

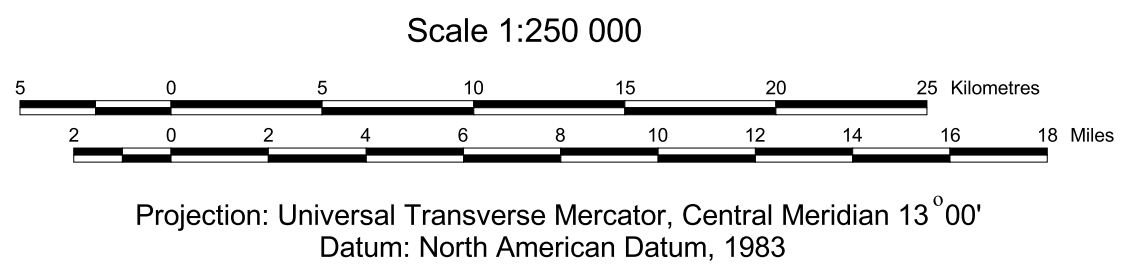
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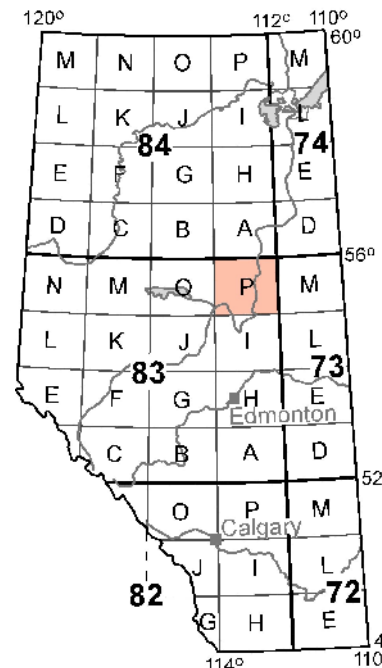
## Map No 251

## Surficial Geology of the Pelican Area, Alberta (NTS 83P)

Geology by: J.E. Campbell, M.M. Fenton and J.G. Pawlowicz, 2001.



