

Mt. Nansen Mines Ltd.

ORE RESERVES
Dec. 1, 1968
Dec. 10, 1968

Dolmage-Campbell & Assocs. Ltd.

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Fig. 1 Mt. Nansen Ore Reserves

INTRODUCTION

The last ore reserve calculations for Mt. Nansen Mines Ltd. were made in December, 1967, and presented in our Feasibility Report dated January 19, 1968. In those calculations ore reserves were included for the Webber, the Huestis and the Brown-McDade portions of the property. Since that time it has been decided to separate the Brown-McDade from the Mt. Nansen operation, therefore this report presents the ore reserves indicated on the Mt. Nansen property, exclusive of the Brown-McDade.

During 1968 the only work done to outline new ore reserves on the property has been:

- (a) Drifting on the 4100 Level of the Huestis Mine.
- (b) Diamond drilling on the 4300 Level of the Huestis Mine.
- (c) Surface stripping of geochemical soil anomalies east of the Webber Mine.

For purposes of this report the ore reserve categories are defined as:

- Proven ore - Ore within 30 feet of completely exposed and sampled ore; whether drift, raise or on surface.
- Probable ore - Ore within 30 feet of proven ore. Ore drilled off by test holes and partially exposed by drift or crosscuts (for 30 feet from the level). Ore within a 30 ft. radius of a diamond drill hole intersection.

In the case of the Webber zones, wherever the surface ore shoots match the underground shoots in position, grade, etc., as most of them do, the entire intervening section between the proven ore boundaries is categorized as probable ore. In most places this has been verified at least in part by overburden drill holes and, in the case of the main ore shoot, by a raise through to the surface.

- Possible ore -** Extensions of probable ore in well established ore shoots 60-100 feet to the proposed 4100 Level or to the surface.
- Potential -** Ore that will probably occur at depth and along the unexplored extensions of the known ore veins as well as on unexplored veins indicated by surface geochemical soil anomalies.

All calculations have been derived from both back and face channel samples cut in the accepted engineering fashion for vein-type deposits. Very high assay values have been cut to 1 oz. Au and 100 oz. Ag only where they are obviously erratic but not where they have been accompanied by nearby similar values.

Due to recent experience with the initial stoping at the Huestis Mine the tonnage factor for the reserves has now been changed from 11.5 cubic feet per ton to 11 cubic ft./ton. Also, no ore widths less than 4 feet have been included in the Huestis ore reserves for the present report; narrower widths have been left as originally calculated for the Webber Mine because it is felt that by the time the narrow shoots in that mine are to be extracted the mining procedures will be refined to the point that widths of less than 4 feet will be readily mined. The results of the expansion of the ore reserve widths for the Huestis Mine ore calculations has been an increase in the tonnage with a decrease in the grade, although in most places the extra width of wallrock included with the ore vein carries some values in gold and/or silver.

DOCUMENTATION:

Accompanying this report is a Longitudinal Section of the ore reserves on the Huestis No. 12 Vein, the only vein for which major tonnages have been added since the Dec., 1967, calculations. All other reserves referred to in this report are illustrated in Figures 4, 5 and 6 of the Jan. 19, 1968, Feasibility Report and have undergone no changes since then.

SUMMARY

The total calculated ore reserves as of Dec. 1, 1968, on the property of Mt. Nansen Mines Ltd. are:

| | | |
|---------------|-------------------------------|---------------------------------|
| PROVEN - | 75,125 tons @ 0.474 oz. Au/t. | 16.98 oz. Ag/t. |
| PROBABLE - | <u>102,050 tons @ 0.429</u> | " <u>16.37</u> " |
| SUB-TOTAL: | <u>177,175 tons @ 0.45</u> | <u>oz. Au/t. 16.6 oz. Ag/t.</u> |
| POSSIBLE - | <u>127,270 tons</u> | |
| <u>TOTAL:</u> | <u>304,445 tons</u> | |

At a milling rate of 250 tons/day the above proven-probable reserves will guarantee firm production for at least two years. It is most likely that the possible ore will be confirmed by further development, as it has in 1968, and the firm life of the operation can be therefore reasonably expected to be 3.5 years.

