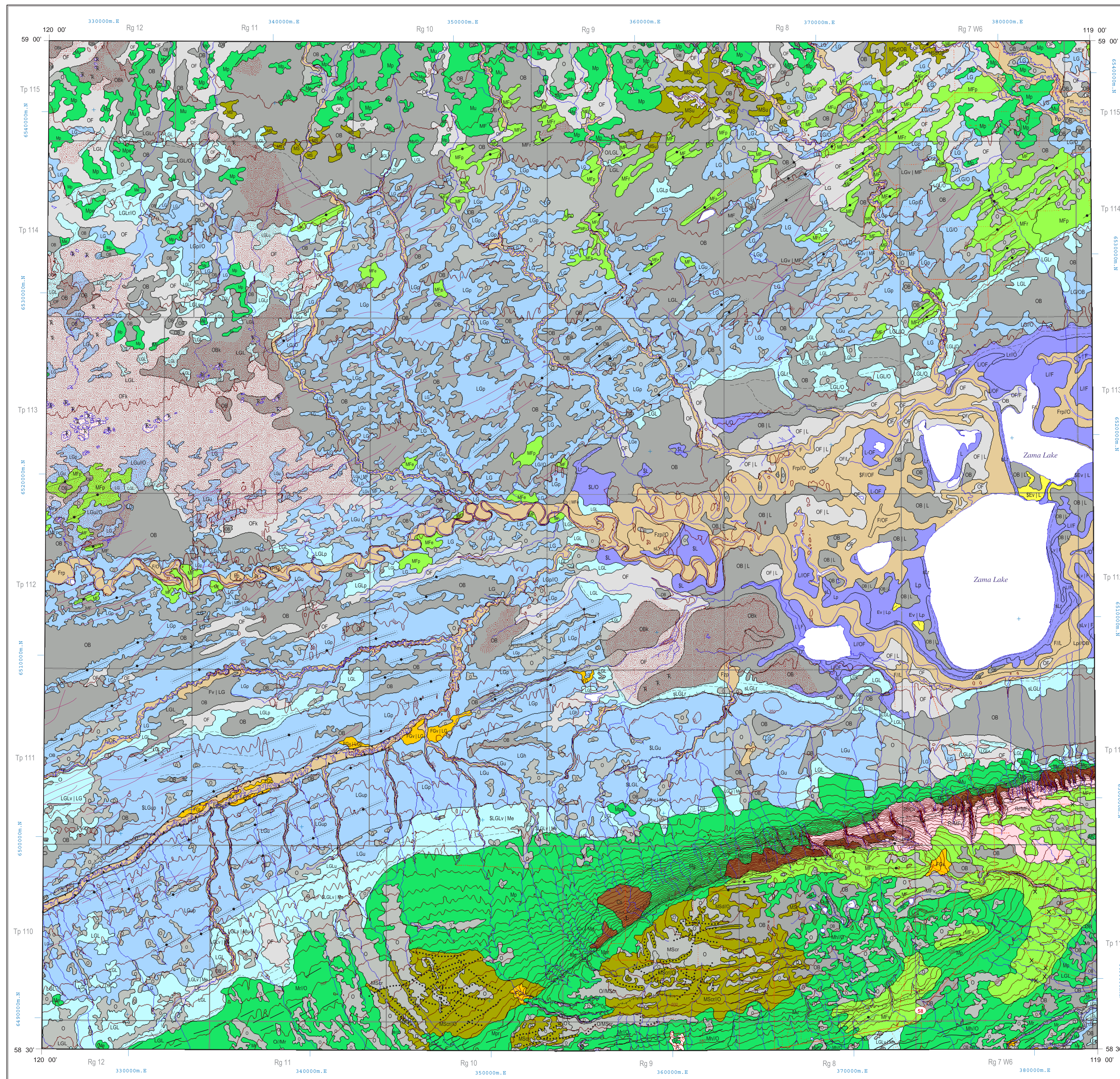


NTS 84L/NW
SURFICIAL GEOLOGY



This is a common map legend for the surficial geology of northern Alberta. Coloured legend blocks indicate map units that appear on this map. Not all map symbols shown in the legend necessarily appear on this map.

