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# **GEOLOGICAL, DIAMOND DRILLING AND TRENCHING ASSESSMENT REPORT**

on the

## **MONTEITH BAY GEYSERITE PROJECT**

Kyuquot Sound Area, Vancouver Island  
N.T.S. 92L/3W Lat. 50°08' Long. 120°18'

Owned by

**MONTEITH BAY RESOURCES LTD.**  
548 Beatty Street  
Vancouver, B.C. V6B 2L3

Prepared by

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**GEOLOGICAL BRANCH**  
September 15 1993 **ASSESSMENT REPORT**

**23,139**

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## 1.0 FACT SHEET

**TABLE 1**

<b>CORPORATE DATA</b>	
<b>PROJECT NAME:</b>	Monteith Bay Quarry
<b>COMPANY NAME AND ADDRESS:</b>	Monteith Bay Resources Ltd. 548 Beatty Street Vancouver, B.C. V6B 2L3 Telephone (604) 681-4902 FAX (604) 684-3854
<b>CONTACT/TITLE:</b>	J.T. (Joe) Shearer, M.Sc., P.Geo., President  M. McClaren, B.Sc., Secretary
<b>PROJECT DETAILS</b>	
<b>PROJECT LOCATION:</b>	Monteith Bay, west side of Kashutl Inlet, Kyuquot Sound, NTS 92L/3W 50°08', 127°18'
<b>ESTIMATED CAPITAL COST:</b>	\$1.0 million
<b>MINERALS:</b>	Geyserite
<b>MINE SYSTEM:</b>	Quarry (negligible overburden or waste)
<b>ESTIMATED PRODUCTION:</b>	70,000 tonnes per year
<b>PROCESS:</b>	Jaw and cone crushers/stockpile
<b>PROPOSED MINE LIFE:</b>	20 years plus

## MINERAL RESOURCES

GEOLOGICAL RESERVES:	2.0 million tonnes plus (Geological Reserve)
AVERAGE GRADE OF MATERIAL:	96% geyselite (used in the cement industry) (Geyselite is rock deposit from a fossilized hot spring)
CUT-OFF GRADE:	N/A
POTENTIAL FOR ADDITIONAL GEOLOGICAL RESERVES:	Large

## LOGISTICS

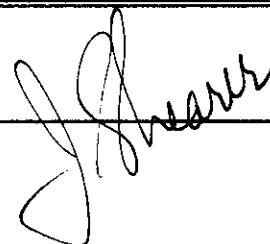
ROAD:	Road at Fair Harbour connects to highway (77 km)
ACCESS TO SITE:	Boat or seaplane
SHIPPING:	Via barge to Vancouver, B.C.
POWER SUPPLY:	On-site generation

## WORKFORCE INFORMATION

OPERATIONAL WORKFORCE:	<b>Quarrying, crushing and stockpiling:</b> 4 to 5 people 2 months per year <b>Shipping:</b> 2 people 8 months per year
CONSTRUCTION WORKFORCE:	10 people for 2 months
HOUSING OPTIONS:	On-site or at local logging camps. At home for local workers (if any)
INDIRECT EMPLOYMENT:	5 to 6 person years (Purchased Services)

## DEVELOPMENT SCHEDULE

PROSPECTUS:	September 1, 1993
SITE CONSTRUCTION START-UP:	Early January 1994 (on completion of permitting, etc.)
PRODUCTION START-UP:	Early April 1994



## 2.0 INTRODUCTION

Monteith Bay Resources Ltd. is a registered British Columbia company, engaged in the supply of raw materials to the Portland cement manufacturing industry for sales and delivery in British Columbia. Monteith Bay Resources Ltd. is entirely owned by lifelong B.C. residents. Since 1986, the company has focused on the search for and development of base and precious metal and industrial mineral properties throughout British Columbia and Yukon. Geyserite product from the Monteith Bay Quarry is for the modern "dry" process cement business, of which the best example in the Pacific Northwest is the cement plant at Tilbury in Delta operated by CBR. This prospectus document describes the intent of Monteith Bay Resources Ltd. to develop the Monteith Bay Geyserte Project as a quarry and to supply crushed geyserte to the cement industry.

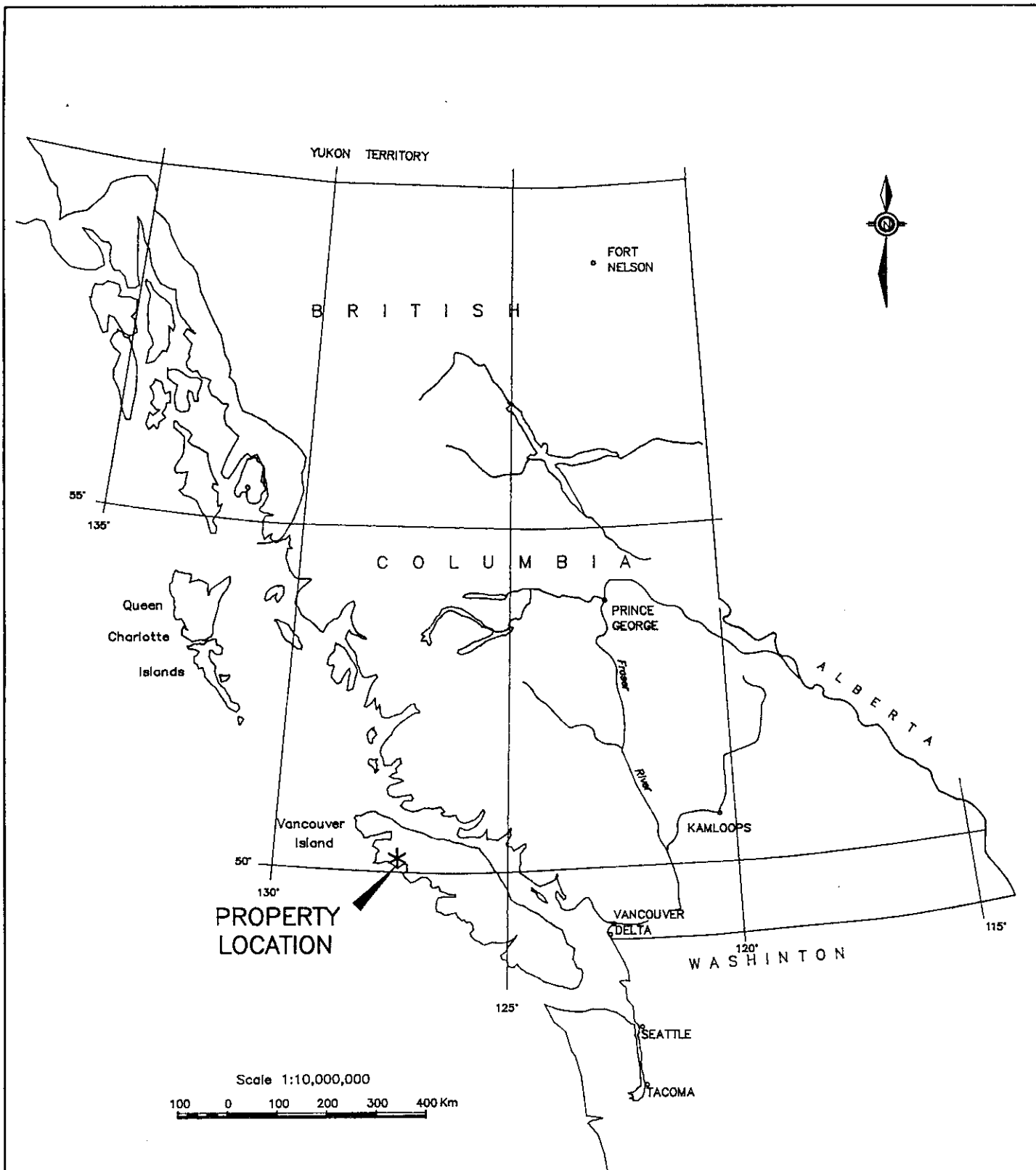
Extensive exploration on the geyserte deposits has resulted in the definition of a suitable silica source needed for the Tilbury plant requirements. This source is located on the Too Easy mineral claim at Monteith Bay, Kyuquot Sound. This prospectus is intended to initiate a dialogue with the regulatory agencies to establish the terms of reference for mine development approval and related permits.