POTENTIAL:

The very successful results obtained on No. 12 Vein in 1968 by the drifting on the 4100 Level, 200 feet below the 4300 Level drift, have established excellent vertical continuity of the Huestis ore shoots. Such continuity was established earlier for the Webber veins by the excellent correspondence between the stripped surface and the 4500 Level drifts. In addition the new drift (4100) on the Huestis No. 12 Vein, now 500 feet beneath the surface, has indicated an important increase in gold and silver values with depth.

To establish some criteria for estimating the potential of the property beyond the present indicated reserves the following conditions are suggested, with their corresponding effect on the extrapolation of the existing total ore reserves of 304,000 tons.

- (A) Assume the extension of all known orebodies to a depth of 500 feet below surface, the maximum depth of the Huestis 4100 Level, No. 12 Vein:

Total potential #1 = 500,000 tons

- (B) Assume one repetition of the known orebodies laterally along the established vein structures. (The total known unexplored length of these structures is approximately 4 times the presently explored length.)

Total potential #2 = 1,000,000 tons

- (C) The large number of silver-bearing veins suggested by the ten well-defined geochemical soil anomalies indicates a possible further potential for ore that could multiply the last figure listed above considerably.

DETAILED RESERVES:

A breakdown of the present ore reserve calculations is presented in the body of this report that follows this summary.

WEBBER MINE

Because no new vein development has been done during 1968 at the Webber Mine the ore reserves as calculated and presented in the January, 1968, Feasibility Report still stand. However, one change has been made in the calculations, and this change has effected the tonnage figure to a minor extent. This change has been the use of a tonnage factor of 11 cu. ft./ton instead of the previous 11.5.

The detail breakdown of the Webber ore reserves is as presented in the January, 1968, report; they are summarized as follows:

| | | |
|---------------|-------------------------------------|-----------------------|
| PROVEN - | 33,700 tons @ 0.42 oz. Au/t. | 23.6 oz. Ag/t. |
| PROBABLE - | <u>41,500 tons @ 0.39</u> | <u>22.3</u> |
| SUB-TOTAL: | <u>75,200 tons @ 0.40 oz. Au/t.</u> | <u>23.0 oz. Ag/t.</u> |
| POSSIBLE - | <u>50,000 tons</u> | |
| <u>TOTAL:</u> | <u>125,200 tons</u> | |

CABIN CREEK VEIN:

Surface stripping and sampling have established the existence of ore on the Cabin Creek Vein, west of the Webber Mine. Surface drilling confirmed the presence of the vein structure to depth but the core recovery in the vein zone in these holes was generally less than 25% therefore the drill results did not contribute to the ore reserve assessment.

The ore on the Cabin Creek Vein, as indicated by the surface stripping is:

| | | |
|---------------|------------------------------|----------------|
| PROBABLE - | 10,900 tons @ 0.23 oz. Au/t. | 25.6 oz. Ag/t. |
| FOSSIBLE - | <u>5,825 tons</u> | |
| <u>TOTAL:</u> | <u>16,725 tons</u> | |

The combination of the Webber and the Cabin Creek reserves is:

| | | |
|---------------|-------------------------------------|-----------------------|
| PROVEN - | 33,700 tons @ 0.42 oz. Au/t. | 32.8 oz. Ag/t. |
| PROBABLE - | <u>52,400 tons @ 0.35</u> | <u>22.8</u> |
| SUB-TOTAL: | <u>86,100 tons @ 0.38 oz. Au/t.</u> | <u>23.2 oz. Ag/t.</u> |
| POSSIBLE - | <u>55,825 tons</u> | |
| <u>TOTAL:</u> | <u>141,925 tons</u> | |

HUESTIS MINE

The principal new ore reserves outlined at Mt. Nansen during 1968 have been by means of the 4100 Level drift on No. 12 Vein. Other new reserves were indicated by diamond drilling of No. 11 Vein on the 4300 Level; these are probable reserves that will be exposed by drifting in 1969.

