

KLUANE-SNAG RECONNAISSANCE

YUKON TERRITORY

(Project No. 70008)

June 8-11, 1970

June 17, 1970

D. C. Findlay

115

D.C. Findlay, Ph.D

GEOLOGIST

524 BROADVIEW AVENUE
OTTAWA 13, CANADA
(613) 722-1606

BOX 1029
WHITEHORSE, YUKON, CANADA

013591

KLUANE-SNAG RECONNAISSANCE, YUKON TERRITORY

(Project No. 70008)

June 8-11, 1970

for

Cyprus Exploration Corporation Ltd.

Whitehorse, June 17, 1970 D.C. Findlay

D.C. Findlay, Ph.D

GEOLOGIST

524 BROADVIEW AVENUE
OTTAWA 13, CANADA
(613) 722-1606

BOX 1029
WHITEHORSE, YUKON, CANADA

KLUANE-SNAG RECONNAISSANCE, YUKON TERRITORY

(Project 70008)

June 8-11, 1970
for

Cyprus Exploration Corporation Ltd.

GENERAL

From June 8-11, 1970 helicopter reconnaissance traverses were made in several areas in Kluane and Snag sheets, Yukon. Target areas included; Steele Creek ultramafic intrusion and Duke River ultramafic intrusion (Kluane); Donjek-White River aeromagnetic anomaly (Snag); and a number of small aeromagnetic anomalies in Kluane area, north and west of Brooks Arm, Kluane Lake. A total of 11 hrs and 40 minutes helicopter time was used. Total cost of the reconnaissance program (including fees and report) was approximately \$2,626.50.

PRINCIPAL CONCLUSIONS

1. A small sulphide zone was located and sampled on Steele Creek, in ultramafic rocks of the Steele Creek intrusion. Although not of immediate economic interest, for reasons discussed elsewhere in this report, this general area is recommended for follow-up prospecting work.

Principal Conclusions (cont.)

2. The large anomalous magnetic area near the junction of Donjek and White rivers is caused partly by an ultramafic intrusion and partly by younger (Tertiary?) volcanic rocks (basalt). The ultramafic intrusion is a moderately serpentinized alpine-type peridotite. It is considered of only moderate prospecting interest.
3. The small aeromagnetic anomalies of north Kluane area are, in part, caused by ultramafic intrusions. For others, the cause could not be determined, either because of lack of outcrop, or because rock types present are not normally magnetically active. This general area deserves further attention.
4. The north Kluane-White River area is currently extremely active, with a number of major companies (Imperial Oil Ltd., Anaconda Corp., Noranda, Phelps-Dodge Corp., Kennicott etc.) carrying out regional stream silt-sampling programs. The potential of this area is unknown at this time.

DONJEK-WHITE RIVER MAGNETIC ANOMALY

As shown on Geological Survey of Canada Geophysics Paper 7840G (115 J, 115 K E $\frac{1}{2}$ - Snag) a large magnetically anomalous area lies immediately east of the junction of Donjek and White rivers. The total area involved is about 60 square miles. Over part of the area, the magnetic pattern is

Donjek-White River Magnetic Anomaly (cont.)

irregular and "hummocky", suggesting a cause due to mafic volcanic rocks; however, the large, strongly-positive anomaly (up to 2400 gammas) forming the northwest part of the anomalous area suggests a cause due to ultramafic rocks.

A traverse (helicopter) was run upstream on White River, west of the western boundary of the anomalous area to block out area rock types. For the most part they are granitic gneisses and banded gneiss and schist of Yukon Group. Near the junction of Donjek and White rivers a buff-weathering, light grey to white, partly saussuritized quartz-eye granodiorite intrusion occurs. The size of the intrusion is not known. The large hill (elev 4866) lying southeast of Tom Creek and above (north of) Donjek River, and over which the strongest magnetic anomaly is centered, is underlain by brown-weathering, massive sub-poikilitic peridotite. Little variation in composition or alteration (serpentinization) is evident and the rock is characteristic of Cordilleran 'alpine-type' peridotites, containing olivine (serpentinized) a little chromite and secondary magnetite and 15-20 per cent clinopyroxene (probably augite). No indication of asbestos or sulphide mineralization was noted. The intrusion probably extends south across Donjek River but due to shortage of fuel, a landing could not be made in this area. Northeast of the intrusion, flat-lying basalt (Carmacks Group?) is probably the cause of the smaller magnetic anomalies of this area.