Portland cement manufacturing is a process of bringing together raw materials rich in lime (Ca), silica (Si), alumina (Al), iron (Fe) and gypsum ( $\text{CaSO}_4$ ), then grinding the limestone (lime), shale and sand (silica), shale (alumina) and iron ore or industry mill scale (iron) to extreme fineness for intimate mixing to meet precise chemistry. The powder produced by grinding is then heated or "burned" in a rotary kiln to a temperature of 3,000 degrees, liquifying part of the powder and binding it together in what is called "clinker". Clinker consists of new compounds called hydraulic compounds. Hydraulic compounds enter into solution when water is added, forming a gel that binds to other minerals when set. The burned material clinker and added gypsum is then ground to extreme fineness. The resulting Portland cement becomes the "glue" to bond sand and aggregates together to form concrete.

Silica, one of the minor constituents of Portland cement manufactured by the Tilbury plant is to be supplied from the Monteith Bay geyserte property. This property covers

approximately 20 hectares and is owned 100% by Monteith Bay Resources Ltd. The company is committed to develop the deposit in a manner that does not cause significant environmental impact during operation or after mine closure.





NEW GLOBAL RESOURCES LTD.			
MONTEITH BAY PROJECT			
LOCATION MAP			
SCALE as shown	DATE June '93	N.T.S. 92L/3W	Figure: 1

### 3.0 PROJECT SETTING AND MINERAL TITLE

The Monteith Bay geyserte property is located on Vancouver Island, a large island off the southwest coast of British Columbia, having a length of 480 km and width of 140 km. The Kyuquot Sound area is approximately 150 km northwest of Campbell River and 380 km northwest of the cement plant in Delta. Monteith Bay is a small sheltered bay located about halfway up the west side of Kashutl Inlet, which is the northernmost inlet of Kuyquot Sound.

The main nearby centre is the village of Kyuquot located about 16 km south of Monteith Bay. Kyuquot is a mainly Native people's community with an area population of about 240 persons, with nearby non-Native residents totalling about 60. Fishing and small-scale logging are the main work activities.

Topography of the area varies from a flat coastal plain along Rugged Point and Brooks Peninsula to high peaks immediately east of Kyuquot. Monteith Bay is one of the small bays resulting from erosion controlled by major geological structures of the area.

Monteith Bay owns 100% of the Too Easy mineral claim as shown in Table I, Alberni Mining Division, N.T.S. 92L/3W. A foreshore lease application to cover the barge-loading facility area has been filed.

**TABLE 2  
CLAIM STATUS**

Claim Name	Tenure Number	Number of Units	Owner	Location Date	Current Expiry Date
Too Easy	1154 (200115)	1	Monteith Bay Resources Ltd.	Aug. 23/80	Sep. 4/2003



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MONTEITH BAY PROJECT

# ACCESS MAP

SCALE  
1:200,000

DATE  
June '93

N.T.S.  
92L/3W

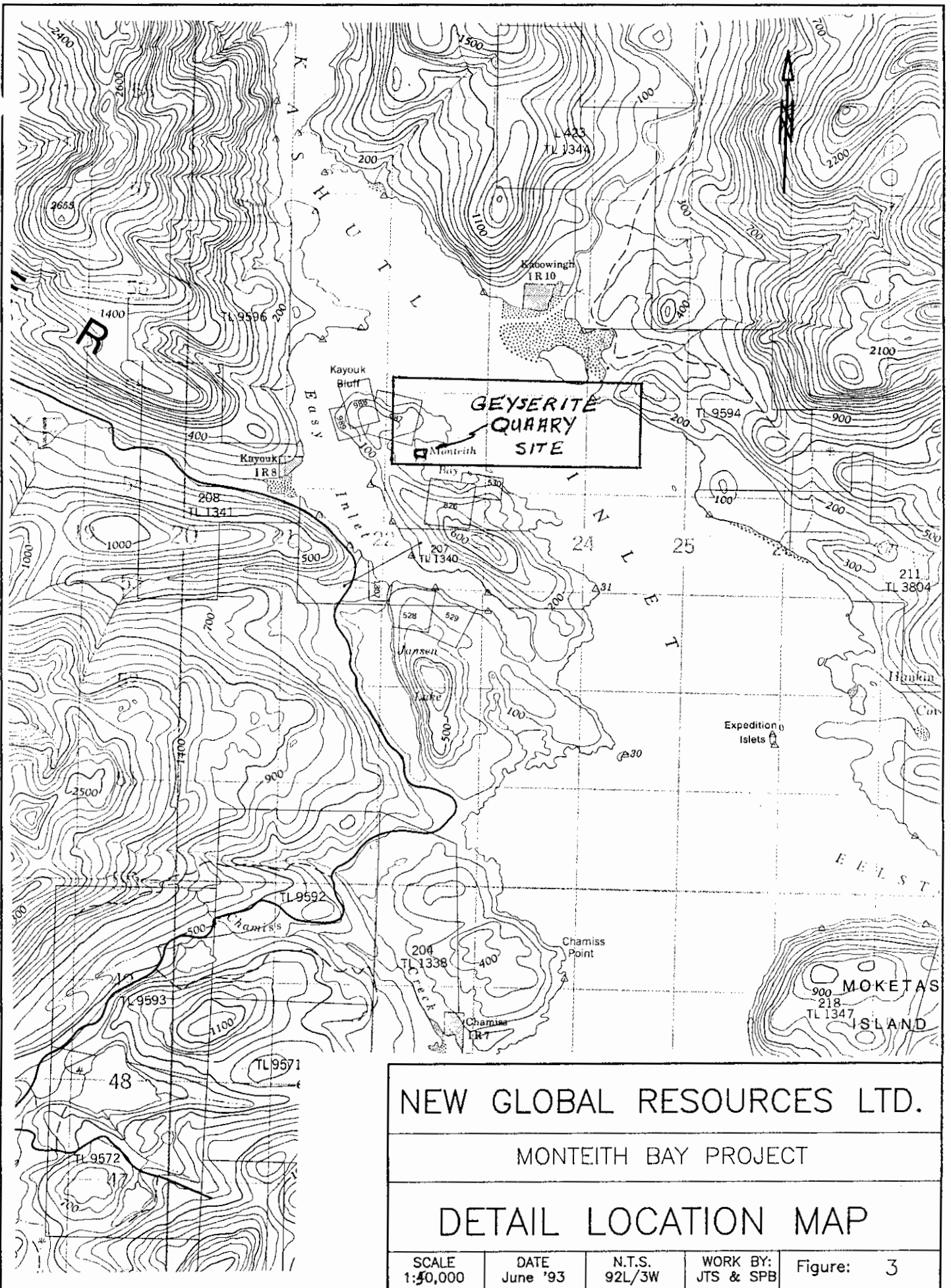
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JTS & SPB

Figure: 2

The project will extend from a barge dock at tide water on the east side of Monteith Bay along a 50-meter conveyor-crushing system to geyselite stockpiles and small quarry, a total distance of about 300 meters.

The immediate Monteith Bay area has no previous residential developments nor are any planned. There are no surface facilities on the site at present. The general area is a very sparsely settled fjordland-mountainous region. Much of the area has been clear-cut logged in the recent past. Minor amounts of coastal 'A' frame logging was done in the late 1940s. The Monteith Bay area was logged from the shoreline between 1945 and 1948. The northwestern part of Monteith Bay was logged by a local hand logger about eight years ago.

Access to the property is by boat, barge and float-equipped aircraft. The nearest road head is at Fair Harbour or the mouth of the Artlish River. Fair Harbour is 32 km by road from Zeballos and a further 45 km to the Island Highway. A large self-propelled ferry is available at Fair Harbour under contract with Intercan Resources Ltd. Major logging camps are located in nearby Chamiss Bay and Ououkinsh Inlet.

