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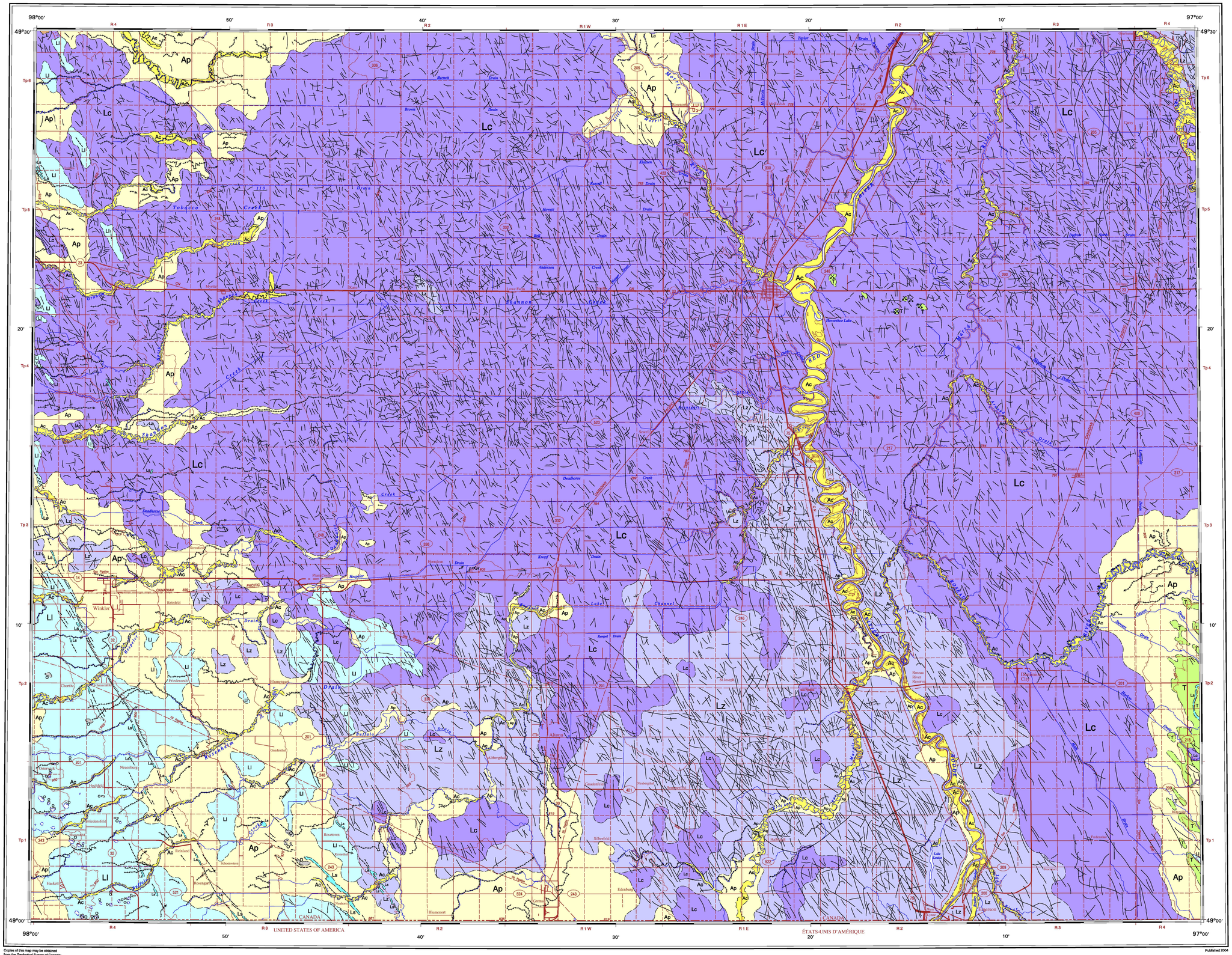
GEOLOGICAL SURVEY OF CANADA | COMMISSION GÉOLOGIQUE DU CANADA

NATMAP CARTNAT
Canada's National Geoscience Mapping Program
Le Programme national de cartographie géoscientifique du Canada



LEGEND

This legend is common to GSC maps 2049A - 2060A, and MGS geoscientific maps MAP2003-1 - MAP2003-12. Coloured legend blocks indicate map units that appear on this map. Not all map symbols shown in the legend necessarily appear on this map.

