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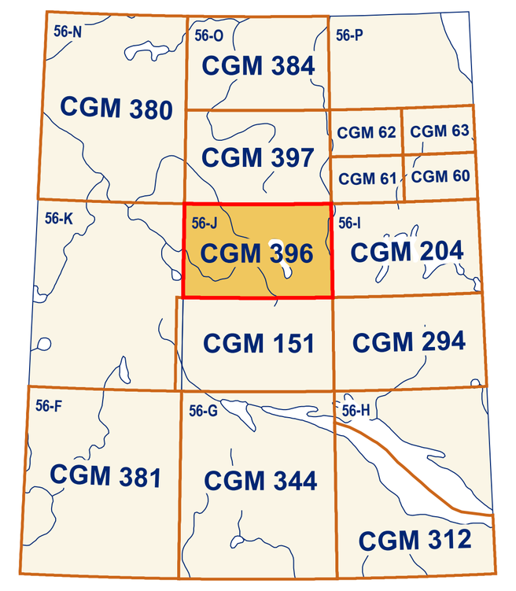
Abstract

This new surficial geology map product represents the conversion of Open File 4280 (Utting, 2004) and its legend, using the Geological Survey of Canada's Surficial Data Model (SDM version 2.3.14) (Deblonde et al., 2018). All geoscience knowledge and information from Open File 4280 that conformed to the SDM were maintained during the conversion process. Additional material such as marginal notes or figures that may exist on the original map, are not included here. Supplementary, limited legacy information was added to complement the converted geoscience data. This consists of glacial striations and roches moutonnées from McMartin et al. (2003). It is identified in the accompanying geodatabase. The purpose of converting legacy map data to a common science language and common legend is to enable and facilitate the efficient digital compilation, interpretation, management, and dissemination of geological map information in a structured and consistent manner. This provides an effective knowledge-management tool designed around a geodatabase that can expand, following the type of information to appear on new surficial geology maps.

Résumé

Ce nouveau produit cartographique de la géologie des formations superficielles correspond à la conversion du Dossier public 4280 (Utting, 2004) et de sa légende, en se servant du Modèle de données pour les formations superficielles (MDFS version 2.3.14) de la Commission géologique du Canada (Deblonde et al., 2018). Toutes les connaissances et l'information de nature géoscientifique du dossier public 4280 qui sont en conformité avec le modèle de données ont été conservées pendant le processus de conversion. Des éléments additionnels tels que des notes marginales ou des figures qui pourraient être présents sur la carte originale ne sont pas inclus ici. Une quantité limitée de données existantes a été ajoutée en complément aux données géoscientifiques converties. Il s'agit de données sur des stries glaciaires et des roches moutonnées tirées de McMartin et al. (2003). Ces données sont identifiées dans la géodatabase de la carte. Le but de la conversion de cartes publiées antérieurement suivant un langage scientifique commun et une légende commune est de permettre et de faciliter la compilation, l'interprétation, la gestion et la diffusion efficaces de l'information géologique cartographique en mode numérique de façon structurée et cohérente. Cette façon de faire offre un outil efficace de gestion des connaissances élaboré à l'aide d'une géodatabase qui pourra évoluer suivant le type d'information à paraître sur les nouvelles cartes de la géologie des formations superficielles.



National Topographic System reference and index to adjoining published Geological Survey of Canada maps

