

EXAMINATION OF KALUM AND KEN CLAIMS
(Sandy and Fred Louttit)
TERRACE AREA B.C.
NTS 103 I/15W

SCOPE:

The Kalum property was visited by J.C. Stephen July 1, 1986 after conversation with Brian Lennar (Canada Tungsten) and reading of reports by Waymark (1981), Belik (1983), Pauwels (1984), Lambert (1985) and Richards (1985). Fred Louttit guided Stephen over the property to examine the geology and mineral occurrences. No samples were taken for assay and no field mapping was done. Several selected specimens were collected for illustrative purposes.

LOCATION, ACCESS AND TOPOGRAPHY: -

The property lies on the east side of Kitsumkalum Lake, approximately 35 km north of Terrace. The newly paved Kalum Lake road crosses the middle of the claim area in the vicinity of the mineral occurrences.

The claims extend west into Kitsumkalum Lake, across the highway and east to about the 2000' elevation on steep westerly facing slopes presently being logged.

Access to the greater part of the claim is relatively easy due to logging roads.

OWNERSHIP:

Claim status and ownership has not been researched. Discussions were held with Sandy and Fred Louttit on the basis of their ownership and ability to deal with the claims.

OBSERVATIONS

(A) GEOLOGY The claims cover a series of gently to moderately north dipping meta volcanics (meta sediments?) intruded to the south by a large body of undifferentiated granitic intrusive (Unit 7 G.S.C. Map 1136A) which forms part of the Coast Intrusions.

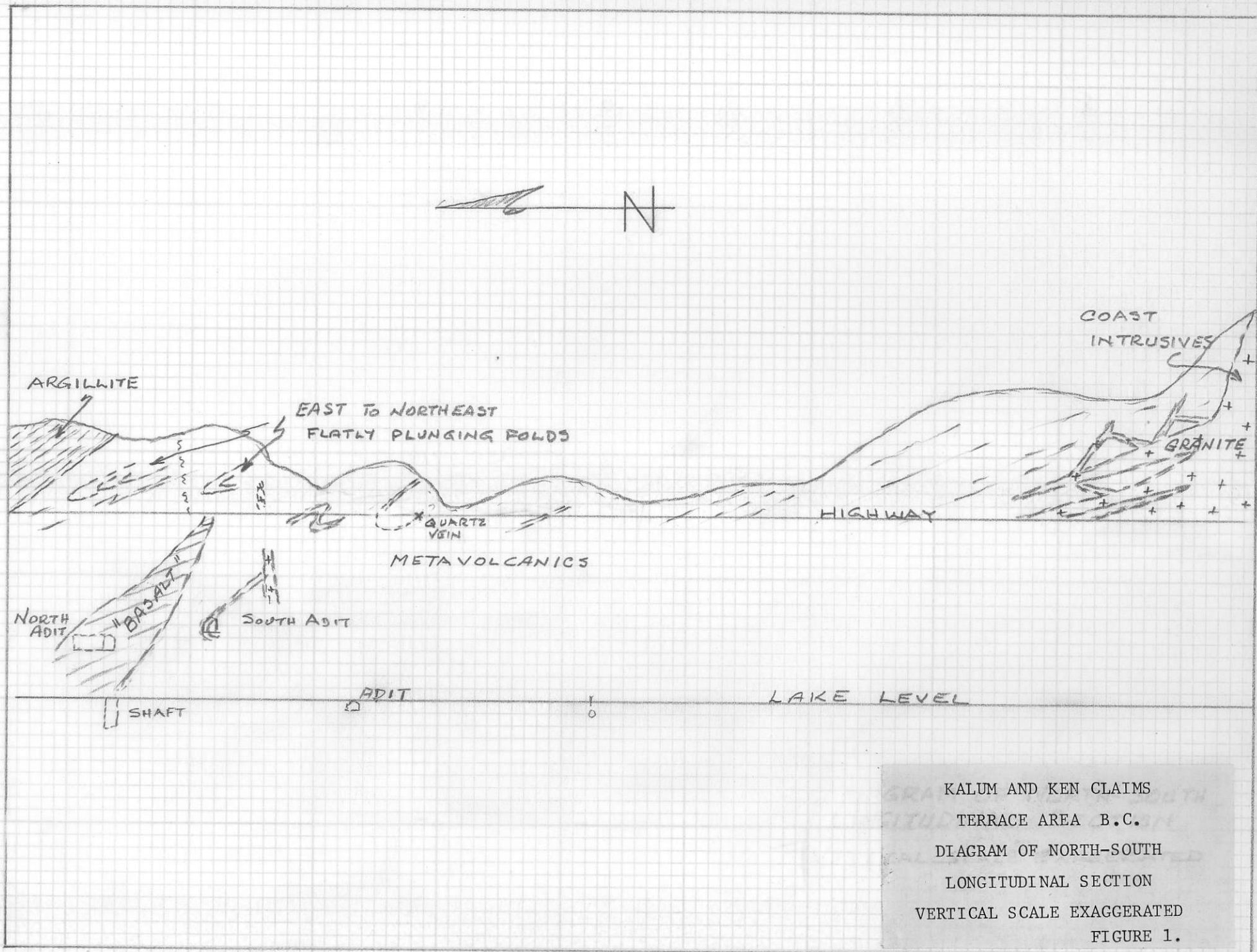
To the north the "Metavolcanics" are overlain by north dipping well bedded argillitic sediments. Figure 1 illustrates the overall relationships as observed in outcrops along the highway.

