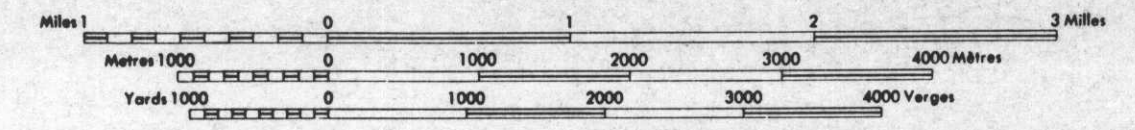


**GEOLOGY AND GEOCHEMISTRY OF  
THE KWANIKA CREEK MAP AREA**

NTS 93N/11E

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Scale 1:50,000



SHEET 1 OF 1

**LEGEND  
LAYERED ROCKS**

- MESOZOIC TO CENOZOIC**  
**Cretaceous to Tertiary?**  
green augite + hornblende ± biotite, quartz-eye rhyolite tuff and flow, minor mafic lapilli tuff, siltstone, sandstone, quartzofeldspathic conglomerate
- MESOZOIC**  
**Lower Jurassic**  
**TAKLA GROUP**  
TWIN CREEK formation:  
green augite + subordinate plagioclase porphyritic heterolithic crystal and lapilli tuff, siltstone and argillite
- Upper Triassic**  
**TAKLA GROUP**  
PLUGHAT MOUNTAIN formation  
predominantly green augite ± plagioclase-porphyrific basalt flows and fragments, maroon basalt, pillow basalt, amygdaloidal olivine porphyritic basalt, heterolithic lapilli tuff, volcanic sandstone and siltstone, limestone
- INZANA LAKE formation**  
green tuff, lapilli tuff, grey siltstone and slate
- SLATE CREEK formation**  
grey slate and siltstone