2. STEELE CREEK INTRUSION

The Steele Creek ultramafic intrusion lies near the junction of

Steele Creek Intrusion (cont.)

Steele Creek and Donjek River, about 20 miles south of Donjek River bridge on the Alaska Highway. Ultramafic rocks are exposed over an area about 4 miles by 2 miles immediately north of Steele Creek, in extremely rugged terrain with elevations ranging from 3,500 feet (Steele Creek valley) to 7,000 feet. The tops of the higher peaks are composed of buff to ochre-weathering 'Cache Creek' (Permian) limestone or limy sandstone which caps the ultramafic intrusion. Ground traverses were run across the southern part of the intrusion, at Steele Creek valley and again at an elevation of about 5,500 feet, as high as practical to land with the helicopter. The northern side of the intrusion could not be reached by helicopter.

The exposed part of the intrusion is composed mainly of medium-coarse grained, (locally sub-pegmatitic) feldspathic hornblende pyroxenite or pyroxene-bearing hornblende gabbro containing local pyroxene-rich phases. The rock commonly has a distinctive diabasic texture. The textural and compositional characteristics of the rock are analogous to the upper zones of some layered intrusions, and the possibility exists that more strongly ultramafic rocks (peridotite, dunite etc.) are hidden below the present erosion level of the Steele Creek body.

A small discontinuous, patchy sulphide-bearing zone (mainly pyrite) occurs just above Steele Creek valley about 1 mile upstream (west) from the bend in lower Steele Creek. Here, several scattered rust zones exposed over a total area of about 300-400 feet by 100-200 feet (uphill)

Steele Creeke Intrusion (cont.)

contain disseminated to sub-massive bl^Cotthy pyrite. None of the pyrite-bearing zones is larger than about 10' x 12' as presently exposed, but the lowermost zone is obscured at its base by talus and thus its downhill extension is not known. Grab samples from this zone assayed: trace nickel; trace copper.*

3. MAGNETIC ANOMALIES - NORTHERN KLUANE AREA

Magnetic anomalies (see Geological Survey of Canada Geophysics Paper 7827G Kluane Lake) visited are shown on the attached sketch. Site No. 1 (Dogpack Lake) is the supposed location (according to Geological Survey of Canada Map 1177A Kluane Lake Area) of a small dunite plug. It is actually mislocated on the map and lies about 1 mile southeast of the shown location (Site No. 3). The intrusion was examined, but is of little interest economically. The rock is too fresh to be the host for significant asbestos. Site No. 2 (Nunntaea Creek) contains no outcrop (the anomaly is centred over the valley). A landing was not made, but flyby of exposures along the valley wall to the northeast indicated the rocks are sediments, probably limestone of Yukon Group.

Site No. 4 the anomaly here is caused by an ultramafic intrusion; where observed grey, massive, partly serpentized dunite. Asbestos fibre is known here, and the property was explored in 1969 by Arrow Inter-America Corp. (W.R. Grace and Co.). The showing was not examined because I could not find it.

* 34 PPM Cu; 16 PPM Ni.

Magnetic Anomalies -Northern Kluane Area (Cont.)

Site No. 5 is a small anomaly centered over a valley 5 miles east of Donjek River. The terrain is swamp and a few sand dunes or eskers. No outcrop was found.