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UNIT SYMBOL	UNIT NAME	DESCRIPTION AND GENESIS
<b>QUATERNARY</b>		
<b>HOLOCENE</b>		
O		<b>ORGANIC DEPOSITS:</b> Undifferentiated bog, fen, swamp and marsh deposits; woody to fibrous to mucky peat; commonly underlain by fine glacial lake deposits. Includes patterned fen, string bogs, palsas and organic terrain with thermokarst features.
C		<b>COLLUVIAL DEPOSITS:</b> Massive to stratified, silty to clayey diamiction and bedrock slabs; slope and slump deposits, formed by gravity-induced movement; confined to valley slopes and floors. Includes talus cone, debris flow, soilification lines, landslide blocks and slumps.
E		<b>EOLIAN DEPOSITS:</b> Wind-deposited sediments; well-sorted medium- to fine-grained sand, minor silt (loess); generally massive to locally cross-bedded or ripple laminations. Includes both active and vegetated deposits, blowout and remnant sand dune ridges, longitudinal and parabolic dunes.
A		<b>ALLUVIAL DEPOSITS:</b> Sand, silt, clay, gravel and organic sediments deposited by modern streams; commonly well-sorted and stratified. Includes alluvial fans.
L		<b>LACUSTRINE DEPOSITS:</b> Sediments deposited in and adjacent to recent lakes; offshore sand, silt and clay, minor organic deposits; littoral (nearshore) sand and silt and minor gravel. Includes modern beach deposits and lake ice push ridges.
<b>PLEISTOCENE</b>		
GL		<b>GLACIOLACUSTRINE DEPOSITS:</b> Sediments deposited in glacial lakes; massive to stratified clay, silt, sand, and minor gravel; thickness varies from <1 to >5 m; lake sediments may form a discontinuous cover; sediments reworked by wave action of glacial lake or carried into the lake basin mainly by glacial meltwater and deposited offshore in deep water; predominantly silts and clays; commonly flat to gently rolling plain. Includes irregular hummocks, circular hummocks with a central depression, plateau mounds and/or irregular chaotic ridges; beaches, bars and spits.
GF		<b>GLACIOFLUVIAL DEPOSITS:</b> Stratified gravel and sand, minor silt, and clay deposited by glacial meltwater in contact with or near the glacier (colour indicates undifferentiated glaciofluvial sediments).
dGF		<b>Distal (proglacial):</b> Predominantly well-sorted sand with minor gravel and silt; deposited suberially in front of the ice (outwash) or within meltwater channels in front or beneath the glacier; flat to gently undulating plain which may be marked by channel scars and kettle holes.
pGF		<b>Proximal (ice-contact):</b> Predominantly gravel and sand, locally till, deposited in contact with the ice; irregular undulating to hummocky (kame and kettle) topography; may also have associated ice crevasse ridges and eskers; moderately to poorly sorted; stratified to massive; may exhibit features related to slumping and faulting.
M		<b>GLACIAL DEPOSITS/MORAINE:</b> Unsorted to poorly sorted diamictions deposited as till (a mixture of clay, silt, sand, minor pebbles, cobbles and boulders) at the ice margin or beneath a glacier; locally may include beds of shale, siltstone, sandstone, or pre-existing stratified drift and till. Moraine may also include beds of glaciolacustrine and/or glaciofluvial sediments. The regional till is predominantly clay rich; locally the texture of the till may vary depending on the local source material. Thickness may exceed 150 m in buried valleys.
Md		drumlin, drumlinoid and/or fluted terrain composed of ground moraine
Mr		DeGeer, Rogen, ribbed moraines; undivided morainal ridges including end moraine
MS		<b>Stagnant ice moraine:</b> 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 till but locally includes stratified sediments of glaciolacustrine or glaciofluvial origin. Characterized by low- to high-relief hummocky topography. Includes end and recessional moraines and also crevasse fillings; sub-parallel to intersecting ridges believed to have formed under stagnant ice conditions by infilling of ice crevasses with glacial debris by either squeezing up from the base of the ice or flowing/slumping into open crevasses; till and stratified sediments; > 2 m high, low to moderate relief
MT		<b>Ice-thrust moraine:</b> Terrain resulting from glaciotectionic transport of originally subglacial sediment and deposited by the glacier more or less intact; deposits may include syngenetic till as well as masses of pre-existing till, stratified drift and/or bedrock; topography generally moderate to high relief. Includes 'rubble' moraine, 'hill-hole pairs'; high to moderate relief and glaciotectionic moraine ridges; moderate to high relief.
<b>PRE-QUATERNARY</b>		
R		<b>BEDROCK:</b> Includes Cretaceous sandstone, siltstone, mudstone, shale, minor coal and Tertiary quartzite gravel.

### FEATURES LEGEND

Bedrock outcrop	x
Drumlin, drumlinoid, ispatnow	—●—
Drumlin, drumlinoid, ispatnow, weakly defined	—●—
Flutings	—>>>>
Flutings, weakly defined	—>>>>
Esker ridge, direction known	>>>>
Esker ridge, direction unknown	<<<<
Dunes; singular ridges	—wavy—
Strandlines; raised beaches, terraces	—dashed—
Meltwater channel, major	—thick—
Meltwater channel, minor	—thin—
Ice-walled channel, depression, buried valley	—dashed—
Escarpment-ice contact, bedrock	—thick—
Ice thrust ridge	—thick—
Glacial thrust quarry depression boundary; direction of transport indicated	—thick—
Ribbed, De Geer (washboard) or Rogen, moraine	—thick—
Major moraine ridge; end moraine, recessional moraine	—thick—
Minor moraine ridge undefined	—thin—
Crevasse filling	xxxxxx
Surface lineament; source unknown	—dashed—

