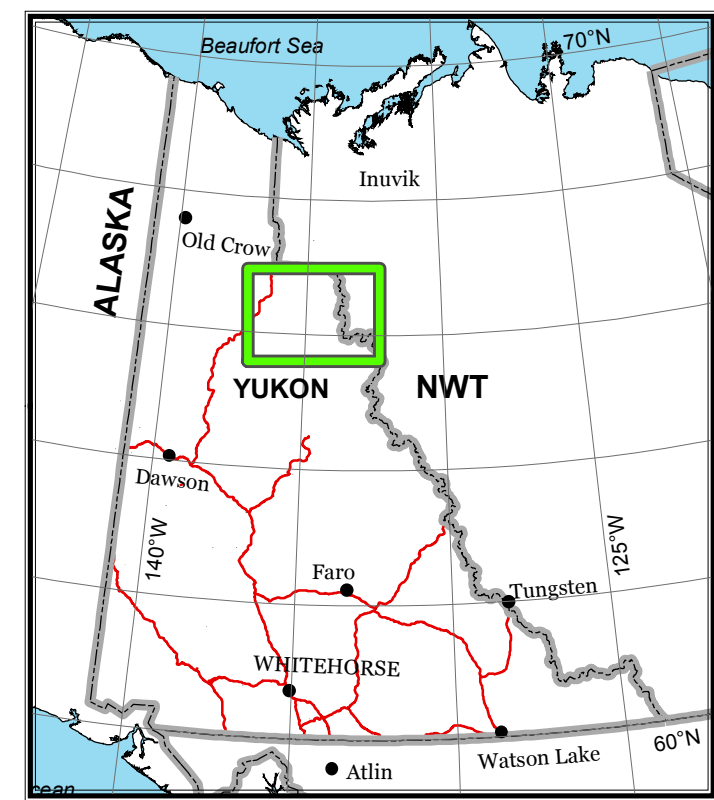
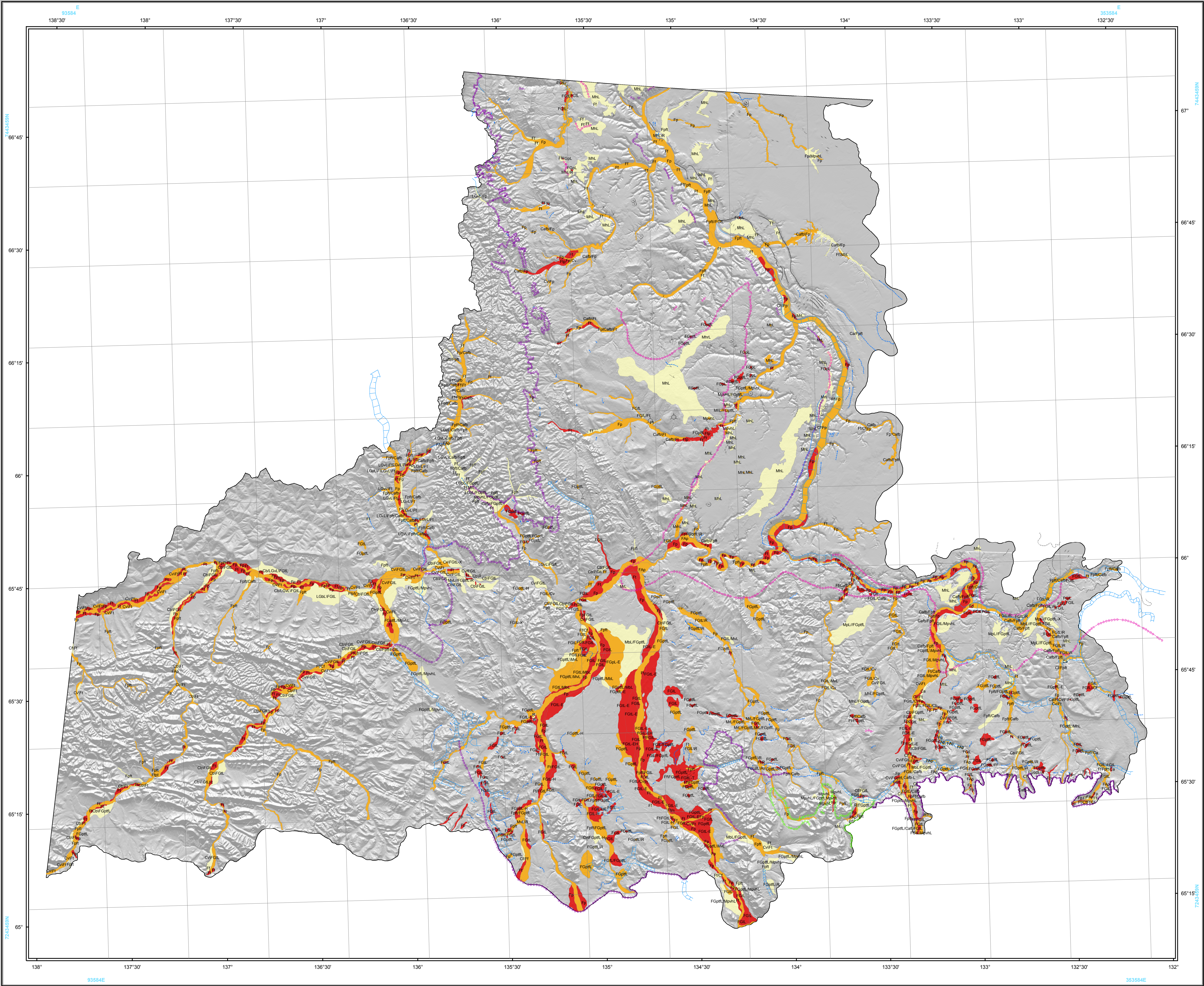
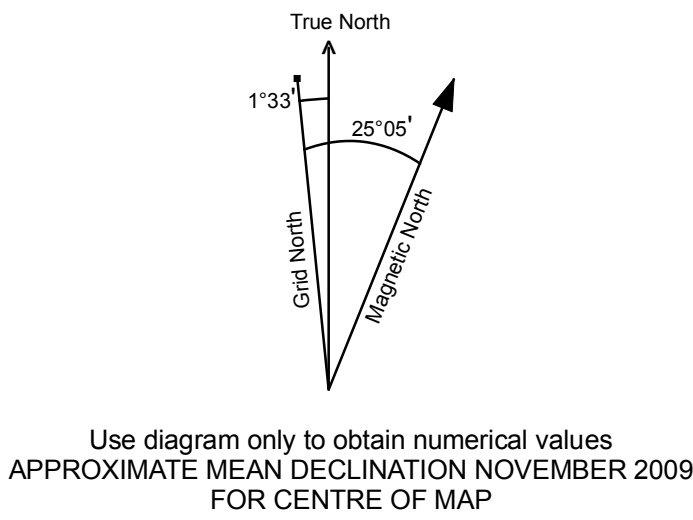




