93M/

EXAMINATION AND GEOLOGICAL REPORT

Sultana Group of Mineral Claims
Boulder Creek Area
Hazelton District of British Columbia
(8 miles West of Seaton Station 55°, 127°, S.W.

C.H. Macdonald, P. Eng.

August 3rd to 6th, August 20th to 25th, 1953.

93M/4E

92

GEOLOGICAL REPORT SULTANA GROUP OF MINERAL CLAIMS

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MAP SECTION

GEOLOGICAL REPORT

SULTANA GROUP OF MINERAL CLAIMS

BOULDERS CREEK AREA

Hazelton District of British Columbia

GENERAL:

The Sultana Group of Mineral Claims comprises the Sultana No. 1 to 4 Mineral Claims and the Elgin No. 1 to 4 Mineral Claims. These claims are all held by location and are owned by Mr. G. Parent and associates of Hazelton, British Columbia. At the present time, Northern B.C. Mining Co. Ltd., holds an option on this property.

The property has been described in considerable detail in the Minister of Mines Reports for 1921 page 100, for 1922 page 99, for 1923 page 107 and also in Geological Survey of Canada, Memoir 223 (Mineral Resources, Hazelton and Smithers Areas) by E.D. Kindle.

An examination of the property was made by the Writer on August 3rd to 6th 1953.

LOCATION AND ACCESS:

These claims are situated at the head of Boulder Creek on the S.E. side of Rocher Debaulé Mountains, and approximately 8 miles due West of Seaton Station on the C.N.R. (55°, 127°, S.W.). The principal showings and surface workings are located at an elevation of approximately 5200 feet on a bench or shelf on the S.E. side

of a large basin that forms the head of Boulder Creek. The claims are reached by a pack trail that leads off the Hazelton Smithers Highway near Seaton Station. For the first 1½ miles, the pack trail has been improved to a fairly good logging road as far as Lubers Hill. From this point on, the distance to the property by pack trail is about ten miles, the first 8 miles following along close to Boulder Creek at fairly easy grades and the last 2 miles climbing quite steeply from the basin at the head of the creek to the surface workings which are 1,000 to 1,200 feet vertically above the valley bottom. At the time of this visit to the property, the pack trail was in very poor repair and considerable work would be required to put it into satisfactory condition for supplying material for any development program on the property.

CONCLUSIONS:

The shear zone on the Sultana Claims is a strong well-mineralized zone in good competant host rocks that certainly warrants further investigation. As exposed in the two cuts that are down through the oxidized zone, the shear yielded the following assays - Au. - 0.03 oz per ton, Ag. - 33.35 oz per ton, Cu. - 2.8%, over a width of 15.0 feet and Au. - 0.06 oz per ton, Ag. - 37.42 oz per ton and Cu. - 2.5% over a width of 18.0 feet. These samples represent values of ~~$48.22~~ $45.04 and ~~$50.69~~ $47.46 per ton at present metal prices, Sample values obtained from the

1921 Minister of Mines of British Columbia Report were Au. - 0.04 oz per ton, Ag. - 45.67 oz per ton and Cu. - 3.54% over a width of 18.0 feet for a gross value of ~~$64.08~~ $60.75 at today's metal prices.

Further to the West, all the samples of the oxidized material along what may be a parallel or branch shear yielded quite encouraging values in silver and copper, dollar values of samples running from ~~$12.51~~ $12.15 to ~~$26.39~~ $24.04. Still further West, the granodiorite appeared to be considerably sheared and sparsely mineralized and further work may prove something of value in this locality.

A program of exploration is outlined in the section "Recommendations for further work". This would be preceded by some trail work, an expenditure of $500.00 should put the pack trail into fairly good shape. The drilling outlined should be possible for an overall cost of not more than $5.00 per foot which would require an expenditure of some $3075.00 for the first 4 holes and a further expenditure of $750.00 for the fifth hole mentioned. The second phase of the drilling program, i.e., the deeper holes could probably be obtained for a figure somewhat less than $5.00 per foot depending on the total footage required.

The one drill hole put down by the Granby Company would appear to be a very incomplete investigation of the downward continuation of this shear zone and the drilling program outlined in this report should have a very good

chance of obtaining favourable results.

HISTORY:

Claims were first located on this showing by the Brewer Brothers in 1912 and around that time considerable surface work was done on the showings. The claims were abandoned and after some years of lying idle, the ground was re-staked by Messrs. Macdonald and Hicks in 1921. Some trail work was done at this time and some further surface work indicating a width of ore from 4 feet to 20 feet for a length of 125 feet. In 1923 the property was optioned to the Granby Consolidated Mining and Milling Co. Ltd. During this season, the optioners did considerable work improving the pack trail and moved a surface diamond drill in to the property and drilled one hole, 80 feet deep and then shortly thereafter relinquished their option.

The ground was again abandoned and lay open for many years until re-staked by G. Christensen of Hazelton in 1939 and a small amount of surface work was done at this time . The claims were later dropped again and the ground lay open until re-staked in 1950 and 1951 by G. Parent and associates of Hazelton, B.C. No work has been done on the property recently.

