

307

STATEMENT OF EXPENDITURES FOR GEOLOGICAL SURVEY OF
TUG No. 1 MINERAL CLAIM
MARCH & APRIL 1960

Geologist, Dr. A. C. Skerl, P. Eng. :		\$
	3 days at \$35.00	105.00
Assistant, H. Perkins :		
	2 days at \$10.00	20.00
		<hr/>
Total		\$125.00

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G E O L O G I C A L R E P O R T
T U G N o . 1 M I N I N G C L A I M
B O U L D E R C R E E K P R O P E R T Y
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B . C . Q U A D . 5 0 ° 1 2 2 ° *E. S. W.*
B Y D R . A . C . S K E R L , P . E N G .

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I N T R O D U C T I O N

The field work upon which this report is based was conducted in March and April 1960 to comply with the terms of the 'Mineral Act' of B. C. so that it might be allowed as assessment work on the Tug No 1 mining claim which is part of a group of ten claims known as the Boulder Creek Property.

A base map was constructed to a scale of 1" to 200' from Brunton compass - chain traverse lines with stations at the most 100 feet apart. Elevations were also taken so that the contours could be drawn.

S I T U A T I O N

The claim is located just south of Boulder Creek about one mile above its mouth on Lillooet Lake and ten miles southeast of Pemberton which is 95 miles north of Vancouver by the Pacific Great Eastern Railway.

