

This publication is available from the Geological Survey of Canada Bookstore (http://www.nrc.ca/bookstore). It may also be downloaded free of charge from the Geopub (http://geopub.nrc.ca) or to 1-800-952-8768.



OPEN FILE 6009
 SURFICIAL GEOLOGY

FORT SIMPSON (95H/SW)

NORTHWEST TERRITORIES

Scale 1:100 000/Échelle 1/100 000

kilomètres 2 0 2 4 6 8 kilomètres

Universal Transverse Mercator Projection
 North American Datum 1983
 © Her Majesty the Queen in Right of Canada 2011

Projection transversale universelle de Mercator
 Système de référence géodésique nord-américain, 1983
 © Sa Majesté la Reine du chef du Canada 2011

OSGONE	OSGHNW	OSGHSW
OF6011	OF6010	OF6015
OSGISE	OSGHSW	OSGHSW
OF6009	OF6015	
OSGANE	OSGANW	OSGANE

NATIONAL TOPOGRAPHIC SYSTEM REFERENCE AND MEASUREMENTS TO ADDRESS GEOLOGICAL SURVEY OF CANADA MAPS

Holocene	
Organic deposits	
FO	FENLAND: woody sedge peat; 1-2 m thick
PO	PEATLAND: sphagnum peat generally underlain by woody sedge peat; 0.5-2 m thick
PO-k	PEATLAND: contains thermokarst depressions
PTO	PEATLAND (> 50%) AND FENLAND
FP-O	FENLAND (> 50%) AND PEATLAND
Alluvial deposits	
Ap	ALLUVIAL PLAIN: coarse sand and gravel with silt, fine sand and some organic debris, occurring as channel and overbank floodplain sediments or in-channel bars; 3-5 m thick
AF	ALLUVIAL FAN: mainly sand and silt with minor gravel and discontinuous layers of peat occurring as fan deposits
AX	ALLUVIAL COMPLEX: floodplain and fan deposits; may contain small areas of colluvium
Colluvial and landslide deposits	
Cx	COLLUVIAL COMPLEX: slope complex consisting of diamicton and rubble; may include minor landslides (Cz) and/or alluvial fan (AO) units; > 2 m thick
Cz	LANDSLIDE: bedrock, rubble and/or diamicton occurring as stepped or tongue-shaped deposits; formed by rotational slumping, retrogressive flow, debris flows, rock topple and translational slides in surficial sediments and/or bedrock; they are prominent along former meltwater channels

Late Pleistocene	
Eolian deposits	
Ev	EOLIAN VENEER: discontinuous cover of mainly fine sand and silt over other surficial units and bedrock; < 1 m thick
Ev-b	EOLIAN VENEER TO BLANKET: discontinuous cover (vener dominant) of mainly fine sand and silt over surficial materials, most commonly till, lacustrine and/or glaciofluvial deposits; < 1-10 m thick
Er	PARABOLIC DUNES: sand; < 15 m thick
Ex	EOLIAN COMPLEX: veneer to blanket deposited over other surficial materials particularly lacustrine and till plains; includes parabolic dunes

Glaciofluvial deposits	
Lp	LACUSTRINE PLAIN: flat to gently sloping cover; locally overlain by eolian sand; 1-10 m thick
Lp-k	LACUSTRINE PLAIN WITH THERMOKARST DEPRESSIONS: flat to gently sloping cover; locally overlain by eolian sand; 1-10 m thick
Lv	LACUSTRINE VENEER: discontinuous deposits, conforming to local topography; commonly associated with small lakes following ice retreat; locally overlain by eolian sand; < 2 m thick
Ls	SHORELINE DEPOSITS: low, ridged beach deposits of sand and gravel; < 5 m thick
Ls-c	SHORELINE DEPOSITS: channelled, low, ridged beach deposits of sand and gravel, affected by glaciofluvial channeling; the deposits may be intercalated with till deposits; < 5 m thick
Lx	LACUSTRINE COMPLEX: deltaic sediments transitional between glaciofluvial and glaciofluvial deposits with upper 0.5 m consisting of sand; locally overlain by eolian sand; < 20 m thick
Lx-c	x