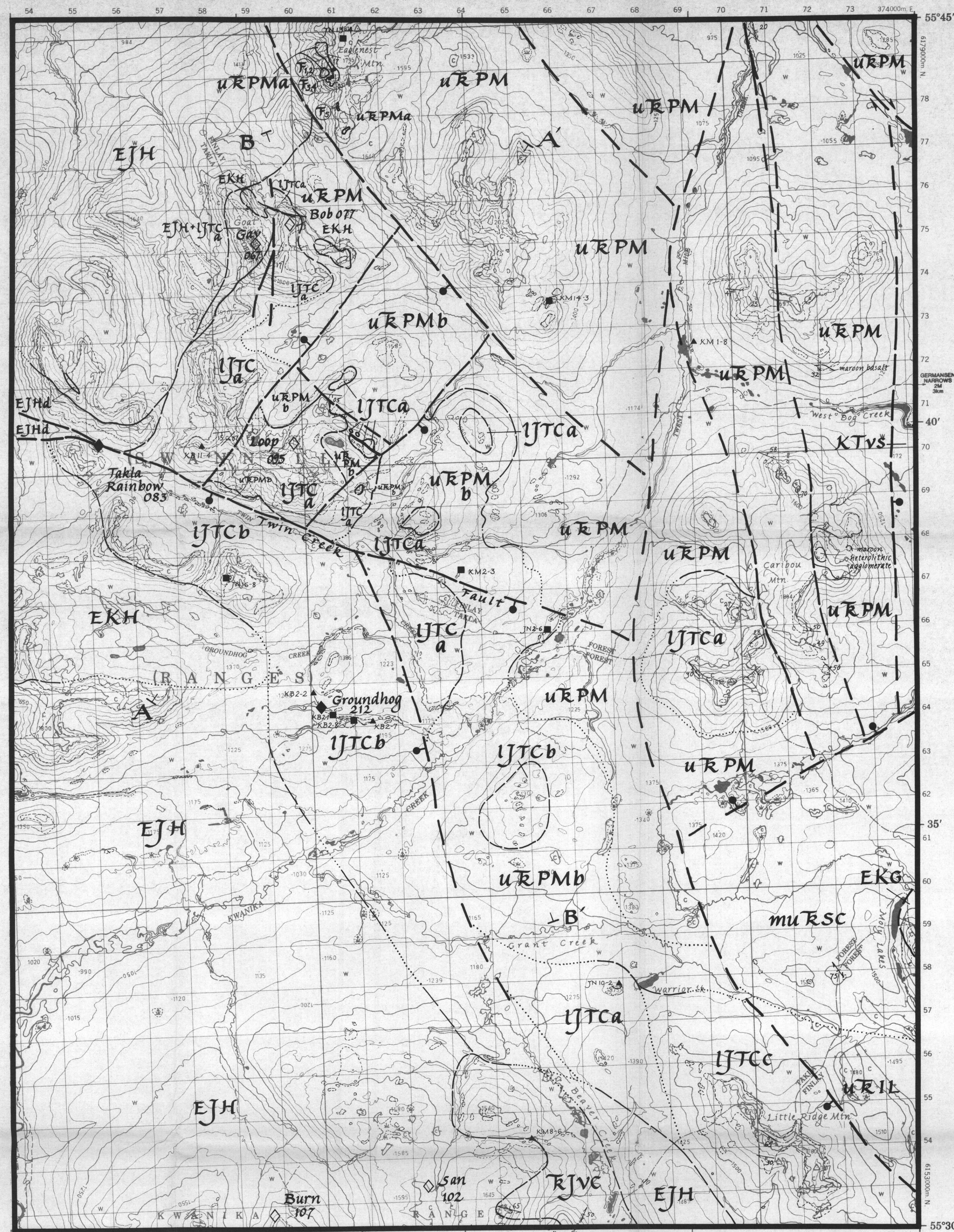
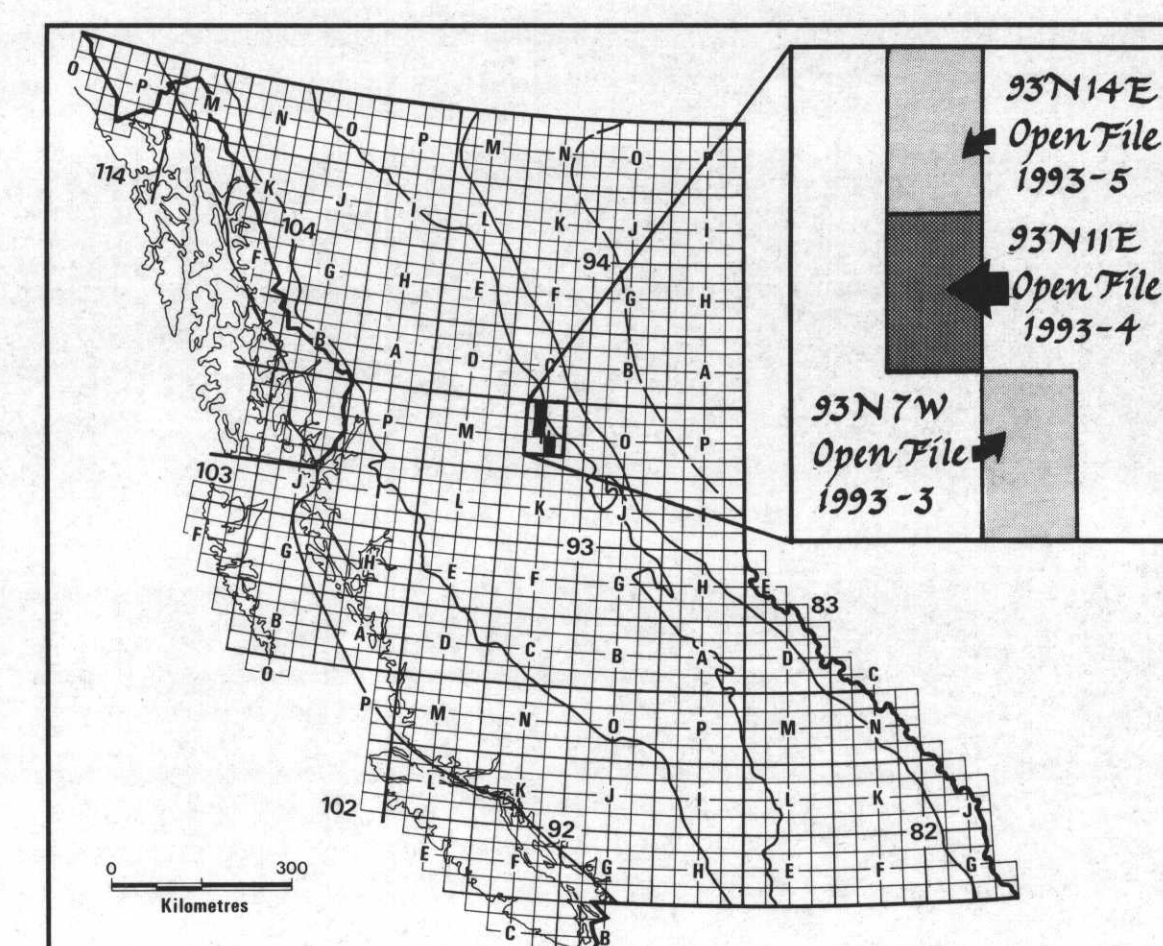
**INTRUSIVE ROCKS**