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Zone 8

PRELIMINARY AGGREGATE POTENTIAL
PEEL BASIN, YUKON
PARTS OF NTS 106E, F, K, L
and 116H, I

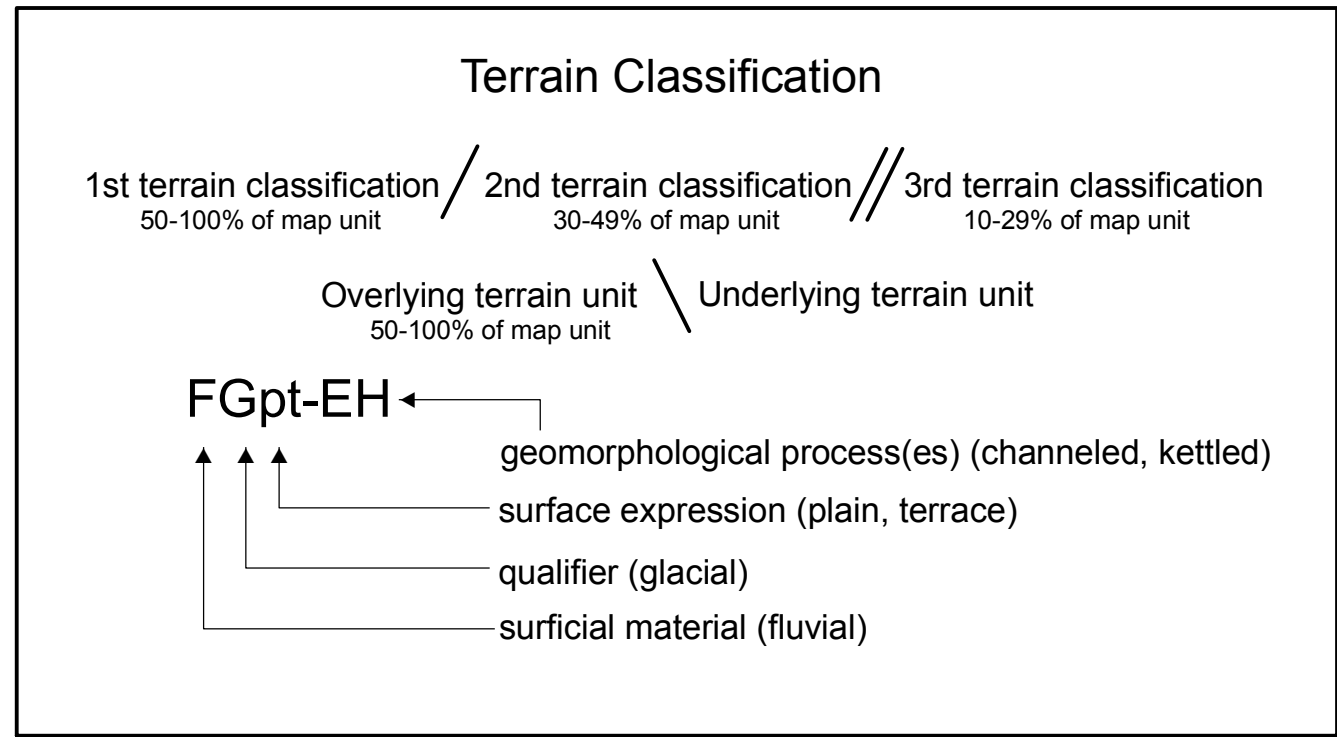
SCALE 1:400,000
0 5 10 20 30 40
Kilometers



