GM 59425

THE HARRICANA MINE PROPERTY

Documents complémentaires

Additional Files

Licence

License

Énergie et Ressources naturelles
Québec

THE HARRICANA MINE PROPERTY

VAL D'OR, QUEBEC

by

John L. Kirwan
MSc PhD PEng PE

MRN-GÉOINFORMATION 2002

GM 59425

Earth Resource Associates:

Old Meredith Road,
Centre Harbor, NH, 03226 USA

603 253-6107

1111 Government Road,
South Porcupine, Ontario
PO Box 2150
Timmins, Ontario, P4N 7X8 Canada

705 235-2777

At Timmins, Ont.
May 10, 1990

SUMMARY

The Harricana Mine property consists of some 73 unpatented mining claims with a total area of approximately 2822 acres, situated in the northwestern part of Bourlamaque Township and the northeastern part of adjoining Duparquet Township in northwestern Quebec, Canada. Much of the property is underneath downtown and suburban parts of the City of Val d'Or, and some is under the waters of Lac Blouin. The mineral rights are owned by Quebec Corporation 2629-2482 which is a wholly-owned subsidiary of International Baslen Enterprises Limited, of Toronto. No liens or other encumberances are recorded against the ground, which are in good assessment standing until November, 1990, with abundant assessment credits to keep the claims in good standing well beyond that date.

Geologically, the ground straddles both the north and the south contact of the Bourlamaque granodiorite batholith, and includes in both the north and south part of the ground rocks of volcanic and metasedimentary composition, and ultrabasic sheets, all of Archean age, and all trending east-west with a steep northerly, or vertical, dip. A "nose" of one of the lobes of the granodiorite is contained in the extreme northeastern part of the ground. On neighbouring properties, mineralization, consisting of gold-bearing quartz veins in shear zones, occurs in the Lamaque, Sigma, and the Belmoral Peter Ferderber mines to the east, and on the Stabell ground to the west. Similar mineralization occurs in the Sullivan and Siscoe mines, a little farther to the west. Structures containing the mineralization in these mines are believed to enter and cross the present claim block.

Known mineralization on the ground consists of:

a. about 25,000 tons grading 0.28 ounces of gold per ton (66,000 tons at 0.16) "open" down dip and along strike in both easterly and westerly directions at the old Harricana Mine in which underground workings to a depth of 1000 feet exist, but from which no mining is known to have taken place. This appears to be a short segment of a gold-bearing unit that stretches across the property a distance of 8000 feet,

b. about 26,000 tons grading 0.111 ounces of gold per ton in a recently-discovered body termed the Hydro Vein, which is "open" both to the east and to the west, and which appears to be part of a gold-bearing zone, parallel to that at the Harricana, but about 600 feet north of it. It, too, appears to stretch across the property a distance of over 8000 feet,

c. about 26,000 tons of material grading 0.16 ounces of gold to the ton, outlined in 1989. The gold appears in several veins and in this "defined" zone, has a strike length of about 600 feet. However, evidence from old drilling indicates that this zone extends beyond the defined portion to continue across the entire width of the property some 7000 feet in an east-west direction, and may continue in an easterly direction to link up with the ore zones in either the Bras d'Or Mine or the Peter Ferderber Mine on adjoining properties.

d. in the northern part of the property, drill hole CL-60 of 1987 cut a 1.8 foot section containing approximately 5% copper (not assayed) and a little gold. This appears to be the southwestward extension of a zone of copper-gold mineralization that has been drilled off by Belmoral Mines, Golden Rule Resources, and Northern Abitibi Mining, on ground which immediately adjoins the northeast corner of the present property, some 2000 feet away. Northern Abitibi have announced intersections of 1.08 and 0.211 ounces of gold per ton of rock across intersections of 4.1 and 6.56 feet, with 3.16% and 0.35% copper across the same widths, respectively. The strike length of this zone appears to be in excess of 3000 feet, with 2000 of that being on the present property.

Possibility also exists for the presence of gold-bearing mineralization in extensions of structures from adjoining and nearby mines such as the Sigma, Lamaque, Sullivan and Siscoe; there is evidence that the S scoe "K" Zone extends towards the property and would enter it near the south end of Lac Blouin, an area that has been hitherto unexplored.

Recommendations are made to explore the 4 areas of known mineralization on the property mentioned above, and the gold-bearing structures in which they occur. The work would consist of a program of data acquisition, compilation, and interpretation, including some detailed geophysical coverage, and a program of diamond drilling consisting of at least 6000 feet on each of the Harricana Shaft area, the Hydro Vein, and the Northeast Corner, a further 10,000 feet on the east boundary line on ground adjoining Sigma's and Lamaque's, and up to 30,000 feet on the High Voltage Zone to trace it across the property onto ground of Sigma Mines to the east, and Stabell Resources to the west. A total cost for this work of $2,000,000 is estimated. As a first priority, some $250,000 should be spent on the Northeast Corner area, where an early discovery of one or more copper-gold zones is expected.

For eventual underground access to the 3 most southerly zones of mineralization, the already existing and restored No. 2 Shaft on the adjoining Stabell Resources property to the west could be used as the most expedient way of gaining access to these zones, moreso than by using the Harricana Shaft on the property.

The favorable geological setting, proximity to producing and past producing mines, presence of known gold-bearing and copper-gold-bearing structures on the property, and the presence of at least 3 areas where gold-bearing tonnage has been indicated and the potential for finding additional tonnage is great, all combine to make this property an exceptionally appealing block of ground on which to conduct mineral exploration and mine development for gold and gold-copper mineralization that is potentially of large tonnage.

Figure I, page iii below, is a summary map of the claim block to show the areas of interest mentioned in this summary.

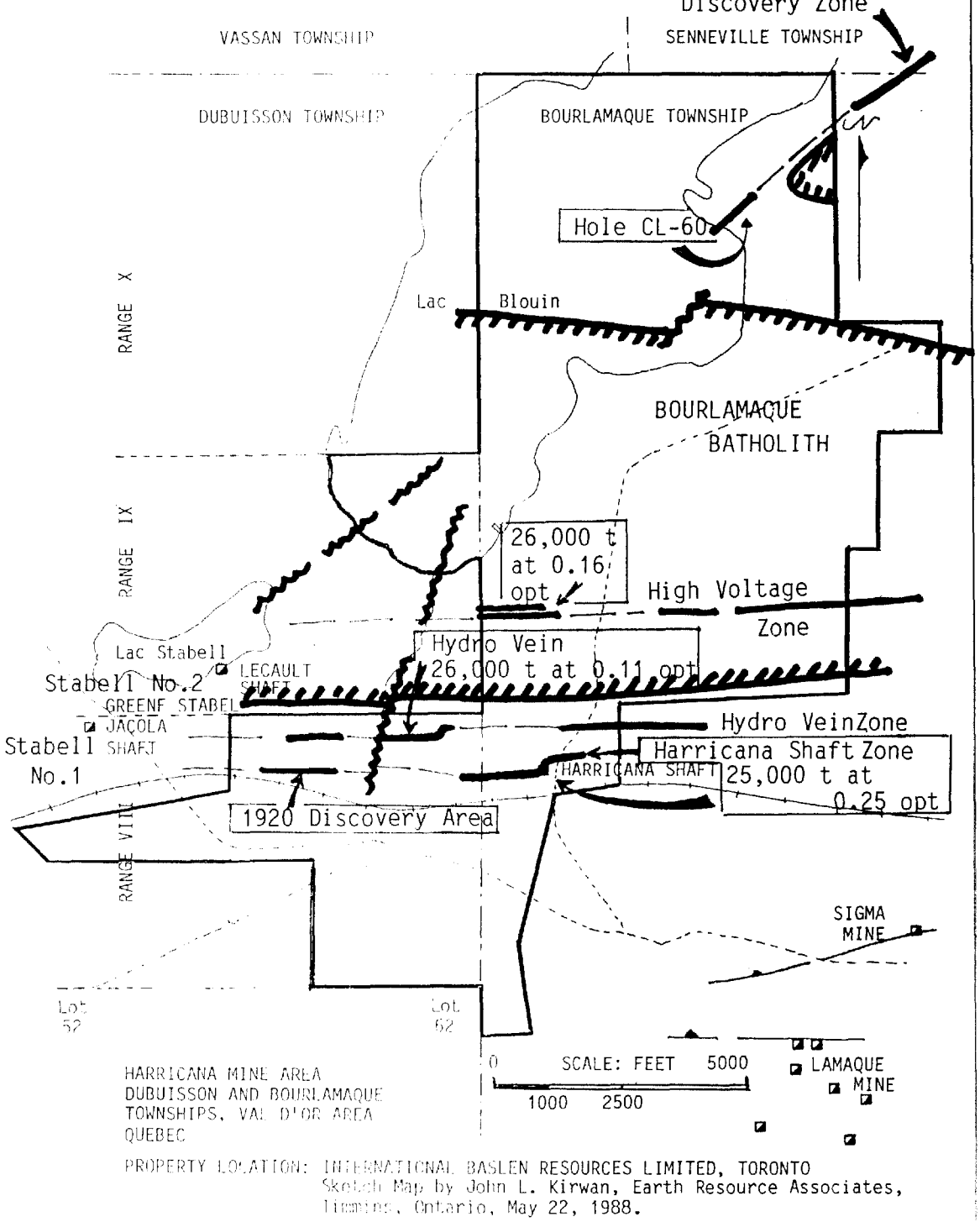


Figure I- General Sketch Map of Harricana Mine Property, Val d'Or, Quebec, Showing Principal Areas of Mineralization Referred to in the Summary of this Report

CONTENTS

FIGURES

TEXT FIGURES

APPENDIX FIGURES

THE HARRICANA MINE PROPERTY

VAL D'OR, QUEBEC

by

John L. Kirwan
MSc PhD PEng PE

INTRODUCTION

This report concerns the known mineralization, and the exploration potential, of a group of mining claims situated in, and northward from, the City of Val d'Or, Province of Quebec, Canada. The property is an amalgamation of several independent blocks of ground which have received a long history of mineral exploration going back to 1912, with the result that 3 zones of gold-bearing rock are now known, and a mineshaft with underground workings exists. To the east, the adjoining properties include the Belmoral, Sigma, and Lamaque Mines, all principal producers in the Val d'Or camp and, to the west, the adjoining ground includes two past producers on the property of Stabell Resources. Farther to the west, the Sullivan and Siscoe mines contain structures which appear to continue onto the present ground, as do all the deposits (or, at least, structures or parallel zones associated with the deposits)

already mentioned. With this convergence of gold-bearing structures on the property, the proximity of major gold deposits of the area, and the presence of gold mineralization on the property itself, the ground is felt to be of exceptional importance for the development of one or more viable gold-bearing mineral deposits.

LOCATION, ACCESS, TERRAIN

The City of Val d'Or occupies the southern part of the claims, together with a municipal Industrial Park, and a resort area around Lac Blouin (which itself underlies part of the ground) occupies part of the northern part of the claims. Access to all parts of the ground is therefore exceptionally good, with the roads and streets of Val d' Or itself crisscrossing it, and the major access highways cutting across it: Highway 117 in an east-west direction, and Highway 397 in a north-south direction. The town of Val d'Or came into being in 1934 with the selling-off of surface rights to the property by the then management. The ground is remarkably flat and featureless, the lowest ground being at Lac Blouin in the northwest part of the property, and the highest at Sigma Mine, immediately off the property to the southeast.

Figure 1, page 3 below, shows the general location of the Val d' Or area in relation to other major gold-producing centers of the Eastern Ontario-Western Quebec areas. Figure 2, page 4 below, shows the distribution of the claims.

THE MINERAL CLAIMS

A total of 73 claims having a total area of 2822 acres (1143 hectares) constitutes the present group, distributed as a north-south-oriented block of ground as shown in Figure 2. As of March 13, 1990, these claims were recorded in the name of Quebec Corporation 2629-2482 and had no liens or other encumberances recorded against them. Quebec Corporation 2629-2482 is controlled by International Baslen Enterprises Limited, of Toronto, Ontario. Table 1, pages 5 and 6 below, shows the present status of the ground.

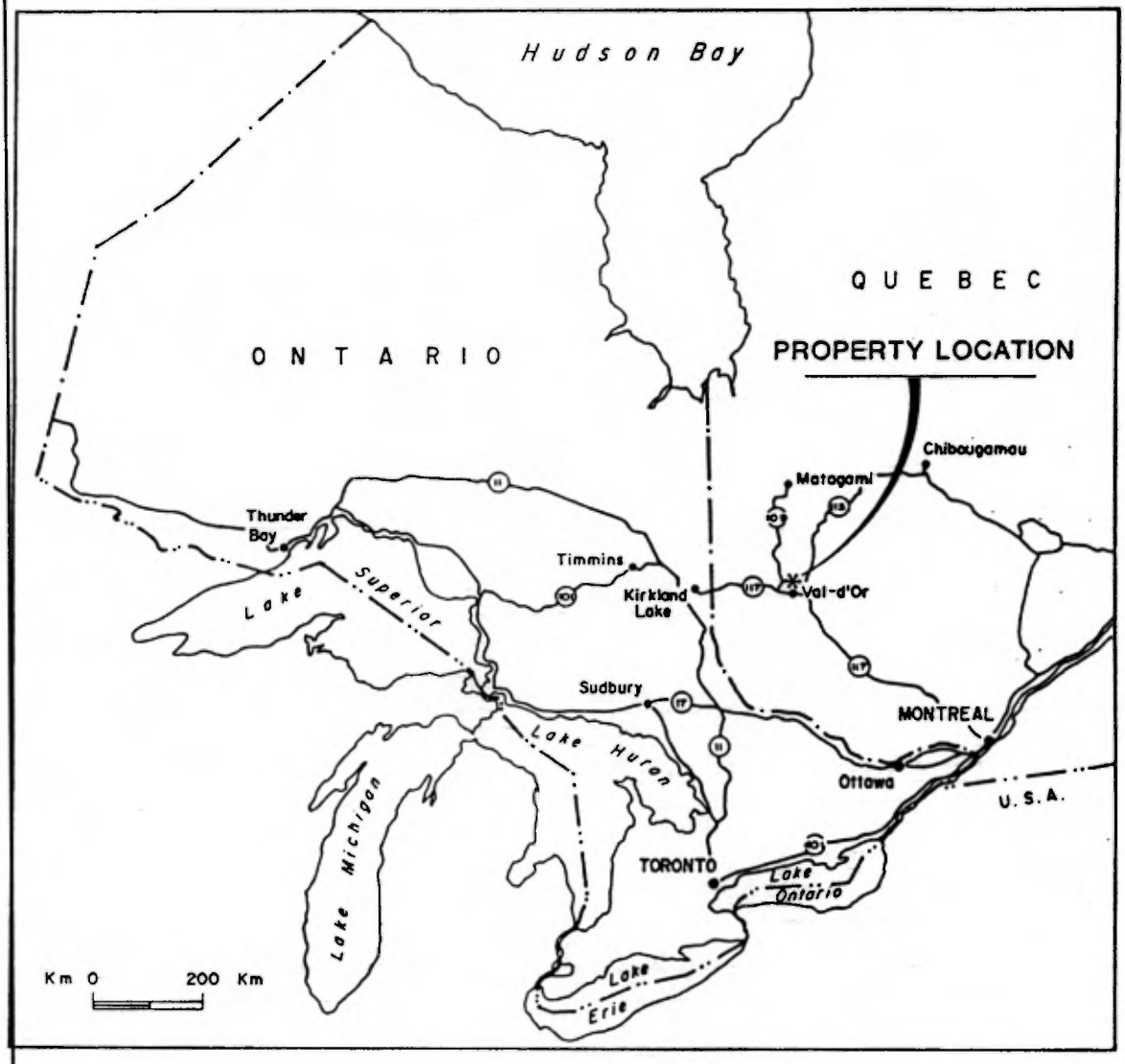


Figure 1: Location of the Val d'Or Area in Northwestern Quebec.

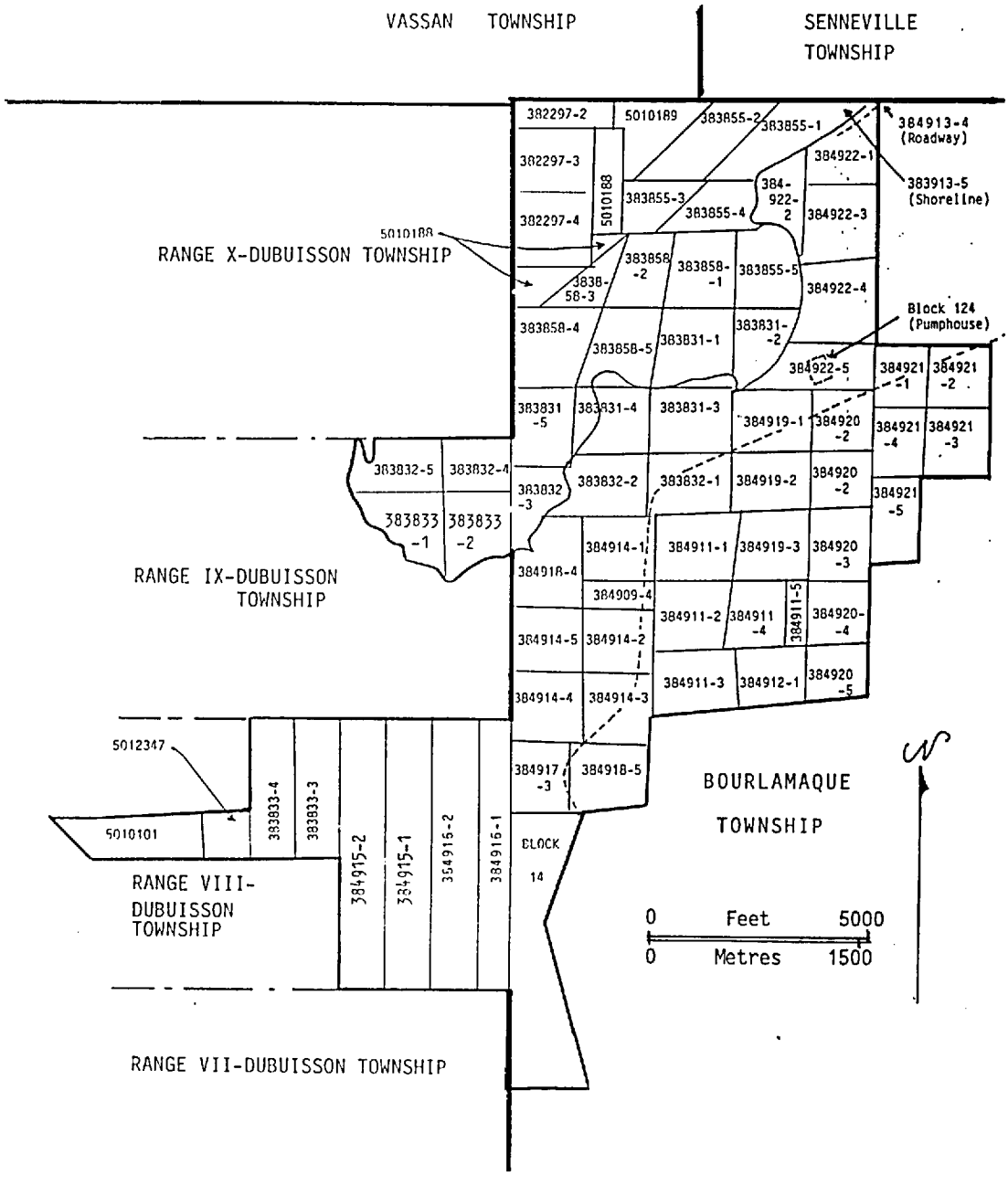


FIGURE 2- Claim Distribution, Dubuisson and Bourlamaque Townships, Quebec; International Baslen Enterprises Limited, Val d'Or Property.