Glaciofluvial deposits, outwash	
Gp	GLACIOFLUVIAL PLAIN: flat to gently sloping; 2-20 m thick
Gp-c	GLACIOFLUVIAL PLAIN, CHANNELLED: flat to gently sloping
Gt	GLACIOFLUVIAL TERRACE: 10-50 m thick
Gv	GLACIOFLUVIAL VENEER: with slopes conforming to underlying topography; < 2 m thick
Gd	GLACIOFLUVIAL DELTA: gently sloping, abrupt scarp, showing sudden change in lake level; deposited in a glacial lake; 5-15 m thick
Gf	GLACIOFLUVIAL FAN: mainly coarse gravel with minor sand, locally with mudflow deposits; commonly deposited in a meltwater channel or lake where no sudden water level changes had occurred; commonly channels cut into underlying till; 5-7 m thick
Gf-c	GLACIOFLUVIAL FAN, CHANNELLED: mainly coarse gravel with minor sand, locally with mudflow deposits; commonly deposited in a meltwater channel or lake where no sudden water level changes had occurred; commonly channels cut into underlying till; 5-7 m thick

Glaciofluvial deposits, ice contact	
Gr	GLACIOFLUVIAL RIDGES: eskers; 2-15 m thick
Gh	GLACIOFLUVIAL HUMMOCKS: kames; < 5 m thick
Gx	GLACIOFLUVIAL COMPLEX: includes eskers, kames and plains, commonly with thermokarst ponds in places; 2-30 m thick
Gx-c	GLACIOFLUVIAL COMPLEX, CHANNELLED: containing ridges, hummocks and kettled plains, affected by glaciofluvial channeling, common along Blackwater River; 2-50 m thick

Glaciofluvial deposits, ice contact	
Gr	GLACIOFLUVIAL RIDGES: eskers; 2-15 m thick
Gh	GLACIOFLUVIAL HUMMOCKS: kames; < 5 m thick
Gx	GLACIOFLUVIAL COMPLEX: includes eskers, kames and plains, commonly with thermokarst ponds in places; 2-30 m thick
Gx-c	GLACIOFLUVIAL COMPLEX, CHANNELLED: containing ridges, hummocks and kettled plains, affected by glaciofluvial channeling, common along Blackwater River; 2-50 m thick

Glaciofluvial deposits, ice contact	
Gr	GLACIOFLUVIAL RIDGES: eskers; 2-15 m thick
Gh	GLACIOFLUVIAL HUMMOCKS: kames; < 5 m thick
Gx	GLACIOFLUVIAL COMPLEX: includes eskers, kames and plains, commonly with thermokarst ponds in places; 2-30 m thick
Gx-c	GLACIOFLUVIAL COMPLEX, CHANNELLED: containing ridges, hummocks and kettled plains, affected by glaciofluvial channeling, common along Blackwater River; 2-50 m thick

Glaciofluvial deposits, ice contact	
Gr	GLACIOFLUVIAL RIDGES: eskers; 2-15 m thick
Gh	GLACIOFLUVIAL HUMMOCKS: kames; < 5 m thick
Gx	GLACIOFLUVIAL COMPLEX: includes eskers, kames and plains, commonly with thermokarst ponds in places; 2-30 m thick
Gx-c	GLACIOFLUVIAL COMPLEX, CHANNELLED: containing ridges, hummocks and kettled plains, affected by glaciofluvial channeling, common along Blackwater River; 2-50 m thick

UNDERSTANDING THE LEGEND

The genetic category of surficial material is indicated by the first upper case letter, e.g., G (glaciofluvial). The morphologic category is indicated in lower case following the genetic category, e.g., Gp (glaciofluvial plain). The modifying processes are indicated in lower case separated from the morphologic category by a (-) e.g., Gp-k (glaciofluvial plain with thermokarst processes).

Combined units are used where, for reasons of scale, the units cannot be separated. The main unit, covering over 50% of the geologic polygon, is separated by a () from the secondary unit, e.g., Gp-Lp. In cases where the polygon has a third unit it is represented by a patterned symbol, e.g., eolian sand cover, peatlands or fenlands.

