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GEOLOGICAL AND GEOPHYSICAL REPORT

ON THE

COTTON CLAIM

118° 49' 40"W, 51° 26' 40" N, 82 M/7

KAMLOOPS MINING DIVISION

BY

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FOR

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August 30, 1985
Vancouver, B.C.

Fieldwork conducted between July 30, 1985 and August 8, 1985.

TRM ENGINEERING LTD.

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(1) The Cotton Claim is located on Grace Mountain 118° 49' 40"W, 51° 26' 40"N, N.T.S. 82M/7, in Kamloops Mining Division, approximately 64 km northwest of Revelstoke, B.C.

(2) The property consists of 6 units staked under the Modified Grid System and recorded on September 28, 1976.

(3) The Cotton Claim is of exploration interest because it encompasses the probable folded continuation of the Cottonbelt-McLeod stratiform Pb-Zn-Ag sulfide-oxide horizon.

(4) The Shuswap stratiform Pb-Zn-Ag deposits are characterized by extensive strike continuity but relatively narrow widths.

(5) The 1985 work program consisted of geological mapping, ground magnetometer and ground VLF-EM Surveys.

(6) Geological observations in 1985 generally confirmed previously formulated concepts. The variation in widths of the mineralized layer along strike at surface appears to be controlled in part by small scale folds with axial traces subparallel and plunging at the same angle as the regional dip of the strata.

(7) The VLF-EM results show very weak conductive anomalies subparallel to the known trace of the mineralized horizon. There is also a narrow, weakly anomalous pattern present in the western portion of the claim that may reflect the continuation at depth of the sulfide layer.

(8) The ground magnetometer survey indicates a complex linear array of high magnetic contrast in the general vicinity of the known surface expression of the Cottonbelt sulfide unit.

(9) Diamond drilling in three long holes is recommended to test the concept of a recumbent synclinal fold structure at depth on the western portion of the Cotton Claim

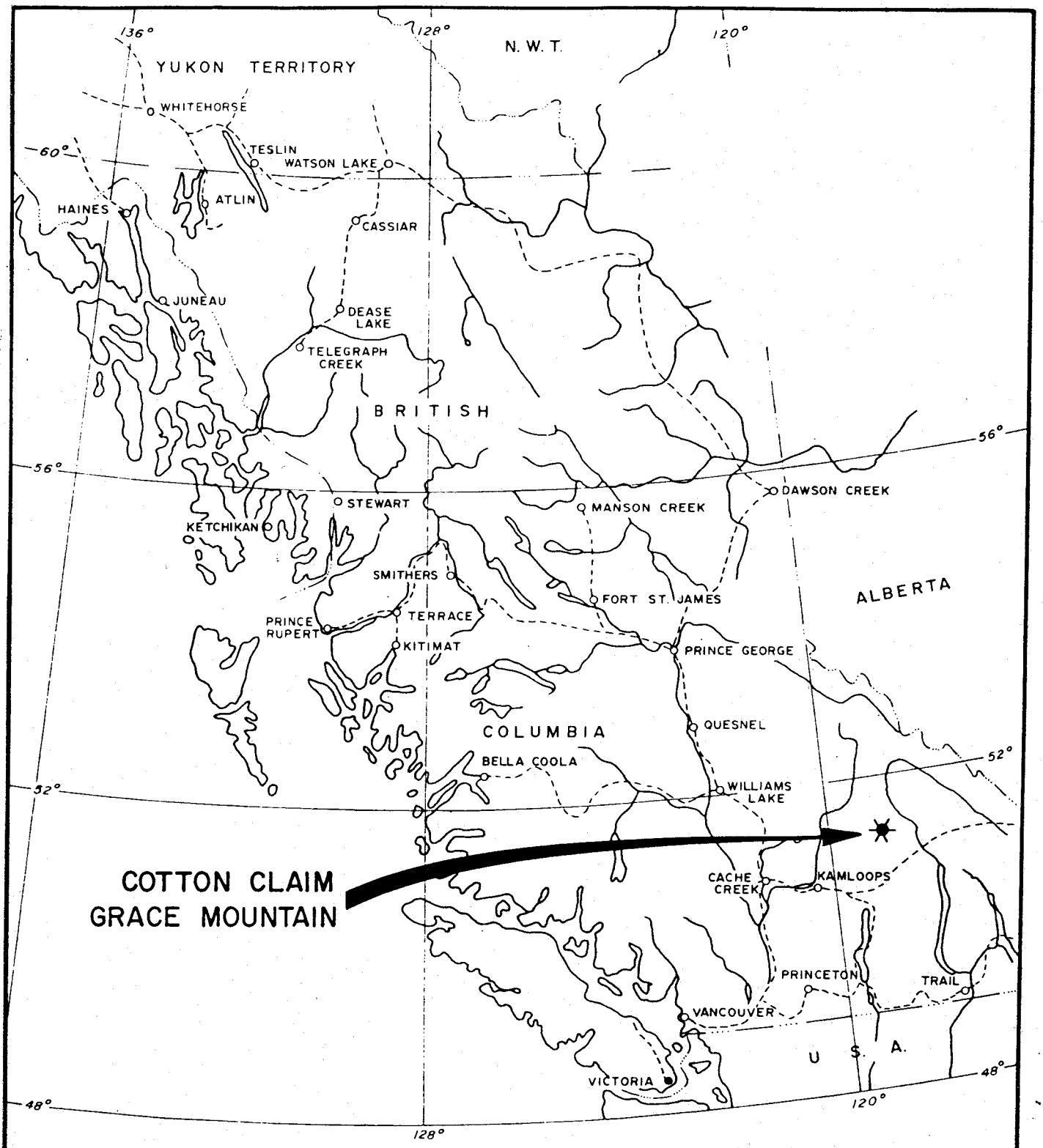
INTRODUCTION

The Cottonbelt mining property is one of several important stratiform lead/zinc deposits which occur in the Shuswap Metamorphic Complex.

This report was written to document government assessment credits for a geological and geophysical work program as recommended by Sawyer (1983) for Cannon Minerals Ltd. Fieldwork was conducted during July and August 1985. However, the exploration potential for minable lead/zinc orebodies to occur on the Cotton Claim is largely defined by geological extrapolation of data collected on adjacent claims. Although the exploration potential of the Cotton Claim is briefly discussed in this report, the details of work on adjacent claims are contained in Wellmer (1978), Kovacik (1977) Levin et. al. (1976) and Boyle (1970). The Cotton Claim cannot be considered separately from the old crowngrants that it surrounds. The work done within the present program on the crown grants is not being filed for assessment credit.

The Cottonbelt - McLeod deposits as presently known, while extending along strike for great distances, are relatively narrow in width which would make underground mining prohibitably expensive. The Cotton Claim was located to cover the presumed westerly extent, at depth, of the Cottonbelt - McLeod horizon where a postulated recumbent synformal hinge-zone may result in repetition of the sulfide horizon into thick minable units. A similar type of fold repetition has occurred at Ruddock Creek 38 km north of the Cottonbelt area.

While the synformal structure of the Grace Mountain area is strongly indicated by available geological information, diamond drilling for direct proof of the detail distribution of subunits is required. Additional, indirect surveys will probably add little to the existing database. The recommended drilling program for further work will therefore be relatively high cost and high risk in comparison to other similar projects at the same stage of development.



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COTTON CLAIM

KAMLOOPS MINING DIVISION, B. C.

GENERAL LOCATION SKETCH

SCALE: 1 inch = 125 miles approx. FIGURE 1

CLAIM STATUS

The property consists of one 6 unit claim as listed in Table 1, Figure 3.