The contact area of the argillitic sediments with the sheared "metavolcanics" was not closely examined but the impression was of well bedded sediments overlying highly altered rocks which are much more highly deformed than the sediments. The contact may therefore represent an unconformity.

Alternatively the more highly altered and sheared "metavolcanics" may represent a wide zone of thrust faulting.

It is the writers opinion that the alteration and deformation is not the result of intrusion of the granitic body. If the apparent trend of the sediment/metavolcanic contact is projected easterly it should apparently be located uphill in the southeastern portion of the claim group. A brief examination of some of the higher logging road indicated only rusty sediments which contain minor pyrrhotite and pyrite.

Sharp linear gullies trend southwesterly near the base of the main ridge in the eastern part of the claims. These faults are presumed to be extension 'normal' faults with west side down. This portion of the property has not been mapped but should be examined in search of an extension to the "meta volcanic" formation.



Within the metavolcanics, below the argillite contact, are dark grey to dark green micaceous rocks (spec KALUM 1) with large "Porphyroblasts". The groundmass is a fine grained quartz mica matrix. The large, (up to 1" x ½") porphyroblasts are generally somewhat elliptical or irregular in shape. On the weathered surface these stand out, or may leave elliptical depressions. They appear granular but their composition has not been determined. These outcrops occur at the north end of Belik's map where the sediment contact is indicated. The contact should be plotted further north.

In the vicinity of the North Adit and the Shaft a "sill" of "basalt" is indicated. This material (Spec KALUM 2) is variously termed gabbro but as it has also undergone deformation and alteration I suspect it is a basic, fairly coarse grained, flow forming part of the overall volcanic sequence.

The mapped exposure marked "Basalt Sill" near the sediment contact on Belik's map has been omitted on a later compilation by Lambert. It was not identified by the writer.

South of the North Adit area selected rock specimens suggest by the presence of small (to ¼") circular to elliptical inclusions or "amygdules" that certain beds may be lapilli tuffs. These may be Belik's Unit 2.

Belik's Units 4A and 4B, as described and mapped, constitute a large proportion of the outcrop area. These rocks have been variously sheared and deformed.

Within these rock formations are zones of epidote alteration. These zones vary from thin seams to relatively wide (to several feet) zones. Specimen KALUM 4 illustrates the narrow seam type while KALUM 5 is from one of the wider zones. These epidote - hematite - chlorite etc zones appear to the writer to be selectively altered zones along certain favourable beds at structurally controlled locations. At the time of the property visit no special investigation was made to determine whether Belik's Unit 3 is a distinct rock type or is a result of alteration.

(B) STRUCTURE AND MINERALIZATION Overall the gross structure appears to consist of a zone of highly altered and sheared rock lying below a relatively sharp contact with well bedded sediments and cut by Coast Intrusive to the south.

The rock formations subjected to this apparently intense alteration and deformation generally dip northerly and strike easterly. They contain evidence of local folding generally isoclinal with the fold axis dipping northerly and trending easterly. South of the "Road Showing" on the west side of the highway however, the shape of the outcrop and apparent trend of small beds suggests a north trending, and plunging, cross fold.

The crests of several of the east trending folds appear to be the locus of epidote alteration accompanied by hematite, chalcopyrite, and, presumably, gold mineralization in some locations.