Site No. 6 is a fairly large anomaly centered over Donjek River. A traverse was run up the east valley wall to the base of the closest rock exposure. Talus blocks indicate that the rock is quartz-chlorite schist (Yukon Group). Access is difficult, and the cause of this anomaly was not determined.

GEOCHEMICAL SAMPLING

Cold extraction total metal tests were run on both silt and soil samples at a variety of localities within the areas examined. Three sites were of sufficient interest to take samples for hot extraction analysis.

They are recorded below:

<u>Sample No.</u>	<u>Locality</u>	<u>Cu</u>	<u>Mo</u>	<u>Ni</u>	<u>Zn</u>
F70-4-1S	<u>Home Creek</u>	19	Tr	18	40
F70-4-2S	<u>Home Creek</u>	25	Tr	22	52
K-1	<u>Cement Creek</u>	22	Tr	23	52

In view of the background element content in these areas, the above values are not considered significant.

CONCLUSIONS AND RECOMMENDATIONS

1. The nature of the peridotite (where examined) causing the large

Conclusions and Recommendations (Cont.)

magnetic anomaly near White-Donjek river junction suggests that it deserves a relatively low priority as an exploration target. However, the anomaly is a large one and it would take several days to thoroughly examine the ultramafic rocks underlying it. The possibility exists that more than one intrusion is present; if this is the case, smaller satellite intrusions might be more highly serpentized (serpentinite bodies) and thus more favourable targets for asbestos mineralization. The possibility of significant nickel or nickel-copper mineralization associated with this type of intrusion is unlikely.

2. The general lower White River-lower Donjek area is currently being explored (regional silt sampling programs) by a number of companies. Undoubtedly, there is considerable overlapping amongst these programs. The area is large, rock exposure is generally poor except above treeline and along major rivers, access is relatively difficult and operations are probably relatively expensive. It is doubtful that the area can be comfortably written-off as a result of this summer's exploration. This may be considered as a target area of moderate priority for future operations.

3. On the basis of the few small magnetic anomalies checked in North Kluane area, this sort of exploration will require more time than anticipated to do a useful job. Undoubtedly many of them are caused by small ultramafic intrusions. I think that this part of Yukon Platform lying north of the Alaska Highway and extending from Brooks Valley on the east to

Conclusions and Recommendations (Cont.)

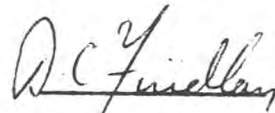
Koidern (M.P. 1167 Alaska Highway) on the west deserves attention in future. Possible targets are asbestos and skarn occurrences (Cu-Fe, WO_3) at contacts between Ruby Range granodiorite and Yukon Group limestone.

4. The Steele Creek ultramafic intrusion is of interest because of its somewhat unusual rock types. The fact that at least some sulphides occur in association with these rocks suggests that this and similar intrusions are good prospecting targets. In the case of the Steele Creek body it might be useful to run a few geophysical (EM and Mag) lines along Steele Creek valley to determine if the exposed sulphide (pyrite) zone has any significant continuity beneath the creek valley.

In my opinion this entire western part of Kluane belt, from Donjek River to the Alaska border and from the Alaska Highway south to the limits of accessibility due to snow and ice, deserves high priority as a general target region.