FIGURE 2

TABLE 1: CLAIMS STATUS, HARRICANA MINE PROPERTY, VAL D'OR, QUEBEC

CLAIM NUMBER	Area Hectares	EXPIRY DATE	TOWNSHIP
5010188	5	90-11-28	Bourlamaque
5010189	9	90-11-28	Bourlamaque
5010187	13	90-11-28	Bourlamaque
5010101	29	90-11-21	Dubuisson
5012347	7.5	91-02-26	Dubuisson
383831-1	16	90-11-07	Bourlamaque
383831-2	16	90-11-07	Bourlamaque
383831-3	16	90-11-07	Bourlamaque
383831-4	16	90-11-07	Bourlamaque
383831-5	16	90-11-07	Bourlamaque
383832-1	16	90-11-04	Bourlamaque
383832-2	16	90-11-04	Bourlamaque
383832-3	16	90-11-04	Bourlamaque
383832-4	16	90-11-04	Dubuisson
383832-5	16	90-11-04	Dubuisson
383833-1	16	90-11-07	Dubuisson
383833-2	16	90-11-07	Dubuisson
383833-3	20	90-11-07	Dubuisson
383833-4	20	90-11-07	Dubuisson
383855-1	16	90-11-10	Bourlamaque
383855-2	16	90-11-10	Bourlamaque
383855-3	16	90-11-10	Bourlamaque
383855-4	16	90-11-10	Bourlamaque
383855-5	16	90-11-10	Bourlamaque
383858-1	16	90-11-10	Bourlamaque
383858-2	16	90-11-10	Bourlamaque
383858-3	16	90-11-10	Bourlamaque
383858-4	16	90-11-10	Bourlamaque
383858-5	16	90-11-10	Bourlamaque
384909-4	5	90-12-~~10~~17	Bourlamaque
384911-1	16	91-01-22	Bourlamaque
384911-2	16	91-01-22	Bourlamaque
384911-3	16	91-01-22	Bourlamaque
384911-4	16	91-01-22	Bourlamaque
384911-5	16	91-01-22	Bourlamaque
384912-1	16	91-01-22	Bourlamaque
384913-4	5	91-02-23	Bourlamaque
384913-5	17	91-02-23	Bourlamaque

.....Continued, page 6 below.....

TABLE 1: CLAIMS STATUS, HARRICANA PROPERTY, VAL D'OR.....Continued

CLAIM NUMBER	Area Hectares	EXPIRY DATE	TOWNSHIP
384914-1	16	90-12-17	Bourlamaque
384914-2	16	90-12-17	Bourlamaque
384914-3	16	90-12-17	Bourlamaque
384914-4	16	90-12-17	Bourlamaque
384914-5	16	90-12-17	Bourlamaque
384915-1	40	90-11-09	Dubuisson
384915-2	40	90-11-09	Dubuisson
384916-1	26	90-11-09	Dubuisson
384916-2	40	90-11-09	Dubuisson
384917-3	16	90-11-09	Bourlamaque
384917-4	16	90-11-09	Bourlamaque
384917-5	16	90-11-09	Bourlamaque
384918-4	16	90-11-09	Bourlamaque
384918-5	16	90-11-09	Bourlamaque
384919-1	16	90-11-05	Bourlamaque
384919-2	16	90-11-05	Bourlamaque
384919-3	16	90-11-05	Bourlamaque
384921-1	16	90-11-12	Bourlamaque
384921-2	16	90-11-12	Bourlamaque
384921-3	16	90-11-12	Bourlamaque
384921-4	16	90-11-12	Bourlamaque
384921-5	16	90-11-12	Bourlamaque
384922-1	16	90-11-10	Bourlamaque
384922-2	16	90-11-10	Bourlamaque
384922-3	16	90-11-10	Bourlamaque
384922-4	16	90-11-10	Bourlamaque
384922-5	16	90-11-10	Bourlamaque
382297-2	12	91-04-05	Bourlamaque
382297-3	16	91-04-05	Bourlamaque
382297-4	16	91-04-05	Bourlamaque
382297-5	16	91-04-05	Bourlamaque
384920-1	16	90-11-04	Bourlamaque
384920-2	16	90-11-04	Bourlamaque
384920-3	16	90-11-04	Bourlamaque
384920-4	16	90-11-04	Bourlamaque
384920-5	16	90-11-04	Bourlamaque

The above totals 74 claims with 382297-5 and 5010188 being listed as equivalent. Acreages (as hectares) are approximate.

Expiry dates on the above table refer to the anniversary date of the staking of the ground. Abundant assessment credits exist for the retention of this ground for many years beyond these expiry dates by virtue of the great amount of work that has been done on the ground by the present and the previous owners.

All the claims are contiguous and are situated in the northwestern part of Bourlamaque Township and the northeastern part of Dubuisson Township.

HISTORY

Interest in the area dates from the discovery of gold on what became the Sullivan Mine, a short distance to the west of the present claims, in 1912. Gold was discovered in 1914 on the adjoining Stabell ground to the west. These two discoveries led to intensive prospecting in the area in the following years, resulting in the discovery of the nearby Sigma, Lamaque, and Siscoe Mines by the mid-1930's.

The initial discovery was made on the present ground in 1920 and trenching and surface exploration done on the southernmost claims by Harricana Gold Mines Limited in the 1920's. In 1927 additional ground was obtained by amalgamation with Kienawisik Gold Mining Company Limited which held property with gold-bearing veins in Dubuisson Township. The new company, Harricana Amalgamated Gold Mines Incorporated operated until 1939. In 1934 the mineralization near the Harricana shaft was discovered, and trenching operations in 1935 and 1936 led to the mine vein (Vein Number 13) being uncovered, having an average grade of 0.257 ounces of gold to the ton across 42 inches for a length of 150 feet. The ground was optioned to Mining Corporation of Canada in association with InternationalMining Corporation, and Gold Fields American Development Company Limited who put down 10,965 feet of drilling in 1936 which outlined the downwards continuation of the gold-bearing material. In 1937 Harricana drilled 10 more holes and sunk a shaft to 320 feet in 1937-1938, with lateral work totalling 1510 feet from the 100, 200 and 300 foot levels. A furtner 10,000 feet of underground drilling at this time outlined the presence of from 25,000 to 30,000

tons of material grading from 0.257 to 0.286 ounces of gold per ton. In 1939 the company was reorganized and renamed Harricana Gold Mines Incorporated. The operations lay fallow during the Second World War owing to the need for men, money, and materials overseas, but in 1945 a further 20,000 feet of drilling was done over the property as a whole, mostly into targets generated in a ground magnetometer survey. In 1946 the shaft was deepened to 780 feet and levels established at 400, 520, 640, and 760 feet, with 619 feet of lateral workings and 2989 feet of underground drilling from the bottom levels. In 1950 a further 4870 feet of drilling was put down from surface on Lot 59 in Dubuisson Township, and in 1960 an additional 1500 feet were drilled in the northeastern part of the ground to test a magnetic anomaly. In 1974 Harricana's charter was annulled and the property reverted to the crown.

The above refers to work that was done on that portion of the present ground which is around the old Harricana shaft---about one-third of the claim block. Over the years work has taken place on the rest of the ground by Mid-North Engineering, by Sullivan Consolidated Mines Limited, by Blouin Lake Gold Mines Limited, by Lamaque Mining Company Limited, by Lietch Gold Mines Limited, and by numerous other and smaller mining companies. This work has consisted of surface prospecting, magnetometer and dip-needle surveys, and several diamond drill holes.

In 1979, F.N.Charlebois staked the entire claim block as it now stands, plus some adjoining ground to the east, and initiated the modern phase of exploration of the property. In 1981 and 1982 Provinces X Explorations and E & B Explorations completed geophysical surveys and put down 3 short drill holes. In 1982 Laduboro Enterprises Limited acquired 42% of Provinces X and, through mergers obtained control of the property, renaming itself Laduboro Limited in 1987. In 1986 and 1987 Laduboro Limited and Canstat Petroleum Limited put down a further 82 drill holes, which is the most important work done on the ground to date, resulting, as it did, in the discovery of several new gold-bearing zones, one of which, the Hydro Vein, was explored in some detail.

In 1988, International Baslen Enterprises Limited, of Toronto, Ontario, acquired a 100% interest in the property through its Quebec subsidiary, 2629-2482 Incorporated. In 1989 a total of 11 diamond drill holes was put down in the vicinity of a gold intersection that Canstat Petroleum had identified in diamond drilling in 1987. This drilling was successful in that several gold-bearing zones were indicated which, from evidence available through compilation of earlier work, may extend across the property, a distance of 7000 feet.

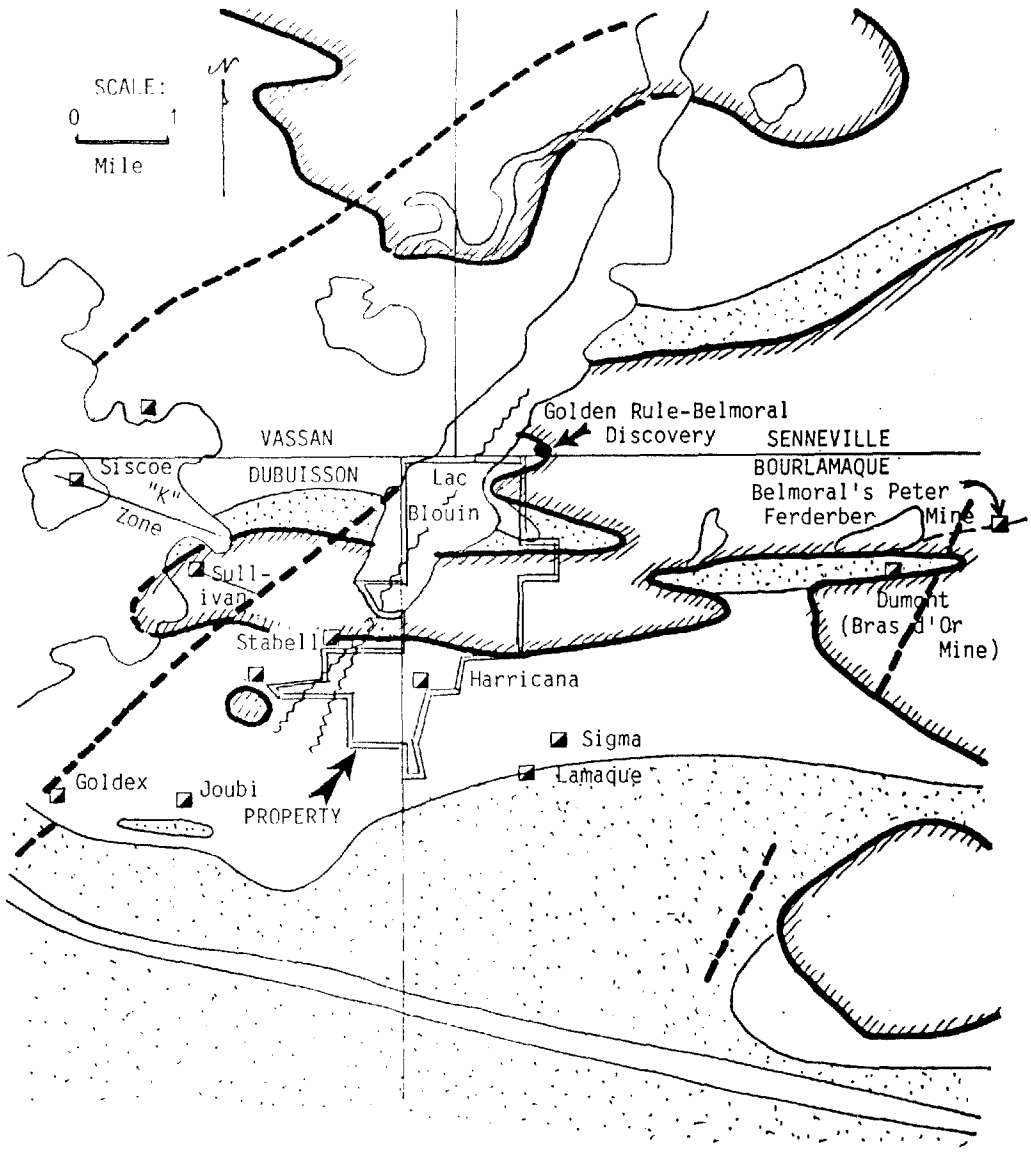
GEOLOGY

Outcrops of rock on the property are extremely rare so that the emerging picture of the geological environment on the claims is based on regional considerations, the defined geology of surrounding property, the interpretation of geophysical surveys, and a knowledge of the results of diamond drilling and underground work on the property itself.

In the Val d'Or area in general, economic mineralization has been found both within, and in rocks outside of, a trilobate granodiorite body known as the Bourlamaque Batholith. This body extends in an east-west direction and intrudes ultramafic intrusive and volcanic rocks, basic and intermediate volcanic rocks, and metasedimentary rocks of Precambrian (Archean) age. The rocks outside the granodiorite trend in a generally east-west direction and dip steeply northward in the vicinity of the property.

Figure 3, page 10 below, is a generalized geological summary of the ground in the vicinity of the Harricana Mine claims, with the locations of the principal mines shown.

The claim block straddles both the north and south contacts of the Bourlamaque Batholith (the western, or Sullivan lobe) and includes a "nose" of another part of the batholith (the northern, or Belmoral lobe). In addition, considerable extra-batholithic material is found on the property, consisting mostly of metavolcanic and ultramafic rock. In terms of economic potential, this variety of geological environment, plus the presence of the immediate contact phases of the granodiorite, is of particular significance.



Summary Geological Map showing the location of the Baslen Property in Dubuisson and Bourlamaque Townships in Relation to the principal mines of the area.

Sedimentary Rock | Volcanic Rock | Granitic Rock | Diabase | Fault | Mineshaft

FIGURE 3

At the present time there is a vast amount of material that is pertinent to an understanding of the geological environment of the mineralization of the claims which has not been compiled or, in the case of geophysical surveys, interpreted.

ECONOMIC INDICATIONS

In the immediate vicinity of the Harricana ground there are several geological environments in which economic mineralization occurs, environments which are also present on the property.

1. Mineralization within the granodiorite body.

   a. SULLIVAN MINE: this deposit is at the western edge (nose) of the Bourlamaque Batholith and consists of a series of quartz veins in a northwest-trending fracture system in the granitic rocks in which gold and copper mineralization occurs. Between 1934 and 1967 it produced 1,112,979 ounces of gold and 291,676 ounces of silver, with minor amounts of copper, zinc, and other metals. Average grade of gold in the ore was approximately 0.23 ounces per ton. The structure containing the gold trends onto the Stabell property and towards the present ground.

   b. PETER FERDERBER MINE: this is within the main lobe of the Bourlamaque Batholith and occurs within east southeast-trending chloritic shears in the granodiorite. The mine opened in 1979 and is still in production; grades have ranged from 0.16 in 1987 to nearly 0.25 ounces per ton in later years. The mineralization has been traced a distance of over 12,000 feet, with geophysical evidence extending this much farther, towards the present ground.

   c. STABELL NUMBER 2 MINE: this is within the Batholith and about 800 feet (2000 feet along strike) from the present property. It consists of a series of east-west-trending quartz veins within shear zones near the granodiorite contact. Grades are in the 0.16 to 0.2 class, with mining having taken place as recently as 1988.

2. Mineralization in the contact phase of intrusives.

   a. SISCOE MINE: this deposit, beyond the Sullivan to the west, consists of several orebodies, both within the granodiorite's contact area and within adjoining metavolcanics. The richest zone, termed the "K Zone" trends southeastward towards the present property in the vicinity of Lac Blouin. Production between 1929 and 1949 has been 882,865 ounces of gold and 60,383 ounces of silver, with a gold grade of 0.285 ounces per ton, which is rich by today's standards.

   b. JACOLA MINE: this adjoins the present property to the west, and is adjacent to a small granitic body known as the Valentine Stock. About 16,000 ounces of gold and some copper have been produced.

c. LAMAQUE MINE: this is adjacent to a small complex body of diorite and granodiorite which intrudes volcanic tuffs; the veins trend east-west and west-southwest, dipping northward. On extension they would pass southward from the present ground, but may pass under it at depth owing to the northward dip. Between 1935 and 1982 the mine produced 4,309,475 ounces of gold from material grading 0.189 ounces of gold per ton.

3. Mineralization in the volcanic rocks.

a. SIGMA MINE: this large deposit, which is currently in production under the management of Placer Dome, adjoins the present property immediately to the east. Mineralization consists of disseminated gold in quartz veins which splay off ultrabasic sheets. Between 1937 and 1982 it produced 3,030,738 ounces of gold, and is currently producing about 65,000 ounces of gold per year from material grading 0.141 ounces per ton. The structures containing the gold mineralization appear to trent onto the present ground in the area of the Harricana shaft, and southward.

As has been indicated above, there is reason to expect that the gold-bearing structures that exist in surrounding mines may extend onto the present ground. These structures include:

1. the Belmoral (Peter Ferderber) shear zone,
2. the Sullivan shear,
3. the Siscoe "K" Zone, 4. The Sigma Main and parallel zones,
5. the Stabell No. 2 veins, and, possibly, at considerable depth,
6. the Lamaque zones.

These possibilities will be discussed in more detail below under the topic of the property's potential. Of immediate interest is the presence of known mineralization on the property. This includes that of the discovery area in Dubuisson Township of 1920, the Harricana Shaft area, the area northeastward from the Harricana Shaft, the Hydro Vein, the "High Voltage Zones" within the Bourlamaque Batholith, and the area of the northeast corner of the property, where mineral discoveries on adjoining land belonging to Belmoral Mines, Northern Abitibi Mining Corporation, and Golden Rule Resources Limited have added considerable lustre to that part of the ground.

Figure 4, page 13 below, shows the locations of these areas of interest.

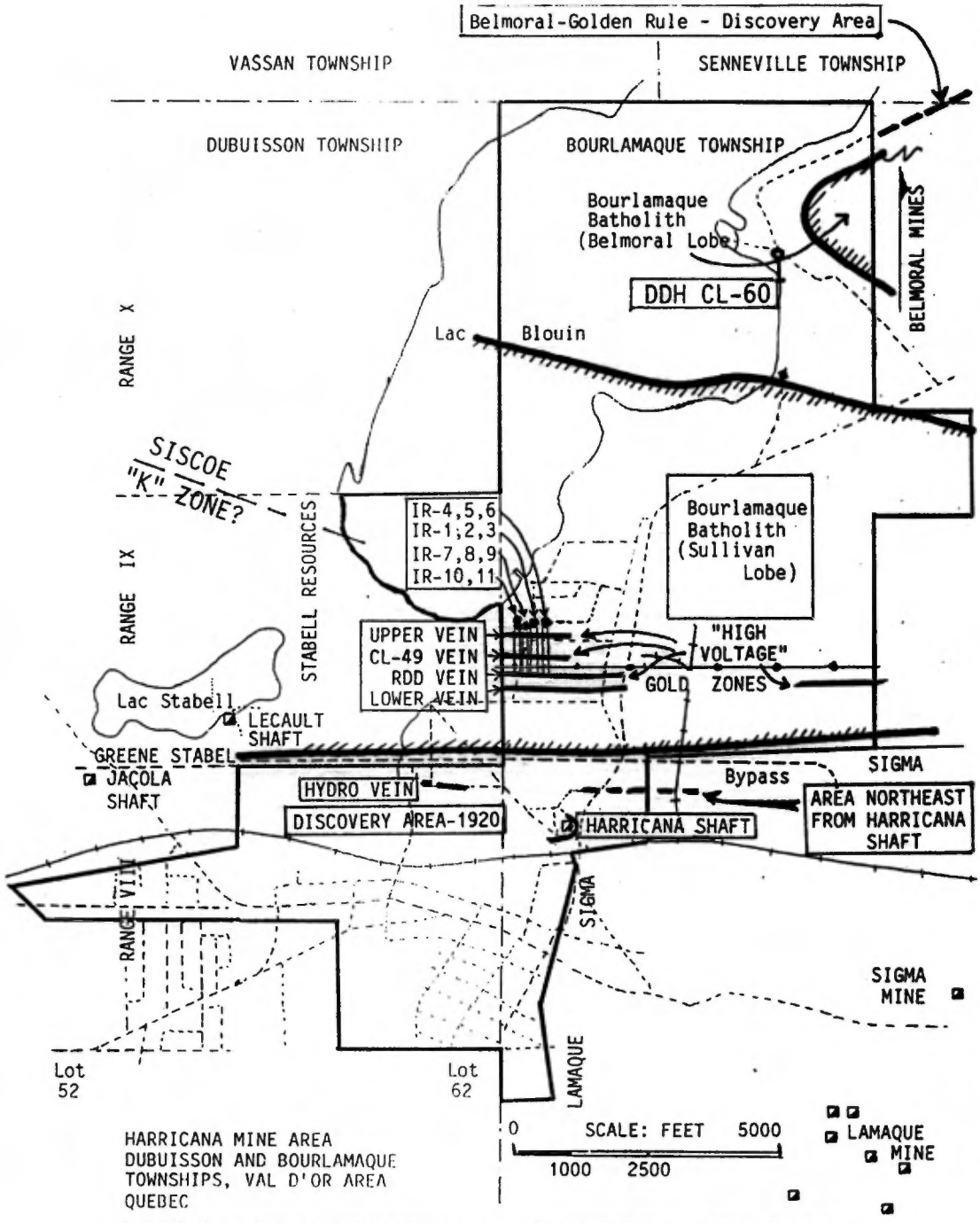

Belmoral-Golden Rule - Discovery Area
VASSAN TOWNSHIP
SENNEVILLE TOWNSHIP
DUBUISSON TOWNSHIP
BOURLAMAQUE TOWNSHIP
Bourlamaque Batholith (Belmoral Lobe)
BELMORAL MINES
DDH CL-60
Lac Blouin
RANGE X
SISCOE "K" ZONE?
RANGE IX
STABELL RESOURCES
IR-4,5,6
IR-1;2,3
IR-7,8,9
IR-10,11
Bourlamaque Batholith (Sullivan Lobe)
UPPER VEIN
CL-49 VEIN
RDD VEIN
LOWER VEIN
"HIGH VOLTAGE" GOLD ZONES
Lac Stabell
LECAULT SHAFT
GREENE STABEL
JACOLA SHAFT
SIGMA
Bypass
HYDRO VEIN
DISCOVERY AREA-1920
HARRICANA SHAFT
AREA NORTHEAST FROM HARRICANA SHAFT
RANGE VIII
SIGMA
SIGMA MINE
Lot 52
Lot 62
LAMAQUE
0 SCALE: FEET 5000
1000 2500
LAMAQUE MINE
HARRICANA MINE AREA
DUBUISSON AND BOURLAMAQUE
TOWNSHIPS, VAL D'OR AREA
QUEBEC
PROPERTY LOCATION: INTERNATIONAL BASLEN RESOURCES LIMITED, TORONTO
Sketch Map by John L. Kirwan, Earth Resource Associates, Timmins, Ontario, May 22, 1988. Modified, May 20, 1989. Updated May 1, 1990.