TABLE 1

List of Claims

Name	Units	Modified Grid Extent	Record No.	Recording Date	Expiry* Date
Cotton	6	6S 2E	526	September 28/76	1986

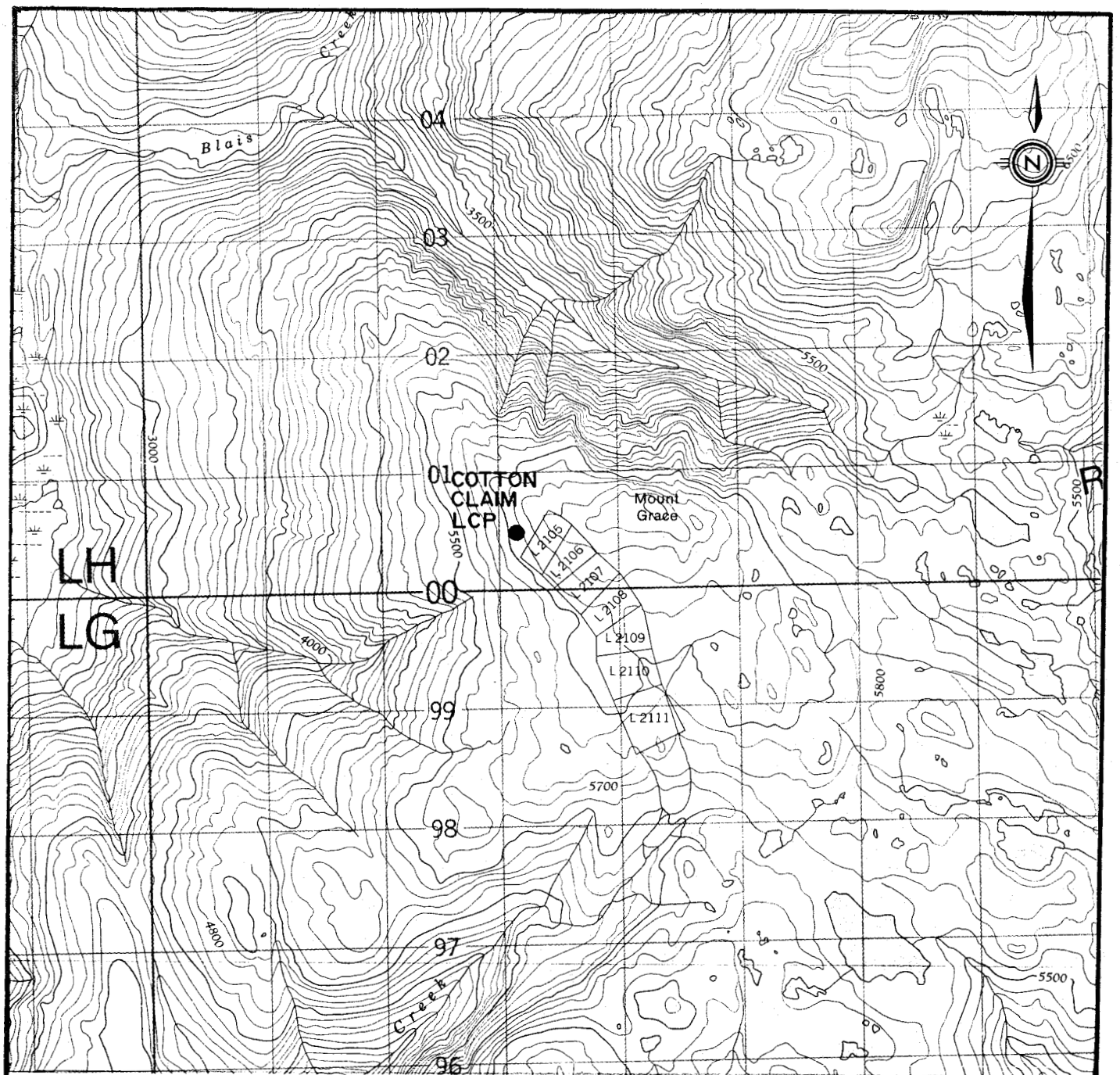
*by application of one year's assessment as outlined in this report.

An inspection of the Cotton Claim legal corner post on August 1, 1985 indicates that the claim is approximately 320 m south and 200 m east (relative to the crown grants) than is shown on government claim maps. This fact necessitated minor changes to the proposed geophysical grid. The Cotton Claim surrounds a series of contiguous crowngrants, Lots 2105 to 2109. The total area remaining to the Cotton Claim owners is relatively restricted.

LOCATION AND ACCESS

The summit of Grace Mountain is at latitude 118° 49' 40"W and longitude 51° 26'40"N approximately, and forms the higher ground from which Cotton Creek drains to the southwest and from which several creeks tributary to Ratchford Creek, Blais Creek, and the Seymour River also drain (Figures 1 and 2). The Cotton claim occupies the western and south-western shoulder of Grace Mountain which is approximately 15 air miles north-northeast of Seymour Arm at the northern extremity of Shuswap Lake. Logging roads from Seymour Arm extend northwards along the Seymour River and Ratchford Creek to within 3 km of the Cotton Claim. New trails lead from high level logging roads to the Cotton Claim which can be traversed on foot in approximately two hours.

Seymour Arm lies northwest of Revelstoke and northeast of Salmon Arm both of which are served by the Trans Canada Highway. Access to Seymour Arm may be had via logging roads from Anglemont on Shuswap Lake or from Craigellachie on the Trans Canada Highway.



CANNON MINERALS LTD.	
TOPOGRAPHIC MAP	
PROJECT :	COTTON CLAIM
ENG. :	TRM ENGINEERING LTD.
	FIGURE: 2

The Grace Mountain and Cotton Claim area is covered by topographic map sheet 82M, Seymour Arm, in the 1:250,000 series and by map sheet 82M/7, Ratchford Creek, in the 1:50,000 series.

The climate has warm summers and cold winters with the average annual precipitation in the range 75-100 centimetres. The area is generally well forested with a cover of spruce, hemlock and fir. Approximately 50% of the Cotton Claim is open alpine meadow.

HISTORY

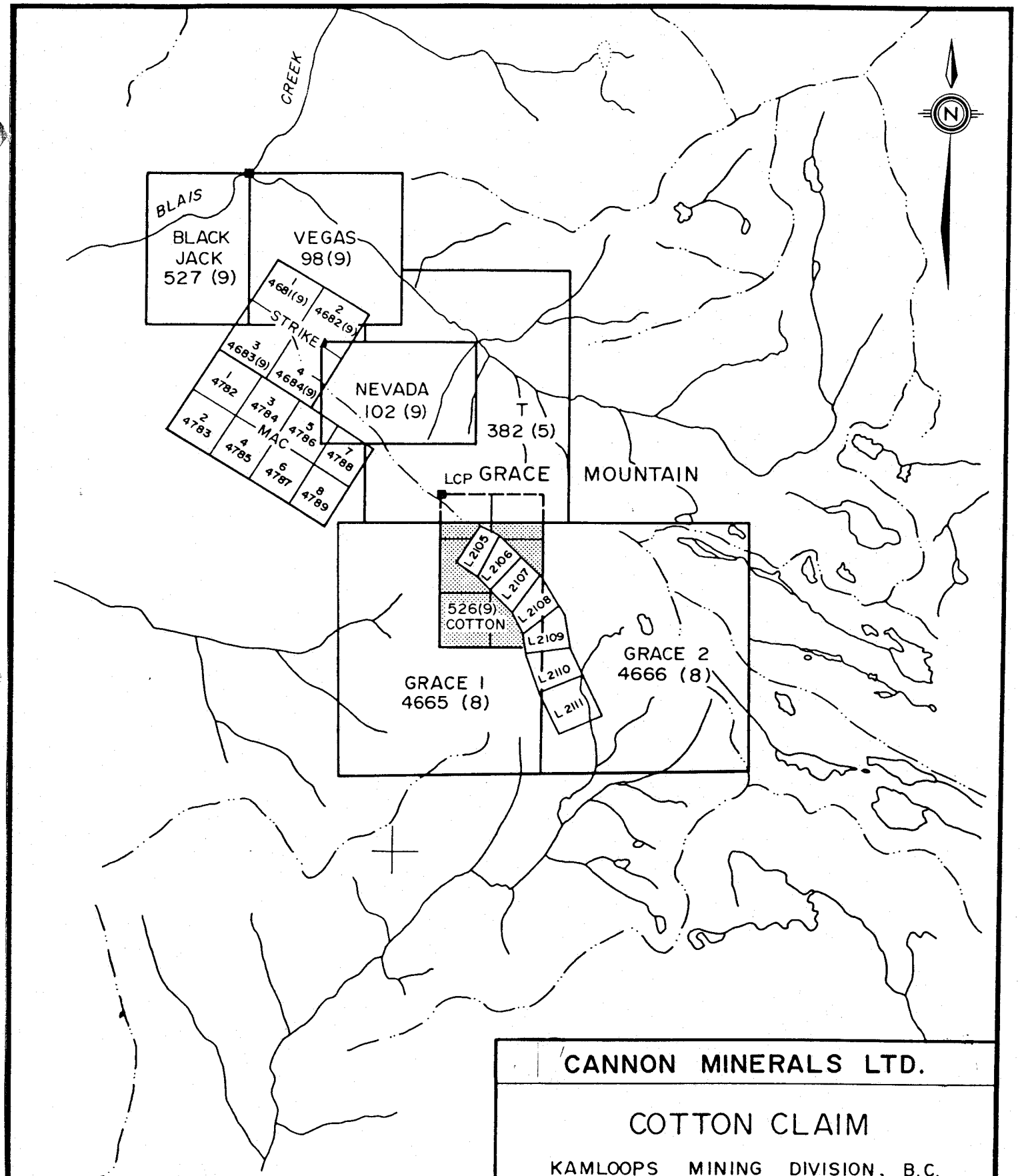
The Cottonbelt is reported to have been discovered in the early 1900's with the first claims located in 1910. They were Crown-granted soon after. The 1914 Minister of Mines Report discusses the origin of the name on page K201:

> "The group derived its name from the fact that mineral was first discovered on the Cotton-belt Claim by a negro prospector who was one of the pioneers of the Columbia River placer mines."

