

LEGEND

Notes regarding compound units: For those compound units that contain veneers (e.g., Tv/R), only two possibilities have been mapped. Where veneers are observed as a minor component forming patches over another map unit, the "/r" is used to allow for representation of the underlying unit. Where veneers are interpreted to stratigraphically overlie a dominant surficial unit (e.g., Cv-Tb), the "-" is used to designate ubiquitous veneer cover overlying the primary unit.

In areas where the surficial units (other than veneers) form complex cover, the area is coloured according to the dominant cover and is labeled in descending order of cover, example Tb/R. The relation of these complex covers are shown with a symbol between the unit letters as follows: approximates 50% cover to each unit; / approximate 70% to 30%;

Example: Tb/R represents a cover are with an approximate ratio of 70% Tb and 30% R. In areas where the surficial units (including veneers) form stratigraphic relationships that have been observed in cross-section, the overlying unit is separated from the underlying unit by a hyphen (e.g., Gt-R); this applies to the uppermost two units only.

POST GLACIAL ENVIRONMENT

ORGANIC SEDIMENTS: Water-saturated organic sediments, commonly underlying

Eolian veneer: Thin (<1 m) or discontinuous sheets of well sorted, massive silt and sand deposited by wind.

Alluvium: Silt, sand and gravel deposited by streams either within channels or as overbank deposits. Deposits are usually stratified and moderately to well sorted, with the exception of some alluvial fan

ALLUVIAL PLAIN: Predominanty sands and gravels. May be locally overlain by or include lacustrine silt, clay and minor peat and organic silt deposited in abandoned channels and along floodplain margins. Typically forms plains within approximately 1 m of present stream level. Thicknesses from 1 to 5 m.

ALLUVIAL FAN: Gravel and gravelly diamicton, stratified, poorly to moderately sorted. Forms fan-shaped landforms where streams enter larger valleys. Thicknesses

GLACIAL LACUSTRINE SEDIMENTS: Stratified sand, silt and clay deposited during high-stand lake

Lacustrine plain: Well stratified clay, silt and sand. Local relief is less than 1 m (plain) and masks the underlying topography. Thickness ranges from 1 to >20 m. Lacustrine - undifferentiated: Lacustrine complex - units are too small to be

have relatively small pockets of alluvial, colluvial, till and/or glaciogenic sediments. PERIGLACIAL AND GLACIAL ENVIRONMENT COLLUVIUM: Typically less than 1 m thick, but can reach thicknesses up to 2 m; poorly sorted,

unconsolidated debris (diamicton) deposited on slopes; derived from bedrock or glacial parent materials. This unit includes frost-rived and heaved stacks of angular joint blocks from granitoid outcrop (felsenmeer); blocks are 0.5 to 2 m across and have unweathered surfaces; occurs in small patches of felsenmeer.

COLLUVIAL VENEER: Thin (<1 m) or discontinuous sheets of colluviated materials.

LANDSLIDE SEDIMENTS: Diamicton formed of broken rock, soil and glacial deposits. Forms a hummocky or ridged topography with ridges transverse to direction of movement. Thickness is highly variable, but may range up to 10 m (Direction of

GLACIOLACUSTRINE DEPOSITS: Stratified sand, silt and clay deposited in lakes damned by glacier ice. Distally deposited glaciolacustrine sediments typically underlie plains or gently rolling terrain.

caused by subsequent meltout.

Thickness greater than 5 m. GLACIOLACUSTRINE DELTA: A scarp or face with a low-relief mantle of

GLACIOLACUSTRINE - UNDIFFERENTIATED: Glaciolacustrine complex - units are L<sup>G</sup>X too small to be represented at the scale of mapping. Consists primarily of glaciolacustrine units, but may have relatively small pockets of alluvial, colluvial, till and/or glaciofluvial sediments.

