



GEOLOGICAL SURVEY OF CANADA
DEPARTMENT OF ENERGY, MINES AND RESOURCES

LEGEND FOR SURFICIAL GEOLOGY MOSAICS
OF
GRAND RAPIDS (63 G), CROSS LAKE (63 I) AND WEKUSKO LAKE (63 J),
MANITOBA
by R. W. Klassen and J. A. Netteville
1974

GEOLOGIC MAP UNIT	MATERIAL	LANDFORM		ASSUMED THICKNESS (range in feet)	ORGANIC DEPOSITS AND PERMAFROST	GENERAL COMMENTS
		ORIGIN	TOPOGRAPHY			
Saf	silt and sand	floodplain	nearly flat, in places marked by abandoned channels	0 to 5	patches of fen are common; permafrost is generally absent but may occur in isolated bogs	poor source of aggregate; the floodplains occur within lacustrine plains and may include in-place or reworked clay
CL(p,b)	clay and silt	glacial lake	plains are extensive (tens of miles) nearly flat or gently irregular surfaces with 5 to 15 feet local relief which commonly are marked by scattered knolls of bedrock; basins are not as extensive (10 miles or less) and are associated with bedrock controlled surfaces with local relief of more than 15 ft.	10 to 50	fen with bog patches is widespread on the plains area whereas bog and fen commonly occur as discontinuous patches in the basins between bedrock knolls and ridges; bog is 2 to 9 ft. thick and shallow permafrost occurs at 1 to 4 ft. depth; closed stands of Black Spruce occur on most bogs; tree cover on better drained sites on the flanks and tops of clay mantled bedrock knolls is open to closed stands of mostly Aspen, Black Spruce and Jack Pine; open stands of Tamarack are common on the fen	clay and silt are commonly varved although massive, slightly stony clays occur in certain belts coincident with glacier margins
SLr	sand and gravel	lacustrine beaches, spits and bars	ridge or series of ridges; local relief 4 to 10 ft.	4 to 10	generally absent; closed stands of Aspen or Jack Pine are common	good source of mostly fine aggregate; veneer of bouldery carbonate rubble 1 to 3 ft. thick commonly occurs adjacent to the beaches on carbonate bedrock
(S,C)Lv	sand, silt and clay	glacial lake	surface reflects topography of underlying materials; commonly mantles bedrock knolls, till knolls and scattered broad ridges of ice-contact deposits	0 to 10	generally absent; closed stands of Black Spruce form most of the tree cover	clay and silt are commonly varved
(S,G)I(r,n,k)	sand and gravel	ice-contact	ridges and knolls that occur as isolated landforms or as broad rises along trends continuous for tens of miles; local relief ranges from 10 to 50 ft.; some land forms are locally pitted but most surfaces appear fairly smooth	10 to 50	generally absent; closed stands of Aspen and Jack Pine are common	good source of mostly fine aggregate; landforms in 63J have smooth surfaces reworked by lake water whereas pitted surfaces occur outside the main lake basin along the eastern margin of 63I; some ridges may be composed mostly of till veneered with sand
Siv	sand, some gravel		surface reflects the topography of underlying bedrock knolls	0 to 10		limited source of poorly sorted aggregate
TM(p,d,e)	mostly sandy till, high in igneous rock detritus; some silty till, high in carbonate rock detritus; minor sand and gravel	water eroded ground moraine	gently irregular or broadly rolling till plain with 5 to 25 ft. local relief; areas of higher relief are marked by scattered drumlins, drum-loids and bedrock rises and knolls	0 to 25	bog and fen cover low areas between drumlins and bedrock rises; bog is 2 to 9 ft. thick and patches of shallow permafrost occur at 1 to 4 ft. depth; tree cover in low areas is open to closed stands of Black Spruce; closed stands of Jack Pine, Aspen and Black Spruce occur on drumlins	heterogeneous mixture of silt, sand and bouldery gravel suitable as fill material
TMve			surface reflects topography of underlying bedrock with 5 to 50 ft. relief	0 to 10		
cR(p,n)	Paleozoic carbonate bedrock	preglacial and glacial erosion	mainly flat to gently irregular plains; scarps and knolls with 10 to 30 ft. relief occur along the eastern boundary and in places on the plains	not applicable	generally absent; grassy fens occur here and there; open to closed stands of mostly Jack Pine, Aspen and Poplar; areas of burned scrubby trees are common	carbonate rubble veneer 1 to 3 ft. thick, covers much of the bedrock and provides a limited source of coarse aggregate
R(p,n)	mostly Precambrian granitic bedrock		gently irregular to broadly rolling plains and/or areas of knolls and ridges with 15 to 50 ft. relief		bog and fen occur in low areas between bedrock rises; bog is 2 to 9 ft. thick and contains patches of shallow permafrost at 1 to 4 ft. depth; tree cover on low, poorly drained sites is open to closed stands of Black Spruce; on the better drained rises Black Spruce occurs with Jack Pine and Aspen	bedrock exposures are commonly extensive in plains areas and discontinuous or patchy in areas of numerous knolls

TEXTURAL (large capital letter)	GENERIC (small capital letter)	MORPHOLOGIC (lower case letter)
G - gravel and sand	A - alluvial	n - knoll(s) (<50' relief)
S - sand and silt	L - glaciolacustrine	r - ridge(s)
C - silt and clay	I - ice-contact	p - plain
T - till	M - morainal	b - basin
R - bedrock		f - floodplain
		v - veneer (commonly 2' to 10' thick)
		k - kettles

Boundaries (geologic, geologic and organic, organic).....	
Drumlin or drumloid (ice direction shown, not shown).....	
Glacial striae (ice direction shown).....	
Esker (direction flow assumed, uncertain).....	
Abandoned beach.....	
Escarpment or steep bank.....	
Minor intersecting lineaments.....	
Helicopter landing site.....	
Gravel Pit.....	
Road.....	

Complex Units: A horizontal line — separating two units indicates a veneer unit overlying a thicker and morphologically dominant unit e.g. $\frac{CLv}{Rn}$

Composite Units: A single slash / or double slash // between two units is used to designate areas where two distinctive units (mineral or organic) occur but are mapped as one unit. The first unit indicated comprises more than 50 per cent (rough estimate) of the area; the second unit designated comprises from 25 to 50 per cent where separated by a single slash e.g. $\frac{CLv}{Rn} / CLb$ or less than 25 per cent where separated by a double slash e.g. $\frac{CLv}{Rn} // CLb$

Organic Units: Organic deposits designated as bog (1) and fen (2) cover the surficial sediments and bedrock in most of the low-lying poorly drained parts of the map-area. Bog is composed of peat material several ft. or more above the water table; permafrost commonly occurs at a depth of 1 to 4 ft. depending upon local factors (tree cover, slope, drainage, etc.). Fen is peat covered by shallow water or water covered by a floating peat blanket and permafrost is absent.