FIGURE 4

PART 2

MINERALIZATION ON THE PROPERTY

1. THE HARRICANA MINE

The initial discovery was made in 1934 as a curved zone of gold-bearing quartz veining in intermediate lavas. Trenching revealed the following values, as reported in The Northern Miner Press in 1935:

0.33 over 3 feet
0.53 over 3 feet
0.07 over 4 feet
0.38 over 3 feet
0.23 over 1.5 feet
0.31 over 2.5 feet
0.32 over 2 feet
1.07 over 2 feet
0.88 over 2 feet
0.44 over 1 foot
0.63 over 1.5 feet

The above values are calculated in ounces of gold per ton of rock with gold at $35 per ounce. As reported above, the resultant figures were given as an average grade of 0.257 ounces of gold per ton of rock across 42 inches for a strike length of 150 feet.

Figure 5, page 15 below, and Figure 6, page 16 below, show the assay values obtained on the 200 foot and 300 foot level of the mine (the workings on the 100 foot level do not seem to have progressed far enough eastward to reach the vein).

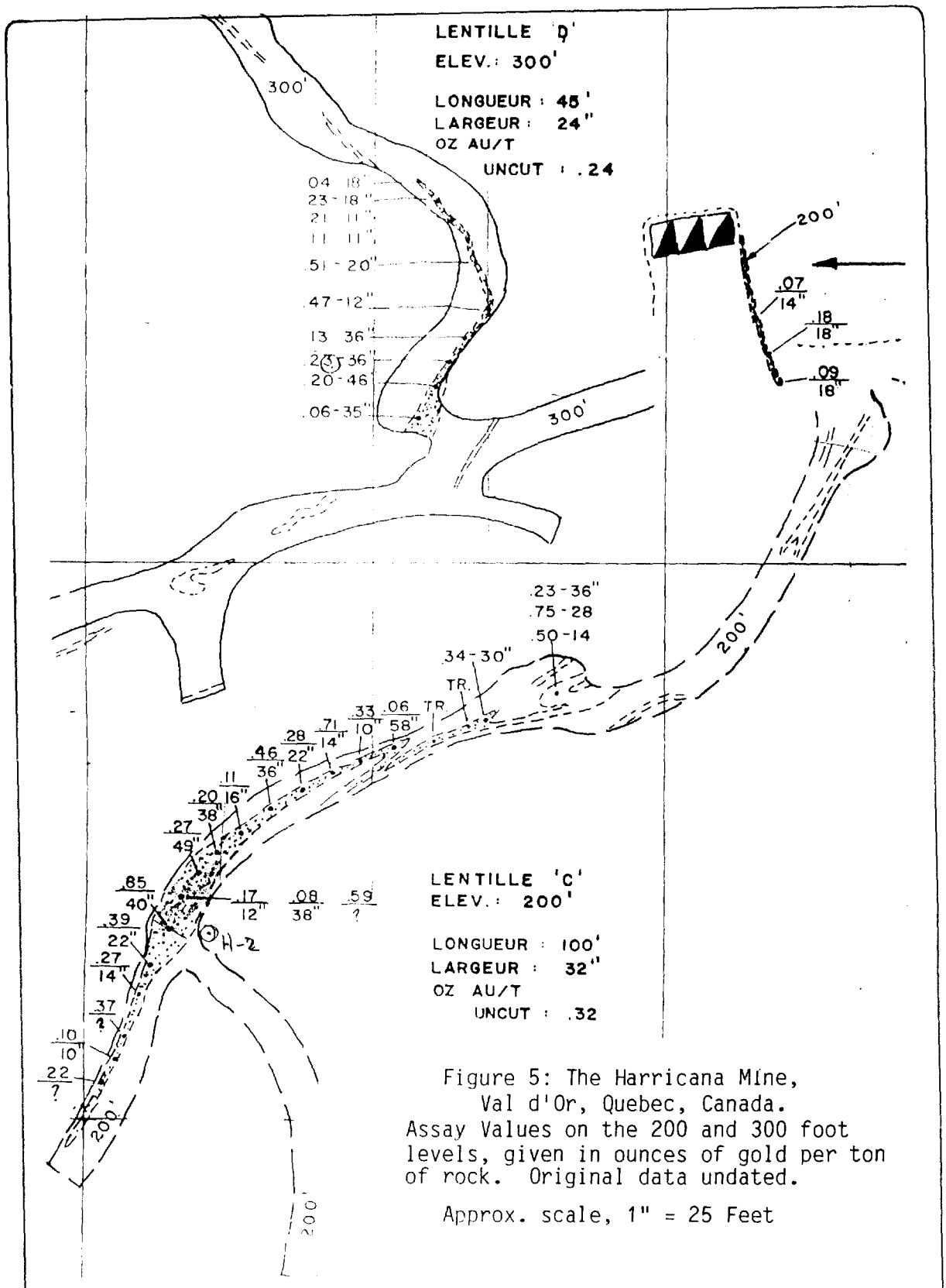


Figure 5: The Harricana Mine, Val d'Or, Quebec, Canada. Assay Values on the 200 and 300 foot levels, given in ounces of gold per ton of rock. Original data undated.

Approx. scale, 1" = 25 Feet

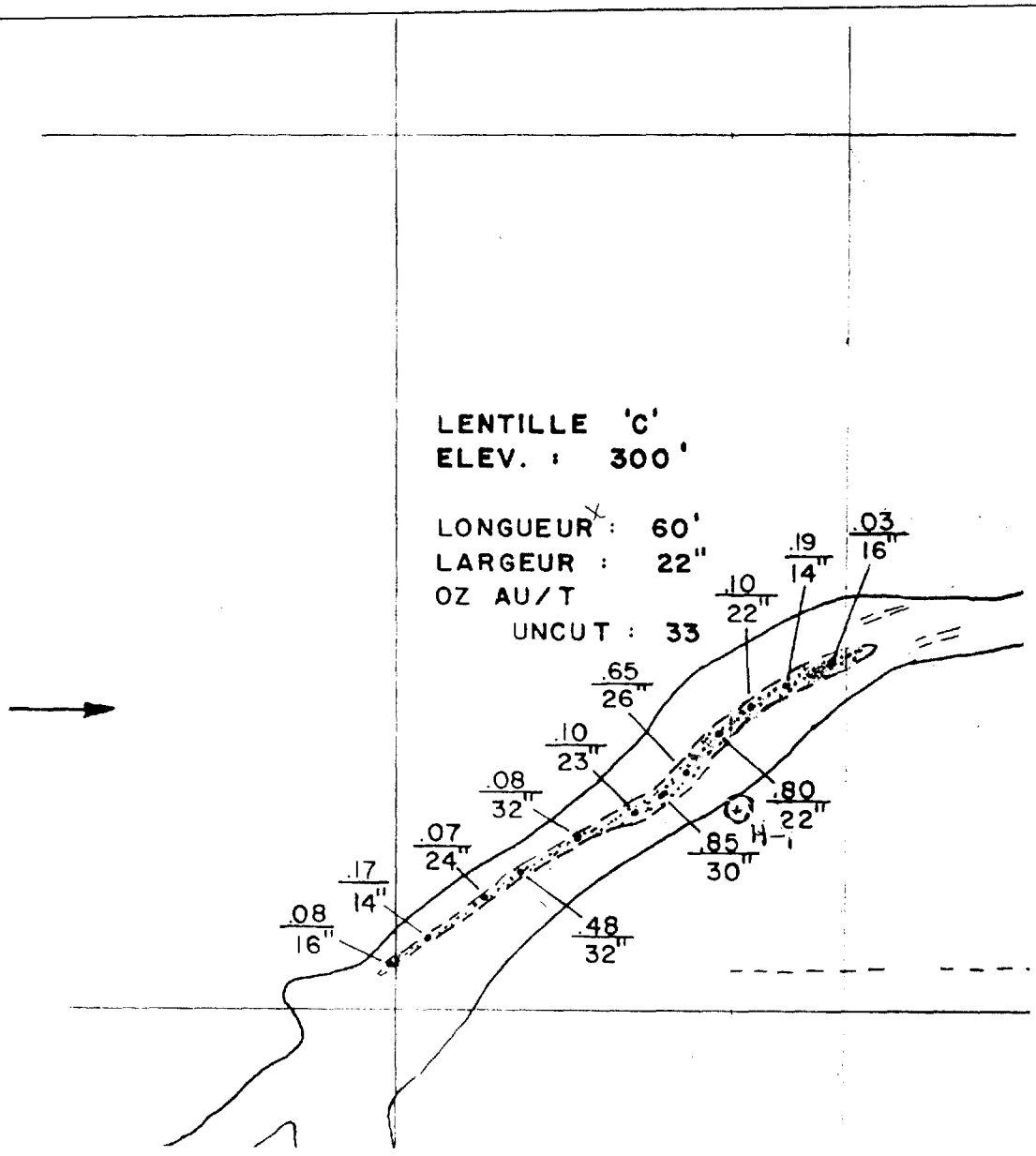


FIGURE 6

The Harricana Mine, Val d'Or Quebec

Assay values on the 300 foot level
(west end of zone)

Original Map Undated

Scale, 1" = 20 Ft.

Values are in ounces of gold per ton of rock.

Calculations based on the above values, plus the underground drilling before that date, gave, in 1944, as reported in the Northern Miner on May 25, 1944, a total of between 25,000 and 30,000 tons of mineable material grading between 0.26 to 0.28 ounces of gold to the ton, down to a depth of 300 feet.

Subsequently, during the shaft deepening, a new zone known as the "B" Shoot was encountered at a depth of 615 feet in which values ranging from Trace to 2.38 ounces of gold were reported across narrow widths. Excellent intersections were obtained by Provinces X Explorations in 1981, of which the following were reported:

Hole Number 1: 0.24 ounces of gold over 4.9 feet
Hole Number 2: 0.16 ounces of gold over 3.5 feet
Hole Number 3: 0.17 ounces of gold over 2.3 feet
Hole Number 4: 0.51 ounces of gold over 0.5 feet

Hole Number 3 encountered a second zone deeper down the hole which assayed 0.18 over 2 feet.

Based on these values, Provinces X President, F.N.Charlebois estimated that 66,000 tons grading 0.16 ounces of gold to the ton were indicated in the old mine, without consideration of potential material down dip or along strike (Northern Miner, April 9, 1981).

Indications of along strike potential westward from the shaft were obtained in 1944 when Hole Number 104 was put down and intersected a value of 0.81 ounces of gold per ton over 2 feet some 400 feet to the west.

A short intersection was obtained by Canstat Petroleum in 1986 and 1987 which, although relatively low in value, indicates the presence of gold-bearing material above the material in the old mine.

2. NORTHEAST FROM THE HARRICANA SHAFT

A tight series of diamond drill holes, numbered between 93 and 130, appears on most compilation maps of the area, including those of the Quebec Department of Natural Resources. Very little is known about this drilling, but in 1944 an article in The Northern Miner reported that "a number of drill holes have returned commercial values" from this area and a report of Drill Hole 101 mentions 0.46 gold over 2 feet.

These holes are all on the present property and appear to have been drilled to intersect an east-west structure which would be about 600 feet north of the Harricana Shaft which extends to the eastern edge of the ground about 1500 feet away. On the adjoining ground, now part of the Sigma Mine property is a group of 7 drill holes put down some years ago by Gamma Mines. Results of these holes are available, thanks to the kindness of the Placer Dome geologists and management. The 7 drill holes cover a strike length of about 1000 feet and contain the following assays; given from west to east:

Hole 27: 0.03 ounces of gold per ton over 2.5 feet,
Hole 24: 0.20 ounces of gold per ton over 2.0 feet,
Hole : 0.14 ounces of gold per ton over 7.0 feet,
Hole 22: 0.13 ounces of gold per ton over 1.5 feet,
Hole 28: No values--hole did not reach section.
Hole : Value of 0.05 probably beyond section.
Hole 29: Value of 0.02 probably before section.

These, plus the assay given above on page 17, indicate that there is an east-west-trending gold-bearing zone of rock. It is presumed that the values and the evidence of continuation of these values as obtained in the 1940's were both insufficient to warrant mine development at a time when the value of gold was $35 per ounce. However, subsequent increase in the value of gold, at a rate greater than the cost of mining, has resulted in many lower grade deposits becoming economically viable. For this reason the zone in question deserves additional work, both in obtaining and compiling the drill hole data and in further diamond drilling.

Figure 7, page 19 below, shows the distribution of the known drilling in the vicinity of, and northward from, the Harricana Shaft. To judge from old magnetometer survey results compiled by the writer (some of which are nearly 50 years old!) the row of drill holes marks a contact zone of an ultrabasic intrusive body which can be traced to the west to the area of the Hydro Vein, which will be discussed below. Westward from the Hydro Vein a 1931 drill hole cut a gold-bearing vein adjacent to what may be the same ultrabasic body. The implication of this geophysical interpretation is that it may mark a gold-bearing zone which stretches across the entire property a distance of over 8000 feet onto Sigma ground to the east and towards the Stabell No. 1 shaft to

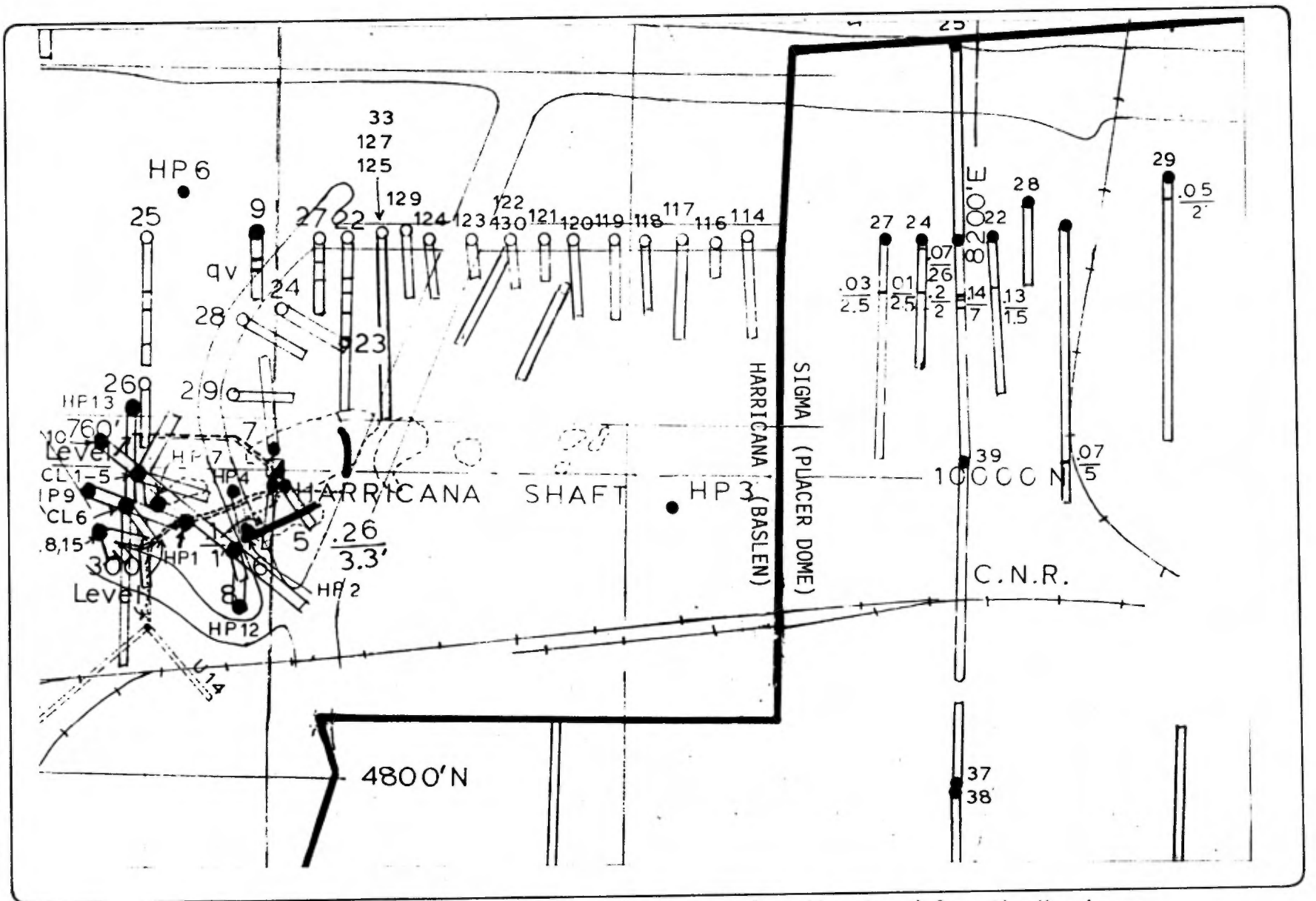


Figure 7: Summary of known drilling results near, and northeastward from the Harricana Main Shaft. Scale, 400 feet to 1 inch. Compiled J.L.Kirwan, 1989.

the west. The problem will be to define, within this zone, areas of concentrations of gold for mining purposes.

At the Harricana Mine to the south, the gold seems to be concentrated in and near a well-developed drag fold in the metavolcanic rocks. Defining this fold, and projecting its axis northwestward to the through-going zone mentioned above, may supply one potential area of gold concentration.

