



DEPARTMENT OF ENERGY, MINES AND RESOURCES

STRATIFIED ROCKS

- TERTIARY
MIOCENE
mbv basalt
PALEOCENE AND EOCENE
PaeV sandstone, conglomerate, siltstone, coal, tuff; minor andesite (Pv)

- CRETACEOUS
UPPER CRETACEOUS
uKb BRIAN BORU FORMATION: acid to intermediate volcanics; rhyolite flows, breccia, and tuff; biotite and hornblende porphyry flows, breccia, and lahar; tuffaceous siltstone, sandstone, conglomerate; minor basalt
SUSTUT GROUP (uKt to uKcg)
TANGO CREEK FORMATION: chert-quartz-volcanic pebble conglomerate, sandstone, siltstone, and shale
SKEENA GROUP (uKt)
ALBIAN, CENOMANIAN, AND (?) YOUNGER
RED ROSE FORMATION: well bedded sandstone, chert pebble conglomerate, red gritty siltstone, and tuff
uKt
uKkr
ALBIAN
IKs pyritic, concretionary, black shale, interbedded fine-grained sandstone
IKRv "Rocky Ridge volcanics": alkaline augite porphyry, hornblende feldspar porphyry, tuff, breccia, and agglomerate-lahar; olivine porphyry, basalt, aquagene basalt, tuff, breccia, and flows

- HAUTERIVIAN TO ALBIAN
IKK "Kitsum Creek sediments": sandstone, chert and quartz pebble conglomerate, siltstone, shale, muscovite common; minor coal; detrital, mainly alluvial, interfingers in part with IKsh
HAUTERIVIAN
IKsh pyritic, concretionary, black shale; minor interbedded sandstone; minor thin bedded grey limestone
HAUTERIVIAN (?)
IKcg chert-quartz-acid volcanic pebble conglomerate

- JURASSIC AND CRETACEOUS
UPPER JURASSIC AND LOWER CRETACEOUS
BOWSER LAKE GROUP
HAUTERIVIAN (?)
IKB "Upper Bowser Lake subdivision": Lower floodplain facies, channel sandstone dominant; overbank sandstone, siltstone, shale, and coal; minor conglomerate with dominant carbonaceous and volcanic detritus; biotite, minor chert, rare muscovite
JKB "Intermediate Bowser Lake subdivision": Upper floodplain facies (JKbdf), channel sandstone and conglomerate; subordinate overbank sandstone, siltstone, shale, and marl; minor coal; Deltic front (intertidal) facies (JKBdf), interbedded channel and overbank facies, ripple and plane-laminated sandstone-siltstone, worm burrows and Ostrea-sandstone; Lagoonal facies, black siltstone, shale, lesser sandstone, minor Timmy nodules; Undifferentiated Bowser Lake Group (JKB) includes KBa and uB, detritus mainly volcanic, minor granite