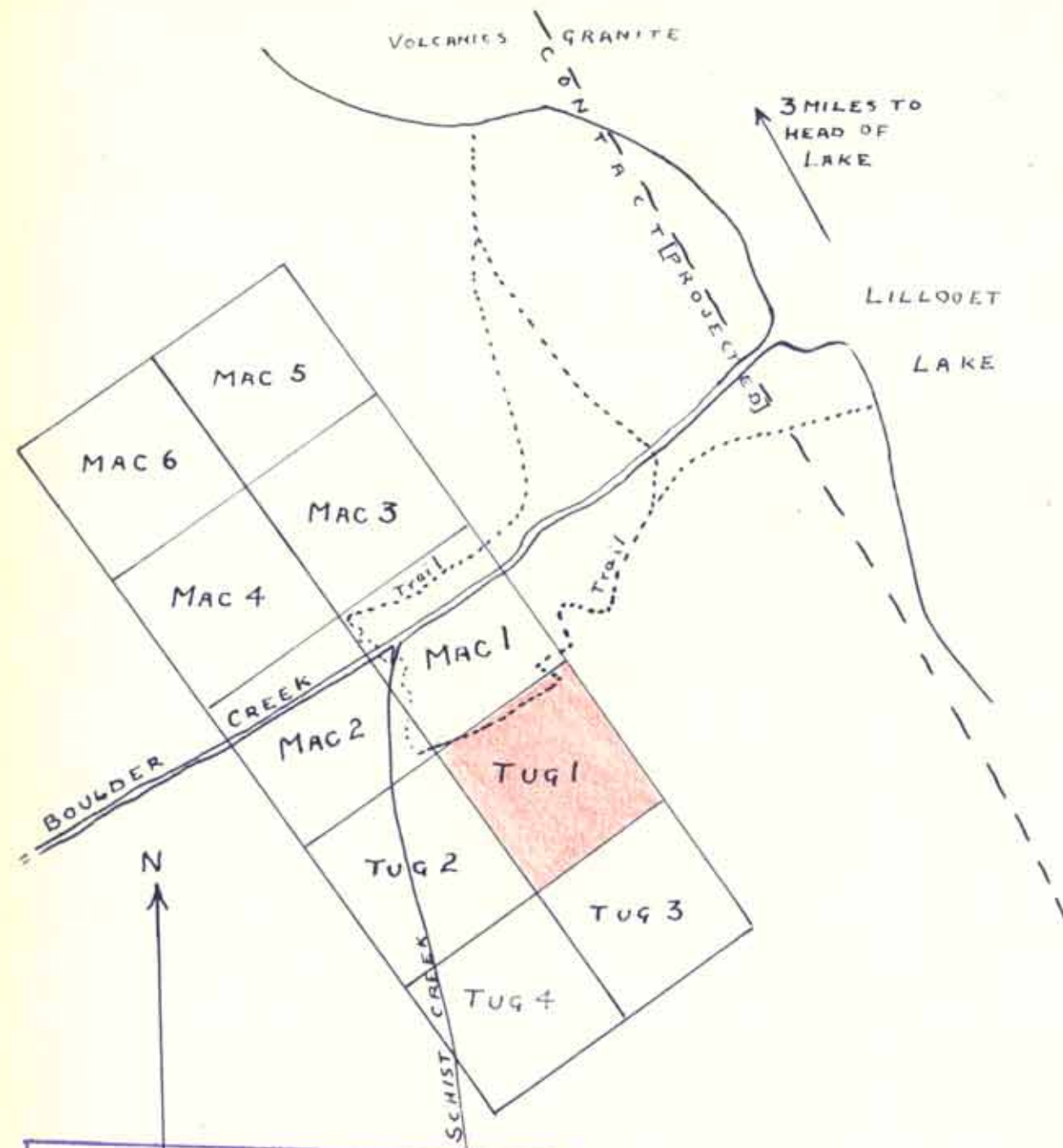
T O P O G R A P H Y

Within the claim the elevation ranges from 1400 to 2500 feet above sea level whilst the Lake is at 700 feet. There is one continuous steep slope facing north and draining into Boulder Creek.

The accompanying map (scale 1" to 1500') shows the location of the Boulder Creek claims in relation to Lillooet Lake.

C O M M U N I C A T I O N S

The property is reached from Pemberton by 8 miles of gravel road to the head of the Lake and then by boat for three miles to the west



Department of
 Mines and Petroleum Resources
 SEDIMENT REPORT
 NO. **307** MAP **#1**
 BOULDER CREEK CLAIMS
 NEAR LILLOOET LAKE
 SCALE 1" = 1500'
 APRIL 7, 1960 *U. G. Skerl*

[Faint, illegible handwritten notes and stamps on the left page]

shore near the mouth of Boulder Creek from where one of two trails can be taken for about $1\frac{1}{2}$ miles into the claims.

Within a year or two a logging road of the Anglo Canadian Co. will reach the head of the Lake on the west side from where there is an easy route to extend the road to Boulder Creek.

P O W E R A N D T I M B E R

A fair amount of power could be developed on Boulder Creek but since the new B. C. Electric power line from Bridge River to the Fraser valley passes within one mile down the east side of Lillooet Lake ample power at a reasonable rate would be available.

To avoid an underwater or long overhead span of transmission line a route would be followed for four miles on the west side of the Lake.

There is ample timber of all sizes available within the claim.

G E N E R A L G E O L O G Y

C. E. Cairnes gave a good description of the geology of the Pemberton area in a Summary Report for the Geological Survey of Canada in 1924.

Briefly there is a four to eight miles wide roof pendant of a partly metamorphosed and sheared sedimentary-volcanic series of Upper Triassic age that stretches for at least 20 miles to the northwest from about the south end of the Boulder Creek Property.

Along a straight line at N 30° W and within $\frac{1}{2}$ mile of the west contact of the roof pendant Cairnes described five properties named from north to south the Margery, Eagle, Lake, Boulder and Apex groups that had been explored for copper during the First World War.

The present account deals with part of the Boulder Property.

G E O L O G Y O F T U G N o 1 C L A I M

The accompanying geological map (scale 1" to 200') shows the distribution of the rock types encountered during the detailed mapping.

Much of the area is probably underlain by a fine grained andesitic lava that is often sheared moderately. It is relatively soft compared with other rock types so that it does not outcrop so readily.

A coarse fragmental rock of andesitic composition forms prominent outcrops in the southeast corner of the claim.

A fine grained siliceous rock that was found only near the centre of the claim is believed to be of volcanic origin.

The most important rock type, because of the associated copper mineralization, is believed to be tuffaceous in origin. It is often well-banded, fine textured and siliceous but frequently contains finely crystallized epidote with scattered pyrite and sometimes massive bands of pyrite.

All these rocks have been invaded by a series of andesitic dykes from a few inches to twenty feet thick. They are usually vertical and commonly strike northwest.