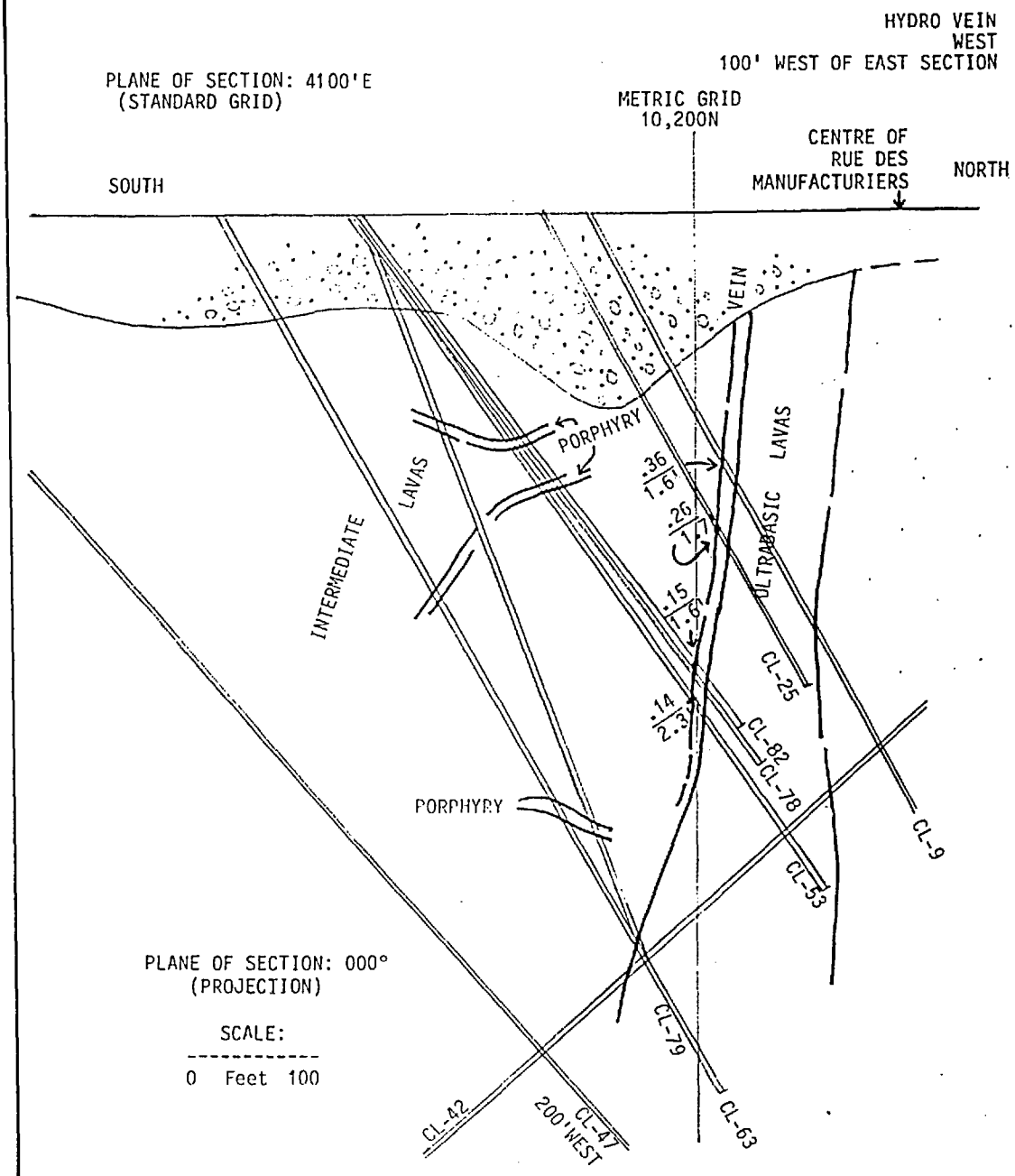
3. THE 1920 DISCOVERY AREA

This is the area discovered by the original Kienawasik group in Dubuisson Township. Locations of this discovery area are shown on surviving geological maps, as quartz vein systems, some bearing gold values, visible in outcrop. No information survives regarding work that took place on these showings or the gold assays obtained. The area may mark the westward extension of mineralization present at the Harricana Mine. Rumours of a lone drill hole, on the Dubuisson-Bourlamaque township line, having gold values in the half ounce range, are unconfirmed in surviving records.

4. THE HYDRO VEIN

Diamond drilling by Canstat Petroleum in 1986 and 1987 located, underneath a Quebec Hydro administration building, a hitherto unknown zone of gold mineralization trending east-west and dipping steeply to the south. Drilling was concentrated in a very small area (along a strike length of about 300 feet) so that the zone is "open" in both directions along strike. Figures 8 and 9, pages 21 and 22 below, show the drill holes as projected onto two planes 100 feet apart, with assays and rock-types also indicated. Figure 10, page 23, is a longitudinal projection of the intersections, contoured in an attempt to show the distribution of the gold.

Calculations by the geologists of Canstat Petroleun give an indicated tonnage of 26,345, measured in short tons, at a contained grade of 0.111 ounces of gold per ton. The grade may be considerably increased if the tonnage is reduced (see Figure 10).

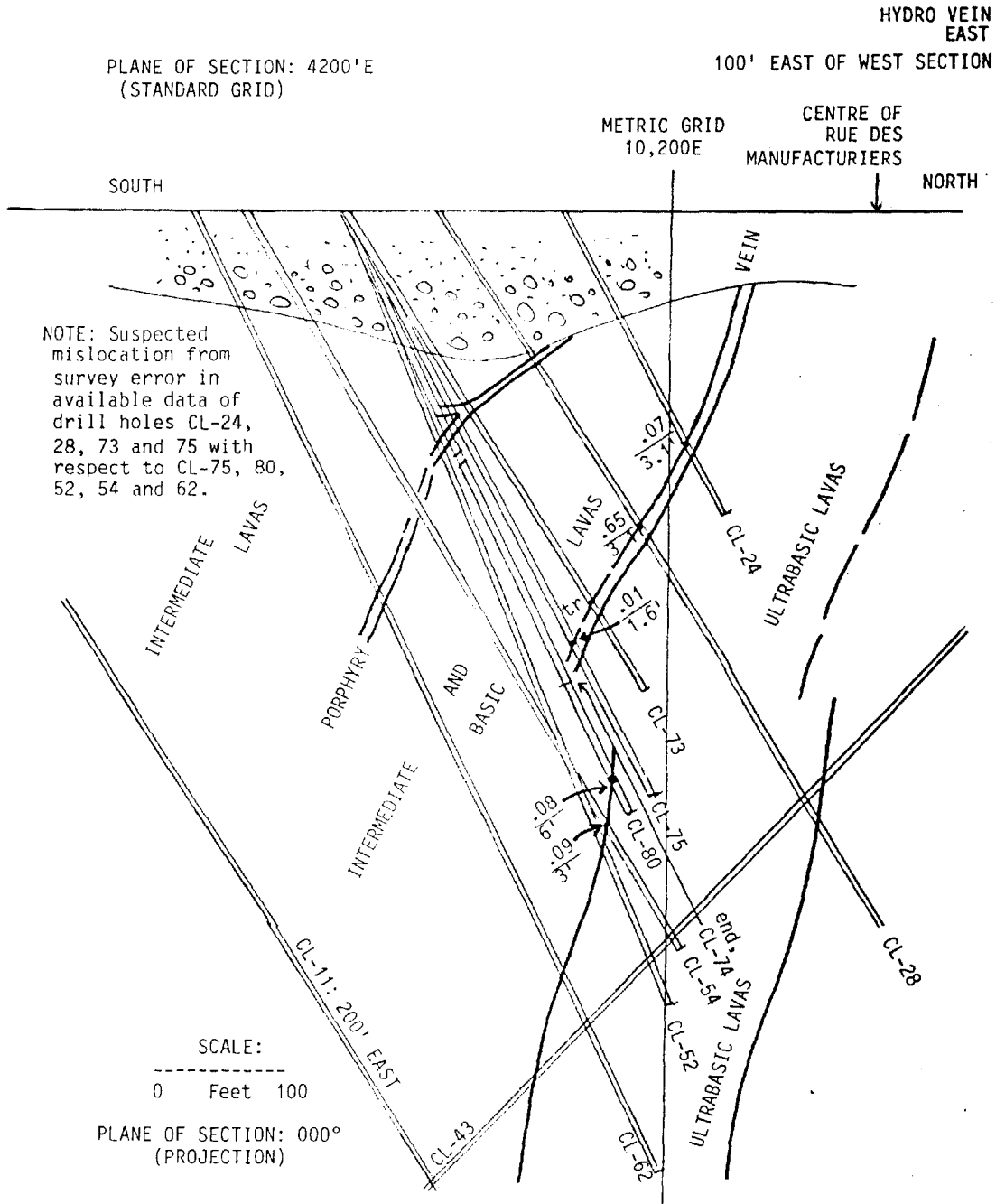


INTERNATIONAL BASLEN ENTERPRISES LIMITED: HARRICANA PROJECT, VAL D'OR, QUEBEC

HYDRO VEIN, DUBUISSON TOWNSHIP: VERTICAL SECTION LOOKING WEST. VALUES SHOWN ARE IN OUNCES OF GOLD PER TON OF ROCK ALONG DOWN HOLE LENGTHS GIVEN IN FEET.

Compilation by J.L.Kirwan, May 2, 1989, from data reported by Petrol Canstat

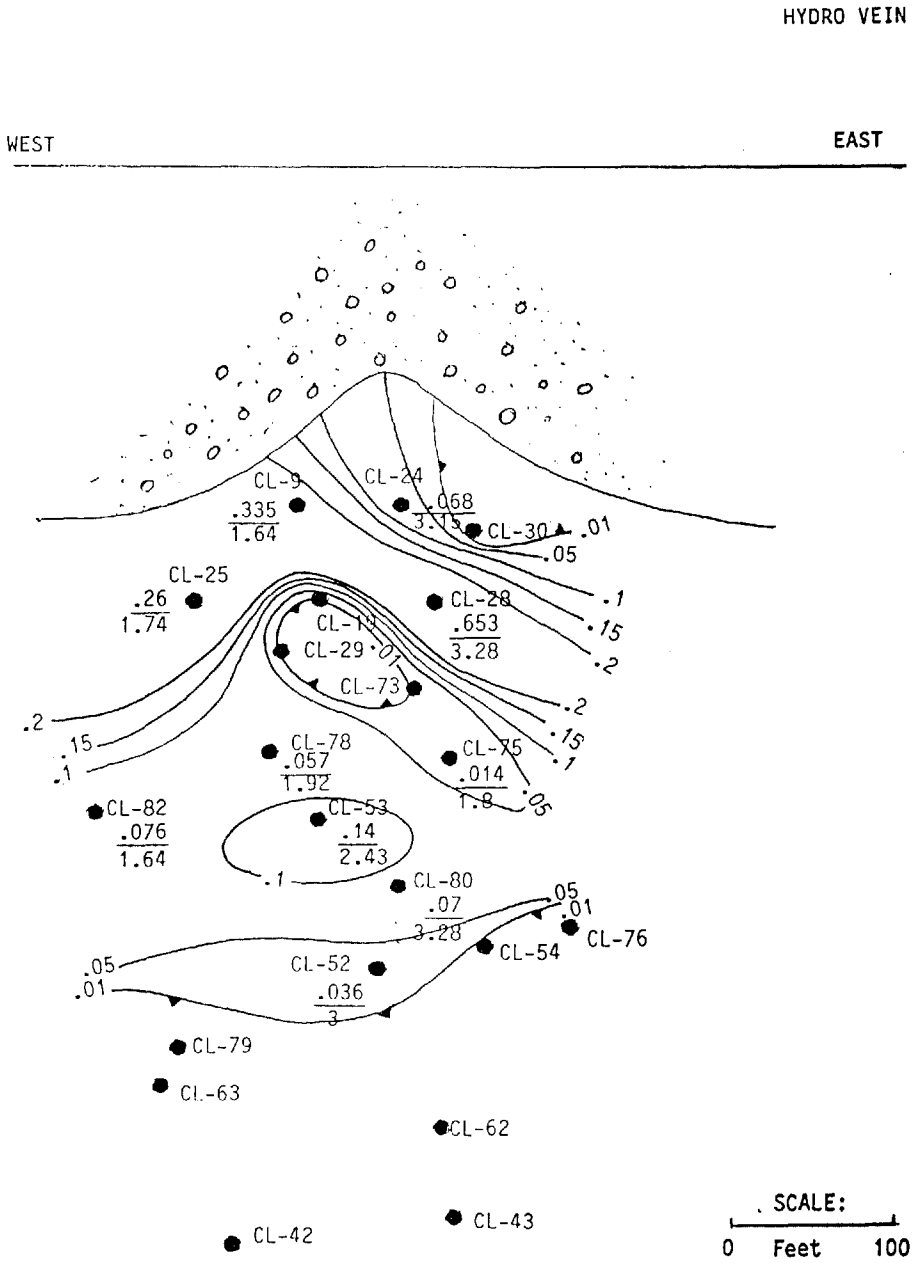
FIGURE 8



INTERNATIONAL BASLEN ENTERPRISES LIMITED, HARRICANA PROJECT, VAL D'OR.
HYDRO VEIN, DUBUISSON TOWNSHIP: VERTICAL SECTION LOOKING WEST. VALUES SHOWN ARE IN OUNCES OF GOLD PER TON OF ROCK ALONG DOWN HOLE LENGTHS GIVEN IN FEET

Compilation by J.L.Kirwan, May 2, 1989, from data reported by Petrol Canstat

FIGURE 9



INTERNATIONAL BASLEN ENTERPRISES LIMITED, HARRICANA PROPERTY, VAL D'OR, QUEBEC

LONGITUDINAL SECTION THROUGH HYDRO VEIN, VIEW NORTHWARD, TO SHOW DRILL INDICATED GOLD VALUES. VALUES IN OUNCES PER TON OVER FOOTAGES INDICATED

CL-11

FIGURE 10

About 2000 feet due west of the Hydro Vein, Drill Hole Number 1 of Harricana Amalgamated Mines Limited, in 1931, cut a 5 foot section which assayed 0.07, followed by a second 5 foot zone which assayed 0.04 ounces of gold to the ton. This zone might be a westward extension of the Hydro Vein.

As indicated above, the available information suggests the presence of two through-going gold-bearing zones in the area. The more northerly of these would include the material in the area northeast from the Harricana Shaft, the Hydro Vein, and the 1931 Harricana drill hole area. On extension this zone would come very close to the Stabell Resources No. 1 (Jacola Mine) Shaft from which some 50,361 tons of material grading 0.29 ounces of gold per ton have already been mined, and a further 120,000 tons in 2 zones grading 0.18 and 0.22 ounces of gold have been indicated in recent drilling. In the case of this vein or zone, a strike length approaching 2 miles is indicated, from the Sigma property to the east, through the Harricana, to the Stabell property to the west.

The more southerly of these two zones would go through the Harricana Shaft, through the 1920 discovery area, and possibly into the second of the above-mentioned drill-indicated gold-bearing zones on the Stabell ground---a strike length of approximately 1½ miles.

It is not here suggested that a continuous mineable length of gold ore exists across the property in these two zones, or even that the drill intersections are typical of the mineralization that is to be found. Rather, the mines and drill intersections indicate that the two zones exist. Locating the sections within them that can be turned into profitable mines will be the task to be undertaken in future exploration of the ground. That the potential exists for locating one or more deposits of reasonably large tonnage should give the encouragement needed to conduct this exploration.

5. OTHER ZONES

As has been mentioned above, continuation of the Sigma and the Lamaque Mines orebodies onto the southern parts of the property, is a

possibility. As this area is heavily built up, being the residential section of Val d'Or, exploration for these possible continuations may prove to be difficult.

6. THE HIGH VOLTAGE ZONE

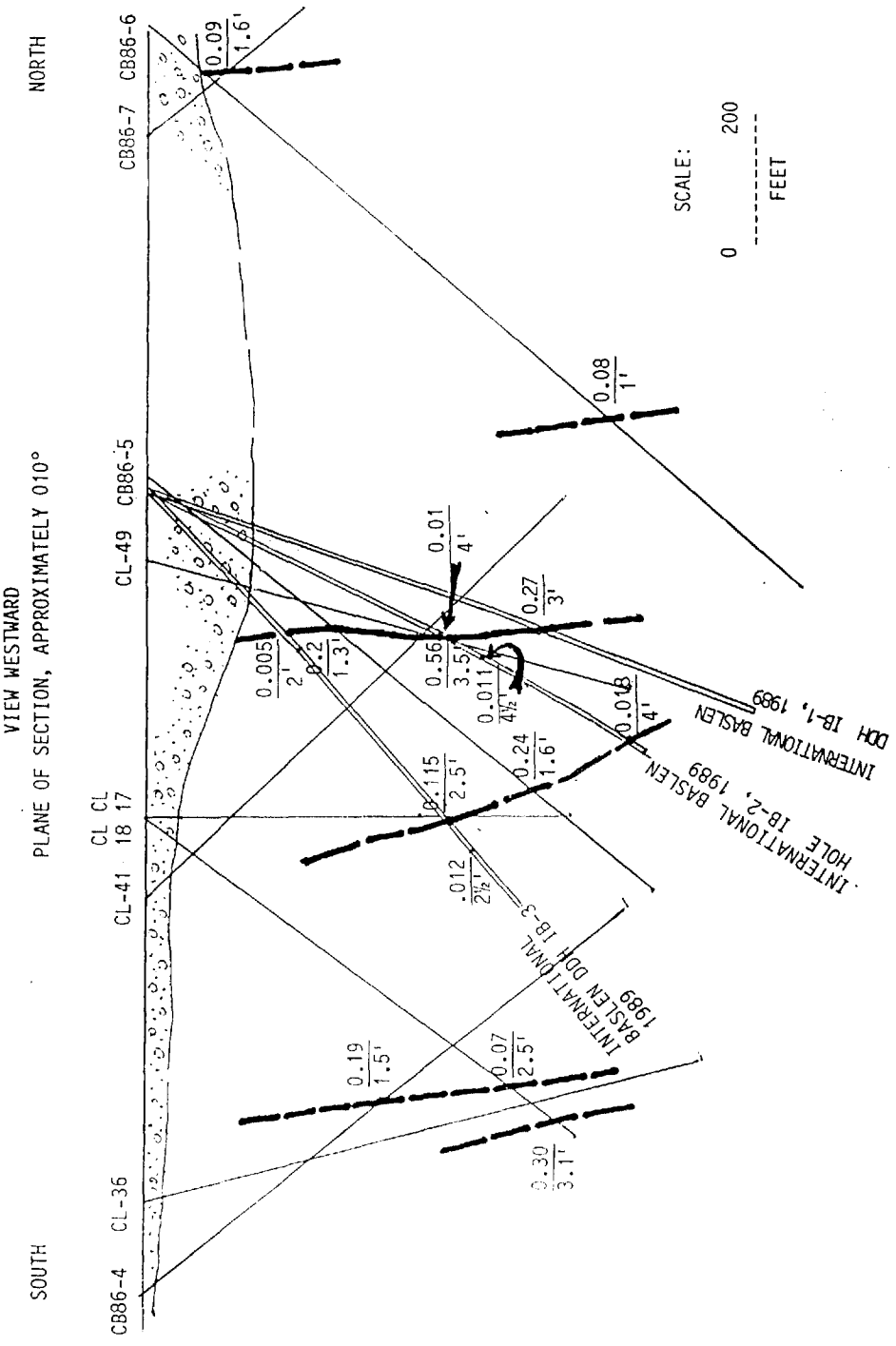
During the course of its exploration of the Harricana Mine property in 1986-87, Canstat Petroleum put down a succession of drill holes from north to south to effectively cross section the entire property. Hole number CL-49, begun on January 5, 1987 in an area immediately to the southeast of Lac Blouin, within the Bourlamaque Batholith, cut a 3.6 foot section of chloritic schist within the granodiorite which assayed 0.558 ounces of gold per ton (19.30 grams per metric ton along a core length of 1.1 meter). Although other drilling indicated the presence of several nearby gold-bearing zones within the same geological setting (which is similar to that at the nearby Belmoral Mines property to the east) little follow-up work was done in the area of this intersection, mainly due to commitments elsewhere on the property, including the Hydro Vein.

When the writer was asked in 1988 by the management of International Baslen Enterprises Limited, of Toronto, to begin a drilling program with only a modest amount of preparatory work, it was decided to drill a grid pattern in the vicinity of hole CL-49. This met with considerable success as the following 2 diagrams, plus a further 10 in the Appendix to this report, will illustrate.

Figure 11, page 26 below, shows the existence of multiple gold-bearing zones as demonstrated by Canstat's and E&B Exploration's diamond drilling. Baslen's first 3 drill holes, IB-1, IB-2 and IB-3 are also shown on the section.

Appendix Figures A-1 through A-6 show, in section, the results of Baslen's 11 drill holes, together with an interpretation of the geology deduced from these holes. Alternative interpretations of the results are possible.