DESCRIPTION AND GEOLOGY:

The principal showings consist of a large mineralized shear zone in a coarse granodiorite host rock. This shear has an apparent strike of N.50E and dips from 40°to the S.E.

to 75° to the N.W., with the overall dip of the shear being probably nearly vertical. In the vicinity of the showings and along the strike of the shear to the N.E. the bedrock, where exposed, consists of fairly fresh looking granodiorite. Along the strike to the S.W. the grandiorite is more sheared and sparsely mineralized with a little quartz and pyrite and some minor blebs of molybdenite along the small fractures. In the best exposures of the shear the mineralization consists of crystalline quartz, pyrite, tetrahedrite with minor amounts of galena, chalcopyrite and molybdenite.

The shear has at one time been well exposed by surface open-cuts, however at the time of this examination most of the cuts were filled so that bedrock could only be seen in the two main cuts. On the accompanying maps, the cuts and outcrops have been numbered proceeding from S.W. to N.E. and are described in detail as follows :

OPEN-CUT NO.1

A shallow open-cut 100 feet long and about two feet deep. This cut is partially filled and bedrock is covered. At one place, 25 feet from the Northern end of the cut a patch of oxidized out-crop quite near the open-cut may be part of the shear or it may be a large piece of float-rock. Some of the material out of the open-cut near here is quite well oxidized and a grab sample of this material yielded the following assay : Au.- 0.03 oz per ton, Ag.- 19.50 oz per ton, Cu.- 1.20%. Computing the value at present metal prices of Au. $35.00 per ounce, Ag. 85¢ per ounce

and Cu. 29¢ per pound, yields a gross metal value for sample of ~~$21.35~~ $24.49 per ton. (These metal prices have been used for computing values of all samples mentioned in this report).

OPEN-CUT NO.2:

This consists of two exposures of oxidized and ~~solidified~~ silicified bed-rock lying about 20 feet apart. It is hard to tell whether these exposures are in place or not as no work has been done around them, but probably one out-crop any way is a large piece of float. A chip sample from these out-crops yielded the following assay: Au.-0.02 oz per ton, Ag.- 17.80 oz per ton, Cu - 0.10% - Gross value ~~$16.50.~~ $19.41.

OPEN-CUT NO.3:

This is a small open-cut 10 feet long by 2 feet wide by 1½ feet deep which probably was down to bedrock, but is now partly filled in with over-burden. The material thrown out from this cut does not show much evidence of oxidation.

OPEN-CUT NO.4

At this point is an open-cut 150 feet long, up to 3 feet deep and 2 feet wide. It is partly filled and bed rock can not be seen. At one place near the survey line the material beside the cut is very highly oxidized and a grab sample of this ran Au.- 0.02 oz per ton, Ag.- 15.20 oz per ton, Cu.- 1.90% for a gross value of ~~$20.39~~ $24.04 per ton.

OPEN-CUT NO.5:

This is a small cut 10 feet long and partly filled. The material around the cut is not well oxidized, but 20 feet to the North there is a natural exposure of bedrock, or large float which shows quartz crystals and some oxidation material. A chip sample across a width of 50 feet of this exposure yielded the assay : Au.- 0.015 oz per ton, Ag.- 11.60 oz per ton, Cu.- 0.30% Gross Value ~~$12.51~~ $12.13 per ton.

OPEN-CUT NO.6:

The shear is very well exposed in this cut as it has been taken down 5 to 7 feet through the solid outcrop. The cut is 95 feet long and, at the shear, 7 feet deep and 6 feet wide. The shear is intersected 15 feet from the upper end of the trench and is about 20 feet wide in this cut. The zone is fairly well mineralized with quartz, pyrite and a little tetrahedrite. On the S.E. side, the shear has a fairly strong wall striking N 45 E and dipping 40° to the S.E. Across the width of the shear there are numerous planes all dipping at about 30° to 40° to the S.E., but these may be due to surface alteration. A sample across a width of 15.0 feet in this cut yielded the following assay: Au.- 0.03 oz per ton, Ag.- 33.35 oz per ton, Cu.- 2.80% gross value ~~$46.22~~ $75.64 per ton .

OPEN-CUT NO. 7:

Between Open-Cut No.6 and No.7 the shear is well exposed on the surface for a distance of 45.0 feet. This outcrop

shows mainly quartz crystals and a little oxidized material probably the remnants of the metallic contents. The outcrop also shows the slicing in the shear to be dipping at 30° to 40° to the S.E., but here again this may be due to the surface leaching and glacial action on the outcrop. At open-cut No.7 the shear is very well exposed by a cut that was taken down about ten feet into the solid out crop and although the bottom of the cut has, subsequently, been filled with over-burden, the vein is still well exposed in the two walls of the cut. On the S.E. side the vein has a very definite slip or shear for a wall, striking N 30 E and dipping 75° to the N.W. On this side of the vein there is 2.0 feet of solid sulphides, mainly pyrite and Tetrahedrite. From this heavy mineralization for a distance of 12.0 feet to the N.W. side of the shear the vein shows scattered pyrite and tetrahedrite in a quartz gangue . On the N.W. wall there is exposed some gauge which may represent a flat fault (15° dip to S.E.) at roughly the same strike as the shear. This side of the vein was too covered by overburden to assess this structure fully, but it may be of no significance as it is not mentioned in the description of 1921 - 1923 when this work was fresh. Two chip samples were taken from this cut, the first sample 2.0 feet of massive mineral on the S.E. side giving an assay of Au.- 0.08 oz per ton, Ag.- 66.95 oz per ton, Cu. 6.15% for a gross value of ~~$101.06~~ $95.38 per ton and the adjoining 12.0 of the shear assaying : Au.- 0.06 oz per ton, Ag.- 32.50 oz

