



DISTRICT OF KEEWATIN

NORTHWEST TERRITORIES

Scale 1:125 000 - Échelle 1/125 000 Kilometres 2 0 2 4 6 8 10 Kilomètres

Universal Transverse Mercator Projection Projection transverse universelle de Mercator

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LEGEND

Surface generally covered by fibrous peat on which mosses, sedges, and grasses grow. Surface characterized by frost polygons and thaw ponds related to vertical ice wedges extending to a depth of 2 to 3 m.

Surface characterized by sparse vegetation and

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Characterized in places by a surface mottled pattern resulting from periglacial processes or gullying by streams or tidal currents.

Difficult to differentiate on airphotos from units Tp and Ts. Surface vegetation is dominantly shrubs in turf circles around mudboils. Striped pattern (Ms) consists of dark and light stripes, 10 to 20 m wide, running downslope, and reflects vegetation differences. Mottled pattern (Mm) due to shrub- and mudboil-covered mounds, 5 to 10 m in diameter and less than 0.5 m high, surrounded by light coloured grass-sedge vegetation; likely has high ground ice content.

Many eskers are beaded or interrupted at irregular intervals by major bulges marking positions where deltaic or subaqueous fan deposition occurred during periods of slowed ice retreat.

Surface characterized by 1-2 m diameter patches of bare or lichen-covered mud (mudboils) surrounded by elevated peaty rings on which

grow shrubs, mosses, and grasses. At lake margins characterized by cobble-covered, 2 m wide ribs separated by 2 m wide boulder-filled troughs, generally trending downslope to a water depth of about 2 m. Striped pattern (Ts) thought to be due to solifluction of clay-rich till.

section with steep side facing down-ice; trains of ribs pass laterally into drumlin fields and may be drumlinized in the transition zone. Surfaces have sparse vegetation and generally a heavy cover of large boulders and mudboils where composed of till, and marked by frost cracks where composed of gravel.

Extensive areas are present in the region of the Keewatin Ice Divide and in some places adjacent to areas of ribbed moraine (Tr). Exact origin unknown; may have formed in association with

stagnant ice and in some places from erosion of till surfaces by streams in anastomosing

meltwater channels. Vegetation and periglacial features similar to those on till plain (Tp).

Vegetation sparse, surface may be glacially rounded or covered by felsenmeer.

Sparsely vegetated.

Note: some map units and symbols shown in the legend may not appear on this map SURFICIAL GEOLOGY

SURFICIAL DEPOSITS QUATERNARY

ALLUVIAL DEPOSITS: stream deposited material within modern active drainage systems; "modern" is defined as the period since retreat of the sea, proglacial lakes, or glacial

Ac Alluvium: silt, sand, and gravel deposited in channels and on floodplains; may include alluvium in terraces which formed as streams cut to present level in glacial and marine sedimentary fill.

Ad Deltaic sediments: sand, gravel, and boulders deposited where modern streams enter lakes or Hudson Bay. Alluvium and marine sand or silt, undifferentiated; occurs as flat areas consisting

of modern alluvium mixed with silt and sand that were washed from slopes by wave action or deposited in the sea by meltwater streams. Alluvium and outwash gravel, undifferentiated: occurs as flat areas in stream valleys or abandoned channels above marine

LACUSTRINE DEPOSITS: materials deposited in glacial lakes ponded on the western side of the Keewatin Ice Divide, and glacial deposits modified by lacustrine

Nearshore sediments: generally well sorted sand, gravel, cobbles, or boulders deposited as beaches, bars, spits, and ice-pushed ridges.

Surface characterized by sparse vegetation and orthogonal frost cracks. Deltaic sediments: sand, pebbly sand, and gravel deposited in glacial lakes by glacial or nonglacial streams and subsequently abandoned as glacial lakes drained.

MARINE DEPOSITS: materials deposited in the Tyrrell Sea and glacial deposits modified by

Deltaic sediments: sand, pebbly sand, and gravel deposited in the Tyrrell Sea by glacial or nonglacial streams. Nearshore sediments: generally well sorted sand, gravel, cobbles, or boulders deposited as beaches, bars, spits, and ice-pushed ridges.

Offlap sediments: thin sheet of sand deposited by a migrating shoreline; probably a lag developed by wave reworking of marine clayey sand or silty sand or glacial till

Mq
Offshore sediments: clay, silt and silty sand deposited in a deep water environment; may occur anywhere below marine limit but distribution is patchy above 60 m a.s.l.; thickest deposits generally occur in major river valleys or valleys with major eskers.
Ms, prominent striped pattern on airphotos.
Mm, mottled pattern on airphotos.