Figure 12, page 27 below, shows a summary of the Baslen drilling,

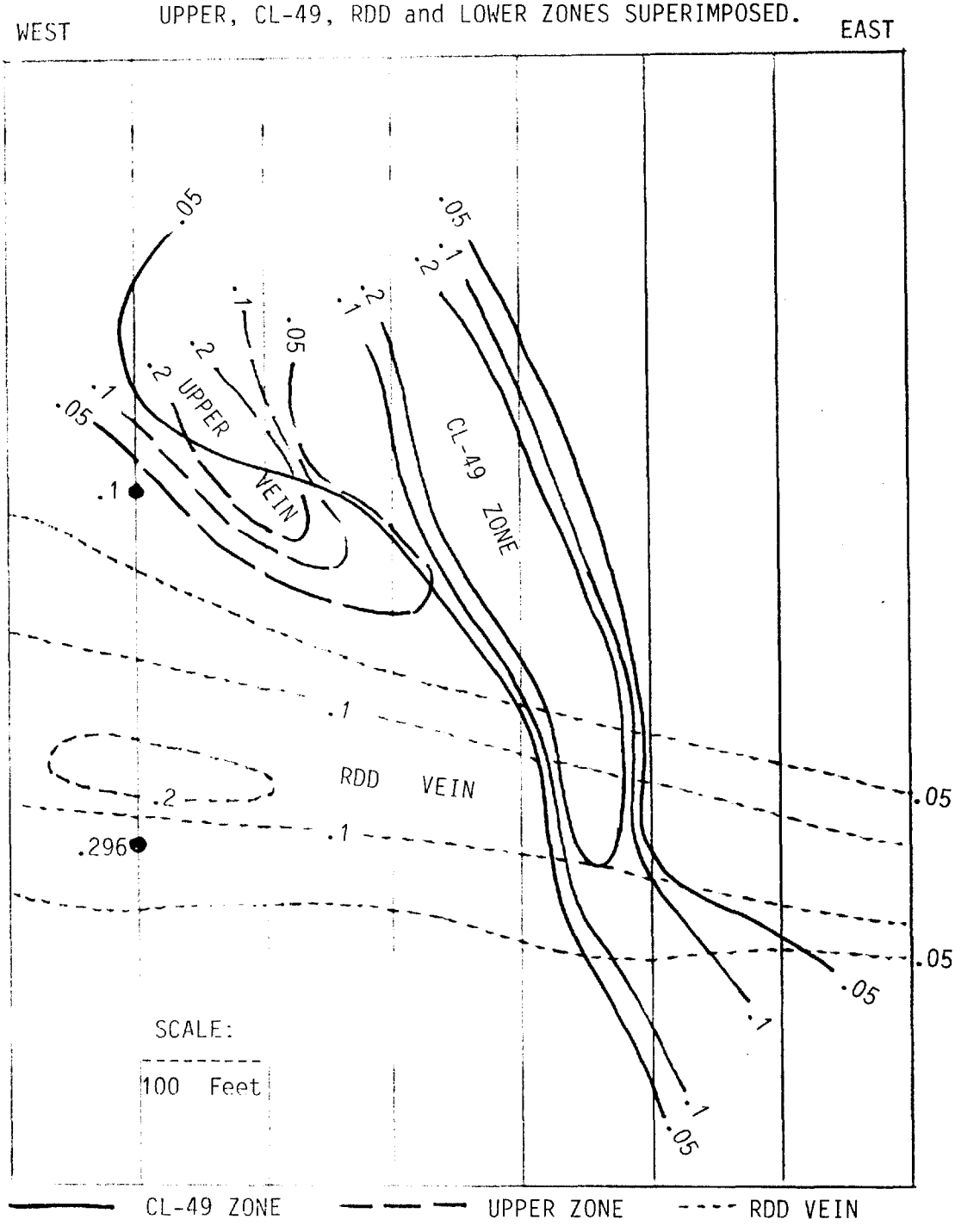


PROJECTION INTO 010 PLANE OF SIGNIFICANT GOLD INTERSECTIONS IN 1986-1987 DRILLING, SOUTHEAST OF LAC BLOUIN AREA, INTERNATIONAL BASLEN ENTERPRISES PROPERTY, VAL D'OR AREA, QUEBEC

Values are in ounces of gold per ton over lengths in feet; data reduced from original drill logs from Petrole Canstat, 1986, 1987. Compilation by John L. Kirwan, Earth Resource Associates, 1988.

FIGURE 11

SUMMARY LONGITUDINAL SECTION SHOWING THE
UPPER, CL-49, RDD and LOWER ZONES SUPERIMPOSED.



Values are in ounces of gold per ton of rock. Only 2 intersections exist for the Lower Zone, which is shown as 2 black dots. Compiled from Appendix Figures A-7, A-8, A-9, and A-10 by JL Kirwan, May 2, 1990. View northward.

FIGURE 12

as derived from Appendix Figures A-7 through A-10. These Appendix Figures were generated by plotting in longitudinal section the assay results, as obtained in various planes, from all diamond drilling put down between 1986 and 1989. There is some uncertainty regarding the assumption that 4 separate, curved gold-bearing zones are involved, as the attitudes of shearing in the drill holes suggest that more steeply-dipping material exists. However, Figure 12 gets around this uncertainty by projecting all values onto one plane, which shows the total gold content indicated in the rocks rather than in any one unit.

Calculations made on these results indicate the presence of approximately 26,000 tons of material to be in place with a grade of 0.16 ounces of gold to the ton. The wide-spaced drilling and the erratic nature of the intersects combine to make these figures very tentative. Commonly, in drilling off gold-bearing zones--in particular at the Belmoral Peter Ferderber mine to the east--3 drill holes in 5 will be "blanks" with no interesting gold values detected, even when the drilling is done within a highly economic ore "shoot" [1]. With this perspective, any respectable gold assay in the present environment must be considered to be highly significant, and any cluster of gold values, even though much below ore grade, must be considered to be highly encouraging. The zones are "open" both eastward and westward.

The distribution of mineable ore "shoots" in gold-bearing shears in general, and in the Peter Ferderber Mine in particular, is extremely erratic, so that negative results from a whole row of diamond drill holes may not indicate the shear to be barren: the difference between barren areas and economically mineable areas is that 100% of the drill holes in the former, and 60% of the drill holes in the latter, are to all intents and purposes, barren. Thus it is emphasized that obtaining even one good intersection in such a zone is important, but the results require very careful interpretation.

Figure 13, page 29 below, is a longitudinal section from the

---

1. Information on the Belmoral deposits is courtesy of Mr. Lan Vu, Chief Geologist for Belmoral in Val d'Or. Further information is from the Company's Annual Reports.

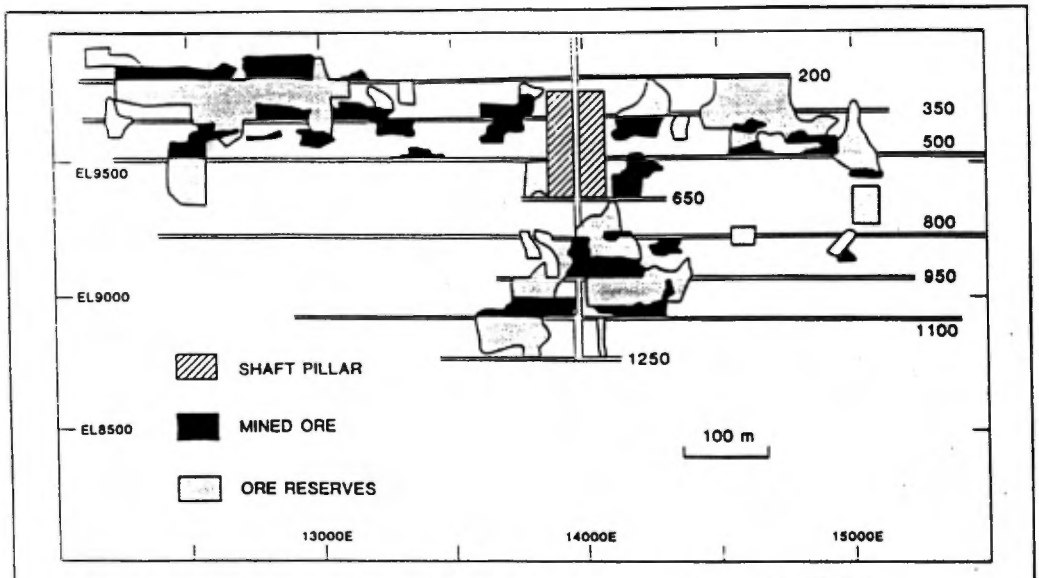


FIGURE 2. Longitudinal section of the Ferderber Mine showing ore reserves and mined ore as of April 1, 1985.

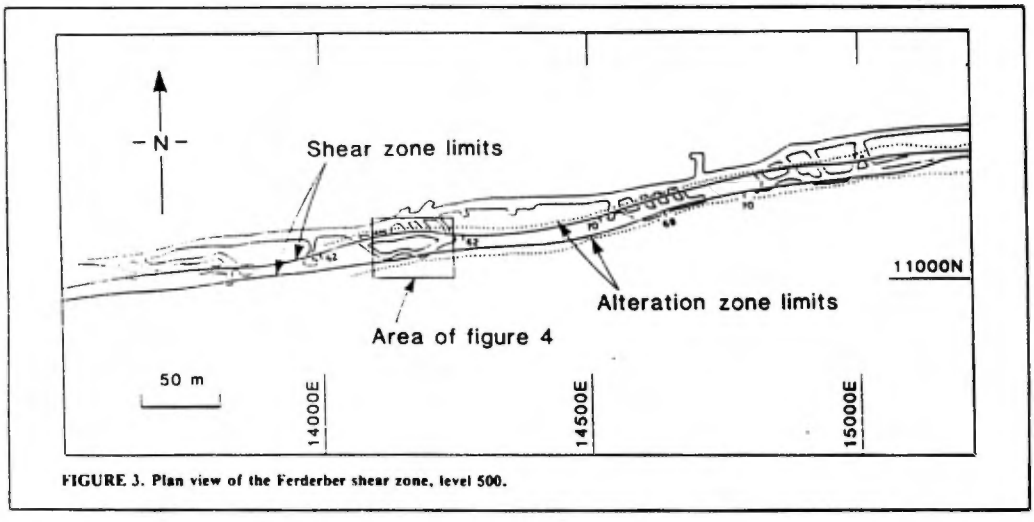


FIGURE 3. Plan view of the Ferderber shear zone, level 500.

FIGURE 13

Longitudinal and plan views of the shaft area of Belmoral's Peter Ferderber Mine, whose property adjoins that of International Baslen in Val d'Or, Quebec. Only a small section of the zone is shown as diamond drilling has extended it for a distance of over 12,000 feet, and geophysical indicators suggest that it continues much farther. Main rock type is granodiorite of the Bourlamaque Batholith, with ore contained in a chloritic shear zone.

This Figure is presented to show the very patchy nature of the gold-bearing zones. Reproduced from information supplied by Mr. Lan Vu, Belmoral Mines Limited.

Peter Ferderber Mine to the east, which is used here as a model for the gold mineralization to be expected in the High Voltage Zone. The very patchy nature of the gold mineralization is apparent in the Figure.

A pronounced "grain" to the maps showing the VLF Electromagnetic results on the Harricana and on the Belmoral ground, as well as on the intervening Dora and Bras d'Or ground, suggests that the Peter Ferderber zone may extend across the intervening distance and in fact be the High Voltage Zone.

On more positive evidence, diamond drill holes put down over the years suggest that the High Voltage Zone may extend to the eastern edge of the property, for,

Drill Hole CL-45 cut a section which assayed 0.007 ounces of gold per ton about 500 feet to the east, although which of the known units this may be is now uncertain. Lower down the hole two sections which assayed 0.1 over 1.5 feet and 0.13 over 1.6 feet were encountered

Drill Hole CL-51 about 1000 feet to the east cut 2 sections which assayed 0.05 over 3.5 feet and 0.06 over 2 feet, which appear to be on strike with 2 of the zones encountered in CL-45.

Drill Hole CL-31 about 5000 feet to the east cut a section which assayed 0.2 over 1.6 feet.

Drill Hole CL-34 about 6000 feet to the east (in all probability on Sigma's ground) cut a zone which assayed 0.01 over 3 feet.

And, on Sigma ground a further 1000 to 2000 feet to the east (that is to say, about 8000 feet along strike from the High Voltage Zone as drilled in 1989) there is a cluster of old drill holes for which assay information is not now available, but appear to have been put down into an east-west target in continuity with the east-west zone that the above drill holes appear to have followed.

In summary, available evidence, though relatively meagre, indicates that one or more gold-bearing shear zones extends through the Harricana property in an east-west direction. These appear to have the same geological setting and trend as the Peter Ferderber gold deposit, and are believed to have the same economic potential.

The High Voltage Zone was named because of its location under and near a high tension electrical transmission line of the Quebec Hydro, a fact which makes it eminently accessible for drilling.

7. THE NORTHEAST CORNER

In the tiny wedge of ground which adjoins the Harricana's northeast corner and forms the triangle between the north contact of the Bourlamaque Batholith, the property of Golden Rule Resources and Northern Abitibi Mining Corporation, and the present ground, Belmoral Mines Limited in 1988 conducted a program of concentrated diamond drilling in which some 25 or 30 holes were sunk into the contact phase of the granodiorite. The drill casing was left in the ground.

The abundance and concentration of this drilling suggests that Belmoral was in the process of defining mineralization of considerable importance, and trend of this drilling towards the present property's northeast corner would indicate that this area may be of very great importance. Although rumour in Val d'Or would indicate that the mineralization was both gold and copper, that grades were high, and thicknesses great, Belmoral as of the time of writing this report regards the details of this mineralization as confidential. It is suggested here that, as the zone appears to dip northward, it would quickly pass off of Belmoral's ground onto that of Golden Rule-Northern Abitibi, and be of little value to Belmoral, unless the adjoining ground could be acquired.

Golden Rule-Northern Abitibi, for their part, have put down several drill holes very close to the Belmoral drilling and, although these results are still confidential, the following has been released.

a. Hole NA89-01 intersected a 4.10 foot section in which 1.08 ounces of gold per ton and 3.16% copper occurs.

b. Hole NA89-03 intersected a 6.56 foot section in which 0.211 ounces of gold per ton and 0.35% copper occurs.

The mineralization appears to be within a silicious and silicified shear zone which occurs near the contact of the granodiorite, which dips steeply northward, and which trends southwestward onto the present ground. In this regard, drill hole CL-60, put down in 1987 some 2000 feet away from, but southwestward from, the Belmoral drilling, cut in a siliceous shear zone containing 80-85% white quartz, a 1.8 foot section with 10-20% chalcopyrite (ie. about 5% copper) with 0.011

ounces per ton gold. No assays were performed on the copper mineralization by Canstat Petroleum, who conducted the exploration work.

The above information suggests that a southwest-trending shear zone exists on the property and extends for a distance of at least 3000 feet, from the Golden Rule-Northern Abitibi drilling, through the Belmoral zone, and to Canstat's drill hole CL-60. On extension this shear would underly Lac Blouin and extend towards property owned by Falconbridge Nickel Mines in Dubuisson Township. The zone passes through several rock types, but in general appears to be related to the north contact of the Bourlamaque Batholith.

Its economic potential cannot be over-emphasized, for its apparent very long strike length and contained mineralization both in gold and copper, both suggest that a relatively high tonnage deposit may exist on the property.

8. THE SISCOE AND SULLIVAN EXTENSIONS

Figure 14, page 33 below, is a compilation map for the Stabell Mines property immediately to the west of the Harricana Mine property here under discussion. The Stabell ground occupies the intervening area between the known locations of the Sullivan Mine workings and the Siscoe Mine "K" Zone extension, and the present ground. As can be seen on this Figure, the "K" Zone has been traced, with encouraging results, about one-third the distance from the west edge of Stabell's property to the Harricana ground, which occupies the area marked as "Blouin Lake" on the Figure. Interest therefore attaches to this part of the Harricana ground.

As can also be seen on the Figure, the Sullivan Mine workings extend to the edge of the Stabell property, and drill indicated reserves have been obtained on the Stabell ground on extensions of this and parallel structures. As these structures cross the Stabell property, they appear to bend so that their trend changes from southeast to nearly east-west as the Harricana ground is approached. If this is so it would mean that the east-west structures described above as the High Voltage Zone may represent extensions of the Sullivan Mine zones.

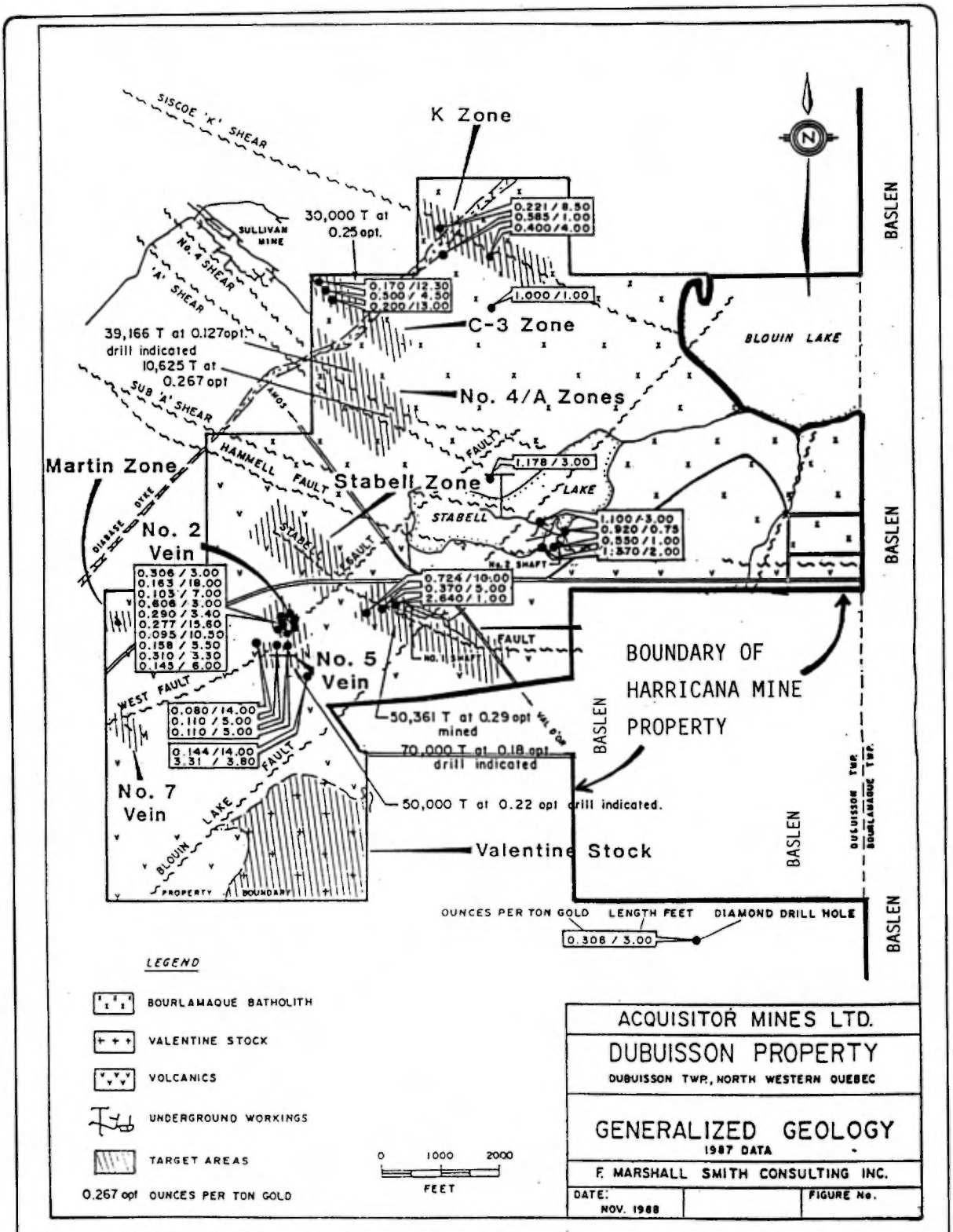


FIGURE 14: Stabell Mine property, Dubuisson Township, Quebec. Summary of structures and gold mineralization on the property. (Data courtesy of Steven Migliacci, Stabell Resources Limited)

The problems to be expected in locating and tracing both the Sullivan and the Siscoe zones onto, and through the Harricana Mine property will probably be very great. Even during the life of the Sullivan Mine the ore zones were difficult to follow, as the orientations of the various vein structures were often unpredictable. In particular, "flats" which contained a large tonnage of good ore were often not detected in exploration drilling from underground, even when the drift was in the main structure itself. Consider, then, the problems to be encountered when the location of the main structure itself is not know----much less the veins and the "flats".

Despite the above pessimistic view of the problems of exploring for these structures on the Harricana Mine ground, the rewards to be obtained by successful exploration may be very great, so that every effort should be made to understand the geology of these properties, the intervening ground, and the Harricana ground.

Considering the economic potential of the various zones of known mineralization on the ground, and the potential for extending these zones, and considering further the presence of nearby, major, gold producing mines and the fact that their controlling structures may extend onto the present ground, and considering yet further the significance of recent discoveries on nearby ground, it would appear that the Harricana property is one of the most favorable ones that one could imagine for locating economically viable mineral deposits. That both copper and gold are present only enhances the ground. That geologically favorable areas, such as the northern contacts of the Bourlamaque Batholith, have not been explored as yet, adds much intrigue to the property.

In the writer's professional opinion, the Harricana Mine property warrants a very large exploration and development program for the purposes of defining and extending mineralization already known to be present, for discovering and exploring new zones, and for exploring favorable environments for as yet undiscovered deposits.

PART 3

RECOMMENDATIONS

INTRODUCTION

The property has had a long history of mineral exploration, with much valuable work done on the ground, but with considerable information derived from this work lost, or buried in company files. The first task in the rational exploration and development of the ground would be to track down and obtain copies of all surviving work that has been done on the ground, whether successful or not, and to locate and obtain data from surrounding ground, in particular that which covers the terrain between the Harricana claims and present or past producing mines.