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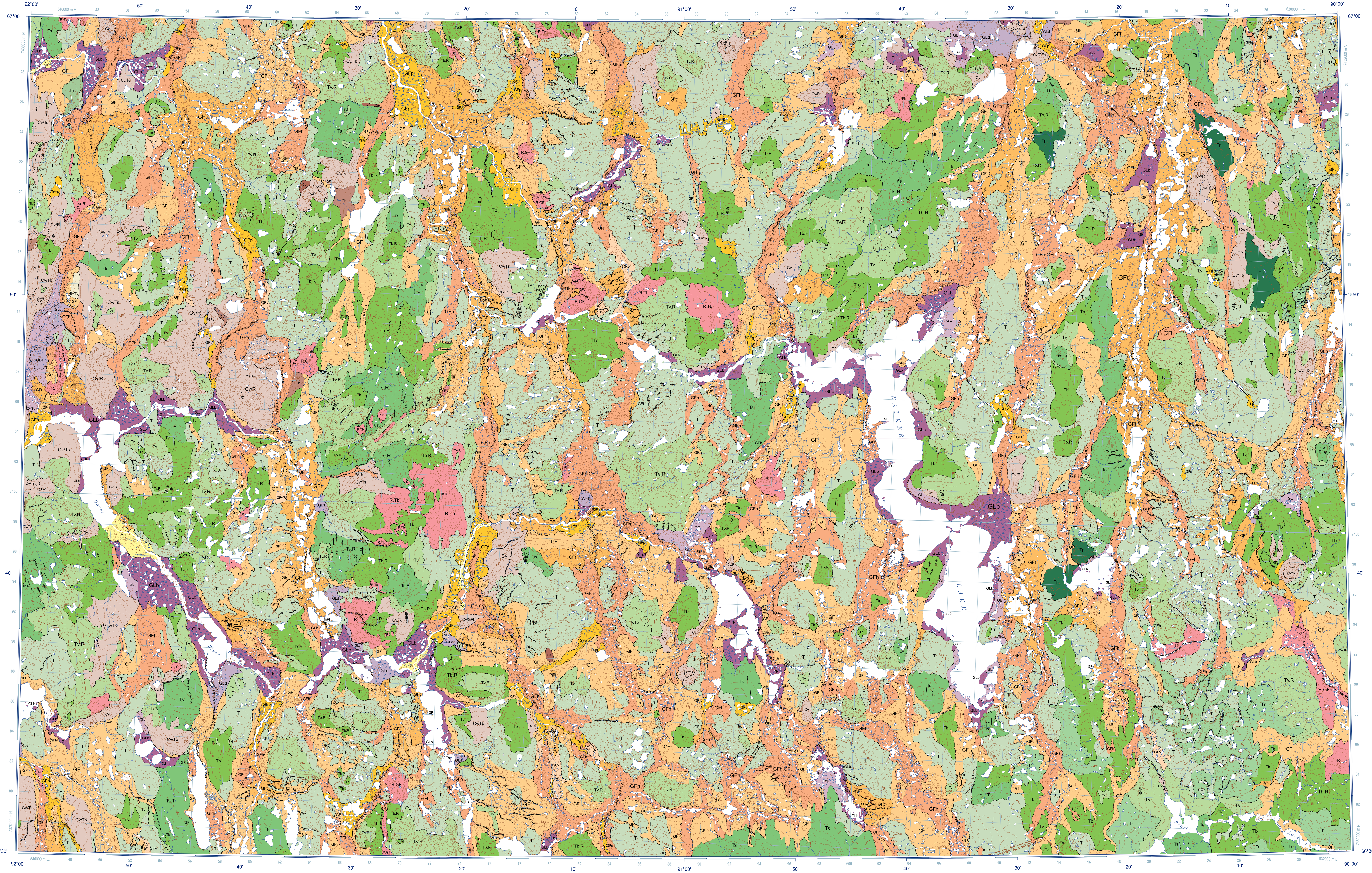
NATURAL RESOURCES CANADA
GEOLOGICAL SURVEY OF CANADA
CANADIAN GEOSCIENCE MAP 396
CANADA-NUNAVUT GEOSCIENCE OFFICE
OPEN FILE MAP 2022-01

SURFICIAL GEOLOGY

WALKER LAKE

Nunavut
NTS 56-J north
1:100 000



QUATERNARY

POSTGLACIAL ENVIRONMENT

Ev — **Eolian veneer:** silt and sand, well sorted; less than 1 m thick; may form discontinuous sheets; deposited by wind.

PERIGLACIAL ENVIRONMENT

COLLUVIAL DEPOSITS: unconsolidated debris (diamicton), poorly sorted; deposited by gravitational (slope) processes; derived from bedrock or glacial materials; these units include frost-heaved stacks of angular joint blocks from granitoid outcrop (felsenmeer); blocks are 0.5 to 2 m across and have unweathered surfaces.

Ca — **Colluvial apron deposits:** diamicton, stratified with poorly sorted sand and gravel; thickness up to 10 m, thinning at head and toe of deposit; deposit forms a wedge-shaped, slope-toe complex of debris flows and solifluted deposits derived from bedrock and glacial debris.