The southwest third of the claim is masked by glacial and scree material that may be quite thick since no outcrops were found protruding through it.

S T R U C T U R E

The steep dykes are usually along northwest faults that weather out readily leaving isolated ribs of dyke with vertical walls. The common vertical shearing is in the same direction so that a strong impression of steeply dipping rocks is formed especially in the

volcanic lavas and fragmentals.

When the banded tuffs are examined however they are often found to dip south at from 20° to 45° only and to strike in an easterly direction. A belt of these rocks was found to extend along the north side of the claim with clearly visible bedding in the cliffs of Schist Creek immediately west of the northwest corner of the claim.

The north-trending gullies shown on the map are probably fault lines.

M I N E R A L I Z A T I O N

The striking appearance of the red, brown and yellow bluffs that are several hundred feet high along Schist Creek no doubt first attracted the early prospectors to the area.

On breaking into the rock much fresh pyrite is seen and in certain areas chalcopyrite is plentiful. A little finely divided galena and yellow sphalerite have also been observed. The gangue is usually a siliceous epidote rock that may contain up to 20% pink rhodonite but sometimes it is a green chloritic material.

Malachite and azurite may be present but are never found naturally exposed - only by breaking into the rock. There seems to be an almost entire lack of carbonate material for these oxidation minerals to form.

At the original discovery of 1916 which is 40 feet west of the northwest corner of the Tug No 1 claim and in the Mac No 2 claim recent work has shown that copper mineralization extends over a true width of at least 50 feet of the tuffs that dip 35° S. Of this amount 20% is occupied by dykes. At 70 feet above there is another band that carries some copper for a true width of 15 feet.

DISCUSSION AND CONCLUSIONS

Both the staking and exploration of the Boulder Creek group of claims has been based on the northwest alignment of a zone containing the various properties as described by Cairnes but the reason for the position of the mineralization at intervals along the zone was not known although Cairnes had suggested a control by secondary faults intersecting the main northwest zone of shearing.

At Boulder Creek it now appears that a specific rock type, namely siliceous tuff, contains sulphides where intersected by northwest fractures which later became filled with dykes.

In the Tug No 1 claim a belt of this favourable rock outcrops across the north side and dips south so that presumably the whole claim is underlain at depth by these tuffs.

On the north side of Boulder Creek similar mineralized tuffs are found that also dip to the south and would be 600 feet below the beds in Tug No 1 claim if they continued that far. No folding has been recognized that would account for the relationships but Boulder Creek may be along an easterly trending fault that has dropped the tuffs 600 feet on its north side so that there is actually only one horizon of tuffs.

Most of the sulphide is pyrite and it is much more widely spread than the chalcopyrite so a geochemical survey was carried out to define the distribution of the copper with the results recorded in a separate report.

The effective blanketing by the glacial and scree materials to geochemical tests suggests that a self-potential survey would be useful in testing these areas.

