

BRITISH COLUMBIA
 Ministry of Employment and Investment
 Energy and Minerals Division
 Geological Survey Branch

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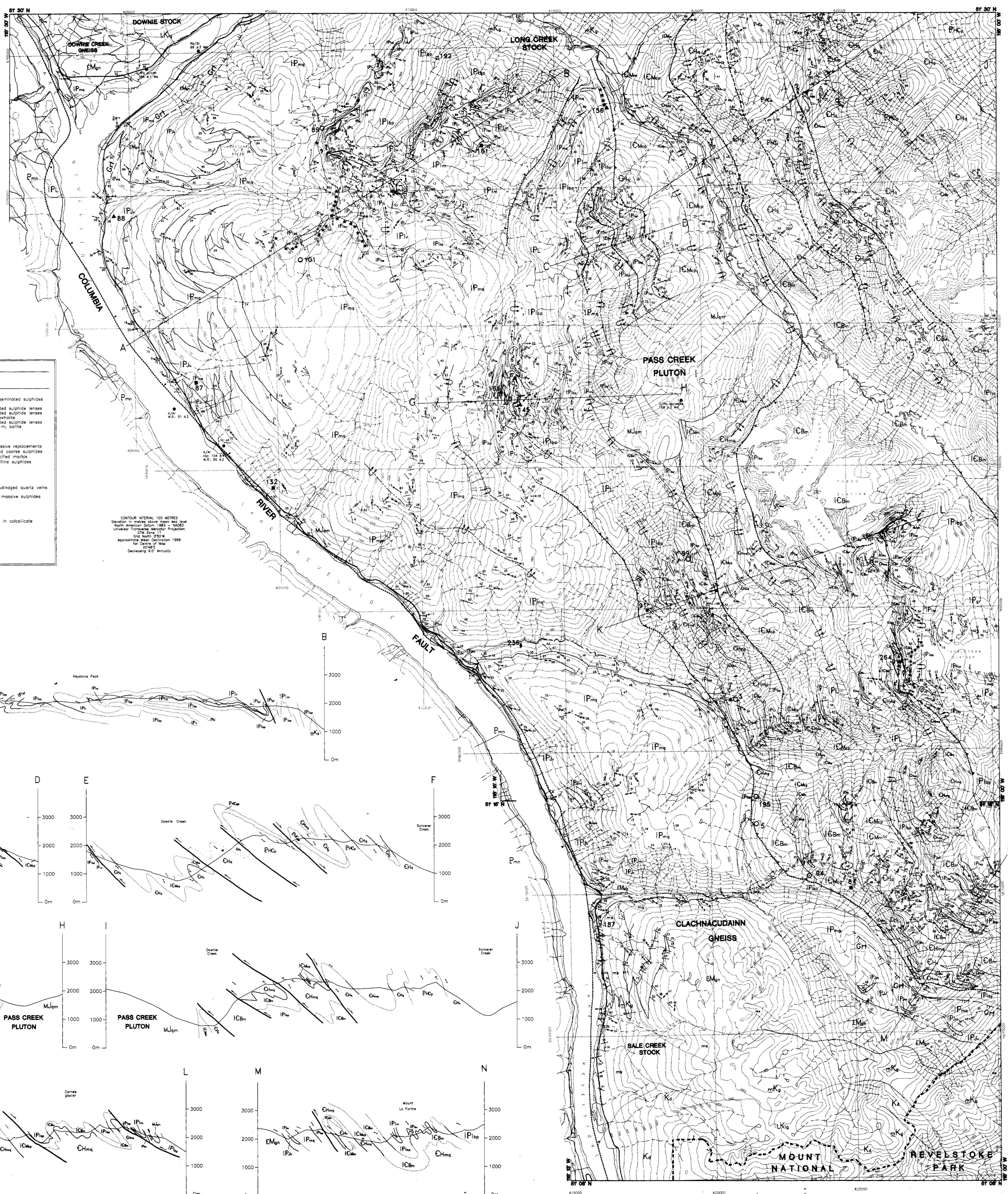
**GEOLOGY AND MINERAL OCCURRENCES
 OF THE DOWNIE CREEK AREA,
 NORTHERN SELKIRK MOUNTAINS**