Whitehorse, Yukon

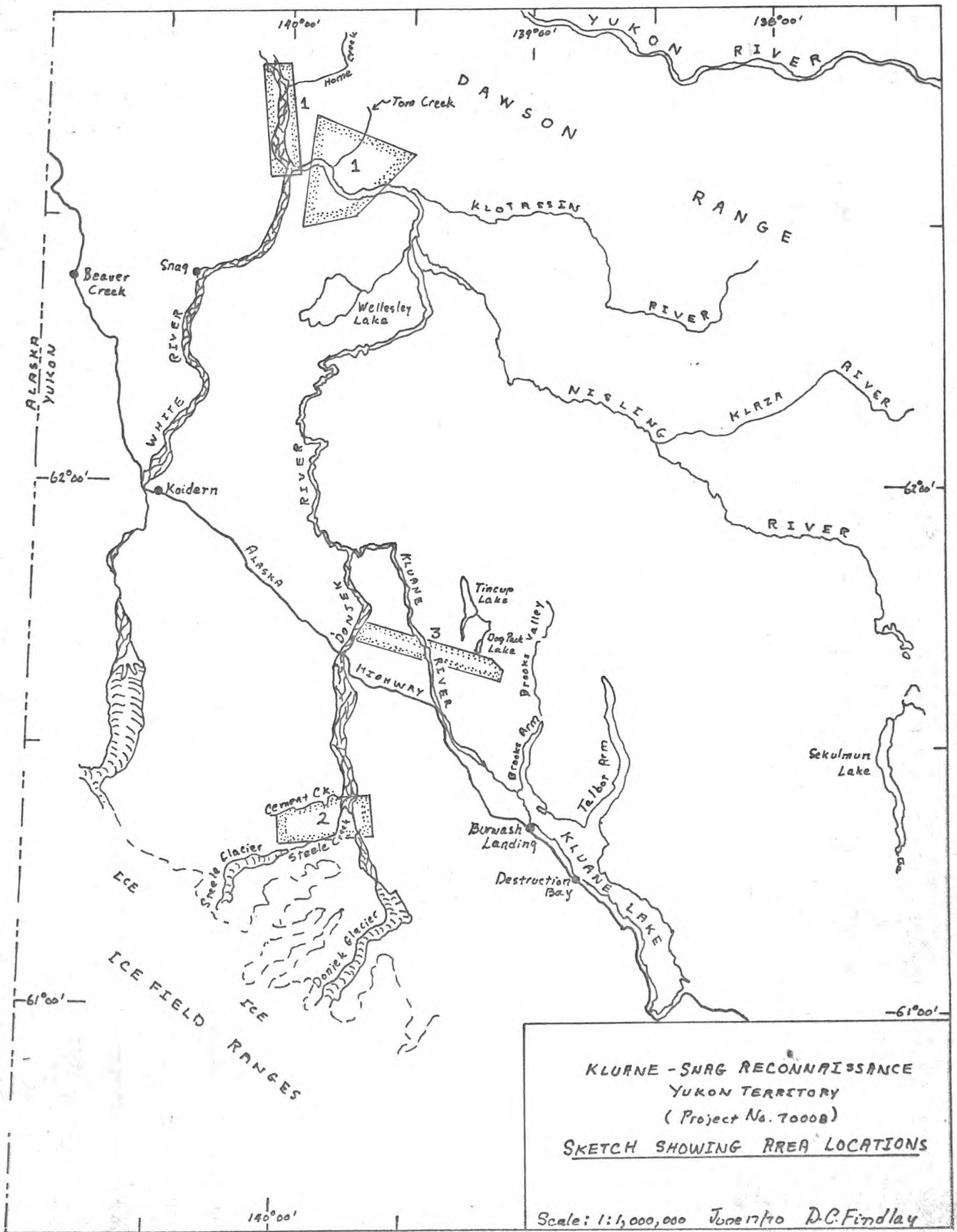
June 17, 1970


D.C. Findlay

APPENDIX