The second task is to preserve this information: surviving drill core onto racks, maps transferred to stable (Mylar) base, and field notes identified and stored.

The third task will be to compile, integrate and condense all this material onto a series of maps, or in the case of the old mine, a model, at a uniform scale, and to uniform standards.

The fourth task will be to take the old drill core and relog it to uniform standards, reassay and otherwise test it, and to compile the material onto the maps. In this regard, for example, the Canstat Petroleum drilling is still in existence, but it was poorly logged, incompletely assayed, and badly plotted.

The fifth task will be to integrate and interpret all the above data in terms of a knowledge of the local geology and the setting of orebodies.

The sixth task will be to conduct new surveys where necessary and to compile and integrate these with the previously obtained information.

The seventh task will be to conduct a new, directed, exploration program, mainly through drilling, of targets located during the recommended work or in previous work.

Much of this recommended work can be, and has been, conducted out of sequence, and with considerable success. However, as the targets get more abundant and as the tasks get more complicated and the mass of data grows, a greater degree of organization will be needed.

One of the biggest hurdles at the moment is the lack of physical space for work in the area: not one square inch of surface rights go with the 2822 acres of ground described in the present report. The work on the ground will need office space, core storage facilities, reproduction and communications abilities, and personnel. In short, in the writer's opinion, the property will warrant the sort of space, staff, and preparation that would normally go into the opening of a regional exploration office, only the regional exploration will be only on one block of ground. This is not to say, however, that more widespread exploration could not be conducted from such an office; indeed, an expectation of exploration and mining opportunities in the area should be maintained as such opportunities tend to be inevitable.

Taking for granted the above logistic considerations, the following specific recommendations and cost estimates are made so that specific action might begin without delay on any of the targeted areas.

LOGISTICS

Much of the ground is underlain by downtown and suburban Val d' Or, a situation that tends to restrict one's freedom of action during an exploration program and produce costly dilemnas should it be necessary to go underground to exploit a deposit. For diamond drilling purposes, work can take place from road rights-of-way, water supplies can come from municipal hydrants, and runoff can be through the sewer system, thanks to a friendly and cooperative City Council and Works Department in Val d'Or, not to mention an understanding and mine-oriented community. The old Harricana Shaft, being in the Industrial Park area also poses problems, the most serious being the presence of four nearby houses whose purchase would be desirable in order to begin operations via this old shaft.

An alternative to using the old Harricana Shaft for mining purposes would be to use the Stabell No. 2 Shaft on the adjoining Stabell Resources property, which shaft is some 800 feet from the property line in Duparquet Township in the vicinity of the western extension of the Hydro Vein, and possibly much closer to the western extension of the High Voltage Zone on Stabell property. This shaft has been newly refurbished, currently has a headframe on it, with hoist, and is available--with the surrounding property--from Stabell Resources and Aquisitor Mines. Underground workings extend to beyond 1000 feet depth. These underground workings can be used not only for access to the mineralization on the present property, but can also be used for diamond drilling of the zones at depth, down to about 1500 feet. Once a network of underground workings is established on the Harricana property for mining purposes, the Harricana Shaft can be opened for ventilation and as an escape route.

For these reasons, access to the Stabell property is recommended at an early stage in the exploration and development of the property.

SPECIFIC RECOMMENDATIONS

The following recommendations are made with the assumption that adequate working space, technical facilities, and personnel are avail-

able on the property, or nearby. Again, the facilities of Stabell Resources might be pressed into service. The use of a local consultant should be considered with caution for, in the writer's opinion, the work done both for E&B Exploration and for Canstat Petroleum between 1981 and 1987 by local firms is technically unacceptable: drill core was inadequately logged, sampled and stored, and summary maps contain improperly plotted results. Much of this work will have to be redone. For a small program, as was conducted in 1989, it proved possible to transport the core to Timmins and log and plot it there.

Preliminaries

The 10 drill holes in storage in Timmins, and the 1 in Shillington, Ontario, should be combined with the 90 or so in existence in Val d'Or, re-logged, resampled, reassayed, replotted and integrated with the previously-available material. All existing data in company files and government repositories should be acquired and integrated with the above. Some fill-in geophysical surveys should be done.

Estimated, 2 geologists, 2 assistants, 1 year, plus vehicles, assays, reproduction facilities. Estimated cost, $300,000

The High Voltage Zone

Initially 10,000 feet, expanding as needed to 30,000 feet, of diamond drilling to test for on-strike continuity of this zone eastward to the Sigma property line, and westward onto the Stabell property; includes 10,000 feet of underground drilling from the Stabell No. 2 mine workings.

Estimated 2 geologists, 2 assistants, and probably 2 drills over a 6 month to 1 year period. Estimated cost, not including dewatering and access underground, $750,000

The Hydro Vein and Extensions

An initial 5000 feet of drilling to test for values in the old drilling to the northeast of the Harricana Shaft area, to connect this area with the Hydro Vein zone, and to extend this mineralization westward towards the intersections obtained in 1931 is recommended so as to test for the potential of locating more or less continuous mineralization. A further 1000 feet might be spent northwestward from the Harricana Shaft in the presumed area where the Harricana drag fold intersects this zone.

Estimated, 1 geologist, 1 assistant, 6 months at an estimated cost of $150,000

The Harricana Mine and Discovery Area

A similar drilling footage and personnel requirement as the Hydro Vein to test for continuity of the Harricana Mine zone to the 1920 discovery area and verify reported intersections near the township line. Estimated cost $150,000

Lamaque and Sigma Mine Extensions

Along the east boundary of the property through the City of Val d'Or, several long holes (and, to the south, a deep hole) to test for continuity of the Sigma and Lamaque units onto the ground. Work should be coordinated with the Sigma Mine staff, most particularly in relation to several parallel drill holes on their side of the line, and also with relation to their ground geophysical results.

Estimated, 10,000 feet of drilling; 1 geologist and 1 assistant for 6 months $250,000

The Northeast Corner

Initially, a program of close-spaced geophysical surveys should be conducted so as to trace the sought-for structure southwestward from the Belmoral drilling area. Even if the structure is not directly located geophysically the "grain" of the resultant maps will help guide the location of the subsequent drill holes. To judge from the Belmoral and the Northern Abitibi-Golden Rule drilling, more than one mineralized zone might be anticipated. $ 50,000

A first phase of about 5000 feet of diamond drilling might be planned over a period of 6 months involving one geologist and one assistant at a total estimated cost of $150,000

If, as the writer believes, this drilling proves to be successful in locating important mineralization, a drill program would then be warranted to define the new mineralization. This might proceed in units of about 10,000 feet and related costs of $250,000 per unit.

SEQUENCE

The order in which this work progresses will depend on the available cash, the company philosophy, and personnel available. As the Lamaque and Sigma Mine Extensions phase involves less likely chances of immediate success, it should be of the lowest priority. As the Northeast Corner phase involves the potential discovery of a new zone of mineralization that would be relatively easy to define and at a reasonably low cost, this phase is given highest priority in these recommendations.

Of the remaining targets, the High Voltage Zone would be of highest priority, for extending its known strike length eastward or westward may yield a reasonably high tonnage of mineable material, and extending the zone westward towards the Stablee No. 2 shaft may yield an access route to the zone, via this shaft, that would avoid cost and complications of sinking a new shaft, particularly as it would be in a developed area.

Initially, an expenditure in the order of $250,000 might be made on the ground by putting down several test drill holes in the northeast corner, both outside and at the contact of the granodiorite to test for the continuation of the Belmoral-Northern Abitibi-Golden Rule copper-gold zone towards drill hole CL-60, and inside the granodiorite to test for the presence of one or more additional zones modelled after the Sullivan orebody, which is in a similar geological environment in the western "nose" of a lobe of the Bourlamaque Batholith. If successful, news from the drilling program should facilitate financing of future work on the property, along the lines of the recommendations contained herein, and enhance the value of the remaining claims as a whole for any negotiations that may ensue for partitioning the property through joint venturing, optioning, or selling the ground. This suggested small program could also proceed with virtually no overhead costs and would not require establishing a presence in Val d'Or.

If all the phases of the recommended work took place at the same time, it would involve the employment and training of a swarm of geologists who would be operating in an environment of haste and confusion with no long-term indication of employment. It would be preferrable to phase the work over a longer period of time so that a useful infrastructure and databank can be built up, and each geologist can become familiar, and then expert, in particular geological environments on the property.

The above-proposed work would cost in the order of $2,000,000 and would take place over a one to two year period of time. If operations from a dewatered Stabell No. 2 Shaft are to be undertaken, then additional costs of dewatering, operating, and renting the shaft apply.

GENERAL SUMMARY

The International Baslen Harricana Mine claim block consists of 73 contiguous mining claims assembled into an irregular rectangle oriented north-south in, and northward from, the City of Val d'Or, northwestern Quebec, and underlying an area of about 2822 acres. Geologically this block includes, in its southern third, a succession of volcanic and sedimentary rock, and ultrabasic rock of either volcanic or intrusive origin, which trends east-west, dips steeply to the north, and contains most of the principal mines of the Val d'Or area, notably the Lamaque, Sigma, Stabell No. 1, Goldex, Joubi, and Kiena Mines. In the central part of the claims the rocks consist of granodiorite of the Bourlamaque Batholith in which the Sullivan and Peter Ferderber Mines occur. The northern parts of the ground contain, like the southern part, a succession of altered lavas and ultramafic rock in which mines such as the Siscoe, and possibly the Bras d'Or occur. Also in the northern part of the ground, a "nose" of the Bourlamaque Batholith enters the ground in an area where recent discoveries of copper and gold mineralization occur, and where, on strike with these, a copper discovery was made on the ground itself, some 2000 feet away.

On the basis of its geological setting anone the property has considerable interest. In addition to this, the structures containing the mineralization in the Siscoe and Sullivan Mines are thought to continue southeastward onto the ground, the structure containing the Stabell No. 2 zone and that containing the Peter Ferderber Mine are both believed to extend onto the ground, and the east-west structures that exist on the Sigma and the Stabell No. 1 zones are believed to extend onto the property.

Mineralization is known on the ground:

a. at the Harricana Mine, where some 25,000 tons of gold-bearing material has been outlined with a contained gold content of approximetely 0.27 ounces per ton down to 300 feet (66,000 tons at 0.16 ounces per ton as recalculated in 1981). This zone is "open" both along strike and down dip and may extend across the property to connect with the Stabell No. 1 vein (south zone) some 8000 feet to the west,

b. at the Hydro Vein where some 26,345 tons containing 0.12 ounces per ton of gold was outlined in 1987, open in both directions along strike, which appears to be part of a gold-bearing zone which extends across the property in an east-west direction onto the Sigma Mine property to the east (where old gold intersections in drill hole confirm its presence) and onto the Stabell property to the west to their No. 1 shaft, and

c. in the High Voltage Zone where drilling in 1989 outlined some 26,000 tons grading 0.16 ounces of gold to the ton in several veins which are "open" eastward, westward, and down dip and which older drilling indicates extends across the property some 7000 feet, eastward onto Sigma ground, and possibly beyond into the Bras d'Or Mine or farther east to the Belmoral Peter Ferderber Mine. Westward extension of this zone would pass close to the Stabell No. 2 shaft and, possibly, farther west it may bend towards the Sullivan Main Zone.

d. A drill intersection in the northern part of the ground in 1987 (Hole CL-60) cut interesting copper mineralization with low gold values in a siliceous shear zone, which may be the southwestward extension of mineralization discovered in adjoining ground owned by

Golden Rule Resources and Northern Abitibi Mining, which mineralization was discovered in drilling in a zone intensively explored by Belmoral Mines.

In order to explore, test, and develop the areas of known mineralization on the Harricana Mine property, and to discover additional mineralization, an exploration program has been recommended at a cost of about $2,000,000, consisting of

a. data acquisition, compilation, interpretation,	$300,000
b. diamond drilling, 30,000 feet in the High Voltage Zone to test its continuation across the property	$750,000
c. about 6000 feet of drilling on the Hydro Vein	$150,000
d. about 6000 feet of drilling at the Harricana Mine and extensions eastward and westward	$150,000
e. about 10,000 feet of drilling to cross-section the property along its east boundary to search for extensions of the Lamaque and Siscoe orebodies	$250,000
f. geophysical surveys and about 6000 feet of diamond drilling in the vicinity of the northeast corner	$200,000
g. contingencies, overhead, travel, etc.	$200,000
TOTAL	$2,000,000

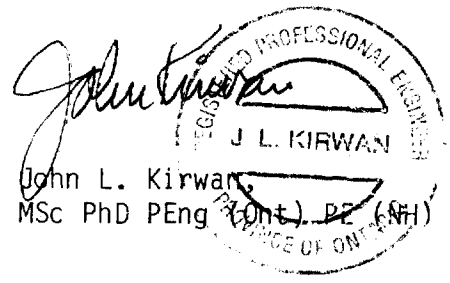
It is implicit in the exploration program that success in any one phase may divert funds and energies to that phase from other segments of the above program. It has been recommended that the first part of the program to undertake would be item f. above, where early success at relatively low cost may occur.

For development of mineralization in the south central part of the ground, acquisition of the Stabell No. 2 shaft would be greatly to be desired. The management of Stabell Resources and Acquisitor Mines, the owners of this shaft, have agreed in principle to such an acquisition.

The above costs include estimates for office, personnel, and consultants as well as the drilling, or geophysical surveys, that are listed.

It is difficult to overemphasize the geological and economic importance of this ground as seen by the present writer. Geologically it straddles both contacts of the Bourlamaque Batholith and includes the western "nose" of the northern lobe of this body, and thereby contains the geological environments of most of the major gold and copper-gold deposits in the immediate Val d'Or area. Taken alone, this amounts to an exceptionally important block of ground, if considered only on geological grounds. As the structures that contain the mineralization in important adjoining mines such as the Sigma, Belmoral,and Stabell appear to pass through the claims, and as other structures such as the Sullivan, and the Siscoe "K" Zone, all trend towards the ground, the property would appear to be yet more important on economic grounds. As three areas of contained gold mineralization with indicated tonnages of mineralization are known from the ground itself, this ground becomes very interesting indeed. And as newly discovered gold-copper mineralization on adjoining ground to the northeast may connect with copper mineralization discovered on the present ground approximately along strike, the property becomes, in the writer's opinion, exceptionally important as a potential location for the development of several gold or gold-copper deposits.

Respectfully submitted,



John L. Kirwan,
MSc PhD PEng (Ont.) PE (NH)

At Timmins, Ontario
May 10, 1990

DECLARATION

I, John Laurence Kirwan, of the City of Timmins, Province of Ontario, Canada, and of the Town of Centre Harbor, State of New Hampshire, United States of America, hereby state:

1. that I am a practising Consulting Geologist with offices at 1111 Government Road, Porcupine, Ontario, and in Old Meredith Road, Centre Harbor, NH,
2. that I have practised my profession as a Geologist continuously since 1961 and as a Consulting Geologist continuously since 1972.
3. that I am President of Earth Resource Associates, a Consulting firm that was incorporated in the Province of Ontario in 1975,
4. that I received the degree of Bachelor of Science in Geology and Mathematics from Carleton University in Canada, and the degrees of Master of Science and Doctor of Philosophy, both in Geology, from the University of London in England,
5. that I am a Professional Engineer registered in the State of New Hampshire and in the Province of Ontario and that my licence to practise in either jurisdiction is not now, and never has been, in a state of suspension or revocation,
6. that I am a Life Fellow of the Geological Association of Canada, of the Royal Geographical Society, and of the Royal Society of Antiquaries of Ireland, and a Fellow, Associate, or Member of other Professional Societies in the USA, England, and Brazil,
7. that I have conducted exploration programs in Canada (for Amax, Hollinger, and McIntyre Mines), in the USA (for NL Industries) in Brazil (for Utah International, Petrobras, Metalshell, St. Joe, Brascan, and others), in Ireland and Iran (for Amax), in Mexico (for Amoco Minerals), and in Africa, Australia, and the Carribean Islands (for various clients),
8. that I was employed as Senior Consultant for Earth Satellite Corporation of Washington DC and Berkeley, California as a specialist in Remote Sensing and Geophysics, and while so employed was Consultant to the Governments of Brazil, Colombia, and Iran, and that subsequently, as Principal Consultant to Earth Resource Associates was Consultant to the Governments of Brazil, the Dominican Republic, Barbados, and Venezuela,
9. that I do not now have, and do not anticipate receiving, any direct or indirect financial interest in the property referred to in this report.

Respectfully submitted,

John Kirwan

John L. Kirwan

APPENDIX

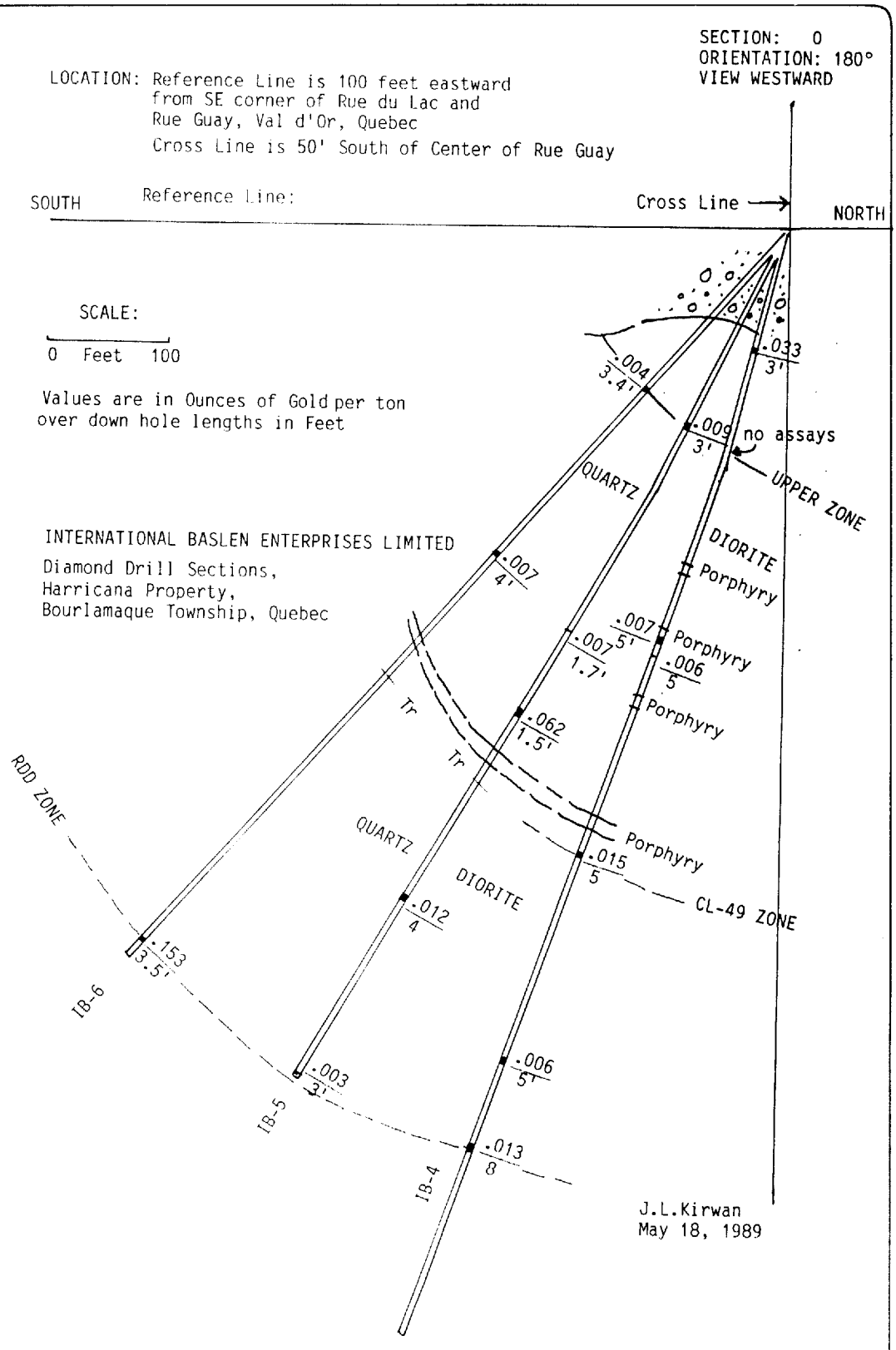

SECTION: 0
ORIENTATION: 180°
VIEW WESTWARD
LOCATION: Reference Line is 100 feet eastward from SE corner of Rue du Lac and Rue Guay, Val d'Or, Quebec
Cross Line is 50' South of Center of Rue Guay
SOUTH
Reference Line:
Cross Line
NORTH
SCALE:
0 Feet 100
Values are in Ounces of Gold per ton over down hole lengths in Feet
INTERNATIONAL BASLEN ENTERPRISES LIMITED
Diamond Drill Sections,
Harricana Property,
Bourlamaque Township, Quebec
.004 3.4'
.033 3'
.009 3'
no assays
UPPER ZONE
QUARTZ
DIORITE
Porphyry
.007 4'
.007 5'
.007 1.7'
Porphyry
.006 5
Porphyry
.062 1.5'
Tr
Tr
RDD ZONE
QUARTZ
DIORITE
Porphyry
.015 5
CL-49 ZONE
.012 4
.153 3.5'
IB-6
.003 3'
IB-5
.006 5'
.013 8
IB-4
J.L.Kirwan
May 18, 1989