### FIELD SITES LEGEND

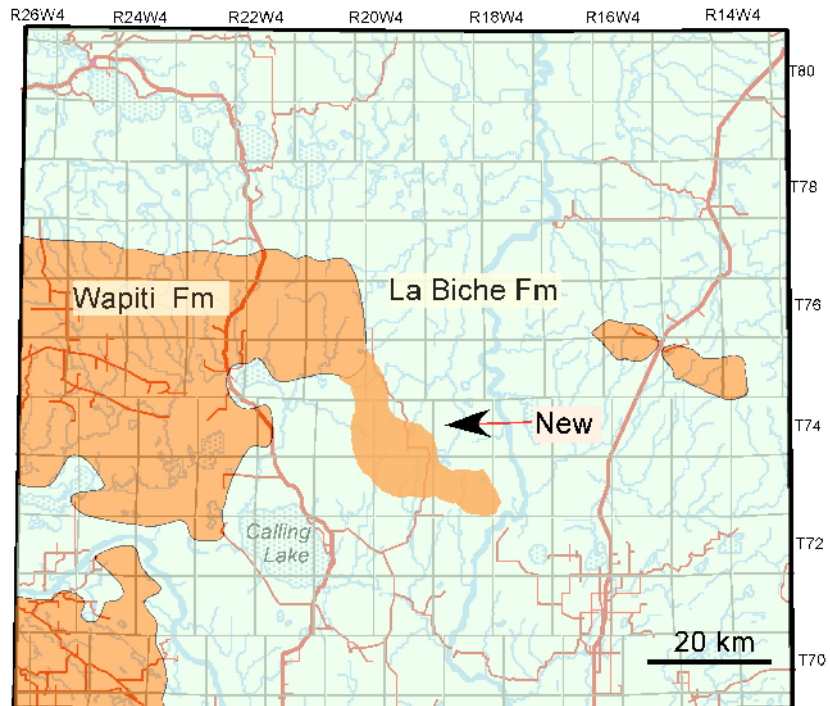
Observation only	○
Observation + sample taken	●
Observation + diamond indicator sample	◆
Borehole, auger	⋈
Borehole, rotary	⋈

### ROADS

Paved	—solid—
Gravel	—dashed—
Unimproved	—dotted—
Truck-trail	—dashed—
UTM, Zone 12 Grid	+ 430000m.E
Contour intervals 10 metres	

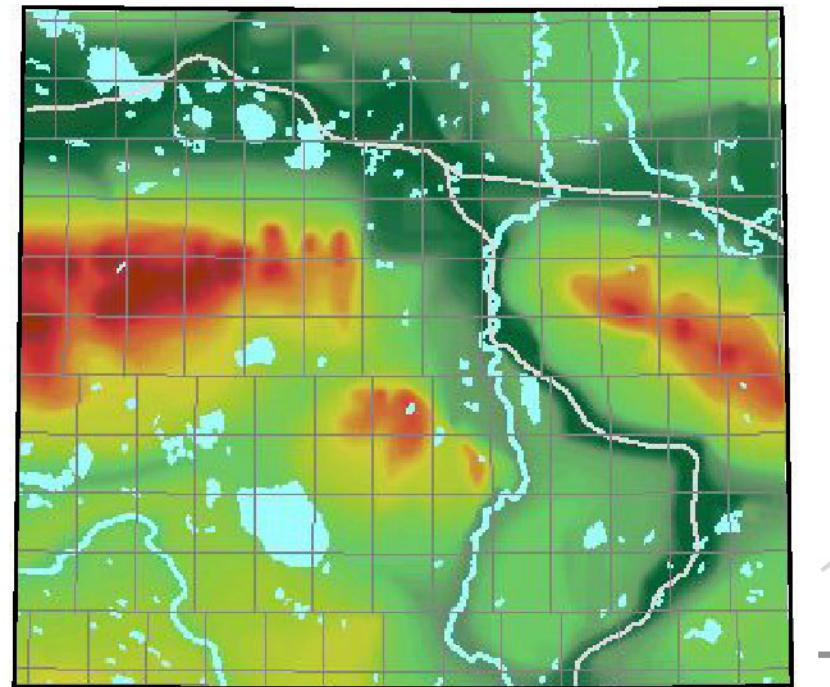
Note. This map is a simplified version of the four large scale (1:100,000) maps 83P NE, NW, SE, and SW. The polygon boundaries from these large scale maps are preserved where each polygon is large enough to be visible on this map. Polygons are grouped according to the major genetic symbol, i.e., by map unit colour. For example, adjacent polygons having the major component as 'MS' are grouped under one colour. More minor components of a polygon, such as a partial cover of organic sediment, which are shown on the 1:100,000 maps, are omitted here. Unit identification, on this map, is primarily by colour. Only a small proportion of the polygons have labels, such as 'A' or 'MT' attached to them.