The results of the new ore reserve calculations for the Huestis veins are shown in detail on Table 1 and Figure 1 accompanying this report. The considerable increase in tonnage over the January, 1968, figure has been accompanied by a rather pronounced decrease in grade. The decrease in grade has been largely caused by the increase of the mining width from 3 feet to 4 feet, at all grade, throughout the deposit. This has been done because the initial stoping at the Huestis Mine has indicated that the 4 ft. width will pertain at least until a sustained mining sequence is established. It is felt that as the stoping techniques are refined at the mine it will be possible to reduce the 4 ft. widths where economically sensible and thus increase the grade; however, it will probably be profitable to mine the wider widths at a high mill rate because, contrary to the assumption made in the present calculations, the wallrock thus included does carry some values in gold and silver.

The probable ore shown along the surface of the No. 12 Vein outcrop is based on the results of the sampling of four trenches that span the length of the ore vein exposed underground. The sampling of these trenches produced the following results:

| <u>Trench</u> | <u>Width (ft.)</u> | <u>Au (oz./t.)</u> | <u>Ag (oz./t.)</u> | <u>Drill Hole Below</u> |
|---------------|--------------------|--------------------|--------------------|-----------------------------|
| 206 | 4 | 0.30 | 10.1 | H13 |
| 205 | 4 | 1.19 | 73.0 | H21 |
| 204 | 4 | 0.64 | 21.3 | H16 |
| 202 | <u>4.6</u> | <u>0.62</u> | <u>23.7</u> | H20 |
| | <u>4</u> | <u>0.71</u> | <u>32.9</u> | |

These grades are substantially higher than those exposed in the drift below but for the present calculations the drift values have been used for this surface ore.

TABLE 1

HUESTIS MINE ORE RESERVES
December 1, 1968

Tonnage factor: 11 cu. ft/ton
Min. width: 4 ft. unless otherwise noted

| Vein | Orebody | Level | Proven | Probable | Possible | Grade (oz./t.) | | Remarks |
|--------------------|----------|-------|----------|---------------------|----------|-------------------|-------------|-----------------|
| | | | | | | Au, | Ag | |
| 11 | 628 | 43 | | | 1,960 | | | Low Grade |
| 15 | DD H12 | 43 | | | 980 | | | " |
| 17 | DD H12W | 43 | | | 980 | | | " |
| 13 | 645 | 43 | 1,200 | 3,000 | 2,300 | 0.43 | 15.9 | five feet |
| 13 | DD H5-15 | 43 | | 5,020 | 10,400 | 0.35 | 13.2 | |
| MILL | - | 39 | | 775 | 775 | 0.57 | 5.7 | Surface samples |
| <u>SUB-TOTALS:</u> | | | 1,200 | | | 0.43 | 15.9 | |
| | | | | 8,795 | | 0.40 | 13.5 | |
| | | | | | 17,395 | | | |
| 12 | DD H27 | 43 | | 1,310 | 1,310 | 0.65 | 10.8 | |
| 12 | 603 | 43 | 655 | 655 | | 0.51 | 7.3 | |
| 12 | 609 | 43 | | 1,250 | 1,250 | 0.48 | 6.6 | |
| 12 | 610 | 43 | | 1,145 | | 0.32 | 6.8 | |
| 12 | 595 | 43 | 1,670 | 1,700 | 840 | 0.47 | 10.5 | |
| 12 | 594(S) | 43 | 8,135 | 2,045 | | 0.57 | 19.6 | five feet |
| 12 | 594(N) | 43 | 2,070 | 3,460 | 760 | 0.47 | 8.5 | |
| 12 | 594 | 41 | 8,060 | 7,850 | 13,870 | 0.31 | 7.0 | |
| 12 | 591 | 43 | 2,100 | 3,270 | 2,900 | 0.35 | 9.0 | |
| 12 | 590 | 43 | 2,835 | 4,250 | 6,150 | 0.40 | 4.8 | |
| 12 | 583 | 43 | 2,400 | 2,900 | 3,520 | 0.30 | 6.0 | |
| 12 | 583 | 41 | 2,400 | 2,400 | 4,800 | 0.68 | 8.9 | |
| 12 | 585 | 43 | 4,800 | 3,600 | 7,200 | 0.43 | 14.3 | |
| 12 | 585-4 | 41 | 3,280 | 3,280 | 6,950 | 1.16 | 13.9 | |
| 12 | 596 | 41 | 1,740 | 1,740 | 4,600 | 0.67 | 11.8 | |
| <u>SUB-TOTALS:</u> | | | 40,225 | | | 0.52 | 11.4 | |
| | | | | 40,855 | | 0.49 | 9.4 | |
| | | | | | 54,050 | | | |
| <u>TOTALS:</u> | | | Proven | 41,425 tons | | 0.52 | 11.5 | |
| | | | Probable | 49,650 " | | 0.47 | 10.1 | |
| | | | | <u>91,075 tons</u> | | <u>0.50</u> | <u>10.8</u> | |
| | | | Possible | 71,445 " | | | | |
| | | | | <u>162,520 tons</u> | | | | |

