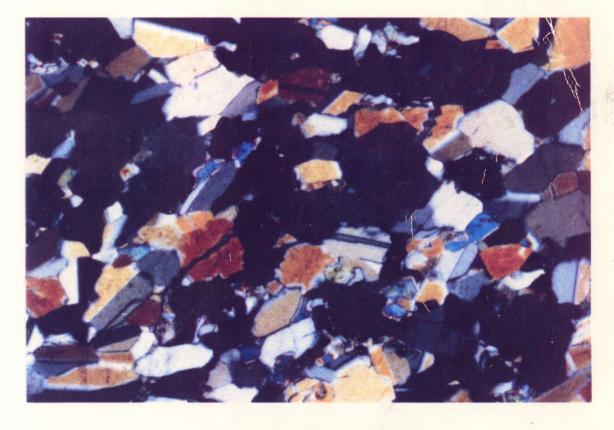
GEOLOGICAL MAPPING AND DIAMOND DRILLING OF WOLLASTONITE OCCURRENCE MINERAL HILL CLAIM GROUP SECHELT AREA, B.C. VANCOUVER MINING DIVISION NTS 92 G/12 W LATITUDE 49°31'N, LONGITUDE 123°48'W

000559

Prepared for

TRI-SIL MINERALS INC.



ARCTEX ENGINEERING SERVICES

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May 19, 1987

Cover Photo:

Negative 83-9

Cross-polarized transmitted light. Wollastonite is white, grey, pale yellow, orange-brown, sometimes showing twinning. Scattered brighter, blue-green coloured grains are diopside. See Appendix for additional description.

TABLE OF CONTENTS

SUMMARY	1
INTRODUCTION	2
LOCATION MAP	3
CLAIM MAP	4
REGIONAL GEOLOGY	5
PROPERTY GEOLOGY	5
Lithologies Structure Wollastonite Rock Geochemistry	5 7 8 9
DIAMOND DRILL PROGRAMME	9
Drill Core Assays	12
DISCUSSION	12
CONCLUSIONS	14
RECOMMENDATIONS	14
COST ESTIMATE	15
ENGINEER'S CERTIFICATE	16
GEOLOGIST'S CERTIFICATE	17
REFERENCES	18

APPENDIX: Petrographic Report Diamond Drill Logs Geochemical and Assay Procedures Certificate of Analysis Certificate of Assay X-Ray Diffraction Analysis

MAPS & SECTIONS:

(Pocket inside back cover)

Geology Map Wollastonite Occurrence % 1:200 Sketch of Stripping Longitudinal Section C-C' Vertical Sections - Diamond Drill Holes 87-1 through 87-8

GEOLOGICAL MAPPING AND DIAMOND DRILLING OF WOLLASTONITE OCCURRENCE MINERAL HILL CLAIM GROUP VANCOUVER MINING DIVISION SECHELT, B.C.

SUMMARY

The Mineral Hill claim group is located 7 km northwest of Sechelt, B.C. Geological mapping, road construction and diamond drilling have recently been carried out on wollastonite-bearing sections of a calcareous pendant. Diorite of the Coast Plutonic Complex surround and intrude this remnant of Karmutsen Formation (?) limestone.

Wollastonite occurrence is related to bulk composition of the sediments. A spatial association of wollastonite to andesite dyke margins and its paucity as the pendant-diorite contact is approached suggest additional controls, possibly varying temperature gradients or CO₂ fugacity.

Drill hole intersections, preliminary correlations and projections to surface indicate sufficient wollastonite grades to warrant continued exploration. A programme of trenching, bulk sampling and beneficiation testing followed by further diamond drilling is recommended at a cost of \$280,800 in the next phase, and a total of \$340,800 in the next two phases.

INTRODUCTION

The Mineral Hill claim group is located in the Vancouver Mining Division, 55 kilometres northwest of Vancouver, B.C. The staked claims extend east from a common legal corner post (L.C.P.) located at the northwest end of Crowston Lake to Porpoise Bay at the south end of Sechelt Inlet. Elevation on the property rises from sea level in the east to 460 m above sea level in the west. Steep northwest-trending cliffs (±50 m high) occur in the central portion of the claims. The claims include co-ordinates N49o31' latitude, W123o49' longitude on NTS map sheet 92 G/12 W. The accompanying claim map shows the property to include eight reverted crown granted claims and two located mineral claims, comprising approximately 900 hectares (less two reverted crown granted claims, the Queen Anne and Bay No.1).

Claim Name	Lot No.	No. of Units	Record No.	Recording Date
Mineral Hill #1		18	2000(10)	Oct. 20, 1986
Mineral Hill #2		18	2001(10)	Oct. 20, 1986
Kelvin Horley	1698 1707 }	1	1906(12)	Dec. 30, 1985
Langside	1699 ³		100=(1.4)	
Joker Detroit	1702 1700 }	1	1907(12)	Dec. 30, 1985
Sechelt Success Fr.	1703 1696 }	1	1920(3)	Mar. 12, 1986
Thorne	1706	1	1921(3)	Mar. 12, 1986

Two years of physical work was applied to all claims December 19, 1986. Access to the property is gained from Sechelt, B.C., via Highway 101.

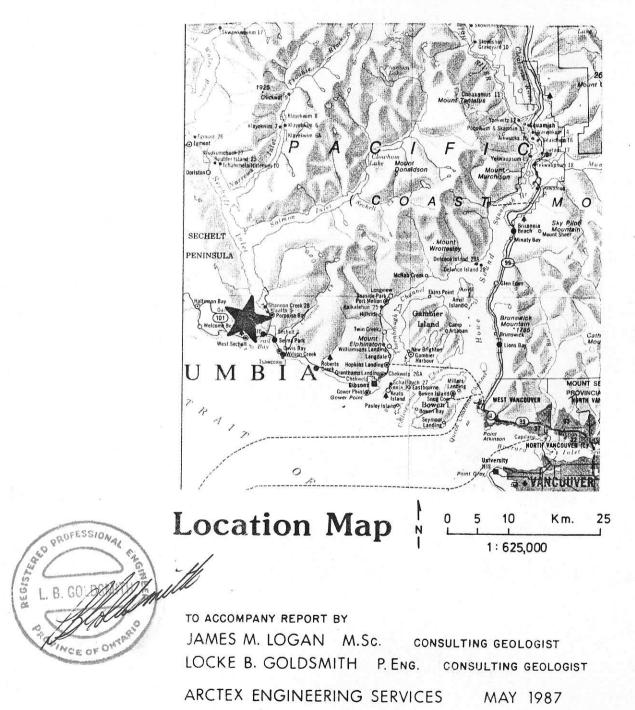
Approximately 11 km west from Sechelt, a 4-wheel-drive road departs Highway 101 and continues northeastward for 4 km to Crowston Lake and the west boundary of the property. Road rehabilitation and construction has extended access to the centre of the property. Ongoing road work will connect the property to Sechelt via Snake Bay Road.

Geological mapping was carried out over the central portion of the claims during mid-March 1987 to assess the areal distribution of 1) calc-silicate assemblages, in particular wollastonite and garnet, and 2) limestone.

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MINERAL HILL CLAIM GROUP

SECHELT AREA B.C. VANCOUVER MINING DIVISION N.T.S. 92G / 12W

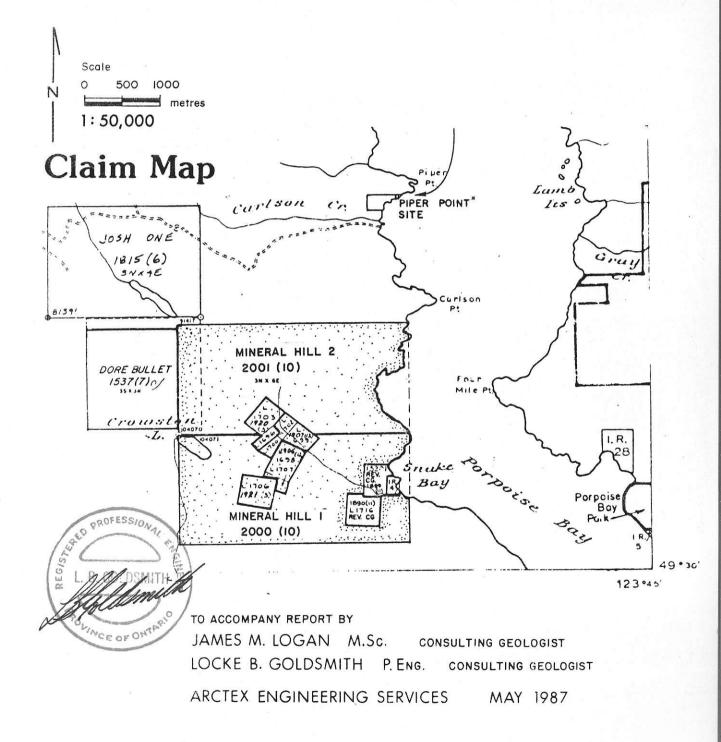


3

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IAT. 49°31'N LONG. 123°48'W MINERAL HILL CLAIM GROUP

SECHELT AREA B.C. VANCOUVER MINING DIVISION N.T.S. 92G / 12W



REGIONAL GEOLOGY

The Mineral Hill property lies along the western edge of the Coast Plutonic Complex (C.P.C.). This long (1700 km), narrow (100 km) belt of chiefly intermediate and basic plutonic rocks extends the entire length of British Columbia and north into southeast Alaska and Yukon Territory. Isotopic ages across this belt range from Early Cretaceous on the west to Late Cretaceous near the axis, and to Tertiary on the east side. Bodies of volcanic sedimentary and metamorphic rocks from at least as old as Devonian up to mid-Cretaceous occur as pendants within the C.P.C. Geology of the belt has been summarized by Roddick (1970, 1983) and Price et al. (1985).

B.C. Department of Mines and Petroleum Resources' mineral inventory shows a limestone occurrence, "Peninsula lime", situated 7 km northwest of the Mineral Hill property. This occurrence occupies a large north-to-south-trending fault-bounded sedimentary and volcanic pendant of Upper Triassic Karmutsen Formation. A smaller sedimentary pendant consisting of predominantly limestone and calc-silicate/skarn assemblages occupies the central portion of the map-area.

PROPERTY GEOLOGY

Lithologies

During early March 1987, a chain-and-compass survey was initiated over the central area of the Mineral Hill property. Geological mapping was carried out with particular emphasis on establishing the relative percentage of wollastonite and limestone present. Surface trenching of wollastonite showings and subsequent diamond drilling followed in early April. Continued road construction and follow-up mapping outlined additional wollastonite occurrences which also were tested with diamond drilling. A geology map, at a scale of 1:1250 (in pocket at back of report) presents the geology, wollastonite percentages, and diamond drill hole locations.

Mapping shows the Mineral Hill claims are underlain predominantly by mediumgrained melanocratic hornblende diorite. Grain-size and textural variations suggest the intrusive is heterogeneous. Locally foliated leucocratic quartz diorite and biotite>hornblende varieties occur. Plagioclase-rich pegmatitic segregations occur as isolated bodies within intrusives, metasediments, and are preferentially located close to the contact of the pendant and diorite. The diorite is foliated proximal to the pendant contacts.

Andesitic dykes intrude both the pendant rocks and surrounding diorite on the property. A spatial association with dyke-like bodies and domes of medium-grained diorite is evident at L00 0+50N along the road. The dykes are blackish-green in colour, aphanitic to almost chert-like in texture, with rare (<5%) euhedral hornblende porphyroblasts (to 1 cm). The chert-like varieties are well fractured with 1-cm wide alteration envelopes. Whore fracture frequency is highest and metasomatic alteration is greatest, anhedral clots of white plagioclase have grown, resulting in a porphyritic appearance. The dykes rarely exhibit chilled margins and do not exceed 0.25 m in width.

Limestone outcrops as 5 to 7 m high cliffs (in the vicinity of 0+50W 2+00N) where gametite and/or diorite form weather-resistant caps. Elsewhere on the property areas of depression mark limestone occurrences. Dissolution of limestone along prominent joint planes (045°/85°N; 140°/80°S to 90°) has produced deep, extensive, and connected sink holes and karsts. The limestone is generally thinly bedded, alternately dark and light grey in colour, and crystalline. Compositional layering varies from 5 mm to 25 mm, though massive varieites of coarsely crystalline limestone occur locally. The colour index is indicative of the relative purity (darker = the greater amount of impurities). Pyrite, carbonaceous material (organic) and clays constitute the majority of accessory inclusions.

The limestone has flowed plastically in response to the deformation which accompanied regional metamorphism and intrusion. Thin interbedded siliceous layers have boudinaged, brecciated, and in places been strung out and rotated, forming augenlimestone. The augen are composed of coarse (fecrystallized) ealcite, garnet, silica, and garnet intergrown with wollastonite. The skarn-altered augen often show beddingspecific replacement by either garnet or wollastonite. More commonly the augen are subangular to rounded and mono-mineralic. Aphanitic, grey silica cores of siliceous augen are only partially replaced by wollastonite. Large angular breccia fragments (0.5 m) of wollastonite occupy intervals of massive, coarse, crystalline limestone.

Narrow sections of calcitic marble occupy the contact zones of dykes where they cut limestone. The marble is a contact metamorphic feature and consists of a medium to coarsely crystalline, in general equigranular texture of intergrown calcite, \pm garnet, diopside, and wollastonite.

Calc-silicate is used to describe those thinly laminated (1 mm to 5 cm), fine- to medium-grained, white to light-greenish rocks that contain <5% garnet. These rocks consist of various proportions of dense crystalline lime silicates other than garnet.

6

Interbeds of buff to cream-coloured coarse wollastonite and other more silica-rich, finegrained bands, containing actinolite (?), \pm wollastonite and possibly scapolite occur in the area of trenching (1+00W 1+50S).

Variably striped maroon, green and yellowish-white coloured skarn assemblages are well exposed along the road at 00 0+25S. The banding/layering which is discontinuous and gently warped, is interpreted to represent primary compositional layering. This banded skarn trends generally northeasterly to east-west and dips variably north or south. Mineral assemblages consist primarily of garnets, diopside, plagioclase \pm wollastonite \pm sulphides of Fe, Zn and Cu. Fractures cross-cutting this unit contain wollastonite and calcite.

Garnetite rock occupies zones peripheral to diorite. These rocks are vitreous, dark purple, green or reddish-brown coloured and composed of greater than 85% massive garnet. Accessories include diopside, wollastonite, pyrite and calcite-filled fractures.

Structure

The metasedimentary pendant trends approximately north-south. The eastern contact zone (not exposed) is concave to the west and crosscuts the northeast-trending metasediments at a high angle in the northern portion of the map area. In the south the eastern contact swings to a northeast-southwest trend which parallels the strike of pendant rocks. The western pendant/intrusive contact is irregular and poorly defined.

Primary bedding(?)/compositional layering are accentuated by the banded skarn and preserved in sections of the calc-silicate assemblages. Bedding within the limestones has been transposed during plastic deformation. The metasediments strike generally northeasterly with moderate to steep westerly dips.

Small-scale folding of bedding (?) was noted in the area of stripping. Folds are asymmetric, southwest-verging, with fold axes which plunge moderately to the west, typically 40-60° at 280°Az. Highly contorted boudins, rootless folds and augen occur throughout, although tend to be preferentially located close to the margins of limestone bands. Elongation lineations parallel the main northeast foliation.

Dyking appears to be localized along east-west trends $(\pm 10^\circ)$, which corresponds to AC joints (parallel to fold axes). The andesite dykes and main intrusive body are well jointed. Jointing is less well developed in the banded skarn. Garnetite rocks exhibit an irregular fracture. Limestone is jointed along widely spaced sets which have provided avenues for dissolution and the development of karsting. Parallel to the eastern intrusive

7

contact and extending along its length is an exfoliation/sheeting foliation which dips generally 50-60° easterly.

A fault zone, containing brecciated, argillic-altered skarn and hornblende porphyritic intrusive is situated at 00. The direction and amount of displacement are not known.

Wollastonite

Wollastonite is a contact metamorphic mineral formed either by metamorphism of siliceous limestone (admixed quartz) or by silica metasomatism (introduction of silica) of pure limestone, as follows:

CaCO₃ + SiO₂ ---- CaSiO₃ + CO₂ calcium carbonate + silica wollastonite + carbon dioxide Laboratory investigation indicates the reaction takes place at about 500 to 600°C, provided the carbon dioxide produced can escape. Higher temperature is required if the carbon dioxide is trapped. Silica availability and impurities limit the formation of wollastonite. Any calcium carbonate (calcite) remaining after all the silica has been combined into wollastonite will simply recrystallize, forming a wollastonite marble. The presence of alumina results in the formation of feldspar, garnet or idocrase in place of wollastonite.

Wollastonite is widespread throughout the portion of the claims which is underlain by pendant rocks. Grain size and colour of wollastonite in addition to the mineral impurities associated with it vary with respect to the original bulk composition of the rock hosting each occurrence. The following three occurrences characterize the main differences.

On the road at L00 0+40N wollastonite occurs as very fine-grained replacements of silica layers. The deformed and brecciated inclusions are rounded to slightly elongated with a north-trending lineation. These lenticular, cigar-shaped inclusions (augen) of wollastonite comprise 20 to 35% of the rocks, with the coarse crystalline limestone constituting the remainder.

Stripping at L1+00W 1+75S exposes wollastonite-rich, thinly laminated calcsilicates (see map "Geology and Wollastonite Distribution, Area of Surface Stripping" in pocket of this report). Grain size and mineralogy vary. Beds of coarsely crystalline, light brown-coloured wollastonite alternate with dense, siliceous, greenish-coloured wollastonite (?)/tremolite (?) beds. The coarse wollastonite beds contain interstitial pyrite up to several percent. At L00 0+20S in banded skarn rocks, wollastonite occurs intimately intergrown with garnet, within those layers containing the appropriate bulk composition. Banding/compositional layering is variable between 0.5 mm and 15.0 mm. Two samples of fine-grained intergrown wollastonite and garnet from this locality were submitted to Vancouver Petrographics for determination of mineral percent (report appended). The samples are composed essentially of 35% garnet, 3 to 5% accessories of diopside and idocrase or apatite, the remainder being wollastonite. The banded skarn rock is variable in composition and proportions of skarn minerals over short distances (mm scale).

Rock Geochemistry

Pyrite-enriched zones/border phases of diorite ± hornfelsed sediments occur at several locales within the claims. Three rock geochemical samples were collected to test the precious metal levels. These samples were analysed geochemically for gold and silver. Sample locations are shown on the Geology Map (in pocket of report). The certificate of analysis is appended.

Anomalous gold and silver values do not occur in the pyrite-rich rocks which were sampled.

DIAMOND DRILL PROGRAMME

The 1987 diamond drilling was directed to investigate two targets: the limestone band (located north of the baseline) and wollastonite-bearing skarn and calc-silicate horizons. The programme included drilling eight holes. Three holes, spaced approximately 75 m apart along the eastern pendant-intrusive contact and directed southwesterly, tested the limestone. These holes, MH 87-1, -2, and -3, amounted to 344.6 m. From the main upper level road, the remaining five holes explore wollastonite occurrences outlined by stripping (1+00W 1+75S) and road construction (00 0+00N-1+00N). Holes MH 87-4, -5, -6, -7 and -8 amounted to 397.2 m, for a total of 742.3 m of drilling. The drill hole data are presented in the following table.

Hole No.	Elevation (metres a.s.l.)	Azimuth (degrees)	Dip (degrees)	Depth (metres)
MH 87-1	275.0	235	-40	93.6
MH 87-2	268.5	212	-40	152.5
MH 87-3	261.0	232	-40	98.5
MH 87-4	322.0	205	-40	45.7
MH 87-5	322.0	340	-40	40.5
MH 87-6	306.7	210	-40	64.9
MH 87-7	290.0	202	-40	139.0
MH 87-8	290.0	315	-40	107.6

Drill Hole Data

Drill hole MH 87-1 was collared at L0+35W 2+60N and at an elevation of 275.0 m. The upper 60.0 m of the hole intersect limestone containing various proportions of breccia and augen, for the most part replaced by skarn mineral assemblages (i.e. garnet, wollastonite, epidote, diopside). Sections of garnetite generally less than 1.0 m comprise about 15% of the limestone interval. Wollastonite is intergrown together with garnet in skarn and garnetite sections, in addition to replacing augen within the limestone. Below 60.0 m, the remainder of the hole intersects medium-grained idiomorphic hornblende diorite, chiefly unaltered.

Drill hole MH 87-2 was collared at L00 2+15N and at an elevation of 268.5 m. Pervasive epidote alteration and local silicification are contained in the upper 10.0 m of core. Below this, and enveloped by 7.0 m (drill intersected) of upper and lower skarned contacts is 40.0 metres of limestone containing calc-silicate and skarn augen. Narrow (<0.2 m) fine-grained andesite dykes occupy the interval from 40.0 m to 70.0 m; the frequency of dykes increases downsection. Wollastonite occurrence and andesite dykes are spatially related. Massive red and green garnetite and brecciated banded skarn occupy the lower section of the hole. Epidote alteration is pervasive. Medium and finegrained (chilled) diorite containing blocks of garnetite are intersected below 135.0 m.