QUATERNARY

NONGLACIAL DEPOSITS

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

E — ***Eolian sediments:*** *fine sand; 1–5 m thick; dunes; formed by wind prior to stabilization by vegetation, in most cases on subaqueous outwash sand.*

Lm — ***Shoreline sediments:*** *sand and gravel; 1–2 m thick; beaches; formed by waves at the margins of modern lakes.*

ALLUVIAL SEDIMENTS: *sand and gravel, sand, silt, clay, organic detritus; 1–20 m thick; channel and overbank sediments; deposited by postglacial rivers.*

Ap — *Overbank deposits.*

Ac — *Channel deposits.*

GLACIOLACUSTRINE DEPOSITS

GLACIAL LAKE SHORELINE 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.*

Ls — *Shoreline deposits.*

Ll — *Littoral deposits.*

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.*

Lz — *Clayey to sandy silt.*

Lc — *Clay to silty clay.*

GLACIOFLUVIAL DEPOSITS

Gs — ***Subaqueous outwash:*** *fine sand, minor gravel, thin silt and clay interbeds; 1–75 m thick; subaqueous outwash fans; deposited near the ice margin in glacial Lake Agassiz by meltwater turbidity currents, commonly reshaped by wave erosion and reworked by wind.*

ICE-CONTACT 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.*

Gc — *Predominantly derived from carbonate rocks.*

Gp — *Predominantly derived from igneous and metamorphic rocks.*

GLACIAL DEPOSITS

T — ***Till:*** *calcareous silt diamicton; 1–75 m thick; low-relief, commonly streamlined deposits; subglacial deposits; largely derived from carbonate rocks; 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.*

DISCONTINUOUS TILL AND ASSOCIATED GLACIOFLUVIAL SEDIMENTS: *gravelly silt to sand diamicton, sand and gravel; 1–30 m thick; low-relief deposits between bedrock outcrops making up 25–75% of the area; sandy till interbedded and interspersed with nearly equal and often greater amounts of sandy glaciofluvial sediments, as well as minor glaciolacustrine sediments.*

Tc — *Predominantly derived from carbonate rocks.*

Tp — *Predominantly derived from igneous and metamorphic rocks.*

PRE-QUATERNARY

ROCK: *>75% bedrock outcrop; 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; includes patches of thin glacial sediments and organic material.*

Rc — *Paleozoic sedimentary rocks.*

Rp — *Precambrian igneous and metamorphic rocks.*

Geological boundary (approximate)
Built-up area (map GSC 2055A / MGS MAP2003-7 only)
Mine waste
Peat-extraction area
Gravel pit
Mine or bedrock quarry
Stabilized dunes
Abandoned channel
Minor beach ridge
Wave-cut scarp
Groundwater sapping channel
Piping depression
Iceberg scour
Tunnel valley
Esker (direction of flow indicated)
Streamlined landform
Glacial striae
Crossed striae (numbers indicate relative age, 1 being the oldest)
Small bedrock outcrop

Published 2004

Copies of this map may be obtained from the Geological Survey of Canada:
601 Booth Street, Ottawa, Ontario K1A 0E8
3303-33rd Street, N.W., Calgary, Alberta T2L 2A7
101-605 Robson Street, Vancouver, B.C. V6B 5J3

Manitoba Industry, Economic Development and Mines
Manitoba Geological Survey, Publication Sales
360-1395 Ellice Avenue, Winnipeg, Manitoba R3G 3P2

Geology by G.L.D. Matile, Manitoba Geological Survey, 1997–1998

Co-ordinated by H.Thorleifson and G.L.D. Matile through the auspices of the Southern Prairies NATMAP Project and the Winnipeg Region NATMAP Project

Digital cartography by P. St-Amour, Earth Sciences Sector Information Division (ESS Info)

This map was produced from processes that conform to the ESS Info Publishing Services Subdivision Quality Management System, registered to the ISO 9001: 2000 standard

LOCATION MAP

GSC MAP 2058A
MGS GEOSCIENTIFIC MAP MAP2003-10
SURFICIAL GEOLOGY

WINKLER

MANITOBA

Scale 1:100 000/Échelle 1/100 000

kilometres 2 0 2 4 6 8 kilometres

Universal Transverse Mercator Projection
North American Datum 1983
© Her Majesty the Queen in Right of Canada 2004

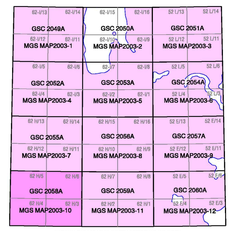
Projection transverse universelle de Mercator
Système de référence géodésique nord-américain, 1983
© Sa Majesté la Reine du chef du Canada 2004

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

Digital base map from data compiled by Geomatics Canada, modified by ESS Info

Mean magnetic declination 2004, 5°03'E, decreasing 6.2' annually. Readings vary from 4°37'E in the SW corner to 5°31'E in the NE corner of the map

Elevations in feet above mean sea level



NATIONAL TOPOGRAPHIC SYSTEM REFERENCE AND INDEX TO ADJOINING GEOLOGICAL SURVEY OF CANADA AND MANITOBA GEOLOGICAL SURVEY MAPS

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2004: Surficial geology, Winkler, Manitoba; Geological Survey of Canada, Map 2058A; Manitoba Industry, Economic Development and Mines, Manitoba Geological Survey, Geoscientific Map MAP2003-10, scale 1:100 000.

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Manitoba