Author: A. Duk-Rodkin
 Geology by A. Duk-Rodkin, 2007

Digital cartography by B. Firminson and D.A. Lemay

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

Digital base from Geomatics Canada, modified by the Geological Survey of Canada

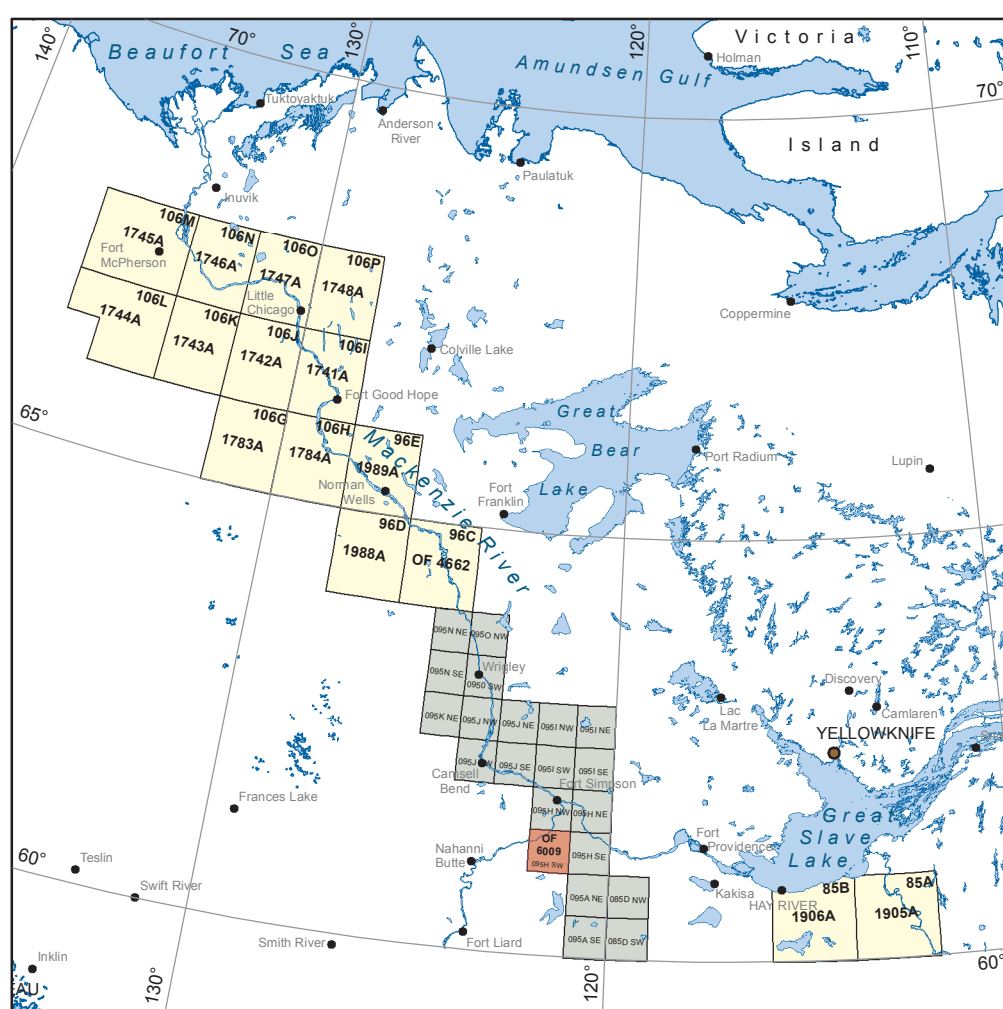
Mean magnetic declination 2011, 21°15'E, decreasing 24.4' annually.
 Readings vary from 21°29'E in the NW corner to 21°00'E in the SE corner of the map