Drill hole MH 87-3 was collared at 0+65E 1+40N and an elevation of 261.0 m. The upper 27.0 m of the hole intersect oxidation and argillic alteration, overprinting pervasive epidote alteration ~ silicifcation. Recovery is less than 25% for this interval. The augen limestone (49.0-62.0 m) is enveloped by an upper 10 m and lower 6 m intersection of wollastonite and garnet skarn. Banded skarn and garnetite sections containing no or little wollastonite are intersected below 70.0 m. Intermixed diorite and andesite with narrow garnetite inclusions occupy the lower 11.0 m of the hole.

Drill hole MH 87-4 and was collared at 0+67W 1+03S and an elevation of 322.0 m. this hole was directed to test wollastonite exposed by stripping at 1+00W 1+60S.

Broken ground, karsts, and sand-filled intervals occur in the upper sections, at 14.3 m and at the bottom of the hole. As a result, hole 87-4 was abandoned at 45.7 m. The upper 12 m of the hole intersect little altered porphyritic andesite/diorite dyke rock. Below this and above 1.6 m of sand at 14.3 m are interbedded limestone and limy calc-silicates and siliceous beds containing isolated wollastonite-rich layers. Eighteen metres of greenish grey thinly laminated calc-silicate follow. The lowermost 20 m are augen limestone locally containing concentrations of wollastonite inclusions to 30%.

Drlll hole MH 87-5 was collared at 0+65W 1+05S at an elevation of 322.0 m. This was an exploratory hole testing overburden covered slopes situated north of the road. The upper 16 m of the hole intersect mottled/banded skarn, marble and calcsilicates. Below this is 12 m of pyritic, biotite > hornblende diorite. The intrusive contains skarn assemblage minerals (i.e. garnet, dlopside) up to accessory proportions interstitial to coarse plagioclase. Biotite-bearing hornfelsed (?) sediments border the intrusive. Epidote alteration is fracture directed. Pervasive alteration and abundant pyrite are controlled by fracture density of the intrusive and occur together. The remainder of the hole intersects fine-grained intrusive altered/hornfelsed calc-silicates and banded skarn. Biotite (to 15%), epidote, and pyrite (5-7%) introduciton is breccia and fracture controlled.

Drill hole MH 87-6 was collared at 0+04E 0+07S and at an elevation of 306.7 m. This hole probes wollastonite-bearing banded skarn exposed doring road construction. The upper 37.0 m of the hole are comprised of various sections of wollastonite-bearing banded skarn, wollastonite-garnetite and andesite/diorite porphyry dykes. Drill intersected widths of 6 m of 20% and 3 m of 35% wollastonite over 17 m occur between 13-31 m. Projected to surface, these sections coincide with wollastonite exposed in roadside outcrops. The remainder of the hole is dominated by pyritic, epidote-altered, biotite-hornblende diorite, very dense fine-grained granitized banded/mottled breccia skarn, and fine-grained calc-silicates (hornfelsed?). This lower section contains rocks similar to those encountered in hole MH 87-5.

Drill hole MH 87-7 was collared at 0+13E 0+80N at an elevation of 290.0 m. This hole was drilled southwestward to probe surface exposures of wollastonite along the road and permit correlation between hole MH 86-6. Wollastonite occurrences were intersected along the entire length of the hole (139.0 m) with only a slight decrease in the lowermost section. The upper 55 m consist of limestone intruded by andesite dykes. Wollastonite occurs as augen replacements, massive crystalline sections in marble, and in subsidiary amounts as narrow S1 parallel bands. The wollastonite-bearing drill intersections can he divided into two zones. An upper 27 m comprised of 6 m of 25% and 8 m of 15% wollastonite, and a lower 30 m zone containing 10 m of 42%, 6 m of 35%, and 10 m of 20% wollastonite. The two are separated by 5 m of andesite/diorite porphyry. The remaining 20 m intersect banded skarn and garnetite sections containing lesser concentrations of wollastonite.

Drill hole MH 87-8 was collared at 0+13E 0+87N at an elevation of 290.0 m. This hole was laid out to crosscut relict bedding/metamorphic foliation to determine thickness and extent of wollastonite-bearing horizons. The upper section of the hole intersected andesite/diorite porphyry dyke and for much of the 38 m likely followed a faulted section (?) along strike. Limestone breccia and wollastonite marble flank this dyke in the upper sections of the hole (11.5 m of 36% wollastonite) and for 6 m below the dyke (6 m of 50% wollastonite). Below this is 20 m of augen limestone followed by 25 m of garnetite and banded skarn with minor augen of limestone. Medium-grained unaltered diorite (pyrite <1%) occupies the lowermost 3 m of the hole.

Drill Core Assays

Massive base metal sulphides occur as breccia and fracture fillings and replacements in garnet-diopside banded skarn sections of hole 87-7. Three intervals (94.4-95.9 m, 108.5-109.9 m and 112.5-113.0 m) were split and assayed for Zn, Cu, Au, Ag and Ga. Assays indicate low precious metal levels for all three samples. The main zone of massive sulphides located between 94.4 and 95.9 metres returned the best assays, as follows: 22.2% Zn; 1.0% Cu; 1.37 oz/ton Ag; 0.002 oz/ton Au; 1 ppm Ga.

DISCUSSION

Crystalline limestone occurs as cliff exposures along the road between 0+50-1+00W and 2+00-2+75N. Drill hole 87-1 intersected 60 m of augen limestone with a total of 60 m vertical thickness (projected to surface). The limestone contains various proportions of breccia and augen fragments (to several metres in size) of skarn assemblage minerals (i.e. garnet, diopside, wollastonite). The augen limestone intersected in hole 87-8 (50 m) is a separate band. No sections of high purity limestone were intersected in any of the drill holes.

Wollastonite occurrences are concentrated along the eastern margin of the pendant within an area which is concave to the west comprising 4.4 hectares. This Dshaped zone has been divided further into three triangular segments for purposes of discussion beginning in the north (A) and proceeding southward (B and C) on the basis of wollastonite abundance, association and continuity (see Wollastonite Volume % Map, and Longitudinal Section C-C' in pocket of report).

Area A, located for the most part north of the baseline, contains the most numerous and extensive exposures of wollastonite on the property. A direct relationship of wollastonite occurrences to lithology is evident. Crystalline linnestone low in silica is wollastonite-poor, whereas units of calc-silicate and banded skarn (reflecting initial silica contents) contain the bulk of the wollastonite.

North and west of 00, wollastonite occurs within: 1) a 20-metre-wide band of siliceous calc-silicate, in volume up to 50%; 2) a 40-metre-wide section of cream to white banded skarn containing from 50% up to 80% wollastonite; and 3) brecciated limestones adjacent to westerly trending andesite dyke rock in percentages up to 80%.

South and east of 00, wollastonite occurs intergrown with garnet in banded skarns locally to 50% (see Petrographic Report, appended), but generally less than 20%.

Longitudinal Section C-C' indicates considerable wollastonite-bearing intervals extending to a depth of approximately 215 m a.s.l. in holes 87-7 and 87-3. Correlations with 87-6 and projections to the surface suggest a minimum vertical area of $12 \times 10^3 \text{ m}^2$ in the plane of C-C'. A considerable percentage of this area comprises andesite dykes and sections low in wollastonite such that even preliminary volume projections for wollastonite cannot be made at this time.

Area B contains few bedrock exposures. A south-facing overburden-covered hill slope dominates much of this area. thinly laminated east-west trending wollastonite-bearing siliceous calc-silicate rocks form the cap unit to the hill. Wollastonite to 40% occurs as laminae-specific concentrations corresponding to cumulative percentages up to 20%. In addition, wollastonite occurs within garnet-rich banded skarns in varying abundances generally less than 20%. Drill holes MH 87-5 and MH 87-6 did not intersect appreciable wollastonite at depth below this area.

Area C covers the ground situated betwen the upper access road south to the projected intrusive/pendant contact. Outcrop in this area is scarce and at 1+00W 1+60S stripping was carried out to further expose wollastonite occurrences located early in the programme. Wollastonite occurs interbedded within a calc-silicate package and as >80% wollastonite-rich zones occupying zones of intense deformation (i.e. fold hinges). Wollastonite percentages are illustrated on a 1:200 sketch (in pocket of report). Drill hole MH 87-4 intersected a sink hole in limestones and was stopped hefore reaching this target. Wollastonite-replaced siliceous bands and augen up to 30% within limestone were intersected in this hole over true width of 1.5 m.

13

CONCLUSIONS

Mapping and trenching outlined specific areas within the metasedimentary pendant where wollastonite occurrences are concentrated. Preliminary diamond drilling has obtained wollastonite intersections to depths of greater than 100 vertical metres below surface exposures. These zones occupy a poorly defined area which in plan is approximately 7 x 10^3 m². If drill indicated and surface exposures can be demonstrated to be continuous, dimensions are adequate to contain commercial quantities of wollastonite.

Texturally, wollastonite occurs as coarse crystalline masses interstitial to massive red garnetite. Where fine-grained, both minerals are intimately intergrown. Less common occurrences inelude replacement augen within limestone. Separation of the various types, and simple versus complex grain boundary relationships, will have a bearing on any projected or inferred wollastonite tonnages. Isolation of garnet into a saleable product must be considered as part of the overall viability of the project. The economic potential is therefore further contingent upon results of mineral beneficiation.

RECOMMENDATIONS

Separate beneficiation tests should be carried out for different occurrences of wollastonite (i.e., wollastonite-garnetite, thinly laminated wollastonite-calc-silicates, wollastonite augen, limestone/marble). Initial testing could be undertaken utilizing sections of core (NQ) from this phase of drilling.

Contingent upon the results of initial liberation tests, areas could then be defined for trenching and bulk sampling. More rigorous process testing of larger samples would follow. Dozer/backhoe stripping is required in the vicinity of 00 0+50N-0+75N to establish relationships between wollastonite-bearing marble (limestone) and andesite dykes, and the proportions of wollastonite, limestone and dyke rock.

A programme of diamond drilling is necessary to define the extent of wollastonite-bearing garnetite zones intersected in holes MH 87-3, -6, and -7. Drill site preparation could coincide with trenching. Drill set-ups could be located in the area of trenching, and therefore preparation should be concomitant with trenching.

A study of available markets for wollastonite and garnet should be considered in a subsequent phase.

COST ESTIMATE

Phase 1

Initial beneficiation tests	\$ 10,000	
Processibility testing of bulk samples	40,000	
Dozer stripping, trenching, bulk sampling	25,000	
Drill site preparation	15,000	
Access road construction	40,000	
Diamond drilling, 750 m @ \$100/m	75,000	
Geological supervision, core logging	10,000	
Vehicle, travel, freight	3,000	
Food, lodging	4,000	
Engineering	9,000	
Report	_3,000	
	\$234,000	
Contingencies @ 20%	<u>46,800</u>	
Total Phase 1	\$280,800	\$280,800

Phase 2

Marketing study, including definition of product characteristics (brightness, impurities, particle size, etc.) for various users (ceramics, plastics, paints, etc.), allow

\$ 60,000 <u>_60,000</u>

Total, Phases 1 and 2

\$340,800

Respectfully submitted,

Locke B. Goldsmith, P.Eng. Consulting Geologist

Vancouver, B.C. May 19, 1987

James M. Logan, M.Sc. Consulting Geologist

ENGINEER'S CERTIFICATE LOCKE B. GOLDSMITH

- 1. I, Locke B. Goldsmith, am a Registered Professional Engineer in the Province of Ontario and the Northwest Territories, and a Registered Professional Geologist in the State of Oregon. My address is 301, 1855 Balsam Street, Vancouver, B.C.
- 2. I have a B.Sc. (Honours) degree in Geology from Michigan Technological University, a M.Sc. degree in Geology from the University of British Columbia, and have done postgraduate study in Geology at Michigan Tech and the University of Nevada. I am a graduate of the Haileybury School of Mines, and am a Certified Mining Technician. I am a Member of the Society of Economic Geologists, the AIME, and the Australasian Institute of Mining and Metallurgy, and a Fellow of the Geological Association of Canada.
- 3. I have been engaged in mining exploration for the past 29 years.
- I have co-authored the report entitled, "Geological Mapping and Diamond Drilling of Wollastonite Occurrence, Mineral Hill Claim Group, Sechelt Area, B.C." dated May 19, 1987. The report is based upon fieldwork and research supervised by the author.
- 5. I have no ownership in the property, nor in the stocks of Tri-Sil Minerals Inc.
- 6. I consent to the use of this report in a prospectus, or in a statement of material facts related to the raising of funds.

Respectfully submitted,

Locke B. Goldsmith, P.Eng. Consulting Geologist

Vancouver, B.C. May 19, 1987

GEOLOGIST'S CERTIFICATE JAMES M. LOGAN

- I, James M. Logan, of 4651 West 16th Avenue, Vancouver, B.C. V6R 3E9, am a graduate of Brock University, Ontario, with a B.Sc. (Honours) degree in Geology, and of the University of British Columbia with a M.Sc. degree in Geology.
- 2. I have been engaged in mining exploration for 11 years.
- 3. I have co-authored the report entitled, "Geological Mapping and Diamond Drilling of Wollastonite Occurrence, Mineral Hill Claim Group, Sechelt, B.C.", dated May 19, 1987. The report is based on research and field work conducted and supervised by the author.
- 4. I have no ownership in the property, nor do I own shares in Tri-Sil Minerals Inc.
- 5. I consent to the use of this report in a prospectus or in a statement of material facts related to the raising of funds.

Respectfully submitted,

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James M. Logan, M.Sc. Geologist

Vancouver, B.C. May 19, 1987 17

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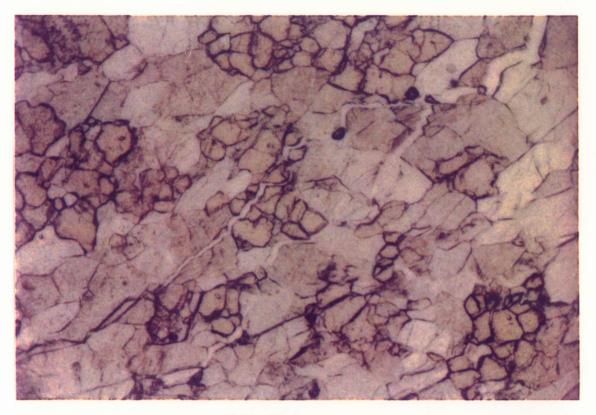
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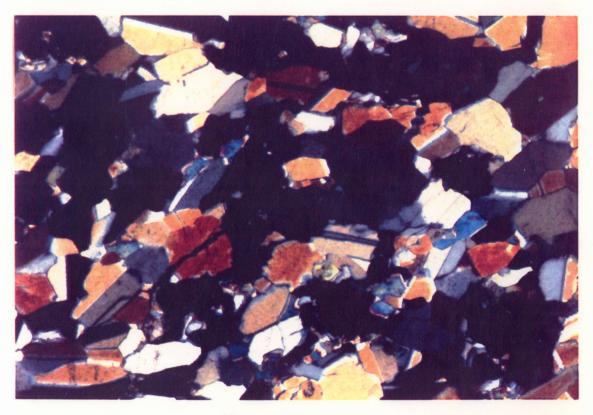
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APPENDIX

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Neg. 83-8



Neg. 83-9



Vancouver Petrographics Ltd.

JAMES VINNELL, Manager JOHN G. PAYNE, Ph.D. Geologist A.L. LITTLEJOHN, M.Sc. Geologist JEFF HARRIS, Ph.D. Geologist

P.O. BOX 39 8887 NASH STREET FORT LANGLEY, B.C. VOX 1JO

PHONE (604) 888-1323

Invoice 6372 March 1987

Report for: Locke Goldsmith, Arctex Engineering Services, 100 - 1112 West Pender, VANCOUVER, B.C., V6E 2S1

Sample: Skarn sample, request identification of silicate on face, suspected to be wollastonite.

The sample was crushed and examined in mineral oil. The optical properties of the mineral were very similar to those of wollastonite; however, because the optical properties of tremolite are very similar, it was considered necessary to do an X-ray diffraction analysis. This was carried out by Dr. E.P. Meagher at U.B.C. He confirmed that the material on the face was wollastonite.

John G. Pavne



Vancouver Petrographics Ltd.

JAMES VINNELL, Manager JOHN G. PAYNE, Ph.D. Geologist A.L. LITTLEJOHN, M.Sc. Geologist JEFF HARRIS, Ph.D. Geologist

P.O. BOX 39 8887 NASH STREET FORT LANGLEY, B.C. VOX 1JO

PHONE (604) 888-1323 Invoice #6380

March 31st, 1987

Report for: J. Logan, Arctex Engineering Services, Main Floor, 1112 West Pender St., Vancouver, B.C.

Samples:

Two samples for determination of % mineral composition. Samples are designated Mineral Hill 87031 and 87032 and corresponding thin sections are numbered 1 and 2 respectively.

Descriptions:

The two samples are of essentially identical character and are jointly described in the following paragraphs.

They are composed dominantly of a granular, weakly foliated aggregate of subprismatic grains, 0.1 - 2.0mm in size, of wollastonite (confirmed by X-ray diffraction). Accessory brown garnet (probably grossularite) forms disseminated 0.5 - 2.0mm clumps made up of small coalescent euhedra 0.1 - 0.4mm in size.

The concentration of garnet appears patchily variable, especially in Sample #1. Some of the pieces in the bag consist of up to 35% garnet or more, whilst others contain little or none. The slide of Sample #1 includes both types (averaging 10% garnet), whereas Sample #2 is a more evenly garnet-rich example (estimated 35% garnet).

A minor accessory, intermediate in colour and relief between the wollastonite and garnet and having a moderate birefringence, is thought to be diopside. This makes up about 1% in Sample #1 and 3% in Sample #2, occurring closely associated with garnet and, less commonly, as randomly disseminated grains within the wollastonite aggregate.

Sample #2 also includes a thin band of a very low-birefringent mineral which may be idocrase, or possibly apatite. This mineral (estimated as 3% modal in Sample #2) is irregularly flecked throughout with carbonate.

No opaque constituents were seen in either sample.

Two photomicrographs (scale 1 cm = 0.17 mm) are included to illustrate the general textural features. They actually depict Sample #1, but are equally illustrative of both samples. Descriptions are as follows:

- Neg. 83-8 Plane polarized transmitted light. Shows granular aggregate of wollastonite (major component; colourless, sometimes frosted appearance) with clumps of garnet (yellowish brown, high relief). Minor diopside associated with garnet and as disseminated grains (intermediate in appearance between wollastonite and garnet: see Neg. 83-9 for locations).
- Neg. 83-9 Cross-polarized transmitted light: same field as 83-8. Garnet is isotropic (black). Wollastonite is white, greys, paleyellow, orange-brown, sometimes showing twinning. Scattered brighter coloured grains (blue-green) are diopside. Compare with Neg. 83-8.

J. F. Harris Ph.D.

Hole No. 87-1 Location: 0+35W 2+65N Azimuth: 235° Dip: -40°

Elevation: 900' (275m) Length: 93.6m Core Size: NQ Core Stored: On property Commenced: March 28, 1987 Completed: March 31, 1987 Logged by: J.M. Logan Drilling by: H. Allen Diamond Drilling Ltd.