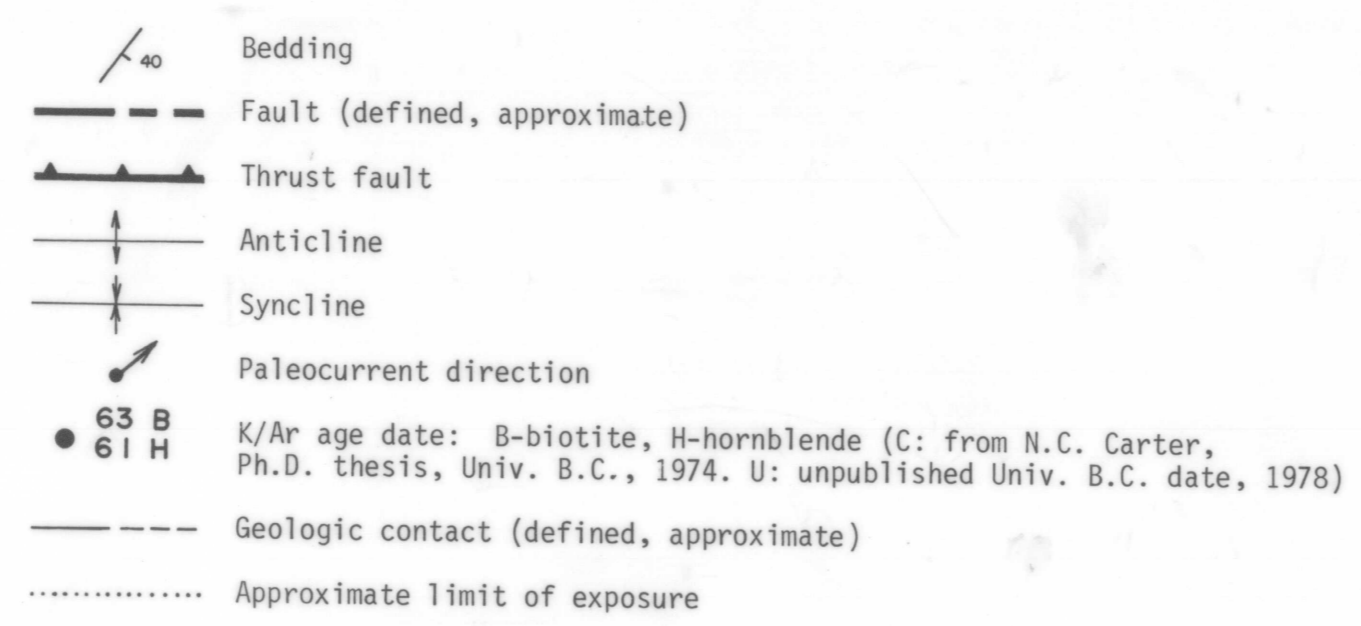
- UPPER OXFORDIAN AND KIMMERIDGIAN
uJb "Lower Bowser Lake subdivision": Deltic front (intertidal) facies (uJbdf), interbedded channel sandstone and conglomerate, ripple and plane laminated sandstone, siltstone, shale, minor coal, thick shelled pelecypod beds, including Ostrea, worm burrows common; Deltic plain facies (uJbd), dune, rippled, and plane laminated sandstone, shale, isolated thin-shelled pelecypods, minor Ostrea sandstone members; Deltic slope facies (uJbs), fine grained siltstone, black shale, interbedded sandstone Lower Bowser Lake Group (uJb) undifferentiated; detritus mainly volcanic, minor granitic; minor grey limestone
LOWER AND/OR UPPER OXFORDIAN
uJn "Netalzul volcanics": intermediate hornblende, biotite and augite porphyry flows, breccia, tuff, and agglomerate
uJtc "Trout Creek beds": Lower beach facies (uJtc), sandstone conglomerate and siltstone, coquina sandstone; Upper fan-channel facies (uJtc), conglomerate, sandstone, siltstone; volcanic and granitic detritus; minor coal

- JURASSIC
MIDDLE AND UPPER JURASSIC
CALLOVIAN AND LOWER OXFORDIAN
muJA ASHMAN FORMATION: well bedded, marine black shale, siltstone, sandstone and greywacke; minor conglomerate and limestone

- LOWER AND MIDDLE JURASSIC
HAZELTON GROUP (mJs to IJt)
BAJOICIAN AND BATHONIAN
mJs SMITHERS FORMATION: feldspathic, volcanic sandstone, greywacke, siltstone, shale, tuff and tuffaceous sediments, glauconitic sandstone (mJsg); minor conglomerate and sharpstone conglomerate; very fossiliferous
PLIENSCHACHIAN TO BAJOCIAN
mJn NILKITKA FORMATION (undivided): well bedded tuffaceous greywacke, siltstone, shale, sandstone, sharpstone conglomerate; ash fall tuff, lapilli tuff, blue-grey tuff, breccia; minor limestone, aquagene basalt breccia, ash flow tuff-breccia, diabase sills
TOARCIAN AND BAJOCIAN
ImJrt RED TUFF MEMBER: non-marine red, maroon, green tuff, flow, and breccia, basalt, andesite, dacite, and rhyolite
IJA ANKHELL MEMBER: subaerial augite andesite flow and breccia, red lapilli tuff and breccia; minor rhyolite-dacite tuff and volcaniclastic sediments (IJAa); submarine aquagene breccia, tuff, volcanic breccia in a limestone matrix, limestone, and greywacke (IJAmm)
SINEMURIAN
IJt TELKWA FORMATION: subaerial calc-alkaline volcanics, red tuff, lapilli tuff, and breccia, amygdaloidal basalt, andesite flows and breccia, rhyolite-dacite flow breccia and tuff, interbedded volcanic conglomerate, sandstone and mudstone (IJTa); interbedded acid-intermediate red tuff, lapilli tuff, breccia, red mudstone and sandstone and cobble conglomerate with granitic-volcanic detritus (IJTg); marine basalt-andesite green laminated tuff and breccia (IJTm); broken pillow breccia, limestone, volcanic breccia with a limestone matrix, amygdaloidal flow and breccia, dacite-rhyolite breccia and tuff, greywacke, argillite and sharpstone conglomerate (IJTm)