116P BELL RIVER	106M FORT McPHERSON	106N ARCTIC RED RIVER
116I EAGLE RIVER	106L TRAIL RIVER MAP LOCATION	106K MARTIN HOUSE
116H HART RIVER	106E WIND RIVER	106F SNAKE RIVER

AGGREGATE POTENTIAL

- RED:** High aggregate potential; large and well-drained landforms; predominantly glaciofluvial and fluvial materials.
- ORANGE:** Medium aggregate potential; landforms with uncertain or mixed materials; frequently fluvial material that is overlain by colluvium.
- YELLOW:** Low aggregate potential; poorly drained and smaller landforms; hummocky and permafrost affected moraine landforms; many have significant glaciolacustrine or colluvial components.



SURFICIAL MATERIAL

Surficial materials are non-lithified, unconsolidated sediments. They are produced by weathering, sediment deposition, biological accumulation, human and volcanic activity. In general, surficial materials are of relatively young geological age and they constitute the parent material of most (pedological) soils. On the map, surficial materials form the core of the polygon label. They are symbolized with a single upper case letter, with surface expression or glacial qualifier to the right. The glacial qualifier "G" is used to describe glacially modified materials. If actual activity state is different than the assumed activity state (indicated in brackets next to the surficial material name below), a qualifier A (active) or I (inactive) is used as a superscript following the surficial material designator. Note that a single polygon will be coloured only by the dominant surficial material, but other materials may exist in that unit.

C - Colluvium (active): colluvium is material that was transported and directly deposited by down-slope, gravity-driven processes such as creep, landslides and snow avalanches. The texture and composition of colluvium vary more than any other material in the map area, depending on the parent material and the mechanism and distance transported. The utility of colluvium as aggregate material is generally low.

F - Fluvial (inactive): fluvial materials are transported and deposited by modern streams and rivers. Most of these deposits are limited to valley-bottom floodplains, terraces and fans. These features have potential to contain well-sorted and stratified deposits of sand and gravel.

FG - Glaciofluvial (inactive): glaciofluvial materials have been deposited directly by glacial meltwater. These deposits can form supra-, en- or subglacial, as well as in front of, or adjacent to, a glacier. They are deposited in meltwater channels, eskers, terraces, plains and deltas. Glaciofluvial materials commonly contain well-sorted and stratified gravel and sand.

LG - Glaciolacustrine (inactive): glaciolacustrine materials have been deposited in a lake on, in, under or beside a glacier. These deposits are generally thin in the map area, and can mask underlying units with higher aggregate potential.

M - Moraine (inactive): moraine describes diamicts deposited by either primary glacial processes such as lodgement, deformation and melt-out, or secondary glacial processes caused by gravity and water. Potential aggregate resources are likely poorly sorted, limited in volume and variable in lateral and vertical extent.

R - Bedrock: the bedrock surficial material label is used for areas where bedrock outcrops or is covered by a thin veneer of sediment. Bedrock outcrops occur as hummocks and ridges on valley bottoms and sides.