Sixty feet of underground drifting had been completed prior to 1914 on the Cottonbelt Claim and a similar amount on the "Complex Vein" by F. McLeod. The Complex Vein is approximately 1,000 meters northeast of the Cottonbelt. Access problems were somewhat lessened by the construction of a government pack trail from Seymour Arm.

By 1923 the Cottonbelt "vein", which strikes about N30 W and is conformable with the sheared, impure limestones which form the footwall and hanging walls of the vein and with the grain of the country rock, was reported to have an average width of 3 or 4 feet but was quite variable being as much as 6 feet wide at the Bass shaft. Development work on these claims at that time included a 40 foot shaft on the Bass claim, a 150 foot tunnel on the Cottonbelt claim, and two further shallow shafts on the Cottonbelt and Victoria, claims, as well as several open cuts. Some metallurgical test work carried out at that time including tests done by G.S. Eldridge which indicated that flotation was a suitable method of treating these ores and that the silver was mainly associated with the lead.

F.W. Guernsey, in 1925, reports that the vein had been traced on surface for 3 1/2 miles and that it had a variable width from 2 inches to 6 1/2 feet. The ore minerals were principally lead and zinc sulphides and the vein is paralleled on its hanging wall side by a band of



NOTE Compiled from information supplied by the Kamloops Mining Recorder, believed to be correct but known not to be current to December 1983

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COTTON CLAIM

KAMLOOPS MINING DIVISION, B.C.

CLAIM MAP

SCALE 1 50,000 NTS REF 82 M/7W

FIGURE 3

white crystalline limestone which, however, was apparently unrelated to the ore. A sample across 6 1/2 feet of the vein is reported to have assayed 3.10 oz/ton silver, 12.8% lead, 4.2% zinc, for a value at that time of around $11.84 a ton.

Further work in 1926 by Cottonbelt Mines Ltd. included additional surface trenching on the Cottonbelt and Joe claims, and a diamond drilling program consisting of 16 holes for a total of 3333 feet. Fifteen of the holes are reported to have cut the lode at depths varying from 270 feet to 370 feet below the outcrop indicating a width of from 4 to 12 feet for the zone. Water shortage problems apparently hampered the drilling program which was only completed in the following season. The best results from this drilling program are reported to have come from the Joe claim.

By 1927 the total underground development on the Cottonbelt Mines property consisted of 1600 feet of drifting, crosscutting and raising. The No. 2 tunnel at an elevation of 5560 feet had been driven for 800 feet. The No. 1 tunnel, located 100 feet vertically above the No. 2 tunnel, had been driven on the ore zone for 137 feet, the face being approximately 60 feet below surface. The No. 3 tunnel, which was 300 feet lower and 1600 feet to the northwest of the No. 2 tunnel, had been driven for 153 feet on a new outcrop exposed by work earlier in that season. The Bass shaft was a further 1650 feet to the northwest and some 560 feet below the No. 2 tunnel and had been sunk to a depth of 40 feet, being collared below a strong outcrop of the vein. A fourth tunnel was being driven to intercept the orebody below the Bass shaft and was completed for a length of 81 feet in 1927 at which time it was reported to be about 10 feet from the vein intersection.

All of the above work on the Cottonbelt zone had indicated five or six lenses of ore within the main structure. In 1927, the Minister of Mines Annual Report suggested that the Cottonbelt mineralized zone down to the level of the No. 4 tunnel might contain up to one million tons of ore.

Two strongly mineralized vein structures were delineated by the late 1920's which carry sulfide mineralization of generally low to moderate grade and although there had been a considerable amount of underground workings developed there had been no production from any of the properties. It remains true, of course, that there still has not been any production from these properties to this date however more recent work in the 1960's and 1970's has provided a better insight into the geological setting of this mineralization and the most recent work, by Metallgesellschaft and partners, was really the first work of consequence to

attempt to exploit the economic implications of the structural picture which had been evolved. In the early 1960's the discovery by Falconbridge Nickel Mines Ltd. of a base metal sulphide deposit within the rocks of the Shuswap metamorphic complex at Ruddock Creek, which is located about 38 km, north of the Cottonbelt area, had served to spark renewed interest in this general area.

In 1966 Great Northern Petroleums & Mines Ltd., a Vancouver based junior resource company, controlled several of the claims immediately north of the Cottonbelt area and in the period 1966 to 1970 carried out geophysical and geological work including magnetometer (Nesbitt, 1966), and induced polarization (Baird, 1968) surveys, and geological mapping at 1:6,000 scale (Boyle, 1970). The magnetometer work picked out the known mineralized zones and indicated the possible presence of at least three additional zones as well as significant extensions to the known mineralized structures. The induced polarization surveys indicated three areas of the property that are underlain by volumes of rock containing metallically conducting material. There was good correlation between high chargeability anomalies from the induced polarization survey and magnetic anomalies but in detail the electrode spacing and organization of the I.P. work did not permit of detailed interpretation in terms of the relatively small sulfide lenses.

The area received attention from the geological staff of United Mineral Services Ltd. in the mid-1970's and in 1976 this company in association with Metallgesellschaft Canada Ltd. conducted a geological study of some 15 square kilometres in the Grace Mountain Area. The study included detailed geological mapping and structural analysis of the area and an examination of the sulphide-bearing zones. A reconnaissance magnetometer survey over 14.5 kilometres of grid was also completed as an aid to the geological mapping. This program achieved its general purpose of providing a better understanding of the geological and tectonic controls of the sulfide mineralization and led to the more detailed work carried out by Metallgesellschaft in 1977 and 1978. This latter work represented the most useful and informed exploration completed to date in the area and although it failed to define any mineable ore zones it did provide some understanding of the structural controls of the mineralization and attempted to exploit them.

The 1976 study included detailed stratigraphic studies of the two parallel ore zones in the area, now known as the Cottonbelt and McLeod zones, and some structural extrapolation which led Levin (1976) to conclude that there was a fair chance of the Cottonbelt being a synformal structure and that a repetition of the Ruddock Creek style of mineralization might occur in association with this structure. Further work in 1977 (Kovacik, 1977) included some detailed mapping of the Cotton zone to the southeast,

reconnaissance mapping of the precipitous northeast slopes of Grace Mountain beyond the known southeasterly extension of the McLeod ore horizon, and some 10.75 line kilometres of induced polarization surveys carried out by Peter E. Walcott & Associates. This work program established important geological features of the sulfide-bearing zones which are discussed in more detail in a further section (Local Geology). This geological work was followed up in June and July of 1978 by a diamond drilling program supervised by Metallgesellschaft personnel. The detailed geological work led to the conclusion that both of the known mineralized horizons, Cottonbelt and McLeod, are in fact part of a single folded horizon.

PREVIOUS WORK ON THE COTTON CLAIM

Although considerable exploration work has been done on the Cottonbelt crowngrants, there are very few reported surveys that have been done on the surrounding area now covered by the Cotton Claim. However, a chainsaw-cut grid was established approximately 10 to 15 years ago but records of this work and what surveys, if any, were carried out, is currently not available. Evidence of diamond drilling on the crowngrants, probably around 30 years ago, likewise, is not documented in currently available reports. Apparently this work was done by previous owners who did not file the results with the Department of Mines.

A portion of the Cotton Claim is covered by an airborne magnetic and VLF Survey conducted in 1973 (Larson 1973). On the day the airborne survey was done, certain areas were obscured by clouds continuously which resulted in poor navigation and in some areas prevented flying altogether. Only those VLF-EM conductive zones that could not be directly attributed to the effects of terrain and turbulence were plotted on Larson's map.

All old pits and underground workings are confined to the crowngrant mineral claims. No signs of surface exploration work except for the old picket lines were noted on the Cotton Claim.