Me	tres				
From	То	Description			
0	3. 6	Casing.			
3.6	9. 0	Thinly laminated, alternating light and dark grey recrystallized limestone. 7.6 m S ₁ @ 55° to core axis.	5.4		
9.0	9. 8	Upper contact @:55° to core. Fine-grained siliceous, fractured dyke. Alteration has caused recrystallization of plagioclase, giving a porphyritic texture.			
9.8	10.3	Creamy white coarsely crystalline wollastonite. In the lower 0.2 metres of the section the wollastonite occurs as clots of $\sim 1 \times 2$ cm in size which parallel bedding. 9.4 m Bedding @ 50° to core axis.			.5 W
10.3	13.0	Medium grey crystalline limestone; thinly laminated fractures and vugs filled with calcite. 12.8 m Bedding @ 25° to core axis.	2.7		
13.0	13.6	Garnitite. Upper contact @ 15°, lower contact @ 30° to core axis.		.6	
13.6	14.1	Light pinkish grey crystalline limestone thinly bedded with clots, and bedding parallel layers consisting of wollastonite ∿1–2 cm thick. Total wollastonite is 10–15%.			• 5
14.1	16.8	Light grey, thinly banded recrystallized limestone containing fragments and clots of garnet and wollastonite. 14.2 m S ₁ @ 30° to core axis. 15.1 m S ₁ @ 26° to core axis. 15.4-15.6 m Garnetite band.	2.7		

Metr	es			
F rom	То	Description		
16.8	19.3	Carbonaceous/talc to chloritic-rich limestone	2.5 ?	
		17.3 m 1.5-metre section of coarsely crystalline limestone; even-grained, salt-and-pepper textured appearance.		
19.3	24. 7	 Medium grey recrystallized limestone showing relict bedding; breccia blocks replaced by wollastonite and garnetiferous sections ± diopside. 19.9 m 0.3-metre skarn section. Skarn is interstitial to brecciated limestone composed of garnet and diopside, possibly some epidote. 23.2 m 1.5-metre section of thinly lamInated alternating white and grey limestone with irregular small fragments <5% recrys- tallized coarse calcite more prevalent than wollastonite clots. 24.4 m 0.3-metre section of wollastonite + garnet clots which increase in proportion down-section to skarn. 	50%. € 5	
24. 7	27.4	0.4 metres of recovery, garnet skarn ± wollastonite.		2.7
27.4	30. 4	Banded calc silicates consisting of intergrown garnet and wollastonite that occur as clots or lensoidal bqnds within light grey crystalline limestone.		3
30.4	31.5	Light greenish-grey coloured crystalline limestone. No visible garnets. Wollastonite to 10%.		6.(
31.5	33. 7	Medium grey, thinly laminated crystalline limestone with clots of calcite and less abundant clots of wollastonite. Pyrite to 1% 32.8 m Bedding @ 55° to core axis. 33.0 m 0.4-metre section of wollastonite from 10–15%.		2.5
33. 7	36.4	Friable, maroon coloured garnetite. Contact is at 18° to core axis. Lower contact at 30° to core axis.		2.7

Metro From	es To	Description		
36.4	37.0	Brecciated and bleached recrystallized limestone containing angular fragments less than 10% of this section; replaced by garnet and wollastonite.		. 6
37.0	38.0	Intergrown garnet and wollastonite. Upper section is garnet- rich; lower 0.6 m section is wollastonite greater than garnet.		1
38.0	40. 3	Massive, coarsely crystalline wollastonite-garnet marble; light greyish white colour. Wollastonite 15–20%; garnet 10–15%; calcium carbonate 75–65%.	50%	2,3
40.3	48.0	Thinly banded, alternating grey and white recrystallized limestone containing clots of wollastonite. Total wollastonite from 10-15%; garnet less than 5%. 42.7 m 0.8-metre section of garnet skarn. 44.5 m 0.3-metre section of garnet greater than 75%. 45.0 m 0.3-metre section of wollastonite consisting of 50% and garnet 35-40%; calcite 10%. 46.0 m Fold axis perpendicular to core.	50% ~~~~	7.7
<i>48. 0</i>	<i>50.</i> 9	Garnet-wollastonite skarn. Calcite + diopside. 48.5–50.9 m Maroon garnetite ± very fine-grained wollastonite less than 2%. Lower contact at 35° to core axis.		2.9
50.9	52.6	Thinly laminated grey limestone bedding at 30° to core axis. Contains clots of calcite and wollastonite. Fragments of thinly bedded limestone partially replaced by the calc-silicates, and these are orientated approximately parallel to S ₁ . Total wollastonite approximately 20%.	50%.	1.7
52.6	53. 7	Maroon garnetite.		[.]

Hole 87-1

MINERAL HILL CLAIM GROUP - DRILL HOLE LOG

Metr	res			
From	То	Description		
53. 7	60. 2	Light, greenish-grey, medium-grained brecciated limestone; pyrite to 1%; isolated clots of garnet with wollastonite envelopes. Skarnified bands at 25° to core, and brecciated sections with coarse calcite 4 mm or greater in size. 58.5 m 0.8-metre section of intermixed garnet wollastonite brecciated, fractured, calcite-healed. Wollastonite is from 30-35%; garnet 35-40%; calcite/limestone 25%.	50%	6.5
60.5	93. 6	Medium-grained, dark greenish-black hornblende altering to chlorite-diorite. Fractures epidote and quartz filled. Pyrite from 2-3% as disseminations and fracture fillings. Recrystal- lized plagioclase sections are spatially related to fracture density and epidote zones as well. 81. 2-87.4 m Section contains narrow garnet-epidote skarn sections of fine-grained pyritic chilled intrusive (?), green- stone bands (?); 40% of interval within epidote altered diorite.		
93. <i>6</i>		End of hole.		

Hole No.: 87-2 Location: 0+05E 2+12N Azimuth: 212° Dip: -40°

Elevation: 880' (268 m) Length: 152.5 m Core Size: NQ Core Stored: On property Commenced: April 1, 1987 Completed: April 7, 1987 Logged by: J.M. Logan Drilling by: H. Allen Diamond Drilling Ltd.

Metr	res				<u></u>
From	То	Description			
0	3.6	Casing.			
3.6	8. 1	Altered intrusive, highly fractured to stockwork proportions; epidote alteration, plagioclase silicified along fractures. Pyrite to 1%.		contact.	
8.1	12.8	Less than 20% recovery. Very friable, fine-grained garnet skarn mixed with coarse-grained granet epidote skarn intrusive, fractured and silicified.			2.9
12.8	15.8	Brecciated sheared zone; various sections of total garnet plus diopside in blocks of silicified section, all filled fractures. Fractures at 15° to core axis; these are cut by a second set of perpendicular, 45° to core axis.			3.0
15.8	18.1	Light coloured garnetite.			2,3
18.0	19.5	Coarsely crystalline bluish limestone; garnets averaging 25%, up to 85% of the section.	1.5		0/0-
19.5	27.6	Crystalline limestone; wollastonite occuring in proportions greater than garnet. Banding and convoluted layers or coarse masses and clots. These skarnified inclusions have been fractured and healed with calcite. 21.6 m 0.1-metre section of fine-grained epidote altered dyke rock; contact at 35° to core axis. 21.9 m 0.6-metre section similar dyke material within contact at 25° to core axis.	50%	~	8_(

Hole No.: 87-2

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MINERAL HILL CLAIM GROUP - DRILL HOLE LOG

Metr	res				
From	То	Description			<u> </u>
27.6	27.9	Light green silicified zone composed of chlorite or diopside.			
27. 9	41.0	Medium-grey alternating dark and light banded crystalline limestone; contains large angular fragments of garnet and wollastonite. S_1 wraps around these angular or rounded inclusions, suggestive of flowage. 33.5 m S_1 parallel to core axis. 33.6 m S_1 is at 30° to core axis. 35.7 m 0.3-metre silicified epidote altered, fine-grained greenstone/dyke rock; alteration has recrystallized plagio- clase, giving porphyritic appearance. 36.2 m 0.3-metre zone of massive, coarsely crystalline wollastonite with lesser garnet. 37.0 m S_1 highly contorted. 37.5 m 0.6-metre section of silicified dyke material similar to the section at 35.7 m. 40.4 m 0.1-metre section of silicified, fine-grained dyke material.	/3./	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	50%
41.0	44. 6	White crystalline brecciated limestone with garnet and diopside + less than 2% pyrite. 42.2 m 0.8-metre altered fine-grained porphyritic textured dyke rock. 43.0 m White limestone with chloritic bands which grades into a brecciated skarn down-section. Section is quite chloritic, black to dark green tills of brecciated matrix with pyrite and garnet; pyrite is 3-5% locally.	3.6	~	50 %
44.6	44.9	Coarsely crystalline section of wollastonite and garnet + limestone of roughly equal proportions.			, 3
44.9	51.1	Thinly banded limestone with garnet and wollastonite inclusions as specific layers and clots.	50/00-		6.2

Hole No.: 87-2

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MINERAL HILL CLAIM GROUP - DRILL HOLE LOG

Metr		Description		
From	Το	 Description 45.0 m 0.25-metre section of massive pyrite, fractured, containing recrystallized pyrite; appears to have replaced the garnet-rich sections. Traces of chalcopyrite. Cut by chlorite-filled fractures. 47.0 m 0.3-metre silicified, fine-grained green porphyritic dyke rock. 47.0 m S₁ is 40° to core axis. 48.2 m S₁ is at 10° to core axis. 49.0 m S₁ is at low angle to core axis. 51.1 m 1.2-metre section of wollastonite and calcite clots comprising less than 10% of the section; few garnets. 		
53.4	58. 8	 53. 3 m 0. 1-metre section of altered fine-grained siliceous porphyry dyke rock. Medium grey coarsely recrystallized limestone with distinctly thicker bedding than previous section. 55. 5 m 0. 8-metre section of pink garnet + diopside, silicified marble ± wollastonite; might be actinolite. 57. 6 m S₁ at 70° to core axis. 	50%	5.\$
58.8	65.9	Recrystalline limestone, garnet/wollastonite skarn sections. Inclusions of skarn as bands and clots. Pyrite to 2-3% of section. Total wollastonite less than 10% of section. 60.6 m 1.8-metre dark greenish grey porphyritic dyke. Lower contact at 25° to core axis. Silicified fractures are filled with calcite and epidote.	5% ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	7,1
65.9	67.4	Skarn section. Garnets increasing down-section. Minor wollastonite. Lower contact at 30° to core axis.		1.5
67.4	69.1	Medium-grained porphyritic plagioclase with hornblende clots intrusive. Lower contact is at 30°; it is a sharp contact with fine-grained porphyritic dyke rock which extends from 69.1 to 70.7 m. Very siliceous, fine-grained, bleached along fractures. Its lower contact is approx. at 45°; irregular, breccia-type of contact at 70.7 m.		

Metr	res		
From	То	Description	
70. 7	77. 2	Garnetite, fractured and oxidized, light brown coloured. 71.6 m 0.6-metre section which appears graphitic in texture due to skarning along intersecting fractures.	
77. 2	86.5	Splotchy alternating maroon and dark green to light green banded garnetite; pyrite sections to 2%; traces of calcite. Weak fabric, almost brecciated. 86.1 m 0.4-metre section of intrusive, epidote-altered, pyrite-rich, interstitial to breccia blocks of garnetite.	
86.5	88.1	Fine-grained silicic, white to light grey, splotchy calc- silicate; pyrite from 10-20% in splotches, gives a faint folia- tion of 25° to core axis.	
88.1	97. 2	Alternating red and green garnetite banding; brecciated matrix with interstitial epidote and silicified sections similar to 86.1 to 86.5 m. 95.3 m 2.5-cm true width, dark greenish to black, fine- grained porphyritic dyke rock. Lower contact at 25° to core axis. S ₁ banding varies from 30° to core axis to parallel and then is folded with the fold axis approx. perpendicular to core axis.	
97. 2	98. O	Mixed intrusive and skarn. Intrusive is quite silieeous, epidote-altered; pyritic to 5%; interstitial to breccia blocks of garnetite.	
98. 0	101.0	Coarse-grained pyritic intrusive, epidote-altered, quite siliceous; contains garnet bands, predominantly intrusive over that section.	
101.0	104. 3	Garnetite contains mare visible epidote than upper section; pervasive flooding, with pyrite from 3-4%. 103.8 m 3-cm dyke of fine-grained, dark green porphyry dyke at 70° to core axis.	

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MINERAL HILL CLAIM GROUP - DRILL HOLE LOG

Metres			
From	<i>To</i>	Description	
104.3	114.8	Brecciated garnet skarn, thinly banded, parallel to core axis. Epidote/diopside alteration pervasive in more silicic bands. Brecciated appearance related to angle of intersection.	
114.8	121.5	Little altered, fine-grained, dark green greenstone or fine- grained, chilled intrusive. The section is made up of various intrusives, brecciated blocks with inclusions of finer grained non-porphyritic plagioclase. Pyrite varies as fracture fillings and clots. Mafics vary from hornblende alter- ing perhaps to actinolite. Epidote alteration is confined to fractures, and more prevalent in garnets and skarned intervals.	
121.5	129.9	Epidote-altered, garnet skarn mixed with more silicic intrusive/ greenstone mixture. Brecciated texture; flowage at 30° to core axis. Banding is similar to that in upper sections. Rock is predominantly garnet. Silicic intrusives pervasively altered to epidote.	
129.9	139.5	Alternating sections of massive greenstone; epidote-altered and garnetite breccias. Foliation at 10° to core axis. Lower sections coarse-banded garnet and brecciated fractures are filled with intrusive rock interstitial.	
139.5	140.5	Epidote-altered, medium-grained intrusive rock.	
140.5	144.0	Medium-grained mafic intrusive; not altered. Plagioclase grain size increases down-section. Epidote alteration spotty. Fracture controlled. Contact at 20° to core axis. 144.0 m 1.1-metre section of garnet epidote skarn.	
145.1	148.5	Mafic fine-grained intrusive. Grain size increases down-section to medium to coarsely grained.	

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MINERAL HILL CLAIM GROUP - DRILL HOLE LOG

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Metres			
From	То	Description	
		148,5m Epidote-altered friable section, approx. 0.1m. 150.5m Contact at 35° to core axis. 2 cm dyke at 40° to core axis below which is more mafic intrusive which extends to E.O.H.	
152.5		End of hole.	

MINERAL HILL CLAIM GROUP - DRILL HOLE LOG

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Hole No.: 87-3 Location: 0+60E 1+40N Azimuth: 232° Dip: -40°

Elevation: 850' (260 m) Length: 98.5 m Core Size: NQ Core Stored: On property Commenced: April 8, 1987 Completed: April 10, 1987 Logged by: J.M. Logan Drilling by: H. Allen Diamond Drilling Ltd.

Metro	es	25	
From	То	Description	
0	6.7	Casing.	
6.7	7.9	Broken, oxidized rubble.	
7.9	9. 8	Dark grey, fairly fractured medium-grained intrusives; silicified along fractures. Minor epidote alteration. Pyrite to 5% locally. Fractures at 45° to core axis. Contact at 60° to axis.	Contrat.
9. 8	13.42	Light greenish-white epidote argillic altered intrusive. Friable. Less than 100% recovery.	3.6
13.42	27. 3	Pervasive epidote altered intrusives/sediments (?), brecciated with quartz ± calcite fractures; closed sections of epidote. 15.0-16.7 m 0.1-metre recovery. 16.7-18.2 m 0.1-metre recovery. 18.2-19.8 m 0.1-metre recovery. 19.8-21.3 m 0.1-metre recovery. 22.3-24.4 m 0.4-metre recovery.	17,8
27. 3	32.0	First appearance of garnets as angular clots and inclusions of skarn in less epidote altered soft friable, argillic altered rock. Poor recovery - less than 50%.	2.7
32. 0	36.0	Red and green garnetites; friable, oxidized, some calcite stringers. 33.6-35.4 m Less than 0.5 m recovery. 35.4-36.0 m 0.15-metre recovery.	9

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MINERAL HILL CLAIM GROUP - DRILL HOLE LOG

Metr	`es		
From	То	Description	
36.0	37. 2	Light yellowish green epidote with friable, medium-grained intrusive; slightly calcareous with garnet inclusions.	1. 2
37. 2	37.5	Garnetite. Lower contact at 40° to core axis.	0.5
37.5	38. 3	Light buff coloured crystalline limestone. Bedding at 40° to core axis. Lower contact is irregular brecciated; parallels core axis. Contains minor dissemina- tions of metallic either graphite or specular hematite.	018
38. 3	42. 2	Calc-silicate band. Wollastonite ± 75%; garnet ± 25%. Remainder 5% limestone. Upper contact at 40° to core axis. 41.2-41.9 m Garnet is 60-65%; wollastonite 30-35%; limestone 5%. 41.9-42.2 m Wollastonite 75%; garnet 15%; limestone 5%.	3.9
42. 2	44.6	Pale green skarn with 1.0-metre recovery. Traces of wollastonite sections ± graphite. Lower contact at 75° with limestone breccia.	2,9
44.6	48.6	Brecciated calc-silicates within recrystallized limestone groundmass. 44.6-44.9 m Wollastonite is greater than 85%; remainder predominantly red garnet. 44.9-46.6 m Approx. 70% of the interval is made up of angular blocks of which 85% is wollastonite and the remain- ing 15% is garnet. Interstitial to these blocks is coarsely	4
		crystalline calcite. 46.6-47.0 m Large blocks of wollastonite with little garnet. 47.0-48.6 m These large blocks make up 25-35% of the interval.	50% - 4.1
48.6	52.7	Medium-grained crystalline limestone containing isolated angular fragments and bands of garnet wollastonite.	JU/D

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MINERAL HILL CLAIM GROUP - DRILL HOLE LOG

Metres				
From	То	Description		
52.7	54.7	Clean wollastonite, greater than 80%, coarse, white crystals. Garnets increase in lower half of section, reducing the per- centage of wollastonite to 50%.		٢
54.7	59.6	Equally banded crystalline limestone, light greenish to grey- blue in colour, contains less than 5% in clots and bands of garnet wollastonite. 55.5 m 0.1-metre fine-grained dyke. 56.0 m 5 cm dyke of same material. 58.0-58.8 m Dark green, same material, silicified, irregular contacts at 20° to core. Both upper and lower contacts are brecciated, containing inclusions of wallrock.	50% e	4.9
59.6	59. 7	Wollastonite band.		73
59 . 7	60.3	Dark maroon garnetite \pm trace amounts of wollastonite. Faint banding, at 60° to core axis. Lower contact is also at 60°.		.6
60.3	62.5	Calc-silicate assemblage, light greenish, mottled pinkish brecciated by stockwork filled with chlorite, highly siliceous. 61.8 m Wollastonite begins increasing down-section. 62.0 m It is approximately 40%. 62.5 m It has increased to 60-75% wollastonite, corase crystalline material.		2.2
62.5	64. 1	Coarse cryastalline blue limestone with wollastonite and garnet sections. Breccia blocks make up 60% of the core. Wollastonite rims and garnet cores these fragments. Generally they are about 1 cm x 1 cm. They increase down-section. Wollastonite makes up about 30%; garnet 50%; calcite the remainder.		1.6

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MINERAL HILL CLAIM GROUP - DRILL HOLE LOG

Metr	res		
rom	То	Description	
64.1	<i>68.3</i>	Massive garnetite. 66.1 m 0.2-metre section containing 10% wollastonite.	402
6 <i>8.</i> 3	69. <u>3</u>	Mixed garnetite + intrusive epidote altered silicic intrusive. Epidote alteration seems to be more pervasive along the margins of the intrusive, and also alters fragments of garnetite or rims of brecciated garnet.	1
69.3	75.8	Massive garnetite, highly fractured. Intersections of silicification. 71.5 m 1-metre section containing patches of wollastonite, less than 0.1-metre sections 10-20% intergrown with garnet. Total wollastonite less than 5%. 72.5 m 0.5-metre section containing 30-35% wollastonite, intergrown coarse garnet. 73.8 m 0.4-metre section which contains patches of wollastonite intergrown with garnets to less than 25% wollastonite.	6.5
75.8	81.4	Mottled maroon-red garnet and diopside green garnetite, breccia skarn; defines weak fabric which varies from parallel to the core to 45° to core axis. Very hard siliceous sections. 76.6 m 0.2-metre dark greenish black medium-grained dyke containing well defined chilled margins; cuts core at 45°. 78.6 m 1-metre section of light coloured, highly siliceous hornblende intrusive rock. Irregular upper and lower contacts approx. 45° to core axis. 80.2 m 0.2-metre wide intrusive dyke with sharp contacts at 40° to core axis. Thin alteration, chilled margins.	r v
81.4	87.4	Banded skarn, garnetite-rich section. 87.4 m 0.1-metre intrusive section, unaltered plagioclase appears to be recrystallized along fractures.	

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MINERAL HILL CLAIM GROUP - DRILL HOLE LOG

Metr	res		
From	Το	Description	
87.5	98.5	Alternating red garnets with chlorite intrusive/greenstone; fine-grained, altered to epidote with chilled margins. Dense garnetite assimilated into coarse and splotchy intrusive plagioclase + epidote hornblende. Minor pyrite. 94.2 m 0.2-metre section and at 95.6 m 0.2-metre section of garnetite inclusion, very dense, fine-grained.	
98. <u>5</u>		End of hole.	

MINERAL HILL CLAIM GROUP - DRILL HOLE LOG

Hole No.: 87-4 Location: 0+67W 1+03S Azimuth: 205° Dip: -40°

Elevation: (322 m) Length: 45.7 m Core Size: NQ Core Stored: On property Commenced: April 20, 1987 Completed: April 22, 1987 Logged by: J.M. Logan Drilling by: H.Allen Diamond Drilling Ltd.