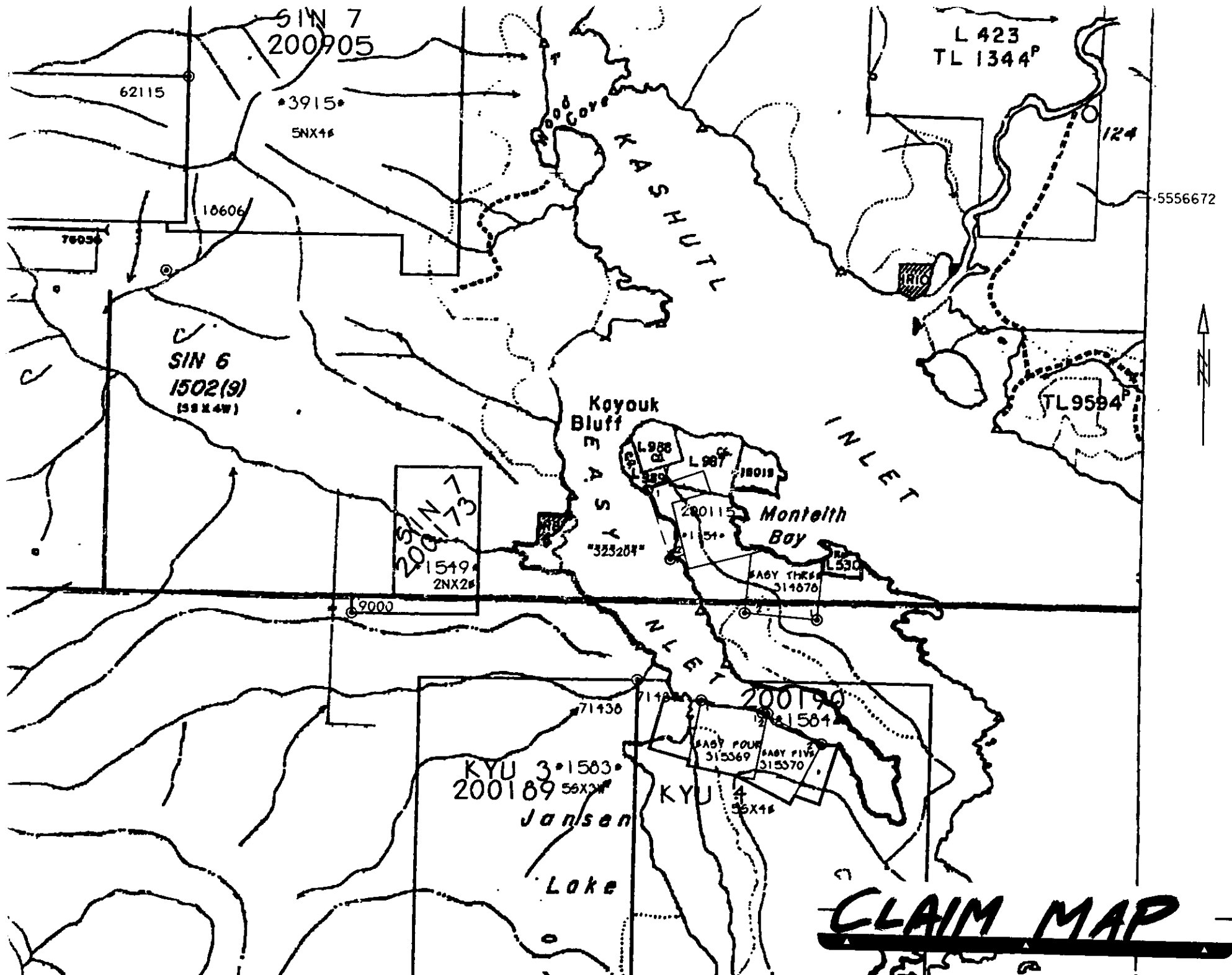


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MONTEITH BAY PROJECT

DETAIL LOCATION MAP

SCALE 1:50,000	DATE June '93	N.T.S. 92L/3W	WORK BY: JTS & SPB	Figure: 3
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**CLAIM MAP**

## **4.0 HISTORY AND FIELD PROCEDURES**

The claims covering the geyselite were staked in 1908. Nearby pyrophyllite deposits provided material for fire clay, pipe and other industrial uses for the B.C. Pottery Company and the San Juan Mining and Manufacturing Company from 1910 onward. The pilings of the pyrophyllite dock can still be seen on the south shore of Monteith Bay.

Comprehensive mapping of the deposits was completed in 1913 by C.H. Clapp of the Geological Survey of Canada, who suggested that the alunite and pyrophyllite may have been formed by hydrothermal replacement of volcanic rocks by ascending sulphuric solutions.

In 1952, the Crown-granted claims were purchased by St. Eugene Mining Corporation, who subsequently optioned the property to Westport Chemical Inc. during 1959-60. Drill testing was completed on the alunite-pyrophyllite zone, but these results are presently not available.

Two packsack holes were drilled to a depth of 25 feet in the alunite area by Falconbridge Nickel Mines, who acquired the property from St. Eugene in 1962. No sample data are available, but drill logs note the presence of quartz, which was colloform-banded and crustified, containing disseminated pyrite in altered volcanics.

The Kyuquot syndicate was formed in 1970 as a joint venture between Falconbridge and MacDonald Consultants Inc. to explore the area for porphyry copper deposits. Mapping and soil-sampling were completed near Easy Inlet.

Kennco Exploration staked claims over the Kayouk Peninsula-Jansen Lake area in 1972 and completed geological mapping and a rock geochemical survey. Analyses were completed for Mo, Cu, Zn, Pb, Ag, Au, Ni and Co with anomalous results being attributed to sulfides in quartz veins. C.S. Ney, in describing a siliceous bluff on the northwest side of Monteith Bay, suggested a similarity with 'geyselite' or siliceous sinter typical of hot springs activity.

The B.C. Gold Syndicate, supervised by J.T. Shearer explored the Easy claims in 1980 by prospecting, soil-sampling and geological mapping to better evaluate the intense alteration zones as defined by the areas of pyrophyllization-alunite. No geochemically anomalous response was reported from the rock or soil-sampling. The Too Easy claim was located at this time.

Semco completed an examination of the Falconbridge property and Easy Inlet areas in 1980 as part of a program on three pyrophyllite occurrences in the area.

A preliminary report for Falconbridge Nickel Mines Ltd. was completed by Mr. G. Albino in June 1982 covering historical, exploratory and geological data from past examinations and including geological mapping and geochemical sampling as completed by Mr. Albino and Mr. C. Niles in June 1982.

In 1983, 1,066 meters of diamond drilling in seven holes was completed by Falconbridge, in joint venture with Cal Denver Resources Ltd., on the northern tip of the peninsula. Detailed mineralogical and petrographic studies on the drill core delineated two recognizable alteration zones: (1) a quartz, alunite, pyrophyllite, kaolinite zone to a depth of approximately 140 meters below sea level (low pH zone) and (2) a gypsum with lesser anhydride zone below. An airborne geophysical survey of 128 line kilometres (3-frequency electromagnetics, magnetometer and VLF-EM) was carried out by Aerodat Ltd. in May 1985. The general magnetic trend appears to be east-northeasterly with several north-south orientations suggesting later structural overprinting.

Monteith Bay Resources Ltd. initiated the purchase of the Too Easy claim in 1992 and completed detail geological mapping and sampling in November 1992 to January 1993. Accurate topographic surveying, hydrographic survey of Monteith Bay, biological study of the area and detail diamond-drilling were done between January and March 1993. A 9,000-tonne bulk sample and further diamond-drilling were done between March and July 1993. The cement plant processed the geyserite during August and September 1993. A large volume of information is now available on the characteristics of the geyserite with respect to an industrial size trial on grindability, power consumption of the roller mills,



abrasion, feed handling, burnability, consistent chemistry and ultimately the strength of cement and customer satisfaction.

Geological mapping was on a remeasured baseline and grid lines established in 1984. The 1,050-meter baseline trends 320° from the south boundary of the Too Easy Claim to the tip of the peninsula about 500 meters north of the northern claim line. The cross-lines trend at 230° at 75-m intervals with stations at 25 meters. Accurate topographic contours were measured with a transit and EDM unit and compiled at a scale of 1:500 by Wright Parry Taylor & Fuller, B.C. Land Surveyors and Consulting Engineers.

## **5.0 GEOLOGY AND EXPLORATION**

### **5.1 Introduction**

The geysers deposit consists mainly of replacement silica in a concentration greater than ninety-six percent. It is a paleo-hot springs deposit of massive thickness, originally of gently dipping bedding, now somewhat faulted, bent and dipping to the south about forty to fifty degrees. Surface samples were taken systematically over the area and cores were taken from drill holes to determine the extent of the deposit. The correlation and analysis was done by the Tilbury Cement laboratory and Chemex Labs Ltd.