At South Adit the entrance is caved and no direct evidence of the original mineralization is apparent. The rock slabs which have fallen into the adit outline the shape of the upper portion of an east trending fold nose. The mineralized material outside the adit, the presumed mine dump material, consists of intense epidote alteration with hematite, bornite, chalcopyrite mineralization. Sulphides occur both on small fractures (KALUM 5) and along bedding or shear planes. Some of the dump material seems too big to be only from the adit and may represent some of the original mineralized showing. Outcrops of Unit 3 on Belik's map in the vicinity of the adit would bear close examination as they may be part of a presumed altered mineralized fold nose of small vertical dimensions but trending, pipe or lens like, into the hillside. The adit may have explored only the top of this structure.

About 300 metres south of "Road Showing" a quartz mass (Vein?) occurs in the east ditch. This vein is mineralized with chalcopyrite and contains low to moderate gold values. East trending steep fractures cut the quartz and extend up the rock face to the east. If this is a true quartz vein it fails to extend upwards to the east, is not evident up the general geological dip to the south and is covered by the highway to the west. It was discovered by careful prospecting in the vicinity of the Cominco soil samples which were slightly anomalous in this area. There is a possibility this quartz is part of a zone localized at the nose of a fold slightly below the exposed area and represented on the upper limb by the rusty bed exposed on the steep outcrop to the east.

In outcrops near the lakeshore, from the north end of Belik's map and through the shaft and North Adit areas, and in the area southwest of the Road showing, steep north trending narrow fractures occur which localize epidote, hematite, bornite, chalcopyrite mineralization. West of North Adit sulphide mineralization extends a short distance ($\frac{1}{2}$ ") into the walls of the fractures. See KALUM 2. This area is one in which free gold was reported and it is possible some of the assay results reported in the past are from sampling the fracture wall in this area. True widths for this type of mineralization is likely to be less than 3 inches in all cases seen. Samples reported taken over several feet probably follow the fracture. Density of these fractures is generally low with spacing being 6 inches or greater, often two or three feet. On Belik's map a northeast trending fault is indicated northeast of North Adit on the east side of the highway. Where seen this fault consisted of a one foot wide zone of highly sheared material, possibly lamprophyre, within sharp vertical walls. Small boulders of lamprophyre occur in the area.

Belik's map also has a zone of intensive shearing or faulting along the east side of the road. There is no good evidence for this zone although strong vertical fractures, trending north, cut some of the outcrops. These fractures are similar to those near the lake shore which carry some mineralization.

Steep east trending fractures appear to be late and essentially unmineralized.

GEOPHYSICS

A small portion of the claim group was covered by a magnetometer survey. This survey has been useful in prospecting although no ready explanation for some magnetic highs is available. This magnetic survey should be continued over the land portion of the claim group to help interpret the geology. See Figure 2 for indicated grid area.

GEOCHEMISTRY

Copper, silver and gold analysis has been done by Cominco on a grid of soil samples. Results are generally very low considering the shallow overburden, the common occurrence of malachite and the gold assays. Useful prospecting has been done as follow up of relatively very weak anomalies and consideration should be given to extension of this survey in selected areas.

CONCLUSIONS AND RECOMMENDATIONS

Gold bearing zones have been located within a distinctive rock formation on the east side of Kitsumkalum Lake over a north-south distance of some 700 metres and a width of approximately 125 metres east from the lakeshore. Several adits, a shaft and pits have been excavated on some of the showings.

Mineralization appears to be structurally controlled by flat plunging tightly isoclinal folds and magnetite is associated with some of this mineralization as well as with certain rock types.

There is a possibility that a zone of commercial mineralization might occur under the proper structural conditions and careful geological mapping and geophysical surveying may be able to locate indications of such structure.

It is recommended that: -

- 1) geological mapping be carried out over the land portion of the claims using both picket lines and air photos at a scale of 1:2500
- 2) geological mapping using tight stadia survey control be used to detail the location of the adits, and as many of the outcrop areas as possible so that vertical as well as horizontal control is obtained at a scale of 1:500 or better. Careful structural analysis will be required from this data.