Metr			·····
F r om	То	Description	
0	1.5	Casing.	
1.5	11.6	Dark greenish-grey porphyritic diorite dyke. Upper 0.7 m is oxidized, bleached groundmass, light green coloured. Hornblende crystals are altered to chlorite. Lower 0.3 m of section is fine-grained. Lower contact at 40° to core.	
11.6	12.3	Coarse crystalline light grey limestone; contains sub-angular skarn augen.	
12.3	14. 3	Thinly laminated calc-silicate, alternating white limy, dark grey siliceous beds, millimetre scale. Wollastonite to 15% contained within the siliceous beds. 13.3 m 0.9-metre silica healed fracture zone; fractures at low angle to core.	
14.3	15.9	Sand.	
15.9	16.1	Thinly laminated calc-silicate.	
16.1	19.5	Banded skarn. Upper 0.5-metre section is wollastonite, garnet-rich; bedding specific with wollastonite concentrations to 65%, 25% garnet. 16.7 m 0.8-metre oxidized section; wollastonite less than 10% in the oxidized section. 18.6 m 0.3-metre section of coarsely crystalline limestone, within which there is a 2-cm contorted silicate layer.	
19.5	20.6	Thinly laminated, alternating chlorite-rich calc-silicate. 19.6 m 0.1-metre brecciated zone which is healed with carbon- ate. Bedding in upper sections of calc-silicate at 65° to core; In lower sections bedding is changed to 10° to core axis.	

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Metr From	res To	Description	
20. 6	24. 9	Fine-grained calc-silicate, light grey colour. Within this section pyrite is common to 2%. Calc-silicate minerals vary from transparent to greenish, prismatic, striated crystals of wollastonite/actinolite (?) tremolite (?). Narrow beds contain minor amounts of garnet, wollastonite and diopside. 24.9 m Lower contact at 45° to core.	
24.9	28.4	Coarsely crystalline limestone. Interstitial to calcite grains are trace amounts of pyrite diopside and garnet in cumula- tive percent of less than 7. Minor amounts of wollastonite augen to less than 5% in lower sections.	
28.4	30. 1	Thinly bedded, medium grey coloured banded limestone within which are rootless folds, augens of wollastonite- replaced siliceous laminae. These make up 50% of the section. As above:	
30.1	34, 6	These make up less than 10% of the section. Pyrite from 2-5% is included in this section.	
34.6	37.9	Limestone containing sausage-shaped boudinaged light grey siliceous beds which have been replaced by fine-grained white wollastonite; contain relict cores of grey silica. Foliation i s defined at 20° to core. These beds are fractured and sur- rounded locally by very coarse crystalline calcite.	
37.8	38.6	Thinly bedded crystalline limestone. Bedding is at 40° to core axis. 38.2 m 0.2-metre breccia zone healed by pyrite and calcite.	
38. <i>6</i>	38.7	Crystalline marble. Bedding has been folded asymmetrically about the fold axis which is perpendicular to core axis.	

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Metres From To		Description
38.7	41.5	Zero recovery.
41.5	<i>44. 2</i>	0.3-metre recovery, broken limestone.
44. 2	45.7	0.3-metre recovery, broken limestone containing augen.
45.7		End of hole.

MINERAL HILL CLAIM GROUP - DRILL HOLE LOG

Hole No.: 87-5 Location: 0+65W 1+05S Azimuth: 340° Dip: -40°

Elevation: (322 m) Length: 40.5 m Core Size: NQ Core Stored: On property Commenced: April 22, 1987 Completed: April 24, 1987 Logged by: J.M. Logan Drilling by: H. Allen Diamond Drilling Ltd.

Metr	res		
From	То	Description	
0	1.5	Casing.	
1, 5	2.6	Oxidized, bleached, fine-grained calc-silicate. 2.6 m 0.4-metre section of banded garnet-wollastonite skarn. Bedding at 15° to core axis. Wollastonite to less than 10%.	
3. 0	4.4	Light greenish calc-silicate, brecciated and fractured and healed by calcite and quartz.	
4.4	4.8	Coarse wollastonite and garnet skarn. Wollastonite to 20%.	
4. 8	9. 8	Mottled garnet diopside marble. Bedding is at low angle to core, poorly preserved; several stages of fracturing and brecciation which has been calcite healed. Garnetite sections at 6.8-7.7 m and 8.2-8.7 m.	
9. 8	11.0	Fine⊢grained, thinly bedded diopside-rich calc-silicate. Bedding at 10° to core axis.	
11.0	13. 2	Wollastonite garnet skarn. Wollastonite less than 20%. Calcite healed fractures at 60° to core axis; bedding at 15° to core axis.	
13. 2	16. 1	Fine-grained calc-silicate, hornfelsed, very pyritic with some introduction of biotite; epidote fills fractures. Wollastonite and garnet specific beds make up less than 5% of the section.	

Metr From	res To	Description	
16.1	28.7	Medium-grained biotite diorite; mafics are predominantly biotite ± hornblende. Pyrite with lesser amounts of diopside garnet are all interstitial to coarse interlocking plagioclase grains. Epidote alteration is fracture control- led. Pervasive sections are located at 18.9-19.3 m and 19.5-20.5 m. Inclusions of hornfelsed skarned sediments are located at: 22.6 m 0.2-metre section, 23.0 m 0.3-metre section, and, 24.1 m 0.3-metre section of garnetite.	
28.7	33. 5	Contact-altered hornfelsed calc-silicate assemblage; contains abundant biotite and pyrite from 5-7%.	
33. 5	40.5	Banded skarn assemblage which has also been hornfelsed; very pyritic epidote introduction along fractures. Rocks are dark greenish diopside (?)/actinolite-rich; garnet less extensive.	
40.5		End of hole.	

MINERAL HILL CLAIM GROUP - DRILL HOLE LOG

Hole No.: 87-6 Location: 0+04E 0+05S Azimuth: 210° Dip: -40°

Elevation: (305.7 m) Length: 64.9 m Core Size: NQ Core Stored: On property Commenced: April 25, 1987 Completed: April 29, 1987 Logged by: J.M. Logan Drilling by: H.Allen Diamond Drilling Ltd.

Meti	res		
From	То	Description	
0	1.5	Casing.	
1.5	2.4	Coarsely crystalline intergrown hornblende plagioclase, intrusive segregation.	
2.4	3. 3	Hornfelsed calc-silicate, biotite pyrite-rich.	
3. 3	9. 3	Light coloured garnetite; contains intergrown wollastonite, less than 5% of section. 5.2 m 0.2-metre section bleached and altered andesite dyke at 45° to core.	
9.3	11.0	Medium-grained diorite intrusive, fractures coated with epidote.	
11.0	13.6	Porphyritic andesite, hornblende, feldspar, porphyroblasts, greenish matrix. Lower dyke contact is at 50° to core axis.	
13.6	18.5	Banded skarn, consisting predominantly of garnetite and wollastonite + epidtore. Bedding is at 50° to core axis. 13.6–15.4 m Less than 5% wollastonite. 15.4–16.0 m 30% wollastonite. 16.0–18.5 m 20% wollastonite.	4.9
		18.5 m 0.5-metre breccia filling of crystalline sphalerite intergrown with pyrite ± chalcopyrite. Total sulphides 75% of section.	.6
1 <i>8</i> .5	19.1	Very coarse-grained, white to gréyish coloured wollastanite comprising 35%; remainder is garnetite.	

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Met	res		
From	То	Description	
19.1	26. 3	Garnet and diopside-rich banded skarn; very fine-grained, dense. Contains minor wollastonite. 22.5 m Bedding at 50° to core axis.	<i>n.</i> 2
26.3	28. 3	Garnetite is fractured to stockwork proportions; calcite- healed. Breccia fragments / banded skarn give a weak foliation varying from 40-60° to core axis.	2.0
28. 3	31. 2	Garnetite containing coarse sections of intergrown wollaston- ite to an approximate total of 35-45% wollastonite. Minor diopside also included. 29.4 m 0.1-metre section of silicified greenish limestone.	2.9
31.2	31.4	Bleached garnetite directly adjacent to the dyke; light green.	
31.4	32. 5	Medium-grained hornblende porphyry andesite.	
32. 5	34. 7	Garnetite-rich banded skarn containing minor wollastonite. Calcite heals fractures; minor quartz + epidote filling fractures.	
34.7	37. 8	Mottled pinkish-orange garnetite. Relict thin-banded intervals at 70° to core axis. Minor amounts of wollastonite, less than 5% of interval.	
37.8	42.5	Felsic pyroxene-rich diorite intrusive; contains clots/inclusions of more mafic intrusive. Irregular concentrations of garnets, biotite, pyrite to 5%. 39.8 m 1.2-metre section of pervasive epidote alteration con- taining garnet and diopside.	
42.5	44, 2	Very thinly laminated light buff to greenish calc-silicate, fractured and brecciated at 20° to core axis. These fractures are calcite healed. Wollastonite-rich bands <10%. Foliation @ 45° to core axis.	

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Met. From	res To	Description	
44. 2	45.5	Diopside garnetite section cut by epidote-filled fractures; slightly pyritic. Upper 0.2 metres of section is pyritic diorite.	
45.5	48.7	Diorite intrusive, same as 37.8–42.5 m interval. Mafics are interstitial to coarse crystalline plagioclase.	
48.7	50.4	Calcareous marble, fine-grained, bleached; epidote altera- tion. Section is friable and leached. 50.0 m Irregular porphyroblasts of white calcite.	
50.4	54. 5	Mottled, banded skarn. S ₁ is at 10-20° to core. 51.0 m 0.6-metre quartz-rich section containing plagioclase and fine-grained garnets and diopside. Section is pyrite- rich to 5%.	
54.5	55.9	Calcareous diopside garnet marble.	
55.9	60. 7	Mottled, banded skarn; diopside, garnet predominant minerals. Pyrite-rich sections alternate with light pink garnet epidote- rich sections. Unit is quite dense, with fracture controlled silicification locally.	
60. 7	64. 6	<i>Coarse-grained, gneissic to plutonic textured diorite.</i> 64.6 m 0.3-metre section of light grey, bleached, altered skarn; very fine-grained.	
64.9		End of hole.	

MINERAL HILL CLAIM GROUP - DRILL HOLE LOG

Hole No.: 87-7 Location: 0+12E 0+80N Azimuth: 202° Dip: -40°

Elevation: (290 m) Length: 139.0 m Core Size: NQ Core Stored: On property Commenced: April 20, 1987 Completed: May 5, 1987 Logged by: J. M. Logan Drilling by: H.Allen Diamond Drilling Ltd.

Met	res		
From	То	Description	2 ^{1 - 1} - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -
0	4.9	Casing.	
4.9	5.3	Approximately 60% recovery; broken core, white limestone.	
5.3	7.6	Medium-grained andesite dyke; upper and lower contacts chilled.	
7.6	9.1	10% recovery of limestone.	
9. 1	12.5	Silicified limestone breccia; vuggy. Fragments are angular and vary in size from less than 1 mm to 25 cm. Within the breccia are blocks of pale green coloured silicate; altered diopside. 9.15–10.6 m 30% recovery.	
12.5	12.7	Massive recrystallized limestone.	
12.7	15.0	Porphyritic andesite dyke, greenish grey in colour. Upper contact is at 20° to core axis. 13.6 m 0.2-metre section of recrystallized limestone.	
15.0	21.4	Brecciated limestone/calcareous conglomerate section (?). Upper 0.1 metre is silicified. Vuggy, oxidized sections and irregular augen skann assemblage up to 40% of section. 15.1 m 0.8-metre section of 50% limestone 50% augen; augen comprised of 80% wollastonite, 20% garnet. 17.9 m 1.9-metre brecciated silicified section; vuggy, fractured to stockwork proportions, containing traces of diopside.	50% E 6.9

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Metr	es				
From	То	Description	• · · · · · · · · · · · · · · · · · · ·		
21.4	22. 0	Andesite dyke. Upper 0.4 m epidote altered. Lower contact at 20° to core.			
22. 0	23. 0	Brecciated limestone comprised of large blocks, altered with andesite dyke material interstitial to breccia blocks. Upper 0.3 m silicified.	/ <		- 50 %
23.0	25.0	Grey crystalline limestone with irregular skarn sections of garnet and wollastonite. 23.1 m 0.5-metre section of wollastonite to 20%. 23.8 m 0.3-metre section comprised of garnetite + epidote altered dyke material, each comprising half of the core. 24.1 m 0.2-metre section where wollastonite is 40% and garnet is 35%; calcite 15%. 24.3 m 0.7-metre section of less than 5% wollastonite.			2.~_
25.0	28.4	Medium-grained crystalline limestone. 25.2 m 4-cm andesite dyke. 27.4 m 5-cm andesite dyke.	3.4	7	58%
28.4	29.8	Fine-grained andesite dyke with upper contact 60° to core.			
29.8	31. 3	Grey limestone with garnet and epidote-rich sections. Augen comprise less than 20% of interval; wollastonite intergrown with garnet; wollastonite less than 2% of section.			(. 5-
31.7	34. 1	Coarse crystalline calcareous marble. 31.9 m 0.2-metre section of wollastonite greater than garnet; wollastonite to 60%. 32.3 m 0.4-metre section of wollastonite intergrown with grey silica, possibly silicified breccia zone.			2.4

MINERAL HILL CLAIM GROUP - DRILL HOLE LOG

Met	res		
From	То	Description	
		33.9 m 0.3-metre section where wollastonite comprises 40% of section.	
34.1	34.9	Andesite dyke. Upper and lower contacts at 60° to core axis.	
34.9	36.1	Coarsely crystalline white augen limestone; wollastonite within skarned augen comprises much less than 5% of section.	
36.1	38. 1	Andesite dyke. Grain size varies, very fine-grained to porphyritic, suggesting multiple intrusions. Contacts at 60° to core.	
38.1	40. 8	Light grey crystalline limestone augen; augen/make up 5% of section. 38.4 m 0.2-metre section of wollastonite to 20%. 39.0 m 3-cm band of wollastonite. 40.3 m 2-cm andesite dyke. 40.4 m 0.4-metre andesite dyke.	2,7
40.8	51.2	Fine-grained andesite dyke; contact at 50° to core axis. Comprise of multiple intrusions. 42.0 m 0.8-metre section of crystalline augen limestone; upper contact at 45° to core; contains skarned augen compris- ing 50% of section. 48.2 m 0.7-metre silicified brecciated section. 49.8 m 1.1-metre section intergrown diopside and wollastonite, giving a gneissic texture. Wollastonite 5% of section.	10, 4
51.2	51.6	Banded skarn comprised of garnet diopside; silicified slightly along fractures.	
51.6	53. 1	Massive grey quartz; weakly defined foliation which may represent bedding of a cherty sediment which is parallel to core axis. Lower contact is at 40°.	1.5

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MINERAL HILL CLAIM GROUP - DRILL HOLE LOG

	То	Description 52.2 m 7-cm dyke at 70° to core axis; andesite. 52.6 m 0.2-metre section of skarned limestone, comprised of garnet intergrown with wollastonite.	
	54 0	52.6 m 0.2-metre section of skarned limestone, comprised	
	E # 0		
	54.0	Garnetite, highly fractured, calcite healed.	
54.0	60. 2	Banded skarn, predominantly garnetite bands with diopside very dense. Garnetite is fractured on a scale of one per centimetre. These are bifurcating calcite healed fractures. 54.3 m Coarse wollastonite and euhedral garnet intergrown in what appears to be a breccia filling texture. Wollastonite to 25%. 55.6 m 0.3-metre section of wollastonite to 5%. 57. m 1.3-metre section of wollastonite 25-30%; garnet 30-35%; calcite the remainder. 58.7 m 0.6-metre section of wollastonite less than 2%. 59.3 m 0.9-metre section where wollastonite is isolated, and occurrences less than 2% of section. Bedding (or S ₁) is at 60° to core.	\$.Z
60. 2	62.0	Massive garnetite is intergrown with wollastonite. Wollastonite is 40% of section.	1.8
62.0	64.0	Thinly banded skarn. S_1 is at 40° to core axis.	2
64.0	65.3	Light orange to brown garnetite, brecciated and fractured, filled with wollastonite. Upper 0.7 m, wollastonite to 5%; lower 0.6 m, wollastonite ta 15% of section.	1.3
65.3	70. 4	Medium to coarsely crystalline grey augen limestone. 65.3 m 2.7-metre section, total wollastonite 10%. 68.0 m 2.4-metre section where wollastonite makes up 5% of section.	50% 5.1
70.4	71.5	Massive garnetite containing wollastonite 5–7%.	(_ /

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Metr	res		
From	То	Description	
71.5	71.7	Recrystallized epidote altered dyke rock at 80° to core axis.	1
71.7	78.1	Thinly laminated banded skarn/calc-silicate; predominantly very dense greenish calc-silicate with interbedded wollas- tonite; fine grained to beds of coarse crystalline wollastonite intergrown with garnetite. Locally bedding is highly deformed. 72.5 m 0.6-metre brecciated section with 25% wollastonite intergrown with garnet. 73.6 m 0.4-metre section of garnetite with irregular masses of wollastonite to 35%. 74.3 m 1.1-metre section containing 40% wollastonite as coarse bands parallelling S ₁ . 75.0 m 0.5-metre, fine-grained intergrown with garnet to 35%. 75.5 m 1.0-metre section; bedding at 45% to core; wollaston- ite from 20-25%. Lower 2 m of this section are very siliceous and dense.	6.4
78.1	80.4	Very fine-grained, dense diopside garnet skarn. 79.0 m 0.6-metre section, vuggy.	J
80.4	84.6	Medium grained dark grey andesite.	
84.6	104. 4	Massive sections of intergrown coarsely crystalline wollaston- ite and garnetite with lesser diopside. 85.2 m 2-metre section, wollastonite comprises 25-30%. 87.2 m 2-metre section of wollastonite, 10-15%. 89.2 m 1.4-metre section, wollastonite 60-65% of section. 90.4 m 2.1-metre section where there is only 50% recovery; wollastonite comprises 15% of that. 92.7 m 0.5-metre section of andesite dyke; contacts at 40° to core axis 92.5 m 1.9-metre section comprised of 45% wollastonite.	19.8

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MINERAL HILL CLAIM GROUP - DRILL HOLE LOG

Metres		Ga	Cu	Zn	Ag	Au
From To	Description	p pm	00	do	oz /ton	oz /ton
	 94. 4-95.9 m Assay sample of massive sulphides. 94.4 m 0.5-metre fracture filling and replacement of skarn rocks by sulphides of zinc, iron and copper. 94.9 m 0.5-metre massive sphalerite containing intergrown pyrite and pyrrhotite. 95.4 m 0.3-metre, fracture fillings and breccia fillings of sphalerite and pyrite, with traces of chalcopyrite. 95.7 m 0.2-metre, traces of disseminated sulphides of sphalerite and pyrite. 95.9 m 2.2-metre section, 10-15% wollastonite. 	1	1.00	22. 2	1. 37	0. 002
	98.1 m 3.4-metre section where wollastonite comprises 40% of the section. 101.5 m 2.9-metre section of wollastonite less than 5%. 103.7 m 0.7-metre section of wollastonite to 15%.					
104.4 106.7	Diopside greater than garnet; massive skarn. Euhedral diopside crystals. Wollastonite occurs as fracture fillings. 104.4 m 0.5-metre section of graphic textured garnetite. 105.1 m 1.1-metre section of wollastonite to 40%.					Z, 3
106.7 108.5	Garnetite intergrown with wollastonite; wollastonite total to 25% of interval.					1.8
108.5 113.0	Dark purple to green, massive to mottledgarnetite/diopside skarn. Pyrite to 3% occurs disseminated as fracture fillings. 108.5–109.9 m Assay sample of sphalerite and pyrite,	5	0. 24	3. 15	5 0.48	<i>4.</i> 5 <0. 002
· · ·	chalcopyrite. 108.6 m 4 cm of massive sphalerite, pyrrhotite and pyrite with trace amounts of chalcopyrite. 109.2 m 1-cm fracture filling, with similar massive sulphides at 40° to core axis. 109.9 m 1.8-metre section where wollastonite comprises 40%. Trace amounts of graphite to less than 1% intergrown with wollastonite.					