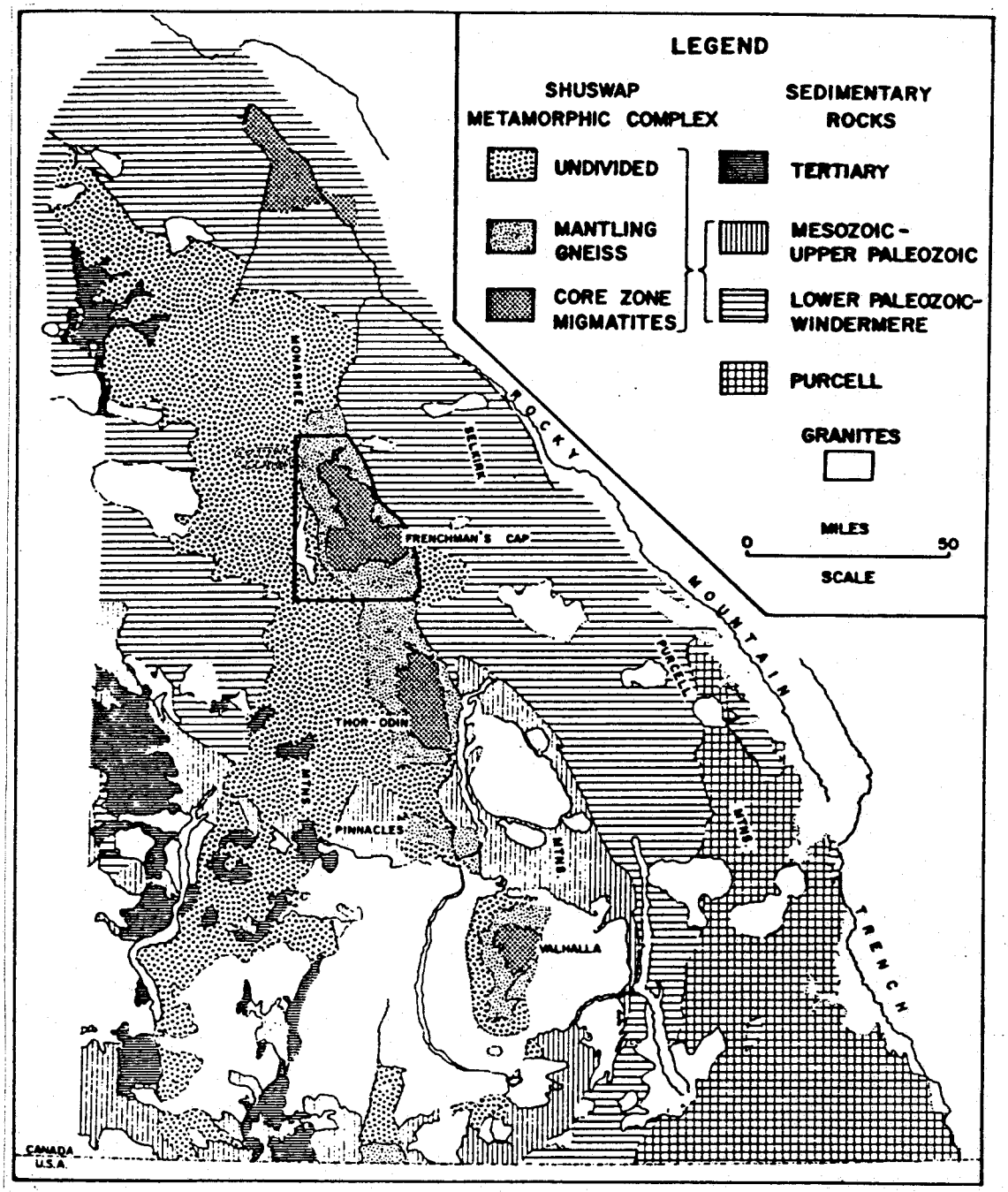
FIELD PROCEDURES

Geological mapping was tied into the geophysical grid which was established by Silva compass and hipchain. Rough slope corrections were made for the relatively gently rolling subalpine terrain. A baseline oriented 148° was started immediately west of No. 2 portal on the Cottonbelt Crowngrant. It was cut to 1400 S and 100 N. Cross lines were run at 100 m intervals for a total length of 14.085 km.

The outline of the Cotton Claim was plotted on a 1:6,000 basemap (Boyle 1970) relative to the old workings and crowngrants. The length of the grid lines were chosen to stay within the limits of the Cotton Claim. The position of the old crowngrants were plotted after study of the original survey notes.

A ground magnetometer survey was conducted over the grid using a Sharpe Model MF-1 fluxgate magnetometer serial #707296. Stations at 00 + 00 and 1000S + 00 were measured at close intervals throughout the survey for correction of diurnal variation. Results were corrected assuming a value of zero gammas for station 00 + 00.

The VLF-EM survey was carried out over the same grid using a Ronka EM-16 Electromagnetic Detector manufactured by Geonics Ltd. serial No. 86. The transmitting station selected was NAA at Cutler, Maine, frequencey 17.8 KHZ. NAA was used instead of NLK (Seattle) because of its optimum strike direction. An aerial VLF survey (Larson 1973) used NLK and did not detect the known mineralization.



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REGIONAL GEOLOGY	
PROJECT :	COTTON CLAIM
ENG. :	TRM ENGINEERING LTD.
	FIGURE 4

REGIONAL GEOLOGY

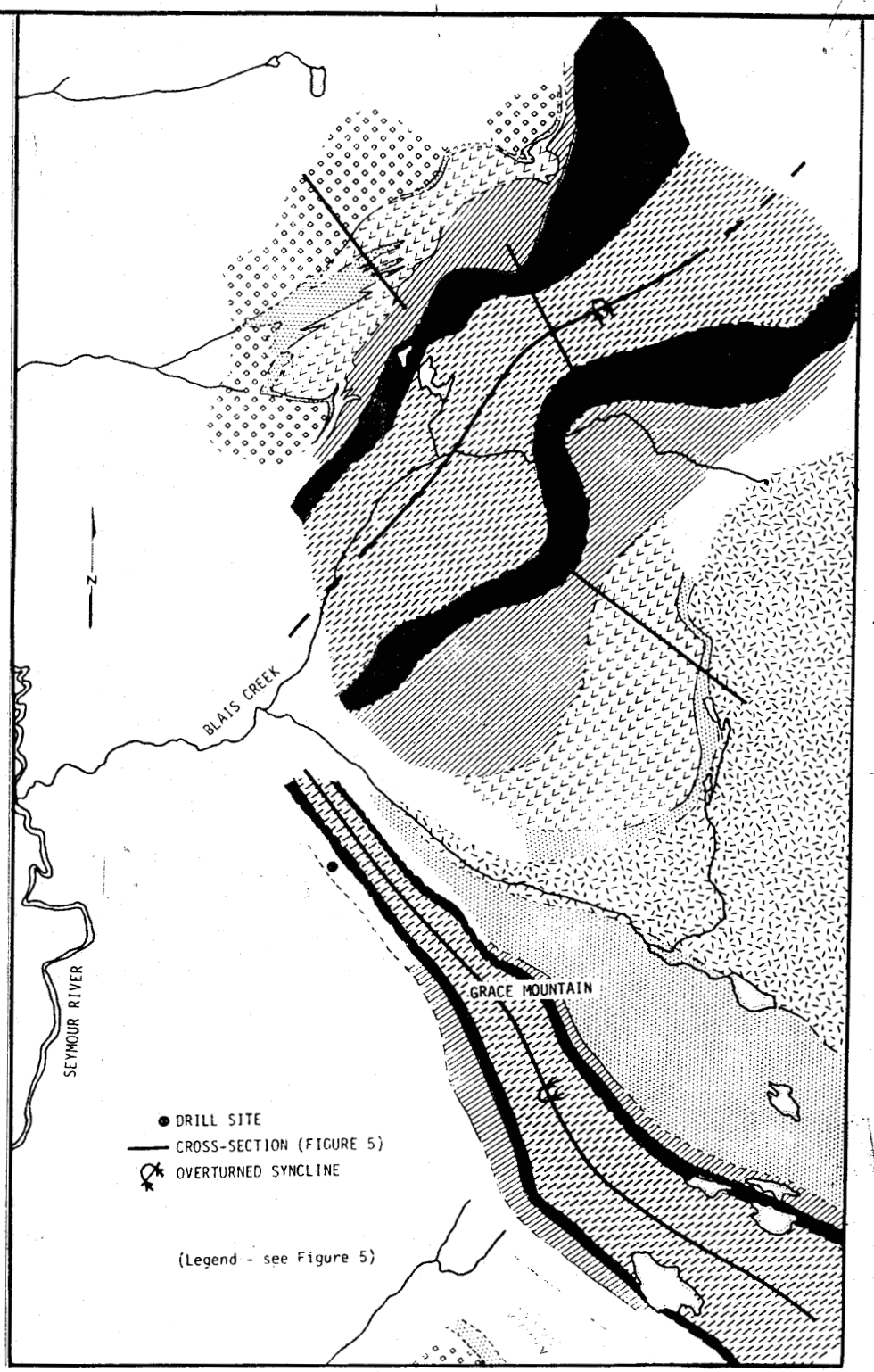
The Cotton Claim lies within the Shuswap Metamorphic Complex on the western flank of the Frenchman's Cap gniess dome. The general area has been investigated by the Geological Survey of Canada, the results of this reconnaissance work was published as Paper 64-32 (Wheeler 1964) and others (Reesor 1970), Figure 4. More detail studies, mainly by the British Columbia Department of Mines & Petroleum Resources are available in numerous publications (Fyles 1970; Hoy 1976, 1979; Hoy and McMillan 1979; and McMillan 1970, 1973).