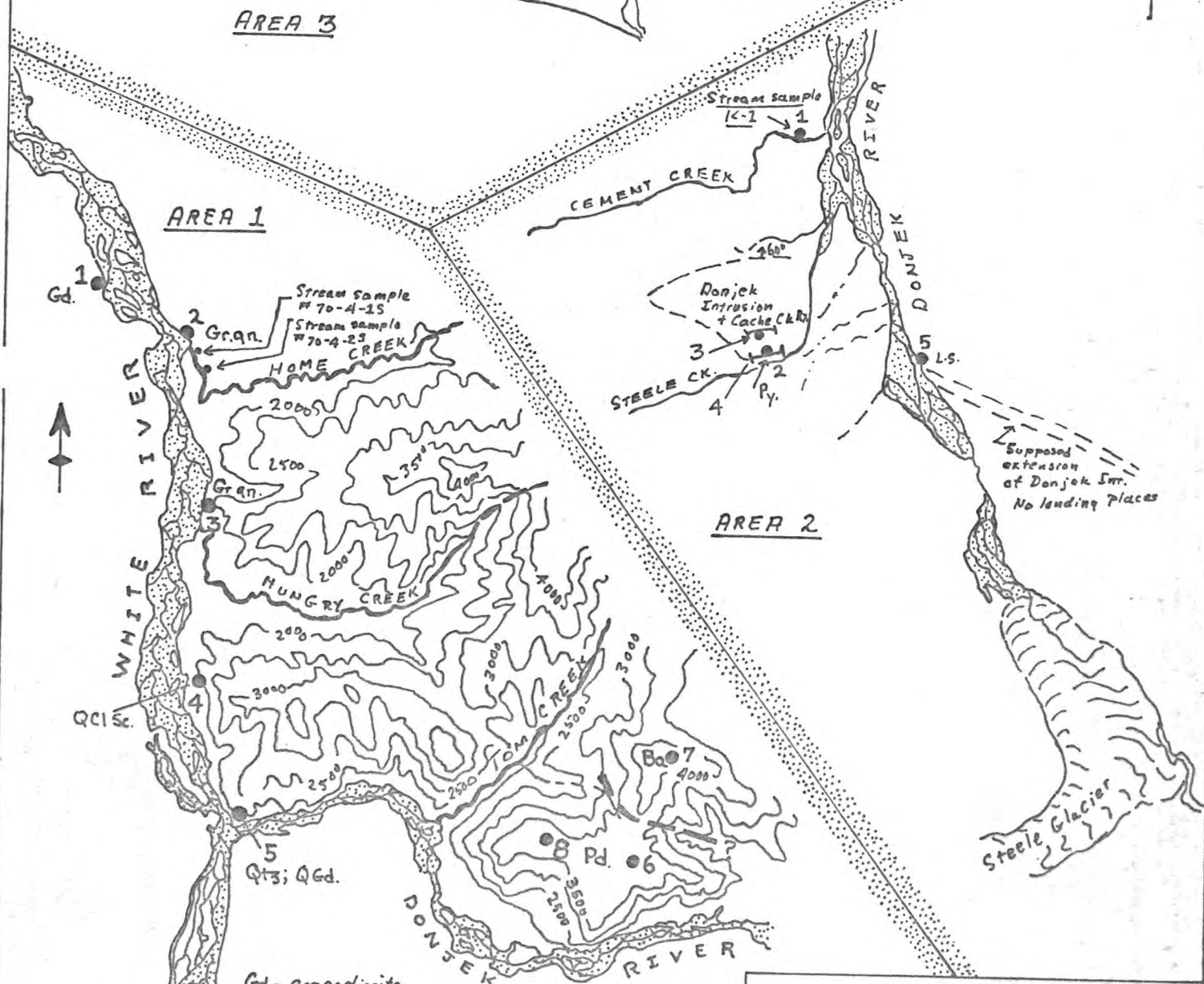
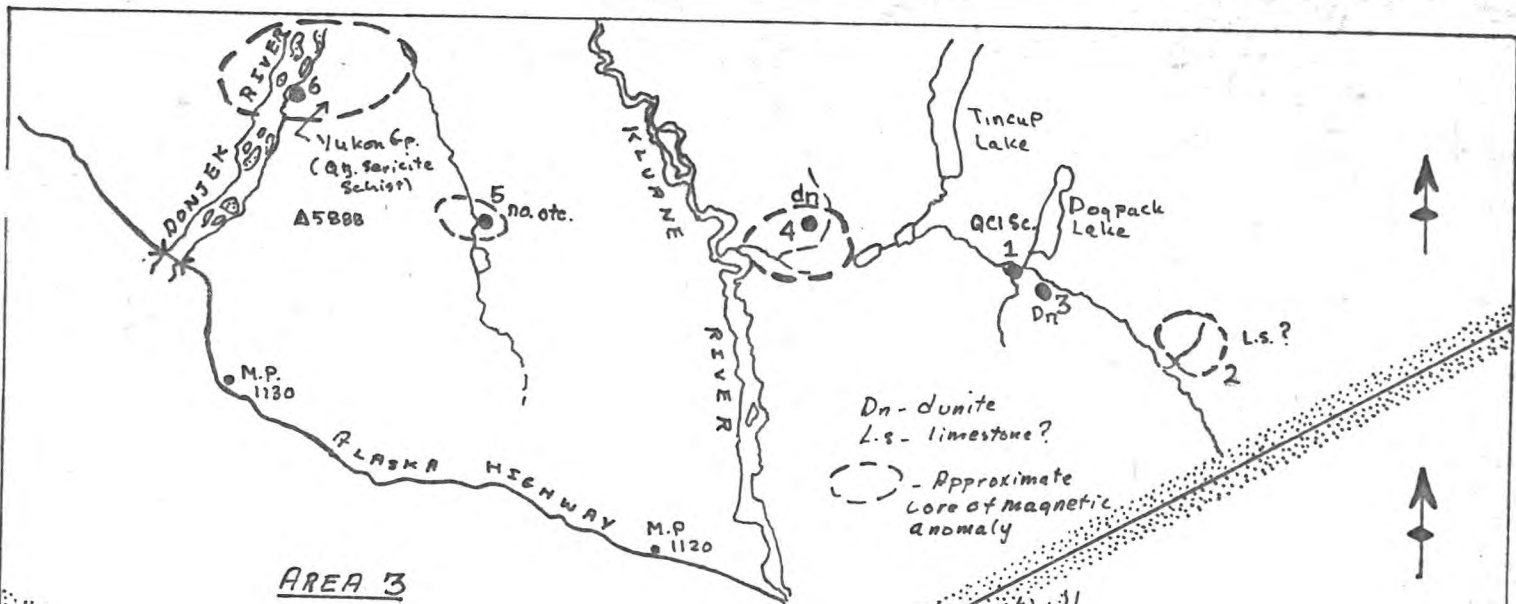
Costs of Kluane-Snag Reconnaissance Program