DESCRIPTIVE NOTES

Quaternary research in or near the Committee Bay Project study area has proposed numerous theories regarding the glacial history of the Keewatin region, these include (but are not limited to): ice-divide locations, ice-movement chronologies, and general glacial records of ice advance and retreat based on surficial materials distribution (e.g., Wright, 1967; Dyke and Prest, 1987; Dyke and Dredge, 1989; Little, 2001; McMartin et al., 2003; for a more detailed

GLACIAL GEOMORPHOLOGY AND GEOLOGY

The Laughland Lake map area (NTS 56K) has extensive till plains in the north, south, central and west-central regions. Some of these plains are characterized by well-developed, streamlined landforms (e.g., flutes) that typically trend northwest to north-northwest (Fig. 1). The main geomorphic features in the southeast and east-central regions are eskers, kames, and glaciofluvial gravels deposited in former meltwater channels that commonly form isolated pockets in large modern-day valleys. Till and glaciofluvial veneers dominate the extreme northeast and southwest portions of the map area, whereas large moraines, truncated by meltwater channels, dominate the northwest. The largest drainage basin in the northern portion of the map area is the Hayes River and its tributaries, which generally flow northwestward into Chantrey Inlet. The Brown River, the dominant drainage basin of the south, flows into northwestern Hudson Bay. Drainage networks of the southeast are on the periphery of the Lower Thelon watershed,

Ice-Movement Events throughout Committee Bay study area McMartin et al. (2003), provide a regional overview of the systematic mapping of ice-movement indicators within the Committee Bay study area. Three main phases of ice movement are identified (Fig. 1); deciphering these movements is critical to the evaluation of the till geochemical data for exploration purposes. The earliest major phase (Phase I) recognized by McMartin et al. (2003) in NTS 56K, J and O, is characterized by northward movement. This phase is tentatively associated with the last glacial maximum (Little 2001; McMartin et al.,

For 56J and O, McMartin et al. (2003) suggest that Phase I was followed by northeastward ice movement. The retreat of the ice front accentuated the bays and inlets forming a paleo-Committee Bay, which forced the ice in a direction nearly perpendicular to the present-day coastline. Similarly, incipient marine incursions into the paleo-Chantry Inlet resulted in a northwestward shift in the ice-movement directions (Phase II: Fig. 1) in the vicinity of NTS With continued inland retreat of the Laurentide Ice sheet, the ice margin gradually reoriented into a general eastwest configuration resulting in a north-northwesterly ice-movement direction over 56K, J, O/1-4 (McMartin et al., 2003). This third phase of ice movement is interpreted to have occurred during the late deglaciation of the region (Little 2001; McMartin et al., 2003), when the influence of large water bodies (e.g., Committee Bay, Chantrey Inlet) was minimized. Numerous end-moraine segments, likely part of the Chantrey moraine system (Dyke and Prest, 1987), are

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moderately to well sorted, cross-stratified sand and rounded gravels elevated above. GLACIOFLUVIAL PLAIN (OUTWASH): low-relief mantle of moderately to well sorted, cross-stratified sand and rounded gravels; 1 to 20 m thick.

GLACIOFLUVIAL DEPOSITS: Well stratified to massive sand, gravel with minor silt and diamicton

deposited by streams flowing away from, or in contact with glacier ice. These sediments can range

from well to poorly sorted. Strata are commonly deformed due to syndepositional collapse from the

patches or gravel lag over rock; thicknesses are less than 1 m.

GLACIOFLUVIAL VENEER: Stratified to massive gravel, sand and silt. May occur in

GLACIOFLUVIAL TERRACE (OUTWASH): a scarp or face with a low-relief mantle of

HUMMOCKY GLACIOFLUVIAL (ICE-CONTACT): Complex arrangement of slopes extending from rounded depressions to irregular conical mounds and includes esker ridges. Composed primarily of poorly sorted sand and gravel from 5 to 15 m thick. GLACIOFLUVIAL - UNDIFFERENTIATED: Glaciofluvial complex - units are too small

to be represented at the scale of mapping. Consists primarily of glaciofluvial units, but may have relatively small pockets of alluvial, colluvial, till and/or glaciolacustrine MORAINAL SEDIMENTS (Till): Diamicton (granule to boulder size clasts suspended in a poorly sorted

clay to sand matrix) deposited directly by glacial ice; redeposition directly from glacial ice is by sediment gravity flow and/or ductile deformation. Contrasting vegetation cover reflecting compositional differences. Thicknesses range from 1 to >20 m.