per ton, Cu.- 1.95% for a gross value of ~~$42.03.~~ $41.04 A selected sulphide sample off the dump assayed : Au.- 0.28 oz per ton, Ag.- 19.60 oz per ton, Cu.- 4.45% gross value ~~$56.36~~ $52.67 per ton.

Open-Cuts No.8 and No.9:

These two cuts 25.0 feet and 35.0 feet long respectively are situated a further 30 feet along the strike to the N.E. and about ten feet lower than open-cut No.7. No bedrock can be seen in either of these cuts and the material beside the cuts does not show any evidence of oxidation.

There are two long cuts at a few hundred feet further to the N.E., but these are pretty well filled and do not show any signs of oxidation on their dumps.

The strike of the shear as exposed in the open-cuts No.6 and No.7 is fairly well established as N 45° E, and if it continues at this strike, the vein to the S.W. would be under a talus deposit where no bedrock is exposed. The cuts to the S.W., that is Cuts No.1 to No.5 are off this strike and the exposures in this area might be large float off an outcrop a bit higher up the hill which is now covered by more recent talus of granodiorite from higher up the hill, or they may be part of a branch or a parallel shear. A nose of granodiorite 300 to 350 feet distant to the S.W., and the talus from this nose, shows quite a large amount of shearing and also some mineralization, mainly pyrite and quartz with a few blebs of molybdenite. This may be the continuation of the shear to the S.W.

To the N.E. the bedrock is nearly all covered by vegetation and rock exposured are infrequent. However, no sign of a shear was seen along the edge of the basin where bedrock could be seen some 1,000 feet to the N.E. The few cuts out in this region evidently did not locate anything. It is possible that the shear was offset by faulting a short distance to the N.E. of No.7 open-cut.

The site of the hole drilled by the Granby Company is located on the geology and assay plan, but unfortunately, no dip could be determined for this hole. From this set-up a hole drilled for 80 feet would have to be drilled at a dip of less than 35° to reach the near side of the shear, assuming a vertical dip and it would have to be drilled at 35° to reach the far side of the shear. It seems very doubtful that this hole would have located the main shear if the overall dip of the shear proves to be nearly vertical.

RECOMMENDATIONS FOR FURTHER WORK:

The size and strength of the showings and the value of the samples obtained on this and previous examinations would indicate that further development work should be attempted from the surface near these showings. Open cuts No.6 and No.7 have been mined down through the oxidized zone to fairly fresh vein material so the assays obtained from these two cuts may be taken as a good indication of the value of the ore in this shear. These values are, for open cut No.6,

width 15.0 feet, Au.- 0.03 oz per ton, Ag.- 33.35 oz per ton, Cu.- 2.80% gross value ~~$46.94~~ $45.64 and for open-cut No.7 (average of two samples) width 14.0 feet, Au.- 0.063 oz per ton, Ag.- 37.42 oz per ton, Cu.- 2.48%, gross value ~~$50.69~~ $48.40 per ton. These values compare favourably with values reported by J.D. Galloway in Minister of Mines Report for 1922, his values for open-cut No.7 being :- width 18.0 feet, Au.- 0.042 oz per ton, Ag.- 45.67 oz per ton, Cu.- 3.54%, gross value at today's prices, ~~$64.00~~ $60.75 per ton. If the values and width found in these two cuts could be extended for sufficient horizontal and vertical distance, there is no reason why this deposit should not be classed as commercial ore at today's metal prices.

There is a possibility that the big shear zone exposed in these two cuts is not exposed on the surface to the S.W., but is covered by talus, and that the outcrops and oxidation exposed by surface work to the West is a branch or a parallel structure. A program of diamond drilling as outlined on the accompanying maps and sections would explore the shear vertically and also horizontally to the S.W. This diamond drilling programme would consist of 4 or 5 holes, and if results substantiated the surface indications, the shear would be outlined for a width of 18 feet, length of 160 feet to 240 feet, and vertical extent of 150 feet.