FIGURE A-1

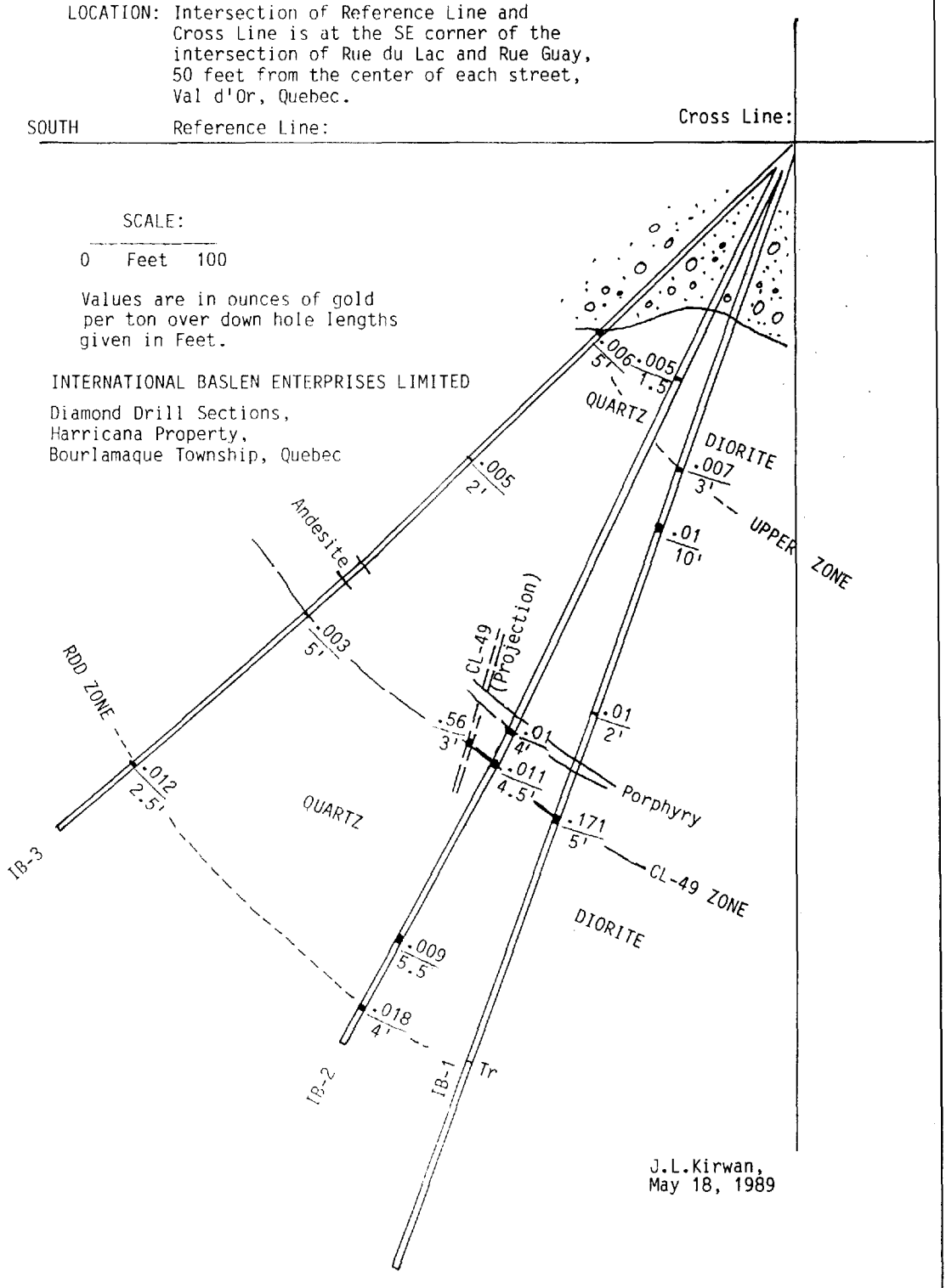

SECTION: 1W
ORIENTATION: 180°
VIEW WESTWARD
LOCATION: Intersection of Reference Line and Cross Line is at the SE corner of the intersection of Rue du Lac and Rue Guay, 50 feet from the center of each street, Val d'Or, Quebec.
SOUTH
Reference Line:
Cross Line:
SCALE:
0 Feet 100
Values are in ounces of gold per ton over down hole lengths given in Feet.
INTERNATIONAL BASLEN ENTERPRISES LIMITED
Diamond Drill Sections,
Harricana Property,
Bourlamaque Township, Quebec
.006 .005
5' 1.5'
QUARTZ
DIORITE
.007
3'
UPPER ZONE
.01
10'
.005
2'
Andesite
.003
5'
CL-49 (Projection)
RDD ZONE
.56
3'
.01
4'
.01
2'
.012
2.5'
QUARTZ
.011
4.5'
Porphyry
.171
5'
CL-49 ZONE
IB-3
DIORITE
.009
5.5'
.018
4'
IB-2
IB-1
Tr
J.L.Kirwan,
May 18, 1989

FIGURE A-2

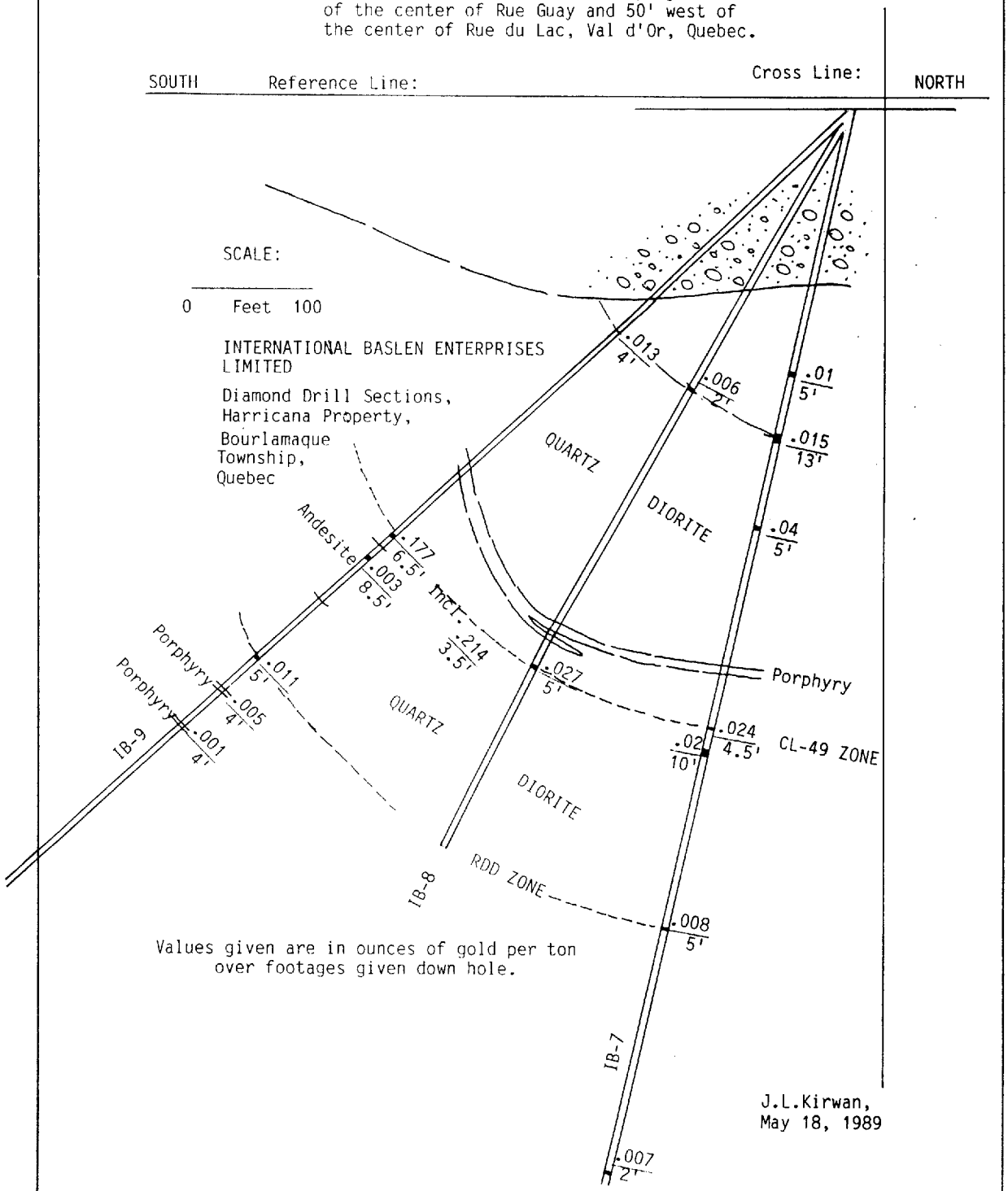

SECTION: 2W
ORIENTATION: 180°
VIEW WESTWARD
LOCATION: Intersection of Reference Line and Cross Line is 50' south of the projection of the center of Rue Guay and 50' west of the center of Rue du Lac, Val d'Or, Quebec.
SOUTH
Reference Line:
Cross Line:
NORTH
SCALE:
0 Feet 100
INTERNATIONAL BASLEN ENTERPRISES LIMITED
Diamond Drill Sections, Harricana Property, Bourlamaque Township, Quebec
.013 4'
.006 2'
.01 5'
.015 13'
.04 5'
.177 6.5'
.003 8.5'
.214 3.5'
.011 5'
.005 4'
.001 4'
.027 5'
.024 4.5'
.02 10'
.008 5'
.007 2'
QUARTZ
DIORITE
Andesite
Porphyry
Porphyry
Porphyry
QUARTZ
DIORITE
IB-9
IB-8
IB-7
RDD ZONE
CL-49 ZONE
Values given are in ounces of gold per ton over footages given down hole.
J.L.Kirwan,
May 18, 1989

FIGURE A-3

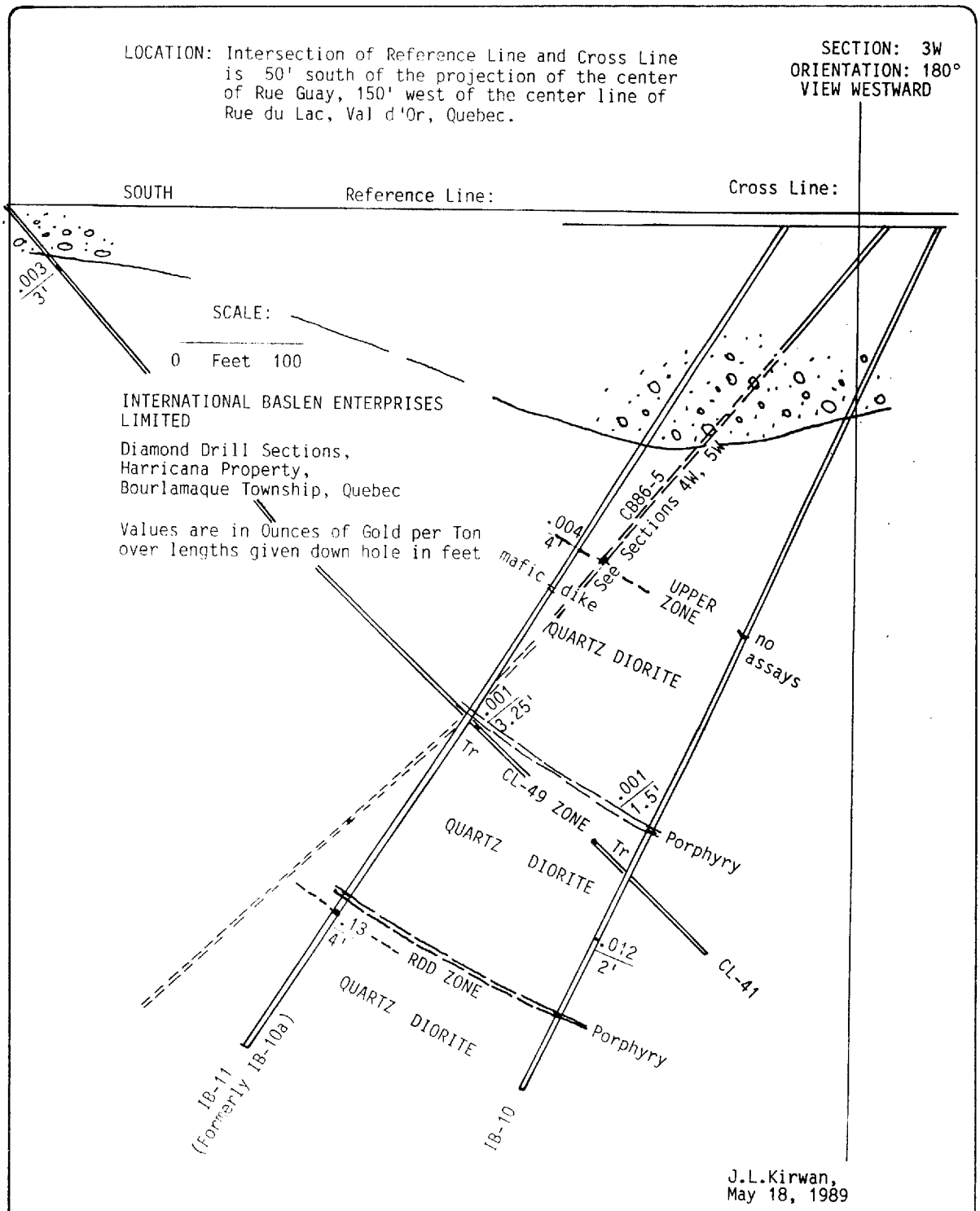

LOCATION: Intersection of Reference Line and Cross Line is 50' south of the projection of the center of Rue Guay, 150' west of the center line of Rue du Lac, Val d'Or, Quebec.
SECTION: 3W
ORIENTATION: 180°
VIEW WESTWARD
SOUTH
Reference Line:
Cross Line:
SCALE:
0 Feet 100
INTERNATIONAL BASLEN ENTERPRISES LIMITED
Diamond Drill Sections,
Harricana Property,
Bourlamaque Township, Quebec
Values are in Ounces of Gold per Ton over lengths given down hole in feet
.003/3'
.004/4'
CB86-5 Sections 4W, 5W
see
UPPER ZONE
mafic dike
QUARTZ DIORITE
no assays
.001/3.25'
Tr
CL-49 ZONE
.001/1.5'
Porphyry
QUARTZ DIORITE
Tr
.13/4'
RDD ZONE
.012/2'
CL-41
QUARTZ DIORITE
Porphyry
IB-11
(Formerly IB-10a)
IB-10
J.L.Kirwan,
May 18, 1989

FIGURE A-4

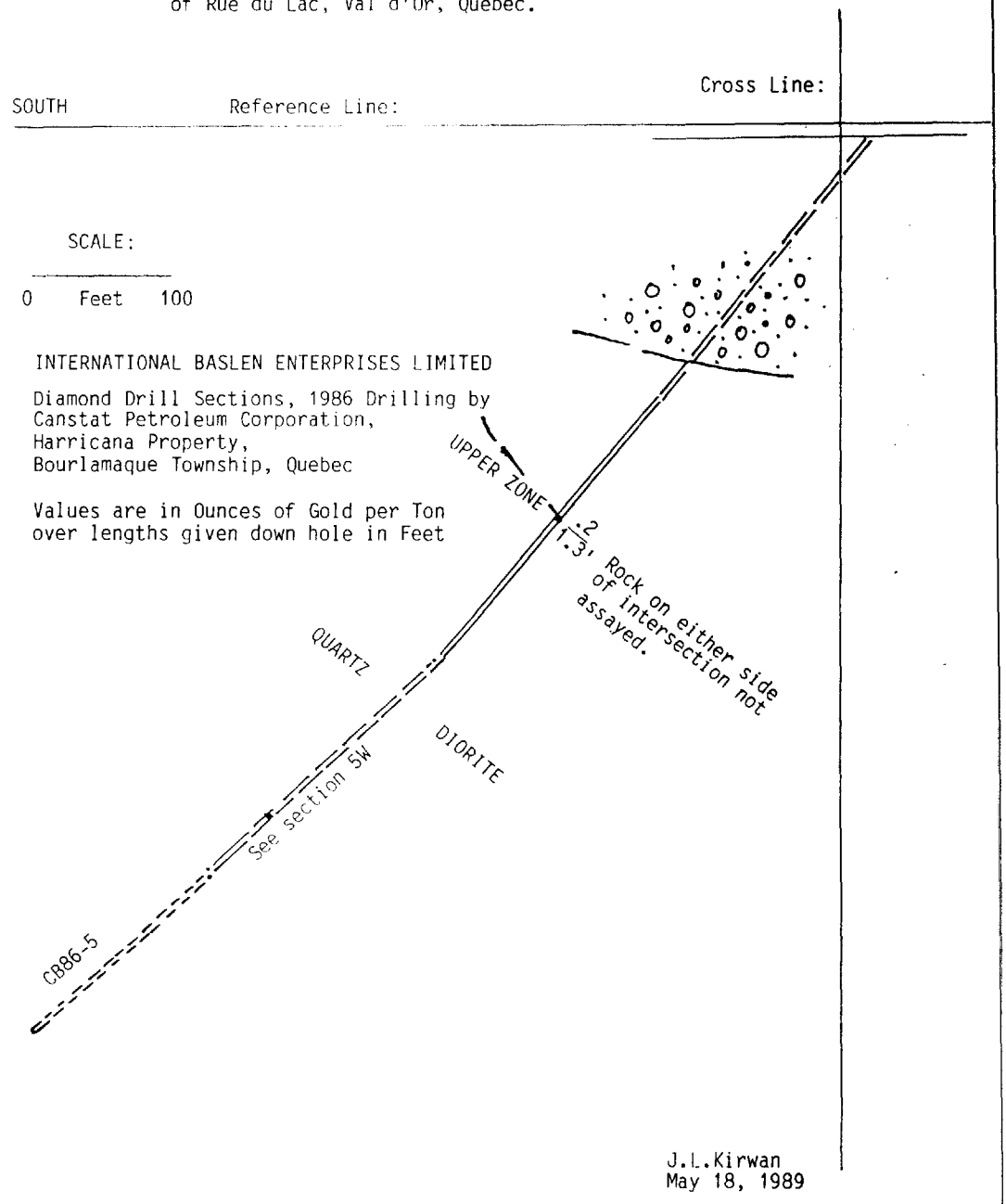

LOCATION: Intersection of Reference Line and Cross Line is 50' South of the projection of the center line of Rue Guay, 250 feet west of the center of Rue du Lac, Val d'Or, Quebec.
SECTION: 4W
ORIENTATION: 180°
VIEW WESTWARD
Cross Line:
SOUTH
Reference Line:
SCALE:
0 Feet 100
INTERNATIONAL BASLEN ENTERPRISES LIMITED
Diamond Drill Sections, 1986 Drilling by Canstat Petroleum Corporation, Harricana Property, Bourlamaque Township, Quebec
Values are in Ounces of Gold per Ton over lengths given down hole in Feet
UPPER ZONE
2
1.3'
Rock on either side of intersection not assayed.
QUARTZ
DIORITE
See section 5W
CB86-5
J.L.Kirwan
May 18, 1989