- TRIASSIC
UPPER TRIASSIC mainly; may include Lower Jurassic and Permian
TJs "Sitlika assemblage": epidote-amphibolite grade metapelite, metaconglomerate, metavolcanic and limestone
UPPER TRIASSIC
uT Takla Group: augite-feldspar porphyry flows, breccia and tuff, limestone, volcanic breccia with limestone matrix, black shales and greywacke
CARBONIFEROUS AND PERMIAN
PPc CACHE CREEK GROUP: foliated argillite, greenstone and limestone

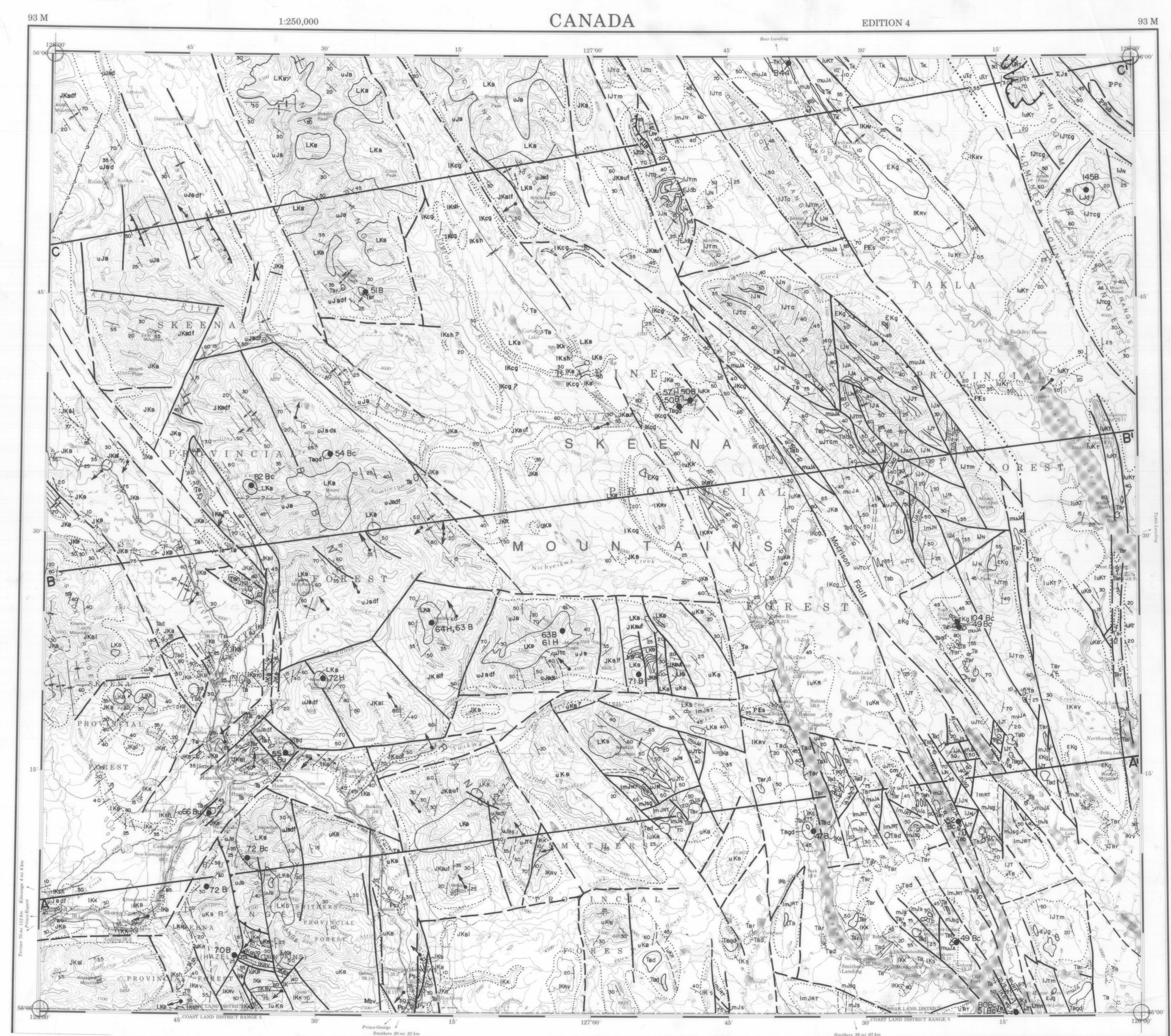
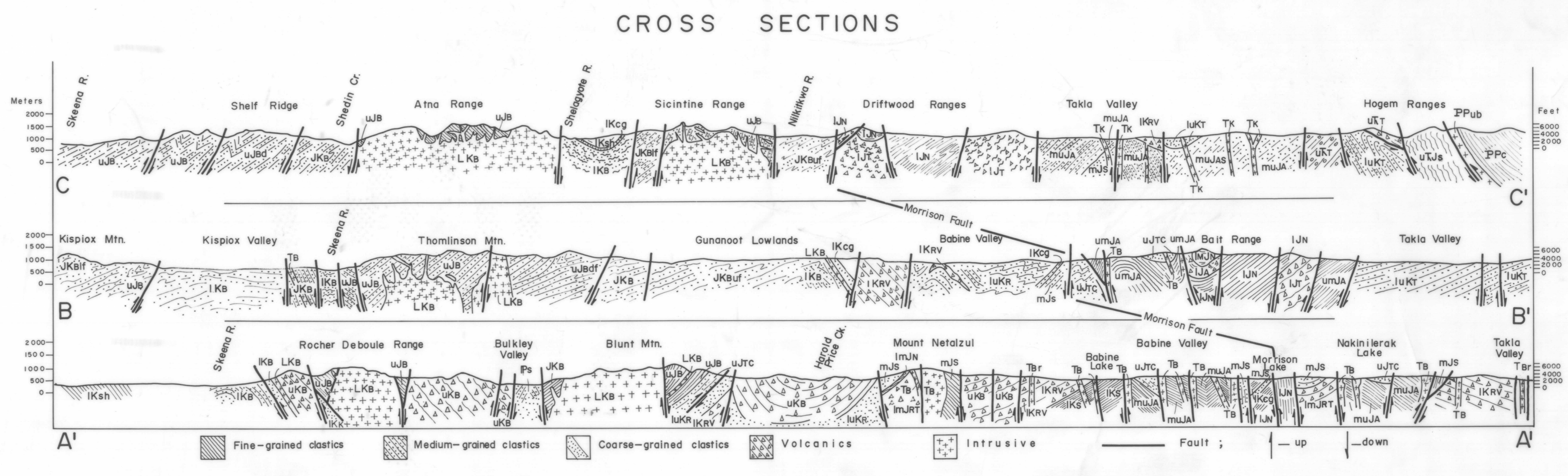
- INTRUSIVE ROCKS
TERTIARY
EOCENE
Tb BABINE INTRUSIONS: biotite-feldspar porphyry (Tbb), hornblende-feldspar porphyry (Tbh), microdiorite (Tbd), quartz diorite (Tbdq), granodiorite (Tbdg), rhyolite-quartz eye porphyry-breccia (Tbr), undifferentiated (Tb)
TK KASTBERG INTRUSIONS: leucocratic biotite porphyry, quartz-eye porphyry, hornblende-feldspar porphyry and felsite
CRETACEOUS
LATE CRETACEOUS
LKB BULKLEY INTRUSIONS: granodiorite, quartz diorite, quartz monzonite, hornblende porphyry, hornblende-quartz porphyry, undifferentiated
EARLY CRETACEOUS
EKg gabbro, diorite, monzonite, augite-bladed feldspar porphyry
JURASSIC
LATE JURASSIC
LJd hornblende diorite
EARLY AND/OR MIDDLE JURASSIC
EJdb diabase
EARLY JURASSIC
EJg quartz diorite, diorite and minor granite
CARBONIFEROUS AND PERMIAN
PPub serpentinite (genetically related to Cache Creek Group)



Sources of Information:

Previous Work: J.E. Armstrong, Geol. Surv. Can., 1938; A. Sutherland Brown, B.C. Dept. of Mines and Petroleum Resources, 1951-55; N.C. Carter, B.C. Dept. of Mines and Petroleum Resources, 1965-72.

Present Work: East half: 1972, 1973 T.A. Richards; West half: 1974, 1976, 1977 T.A. Richards and O.L. Jletzky; Sicintine and Atna Ranges, northwest quarter, from air photos, mining company data, and T.A. Richards; Geological Compilation: T.A. Richards 1980.



GEOLOGY OF HAZELTON (93 M) MAP AREA

BRITISH COLUMBIA by T.A. Richards Scale 1:250,000 Echelle 1:250,000



Geographic coordinates and projection information.

Additional technical details and notes.

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