UNIT	UNIT NAME	DESCRIPTION AND GENESIS
QUATERNARY		
HOLOCENE		
A	ANTHROPOGENIC MATERIALS	Culturally-made or modified geological materials such that their physical properties (e.g. structure, cohesion, compaction) have been drastically altered.
O	ORGANIC DEPOSITS	Undifferentiated peat (woody to fibrous muck) occurring in undifferentiated wetlands; commonly underlain by fine-grained, poorly-sorted glaciolacustrine deposits; includes marshes, swamps, bogs and fens.
OB	Bog peat	Occurs in a peatland with a fluctuating water table and commonly a raised surface; peatland surface is dominated by sphagnum mosses, heath shrubs and short, stunted trees.
OF	Fen peat	Occurs in a peatland with water table at surface and slow internal drainage; peatland surface is dominated by sedges, with grasses and reeds near local pools, and is sparsely treed.
C	COLLUVIAL DEPOSITS	Materials that have reached their present position as a result of direct, gravity-induced movement; commonly occurs on slope and slump deposits confined to valley slopes and floors; includes pre-existing bedrock, till, glaciolacustrine, glacioluvial and eolian sediments; generally poorly sorted.
F	FLUVIAL DEPOSITS	Sediments transported and deposited by streams and rivers; synonymous with alluvial; includes well-sorted stratified sand, gravel, silt, clay and organic sediments occurring in channel and overbank deposits (e.g., postglacial floodplains, terraces, fans and deltas).
L	LACUSTRINE DEPOSITS	Sediments deposited in and adjacent to recent and modern lakes; offshore sand, silt and clay, minor organic deposits; littoral (nearshore) beaches and bars; sand, silt and minor gravel.
E	EOLIAN DEPOSITS	Wind-deposited sediments; well-sorted, medium- to fine-grained sand and minor silt (less); generally massive to locally cross-bedded or ripple laminated; includes both active and vegetated deposits.
PLEISTOCENE		
LG	GLACIOLACUSTRINE DEPOSITS	Primarily fine-grained distal sediments deposited in or along the margins of glacial lakes; includes sediments that were released by the melting of floating ice; includes laminated (rhythmically bedded) to massive fine sand, silt and clay, and may contain ice-ratified stones.
LGL	Littoral and nearshore sediments	Massive to stratified well-sorted silt, sand and minor gravel; occurs as beaches, bars, spits and forested deltaic deposits deposited during regression and lowering of glacial lakes.
FG	GLACIOFLUVIAL DEPOSITS	Sediments deposited by glacial meltwater streams as subaerial or subaqueous outwash. Includes sand and gravel, often stratified, minor silt, and may show evidence of ice melting (slumped structures). Features include meltwater channels, kettle holes, terraces and minor ice-contact sediments.
FGI	Ice-contact sediments	Sediments deposited by glacial meltwater streams in direct contact with glacial ice, either in front of (barne terraces) or within (eskers, crevasse ridges) glacial ice. Includes massive to stratified, poorly to moderately sorted coarse sediments (predominantly pebbly gravel and coarse sand, locally till) and may show evidence of ice melting (slumped structures).
M	MORANE	Material deposited directly by glacial ice without modification by any other agent of transportation. Includes varietal diamict deposited as lodgement till (a mixture of clay, silt, sand and minor pebbles, cobbles and boulders) at the ice margin or beneath a glacier. Locally, it may contain blocks of bedrock, pre-existing stratified drift and till. Beds and lenses of glaciolacustrine and/or glacioluvial sediments may occur.
MS	Stagnant ice moraine	Terrain resulting from the collapse and lateral movement of englacial and supraglacial sediment in response to melting of buried stagnant ice at the ice margin; sediment is mainly diamict (M), but locally includes stratified sediments of glaciolacustrine or glacioluvial origin. Characterized by low- to high-relief hummocky topography.
MT	Ice-thrust moraine	Terrain resulting from glacio-tectonic transport of originally subglacial sediment and deposited by the glacier more or less intact; deposits may include syngenetic till as well as masses of deposited pre-existing till, stratified drift and/or bedrock. Characterized by high to moderate relief and features include hill-hole pairs and glacio-tectonic moraine ridges.
MF	Fluted moraine	Glacially streamlined terrain; varies from alternating furrows and ridges to nearly equidimensional smoothed hills; all landforms parallel the local ice flow direction; includes flutes, hummocks and drummoids.
FP	PREGLACIAL FLUVIAL DEPOSITS	Sediments transported and deposited by streams and rivers prior to glaciation. Includes sand and gravel deposits occurring in paleovalleys (i.e. preglacial floodplains, terraces, fans and deltas); ranging in age from middle Wisconsin to late Tertiary.
PRE-QUATERNARY		
RT	UNCONSOLIDATED FLUVIAL GRAVELS	Predominantly well-sorted, quartzite and chert gravel and cobbles; Cordilleran source, Paleogene (Tertiary) to early Quaternary age.
R	BEDROCK	Undifferentiated; may include clastic sedimentary rock, shale, coal, carbonate and crystalline (Shield), Kimberlite and/or coal.