- MESOZOIC**  
**Early Cretaceous**  
GERMANSEN batholith  
coarse-grained hornblende-biotite granite, equigranular to orthoclase megacrystic
- HOSEM intrusive complex:**  
orthoclase-megacrystic granite, minor syenite
- Early Jurassic**  
HOSEM intrusive complex  
monzonite, quartz monzonite, granodiorite, and diorite  
medium grained to fine grained equigranular hornblende diorite and minor hornblende gabbro
- Late Triassic - Early Jurassic**  
VALLEAU CREEK intrusive complex  
fine to coarse-grained diorite, gabbro, pyroxenite and hornblende

**SYMBOLS**

- Geologic contact (defined, approximate, inferred) .....  
Lithologic contact (defined, approximate, inferred) .....  
Transitional contact .....  
Fault (defined, approximate, inferred) .....  
Strike-slip fault (motion indicated) .....  
Normal fault (ball on hanging wall) .....  
Thrust fault (tick on hanging wall) .....  
Outcrop .....  
Subcrop .....  
Bedding (tops known, unknown, overturned) .....  
Pillow bedding and facing .....  
Foliation .....  
Fold axis .....  
Fault surface with slickenside .....  
Glacial striation .....  
Fossil locality .....  
Mineral occurrence - MINFILE number and name .....  
MINFILE mineral occurrence (not field verified) .....  
Cross section .....  
Trench .....  
Geochemical sample locality .....  
Whole rock geochemical sample locality .....

**LOCATION MAP**



**BOB (MINFILE 093N 077)**  
Disseminated chalcopryite occurs in Takla volcanics near the eastern contact of the Hogen intrusive complex. Minor epidote and chlorite alteration occurs in the volcanics. Feldspathization and minor silicification, with traces of chalcopryite have developed in the volcanics along fracture zones (Assessment Report #816). Traversing in this area in 1992 failed to substantiate the presence of a porphyry-type alteration system.

**BURN (MINFILE 093N 107)**  
Fracture systems in monzonite are mineralized with pyrite, chalcopryite and molybdenite. Molybdenite also occurs in alaskite dikes (Assessment Reports #7898, 7926).

**GAV (MINFILE 093N 067)**  
Chalcopryite, bornite, magnetite and pyrite are disseminated within the hybrid contact zone between Takla volcanics and the Hogen intrusive complex (Assessment Report #816). Scattered traces of malachite were noted on Goat Ridge in 1992.

