



### LEGEND

This legend is common to GSC maps 2048A-2050A, 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 subsequent 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.
- Li** 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 scoured 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 dominion; 1-75 m thick; low-relief, commonly streamlined deposits; subglacial deposits; largely derived from carbonate rocks; thicker sequences consist of multiple units of varying textures; 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 dominion; sand and gravel; 1-20 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 stratified, low-relief surfaces; in Precambrian terranes, 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

Copies of this map may be obtained from the Geological Survey of Canada, 601 Booth Street, Ottawa, Ontario K1G 0S3, 3503-28th Street, N.W., Calgary, Alberta T2L 2A7, 100-600 Ross Street, Vancouver, B.C. V6B 5C3. Manitoba Industry, Economic Development and Mines, Manitoba Geological Survey, Publication Sales, 305-195B Ellice Avenue, Winnipeg, Manitoba R3B 3P2.

Geology by J.D. Mann, University of Manitoba, 1997

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

Digital cartography by P.A. Melbourne, 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



GSC MAP 2051A  
MGS GEOSCIENTIFIC MAP MAP2003-3  
SURFICIAL GEOLOGY  
**NOPIMING**  
MANITOBA-ONTARIO

Scale 1:100 000 / Échelle 1/100 000

Kilomètres 0 2 4 6 8 Kilomètres

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

Projection transversale 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, 2°51' E, decreasing 5.7' annually. Readings vary from 3°25' E in the SW corner to 2°18' E in the NE corner of the map

Elevations in feet above mean sea level

|                             |                             |                             |
|-----------------------------|-----------------------------|-----------------------------|
| GSC 2048A<br>MGS MAP2003-1  | GSC 2050A<br>MGS MAP2003-2  | GSC 2051A<br>MGS MAP2003-3  |
| GSC 2052A<br>MGS MAP2003-4  | GSC 2053A<br>MGS MAP2003-5  | GSC 2054A<br>MGS MAP2003-6  |
| GSC 2055A<br>MGS MAP2003-7  | GSC 2056A<br>MGS MAP2003-8  | GSC 2057A<br>MGS MAP2003-9  |
| GSC 2058A<br>MGS MAP2003-10 | GSC 2059A<br>MGS MAP2003-11 | GSC 2060A<br>MGS MAP2003-12 |

MANITOBA, TOPONYMIC SYSTEM REFERENCE AND KEY TO ABBREVIATED GEOLOGICAL SURVEY OF CANADA AND MANITOBA GEOLOGICAL SURVEY MAPS

Recommended citation:  
Mann, J.D.  
2004: Surficial Geology, Nopiming, Manitoba-Ontario: Geological Survey of Canada, Map 2051A; Manitoba Industry, Economic Development and Mines, Manitoba Geological Survey, Geoscientific Map MAP2003-3, scale 1:100 000.