SURFACE EXPRESSION

Surface expression refers to the form (assemblage of slopes) and pattern of forms expressed by a surficial material at the land surface. The three-dimensional shape is equivalent to 'landform' used in a non-genetic sense (e.g., ridges, plain). Surface expression symbols also describe the manner in which unconsolidated surficial materials relate to the underlying substrate (e.g., veneer). Surface expression is indicated by up to three lower case letters, placed immediately following the surficial material designator, listed in order of decreasing extent.

a - apron: a wedge-like slope-toe complex of laterally coalescent fans and blankets. Longitudinal slopes are generally less than 15° (26%) from apex to toe with flat or gently convex/concave profiles.

b - blanket: a layer of unconsolidated material thick enough (>1 m) to mask minor irregularities of the surface of the underlying material, but still conforms to the general underlying topography; outcrops of the underlying unit are rare.

f - fan: sector of a cone with a slope gradient less than 15° (26%) from apex to toe; longitudinal profile is smooth and straight, or slightly concave/convex.

h - hummock: steep sided hillock(s) and hollow(s) with multidirectional slopes dominantly between 15-35° (26-70%) if composed of unconsolidated materials; whereas bedrock slopes may be steeper; local relief >1 m; in plan, an assemblage of non-linear, generally chaotic forms that are rounded or irregular in cross-profile; commonly applied to moraine and glaciofluvial knob-and-kettle terrain.

I - delta: landform created at the mouth of a river or stream where it flows into a body of water. Deltas have gently sloping surfaces between 0-3° (0-5%), and moderate to steeply sloping fronts between 16-35° (27-70%). Glaciofluvial deltas in the map area are typically coarse-grained with steep sides and gently inclined kettled or channeled surfaces.

m - rolling: elongate hillock(s); slopes dominantly between 3-15° (5-26%); local relief >1 m; in plan, an assemblage of parallel or sub-parallel linear forms with subdued relief.

p - plain: a level or very gently sloping, unidirectional (planar) surface with slopes 0-3° (0-5%); relief of local surface irregularities generally <1 m; applied to (glacio)fluvial floodplains, lacustrine deposits and till plains.

r - ridge: elongate hillock(s) with slopes dominantly 15-35° (26-70%) if composed of unconsolidated materials; bedrock slopes may be steeper; local relief is >1 m; in plan, an assemblage of parallel or sub-parallel linear forms; commonly applied to drumlinized till plains, eskers, moraine ridges, crevasse fillings and ridged bedrock.

t - terrace: a single or assemblage of step-like forms where each step-like form consists of a scarp face and a horizontal or gently inclined surface above it; commonly applied to fluvial and glaciofluvial terraces.

v - veneer: a layer of unconsolidated materials too thin to mask the minor irregularities of the surface of the underlying material; 10 cm - 1 m in thick; outcrops of the underlying unit are common.

GEOMORPHOLOGICAL PROCESSES

Geomorphological processes are natural mechanisms of weathering, erosion and deposition that result in the modification of the surficial materials and landforms at the earth's surface. Process is indicated by up to three upper case letters, listed in order of decreasing importance, placed after the surface expression symbol, and separated from the surface expression by a dash (-).

L - landslides: downslope movement by falling, rolling, sliding or flowing of dry, moist or saturated debris derived from surficial material and/or bedrock.

X - permafrost processes: processes controlled by the presence of permafrost, and permafrost aggradation or degradation.

E - channelled by meltwater: erosion and channel formation by meltwater alongside, beneath, or in front of a glacier or ice sheet.

H - kettled: depressions in surficial materials resulting from the melting of buried glacier ice.

T - ice contact: sediments deposited in contact with a glacier or ice sheet.

GEOLOGICAL BOUNDARIES

- assumed boundary
approximate boundary
defined boundary

GLACIAL LIMITS

Maximum Laurentide Limit

- defined
approximate
assumed

Recessional Laurentide Limit

- defined
approximate
assumed

Montane Limit

- defined
approximate
assumed

SYMBOLS

- drumlin or drumlinoid ridge
kame
pingo, open system
slope failure
thermokarst depression
esker; unknown direction
filled channel or buried valley
glacial meltwater channel - minor
glacial meltwater channel - major
moraine ridge

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

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RECOMMENDED CITATION

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Yukon Geological Survey
Energy, Mines and Resources
Government of Yukon

Open File 2009-43

**Preliminary assessment of aggregate potential
in Peel Watershed (parts of NTS 106E, 106F,
106K, 106L, 116H, and 116I)
(1:400 000 scale)**

by

K. E. Kennedy