**GROUNDHOG (MINFILE 093N 212)**  
The Groundhog MINFILE locality is situated on a creek cut by the Tsayta - Germansen Lake road at Groundhog Pass, approximately 2 kilometres south of the confluence of Groundhog Creek and Twin Creek. Mineralization occurs within fresh, maroon, amygdaloidal, plagioclase-porphyrific basaltic andesites of the Jurassic Twin Creek formation. Amygdules up to 1 centimetre in diameter are filled with massive magnetite. A grab sample from an amygdaloidal flow assayed 890 ppm copper, 100 ppm zinc and 12 ppm lead. The magnetite amygdules are the probable source of the Regional Geochemical Survey (RGS) anomaly. The magnetite was probably deposited by late-stage magmatic fluids. Minor malachite was noted on a fracture surface.

**LOOP (MINFILE 093N 095)**  
Chalcopryite occurs as disseminations and fracture fillings in epidotized and chloritized rocks of the Takla Group (Assessment Reports #3269, 3859). This may be a distal part of the Takla Rainbow mineralizing system (MINFILE 093N 082).

**TAKLA RAINBOW (MINFILE 093N 082)**  
The Takla Rainbow prospect lies at the headwaters of Twin Creek in 93N/11. This area was explored by various companies in the early 1970's. The Twin claims were staked in 1981 by L. Warren and N. Scarfe. Imperial Mines Limited optioned the claims in 1985 and explored them until 1989. They identified a significant zone of gold mineralization with associated copper and zinc on the West grid, referred to here as the Main zone. This zone is centred on the west-northwest trending Twin Creek fault. The presence of abundant orthoclase-megacrystic granite dikes within the fault zone, many of them sheared, suggests synplutonic, probably Cretaceous, motion. Sulphides occur as disseminations in silicified, chloritized Takla Group and dikes within anastomosing shears of the Twin Creek fault zone. There are two other zones of alteration. The Red zone lies 1.2 kilometres northwest of the Main zone. It is an area of bleached tourmaline-matrix breccia developed in diorite of the Hogen intrusive complex. Eastfield Resources Limited drilled the Red zone in 1990. They reported low gold and copper values, propylitic alteration and disseminated sulphides that are suggestive of a porphyry-style system. The ridge south of the Twin Creek fault is underlain by a strong quartz-kaolinite-pyrite alteration zone which is capped by a discontinuous horizontal alunite-quartz zone up to 5 metres thick that extends over 500 metres. It offers an as-yet unexplored epithermal target.

**SAN (MINFILE 093N 102)**  
Chalcopryite occurs in K-feldspathized monzonites near a contact with leucocratic granitic rocks. High copper-molybdenum soil anomalies occur along the contact between an outlier of basic and ultrabasic rocks of the Hogen intrusive complex and Takla Group volcanics (Assessment Reports #3856, 3857).

**ANALYTICAL PROCEDURES FOR  
ROCK GEOCHEMISTRY**

- GOLD (Au)** Determined by Eco-Tech Laboratories Limited, 10041 East Trans Canada Highway, Kamloops, B.C. V2C 2J3  
**Fire Assay/Atomic Absorption** A 30 gram aliquot sample is subjected to a fire assay technique to generate a Au/Ag bead. The bead is dissolved in nitric acid and the solution is analysed for gold by flame atomic absorption. Detection limit is 5 ppb.
- BASE METALS (Cu, Pb, Zn, Ag)** Determined by B.C. Geological Survey Branch - Analytical Sciences Laboratory, Victoria, B.C. V8V 1X4  
**Atomic Absorption** Samples are digested in hot, concentrated nitric-perchloric-hydrofluoric-hydrochloric acids. The acid solution is diluted to a specific volume and the elements are measured by flame atomic absorption. Detection limits: Cu - 5 ppm, Pb - 4 ppm, Zn - 0.5 ppm, Ag - 0.2 ppm.
- ELEMENTS (As, Sb)** Determined by B.C. Geological Survey Branch - Analytical Sciences Laboratory, Victoria, B.C. V8V 1X4  
**Atomic Absorption/Hydride Generation** A 1 gram sample is digested in hot nitric-perchloric-hydrofluoric-hydrochloric acids followed by hydride vapour generation atomic absorption. Detection limits: As - 1 ppm, Sb - 1 ppm.