The first hole could be drilled from the Granby Company set up on a bearing of N 40 W, dip - 45° for a distance

of 90.0 feet. If results of this hole were satisfactory, hole No.2 could be omitted, otherwise hole No.2 would be drilled S 240 E, dip 45° for 115.0 feet, from some point about half way between the N.W. ends of cuts No.6 and No.7. Hole No.3 should be drilled from a point about 30.0 feet West of the end of cut No.6 on a bearing of 35° E., dip - 45° for 170.0 feet. This hole could be drilled at a flatter dip than 45°, but should be drilled far enough to intersect the possible extension of the shear, as indicated in cuts No.6 and No.7. Hole No.4 should be drilled from a point 25.0 feet N 20 E from the lower out crop at open cut No.2 on a bearing of S.15.E, dip 45° for a distance of 240.0 feet. Position of this hole would depend on results obtained in hole No.3, i.e., if no evidence of any shear was found under present out crop at open cut No.5, then this hole could be drilled higher up the hill and the total distance shortened. It could also be drilled flatter than 45° if this were possible. A further hole could be drilled from a location 100 feet West of the hole No.4, the exact location and direction of this hole to be determined from results obtained from the previous four holes.

If the results of this drilling proved encouraging, then a further programme of drilling should be attempted to investigate the shear still further along the strike and also to prove it downward for a vertical distance of 300 to 500 feet.

When the above programme is completed, the shear would be outlined for approximately 500 feet horizontally and 500 feet vertically and if indicated width of 15.0 feet and value of $50.00 per ton were maintained, then a minimum of 300,000 tons of ore would be indicated for a gross value of $15,000,000.00 and a probable operating profit of $3,000,000.00. The property should then be opened up by some underground work, either by shaft sinking from the surface or preferably by cross-cutting from somewhere a short distance above the creek.

ASSAYS :

		Au.	Ag.	Cu.	
	width	(oz/ton)	(oz/ton)	%	Value
Open Cut #1 Grab Sample	-	0.03	19.50	1.20	$24.49
" " #2 " "	-	0.02	17.80	0.10	16.41
" " #4 " "	-	0.02	15.20	1.90	24.64
" " #5 Chip "	5.0'	0.015	11.60	0.30	12.13
" " #6 " "	15.0'	0.03	33.35	2.80	45.64
" " #7 " "	2.0'	0.08	66.95	6.15	95.38
" " #7 " "	12.0'	0.06	32.50	1.95	41.04
" " #7 Select Sulphides	-	0.28	19.60	4.45	52.67

The last three samples were assayed for Molybdenum, but only showed a trace.

Respectfully submitted by : C.H. Macdonald, P.Eng.

SULTANA No. 4 M.C.

SULTANA No. 2 M.C.

SULTANA No. 1 M.C.

SULTANA No. 3 M.C.

5130 5140 5150 5160 5170 5180 5190 5200 5210 5220 5230

Upper Limit of Talus Slope

Lower Limit of Talus Slope

LOCATION LINE.

No. 1 Post

No. 2 Post.

Location of Hole drilled by Granby Co.

A A' B B' C C'

Width-40' Au-0.03, Ag-19.5, Cu 1.2%, $24.49 $24.36

Width-35 Au-0.02 Ag-17.8, Cu-0.01%, $16.41 $16.50

Grab. Au-0.02, Ag-15.2 Cu-1.9%, $24.64 $26.30

Width-30' Au-0.015, Ag-11.6, Cu-0.03, $12.13 $12.61

Width-15.0 Au-0.03, Ag-33.35, Cu-2.6, $45.64 $48.82

Select Surf. Au-0.28 Ag-196 Cu-4.45 Mo-Tr $52.67 $56.36

Width 12.0' Au-0.06 Ag-32.5 Cu-1.95 Mo-Tr $41.04 $42.82

Width-20' Au-0.08 Ag-66.95 Cu-6.15 Mo-Tr $81.08 $85.38

—LEGEND.—

Vein Material.

Granodiorite.

Open-cut.

Proposed Diamond Drill Hole.

Assay Values Au. $35.00/oz., Ag 85¢/oz., Cu. 29¢/lb.

29°

Department of Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 92 MAP #1

PLAN VIEW.

SULTANA GROUP

OF

MINERAL CLAIMS.

BOULDER CREEK AREA.

HAZELTON DISTRICT OF B.C.

SHOWING

GEOLOGY AND ASSAY VALUES.

Scale: 1 in = 40 ft. Date: Aug 8, 1953.

To accompany Report by:

C.H. Macdonald P.Eng.

#92
MAP 1

ELGIN No. 4 M.C.

LOCATION LINE

No. 1 Post.

ELGIN No. 3 M.C.

SULTANA No. 2 M.C.

SULTANA No. 4 M.C.

ELGIN No. 2 M.C.

No. 2 Post.

LOCATION LINE.

No. 1 Post.

No. 1 Post.

LOCATION LINE

No. 1 Post.

No. 2 Post.

LOCATION LINE

No. 2 Post.

SULTANA No. 1 M.C.

SULTANA No. 3 M.C.

ELGIN No. 1 M.C.

PLAN VIEW

SULTANA GROUP

OF

MINERAL CLAIMS.