One very encouraging feature of the Huestis development has been the significant increase in grade of gold and silver, as well as in strength of vein structure, with increased depth, from the 4300 to the 4100 level.

There is ample immediate room at the Huestis mine to develop new ore reserves northward on No's. 11 and 12 veins as well as to depth.

RESULTS:

The total calculated reserves for the Huestis Mine are:

| | | | |
|------------|--------------------|-------------------------|-----------------------|
| PROVEN - | 41,425 tons | @ 0.52 oz. Au/t. | 11.5 oz. Ag/t. |
| PROBABLE - | 49,650 tons | @ 0.47 " | 10.1 " |
| Sub-total: | <u>91,075 tons</u> | @ <u>0.50 oz. Au/t.</u> | <u>10.8 oz. Ag/t.</u> |

POSSIBLE - 71,445 tons

TOTAL: 162,520 tons

This contrasts with the reserves of Jan., 1963 as listed below:

| | | | |
|------------|--------------------|-------------------------|-----------------------|
| PROVEN - | 20,775 tons | @ 0.55 oz. Au/t. | 13 oz. Ag/t. |
| PROBABLE - | 37,570 tons | @ 0.55 " | 12.5 " |
| Sub-total: | <u>58,345 tons</u> | @ <u>0.55 oz. Au/t.</u> | <u>12.7 oz. Ag/t.</u> |

POSSIBLE - 52,170 tons

TOTAL: 110,515 tons

The 50% increase in the proven-probable reserves in 1968 by the results from one drift, (4100 L., 12 Vein), is an excellent return for development and gives an encouraging indication of the potential for continued development in this mine.

CONCLUSIONS

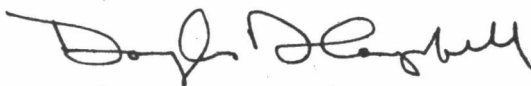
The total proven-probable ore reserves calculated for Mt. Nansen have the following gross values, using 90% mill recovery, \$2.00/oz. Ag and \$37.50 oz. Au:

| | | <u>Au(oz/t.)</u> | <u>Ag(oz/t.)</u> | <u>Value/t. (Can.)</u> |
|---------------|---------------------|------------------|------------------|------------------------|
| WEBBER | 86,100 tons | 0.38 | 23.2 | \$54.60 |
| HUESTIS | <u>91,075 "</u> | <u>0.50</u> | <u>10.8</u> | <u>36.34</u> |
| <u>TOTAL:</u> | <u>177,175 tons</u> | <u>0.442</u> | <u>16.81</u> | <u>\$45.16</u> |

The highest grade ore is in the Webber Mine and is largely oxidized, therefore it must be treated by cyanidation to realize the maximum recovery.