MINERAL HILL CLAIM GROUP - DRILL HOLE LOG

Metres From	; То	Description	Ga ppm	Cu %	Zn %	Ag oz /ton	Au oz /ton
		112.2 m 0.3-metre section, wollastonite to 55%. 112.5-113.0 m Assay sample of sulphides; mineralizatian fracture fillings in dark garnetite. 112.9 m 0.1-metre replacement consisting of sphalerite, pyrite ± chalcopyrite.	1	0.65	8. 52	0.73	<0. 002
113.0 11	17.3	Garnet diopside skarn/garnetite breccia; wollastonite interstitial to garnetite. 113 m 0.2-metre seciton 80% wollastonite. 113.2 m 0.8-metre section, wollastonite 15-20%. 114.5 m 0.3-metre section of wollastonite as clots and bands at 45° to core, comprising 25%. 116.8 m 0.1-metre layer of coarse wollastonite and diopside intergrown.					4.3
117.3 11	17.7	Very dense, light bleached calc-silicate section.					
117.7 11	19.9	Massive garnetite intergrown with wollastonite; wollastonite to 40% of section.					2.2
119.9 12	21.0	Dark black fine-grained andesitic dyke; contact at 10° to core axis; sharp but irregular.					
121.0 13	31.9	Banded garnetite diopside skarn; diopside is crystalline, granular texture; garnet is finer grained to massive. Wollastonite is less than 5%. Bedding is at 55° to core axis. 126.2 m 1.1-metre very fine-grained light greenish grey andesite dyke; lower and upper contacts at 45° to core axis; conformable with bedding. 128.3 m 0.1-metre irregular inclusion of porphyritic intru- sive. 130.0 m 0.5-metre section of medium-grained diorite.					10.9

MINERAL HILL CLAIM GROUP - DRILL HOLE LOG

Metres From To	Description	
131.9 139.0	Intergrown wollastonite and garnetite; wollastonite inter- stitial to large breccia block appearing sections of garnetite. Trace amounts of graphite intergrown with wollastonite. 131.9 m 1.4-metre section, wollastonite to 30%. 133.3 m 0.2-metre section, thinly laminated dense, siliceous pyritic skarn. 133.5 m 0.6-metre section, 75% wollastonite. 136.3 m 0.1-metre fine-grained andesitic dyke rock, per- pendicular to core axis. 136.0 m 0.8-metre section; excluding dyke, it is comprised of 70% wollastonite. 138.7 m 3-cm dyke. 138.4-138.8 m Excluding dyke, wollastonite comprises 50%.	7.1
139.0	End of hole.	

MINERAL HILL CLAIM GROUP - DRILL HOLE LOG

Hole No.: 87-8 Location: 0+12E 0+87N Azimuth: 315° Dip: -40°

Elevation: (290 m) Length: 107.6 m Core Size: NQ Core Stored: On property Commenced: May 6, 1987 Completed: May 10, 1987 Logged by: J.M. Logan Drilling by: H. Allen Diamond Drilling Ltd.

Metr	res		
From	То	Description	
0	1.5	Casing.	
1.5	2.0	Broken rubble, limestone.	
2.0	10.0	Limestone breccia/calcareous conglomerate(?) dull grey to buff, oxidized, vuggy with inclusions of garnet, diopside, wollastonite, calcite clasts to less than 10% of interval. Also contains intervals of crystalline wollastonite. 3.2 m 0.2-metre section " " 3.8 m 0.9-metre section " " 5.3 m 0.8-metre section " " 8.0 m 0.5-metre section " " 9.0 m 0.8-metre section of 50% wollastonite. Total wollastonite for this section is 35%. 9.8 m 0.2-metre section of silicified zone that envelopes light greenish grey porphyritic andesite dyke rock inclusions.	8,0
10.0	10.3	Andesite dyke.	
10.3	13.4	Wollastonite diopside marble; alternating sections of crystal- line wollastonite and diopside-rich layers. 10.3-10.6 m Predominantly wollastonite. 10.6-11.0 m Diopside. 11.0-11.5 m Wollastonite. 11.5-13.4 m Light green diopside.	3./
13.4	47.6	Porphyritic andesite dyke; upper contact at 40° to core. Upper sections chilled with few hornblende crystals. 28.2 m 0.4-metre chilled and altered section containing white quartz filled fractures.	

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MINERAL HILL CLAIM GROUP - DRILL HOLE LOG

Metr	res		
From	То	Description	
		29.7 m 0.4-metre section of brecciated, silicified limestone. Lower contact at 20° to core.	
47.6	54. 3	Wollastonite marble; coarsely crystalline limestone with masses of wollastonite. 47.6 m 1-metre section of 70% wallastonite, 20-25% garnet. 48.6 m 2.3-metre andesite dyke. Lower 0.3-metre sections have been altered to epidote. Lower contact is at 15° to core axis. Some silicification along lower contact. 50.9 m 3.4-metre section of wollastonite to 60%.	6.7
54.3	55.9	Limestone breccia/calcareous clastic conglomerate (?); contains angular to rounded skarn fragments, even grained, slightly silicified. Calcite makes up more than 50% of the interval. There are diopside-rich sections with coarse wollastonite as irregular inclusions in bands. 54.8 m 0.4-metre section of 20% wollastonite.	1.6
55.9	57.0	Wollastonite marble and narrow intervals of calcite. Total wollastonite 75%.	1/
57.0	60. 8	Coarsely crystalline limestone containing augen; less than 10% wollastonite and garnet. Total wollastonite for this section is less than 2%.	3.8
60.8	63. <u>5</u>	Coarsely crystalline limestone.	50%- 2-7
63.5	6 <i>8.</i> 6	Alternate banded white and grey thinly layered limestone with augen to 5%.	50% 2-7 50% 51
68.6	74. 2	Limestone augen. Wollastonite occurs as foliation parallel layers. Coarse crystalline patches as augens. Diopside occurs as augens and bands. Trace amounts of fine garnet; interstitial pyrite to less than 2%. Total wollastonite 10% in this section.	5.6

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Metr	res		
From	То	Description	
		71.3 m 0.3-metre garnetite section at 55° to core axis. 74.2 m 0.5-metre section of coarse crystalline limestone containing 5% wollastonite.	
74.7	76.4	Garnetite. Upper sections are intergrown with diopside and wollastonite; wollastonite to 45%.	1.7
76.4	77.4	Limestone augen. Augen to 5%; predominantly diopside > garnet > wollastonite.	1.0
77.4	80. 3	Dark purple garnetite, very fine-grained, crystalline, giving a massive-type texture. 78.5 m 3-cm andesite dyke at 20° to core axis.	2.9
80.3	85.1	Mottled skarned garnetite breccia consisting of dark purple garnet and diopside sections. Pyrite and pyrrhotite. to several percent occur in diopside-rich sections. Weak foliation developed at low angle to core axis. 84.0 m 0.3-metre epidote altered diorite intrusive.	
85.1	85.4	Intergrown wollastonite and dark garnetite; minor amounts of diopside. Wollastonite to 15%.	- 3
85.4	86.0	Limestone augen. Augen define weak foliation at 55° to core axis. Augen make up 25% of section, of which 20% is wollastonite.	-6
86.0	88.1	Garnetite, graphic textured ± diopside.	2./
88. 1	89.5	Limestone with augen to less than 5% defining a weak folia- tion at 30° to core axis. Less than 5% garnet and diopside interstitial to recrystallized calcite. 89.1 m 0.2-metre section containing 40% wollastonite, 50% garnet, and remainder made up of pyrite and diopside.	1.4

3

MINERAL HILL CLAIM GROUP - DRILL HOLE LOG

Metr	res		
From	То	Description	
89.5	94.4	Garnetite. Upper 3.0 metres graphic breccia. Garnetite is a dark purple to massive; fractured.	
94. 4	96. 4	Diopside greater than garnet; mottled skarn. Sections up to 0.1 metre 100% crystalline diopside. 94.4 m 1.0-metre section 5-10% wollastonite.	
96.4	105.0	Light red-brown mottled garnetite skarn; epidote altered intrusive sections. Foliation from breccia fragments at 50° to core angle. Section is slightly pyritic to 3%. 97.5 m 2.3-metre section, predominantly intrusive with partially digested garnetite sections; inclusions less than 10%. Epidote alteration is prevalent.	
105.0	107.6	Medium-grained diorite.	
107.6		End of hole.	

Gold F.A.-A.A. Combo Method ppb:

For low grade samples and geochemical materials, 10 gram samples are fused in litharge, carbonate and siliceous flux with the addition of 10 mg of Au-free Ag metal and cupelled. The silver bead is parted with dilute HNO3 and then treated with aqua regia. The salts are dissolved in dilute HC1 and analyzed for Au on an atomic absorption spectrophotometer.

Detection limit: 5 ppb

Copper, Lead, Zinc, Silver ppm:

1.0 gm sample is digested with perchloric-nitric acid (HC104-HN03) for approximately 2 hours. The digested sample is cooled and made up to 25 mls with distilled water. The solution is mixed and solids are allowed to settle. Copper, lead, zinc and silver are determined by atomic absorption techniques. Silver and lead are corrected for background absorption.

Detection limit: Copper, Zinc - 1 ppm Silver - 0.2 ppm Lead - 2 ppm

Arsenic ppm:

A 1.0 gm sample is digested with a mixture of perchloric and nitric acid to strong fumes of perchloric acid. The digested solution is diluted to volume and mixed. An aliquot of the digest is acidified, reduced with Kl and mixed. A portion of the reduced solution is converted to arsine with NaBH4 and the arsenic content determined using flameless atomic absorption.

Detection limit: 1 ppm



CERTIFICATE OF ANALYSIS A8714490

To : ARCTEX ENGINEERING

301 - 1855 BALSAM ST. VANCOUVER, B.C.

Page No. :1 Tot. Pages: 1 Date :20-MAY-87 Invoice # : I-8714490 P.O. I :NONE

V6K 3M3

Project : Comments: ATTN: L. B. GOLDSMITH CC: J. LOGAN

SAMPLE DESCRIPTION	PRE COD			Zn %		Au FA oz/T		
94.4-95.9 M 108.5-111.3 M 112.5-113.0 M	207 207 207	 1 5 1	1.00 0.24 0.65	22.2 3.15 8.52	1.37 0.48 0.73	0.002 < 0.002 < 0.002		

ALL ASSAY DETERMINATIONS ARE PERFORMED OR SUPERVISED BY B.C. CERTIFIED ASSAYERS

Chemex Labs

Т

Analytical Chemists * Geochemists * Registered Assayers 212 BROOKSBANK AVE., NORTH VANCOUVER, BRITISH COLUMBIA, CANADA V7J-2C1

PHONE (604) 984-0221

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CERTIFICATION : N. Slen Andrin



Chemex Labs Ltd.

212 BROOKSBANK AVE., NORTH VANCOUVER, BRITISH COLUMBIA, CANADA V7J-2C1

PHONE (604) 984-0221

CERTIFICATE OF ANALYSIS A8712516

To : ARCTEX ENGINEERING

301 - 1855 BALSAM ST. VANCOUVER, B.C. V6K 3M3 Project : Commenta: OC: J. LOGAN Page No. :1 Tot. Pages:1 Date :23-MAR-87 Invoice #:I-8712516 P.O. # :NONE


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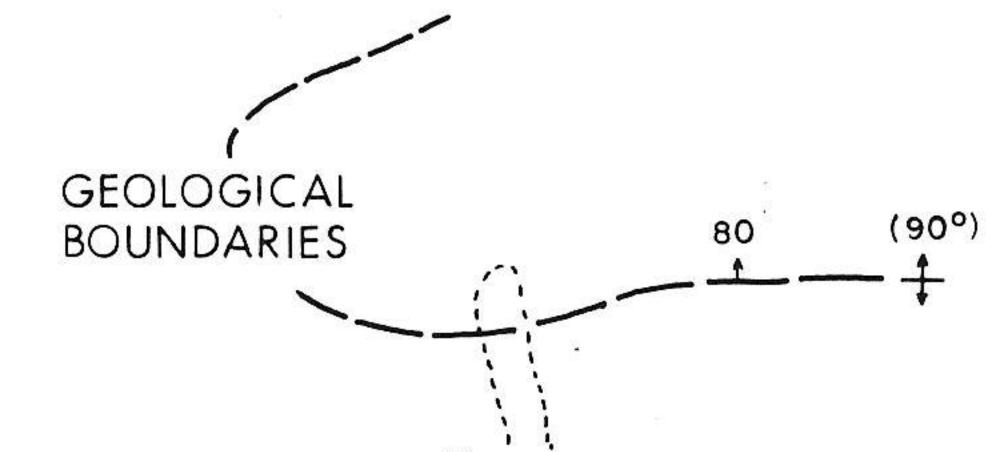
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X-RAY DIFFRACTION ANALYSIS - WOLLASTONITE SPECIMEN MINERAL HILL CLAIM GROUP, SECHELT, B.C.

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CONSULTING GEOLOGIST

100

MAY 1987

METRES

LAT. 49°31'N LONG. 123°48'W

GEOLOGY MAP SHOWING 1987 DRILL HOLES

ARCTEX ENGINEERING SERVICES

LOCKE B. GOLDSMITH P. ENG. CONSULTING GEOLOGIST

1:1250

TO ACCOMPANY REPORT BY

25

inches

centimetres

This reference scale bar has been added to the

original image. It will scale at the same rate

as the image, therefore it can be used as a reference for the original size.

JAMES M. LOGAN M.Sc.

am 19 ML

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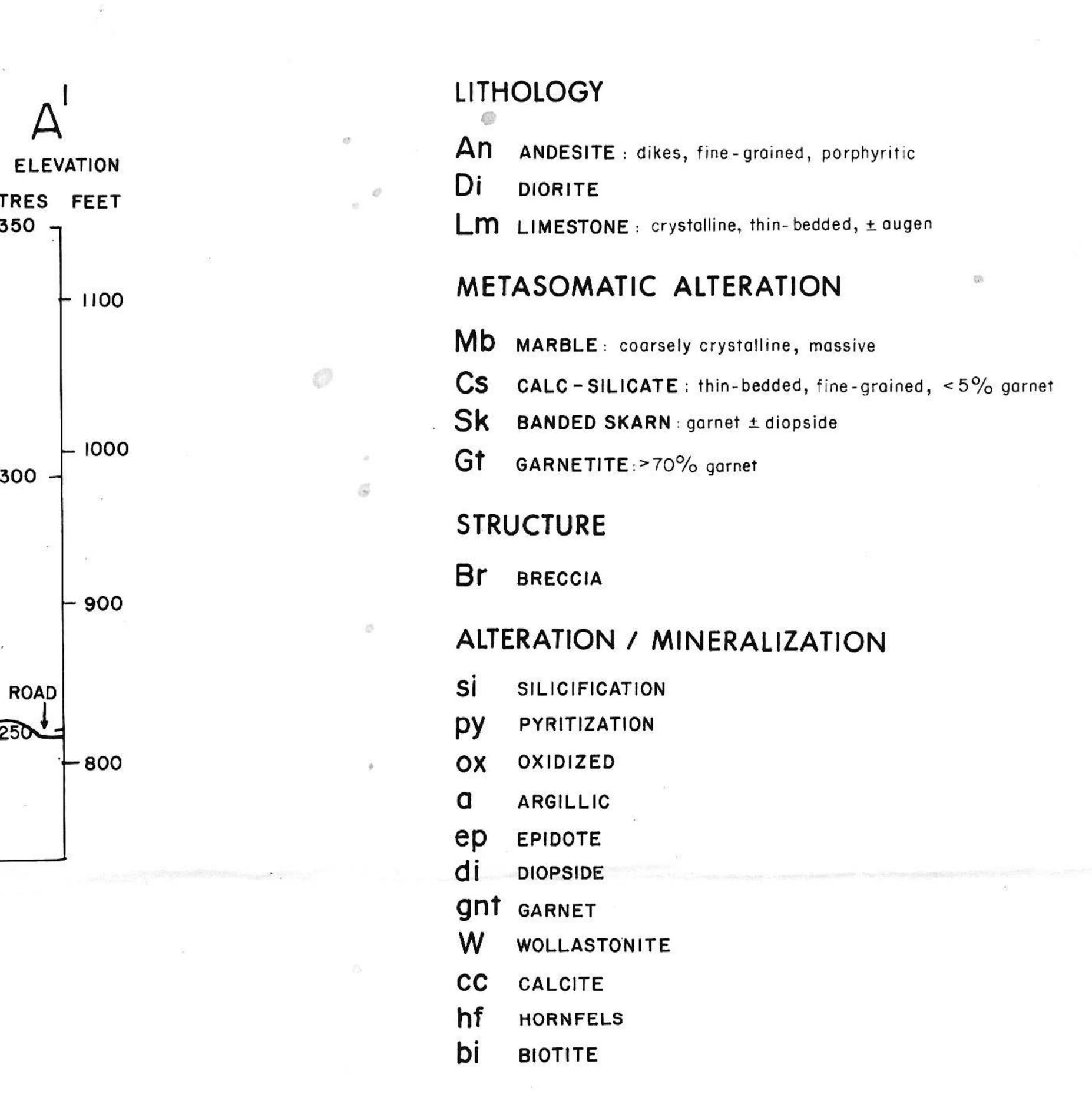
A MINERAL HILL CLAIM GROUP ROAD METRES FEET SECHELT AREA B.C. VANCOUVER MINING DIVISION N.T.S. 92G / 12W 350 gnt₁ An Sk Gt (Lm/ Di 60 λW Lm '/Lm/ ROAD AN Mb Sk+ Sk 300 -Gt **3** Dr Di Lm< BrLm W-Mb m S yl SK Sk Jn 250 Di - DDH MH 87-8 projected onto A-A St *