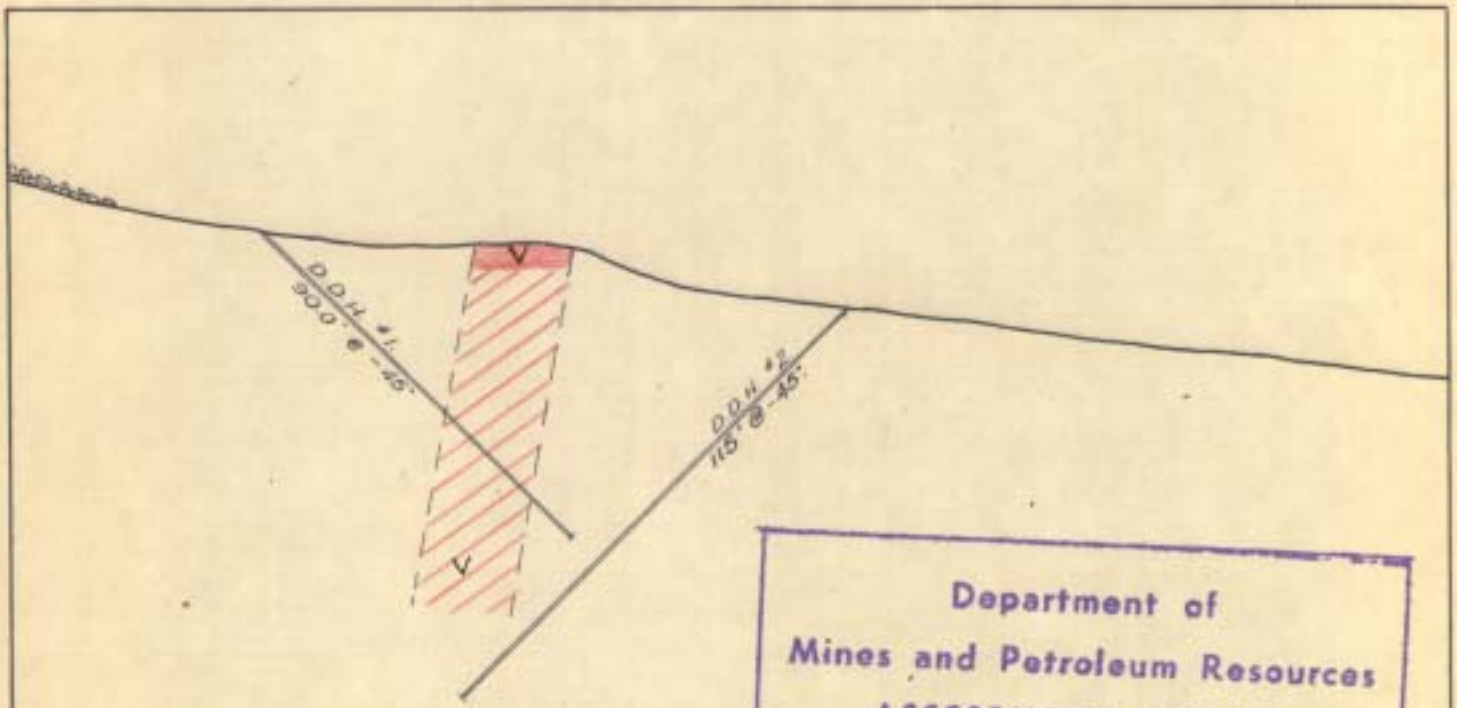
BOULDER CREEK AREA.

HAZELTON DISTRICT OF B.C.

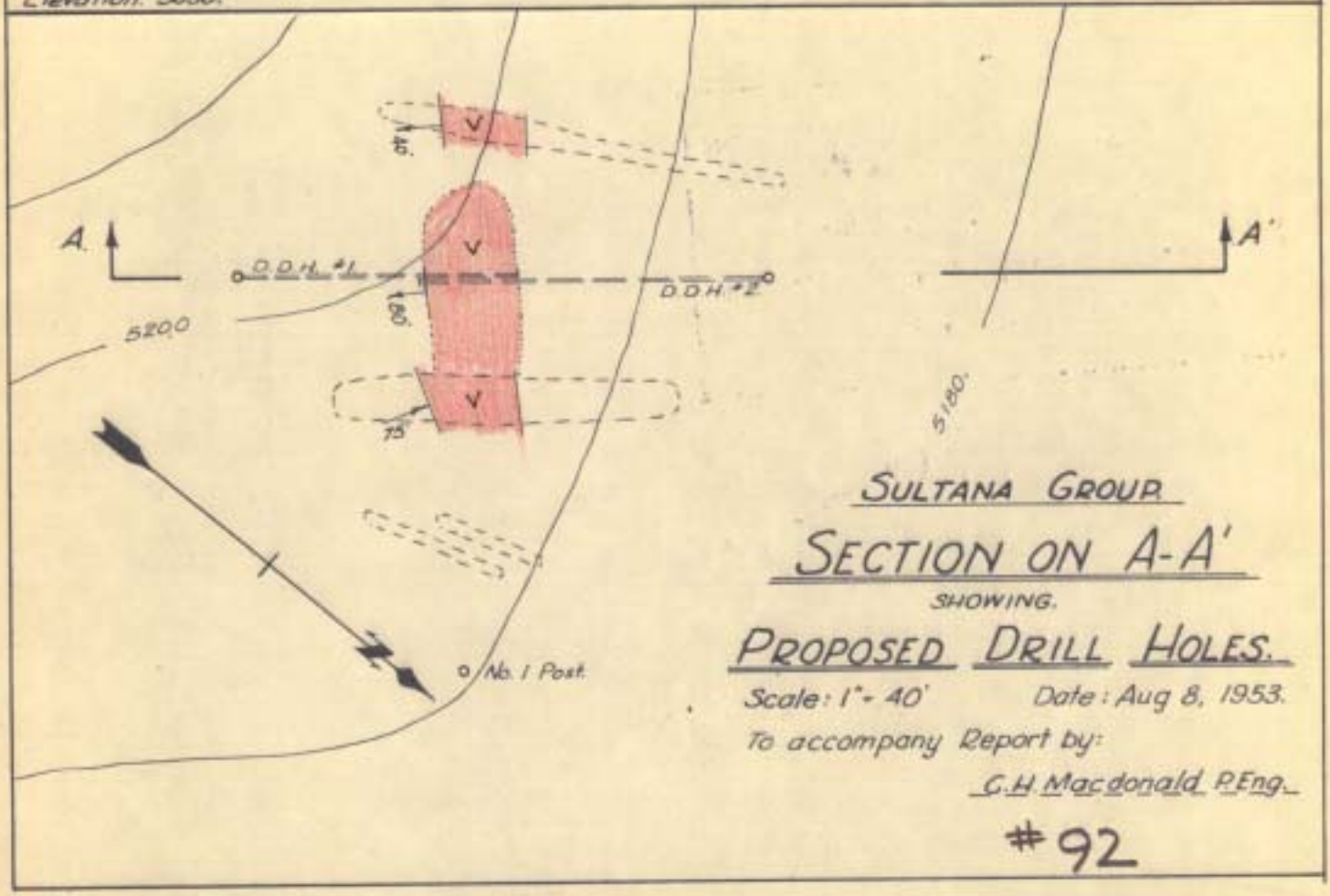
Scale: 1 in = 200 ft. Date: Aug 8, 1953.