The Huestis ore will probably be up-graded by improved mining techniques as the operation proceeds.

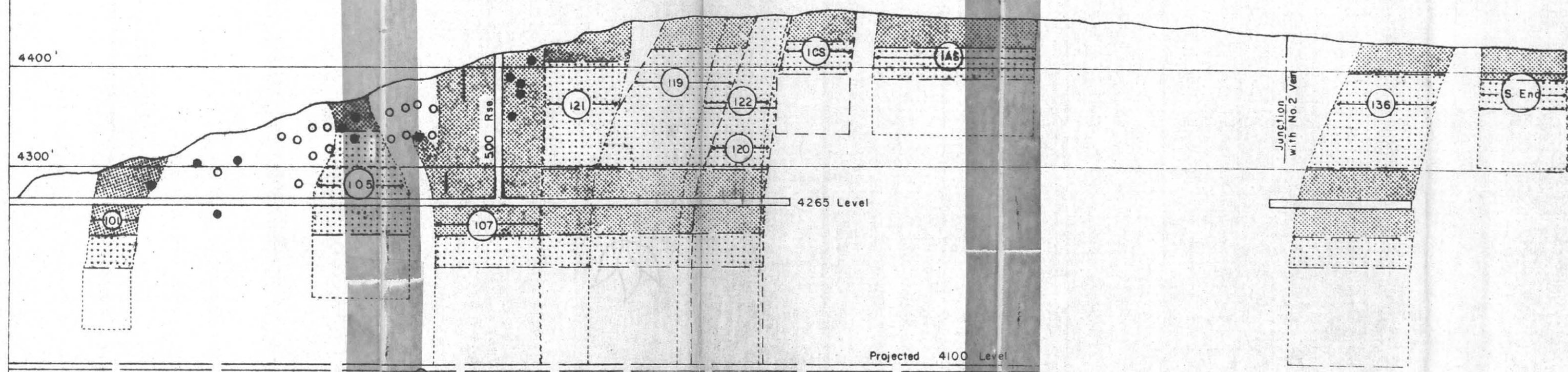
Respectfully submitted,



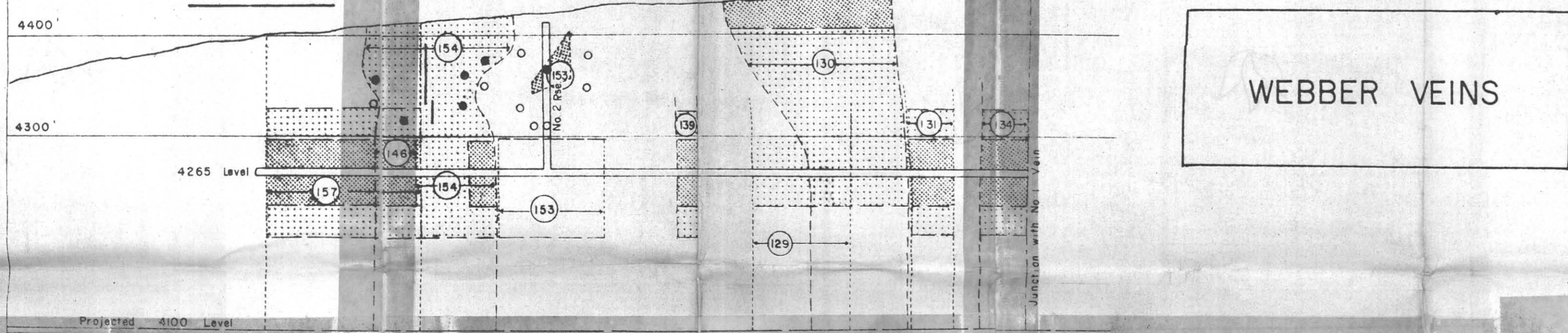
Douglas D. Campbell, P.Eng., Ph.D.