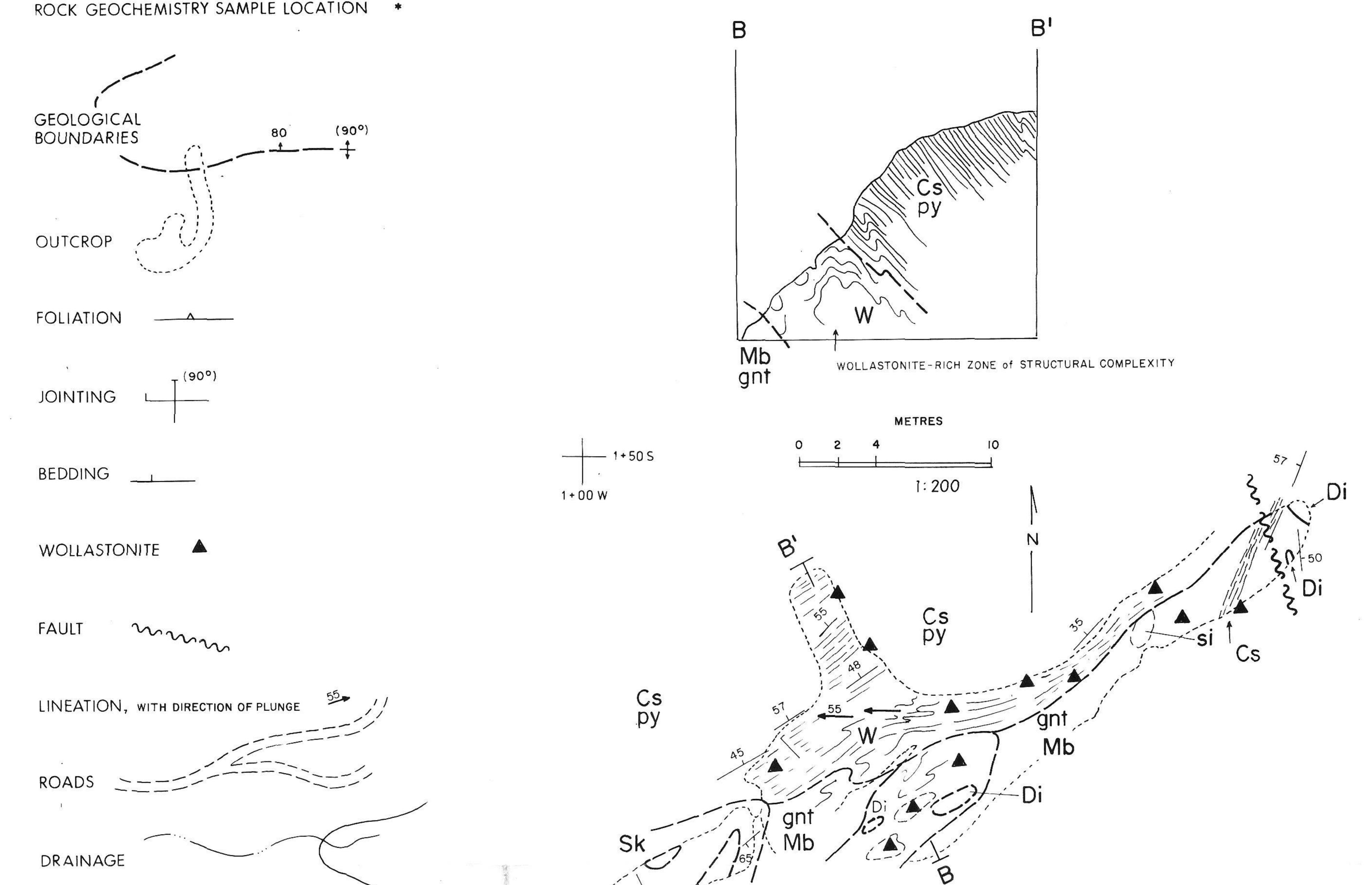
LEGEND

A

ROAD

- 800





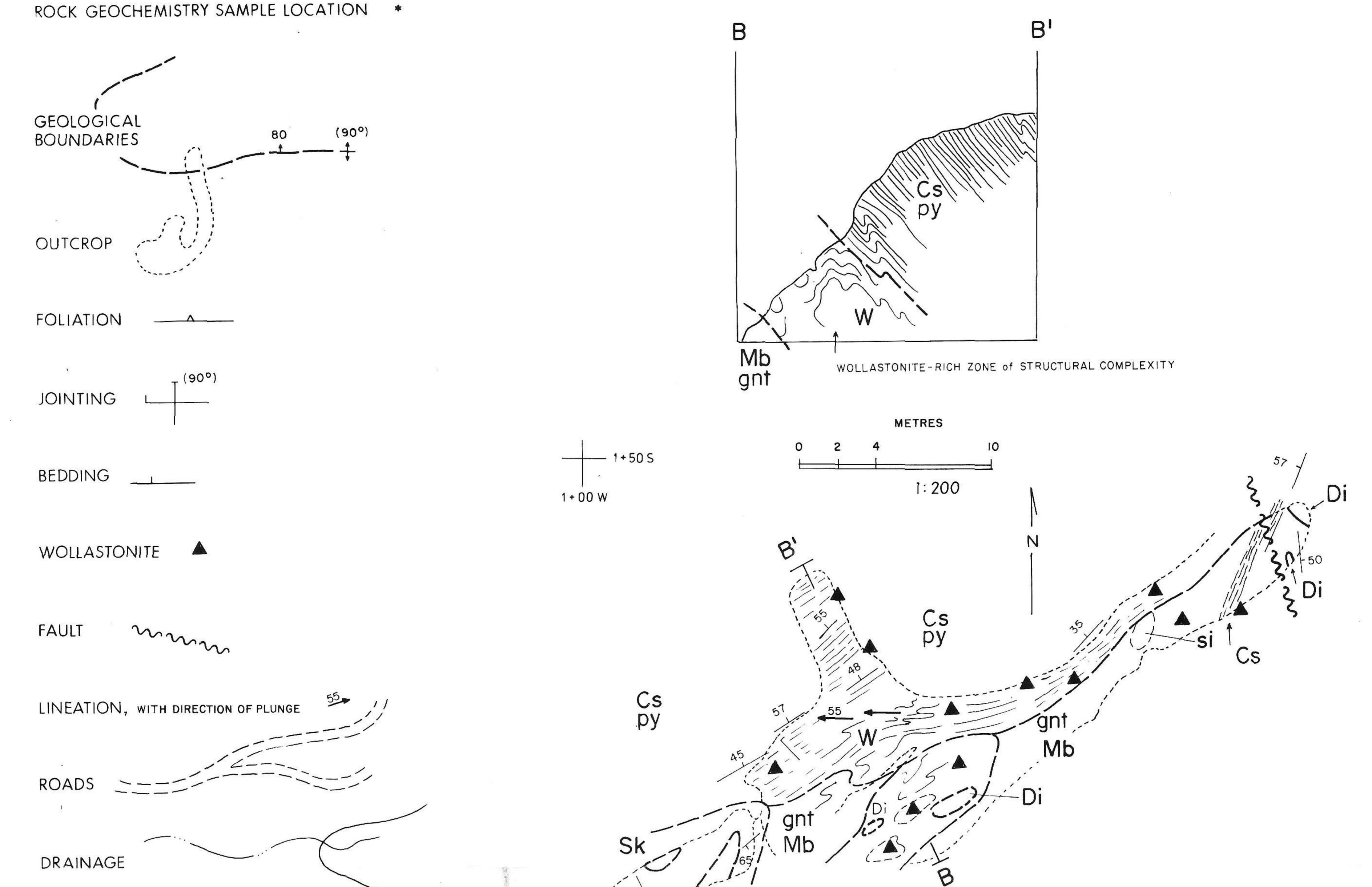
Sk

Di/An

Mb

gnt

1000



CONTOUR LINES (100 FT. INTERVAL)

Area of surface stripping

TRI-SIL MINERALS INC.

END

LITHOLOGY

An ANDESITE : dikes, fine-grained, porphyritic

Di DIORITE

LM LIMESTONE : crystalline, thin-bedded, ± augen

METASOMATIC ALTERATION

LAT. 49°31'N LONG. 123°48'W MINERAL HILL CLAIM GROUP

N.T.S. 92G / 12W VANCOUVER MINING DIVISION SECHELT AREA B.C.

Geology 1:200

TO ACCOMPANY REPORT BY

Mb MARBLE : coarsely crystalline, massive

CS CALC-SILICATE: thin-bedded, fine-grained, < 5% garnet

Sk BANDED SKARN : garnet ± diopside

Gt GARNETITE.>70% garnet

STRUCTURE

Br BRECCIA

ALTERATION / MINERALIZATION

SILICIFICATION SI

PYRITIZATION ру

OXIDIZED OX

a ARGILLIC

ep EPIDOTE

di DIOPSIDE

gnt GARNET

W WOLLASTONITE

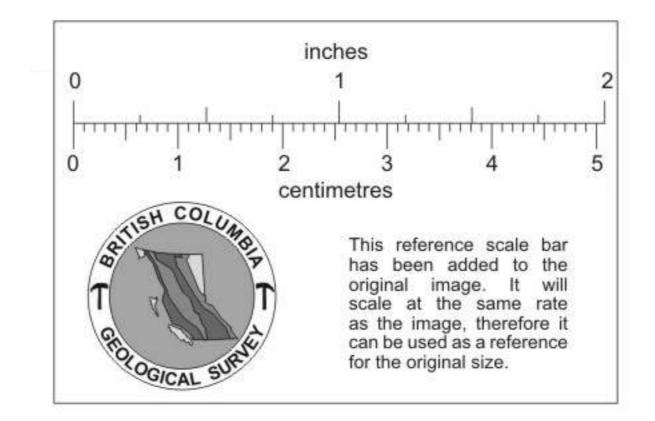
CC CALCITE

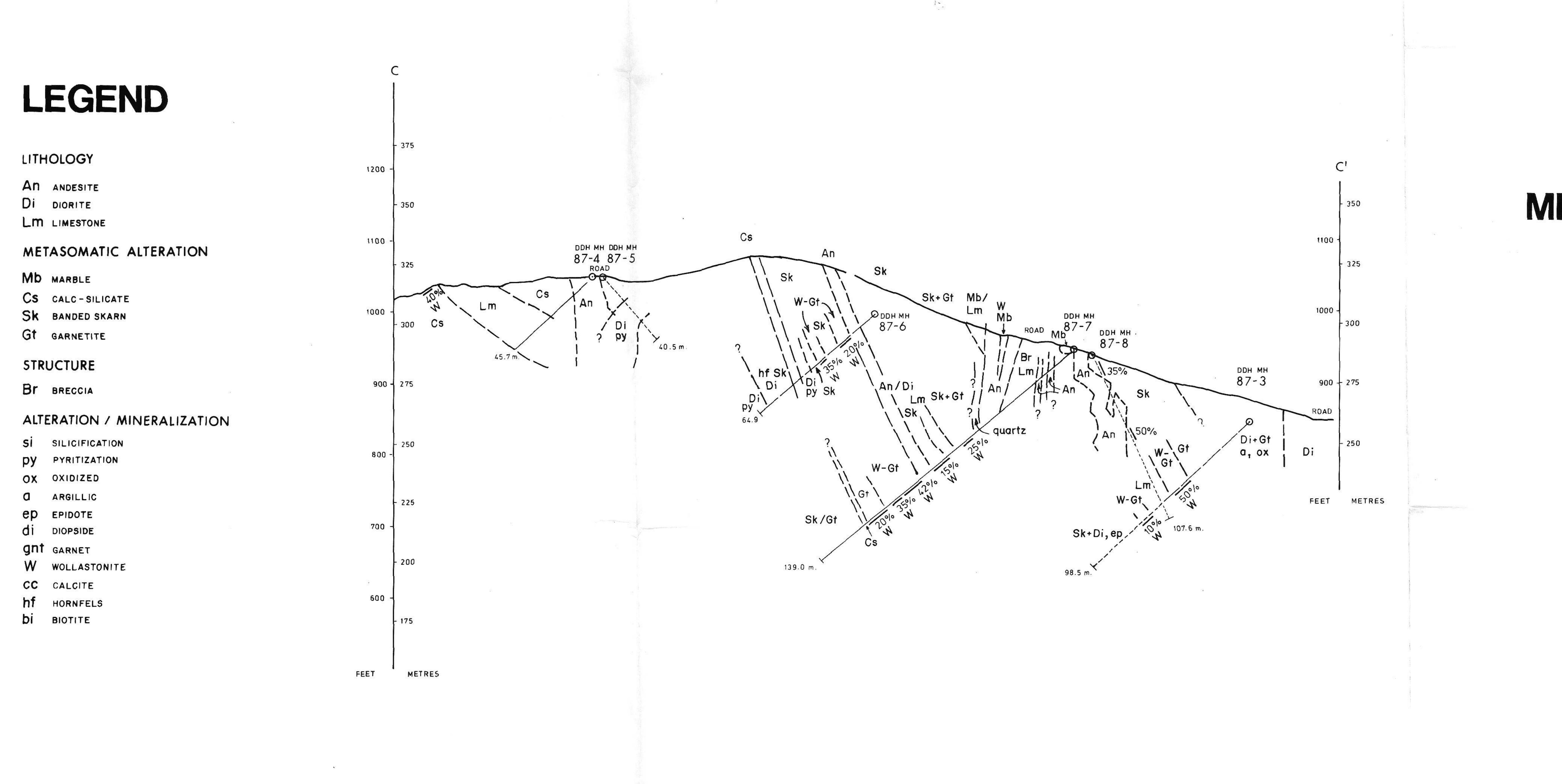
hf HORNFELS

bi BIOTITE JAMES M. LOGAN M.Sc. CONSULTING GEOLOGIST

LOCKE B. GOLDSMITH P. ENG. CONSULTING GEOLOGIST

MAY 1987 ARCTEX ENGINEERING SERVICES





LAT. 49°31'N LONG. 123°48'W MINERAL HILL CLAIM GROUP SECHELT AREA B.C. VANCOUVER MINING DIVISION N.T.S. 92G / 12W

Vertical section C-C': Geology

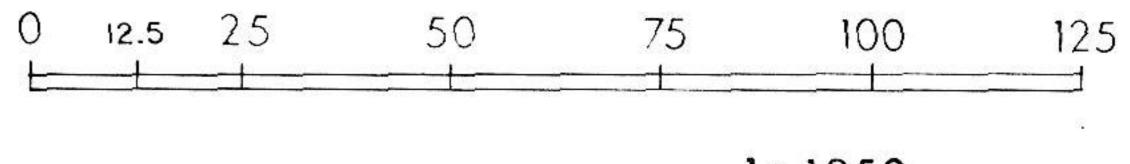
TO ACCOMPANY REPORT BY

JAMES M. LOGAN M.Sc. CONSULTING GEOLOGIST

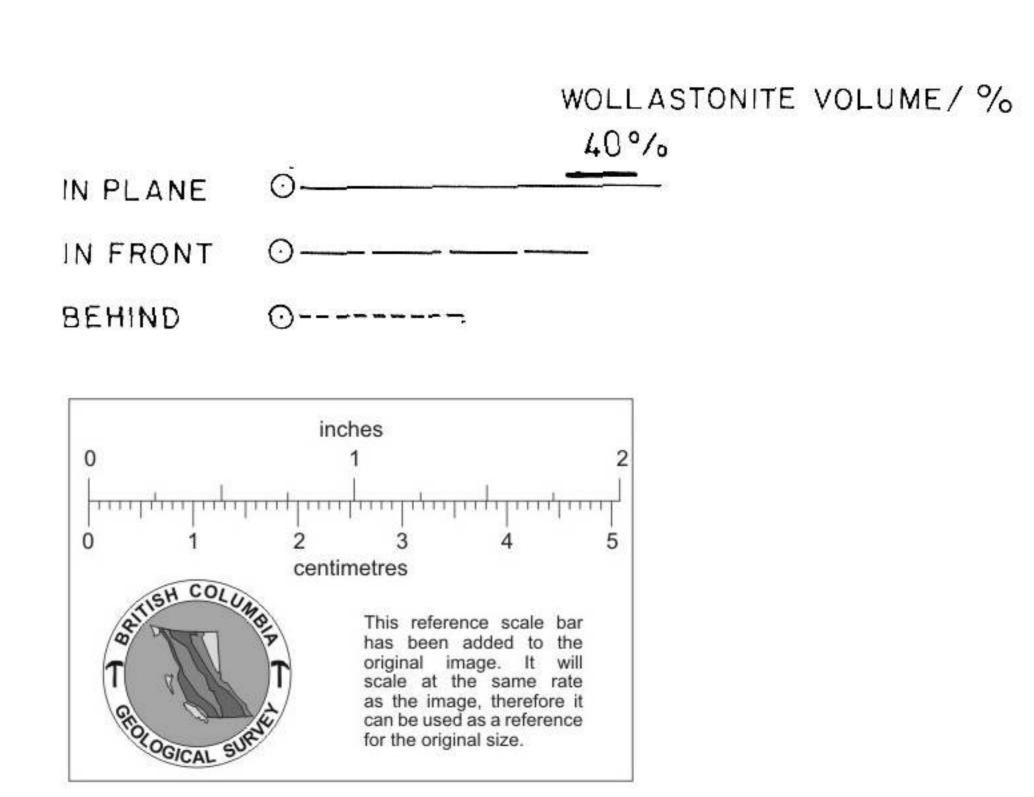
LOCKE B. GOLDSMITH P. ENG. CONSULTING GEOLOGIST


ARCTEX ENGINEERING SERVICES MAY 1987

METRES



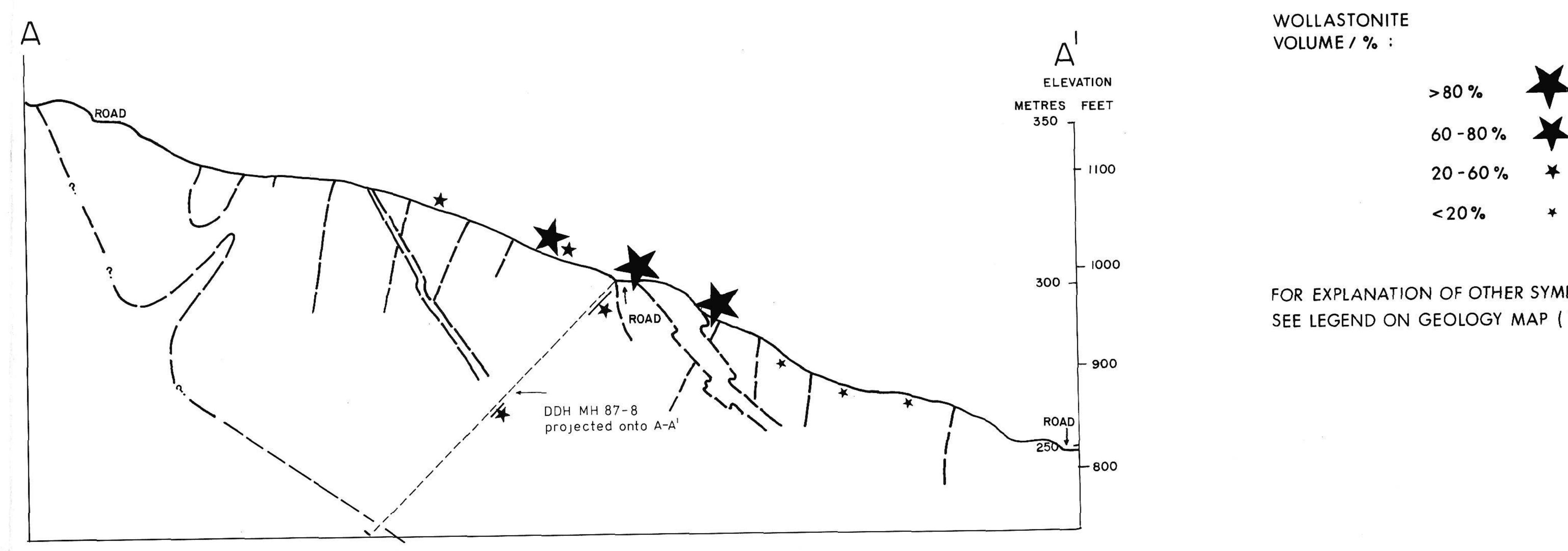
1:1250





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LEGEND



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10

82

TRI-SIL MINERALS INC.

(

LAT. 49°31'N LONG. 123°48'W MINERAL HILL CLAIM GROUP SECHELT AREA B.C. VANCOUVER MINING DIVISION N.T.S. 92G / 12W

Wollastonite Distribution (%) SHOWING CLAIM INFORMATION & ZONES A-B-C

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ARCTEX ENGINEERING SERVICES MAY 1987

5 METRES 1:1250 inches This reference scale bar s the image, therefore in can be used as a reference for the original size.

\$ WOLLASTONITE

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S2

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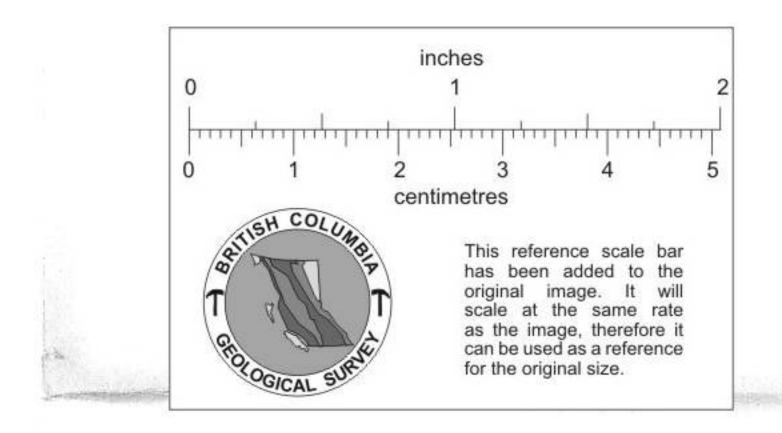
FOR EXPLANATION OF OTHER SYMBOLS SEE LEGEND ON GEOLOGY MAP (1:1250).