The Shuswap Metamorphic Terrane, first described by G.M. Dawson in the late 1800's is a narrow belt of high-grade metamorphic rocks in south-eastern British Columbia in the core zone of the Eastern Cordilleran Fold Belt (Reesor 1970). Along the eastern margin of the Terrane is a series of gneiss domes spaced at 30 - 50 mile intervals. The Valhalla, Thor-Odin, and Frenchman's Cap domes have migmatitic granitoid cores mantled by metasedimentary rocks. The metasedimentary gneiss consists of interlayered, thinbedded quartzites, quartzitic and calcereous pelites, marble and cale-silicate amphibolite facies rocks.

Before they were subjected to high-grade regional metamorphisizm and deformation, the sedimentary rocks were intruded by concordant bodies of alkalic rock and carbonatite. Other carbonatite bodies (McMillan and Moore 1974) may have been extruded onto the surface as flows or pyroclastic deposits.

Structural complexities involving multiple phases of folding are summarized in McMillan (1973) as follows:

> "The earliest recognized episode of deformation (D1) coincided with high-grade metamorphic conditions. During D1, isoclinal to subisoclinal flexural-flow folds with southwest-plunging axes formed. No axial-plane foliation was found in D1 folds; metamorphic foliation is parallel to bedding. A second period of deformation (D2), also during high-grade conditions formed megascopic west-plunging flexural-flow folds with southeast-striking axial surfaces which dip southwest at moderate angles. Complex geometric configurations resulted where megascopic D1 and D2 folds interacted. Later deformation (D3) produced mesoscopic folds locally. Most plunge toward the northwest. Posmetamorphic uplift (D4) of the crystalline complex resulted in scattered microscopic kink folds and many steeply inclined, small-displacement faults."



SCALE 1:83,000

0 1 2 3 4 5 Km

LOWER PALEOZOIC (?)

- UNIT 6 - KYANITE ± SILLIMANITE SCHIST, FELDSPATHIC GNEISS
- UNIT 5 - CALCAREOUS SCHIST, MARBLE, CARBONATITE
- UNIT 4 - MICACEOUS SCHIST; FELDSPATHIC GNEISS
- UNIT 3 - CALC-SILICATE GNEISS, MICACEOUS SCHIST
- UNIT 2 - QUARTZITE
- UNIT 1 - HORNBLENDE GNEISS, AMPHIBOLITE
- CORE GNEISS - HORNBLENDE GNEISS, MICACEOUS SCHIST; GRANITIC GNEISS

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GEOLOGY OF THE COTTONBELT AREA

PROJECT: COTTON CLAIM

ENG.: TRM ENGINEERING LTD.

FIGURE: 5

A number of conformable lead-zinc deposits in the Shuswap Metamorphic Complex have been explored in the past. They include in addition to the Cottonbelt deposit, the Big Ledge northwest of Nakusp, and the Wigwam 30 km southeast of Revelstoke. Also included are the King Fissure deposit in the Jordan River area 16 km northwest of Revelstoke and the Ruddock Creek property 97 km north of Revelstoke. The deposits have several similar as well as contrasting features which are summarized by Fyles (1970) on Pages 43 and 44 as follows:

"

(1) The deposits are closely confined stratigraphically, but they are not in the same lithological succession and probably not in the same time-stratigraphic unit.

(2) At all deposits the sulphide layers are similar in mineralogy, texture, and occurrence.

(3) All the deposits have been deformed and metamorphosed."

Regional mapping along the northwestern margin of Franchman's Cap gneiss dome (Hoy 1978) has outlined a large, early synclinal structure that can be traced through the Cottonbelt area and projected northeastward toward the Columbia River, Figure 5.

LOCAL GEOLOGY AND MINERALIZATION

Geological mapping at a scale of 1:2500 was completed over the Cotton Claim and adjacent crowngrants during the period July 30 to August 8, 1985, Figure 7. Map units were modified from work by Hoy (1978) and Levin, McClaren and Dickinson (1976), as summarized below and illustrated on Figure 6.

TABLE II

MAP UNITS

UNIT 7	Pegmatite
	7a White weathering quartz-feldspar pegmatite
UNIT 6	6a Kyanite + sillimanite schist
	6b Feldspathic gneiss
	6c Thin quartzite layers
UNIT 5	"COTTONBELT SEQUENCE"
	5i Siliceous calcereous schist
	5h Calc-silicate gneiss, garnet-sillimanite schist
	5g Sulfide layer (sulfides-galena, sphalerite, pyrite in calc-silicates)
	5f Impure grey weathering marble
	5e Micaceous schist
	5d Grey weathering, white marble (Distinctive and persistent marker unit)
	5c Calcareous quartzite
	5b Calcareous schist
	5a Carbonatite, buff weathering ("Type 2" carbonatite of McMillan (1974)
UNIT 4	4a Micaceous schist
	4b Feldspathic gneiss
UNIT 3	3a Calc-silicate gneiss
	3b Micaceous schist
UNIT 2	2a Quartzite, crossbedded
UNIT 1	1a Hornblende gneiss
	1b Amphibolite, disseminated molybdenite
	1c Calc-silicate gneiss

Only units 4, 5 and 6 were observed on the Cotton Claim. The mapping done by Kovacik (1977) at 1:5,000 and Levin, McClaren and Dickinson (1976) confirmed a number of features concerning the detail stratigraphy and structure which can be summarized:

(1) The main sulphide mineralized zone is related to a carbonate rich sequence within predominantly quartz biotite gneiss and biotite quartzite formations.

(2) The bulk of the carbonate sequence is composed of calc-biotite gneiss with bands of calc-silicate minerals, three layers of marble, and one major (S1), and several subordinate (S2), horizons rich in sulfides and magnetite.

(3) The relative positions of marble bands and the main sulfide horizon are constant throughout the area and the sulfide mineralization of economic significance occurs in the S1, the major sulfide-rich, horizon. Going from northeast to southwest, the sequence of these several bands is: the M3 marble band followed by the main S1 sulfide-bearing horizon, followed by the M1 and M2 marble bands with minor sulfide-bearing horizons, S2, between the latter two marble bands as well as elsewhere in the sequence.

(4) All the units in the grid area display a similar attitude dipping some 35^{o} - 40^{o} to the southwest.

(5) The width of the calcareous sequence is variable up to as much as 100 metres.

(6) Quartzite occurs in thick layers, greater than 100 metres thickness, to the southwest of the ore zone, as well as in other narrow bands throughout the sequence including the calcareous horizons.

Reconnaissance work in 1978 on the northeastern flank of Grace Mountain, in the area of the McLeod zone, provided sufficient evidence to confirm that the major lithological units which are characteristic of the Cottonbelt zone appear on the other side of the mountain and the several marker horizons, marble bands, S1 sulfide horizons, have a similar sequence but in reversed order thus supporting the structural interpretation of a synform. Accepting then that the main sulfide horizon is part of a folded sequence, some differences have also been recognized between the two limbs of the structure. These relate mostly to thicknesses of the several units within the zone. Perhaps the most important features to be noted relate to the fact that Kovacik reports important lateral lithofacies changes. The horizon as it is exposed in the gully at the

McLeod adit is (Kovacik 1977):

> "composed of alternating layers of sulphides, carbonates, calc-silicate minerals, and magnetite with calc-biotite gneiss at the top enclosed between biotite gneiss (top SW) and biotite quartzite (botton NE). The width of the sulphide-rich horizon varies up to 3 metres and contains a fair amount of lead sulphide and zinc sulphide comparable to the Cotton ore horizon."