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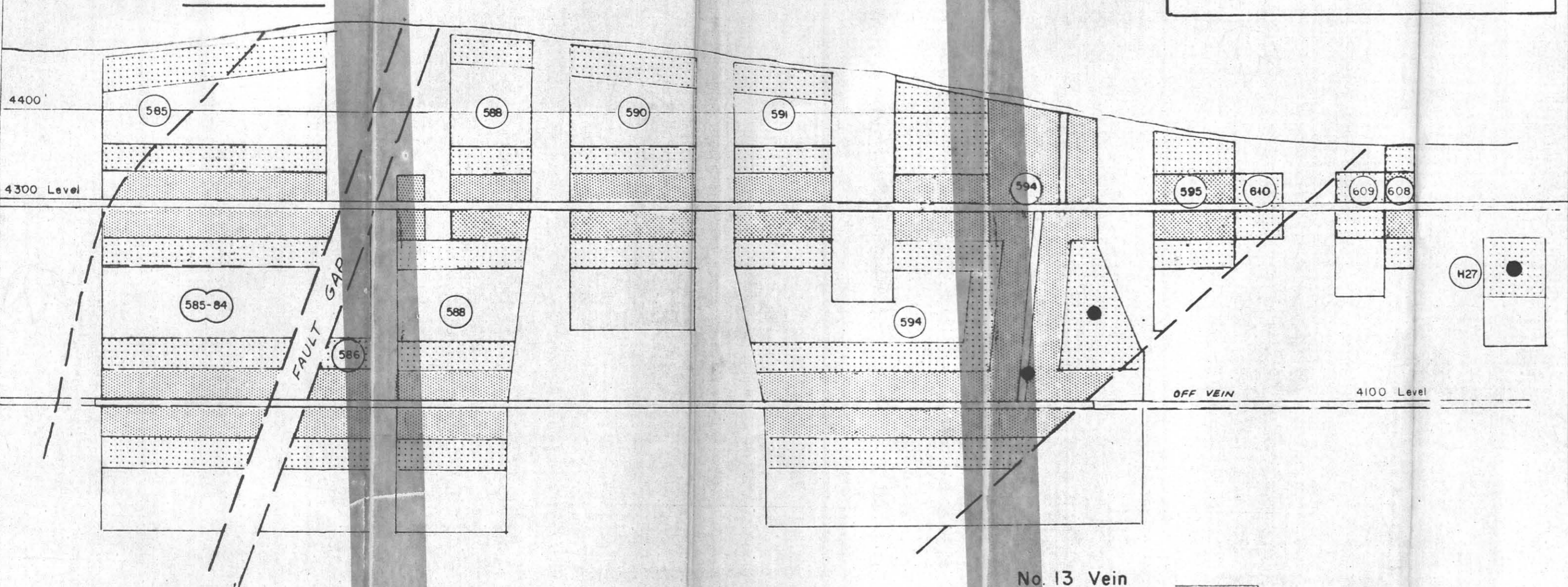
No. 1 Vein