To accompany Report by:

C.H. Macdonald P.Eng.



Elevation. 5050'.



SULTANA GROUP

SECTION ON A-A'

SHOWING.

PROPOSED DRILL HOLES.

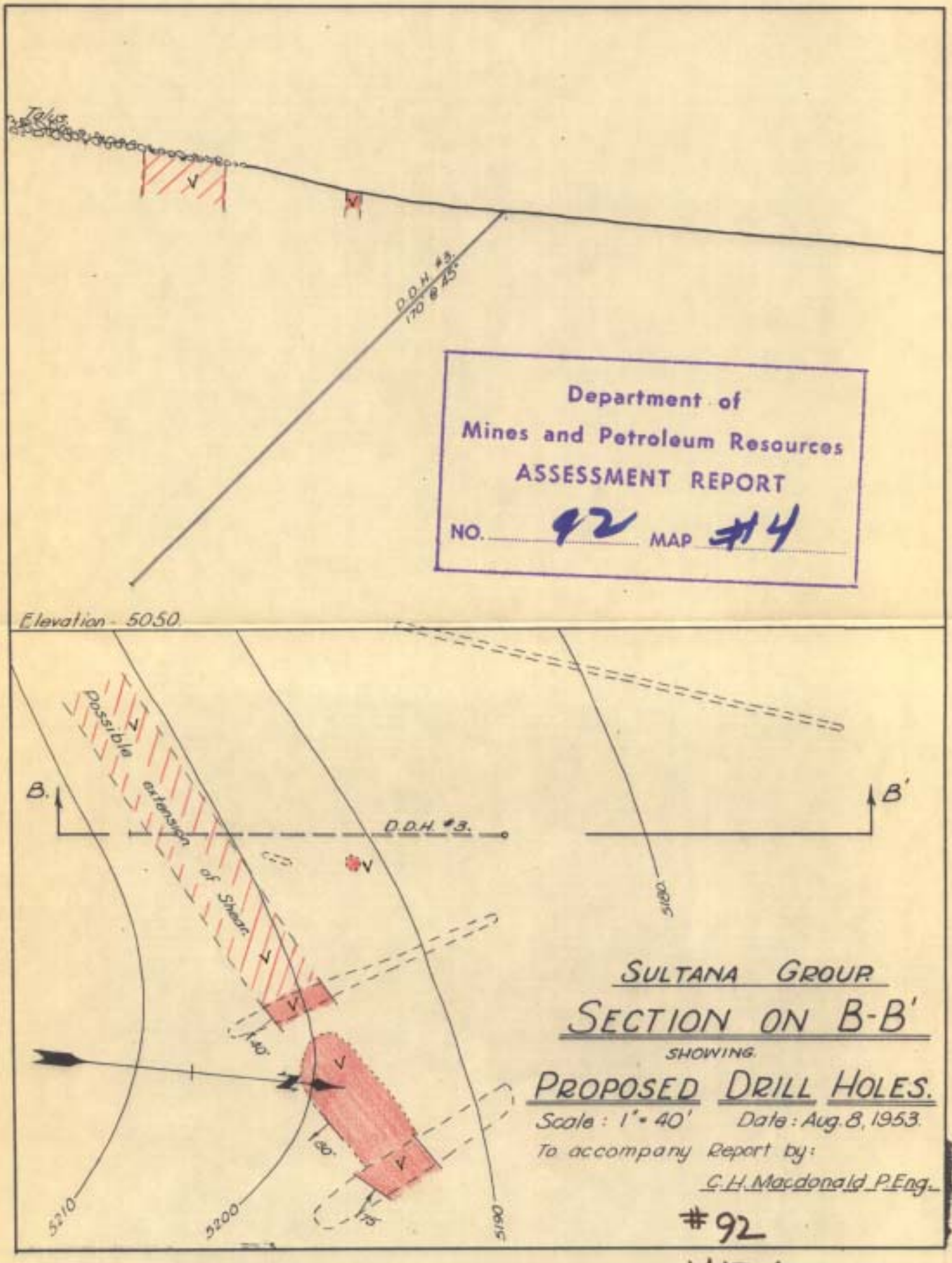
Scale: 1" = 40' Date: Aug 8, 1953.