Kovacik reports that the S1 (major sulphide) horizons can be traced laterally to the southeast for about 600 metres before the typical sulfide assemblage disappears in favour of a mixed calc-biotite-garnet gneiss, massive calc-silicates and disseminated iron sulfides assemblage. This facies has been traced a further 2200 metres to the southeast with only minor changes in composition. A further point of contrast between the McLeod and Cottonbelt zones relates to the fact that the marker marble horizons M1, M2, etc., and the main sulfide horizon (S1) are separated on the northern flank of Grace Mountain by intercalations up to 100 metres thick of metaclastic rocks, mainly quartzites with biotite or quartz biotite gneisses, so that the total thicknesses of the calcareous sequence represented in the McLeod zone is some 250 to 300 metres in width as opposed to the thickness of approximately 100 metres in the Cottonbelt zone, (Cotton claim area).

Mineralization in the Cottonbelt area is described by Hoy (1978) as:

"Mineralization in the Grace Mountain area comprises an oxide-sulfide layer that can be traced intermittently through a strike length of approximately 5 milometres in the western (upper) limbe of the Grace Mountain syncline and 2 kilometres in the lower limb. The succession of calcareous rocks that hosts the mineralization has been traced a further 5 kilometres northeastward from Blais Creek. There, mineralization is erratic, consisting mainly of disseminated magnetite and chalcopyrite in either an impure, very siliceous calc-silicate gneiss or in a rusty weathering white crystalline marble. Elsewhere, the 'mineralized layer' is represented by a zone of rusty weathering calcareous schist.

The sulfide layer in the Grace Mountain area has been trenched along virtually its entire length. It varies in thickness from a few tens of centimetres to approximately 2 metres. Mineralization generally consists of fairly coarse-grained sphalerite, magnetite, galena, and minor pyrrhotite in a dark green, pyroxene-amphilbole-quartz--garnet 'skarn' rock or, as layers within a lighter coloured, more siliceous calcareous gneiss or as disseminated grains in a siliceous granular marble. Assay values of a grab sample and chip samples across the mineralized laver are listed below.

Sample No.	Sample Type	Ag (ppm)	Cu (per cent)	Fe (per cent)	Pb (per cent)	Zn (per cent)
CB 4-1	grab sample	30	0.0125	34.4	4.45	0.27
CB 4-2	30 cm chip	78	0.0155	18.3	7.81	0.87
CB 4-3	150 cm chip	65	0.007	19.1	11.25	1.03
CB 4-4b	120 cm chip	23	0.009	23.8	4.18	0.35
CB 4-4c	150 cm chip	52	0.006	30.0	6.75	1.40"

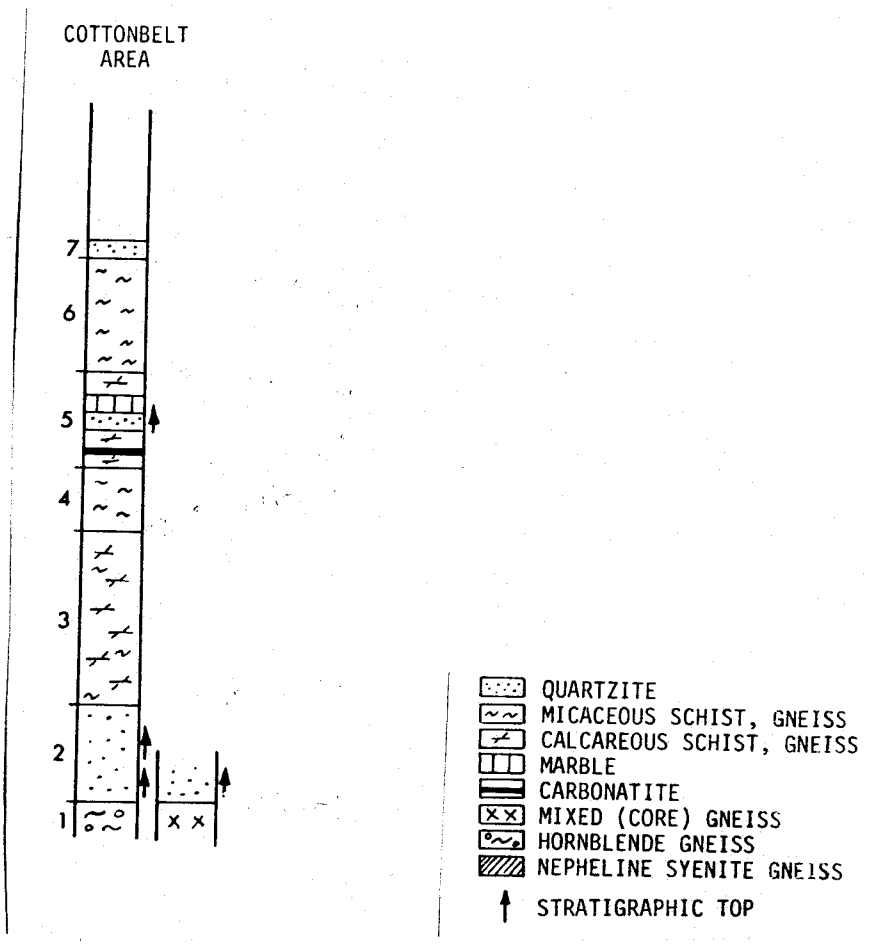

Figure 6 Stratigraphic Column
Cottonbelt Area (from Hoy 1978)

The most prominent feature on Figure 7, is the continuous exposure of light grey weathering, white marble of unit 5d. A slight flexure of unit 5d occurs at 500S + 85E coinciding with a sinkhole depression. This may be due to a crossfault with small strike-slip displacement. The generally curved outcrop pattern is a function of the moderate west dip of all units intersecting a gentle hillside with a high point near 900S + 150E. Although, the stratigraphy outlined by Hoy (1978) appears to be substantially correct, there is a considerable thickness of related calcareous schist and gneiss below the carbonatite layer (unit 5a). There may be a gradational contact between unit 5a and Unit 4 or alternatively a separate subunit, more properly assigned to Unit 5 might occur below unit 5a. The critical areas do not have sufficient exposure to make a definitive conclusion at this time.

The variation in width of the mineralized horizon (unit 5g) appears to be controlled in part by small scale folds with axial traces subparallel and plunging at the same angle as the regional dip of the strata. These subsidiary folds are best developed in Unit 4a-b around 270W. Pegmatite has intruded the sulfide layer at 1030S + 170E causing small scale disruption.

Two diamond drill holes completed in 1978 are located northwest of the Cotton Claim. Although these drill holes did not intersect massive mineralization of ore grade they almost certainly did penetrate the major synformal structure which clearly extends southeastwards from this point through the "T" claim and onto the Cotton Claim and the Crown Grants which it partly overlies. The results of this drilling were somewhat disappointing in that what was interpreted as the ore-bearing marble and calc-silicate sequence was encountered in both holes but the ore horizon within them was dramatically reduced and, if indeed it was the real ore horizon, was represented by a mineralized zone only 5 centimetres thick. The down hole pulse electro-magnetic measurements indicated that the hole encountered an edge of a conductive sheet dipping 20^{o}-30^{o} away from the drill hole. The structural evidence from this drilling corroborated the earlier assumption that the structure is synclinal and that the upper limb is overturned.

Evidence from the detailed work by Metallgesellschaft has demonstrated quite clearly that there are lateral facies changes in these horizons which result in variations in the amount and extent of sulfide development. The induced polarization geophysical work was used as an added tool to aid in the interpretation of these postulated structures however the conclusion drawn by the Metallgesellschaft geologists (Wellmer, 1978) was that in fact the high charge-ability responses were due to more disseminated mineralization and were not reflecting the main sulfide horizon.

GEOPHYSICS

During the period July 30 to August 8, 1985, ground magnetometer and ground VLF-EM surveys were completed on the Cotton Claim. The main purpose of these surveys was to assist in geological interpretation of the subsurface structure on the western portion of the Cotton Claim in the vicinity of the postulated synclinal fold closure.

Results of the ground magnetic survey are plotted and contoured on Figure 8. A magnetic depression with a contrast of up to several thousand gammas is closely associated with the known surface trace of the sulfide layer. This depression is significantly wider from line 900S to 1400S which may be due to intrusion of pegmatite sills. The weak magnetic signature of the pyrrhotite in unit 5a is reflected by a narrow linear magnetic anomaly on lines 100S to 400S. Unfortunately, the area of the Cotton Claim west of the crowngrant claims is relatively uniform and without any discernable pattern which might suggest the presence of near surface magnetic concentrations. There is a slight positive anomaly centered on Line 500S which connects to a narrow positive trend near 90W on Lines 300S to 100N.