Triassic to early Jurassic volcanic-sedimentary sequences underlie the northwest of Vancouver Island. The Triassic Karmutsen Formation consists of a very thick basaltic succession of pillow lavas and breccias, amygdaloidal and massive flows with infrequent interbedded tuffaceous sediments forming the lower part of the sequence.

Conformably overlying the Karmutsen formation are the Quatsino and Parson Bay formations which are mainly calcareous and shaly sedimentary sequences. These sediments are in turn overlain by the Bonanza group of early Jurassic age, consisting of flows and pyroclastics ranging in composition from rhyolite to basalt.

Muller et al (1974) have measured the stratigraphic sections of the Bonanza volcanics, indicating an average thickness of 2,500 m. Rhyodacite and siliceous units in the Kyuquot Sound area appear often as welded tuffs.

The Kashutl Inlet intrusive suite is one of a small linear set of plutons which have been emplaced near surface, within related volcanics and pyroclastics.

The volcanics in the Monteith Bay area consist of porphyritic andesite with hornblende and plagioclase phenocrysts in an often siliceous, aphanitic groundmass. Frequently amygdaloidal flows occur and flow breccias are observed commonly in more mafic units.

Felsic rocks located on the west shore of Kayouk Peninsula are generally limited in occurrence, appear to be banded, containing quartz phenocrysts and possibly fragments of pumice.

Late intrusive rocks occur as fine-grained porphyritic andesite to dykes and sills with a dark grey-green groundmass. These dikes are discordant to the bedding.

### Alteration

Rocks in the general Easy Inlet area are altered to various degrees, with prophylic, silicic and advanced argillic zones present. The lack of structural control, of associated large intrusions and overall distribution of the alteration assemblages suggest that the silicification took place contemporaneously with volcanism before significant structural dislocation. The sericite-rich alteration in Monteith Bay appears to correlate directly with the emplacement and shearing of the later andesite dykes. The presence of chalcedonic silica, alunite and pyrophyllite indicate a probable near surface origin for the main phase of alteration.

Diamond-drilling (refer to Figure <sup>4</sup> for hole locations) demonstrates the continuity and purity of the geyselite material. A typical geyselite analysis (by Chemex Labs) for major elements is as follows:

Al2O3 %	CaO %	Cr2O3 %	Fe2O3 %	K2O %	MgO %	MnO %	Na2O %	P2O5 %	SiO2 %	TiO2 %	Loss on Ignition	Total
1.02	0.13	<0.01	0.34	0.26	0.04	<0.01	0.05	0.09	95.60	0.24	2.00	100.0

Volume calculations on cross-sections spaced 20 meters apart give a preliminary reserve of 2.0 million tons of pure geyselite.

## 5.2 Diamond Drill Results

Diamond-drilling was initiated in two phases, during February and July 1993. Drill logs are contained in Section \_\_\_ and plotted on cross-sections, figures 5 to 23. Diamond drill core is stored on the Too easy claim. The geyserrite deposit is cut by a gently westerly-dipping fault zone which outcrops east of section O (Figure 5) and was intersected in several drill holes to the west. This fault separates typical geyserrite from pyritic coarse volcanic tuff and agglomerate. Minor irregularities in this lower fault contact occur on the south side of section 20 and have been exposed by excavating in the MB93-03 hole area. Hole 3 was drilled along the apex of two intersecting faults which thrust the pyritic volcanic unit into a higher elevation.

Late-stage andesite dykes are common in the area between cross-sections 80 and 140 (Figures 9-12). Intense apple-green massive sericite has altered the margins of the widest dykes. The narrow widths of geyserrite and the requirement of having a stockpile area for the first few years of mining suggest that the part of the deposit between sections 0 to 140 will not be mined until later in the quarry life.

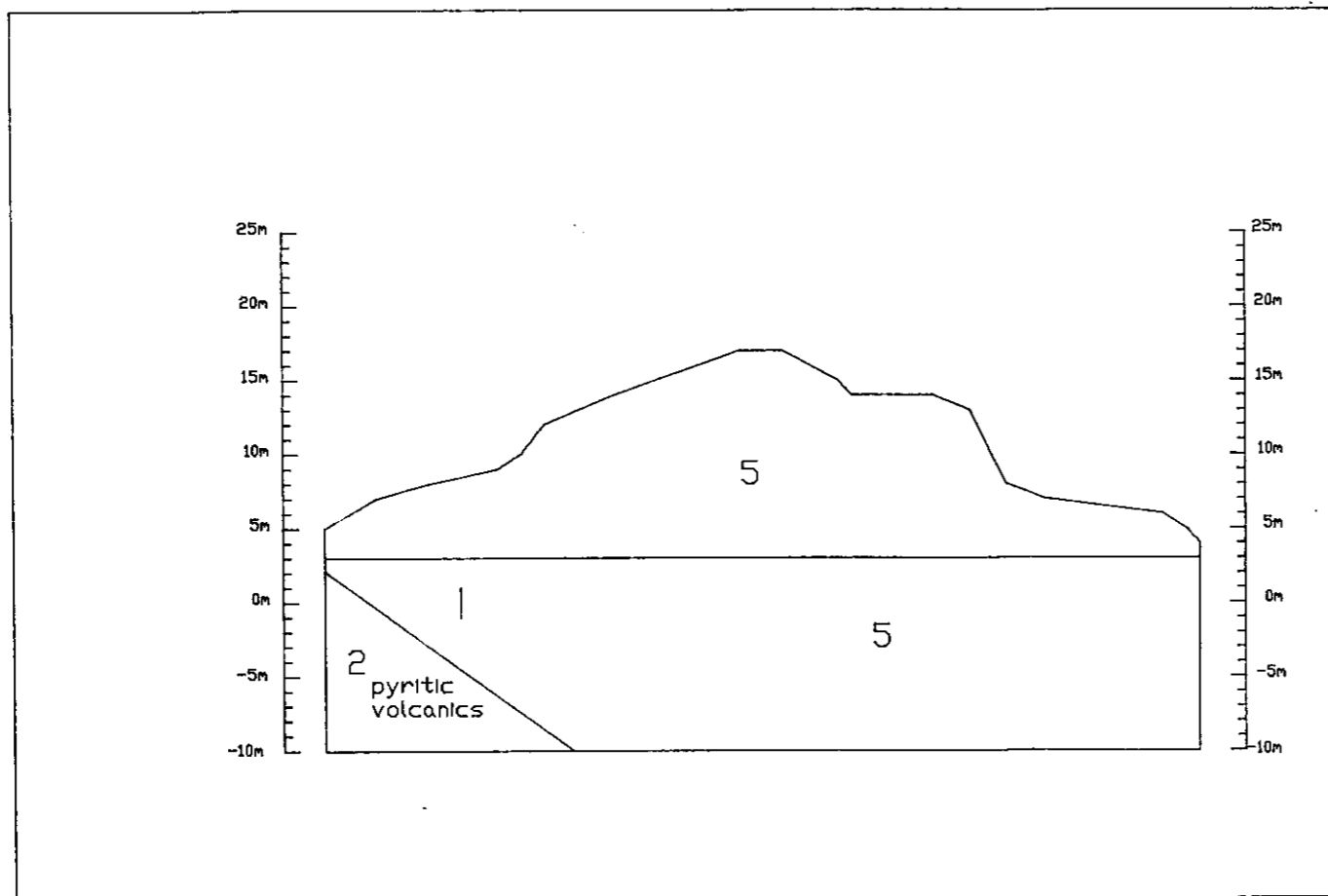
Oblique sections have been plotted to give an overview of the deposit (Figures 21 to 23). A small area of pyritic material occurs near surface in the vicinity of hole 13 (plotted on section 180, Figure \_\_\_). Narrow dykes have been emplaced along the southern and northern margins of the deposit and are reflected by small gulleys in the present topography.

The geyserrite deposit dips westerly under hematitic volcanics west of section 300 (Figure 20).