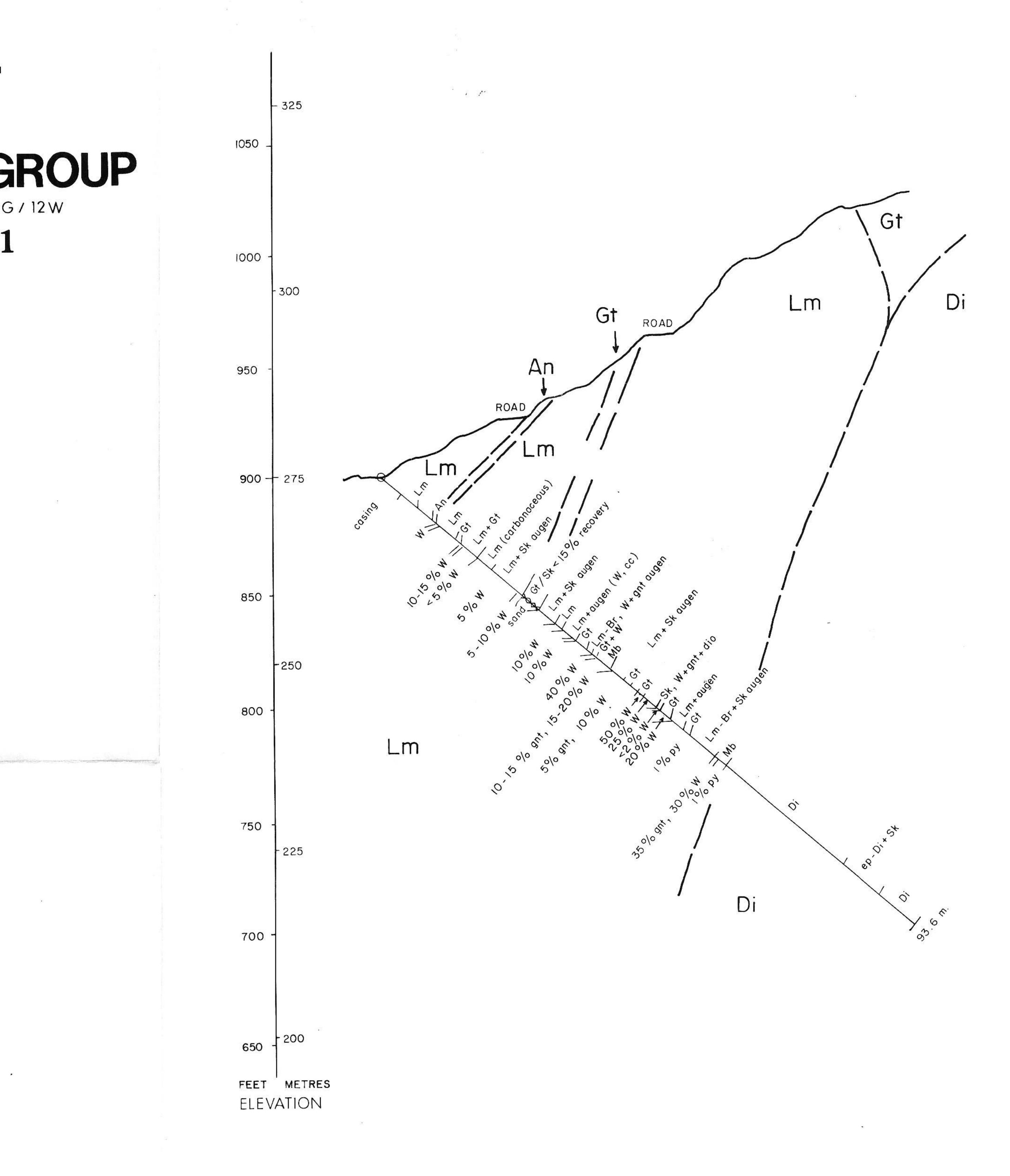
LAT. 49°31'N LONG. 123°48'W MINERAL HILL CLAIM GROUP SECHELT AREA B.C. VANCOUVER MINING DIVISION N.T.S. 92G / 12W Diamond Drill Section DDH MH 87- 1 93.6 m. - 40° 235°

TO ACCOMPANY REPORT BY JAMES M. LOGAN M.Sc. CONSULTING GEOLOGIST LOCKE B. GOLDSMITH P. ENG. CONSULTING GEOLOGIST MAY 1987 ARCTEX ENGINEERING SERVICES

0	10	20	40	
			METRES	1:500

OBSERVER FACING 145°





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LEGEND

LITHOLOGY

An	ANDESITE
Di	DIORITE
Lm	LIMESTONE

METASOMATIC ALTERATION

- Mb MARBLE
- CS CALC-SILICATE
- Sk BANDED SKARN
- GT GARNETITE

STRUCTURE

Br BRECCIA

- SI SILICIFICATION
- PYRITIZATION
- OX OXIDIZED
- **a** ARGILLIC
- **ep** EPIDOTE
- di DIOPSIDE
- gnt GARNET
- W WOLLASTONITE
- CC CALCITE
- hf HORNFELS
- **bi** віотіте

LAT. 49°31'N LONG. 123°48'W MINERAL HILL CLAIM GROUP SECHELT AREA B.C. VANCOUVER MINING DIVISION N.T.S. 92G / 12W Diamond Drill Section DDH MH 87-2

DDH MH 87- 💪 152.5 m. -40° Az. 212 °

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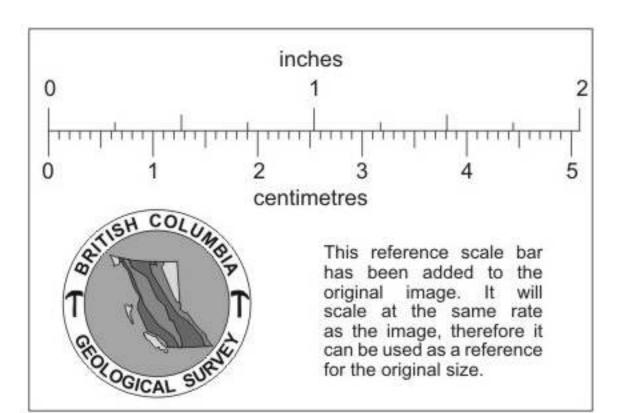
ARCIEX ENGINEERING SERVICES MAI 1907

0	10	20	40	
			METRES	1:50

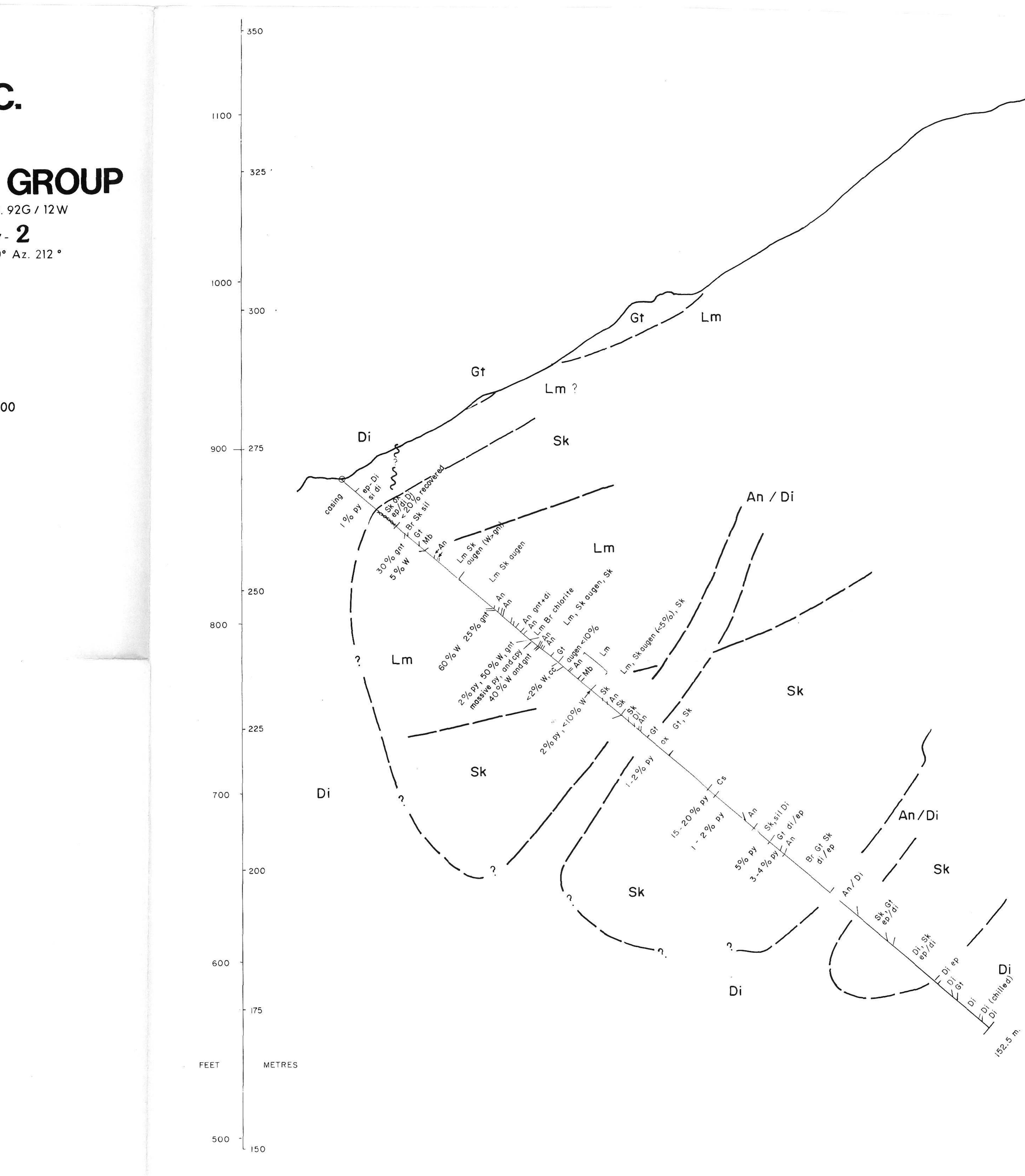
<u>1</u>22

OBSERVER FACING 122°

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LEGEND

LITHOLOGY

An	ANDESITE
Di	DIORITE

LM LIMESTONE

METASOMATIC ALTERATION

Mb	MARBLE
Cs	CALC - SILICATE
Sk	BANDED SKARN
Gt	GARNETITE

STRUCTURE

Br BRECCIA

- SILICIFICATION
- PYRITIZATION
- OX OXIDIZED
- **a** ARGILLIC
- ep EPIDOTE
- di diopside
- gnt garnet
- W WOLLASTONITE
- CC CALCITE
- hf HORNFELS
- bi BIOTITE

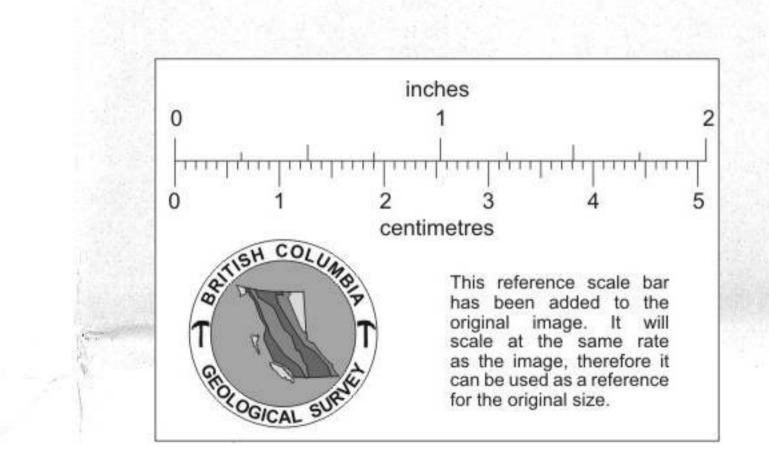
LAT. 49°31'N LONG. 123°48'W MINERAL HILL CLAIM GROUP SECHELT AREA B.C. VANCOUVER MINING DIVISION N.T.S. 92G / 12 W Diamond Drill Section DDH MH 87-3 98.5 m. -40° 232°Az

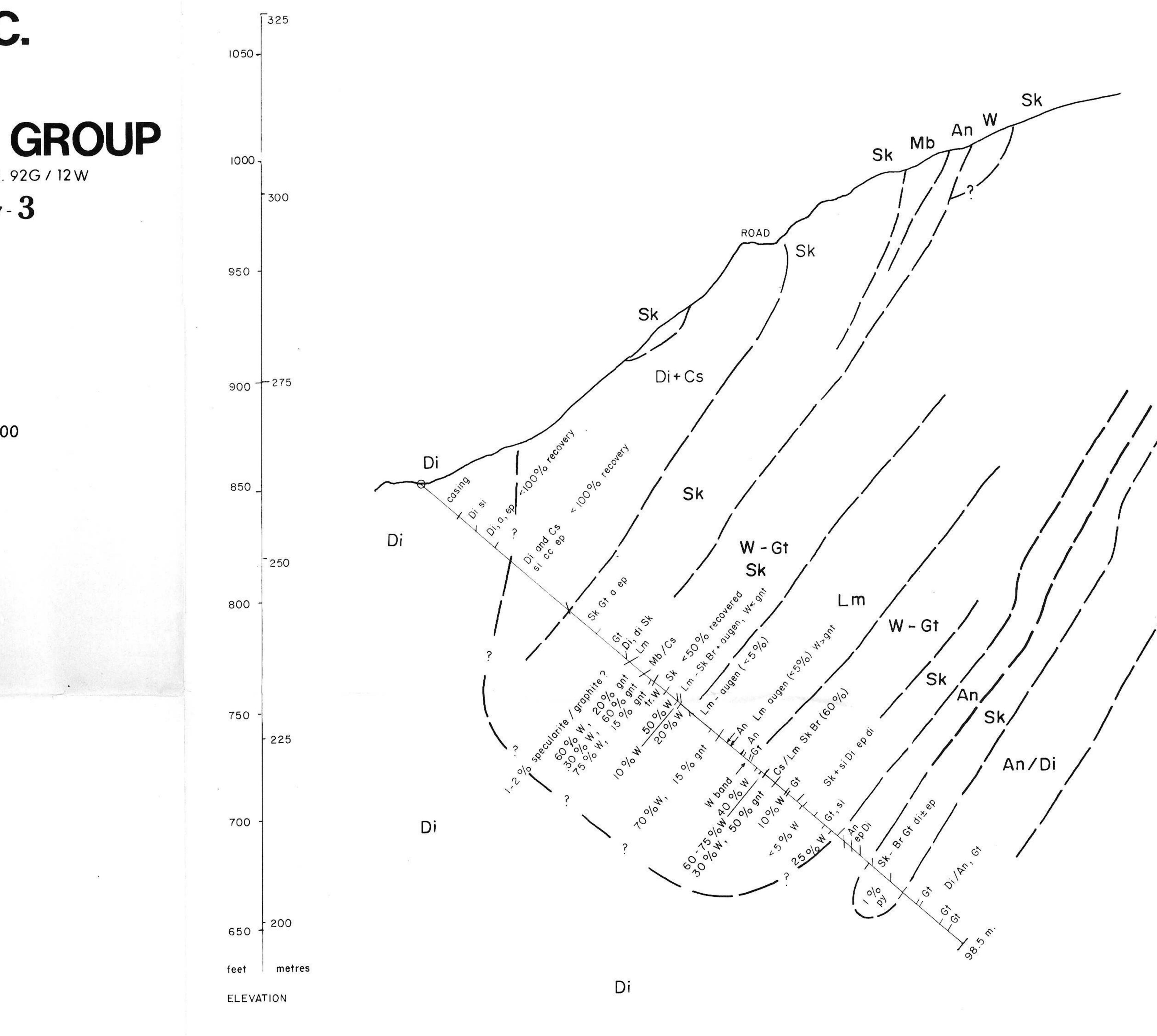
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0	10	20	40	
			METRES	1:500

13

OBSERVER FACING 142°





LEGEND

LITHOLOGY

An ANDESITE

- DI DIORITE
- LM LIMESTONE

METASOMATIC ALTERATION

Mb MARBLE CS CALC-SILICATE SK BANDED SKARN

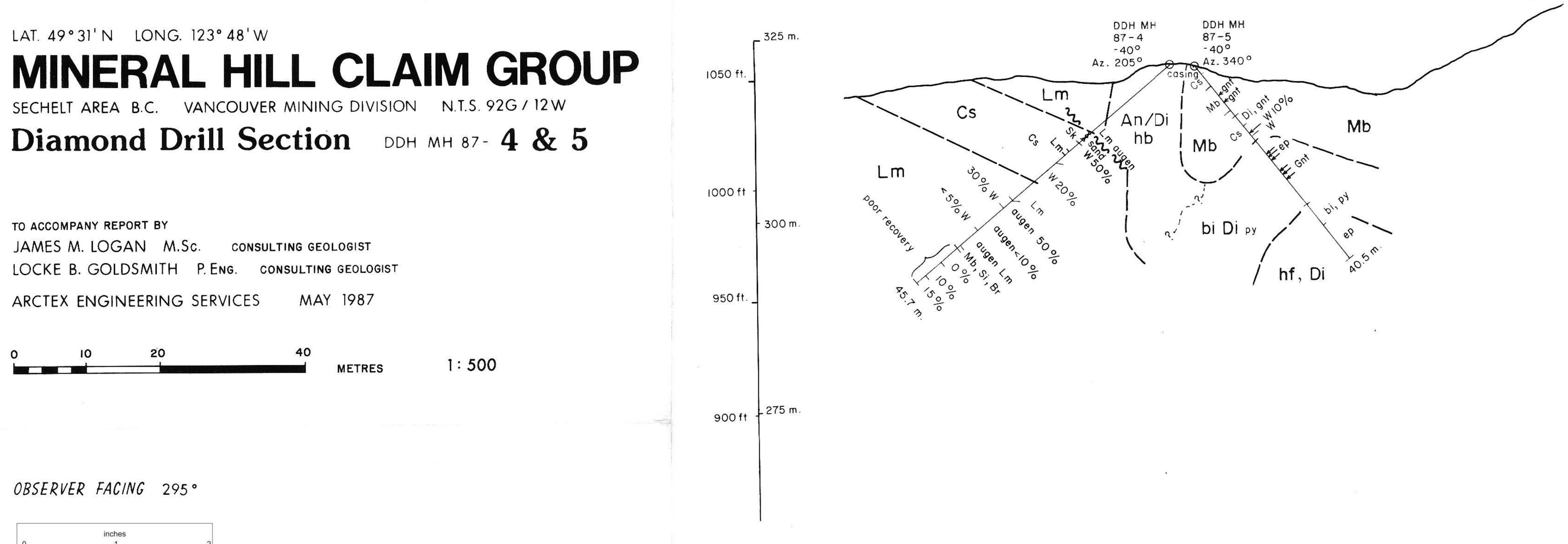
Gt GARNETITE

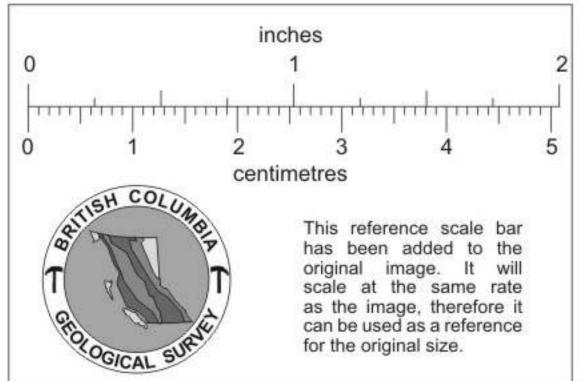
STRUCTURE

Br BRECCIA

- SI SILICIFICATION ру PYRITIZATION OX OXIDIZED
- ARGILLIC a
- ep EPIDOTE
- di DIOPSIDE
- gnt GARNET
- W WOLLASTONITE
- CC CALCITE
- hf HORNFELS
- bi BIOTITE

CONSULTING GEOLOGIST MAY 1987







LEGEND

LITHOLOGY

An	ANDESITE
Di	DIORITE

LM LIMESTONE

METASOMATIC ALTERATION

Mb	MARBLE
----	--------

- CS CALC-SILICATE
- SK BANDED SKARN
- GT GARNETITE

STRUCTURE

Br BRECCIA

- SI SILICIFICATION
- PYRITIZATION
- OX OXIDIZED
- **O** ARGILLIC
- ep epidote
- di diopside
- gnt garnet
- W WOLLASTONITE
- CC CALCITE
- hf HORNFELS
- bi BIOTITE

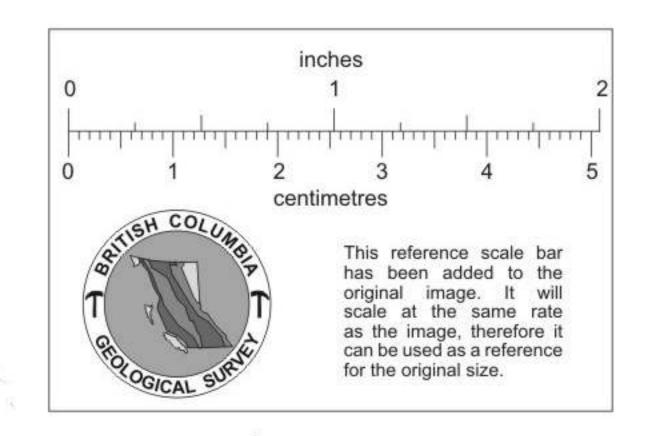
LAT. 49°31'N LONG. 123°48'W MINERAL HILL CLAIM GROUP SECHELT AREA B.C. VANCOUVER MINING DIVISION N.T.S. 92G / 12 W

Diamond Drill Section DDH MH 87-6 64.9 m. -40° Az. 210°

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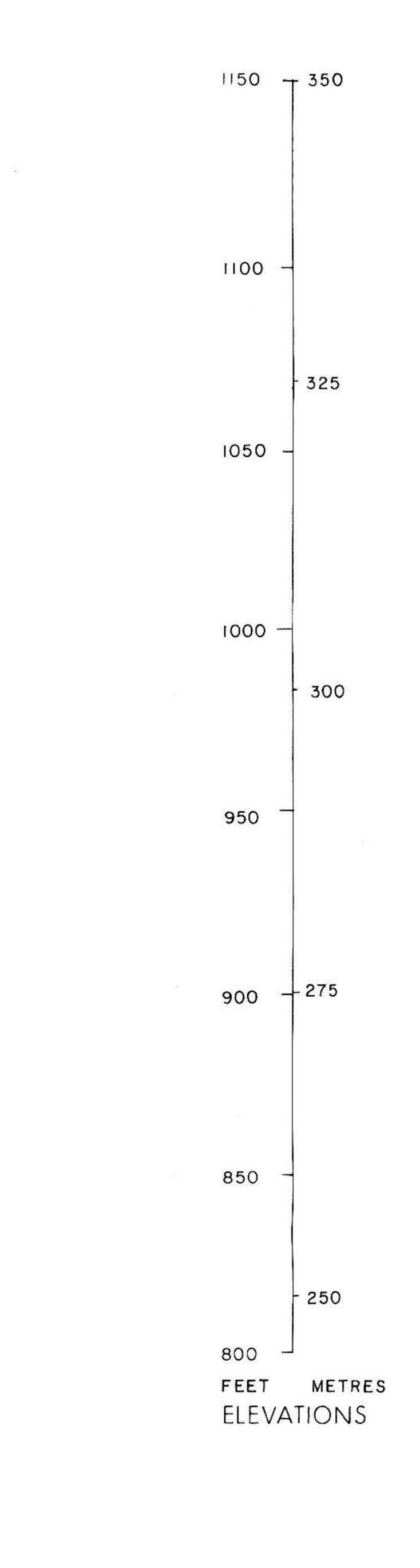
0	10	20	40	
			METRES	1:500