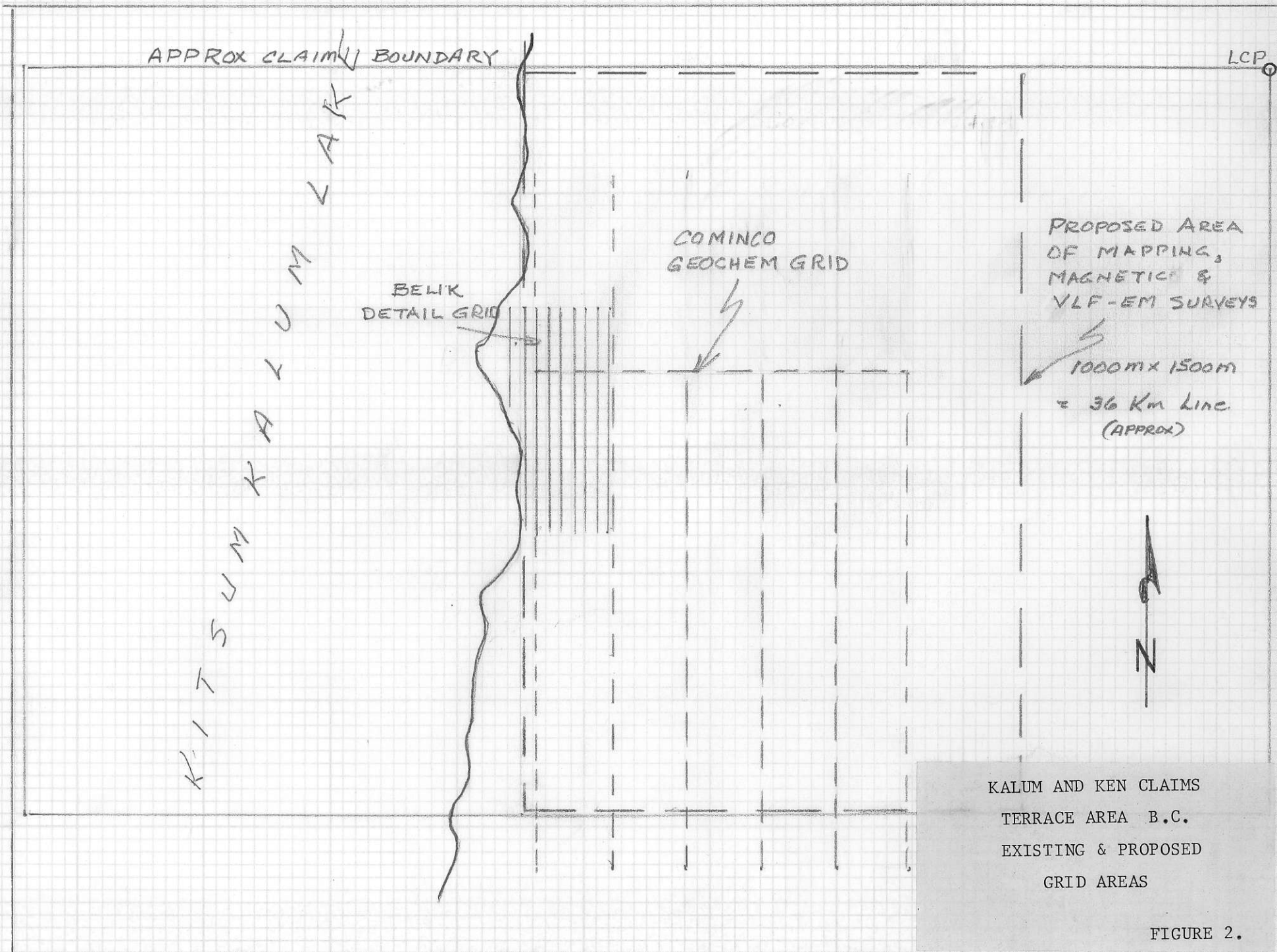


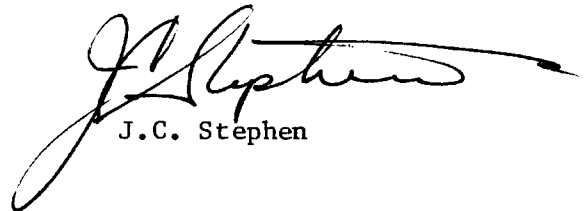
FIGURE 2.

- 3) Magnetometer surveys should be conducted from the lakeshore east to beyond the main gully (fault?) near the base of the main mountain slope in the east portion of the claim. This survey should be on the north-south lines at 50 metre intervals with readings at 10 metre intervals and with fill in lines at 25 metres in selected areas.

- 4) a VLF-EM survey should be conducted on the same grid as the magnetometer survey. It is uncertain that this method could detect mineralization of this type directly but major contacts, shear zones and faults may be located. Because of the varied response of different structural orientations it is recommended two transmitter stations be read at each location. These should be Seattle and Cutler, Maine to give the **widest** angle.

July 7, 1986

North Vancouver, B.C.



J.C. Stephen