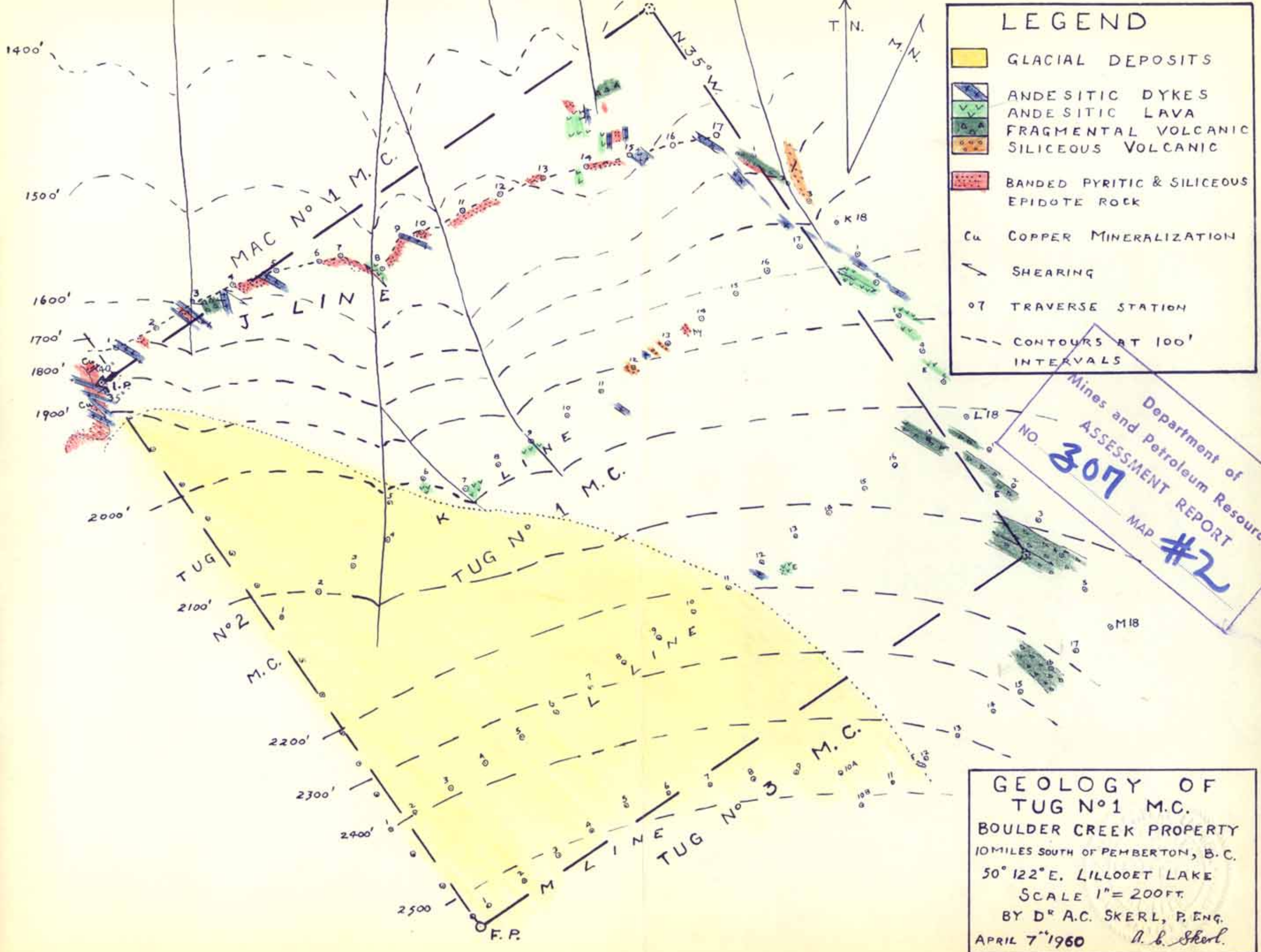
Some important copper assays have been obtained from channel samples near the northwest corner of the Tug No 1 claim but considerable development would be required to demonstrate the presence of an ore-body. Before concentrating a major effort here it would be best to search for a possibly higher grade area by means of geological, geochemical and geophysical surveys in the other claims of the group and further afield if necessary.

R E C O M M E N D A T I O N S

When snow conditions permit extend the geological survey through the rest of the group of claims in an endeavour to find repetitions of the favourable siliceous tuff beds and other types of mineralization. Follow up with a geochemical and then a self-potential survey.

Explore any interesting discoveries by means of open-cuts and then, if justified, by diamond drilling.


Dr. A. C. Skerl, P. Eng.



LEGEND

- GLACIAL DEPOSITS
- ANDESITIC DYKES
- ANDESITIC LAVA
- FRAGMENTAL VOLCANIC
- SILICEOUS VOLCANIC
- BANDED PYRITIC & SILICEOUS EPIDOTE ROCK
- Cu COPPER MINERALIZATION
- SHEARING
- 07 TRAVERSE STATION
- CONTOURS AT 100' INTERVALS

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 ASSESSMENT REPORT
 NO. **307**
 MAP #2

**GEOLOGY OF
 TUG N°1 M.C.**
 BOULDER CREEK PROPERTY
 10 MILES SOUTH OF PEMBERTON, B. C.
 50° 122' E. LILLOOET LAKE
 SCALE 1" = 200 FT.
 BY D^r A. C. SKERL, P. ENG.
 APRIL 7, 1960 *A. C. Skerl.*