## 5.3 Trenching Results

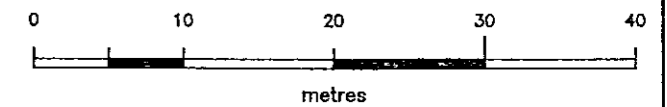
Between March and July 24, approximately 9,000 tonnes of geyserrite were produced from an excavation (trench) in the cross-section 150-160 area (Figure 13) and shown on oblique section 1 (Figure 21) and shipped by barge to the Tilbury cement plant in Delta, B.C. Considerable geological information was obtained from the excavations. The

cement plant processed the geyselite during August and September 1993. The geyselite was crushed on-site to 1 inch minus and the resulting product proved to be very uniform in its chemical composition and a large volume of information is now available on the characteristics of the geyselite with respect to an industrial-size trial on grindability, power consumption of the roller mills, abrasion, feed handling, burnability, ultimate strength of the resulting cement and customer satisfaction on the end-use construction site.



Legend

- 8 Andesite dyke
- 5 Geyserite
- 3 clay-silica alteration
- 2 altered pyritic Andesite



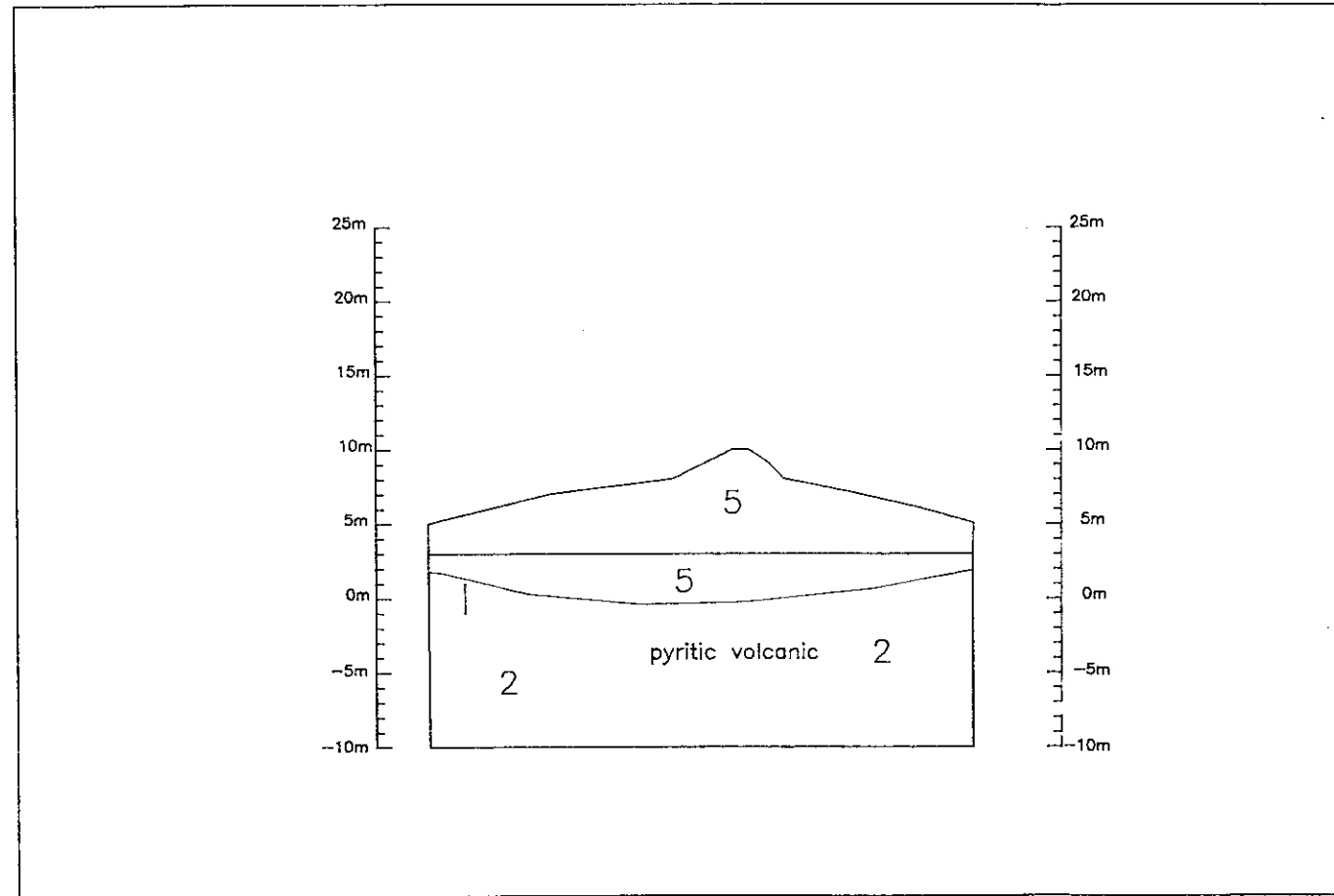
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MONTEITH BAY PROJECT

SECTION 20 METERS

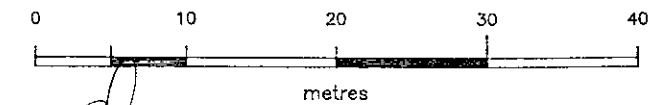
SCALE: 1:500	DATE: Nov'93	N.T.S. 92L/3S	WORK BY: JTS & SPB	FIGURE: 6
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Eng: New Global Resources Ltd.

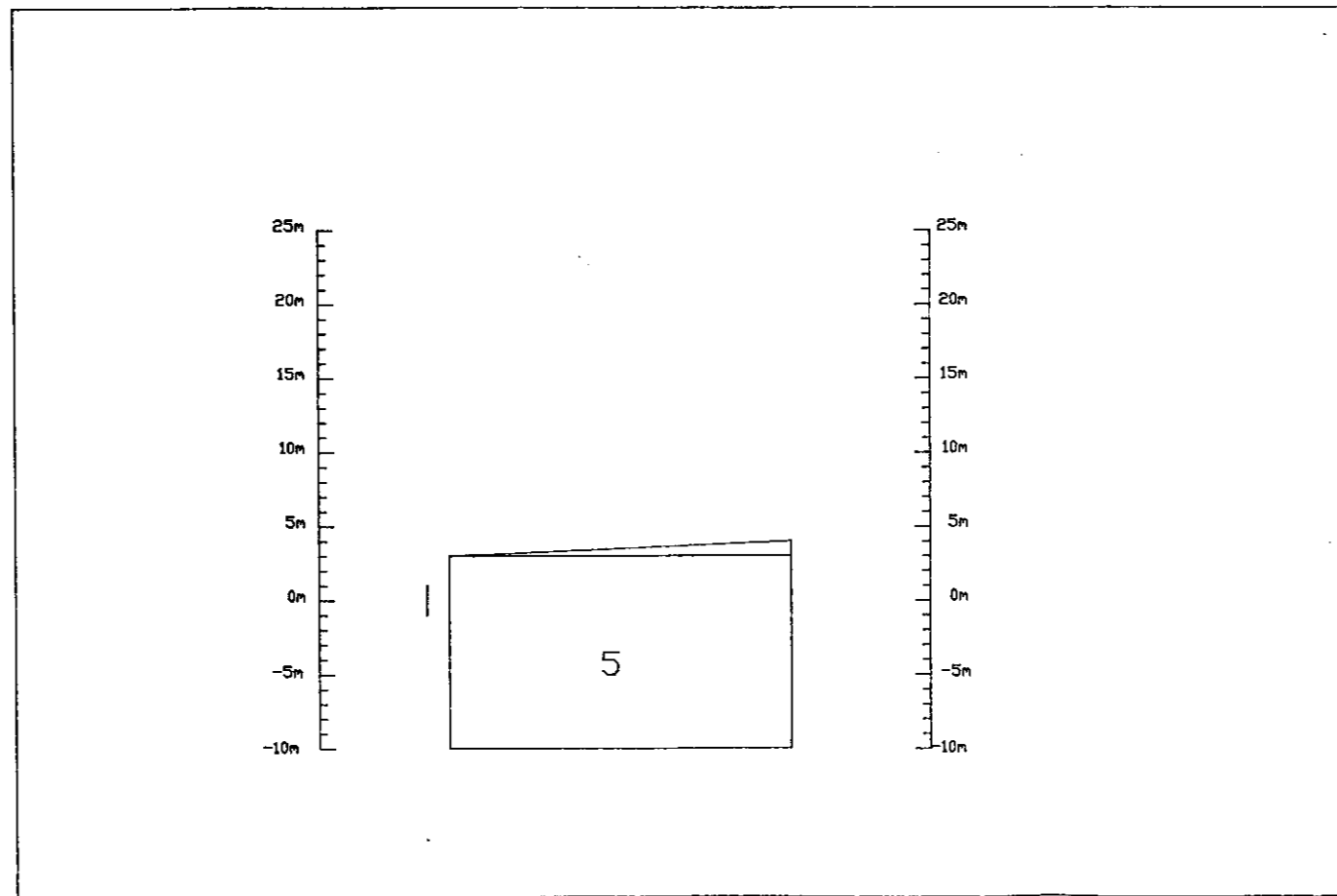


Legend

- 8 Andesite dyke
- 5 Geyserite
- 3 clay-silica alteration
- 2 altered pyritic Andesite

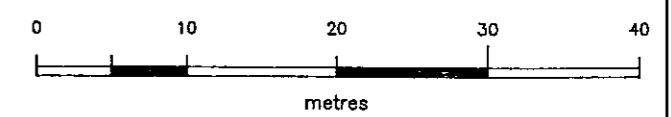


MONTEITH BAY RESOURCES LTD.				
MONTEITH BAY PROJECT				
SECTION 0 METERS				
SCALE: 1:500	DATE: Nov'93	N.T.S. 92L/3S	WORK BY: JTS & SPB	FIGURE: 5
Eng: New Global Resources Ltd.				