Elevations in metres above mean sea level

Glacial deposits	
Tp	TILL PLAIN: flat to gently sloping; 3-5 m thick
Tp-c	TILL PLAIN, CHANNELLED
Tb	TILL BLANKET: gently to moderately sloping plain conforming to underlying topography; 2-8 m thick
Td	TILL, DRUMLINOID: hilly till plain with individual drumlins or extensive flutes; 3-15 m thick
Tr	TILL, RIDGED: surface of generally coarse till (20-50% pebbles) deposited as ridges; commonly lateral and frontal moraines and hummocks; < 9 m thick
Ts	TILL COMPLEX: largely hummocky, ridged, and/or hilly with patches of gravel; in some places Ts forms veneer over bedrock
Tc	TILL, CREVASSE FILL: coarse diamicton (>30% pebbles) deposited as crevasse fills forming high ridges; 2-15 m thick
Tc-c	TILL, CREVASSE FILL, CHANNELLED

Paleozoic to Mesozoic	
Bedrock	
R	primarily prominent ridges, escarpments and hills associated with Devonian rocks Cretaceous shale (various colours) and limestone mostly in plains area; Paleozoic limestone, dolomite, shale (various colours), siltstone, mudstone and sandstone mostly in mountainous areas
Organic Deposits	
	This pattern is used when organic deposits appear as a second or third component in a polygon
	Fenland constituting 10 - 50% of the map unit
	Peatland constituting 10 - 50% of the map unit
	Peatlands and fenlands undivided constituting 10 - 50% of the map unit
Eolian Deposits	
	This pattern is used when eolian sand veneer appears as a second or third component in a polygon, eg. Tp-Gx-Ev
	Discontinuous veneer (<1m) mainly fine sand and silt covering other surficial units and bedrock
Colluvial Deposits	
	This pattern is used when colluvial veneer and sheetwash deposits appear as a second or third component in a polygon, eg. Tv-Cx, Tv-Lb-Cx
	Discontinuous veneer (<1m) mainly diamicton and rubble that conforms to local topography

Geological boundary (defined)	
Moraine plateau	commonly rimmed and mantled by glaciofluvial sediments overlying a till core. The moraine plateaus in this area are characterized by rims up to 15 m high enclosing a basinal area. They contain silt-clay sediments to a depth of 2 m, actual thickness of glaciofluvial sediments are unknown. Moraine plateaus span 100-1400 m in diameter. No till was found below the rims or within the basin areas
Drumlin, drumlinoid ridge or flute (direction uncertain)	streamlined hill or ridge of till with long axis paralleling direction of ice flow
Drumlin, drumlinoid ridge or flute (direction certain)	streamlined hill or ridge of till with long axis paralleling direction of ice flow; elliptical base and arched profile with long gentle slope pointing in downstream direction
Meltwater channel (major)	erosion and channel formation by meltwater flow along, beneath or in front of a glacier or ice sheet; range from broad, shallow channels to deeply incised, steep-sided, flat-bottomed valleys; channels may run across or along slope contours; may be presently dry, poorly drained or contains an underflow stream or small lakes
Meltwater channel (minor)	erosion and channel formation by meltwater flow along, beneath or in front of a glacier or ice sheet; range from broad, shallow channels to deeply incised, steep-sided channels; may run across or along slope contours; may be presently dry
Esker (direction certain)	sinuous, low ridge composed of sand and gravel; formed by deposition from meltwater running through a channel beneath or within glacier ice
Crevasse filling	
Shoreline of former lake	low, ridged beach deposits of sand and gravel
Shoreline of former lake common to two lakes	low, ridged beach deposits of sand and gravel
Dune ridge	
Deflation hollow	
Beaver dam	
Kame	
Landslide	
Ground Station	
Helicopter observation	



OPEN FILE DOSSIER PUBLIC 6009

GEOLOGICAL SURVEY OF CANADA
 COMMISSION GÉOLOGIQUE DU CANADA
 2011

Open files are products that have not gone through the GSC formal publication process.
 Les dossiers publics sont des produits qui n'ont pas été soumis au processus officiel de publication de la GSC.

Recommended citation:
 Duk-Rodkin, A., 2011. Surficial geology, Fort Simpson (95H/SW), Northwest Territories; Geological Survey of Canada, Open File 6009, scale 1:100 000. doi:10.4095/286766