Generalized Bedrock Geology NTS 83P  
(after Geological Map of Alberta Map 236D, 2001)

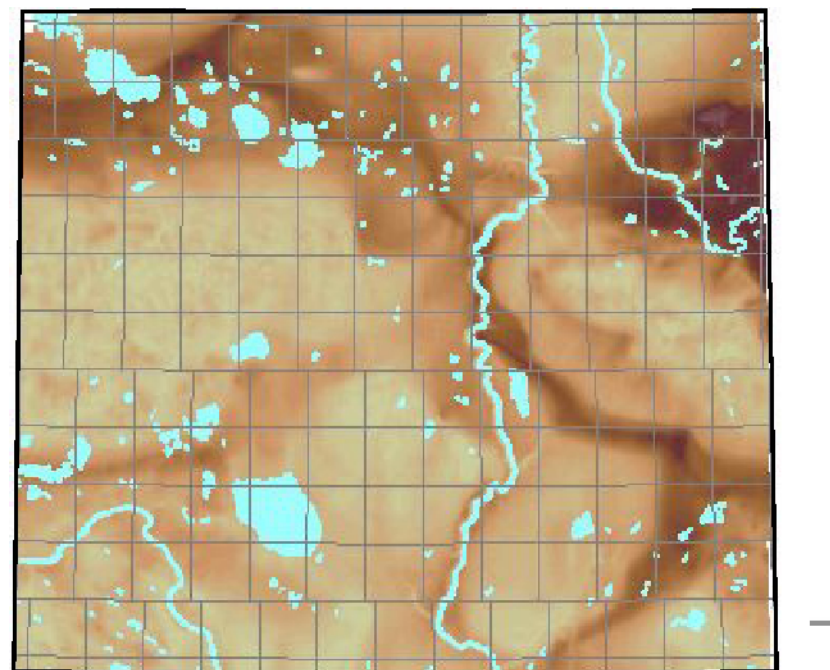


Wapiti Fm:	grey, feldspathic, clayey sandstone; grey bentonitic mudstone and bentonite; scattered coal beds; nonmarine
La Biche Fm:	dark grey shale and silty shale; ironstone partings and concretions; silty fish-scale bearing beds in lower part; marine

### Bedrock Topography of Pelican 83P



### Drift Thickness of Pelican 83P



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Digital base produced by the Resource Data Division, Alberta Environment, supplied by Spatial Data Warehouse Ltd.

### References:

Scate, D.W., Edwards, W.A.D., and Boisvert, D.R., 1989. Sand and gravel resources of the Wandering River Area, Alberta. Alberta Research Council Open File Report 91-01.  
Scate, D.W., Sham, P.C., and Ray, C.M., 1987. Sand and gravel resources of the Pelican (west central portion of 83P) map area, Alberta. Alberta Research Council Open File Report 87-02.