Legend

- 8 Andesite dyke
- 5 Geyserite
- 3 clay-silica alteration
- 2 altered pyritic Andesite



MONTEITH BAY RESOURCES LTD.

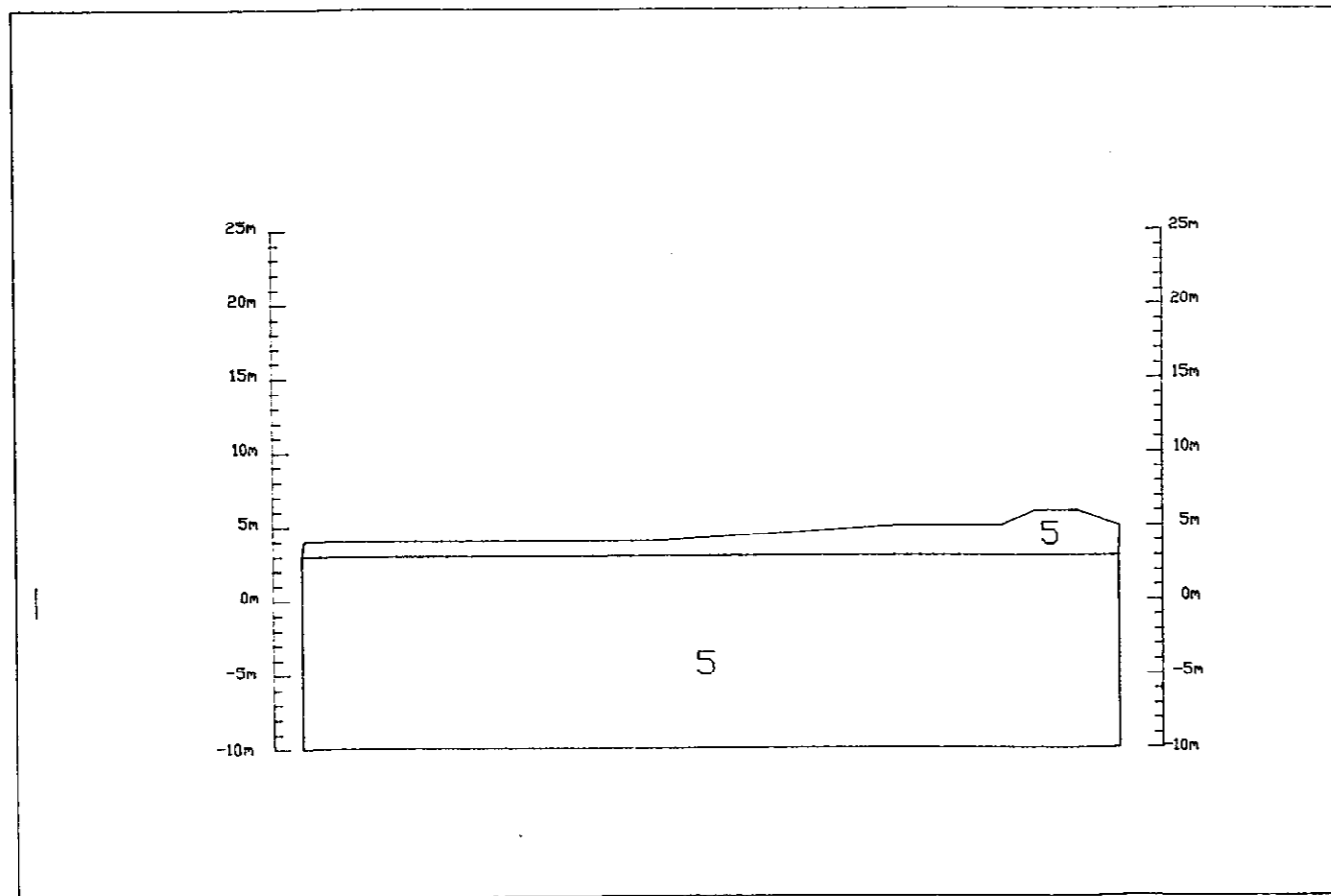
MONTEITH BAY PROJECT

SECTION 40 METERS

SCALE: 1:500	DATE: Nov'93	N.T.S. 92L/3S	WORK BY: JTS & SPB	FIGURE: 7
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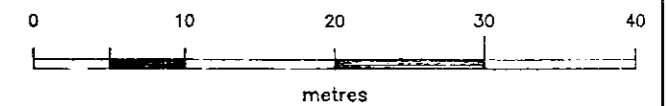
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Legend

- 8 Andesite dyke
- 5 Geyselite
- 3 clay-silica alteration
- 2 altered pyritic Andesite



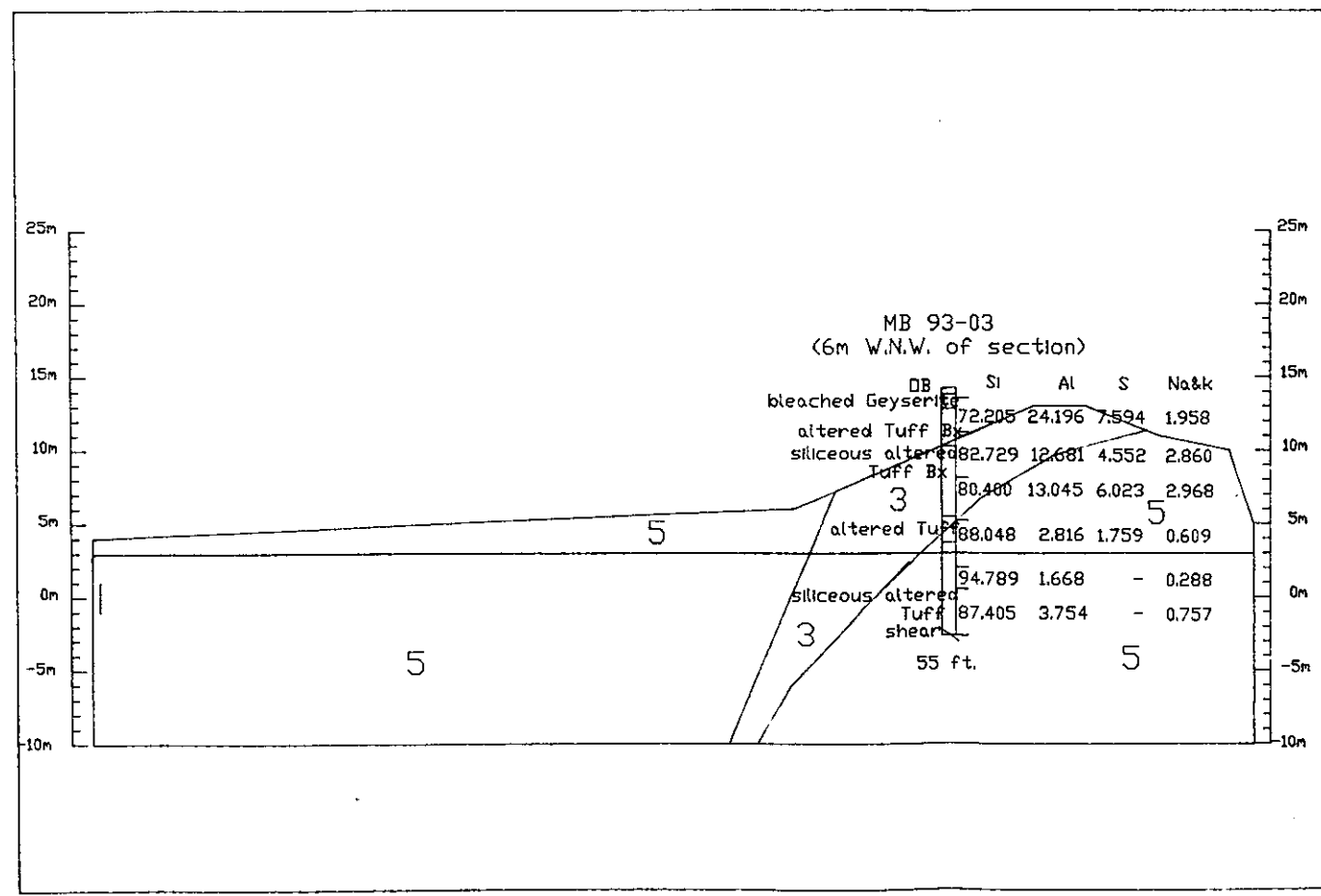
MONTEITH BAY RESOURCES LTD.

