



- SURFICIAL GEOLOGY**
- LEGEND**
- SURFICIAL DEPOSITS**
- HOLOCENE**
- 15 ORGANIC DEPOSITS: mainly muck and peat in peatlands, swamps, and poorly drained areas
 - 14 ALLUVIAL DEPOSITS: stratified sand, silty sand, silt, minor gravel and clay
 - 13 Alluvium on floodplains of present rivers; 14a, alluvium of river terraces in main river valleys
 - 12 EOLIAN DEPOSITS: uniform, medium to fine grained, buff sand; derived from older glaciofluvial and glaciolacustrine sediments; includes areas of blowouts and areas of hummocky or ridged dune topography
- PROGLACIAL AND GLACIAL ENVIRONMENT**
- 11 DELTAIC DEPOSITS: well sorted and bedded, medium to fine grained, buff sand and gravel built into glacial lakes by glacial meltwaters and at the mouths of spillways
 - 10 LACUSTRINE DEPOSITS: clay, silty clay, silt, and sand thick enough (>1 m) to mask underlying topography; occurs as flat or gently undulating plains
 - 9 Coarse sand, silty sand, and minor silt; 10a, sand and gravel, 1 to 3 m thick, of possible shoreline or nearshore origin
 - 8 Fine silt, silty clay, clay, and minor sand; 9a, pitted or kettled
- QUATERNARY**
- LATE WISCONSINAN**
- 6 COLLAPSED GLACIOLACUSTRINE DEPOSITS: silt, silty clay, clay, and minor sand; ridged and kettled lake sediments resulting from deposition over or partly over and adjacent to bodies of glacial ice and disrupted by the melting of underlying ice; includes moraine and dead-ice plateaus
 - 5 Hummocky topography, strongly developed; 10 to 40 m local relief; 8a, sand, fine sand, and minor silt
 - 4 Hummocky topography, moderately or weakly developed; 2 to 10 m local relief; 7a, sand, fine sand, and minor silt
 - 3 GLACIOFLUVIAL (ice-contact and ice-frontal) DEPOSITS: gravel and sand, poorly to well sorted and bedded, mainly coarse to medium grained, with numerous cobbles, boulders, and lenses of silt
 - 2 Outwash deposits: well sorted and bedded sand and gravel in flat plains and terraces deposited at the ice front by meltwaters; includes pitted and nonpitted outwash plains, valley trains, and kame terraces
 - 1 Hummocky or ridged ice-contact deposits; well to poorly sorted and bedded sand and gravel in steep-sided mounds and ridges; includes kames and eskers
- GLACIAL ENVIRONMENT**
- 4 HUMMOCKY MORAINES: till, with minor sand, gravel, and silt; knob and rimmed kettle topography with many stagnant and dead-ice features
 - 3 Hummocky topography, strongly developed; 10 to 40 m local relief; 4a, ridged (characterized by sharp ridges and rimmed kettles)
 - 2 Hummocky topography, moderately or weakly developed; 2 to 10 m local relief; 3a, locally covered by a thin veneer of sand not thick enough (<2 m) to mask underlying topography; 3b, morainal deposits washed and channelled by meltwater
 - 1 GROUND MORAINES: till, with minor sand, gravel, and silt; unsorted material ranging from pebbles to cobbles and boulders in a clayey to silty and sandy matrix; topography undulating to gently rolling
 - 2 Oriented: includes streamlined features such as drumlins, drumlinoids, flutings, grooves, furrows, resulting from moulding by active glacier ice movement or remoulding during ice readvance
 - 1 Unoriented: 1a, locally modified by lakewater and commonly bevelled; 1b, washed and channelled by meltwater and including lag gravel and sand; 1c, locally covered by a thin and commonly discontinuous veneer of sand not thick (<2 m) enough to mask underlying topography

- Geological boundary (defined)**
- Ice-flow ridges:** individual or groups of straight parallel till ridges, 3 to 15 m high, parallel to ice flow direction; includes drumlins, drumlinoid ridges, and flutings
- Morainal ridges:** straight to arcuate till ridges, 5 to 20 m high, mainly transverse to ice flow direction; includes ice thrust ridges, recessional moraines, and ridged end moraines
- Washboard moraine ridges:** succession of minor, straight to arcuate, parallel till ridges, 1 to 3 m high, mainly transverse to ice flow direction and displaying a characteristic swell-and-swell topography
- Ice-disintegration ridges:** fields of minor, straight to curved, commonly intersecting till ridges, 1 to 4 m high, mainly oblique to ice flow direction resulting from the in situ downwasting of ice; includes crevasse fillings
- Circular rim ridges:** areas of small, closed depressions in morainal and glaciolacustrine and glaciofluvial deposits and resulting from the late melting of buried ice blocks; the material of rim ridges is usually the same as that of the unit in which they occur
- Kettles**
- Glacial meltwater channels:** includes spillways, wind gaps, ice marginal and ice-frontal channels (major, minor)
- String bog ridges:** groups of parallel and sinuous low ridges composed of organic materials such as peat and muck common in bog and making environments
- Escarpment in bedrock or unconsolidated materials:** mainly present-day or abandoned river valley walls and lakeshore bluffs
- Crest lines of rotational slump blocks of bedrock, till, or overlying sediments on steep valley slopes**
- Fossil locality; commonly vertebrate bones or freshwater shells**
- Gravel, sand, or clay pit**
- Radiocarbon date**
- Date Material
 Lab No. Elevation

Geology by S.H. Richard, 1968-9

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Any revisions or additional geological information known to the user would be welcomed by the Geological Survey of Canada

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Mean magnetic declination 1984, 20°42.3' East, decreasing 13.1' annually

Elevations in feet above mean sea level

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INDEX MAP

MAP 6-1983
 SURFICIAL GEOLOGY
HANMORE LAKE
 WEST OF FOURTH MERIDIAN
 ALBERTA
 Scale 1:100 000

Kilometres 2 0 2 4 6 8 Kilometres

Universal Transverse Mercator Projection
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83 013	83 014	83 015	83 016
83 017	83 018	83 019	83 020
83 021	83 022	83 023	83 024
83 025	83 026	83 027	83 028
83 029	83 030	83 031	83 032

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