  
 Énergie, Mines et Ressources Canada

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Manitoba Energy and Mines

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