To accompany Report by:

C.H. Macdonald P.Eng.

#92

MAP 3



SULTANA GROUP.

SECTION ON B-B'

SHOWING.

PROPOSED DRILL HOLES.

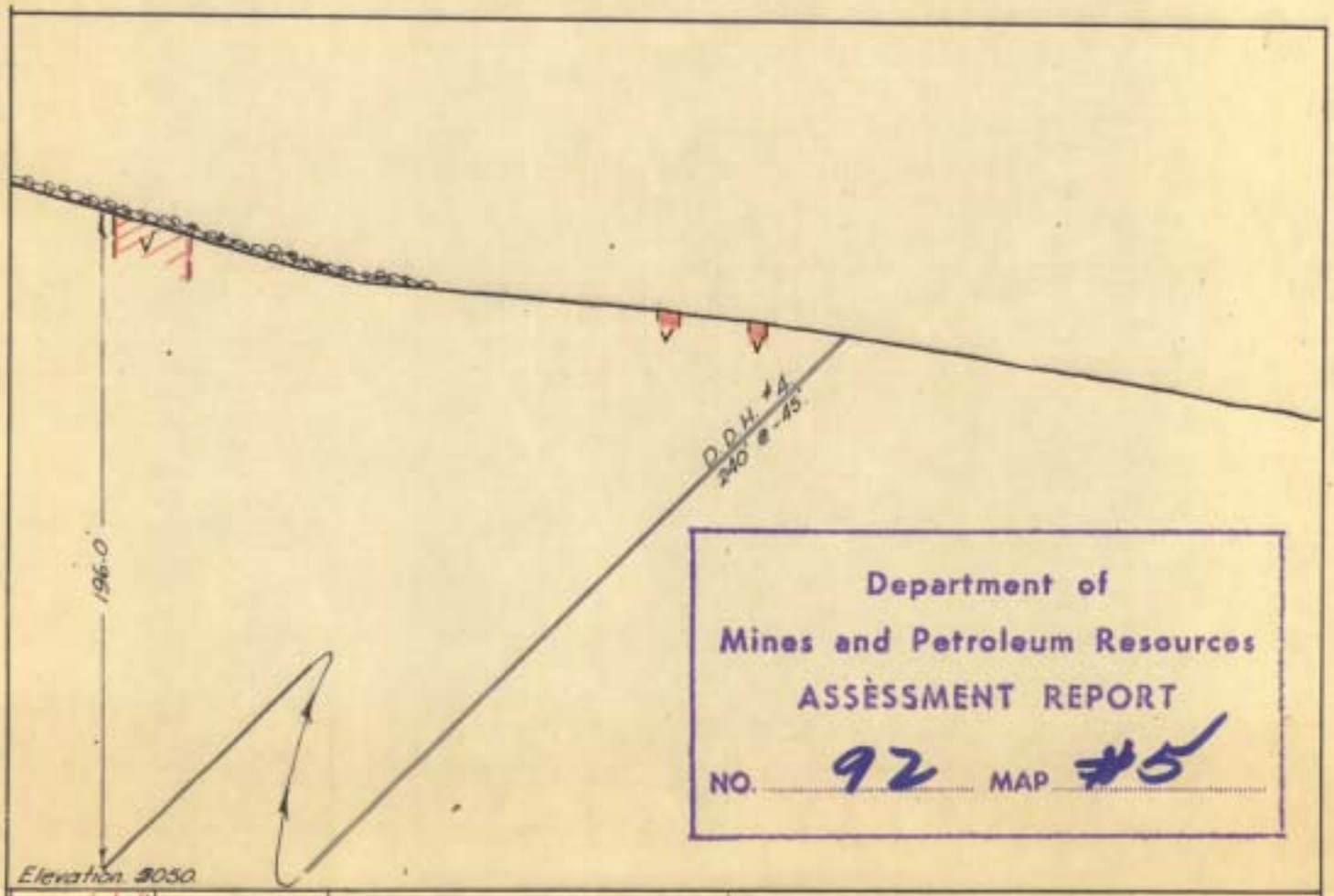
Scale : 1" = 40' Date : Aug. 8, 1953.