NTS 82M/8 & PART OF 1

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Scale 1:50 000

Metres 1000 0 1000 2000 3000 4000 Metres



MINERAL OCCURRENCES

MINFILE NO. 82M	PROPERTY NAME	COMMODITY	COMMENTS
Volcanogenic massive sulphide			
3 J&K (Main Zone)	Au, Ag, Pb, Zn	developed prospect, massive and disseminated sulphides	
85 King	Zn, Cu	extensive massive sulphide horizon	
95 Standard Basin	Au, Ag, Pb, Zn	discontinuous massive and disseminated sulphide lenses	
142 Standard 4	Cu, Zn, Pb	discontinuous massive and disseminated sulphide lenses	
155 Standard	Cu, Zn, Pb	discontinuous massive and disseminated sulphide lenses	
188 Standard	Cu, Zn, Pb	discontinuous massive and disseminated sulphide lenses	
284 Macdonald Creek	Cu, Zn, Pb	discontinuous massive and disseminated sulphide lenses	
Carbonate replacement/stratobound			
3 J&K (Tailings)	Zn, Pb, Ag	disseminated sphalerite and galena	
5 Macdonald	Zn, Pb, Cu, Au	post-orogenic, disseminated and massive replacements	
89 Keystone	Zn, Pb, Cu	foliation-parallel pods of massive and coarse sulphides	
94 Lead King	Zn, Pb, Ag	foliation-parallel replacements in siliceous matrix	
99 A&E	Zn, Pb, Au, Ag	two 1-metre zones of coarse crystalline sulphides	
101 Carbonate Chief	Au, Ag, Pb, Zn	nodular quartz veins	
195 Macdonald North	Zn, Pb, Ag	disseminated sphalerite and galena	
Basal Mafic Veins			
6 Little Side (Ass.)	Pb, Zn, Ag, Cu	disseminated sulphides, P, strag, banded quartz veins	
87 Stirling	Mn, Pb, Zn, Ag	disseminated malachite and galena	
91 Roseberry	Au, Ag, Pb, Zn	open, local, ore and post-form massive sulphides	
122 Mack Creek	Zn, Pb, Cu		
161 Silver Shield	Zn, Pb, Cu		
W, Au, Skarns			
187 Troutsping	W, Mo, Cu	disseminated scheelite and pyrrhotite in calcite	
192 Beatrice	W, Mo, Cu	scheelite-bearing skarns	
Placer Au			
236 Combs Creek	Au	past producer	
Prospective Horizons			
Iron-Manganese-Sulphide - enriched granitic and siliceous horizons			

LEGEND

LAYERED ROCKS

CAMBRIAN (?) TO DEVONIAN (?)

LARDEAU GROUP

IP_L Undivided graphic phyllite, micaceous quartzite, marble and greenstone

JONETT FORMATION

IP₁ Dark green actinolite schist, green phyllite, includes white and gray calcitic marble (P₁)

IP₂ MICACEOUS QUARTZITE AND GNEISS (informal unit)

IP₃ Interbedded gneiss and dark gray phyllite; minor dark gray marble

IP₄ Micaceous quartzite and interbedded calcite-bearing phyllite, quartz-feldspar gneiss, muscovite-quartz (Silica's gneiss) schist

INDEX FORMATION

IP₅ Light green phyllite, quartz gneiss, minor phyllite carbonate

IP₆ Green, mafic metasedimentary facies, includes massive and pillowed breccia

IP₇ Thin, dark gray and minor green phyllite

IP₈ Light gray marble, buff-weathering actinolite marble and phyllite carbonate

IP₉ Graphic phyllite, dark gray to black calcareous phyllite, minor dark gray limestone

IP₁₀ White arbuscular breccia

LOWER CAMBRIAN

BADSHOT FORMATION

IC₁ Light gray and white calcareous marble, includes dolomite breccia unit (IC_{1b})

MORICAN FORMATION

IC₂ Light green calcareous phyllite, intercalated with orange-weathering dolomite, minor micaceous quartzite, includes light gray marble units (IC_{2a}), and light green calcareous rocks (IC_{2b})

IC₃ Grey phyllite, calcareous phyllite, light green and orange calcareous quartz gneiss intercalated with dolomite

EOCAMBRIAN

HAMIL GROUP

CH₁ Massive and amphibolite mafic metasedimentary flow and epiclastic rocks, minor intermediate metasedimentary rocks

CH₂ Massive and cross-bedded white, yellow and light green quartzite, micaceous quartzite intercalated with light gray and dark gray phyllite

CH₃ Light gray and brown, finely laminated micaceous quartzite intercalated with green and dark gray phyllite, minor brown-weathering carbonates

NEOPROTEROZOIC

HOBSEY CREEK GROUP

PH₁ Buff-weathering phyllite dolomite, intercalated with tan-weathering phyllite and minor pink quartzite

PH₂ Medium to dark green phyllite, locally interbedded with tan, brown dolomite

PH₃ Buff-weathering, grey and green phyllite intercalated with pink and green micaceous quartzite and brown siliceous dolomite

PROTEROZOIC (?) - PALEOZOIC (?)

MONASIE COMPLEX

P₁ Amphibolite-bearing pegmatitic gneiss and micaceous schist; minor calc-silicate

ms Siliceous, quartzite and amphibole-bearing quartzite, amphibolite and calcareous schist

INTRUSIVE ROCKS

LATE CRETACEOUS (?)