The VLF-EM Survey readings were transformed by using the Fraser filter (Fraser 1969) which eliminated the dynamic range problems of anomalous response and reduced geological noise, Figure 9. The filter has the result of a difference operator which transforms zero-crossings into peaks and a low-pass smoothing operator to reduce noise. Fraser notes:

> "The large geologic noise component, which results from the relatively high-transmitted frequency, has caused some critics to avoid use of the technique. The filtered data, when contoured, provides a data presentation which simplifies interpretation. Generally, a comparison of the 50 ft. data station dip angle profiles with the contoured filtered output suffices to indicate approximate depth to source and to allow recognition of sources deeper than 300 ft."

In the northern part of the grid a relatively strong VLF conductor was found on Line 00 which extended north to Line 100N and South to Line 200S which correlates closely with the known trace of the sulfide horizon. South of Line 400S a weak negative VLF conductive zone parallels a short distance to the west of the surface exposure of the sulfide layer. A VLF anomaly occurs on Lines 300S to 100N around 90W which is coincident with a small magnetic anomaly. Weakly anomalous VLF response is found in the western part of the Cotton Claim trending subparallel (but 400m west) of the VLF low described above on Lines 400S to 1200S. This western VLF anomaly may represent a deep conductor indicative of the postulated synclinal fold closure.

CONCLUSIONS

The Cottonbelt-McLeod stratiform lead-zinc silver deposit is laterally persistant and is probably part of one synclinally folded horizon. Tectonic thickening of the sulfide horizon in the hinge zone of the synform may have occurred but cannot be directly observed without deep diamond drilling.

The present work program supports the interpretation of 1976-1978 geological observations that a large scale, recumbant syncline passes through the general Grace Mountain area and that the hinge zone probably occurs at depth on the Cotton Claim.

Only very weak response was found in the southwestern part of the Cotton Claim to ground magnetometer and VLF-EM surveys. The Stage I program recommended by Sawyer (1983) was completed with inconclusive results. However, the possibility of mineable widths of lead/zinc mineralization in the fold closure at depth has been neither proved or disproved by the recent indirect work.

RECOMMENDATIONS

Diamond drilling for direct stratigraphic information is strongly recommended for the Cotton Claim. Three holes should be completed, and spaced along (400m to the west of) the western margin of the crowngrant claims such that the entire length of the Cotton Claim is covered. The length of each hole will be 300 meters for a total of 1000 meters. In conjunction with the drilling program an office program of more detailed palinspastic reconstruction models should be considered to help in the interpretation of the drill results. It should be emphasized that the recommended drilling program is for stratigraphic information and if potential ore reserves are to be delineated, then a separate, much larger drill program will be necessary.

Respectfully submitted,

J. Shearer

J.T. Shearer, M.Sc., FGAC

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APPENDIX I

STATEMENT OF COSTS

COTTON CLAIM

Fieldwork conducted between July 1985 and August 1985.

CANNON MINERALS LTD.

COTTON CLAIM JULY 17, 1985

Program: Geological mapping, sampling, Line cutting, EM-16 VLF, Magnetometer Survey

COST ESTIMATE

As per invoices to Cannon Minerals Ltd. as reported by T.F. van Wollen, P. Eng., Secretary/Director

Wages and Benefits	
Senior Geologist 12 days @ $250	$ 3,000.00
Geophysical Technician 12 days @ $175	2,100.00
Transportation	
Truck rental 2 weeks plus insurance	464.28
Mileage 1475 km @ $0.10 per km	147.50
Gas	98.11
Hotel and Food Mob-Demob 2 persons	195.79
Helicopter 2.4 hours @ $451 per hour	1,082.40
Equipment Rental - EM-16, Magnetometer 2 weeks	630.00
Food 20 man days $7.53 per man day	150.60
Camp Costs	350.00
Field Supplies	200.00
Compilation and Report Writing, 3 days of J. Shearer time	750.00
Drafting 20 hours @ $20 per hour	400.00
Reproduction and Word Processing	400.00
Total	$9,968.66

5825m of Grid on Cotton Claim / 13505 m of Grid established = 43.13% of expense applicable to Cotton Claim

Assessment work applicable to Cotton Claim = $4,299.48

J. Shearer

APPENDIX II

STATEMENT OF QUALIFICATIONS

J.T. SHEARER, M.Sc., FGAC

APPENDIX II

I, J.T. Shearer of the City of Port Coquitlam in the Province of British Columbia, hereby certify that:

1) I am a graduate of the University of British Columbia (1973) B.Sc. in Honours Geology, and the University of London, Imperial College (1977) M.Sc., DIC.

2) I am a Fellow of the Geological Association of Canada.

3) I have worked continuously in Mineral Exploration since 1973 for McIntyre Mines Limited, J.C. Stephen Explorations Ltd., and Carolin Mines Ltd. I am presently employed by TRM Engineering Ltd.

4) I have an interest in the securities of Cannon Minerals Ltd. in the amount of 30,000 common shares.

5) I personally worked on the Cotton Claim between July 30, 1985 and August 8, 1985. I supervised the magnetometer and VLF-EM Survey. This report is based on my interpretation of the data collected.

Dated at Vancouver,
British Columbia

J. Shearer

J.T. Shearer, M.Sc., FGAC

August 30, 1985.