GLACIOFLUVIAL DEPOSITS: water-sorted sediments deposited in, around, or near a glacier, largely as a result of meltwater flow. Gk Ice contact stratified drift: sand and gravel deposited near ice margins in, over, or around ice or in ice tunnels, commonly as eskers but includes isolated hummocky deposits of uncertain origin

uncertain origin. Outwash: sand, gravel, and silt with terraced, hummocky, and kettled surfaces.
Go, sand and gravel deposited by subaerial meltwater streams in areas above local sea level or level of proglacial lakes; includes 1) sediment deposited between the esker ridge and valleysides, commonly over stagnant ice that forms temporary floor, 2) outwash fans, 3) outwash plains, and 4) materials on the floor or at the mouth of meltwater channels.
Gq, silt, sand, and fine gravel; distal fine sediment debouching from the subaqueous mouth of an ice tunnel; material settled preferentially in depressions between the esker ridge and valleysides.

Vegetation is commonly sedge, grass, and moss growing on thin, fibrous peat. Surface characterized by thaw ponds and tundra polygons. Difficult to differentiate from the state of the second s Disintegration moraine: till, sand, and gravel, undifferentiated; occurs as short ridges or hummocks, probably deposited in holes and crevasses in stagnant ice; ridge orientation may form a reticulate pattern. Sparsely vegetated. Periglacial features vary from mudboils in till to frost cracks in sorted

TILL DEPOSITS: Poorly sorted sediments with distinctive forms deposited directly by glacial Till plain: generally sandy, silty, noncalcareous grey till; includes areas of clayrich red till.
Ts, prominent striped pattern on airphotos.

Ribbed (Rogen) moraine: generally bouldery till, in places sand and gravel, forming hummocks and straight to sinuous ridges, generally less than 1 km long and 2 to 10 m high; ridges generally oriented at right angles and form trains parallel to direction of ice flow.

Th Hummocky till: till without significant boulder cover occurring as low, rounded hummocks; includes ridges of till that are minor end moraines or erosion remnants between subparallel meltwater channels. Till and marine silt, undifferentiated: till-cored landforms blanketed by marine sediments or marine deposits in depressions among till landforms.

ROCK PRE-QUATERNARY Precambrian intrusive igneous and metamorphic rocks, red volcanic rocks, and unmetamorphosed sediments.

Surface comprises more than 80% outcrop.

R/T R/Tr R/AM B/Ag
Surface comprises 20 to 80% outcrop, or bedrock is mantled with an average of less than 1 m of the surficial deposit indicated.

Geological boundary Small bedrock outcrop Drumlin or fluting Crag and tail (direction of ice flow known) Glacial striae (direction of ice movement known, unknown) location of measurement at centre of staff; older striation drawn with broken staff Linear feature related to ice flow Trend of ribbed or minor moraine ridges . De Geer moraines; straight, approximately 2 m high end moraine ridges built parallel to an ice front; possibly deposited annually by

flowing ice submerged in a sea or lake . Hummocky moraine Esker; projected beneath water surfaces where known. Meltwater channel; steep-sided channel commonly cut in bedrock or till Limit of marine submergence Trend of nearshore ridges originating as beaches, bars, and ice-shoved ridges

Escarpment; generally in unconsolidated sediments . Area of ridges formed by pack-ice shove Permanently drained postglacial lake basin; may include deposits of silty sediment with up to 15% organic carbon. Turbid lake; contains continual load of suspended sediment during ice-free periods; rarely occurs above marine limit and indicates instability or alteration of the active layer due to wave washing or solifluction

Eolian deposits; commonly formed where ice shove or bank failures have disrupted the vegetation mat over alluvial sand Radiocarbon date

> Geology by J.M. Aylsworth and M.D. Clarke, based on airphoto interpretation (Striae measurements by J.G. Fyles, R.C. Shields, and J.A. Fraser, 1954)

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Any revisions or additional geological information known to the user would be welcomed by the Geological Survey of Canada

Base map, enlarged from 1:250 000 scale, published by the Surveys and Mapping Branch in 1966

Copies of the topographical edition of this map may be obtained from the Canada Map Office, Department of Energy, Mines and Resources, Ottawa K1A 0E9

Mean magnetic declination 1989, 12°39' East, decreasing 21.8' annually. Readings vary from 10°26' in the SE corner to 14°57' in the NW corner of the map area Elevations in feet above mean sea level

DESCRIPTIVE NOTES

During deglaciation the ice front retreated eastward towards the Keewatin Ice Divide, damming a large glacial lake in Thelon River valley and Beverly Lake basin. A series of high level shorelines records a maximum lake level of 220 m in the west, dropping to 210 m in the east of this map area; shorelines continued to lower as progressively lower, northward draining, outlets became ice free. When the ice dam was breached, marine waters inundated the basin to some undetermined depth. As it is impossible to differentiate between marine and lacustrine beaches in the absence of shells, and as shells were only found at one location, at 110 m, the elevation of 120 m was arbitrarily selected to separate the lower marine deposits from the higher lacustrine beaches.

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Aylsworth, J.M. 1989: Surficial geology, Dubawnt Lake, District of Keewatin, Northwest Territories; Geological Survey of Canada, Map 38-1989, scale 1:125 000

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