Cv — **Colluvial veneer:** colluvial material; less than 1 m thick; may form discontinuous sheets.

Cb — **Colluvial blanket:** colluvial material; thickness greater than 1 m; forming a mantle.

ALLUVIAL SEDIMENTS: silt, sand, and gravel; deposited by streams either within channels or as overbank deposits; deposits are usually stratified and moderately to well sorted.

Ap — **Floodplain sediments:** predominantly 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; thicknesses from 1 to 5 m; typically forms plains within approximately 1 m of present stream level.

GLACIAL ENVIRONMENT (WISCONSINAN)

GLACIOLACUSTRINE SEDIMENTS: sand, silt, and clay, stratified; deposited in lakes damned by glacier ice or as a result of high lake levels during deglaciation; distally deposited glaciolacustrine sediments typically underlie plains or gently rolling terrain; proximally deposited glaciolacustrine sediments may underlie ridged, hummocky, or pitted terrain caused by subsequent meltout.

GLd — **Deltaic sediments:** sand and rounded gravels, cross-stratified; thickness ranges from 1 to greater than 10 m; a scarp or face with a low-relief mantle associated with glaciofluvial deposition into a glaciolacustrine environment.

GLb — **Glaciolacustrine blanket:** clay, silt, and sand; well stratified; thickness ranges from 1 to greater than 10 m; local relief is less than 1 m, forming a plain and masking the underlying topography.

GL — **Glaciolacustrine sediments, undifferentiated:** glaciolacustrine complex; thickness ranges from 1 to greater than 10 m; units are too small to be represented at the scale of mapping; consists primarily of glaciolacustrine sediments, but may have relatively small pockets of alluvial, colluvial, till, and/or glaciofluvial sediments.

GLACIOFLUVIAL SEDIMENTS: sand and gravel with minor silt and diamicton, well stratified to massive, ranges from well to poorly sorted; deposited by streams flowing away from, or in contact with, glacier ice; strata are commonly deformed due to syndepositional collapse from the meltout of supporting ice.

GFp — **Outwash plain sediments:** sand and rounded gravels; moderately to well sorted, cross-stratified; 1 to greater than 20 m thick; low-relief mantle.

GFt — **Terraced sediments:** sand and rounded gravels; moderately to well sorted, cross-stratified; thickness ranges from 1 to greater than 20 m; includes a scarp or face with a low-relief outwash mantle.

GFh — **Hummocky sediments:** primarily sand and gravel; poorly sorted; 5 to greater than 20 m thick; ice-contact deposits; complex arrangement of slopes extending from rounded depressions to irregular conical mounds, and including esker ridges.

GFv — **Glaciofluvial veneer:** sand and gravel or gravel lag over bedrock; less than 1 m thick; may occur in patches.

GF — **Glaciofluvial sediments, undifferentiated:** sand and gravel; variable thickness; complex where units are too small to be represented at the scale of mapping; consists primarily of glaciofluvial sediments, but may have relatively small pockets of alluvial, colluvial, till, and/or glaciolacustrine sediments.

GLACIAL SEDIMENTS (TILL): diamicton (granule- to boulder-sized clasts suspended in a poorly sorted clay to sand matrix); grey to dark brown; Laurentide till; deposited directly by glacial ice, or redeposition directly from glacial ice by sediment gravity flow and/or ductile deformation.

Th — **Hummocky till:** diamicton, stratified to massive, and interstratified glaciofluvial gravel and sand; stratification often exhibits syndepositional deformation features caused by slumping or ice meltout; variable thickness; 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 regimes.

Tr — **Ridged till:** complex of till and glaciofluvial sediments; thickness is variable, but is usually less than 15 m; surface morphology of parallel ridges with amplitudes less than 15 m and wavelengths less than 30 m; orientation is often transverse to paleo ice-flow directions.

Ts — **Rolling till:** diamicton; thickness is greater than 5 m; surface morphology forms gently rolling plains with 1 to 3 m of relief; may exhibit flutings; generally masks underlying topography; some areas have large frost polygons and stone nets.

Tp — **Till plain:** diamicton; thickness is greater than 5 m; surface morphology forms a plain with less than 2 m of relief; generally masks underlying topography; some areas have large frost polygons and stone nets.