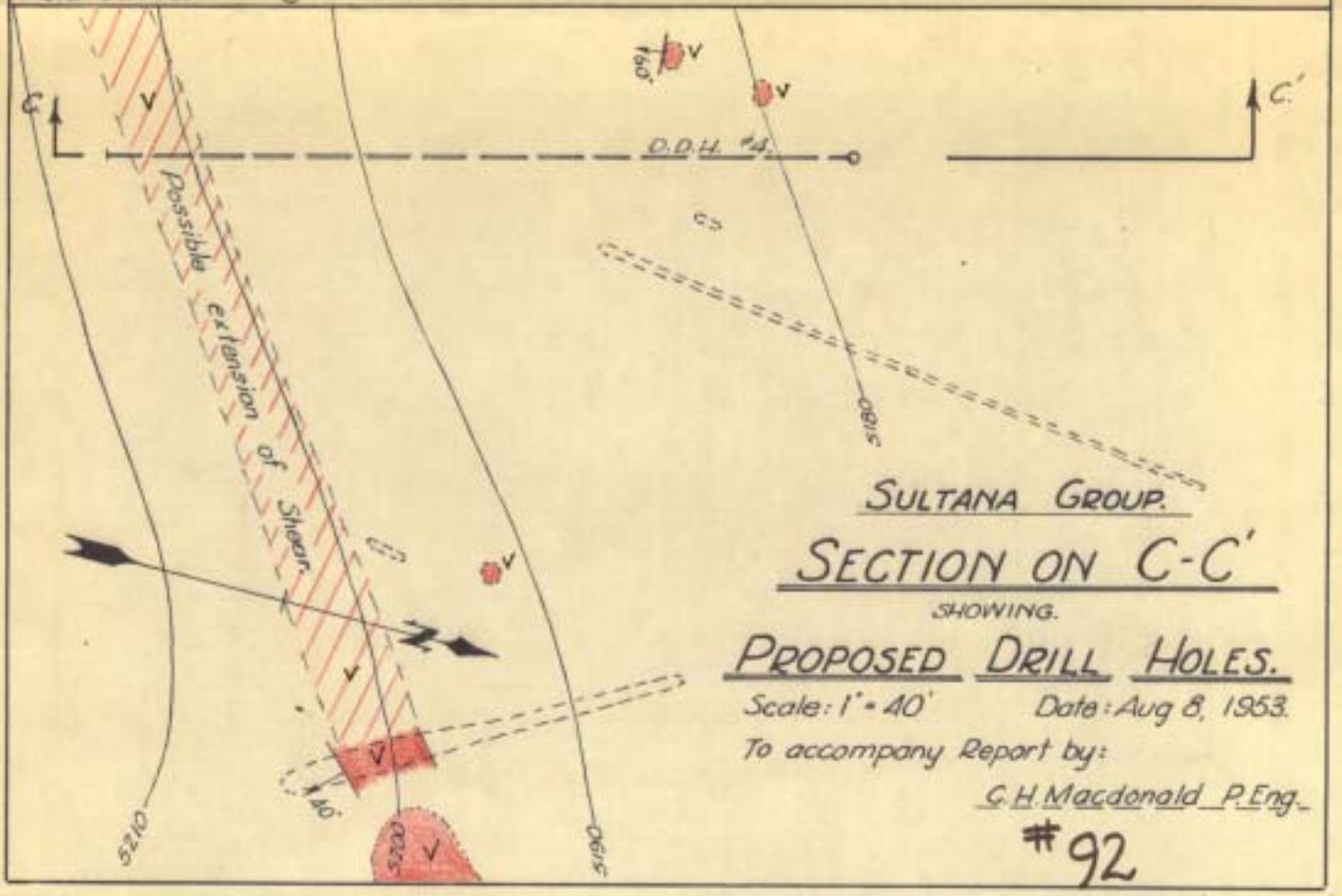
To accompany Report by:

C.H. Macdonald P.Eng.

#92

MAP 4





SULTANA GROUP.

SECTION ON C-C'

SHOWING.

PROPOSED DRILL HOLES.

Scale: 1" = 40' Date: Aug 8, 1953.

To accompany Report by:

C.H. Macdonald P.Eng.

#92

Map 5

ELGIN NO. 3 M.C.

ELGIN NO. 4 M.C.

SULTANA NO. 2 M.C.

SULTANA NO. 4 M.C.

ELGIN NO. 2 M.C.

SULTANA NO. 1 M.C.

SULTANA NO. 3 M.C.

ELGIN NO. 1 M.C.

Gd

4200 4300 4400 4500 4600 4700 4800 4900 5000 5100 5200 5300 5400 5500 5600

LEGEND.

- Vein Material.
- Gd — Granodiorite.
- Talus
- Vegetation - (grass, heather, scrub pine)

Department of Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 92 MAP 6

#92 Map 6

SULTANA GROUP OF M.C.

BOULDER CREEK AREA
HAZELTON DISTRICT OF B.C.
SHOWING

SURFACE OUTCROPS & GEOLOGY

Scale - 1 in - 200 ft.
Drawn by: C.H. Macdonald. Date: Dec. 20. 1953.

Received with letter # 1438 dated: Jan 21/54