MONTEITH BAY PROJECT

SECTION 60 METERS

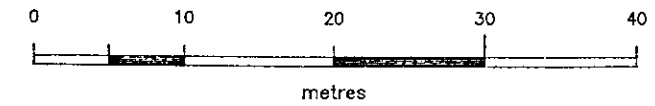
SCALE: 1/500	DATE: Nov'93	N.T.S. 92L/3S	WORK BY: JTS & SPB	FIGURE: 8
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Eng: New Global Resources Ltd.

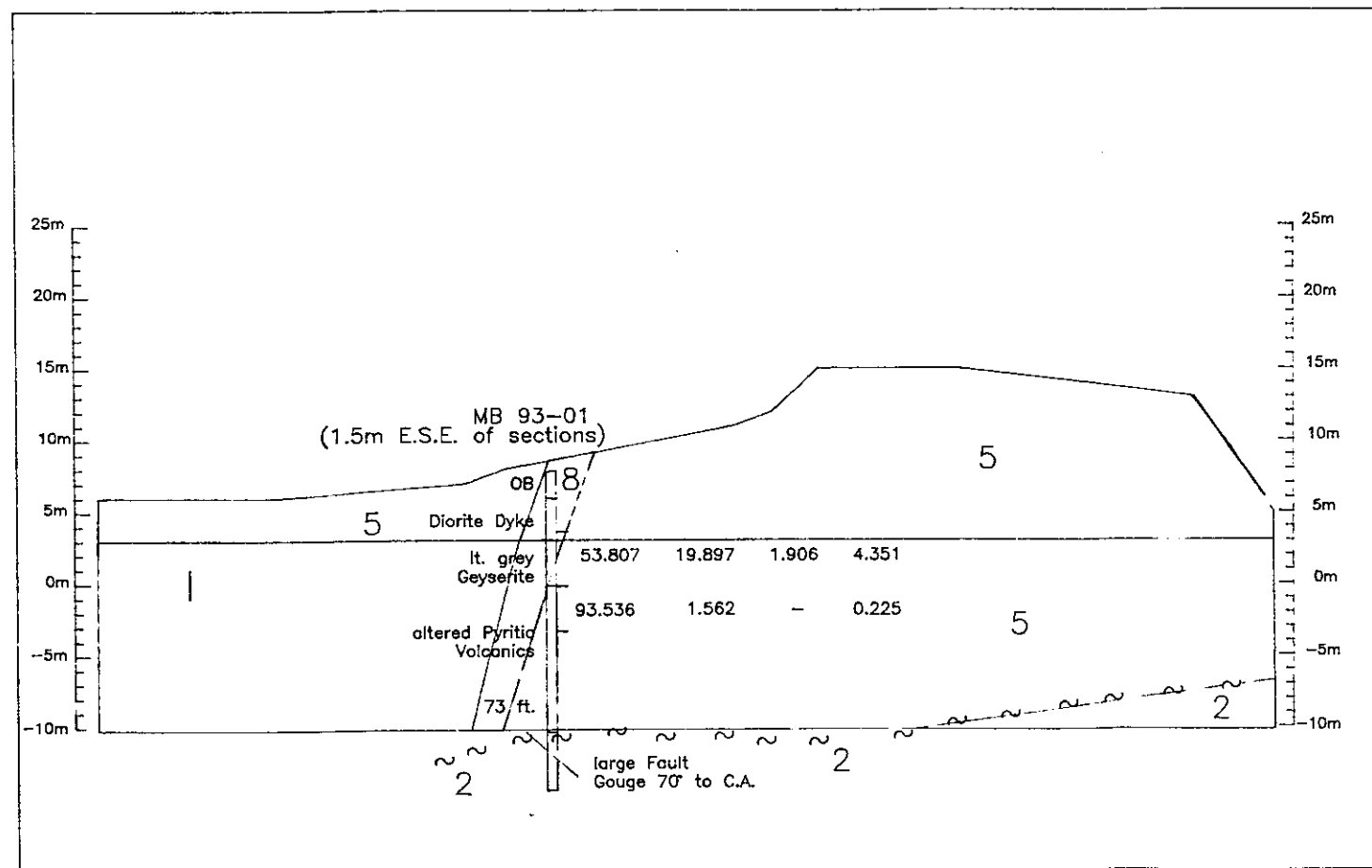


Legend

- 8 Andesite dyke
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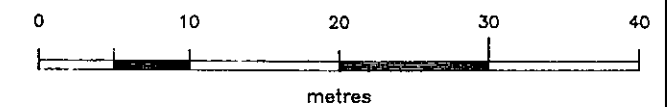


MONTEITH BAY RESOURCES LTD.				
MONTEITH BAY PROJECT				
SECTION 80 METERS				
SCALE: 1/500	DATE: Nov'93	N.T.S. 92L/3S	WRK BY: JTS & SPB	FIGURE 9
Eng: New Global Resources Ltd.				

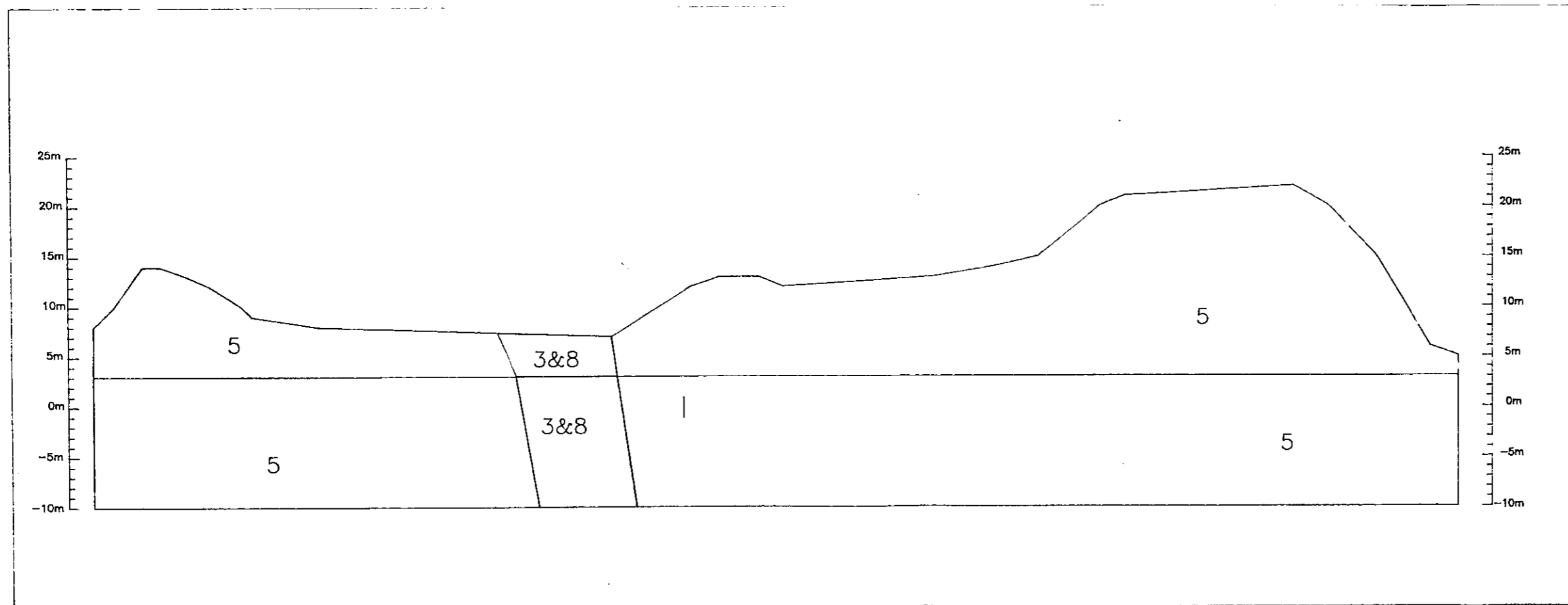


Legend

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- 3 clay-silica alteration
- 2 altered pyritic Andesite