> Laurentide Till: Grey to dark brown stony granitic till with sandy matrix; occurs as veneers, blankets and hummocky deposits.

TILL VENEER: Till less than 1 m thick; occurs in patches over rock and is interspersed with rock outcrop; deposits are thin enough to reveal details of underlying rock structure.

TILL BLANKET: Surface morphology conforms to underlying bedrock topography. May exhibit crag-and-tails, flutes, and/or roches moutonées. Some areas have large frost polygons and stone nets. Thicknesses generally from 1 to 5 m.

TILL PLAIN: Surface morphology forms a plain with <2 m of relief. Generally masks underlying topography. Some areas have large frost polygons and stone nets. Thickness is greater than 5 m. ROLLING TILL PLAIN: Surface morphology forms gently rolling plains with 1 to 3 m of

relief; may exhibit flutes. Generally masks underlying topography. Some areas have large frost polygons and stone nets. Thickness is greater than 5 m. RIDGED TILL COMPLEX: Surface morphology of parallel ridges with amplitudes less than 15m and wavelengs less than 30 m. Orientation is often transverse to palaeoflow directions. Comprised of till and glaciofluvial sediments. Thickness is variable, but is

usually less than 15 m. HUMMOCKY TILL: Stratified to massive diamicton and interstratified glaciofluvial gravel and sand. Stratification often exhibits syndepositional deformation features caused by slumping or ice meltout. May contain variable amounts of ice-walled glaciofluvial and glaciolacustrine sediments. Forms hummocky surface (kame and

kettle topography); in places the unit may exhibit prominent ridges marking major recessional ice margins, or diffuse zones marking boundaries between glacial-ice TILL - UNDIFFERENTIATED: Till complex - units are too small to be presented at the scale of mapping. May contain relatively small pockets of alluvial, colluvial,

glaciofluvial and/or glaciolacustrine sediments. PRE-QUATERNARY UNITS ROCK: Bare, coherent outcrop of various lithologies; locally glacial polished and striated or sculpted by glaciofluvial processes (see Sandeman et al. 2001a, b).

Geological boundary (defined, approximate, inferred) .

Drumlinoid ridge (grooves, fluting, parallel to ice flow) .

Region of pervasive mass wasting (i.e. landslide)

Direction of recent eolian movement of sand .

Limit of mapping .

Striae (direction known)

Moraine ridges, major .

Moraine ridges, minor .

Abandoned channel, minor

HOLOCENE AND LATE PLEISTOCENE (WISCONSINAN) GLACIAL ENVIRONMENT PROGLACIAL AND GLACIAL ENVIRONMENT

Proximally deposited glaciolacustrine sediments may underlie ridged, hummocky, or pitted terrain

GLACIOLACUSTRINE PLAIN: Well stratified clay, silt and sand. Rolling (slopes >3°) to undulating (slopes 1 to 3°) surface morphology and masks underlying topography.

cross-stratified sand and rounded gravels associated with glaciofluvial deposition into a glaciolacustrine environment.

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RELATED REFERENCES PRODUCED IN CONJUNCTION WITH THE COMMITTEE BAY INTEGRATED GEOSCIENCE PROJECT

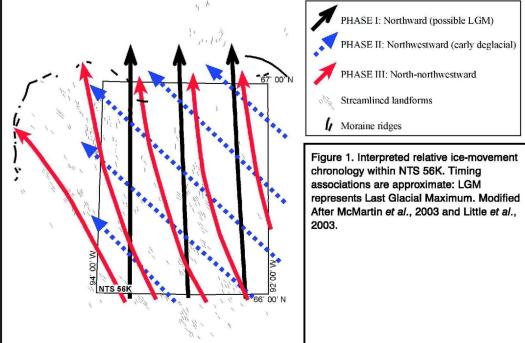
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