Tv — **Till veneer:** diamicton; less than 1 m thick; occurs in patches over rock and is interspersed with rock outcrop, in some cases eroded to form roches moutonnées; deposits are thin enough to reveal the underlying surface morphology.

Tb — **Till blanket:** diamicton; thickness generally ranges from 1 to 5 m; surface morphology conforms to underlying bedrock topography; may exhibit crag-and-tails and/or flutings; some areas have large frost polygons and stone nets.

T — **Till, undifferentiated:** till complex; variable thickness; 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

R — **Bedrock, undifferentiated:** bare, coherent outcrops of various lithologies; locally glacially polished and striated or sculpted (*see* Sandeman et al., 2001a, b).

Complex units: two map-unit designators separated by a dot (.) are used where the surficial cover forms a complex area and the units are too small to be mapped individually (e.g. Tv.Tb designates an area of till veneer with till blanket). The map-unit polygon is coloured according to the dominant unit and labeled in descending order of cover.

Stratigraphic relationship: two map-unit designators separated by a slash (/) are used where a stratigraphic relationship is observed or confidently inferred (e.g. Cv/GFt indicates colluvial veneer overlying glaciofluvial terraced sediments). The map-unit polygon is coloured according to the overlying unit.

Geological contact:
Defined
Approximate
Inferred

Minor meltwater channel, abandoned:
Paleoflow direction unknown
Paleoflow direction known

Esker:
Paleoflow direction unknown
Paleoflow direction known

Drumlinoid ridge, fluting, length not mapped to scale

Crag-and-tail, length not mapped to scale

Roche moutonnée, length not mapped to scale:
Poorly defined, ice-flow direction unknown
Well defined, ice-flow direction unknown
Well defined, ice-flow direction known

Striation:
Poorly defined, ice-flow direction unknown
Well defined, ice-flow direction unknown
Well defined, ice-flow direction known
1 2 *Crossed, 1 = oldest, 3 = youngest*

Recommended citation

Geological Survey of Canada, 2022. Surficial geology, Walker Lake, Nunavut, NTS 56-J north; Geological Survey of Canada, Canadian Geoscience Map 396 (Surficial Data Model v. 2.3.14 conversion of OF 4280); Canada-Nunavut Geoscience Office, Open File Map 2022-01, scale 1:100 000. https://doi.org/10.4095/313653

GSC CANADIAN GEOSCIENCE MAP 396 • CNGO OPEN FILE MAP 2022-01

Geological Survey of Canada
Canadian Geoscience Maps

Canada

Author: Geological Survey of Canada

Geology by D.J. Utting, 2001 and 2002

Geological compilation by D.J. Utting and E.C. Little, 2001 to 2003

Geology conforms to Surficial Data Model v. 2.3.14 (Deblonde et al., 2018).

Geological data conversion by D.E. Kerr, 2016 and 2018

Geology has been spatially adjusted to fit the updated base.

Geomatics by J. Kingsley

Cartography by M.J. Baldock

Scientific editing by L. Ewert

Joint initiative of the Geological Survey of Canada and Canada-Nunavut Geoscience Office, conducted under the auspices of the Information Management Project as part of Natural Resources Canada's Geo-mapping for Energy and Minerals (GEM) program

SURFICIAL GEOLOGY
WALKER LAKE
Nunavut
NTS 56-J north
1:100 000

2 0 2 4 6 8 km

Map projection Universal Transverse Mercator, zone 15
North American Datum 1983

Base map at the scale of 1:50 000 from Natural Resources Canada, with modifications
Elevations in metres above mean sea level

Proximity to the North Magnetic Pole causes the magnetic compass to be erratic in this area.
Mean magnetic declination 2022, 10°11'W, decreasing 21.9' annually
Readings vary from 8°35'W in the SW corner to 11°47'W in the NE corner of the map.

This map is not to be used for navigational purposes.

The Geological Survey of Canada welcomes corrections or additional information from users (gscpublications-cgcpublications@nrcan-rncan.gc.ca).

Data may include additional observations not portrayed on this map. *See* map info document accompanying the downloaded data for more information about this publication.

This publication is available for free download through GEOSCAN (https://geoscan.nrcan.gc.ca/).

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