OBSERVER FACING 120°





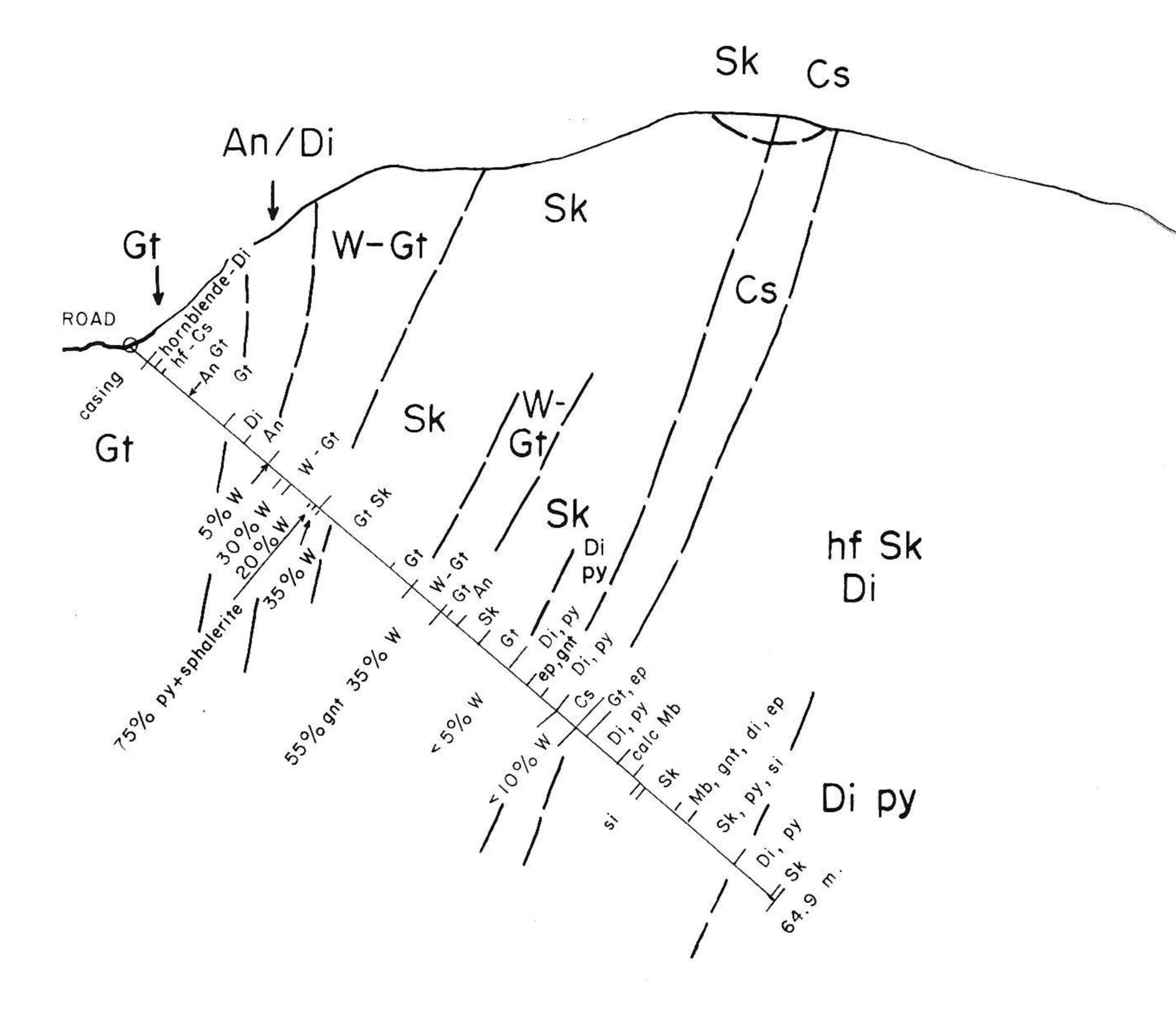
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LEGEND

LITHOLOGY

- An ANDESITE
- DI DIORITE
- LM LIMESTONE

METASOMATIC ALTERATION

- Mb MARBLE
- CS CALC-SILICATE
- SK BANDED SKARN
- Gt GARNETITE

STRUCTURE

Br BRECCIA

- SI SILICIFICATION
- PYRITIZATION
- OX OXIDIZED
- ARGILLIC a
- ep epidote
- DIOPSIDE di
- gnt GARNET
- W WOLLASTONITE
- CC CALCITE
- hf HORNFELS
- **bi** ΒΙΟΤΙΤΕ

LAT. 49°31'N LONG. 123°48'W MINERAL HILL CLAIM GROUP SECHELT AREA B.C. VANCOUVER MINING DIVISION N.T.S. 92G / 12W

Diamond Drill Section DDH MH 87-7

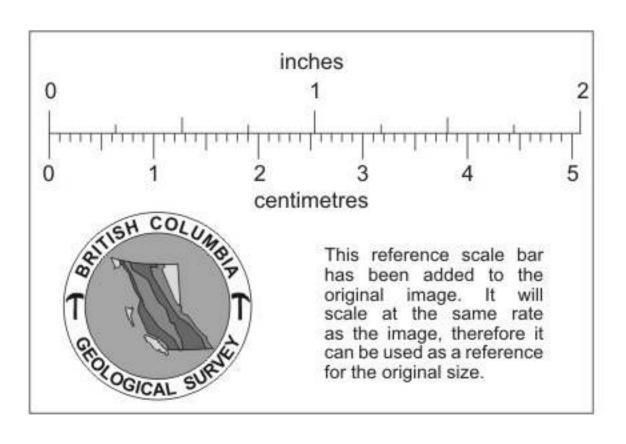
139.0 m. -40° Az.202°

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ARCTEX ENGINEERING SERVICES MAY 1987

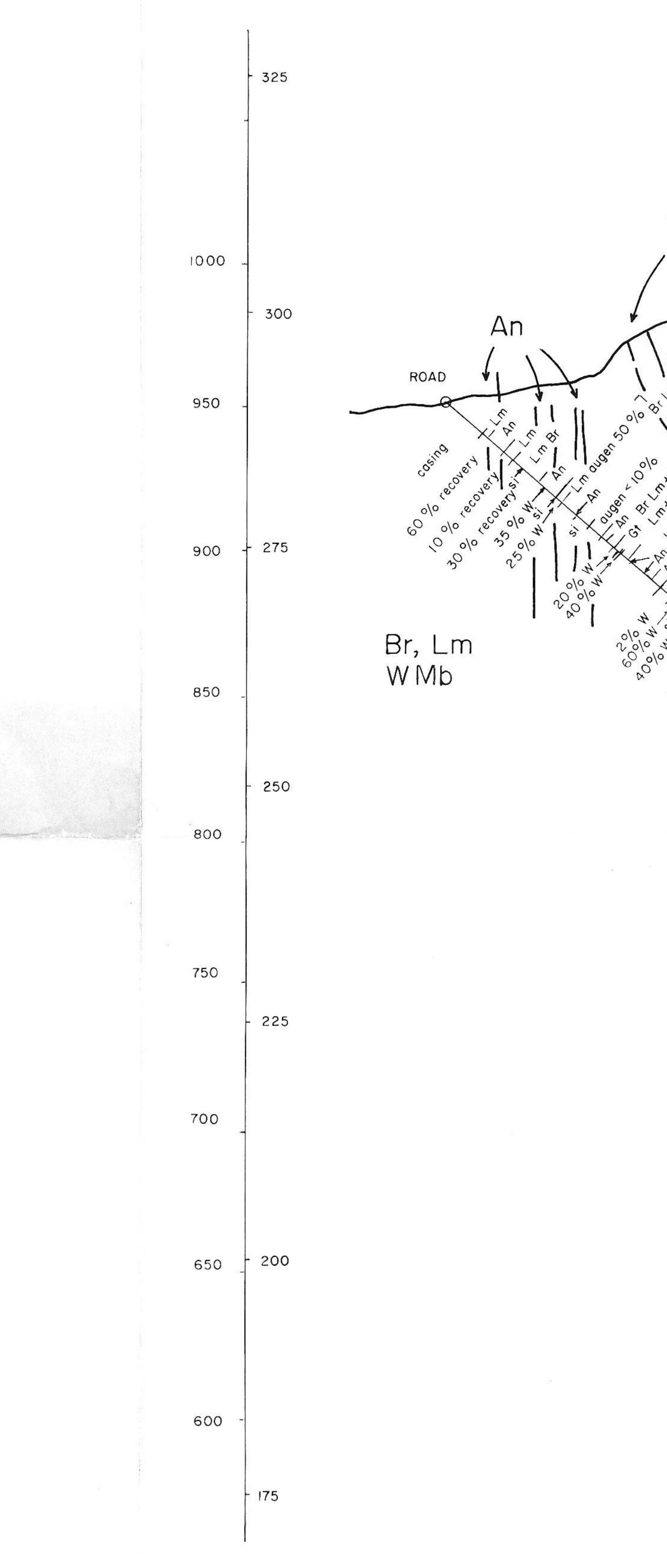


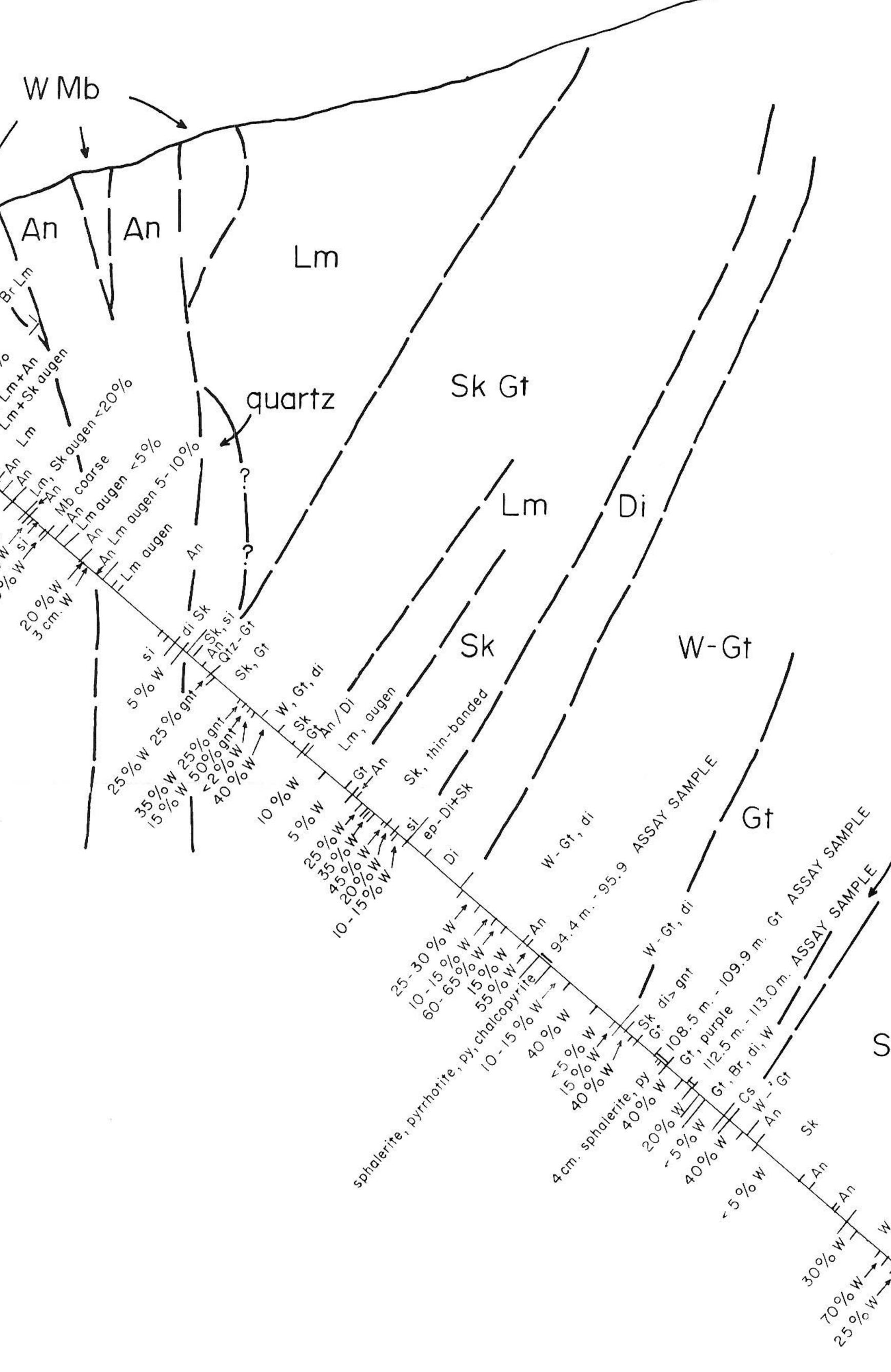
OBSERVER FACING 112°



ASSAY RESULTS

SAMPLE INTERVAL (metres)	Ga ppm	Cu %	Zn %	Ag oz/ton	Au oz/ton	
94.4 - 95.9	I	1.00	22.2	1.37	0.002	6 H.
108.5 - 111.3	5	0.24	3.15	0.48	< 0.002	1310
112.5 - 113.0	1	0.65	8.52	0.73	< 0.002	ZM
			*			-21 Pl,





LEGEND

LITHOLOGY

An ANDESITE

DI DIORITE

LM LIMESTONE

METASOMATIC ALTERATION

- MD MARBLE
- CS CALC-SILICATE
- SK BANDED SKARN
- GT GARNETITE

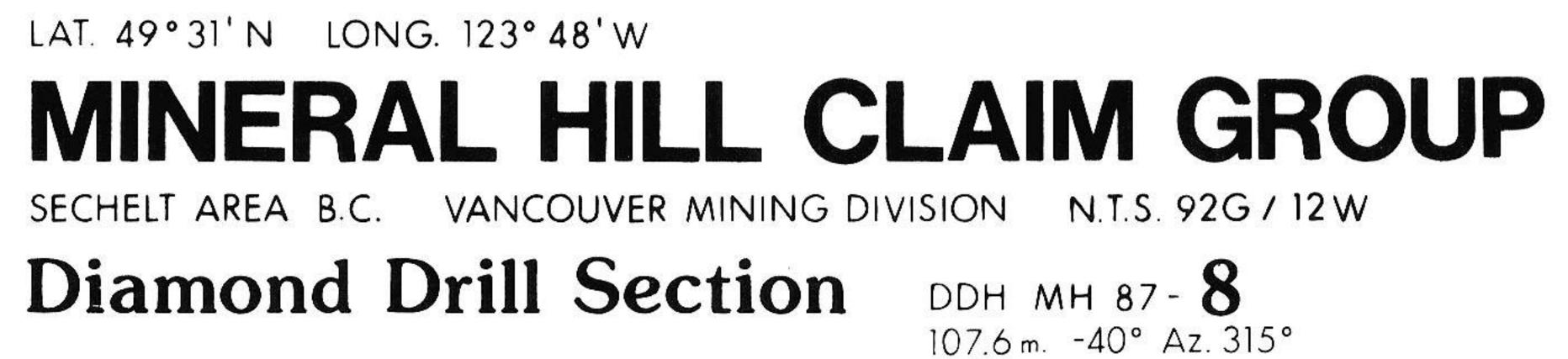
STRUCTURE

Br breccia

ALTERATION / MINERALIZATION

- SI SILICIFICATION
- PYRITIZATION
- OX OXIDIZED
- **a** ARGILLIC
- ep epidote
- di diopside
- gnt GARNET
- W WOLLASTONITE
- CC CALCITE
- hf HORNFELS
- bi віотіте

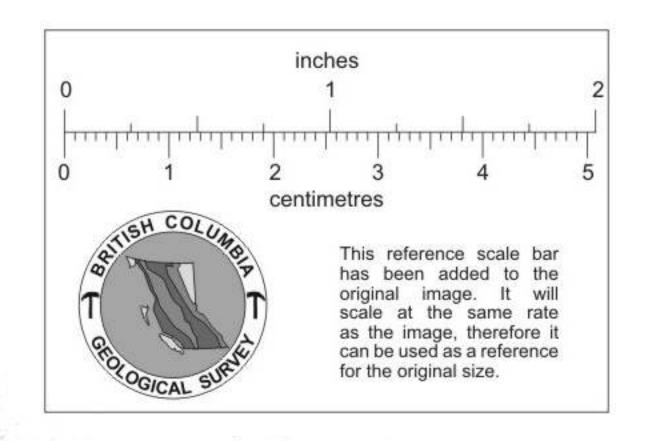
Sk Gt

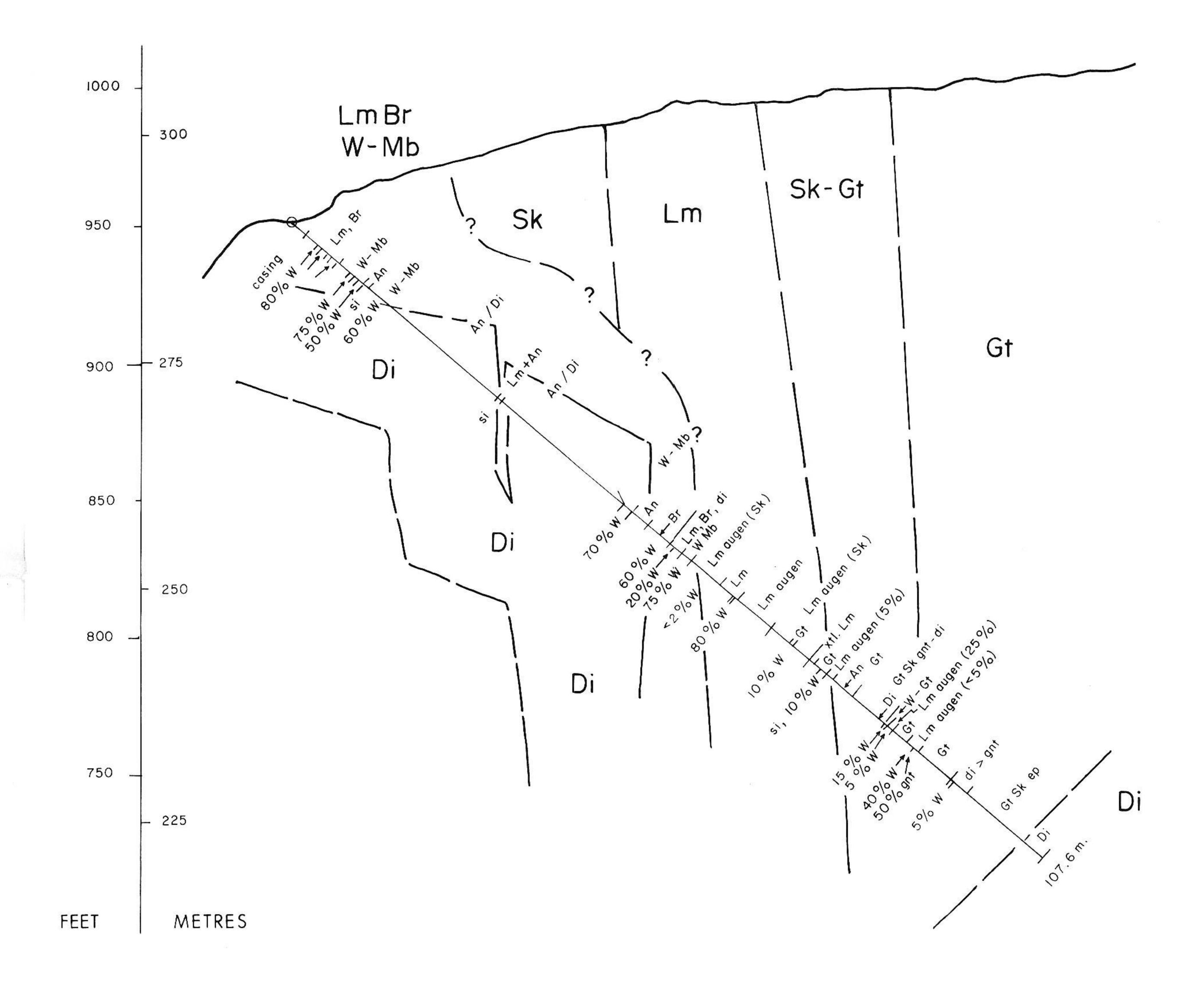


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0	10	20	40	
			METRES	1:500

OBSERVER FACING 225°





LEGEND

LITHOLOGY

An ANDESITE DI DIORITE LM LIMESTONE

METASOMATIC ALTERATION

Mb MARBLE CS CALC-SILICATE SK BANDED SKARN GT GARNETITE

STRUCTURE

Br BRECCIA

- SI SILICIFICATION
- PYRITIZATION
- OX OXIDIZED
- **a** Argillic
- ep epidote
- di diopside
- gnt GARNET
- W WOLLASTONITE
- CC CALCITE
- hf HORNFELS
- **bi** вютіте