A.	<u>Helicopter (Klondike Helicopters)</u>	
	11.5 hours at \$150.00	\$1,725.00
B.	<u>Consulting Fees</u>	
	3 days at \$150.00 - \$450.00	
	2 x $\frac{1}{2}$ day at \$150.00 - <u>150.00</u>	
		\$ 600.00
C.	<u>Expenses</u>	
	Room and board etc.	\$ 70.50
D.	<u>Truck Rental</u>	
	500 miles at \$0.20	\$ 100.00
E.	<u>Report, Typing, Photocopying etc.</u>	
	Approximately	\$ 115.00
F.	<u>Analyses and Assays</u>	
	Approximately	<u>\$ 16.00</u>
		\$2,626.50



KLURNE - SNAG RECONNAISSANCE
 YUKON TERRITORY
 (Project No. 7000B)
 SKETCH SHOWING AREA LOCATIONS

Scale: 1:1,000,000 June 17/10 D.C. Findlay



Gd - granodiorite
Grqn. - granitic gneiss
QC1 Sc. - quartz-chlorite schist (Yukon Group)
Qtz - Quartzite
QGd - 'Quartz-eye' granite or qd.
Pd - Peridotite
Ba - basalt.

KLUNE-SNAG RECONNAISSANCE
Yukon Territory
(Project No 70008)

DETAILS OF AREAS VISITED

Scale: 1" = 4 mi June 17/70 D.C. Findlay