**ROCK GEOCHEMISTRY**

SAMPLE NUMBER	MINERAL SHOWING/ SAMPLE DESCRIPTION	UTM		Au ppb	Ag ppm	Cu ppm	Pb ppm	Zn ppm	As ppm	Sb ppm
		EAST	NORTH							
92KB2-2	GROUNDHOG: mag filled amygdules in plag porphyry flow	362020	6164475	10	<0.2	890	12	100	9	1
92KB2-7	GROUNDHOG: carbonate veinlet with malachite	361400	6164125	10	<0.2	159	15	93	27	1
92KB11-4	TAKLA RAINBOW: alteration stringers with cpy + mal + mag	357600	6170550	30	7	1,256	36	100	20	<1
92JN10-2	plagioclase porphyry monzonite with disseminated pyrite	366775	6157825	5	<0.2	54	12	55	14	1
92KM1-8	quartz-carbonate vein with pyrite	369050	6172475	10	<0.2	21	8	25	22	4
92KM8-6	30 cm quartz vein	364700	6164350	15	<0.2	6	6	28	2	<1

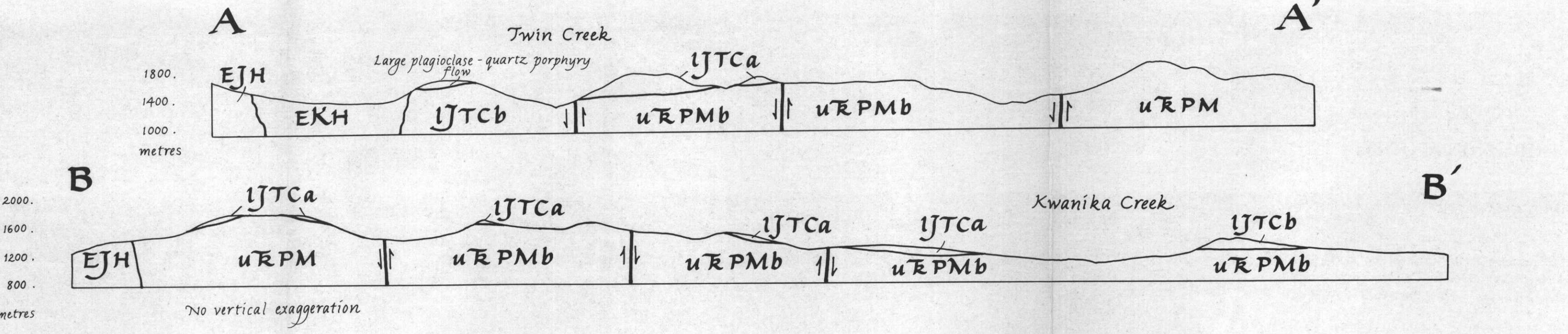
Abbreviations:  
cpy = chalcopryite, mag = magnetite, mal = malachite, plag = plagioclase

**FOSSIL IDENTIFICATION**

**F<sub>1</sub>-F<sub>5</sub>** Macrofossils include solitary and colonial corals, and pentamerids. Identification of coral species is pending.

**ADDITIONAL CONTRIBUTIONS TO MAP**

- Garnett, J. A. (1978). Geology and Mineral Occurrences of the Southern Hogen Batholith; B.C. Ministry of Energy, Mines and Petroleum Resources, Bulletin 70, 75 pages.
- Meade, H. D. (1977). Petrology and Metal Occurrences of the Takla Group and Hogen Batholith and Germansen Batholiths, North Central British Columbia, Unpublished Ph.D. Thesis, The University of Western Ontario, London, Ontario, 355 pages.



**SCHEMATIC CROSS-SECTIONS**