No. 2 Vein



No. 12 Vein



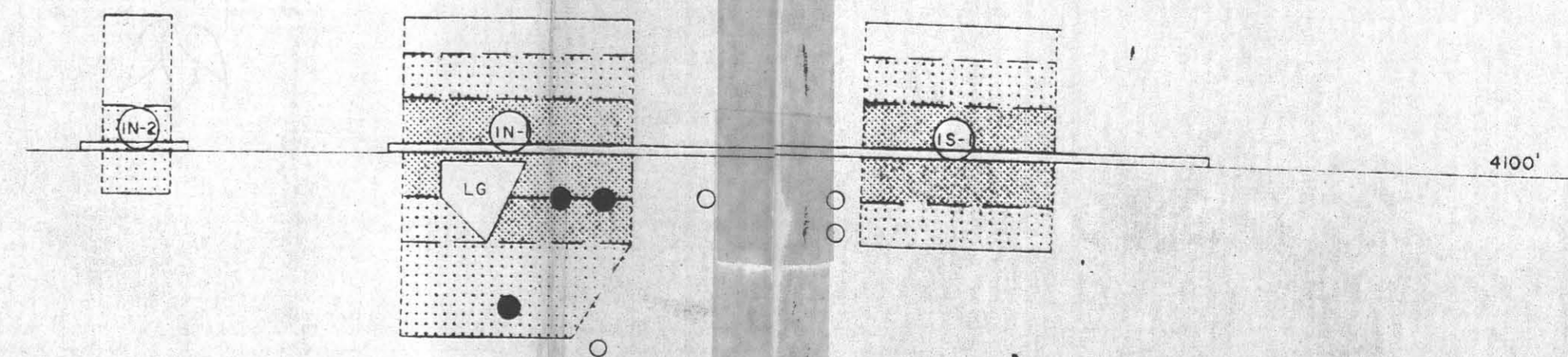
No. 13 Vein



No. 15 Vein (H12)

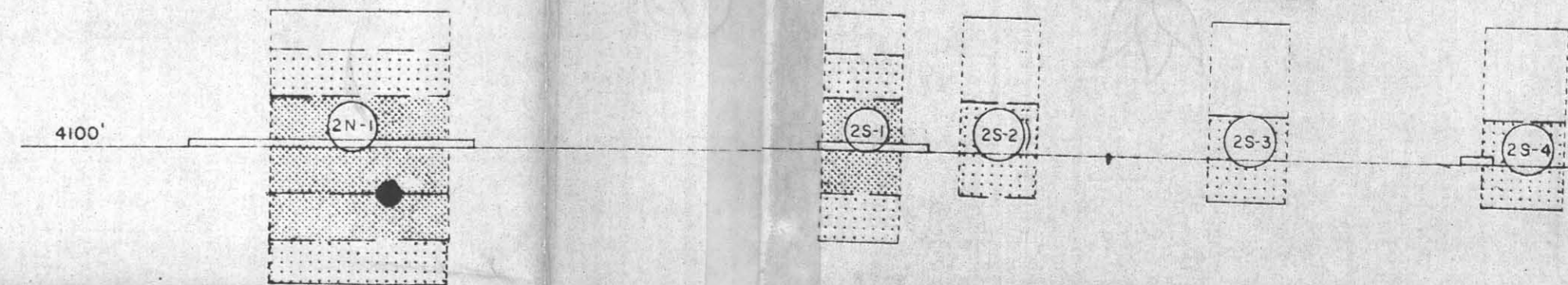
No. 17 Vein (H12 s)

No. 1 Vein



BROWN McDADE ZONE

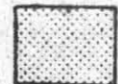
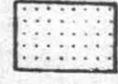
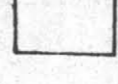



No. 2 Vein

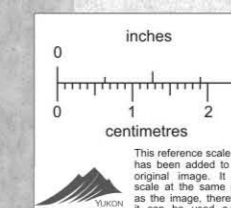


WEBBER VEINS

HUESTIS VEINS

LEGEND

-  PROVEN ORE
-  PROBABLE ORE
-  POSSIBLE ORE
-  FAULT
-  OVERBURDEN HOLE (ORE, NIL)
-  DIAMOND DRILL HOLE (ORE, NIL)



DOLMAGE-CAMPBELL & ASSOCIATES CONSULTANTS
 VANCOUVER, CANADA
 MT. NANSEN MINES LTD.
 VANCOUVER, B.C.
 LONGITUDINAL VERTICAL SECTIONS
**MT. NANSEN
 ORE RESERVES**
 SCALE 1" = 100' DEC. 1, 1968 FIG. 1