

UNIT SYMBOL	UNIT NAME	DESCRIPTION AND GENESIS
QUATERNARY		
HOLOGENE		
O	ORGANIC DEPOSITS:	Undifferentiated bog, fen, swamp and marsh deposits; woody to fibrous to mucky peat; commonly underlain by fine glacial lake deposits.
Ol	patterned fen, string bogs	
Oh	palasas	
Opk	organic terrain with thermokarst features	
C	COLLUVIAL DEPOSITS:	Massive to stratified silt to clayey diamicton and bedrock slabs; slope and slump deposits formed by gravity-induced movement, confined to valley slopes and floors.
Cf	talus cone, debris flow	
Cl	soilification lines	
Cs	landslide blocks, slumps	
E	EOLIAN DEPOSITS:	Wind-deposited sediments; well-sorted medium- to fine-grained sand, and minor silt (loess); generally massive to locally cross-bedded or ripple laminated; includes both active and vegetated deposits.
Er	blowout and remnant sand dune ridges	
El	longitudinal and parabolic dunes	
A	ALLUVIAL DEPOSITS:	Sand, silt, clay, gravel and organic sediments deposited by modern streams, commonly well sorted and stratified.
Al	alluvial fan	
L	LACUSTRINE DEPOSITS:	Sediments deposited in and adjacent to recent lakes; offshore sand, silt and clay, and organic deposits; littoral (marshes) sand, silt, and clay, and minor gravel.
Lr	modern beach deposits and lake ice push ridges	
PLEISTOCENE		
GL	GLACIOLACUSTRINE DEPOSITS:	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.
GLh	glaciolacustrine sediments with irregular hummocky topography resulting from deposition in ponded water on stagnant ice (isoprocacial); generally silt with minor sand, clay and diamicton; moderate relief	
GLl	glacial hummocks with a central depression, plateau mounds and/or irregular chaotic ridges composed of supraglacial lake silts and clays; low to moderate relief	
GLd	Offshore (distal): Fine-grained sediments, predominantly silt and sand, minor sand and diamicton, deposited in a deep water environment (i.e., GLv, GLp). May include ice rafted boulders and diamicton inclusions.	
GLn	Nearshore and littoral: Sand, silt, sand and gravel, moderately well sorted and commonly horizontally bedded; occurs as a blanket of sand grading downward into finer sediments, or as foreset deltaic deposits (GLx), or as isolated or series of ridges including beaches, bars and spits. Sandy or gravelly nearshore and littoral lake sediments are prefixed with a textural modifier (i.e., sGLp, sGLx).	
GLr	strandlines, raised beaches; sand and minor gravel ridges marking paleoshorelines of glacial lakes; commonly <1 m to 3 m in height; includes cobble beaches	
GF	GLACIOPROGLACIAL DEPOSITS:	Stratified gravel and sand, minor silt, clay deposited by glacial meltwater in contact with or near the glacier (colour indicates undifferentiated glacioprocacial sediments).
GFd	Distal (proglacial): Predominantly well-sorted sand with minor gravel and silt; deposited subaerially in front of the ice (outwash) or within meltwater channels in front of or beneath the glacier (i.e., GFp, GFv); flat to gently undulating plain that may be marked by channel scars and kettle holes (K).	
GFp	Proximal (ice-contact): coarse grained sediments (predominantly gravel and sand, locally till) deposited in contact with the ice; irregular undulating to hummocky (beams and kettles) topography; may also include associated ice crevasse ridges and eskers; moderately to poorly sorted; stratified to massive; may exhibit features related to slumping and faulting	
GFv	eskers and esker systems	
GFw	stagnant ice hummocky stratified deposits	
GFh	crevasse ridges composed of stratified drift; appear very similar to small-scale eskers	
GFd	previously deposited sands and gravels overridden and remolded into streamline features by glacial ice; landforms oriented parallel to ice flow	
GFx	ice-contact delta; silt, sand, gravel and diamicton deposited in contact with the ice by outflow of meltwater at the ice margin into a glacial lake	
M	GLACIAL DEPOSITS/MORAINE:	Unsorted to poorly sorted diamictons 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 blocks of shale, siltstone, sandstone, or pre-existing stratified drift and till. Moraine may also include beds of glaciolacustrine and/or glacioprocacial 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, isopattern	
Mv	drumlin, drumlinoid and/or tilted terrain composed of ground moraine	
Mr	De Geer, Rogen, ribbed moraines; undivided moraine ridges including end moraine	
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 till but locally includes stratified sediments of glaciolacustrine or glacioprocacial origin. Characterized by low to high-relief hummocky topography.	
MSr	commonly end and recessional moraines	
MSf	crevasse fillings; subparallel to intersecting ridges believed to have formed under stagnant ice conditions by infilling of ice crevasse with glacial debris by either squeezing out from the base of the ice or flowing/slumping into open crevasse, till and stratified sediments; > 2 m high, low to moderate relief	
MT	Ice-thrust moraine: 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	
MTh	'bubble' moraine, 'hill-hole pairs'; high to moderate relief	
MTT	glaciotectionic moraine ridges; moderate to high relief	
PRE-QUATERNARY		
R	BEDROCK: Undivided; may include crystalline (Shield), carbonates, clastic sediments and/or coal.	
Rd, sRk	fluted or drumlinized bedrock; undetermined if bedrock has been glacially eroded, transported, or deformed in situ	
Rw	feisensmer (frost-shattered bedrock)	
gRT	Tertiary gravels: predominantly quartzite and chert gravel and cobbles; preglacial age.	
RK	Cretaceous: Sandstone (s), siltstone (S) and shale (c); minor coal; bedrock often glacially deformed with the bedding folded and faulted	

NOTE: Where necessary, genetic specific geomorphic landform notations are given under unit description.