LK₁ Muscovite-biotite syenogranite

MID-CRETACEOUS (?)

mK₁ Biotite granite, locally megacrystic

CRETACEOUS (?)

K₁ Biotite-hornblende diorite

MIDDLE JURASSIC

MJ₁ Potassium feldspar megacrystic, hornblende-biotite quartz monzonite

EARLY MISSISSIPPIAN

EM₁ Foliated biotite granite, quartz monzonite and granodiorite gneiss

AGE UNCERTAIN

um Ultramafic intrusions, talc schist, serpentinite

mt Metadiorite, metagabbro

SYMBOLS

Geological contact (defined, approximate, assumed)

Bedding (inclined, vertical, upright, overturned)

Compositional layering (inclined, vertical)

Igneous foliation (inclined)

Dominant foliation (inclined, vertical)

First creunation cleavage (inclined, vertical)

Second creunation cleavage (inclined, vertical)

Mylonitic foliation (inclined, vertical)

Intersection lineation (vergence determined by bedding/cleavage; unknown, counterclockwise, clockwise, symmetrical)

First creunation lineation (plunge indicated)

Second creunation lineation (plunge indicated)

Axial trace of upright fold (vergence unknown, counterclockwise, clockwise, symmetrical)

Axial trace of open fold (vergence: counterclockwise, clockwise, symmetrical)

Mineral or stretching lineation (plunge indicated)

Apparent dip of bedding (in cross sections: top unknown, top indicated)

Apparent dip of dominant foliation (in cross sections)

Extension fault, downthrown side indicated (defined, approximate, assumed)

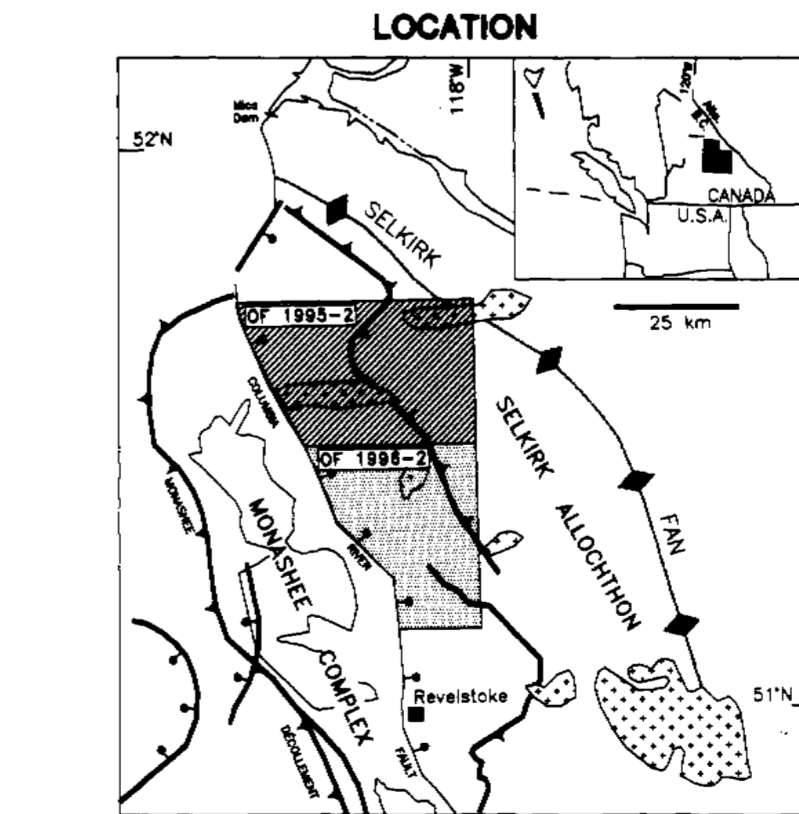
Thrust fault, both include apparent side (defined, approximate, assumed)

Axial trace of overturned antiform, synform

Axial trace of upright antiform, synform

Archaeogeographic locality

Gneiss symbol



ISOTOPIC DATA

UNIT	METHOD	AGE (Ma)	SOURCE
Pass Creek pluton	U/Pb	166 ± 3	Brown et al. (1992)
Downie pluton	Rb/Sr	66 ± 3	R.L. Armstrong - datebase (collected by L.S. Long)
Downie Creek gneiss	U/Pb zircon	354 ± 1	Logan and Fraliman (1997)
Amphibolite (largest CRF)	K/Ar hornblende	104 ± 4	R.L. Armstrong - datebase (collected by L.S. Long)
Diorite (Orological CRF)	K/Ar whole rock	55 ± 2	R.L. Armstrong - datebase (collected by L.S. Long)
Lamprophyre (latest CRF)	K/Ar whole rock	51 ± 2	R.L. Armstrong - datebase (collected by R.L. Brown)

* Sample prior to bedding of Columbia River