FIGURE A-5

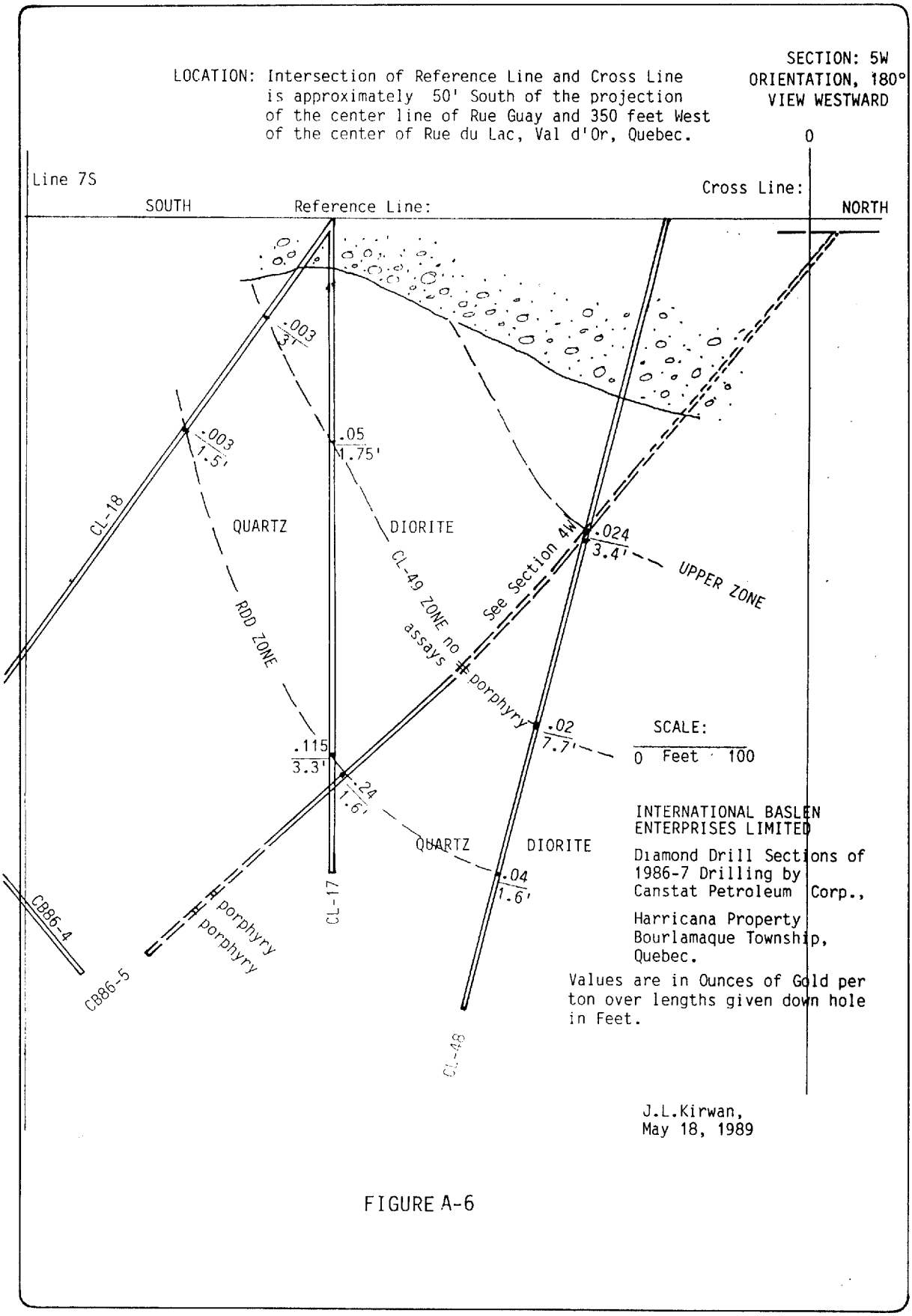
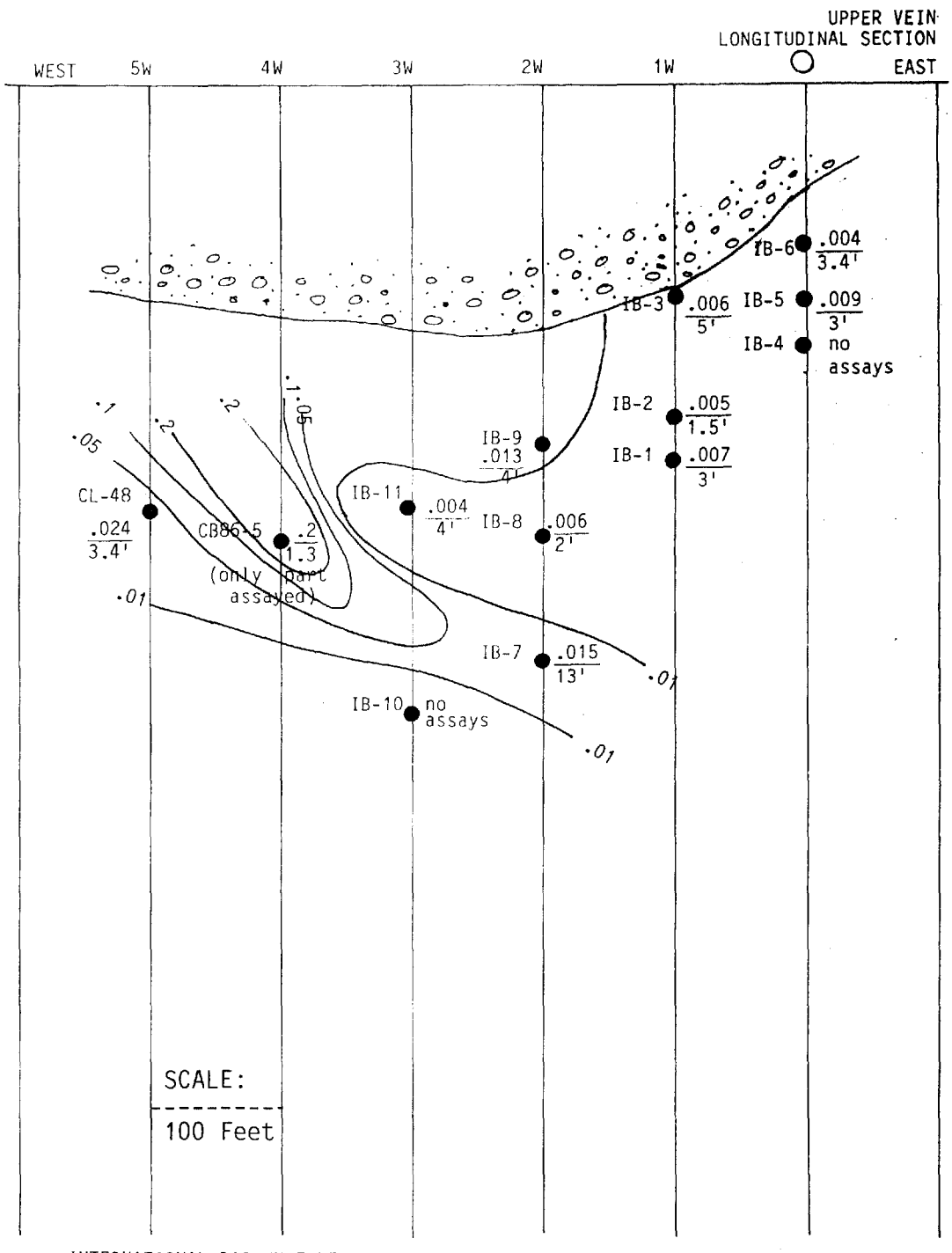
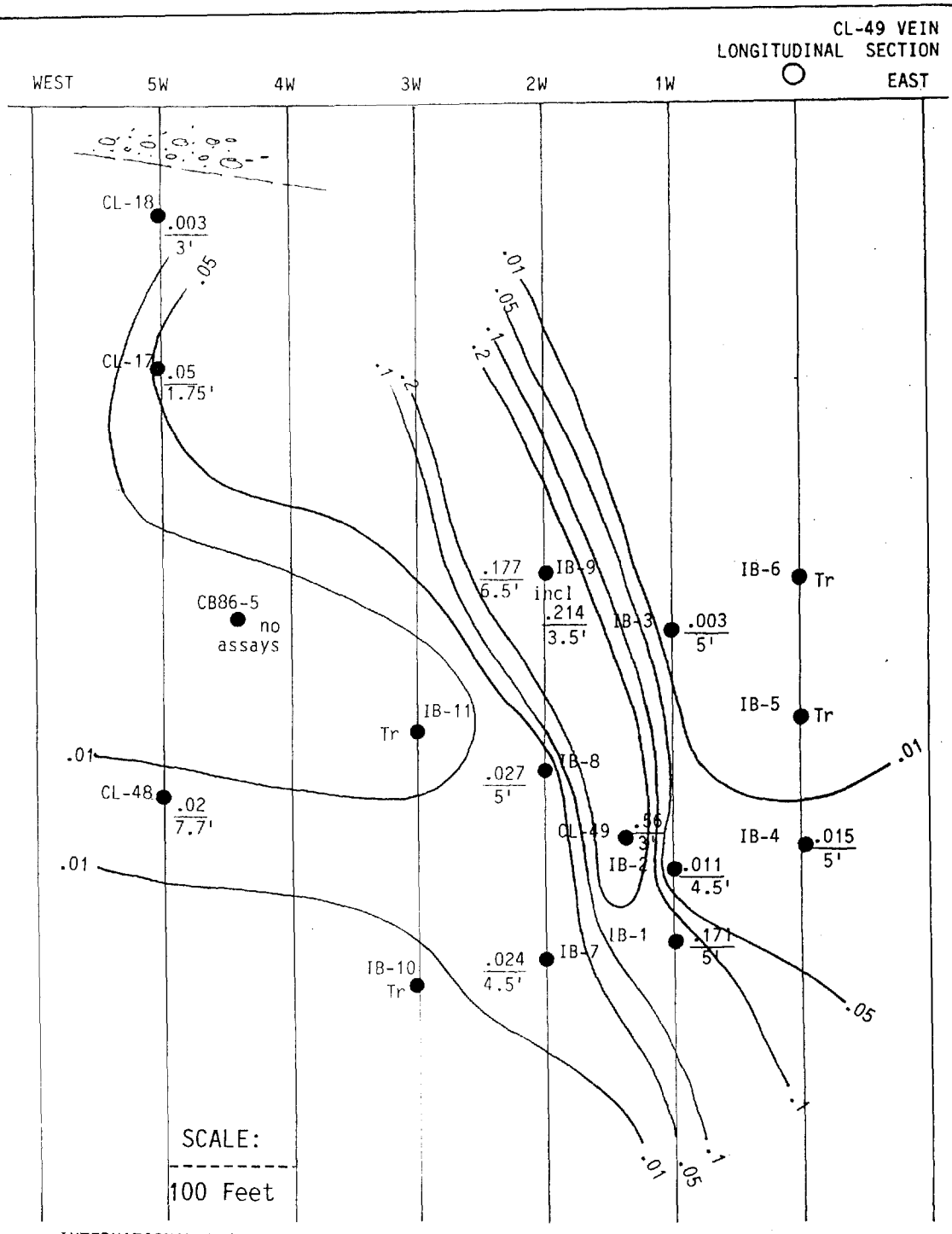

LOCATION: Intersection of Reference Line and Cross Line is approximately 50' South of the projection of the center line of Rue Guay and 350 feet West of the center of Rue du Lac, Val d'Or, Quebec.
SECTION: 5W
ORIENTATION, 180°
VIEW WESTWARD
0
Line 7S
SOUTH
Reference Line:
Cross Line:
NORTH
.003
3'
.003
1.5'
.05
1.75'
.024
3.4'
UPPER ZONE
CL-18
QUARTZ
DIORITE
CL-49 ZONE no assays
See Section 4W
RDD ZONE
porphyry
.02
7.7'
SCALE:
0 Feet 100
.115
3.3'
.24
1.6'
QUARTZ
DIORITE
.04
1.6'
CB86-4
CB86-5
porphyry
porphyry
CL-17
CL-48
INTERNATIONAL BASLEN ENTERPRISES LIMITED
Diamond Drill Sections of 1986-7 Drilling by Canstat Petroleum Corp.,
Harricana Property
Bourlamaque Township, Quebec.
Values are in Ounces of Gold per ton over lengths given down hole in Feet.
J.L.Kirwan,
May 18, 1989

FIGURE A-6



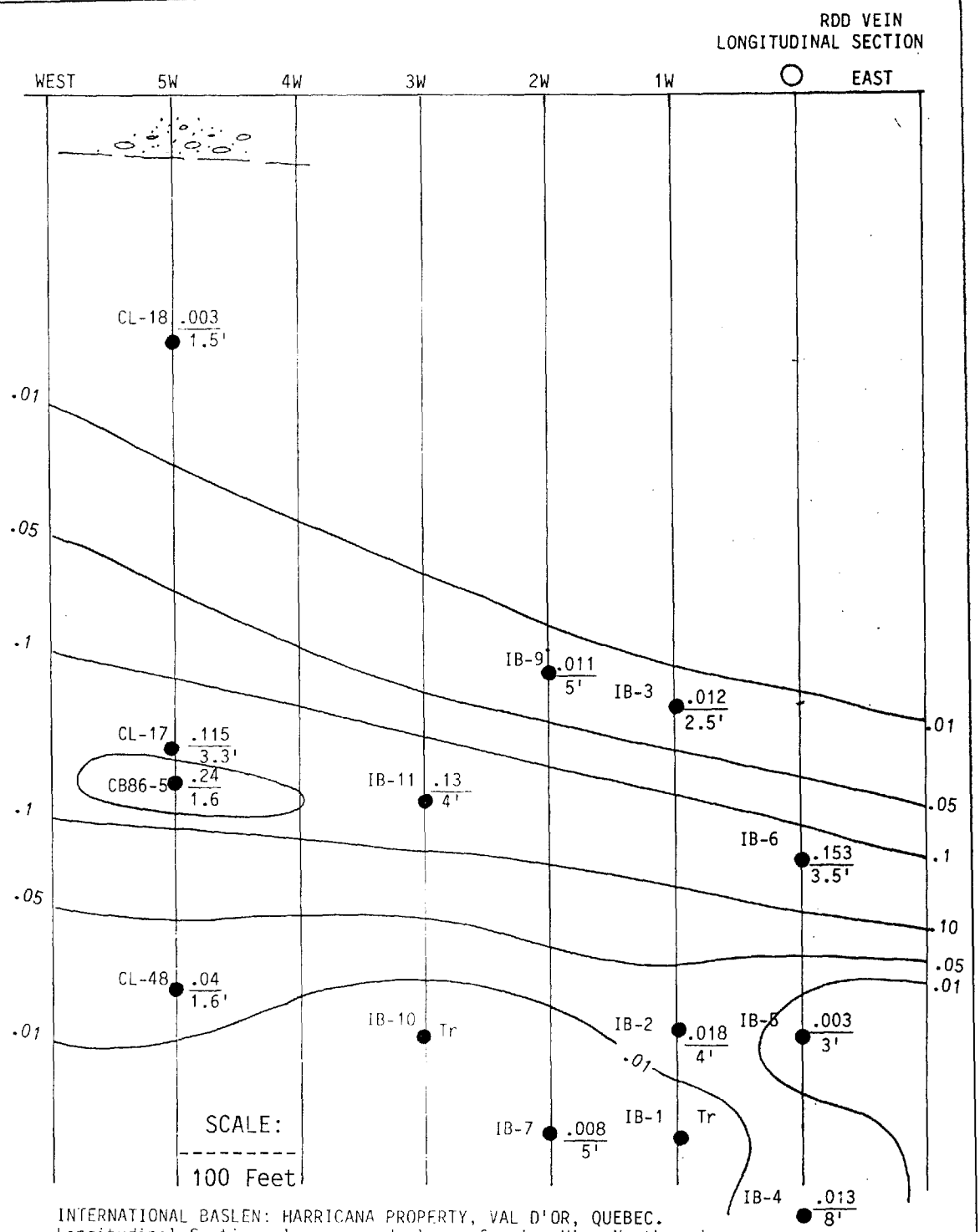
INTERNATIONAL BASLEN ENTERPRISES LIMITED: HARRICANA PROPERTY, VAL D'OR, QUEBEC
Longitudinal Section along curved plane of vein; View Northward;
Values are in Ounces of Gold per Ton over Thicknesses given down hole in feet.
J.L.Kirwan, May 19, 1989

FIGURE A-7



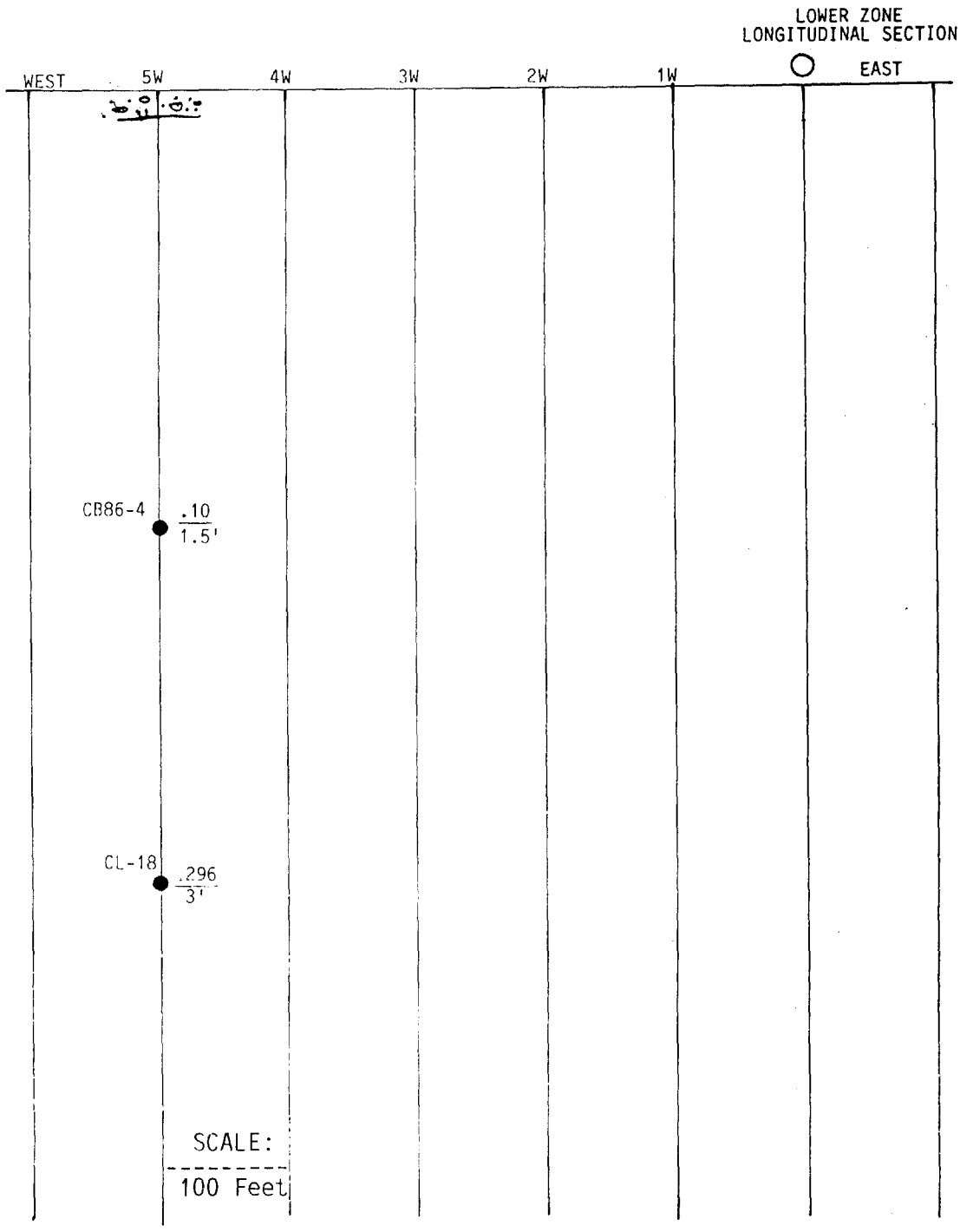
INTERNATIONAL BASLEN ENTERPRISES LIMITED: HARRICANA PROPERTY, VAL D'OR, QUEBEC
Longitudinal Section along curved plane of vein; View Northward;
Values are in Ounces of Gold per Ton over Thickness given down hole in Feet
J.L.Kirwan, May 19,1989

FIGURE A-8



INTERNATIONAL BASLEN: HARRICANA PROPERTY, VAL D'OR, QUEBEC.
Longitudinal Section along curved plane of vein: View Northward;
Values in Ounces of Gold per Ton over thickness in Feet.
J.L.Kirwan, May 19, 1989

FIGURE A-9



INTERNATIONAL BASLEN ENTERPRISES LIMITED: HARRICANA PROPERTY, VAL D'OR, QUEBEC.
Longitudinal Section along curved plane of vein; View Northward,
Values are in Ounces of Gold per Ton over Length in Feet J.L.Kirwan, May 19, 1989

FIGURE A-10