SYMBOL LEGEND	
Permafrost, relict and/or active	Permafrost
Thermokarst depression	Thermokarst depression
Landslide and active layer failure scar (small)	Landslide and active layer failure scar (small)
Landslide and active layer failure scar (large)	Landslide and active layer failure scar (large)
Eolian forms; dune ridges	Eolian forms; dune ridges
Beach or strandline	Beach or strandline
Wave cut bench	Wave cut bench
Escarpment	Escarpment
Meltwater channel (minor, flow indicated)	Meltwater channel (minor, flow indicated)
Meltwater channel (major, flow indicated)	Meltwater channel (major, flow indicated)
Crevasse filling	Crevasse filling
Ice contact slope	Ice contact slope
Kettle	Kettle
Esker, direction of paleoflow unknown	Esker, direction of paleoflow unknown
Esker, direction of paleoflow indicated	Esker, direction of paleoflow indicated
Drumlinoid or streamlined landform	Drumlinoid or streamlined landform
Buried drumlinoid or streamlined landform	Buried drumlinoid or streamlined landform
Minor moraine ridge	Minor moraine ridge
Major moraine ridge	Major moraine ridge
Iceberg scour	Iceberg scour
Ice thrust ridge	Ice thrust ridge
Striation (direction unknown)	Striation (direction unknown)
Striation (direction known)	Striation (direction known)
Bedrock outcrop	Bedrock outcrop
Gravel and/or sand pit	Gravel and/or sand pit
Section of stratigraphic interest	Section of stratigraphic interest

BASEMAP LEGEND	
Paved highway	Paved highway
Gravel road - dry season	Gravel road - dry season
Unimproved road	Unimproved road
Trail	Trail
River	River
Lake	Lake
UTM grid, Zone 11	UTM grid, Zone 11
Contour, 10 metre interval	Contour, 10 metre interval

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84L	84L
GSC OF 4754	GSC OF 4637

UNIT NOTATION

Example: GLACIOLACUSTRINE plain

Textural Modifier
Genetic modifier
Geomorphic class

Textural characteristics may be applied to the terrain classification as a prefix based on field observations or by inference from distinctive genesis and/or morphology. When two modifiers are given, the second letter is the dominant texture, with the first letter indicating the secondary texture, i.e., ac for sandy clay.

Textural Modifier
f fan
g gullied
h hummock
k collapse
m meander
p plain
r ridged
s slumped
t terrace
u undulating
v veneer
w washboard
y dissected
z delta

Genetic & Geomorphic Modifiers

c crevasse fill
d doughnut rings and ridges
e eroded
f fan
g gullied
h hummock
k collapse
m meander
p plain
r ridged
s slumped
t terrace
u undulating
v veneer
w washboard
y dissected
z delta

Complex
Where two or more classes of terrain are interspersed in a mosaic or repeating pattern on a scale too small to warrant meaningful differentiation, the proportion of each component in the combination is given in a two or three position designation set off by slashes denoting arbitrary percentage limits. For example,
MPLGV means that the area is underlain by approximately 60% morainal plain and up to 40% glaciolacustrine veneer.
MLVLOFGP means that at least 60% of the area is underlain by morainal veneer, with up to 40% glaciolacustrine veneer and less than 10% glacioluvial plain.
LGP/MT means that more than 60% of the area is underlain by a glaciolacustrine plain, with less than 15% moraine.

Stratigraphic Sequence
Where materials of different origin or texture are known to be superimposed or can be confidently inferred, the sequence is indicated in conventional order using vertical separators, such as:
sLgV | M
Thin sandy glaciolacustrine sediment deposited on morainal plain.

Transitional Association
Locally, two or more terrain units are juxtaposed by reason of related origin, temporal sequence, or ambiguous geomorphic destruction. In the last case, both components may or may not be present. Such situations are identified by a compound designation marked by a hyphen. Examples are: *FG-LG* indicating ice-contact delta indistinguishable from glaciolacustrine delta, or *FG-MB* indicating ice-contact kame and kettle topography that blends with hummocky stagnant ice moraine.

Morphologic Overprint
Where a sequence of geomorphic processes has produced a multi-aspect or compound terrain profile, the geomorphic modifier suffixes are appended in the inferred order of superposition. *Mpy* means that a plain of till has been moulded into ridge forms and finally dissected by modern streams. *FGPr* means that a glacioluvial plain has been discontinuously covered by ice-contact hummocks and ridges.

Acknowledgements:
Surficial mapping was completed in 2003 as an Alberta Geological Survey (AGS) and Geological Survey of Canada (GSC) collaborative contribution to NRD Project 4450 and the Quaternary mapping initiative under the Alberta Mineral Strategy. Airphoto interpretation by Roger Paulen, Michelle Trommet and Michelle White provided assistance with fieldwork and compilation of the digital databases. A field visit from post-doctorate fellow, Konstantin (Kosya) Dlusky, University of Alberta, was greatly appreciated. Digital cartography and GIS were completed by Monica Price and Natasha Clarke. Digital base produced by the Resource Data Division, Alberta Environment, supplied by Spatial Data Warehouse Ltd.

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Published 2005
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Map 315
Surficial Geology of the Little Hay River Area, Alberta (NTS 84L/NW)
Geology by: R.C. Paulen, M.M. Fenton, J.G. Pawlowicz, I.R. Smith and A. Plouffe