APPENDIX III

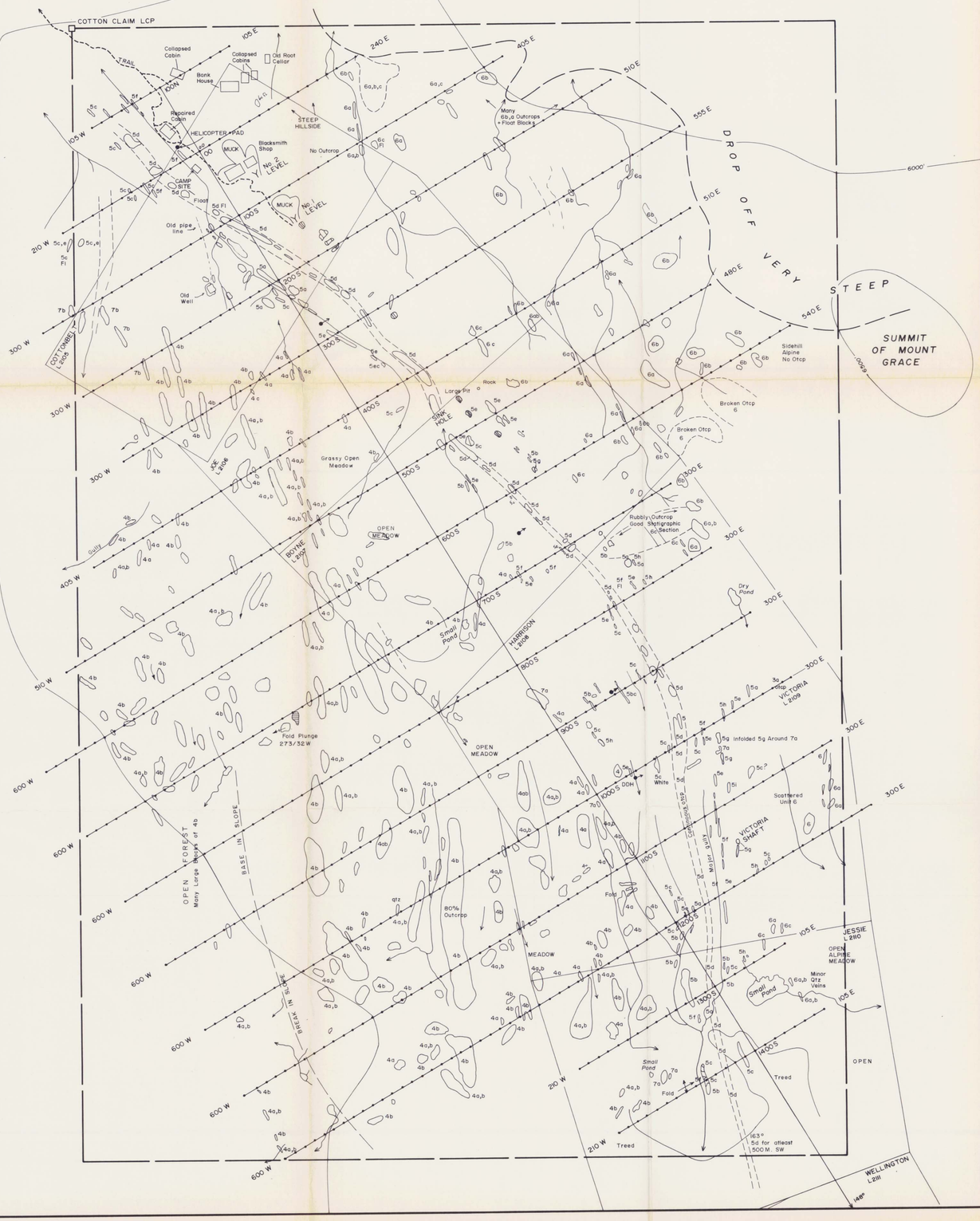
LIST OF PERSONNEL AND DATES WORKED

Field Work Conducted between July 30, and August 8, 1985

APPENDIX III

LIST OF PERSONNEL AND DATES WORKED

NAME	POSITION	ADDRESS	DAYS WORKED
J.T. Shearer	Geologist	3345 Mason Avenue, Port Coquitlam, B.C. V3C 3V4	July 30, 31; August 1, 2, 3, 4, 5, 6, 7, 8, 1985. Travelling July 29 and August 9, 1985. Total of 12 days
J. Dickinson	Geophysical Technician	29240 Duncan Avenue R.R. #2, Aldergrove B.C., VoX 1A0	July 30, 31 July 1, 2, 3, 4, 5, 6, 7, 8, 1985. Travelling July 29 and August 9, 1985. Total of 12 days.
J. Serwin	Drafting		August 21, 22, 23, 1985



LEGEND

UNIT 7

- 7a White weathering coarse quartz – feldspar pegmatite
- 7b Hornblende quartz monzonite

UNIT 6

- 6a Kyanite ± sillimanite schist
- 6b Feldspathic gneiss
- 6c White quartzite

UNIT 5 – COTTON BELT SEQUENCE

- 5i Siliceous – calcareous schist and garnet sillimanite schist
- 5h Calcsilicate gneiss
- 5g Sulfide layer
- 5f Impure, crumbly marble
- 5e Micaceous schist
- 5d Grey weathering, white marble
- 5c Calcareous quartzite
- 5b Calcareous schist
- 5a Carbonatite

UNIT 4

- 4a Micaceous schist
- 4b Feldspathic gneiss

UNIT 3

- 3a Calcsilicate gneiss
- 3b Micaceous schist

UNIT 2

- 2a Quartzite

UNIT 1

- 1a Hornblende gneiss
- 1b Amphibolite
- 1c Calcsilicate gneiss

Outcrops
Creek
LCP Cotton claim outline
Crowngrant claim
100S 1985 Baseline (oriented 148°)
1985 Grid line and station
Diamond drill hole
6000 Topographic contour in feet ASL

Geology by: J. T. Shearer – July 30 – August 8, 1985

GEOLOGICAL BRANCH ASSESSMENT REPORT

13,822

SCALE 1 : 2500

50 25 0 50 100 150 METRES
0 100 200 300 400 FEET

CANNON MINERALS LTD.

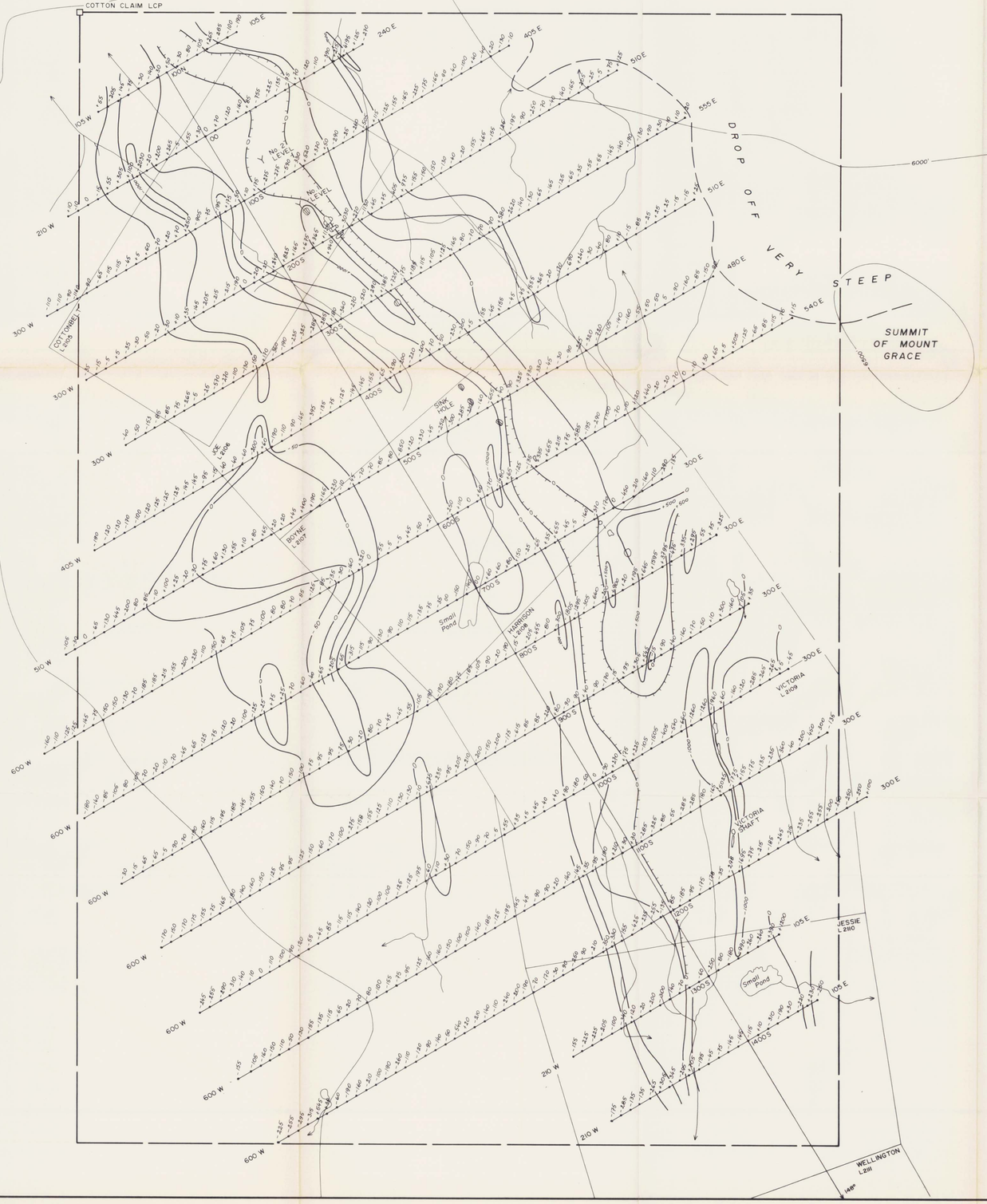
DETAIL GEOLOGY

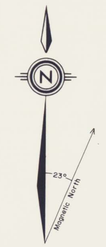
PROJECT: COTTON CLAIM

ENG.: TRM ENGINEERING LTD.

DWG. NUMBER: FIGURE: 7

J. Shearer





LEGEND

- Outcrops
- Creek
- LCP Cotton claim outline
- Crowngrant claim
- 100S 1985 Baseline (oriented 148°)
- 1985 Grid line and station
- -95 Magnetic value in gammas (relative to 00+00 at zero gammas)
- Prospect pit and sulfide horizon

Survey by : J.D. - August 1985

Plotted + contoured by : J.S. - August 1985

SCALE 1 : 2500

50 25 0 50 100 150 METRES
0 100 200 300 400 FEET

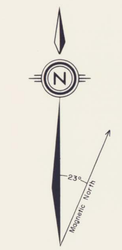
CANNON MINERALS LTD.

GROUND MAGNETOMETER SURVEY

PROJECT : COTTON CLAIM

ENG. : TRM ENGINEERING LTD.

DWG. NUMBER : FIGURE : 8



LEGEND

- Outcrops
- Creek
- LCP Cotton claim outline
- Crowngrant claim
- 100S 1985 Baseline (oriented 148°)
- 1985 Grid line and station
- + 3 VLF Result transformed by Fraser Filter
- VLF (Fraser Filter) contour
- Prospect pit and sulfide horizon

Survey + calculations by: J. Dickinson

Plotting + corrections by: J. Shearer – August 1985

GEOLOGICAL BRANCH
ASSESSMENT REPORT

13,822

SCALE 1 : 2500

50 25 0 50 100 150 METRES
0 100 200 300 400 FEET

CANNON MINERALS LTD.

GROUND VLF (EM-16) SURVEY

PROJECT : COTTON CLAIM

ENG : TRM ENGINEERING LTD.

DWG. NUMBER : FIGURE : 9