SURFICIAL GEOLOGY COMPILATION MAP SERIES

The Surficial Geology Compilation Map Series (SGCMS) addresses an increasing demand for consistent surficial geology information for applications such as groundwater protection, industrial mineral management, protected lands, basic research, mineral exploration, engineering, and environmental assessment. The SGCMS will provide province-wide coverage at scales of 1:500 000, 1:250 000 and a final compilation at 1:1 000 000.

The unit polygons were digitized from paper maps originally published by the Geological Survey of Canada and Manitoba Geological Survey (MGS). In several areas, digital polygons derived from soils mapping were used to fill gaps in the geological mapping. The 1:250 000 scale maps provide a bibliography for the original geological mapping.

Edge-matching of adjoining 1:250 000 scale map sheets is based on data from the Shuttle Radar Topography Mission Digital Elevation Model (SRTM DEM[1]) as interpreted by the MGS. Other polygon inconsistencies were modified in a similar manner. Geology (colour) is draped over a shaded topographic relief map (grey tones) derived from the SRTM DEM.

[1] United States Geological Survey 2002: Shuttle radar topography mission, digital elevation model, Manitoba; United States Geological Survey, URL <ftp://edcsgs9.cr.usgs.gov/pub/data/srtm/>, portions of files N48W88W.hgt.zip through N60W102.hgt.zip, 1.5 Mb (variable), 90 m cell, zipped hgt format [Mar 2003].

LEGEND

Quaternary

O — ORGANIC DEPOSITS: peat, muck; <1–5 m thick; very low relief wetland deposits; accumulated in fen, bog, swamp, and marsh settings

Lm — SHORELINE SEDIMENTS: sand and gravel; 1–2 m thick; beaches; formed by waves at the margins of modern lakes

C — COLLUVIUM: landslide debris, eroded slopes, sheet flood deposits associated with steep slopes

E — EOLIAN: sand and minor silt; dunes, blowouts and undulating plains; generally overlies deltaic sediments, coarse lacustrine sediments, or glaciofluvial deposits

A — ALLUVIAL SEDIMENTS: sand and gravel, sand, silt, clay, organic detritus; 1–20 m thick; channel and overbank sediments; reworked by existing rivers and deposited primarily as bars

Ls — MARGINAL GLACIOLACUSTRINE SEDIMENTS: sand and gravel; 1–20 m thick; beach ridges, spits, bars, littoral sand and gravel; formed by waves at the margin of glacial Lake Agassiz

Lc — OFFSHORE GLACIOLACUSTRINE SEDIMENTS: clay, silt, minor sand; 1–20 m thick; very low relief massive and laminated deposits; deposited from suspension in offshore, deep water of glacial Lake Agassiz; commonly scoured and homogenized by icebergs

Gs — DISTAL GLACIOFLUVIAL SEDIMENTS: fine sand, minor gravel, thin silt and clay interbeds; 1–75 m thick; subaqueous outwash fans; deposited in glacial Lake Agassiz by meltwater turbidity currents; commonly reshaped by wave erosion and reworked by wind

G — PROXIMAL GLACIOFLUVIAL SEDIMENTS: sand and gravel; 1–20 m thick; complex deposits, belts with single or multiple esker ridges and kames, as well as thin, low-relief deposits; deposited in contact with glacial ice by meltwater

Tm — TILL: calcareous clay diamicton; 1–75 m thick; hummocky to streamlined subglacial deposits; largely derived from Mesozoic shale; thicker sequences consist of multiple units of varying texture; covered discontinuously by thin veneers (<1 m) of glaciofluvial sediments

Tc — TILL: calcareous silt diamicton; 1–25 m thick; low-relief, commonly streamlined subglacial deposits; largely derived from Paleozoic dolomite and limestone; thicker sequences consist of multiple units of varying texture; commonly scoured by icebergs; covered discontinuously by thin veneers (<1 m) of glaciolacustrine and glaciofluvial sediments

Tp — TILL: non-calcareous sand diamicton; 1–25 m thick; lee-side subglacial deposits commonly found in bedrock depressions; largely derived from Precambrian crystalline rock; thicker sequences consist of multiple units of varying texture; covered discontinuously by thin veneers (<1 m) of glaciolacustrine and glaciofluvial sediments

Pre-Quaternary

R — ROCK: > 75% bedrock outcrop; Cretaceous shales above the Manitoba Escarpment, Paleozoic carbonate-dominated rocks in areas west and south of Lake Winnipeg, exposed typically as glacially striated, low-relief surfaces; in Precambrian terrane, generally unweathered intrusive, metasedimentary, and metavolcanic rocks having a glacially scoured irregular surface with high local relief

Scale 1:500 000

Kilometres 0 5 10 20 30 40 50

To aid the reader, a shadow effect has been added to exaggerate the topographic relief.

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Compiled by:
G.L.D. Matile and G.R. Keller

Suggested reference:
Matile, G.L.D. and Keller, G.R. 2004: Surficial geology of southern Manitoba (south of 53°); Manitoba Industry, Economic Development and Mines, Manitoba Geological Survey, Surficial Geology Compilation Map Series, SG-SMB, scale 1:500 000.

Copies of this map can be obtained from:
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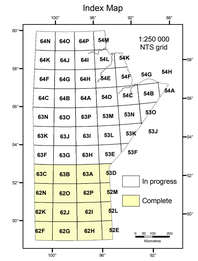
This map is available to download free of charge at www.gov.mb.ca/itm/mrd

SURFICIAL GEOLOGY COMPILATION MAP SERIES

SG-SMB

Surficial geology of southern Manitoba (south of 53°)

Index Map



North American Datum 1983
Universal Transverse Mercator Projection
Zone 14

The approximate mean magnetic declination for the centre of the map is 5° 23' E (2004) decreasing 8.6' annually

Manitoba
Building for the Future