FEATURES LEGEND	
Bedrock outcrop	x
Kettle hole/lake	⊖
Thermokarst depression	⊖
Drumlin, drumlinoid, isopattern	•
Drumlin, drumlinoid, isopattern; weakly defined	•
Flutings	—
Flutings, weakly defined	—
Esker ridge, direction known	>>>>
Esker ridge, direction unknown	<<<<
Dunes; singular ridges	~
Dunes; hummocky, blowouts, dune field, wind direction indicated	~
Strandlines, raised beaches, terraces	~
Meltwater channel, major	—
Meltwater channel, minor	—
Ice-walled channel, depression, buried valley	—
Escarpment-ice contact, bedrock	—
Ice thrust ridge	—
Glacial thrust quarry depression boundary; direction of transport indicated	—
Ribbed, De Geer (washboard) or Rogen, moraine	—
Major moraine ridge; end moraine, recessional moraine	—
Minor moraine ridge undefined	—
Crevasse filling	xxxxxx
Surface lineament, source unknown	---

FIELD SITES LEGEND		ROADS	
Observation only	○	Paved	—
Observation + sample taken	●	Gravel	—
Observation + diamond indicator sample	◆	Unimproved	—
Borehole, auger	⊥	Truck-trail	—
Borehole, rotary	⊥		
Site/Borehole Name	JC00-041		

GEOMORPHIC MODIFIER	
m	ridges and rings
c	channeled
d	drumlinoid
e	eroded
f	filled
g	gullied
h	hummocky
k	collapse
l	linear structures or features
r	ridged
p	plained
s	slumped
t	terrace
u	undulating
v	veneered
w	winnowed
x	delta

UNIT NOTATION
Example: GLACIOLACUSTRINE plain

Textural modifier: sGLp
Genetic class: P
Geomorphic modifier: plain

Textural Modifier
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., sc for sandy clay

g = gravel
s = sand
s = silt
c = clay

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: *MvGLv means that the area is underlain by approximately 60% moraine plain and up to 40% glaciolacustrine veneer

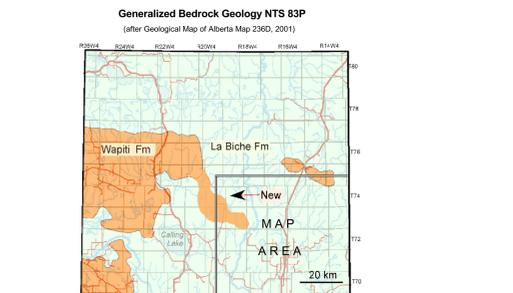
*MvGLvGFp means that at least 60% of the area is underlain by moraine veneer, with up to 40% glaciolacustrine veneer and less than 15% glacioprocacial plain.

*GLpIM means that more than 60% of the area is underlain by a glaciolacustrine plain, with less than 15% moraine

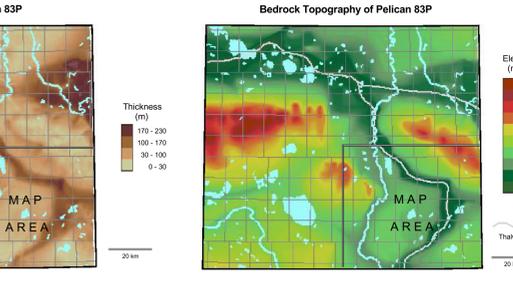
Stratigraphic Sequence
Where materials of different origin or texture are known to be superimposed or can be reasonably confidently inferred, the sequence is indicated in conventional order using vertical separators. For example: *Mv/Mf indicates thin hummocky moraine deposited on drumlinoid moraine

Transitional Association
Locally, two or more terrain units are juxtaposed by reason of related origin, temporal sequence, or ambiguous geomorphic distinction. In the case of the latter, both components may or may not be present. Such situations are identified by a compound designation marked by a hyphen. Examples are: *sGLv-GLv indicating ice-contact delta indistinguishable from glaciolacustrine delta; *GFp-MSr 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 fabric, the geomorphic modifier suffixes are appended in the inferred order of super position. *Mvdc means that a veneer of till has been moulded into a drumlinoid form and finally channelled by former meltwater streams. *GFpfr means that a glacioprocacial plain has been discontinuously covered by ice-contact hummocks and ridges.



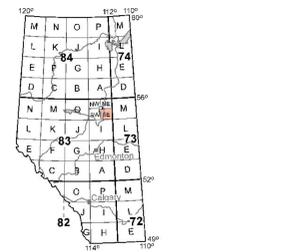
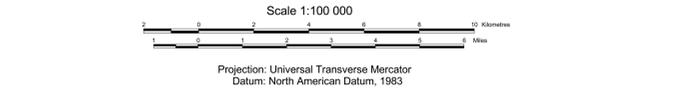
Wapiti Fm: grey, felspathic, clayey sandstone; grey bedrock mudstone and bedrock scattered coal beds; moraine
La Biche Fm: dark grey shale and silt shale; transition partings and concretions; silt-fine-scale bearing beds in lower part; marine



Copies of this map may be obtained from:
Information Sales Office
Alberta Geological Survey
Telephone: (780) 422-3767
Website: www.agr.gov.ab.ca
Head Office Website: www.esb.gov.ab.ca

Map 242
Surficial Geology of the Wandering River Area, Alberta (NTS 83P/SE)

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



This is a common map legend. Not all units may be present on this map.



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References:
Scale, 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 81-01.
Scale, D.W., Sham, P.C., and Ray, G.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.