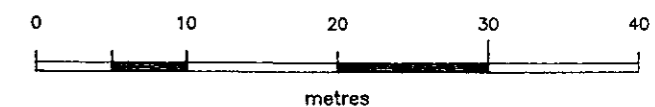


MONTEITH BAY RESOURCES LTD.				
MONTEITH BAY PROJECT				
SECTION 100 METERS				
SCALE: 1:500	DATE: Nov'93	N.T.S. 92L/3S	WORK BY: JTS & SPB	FIGURE: 10
Eng: New Global Resources Ltd.				

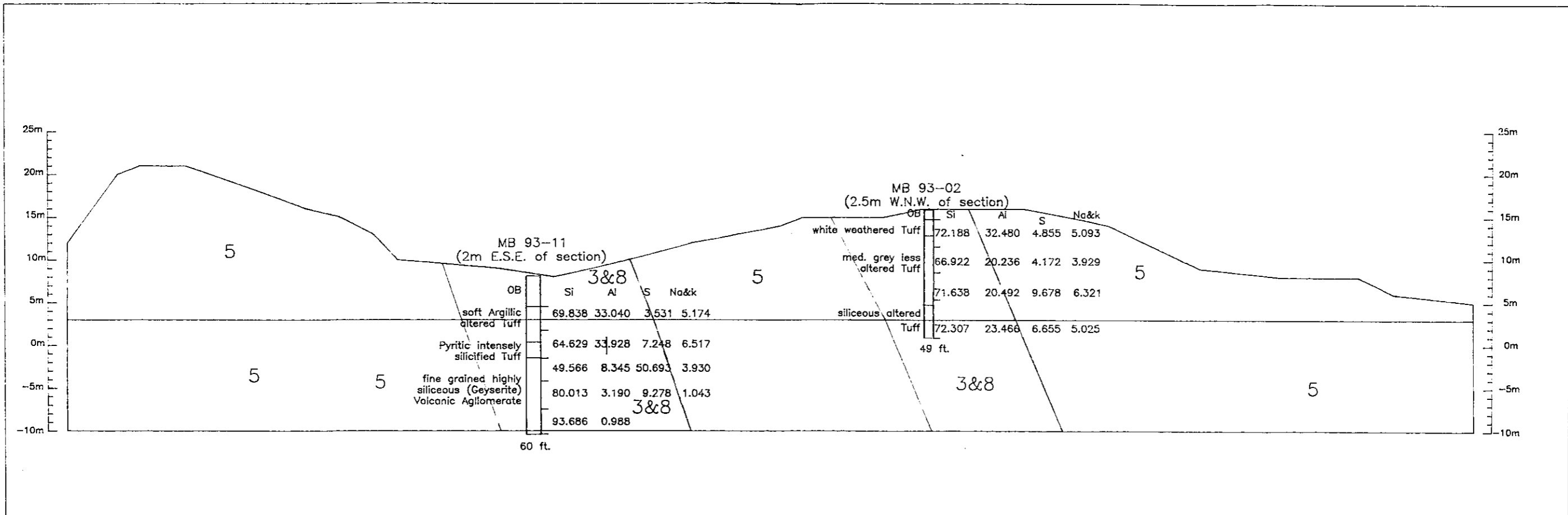


Legend

- 8 Andesite dyke
- 5 Geyselite
- 3 clay-silica alteration
- 2 altered pyritic Andesite

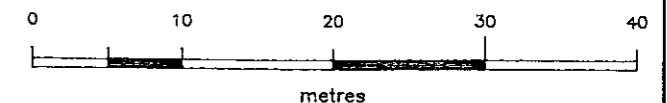


MONTEITH BAY RESOURCES LTD.				
MONTEITH BAY PROJECT				
SECTION 120 METERS				
SCALE: 1:500	DATE: Nov'93	N.T.S. 92L/3S	WORK BY: JTS & SPB	FIGURE: 11
Eng: New Global Resources Ltd.				



Legend

- 8 Andesite dyke
- 5 Geyselite
- 3 clay-silica alteration
- 2 altered pyritic Andesite



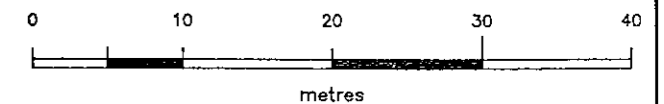
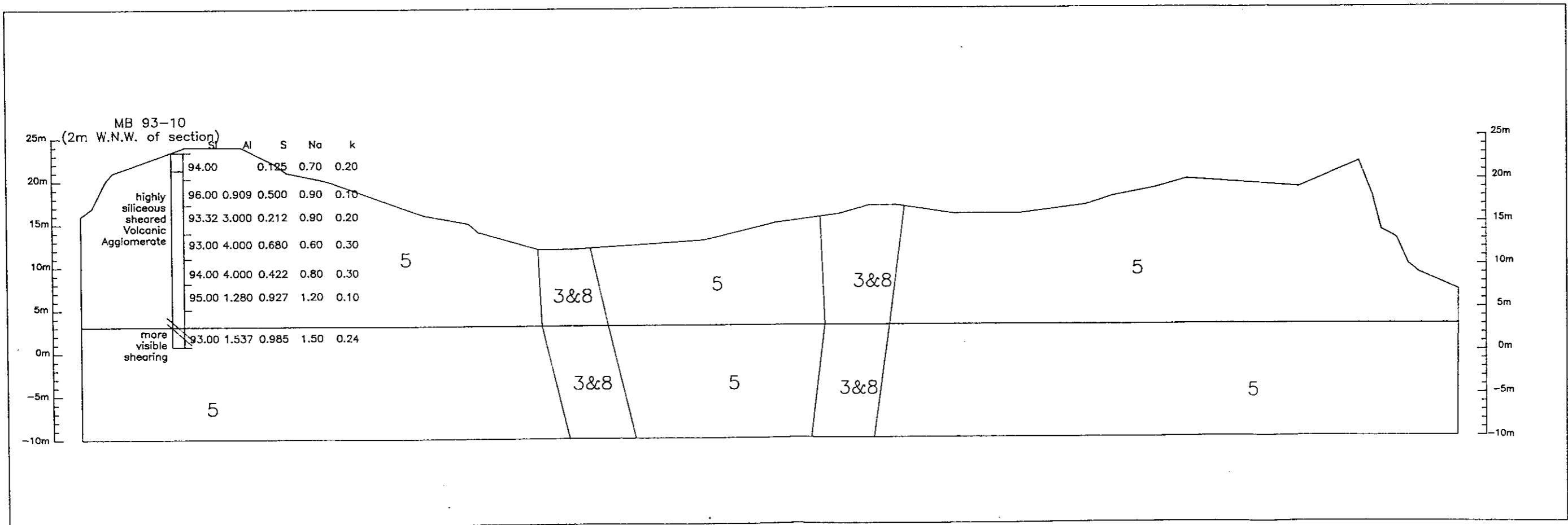
MONTEITH BAY RESOURCES LTD.

MONTEITH BAY PROJECT

SECTION 140 METERS

SCALE: 1:500	DATE: Nov'93	N.T.S. 92L/3S	WORK BY: JTS & SPB	FIGURE: 12
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Eng: New Global Resources Ltd.



Legend

- 8 Andesite dyke
- 5 Geyselite
- 3 clay-silica alteration
- 2 altered pyritic Andesite

MONTEITH BAY RESOURCES LTD.

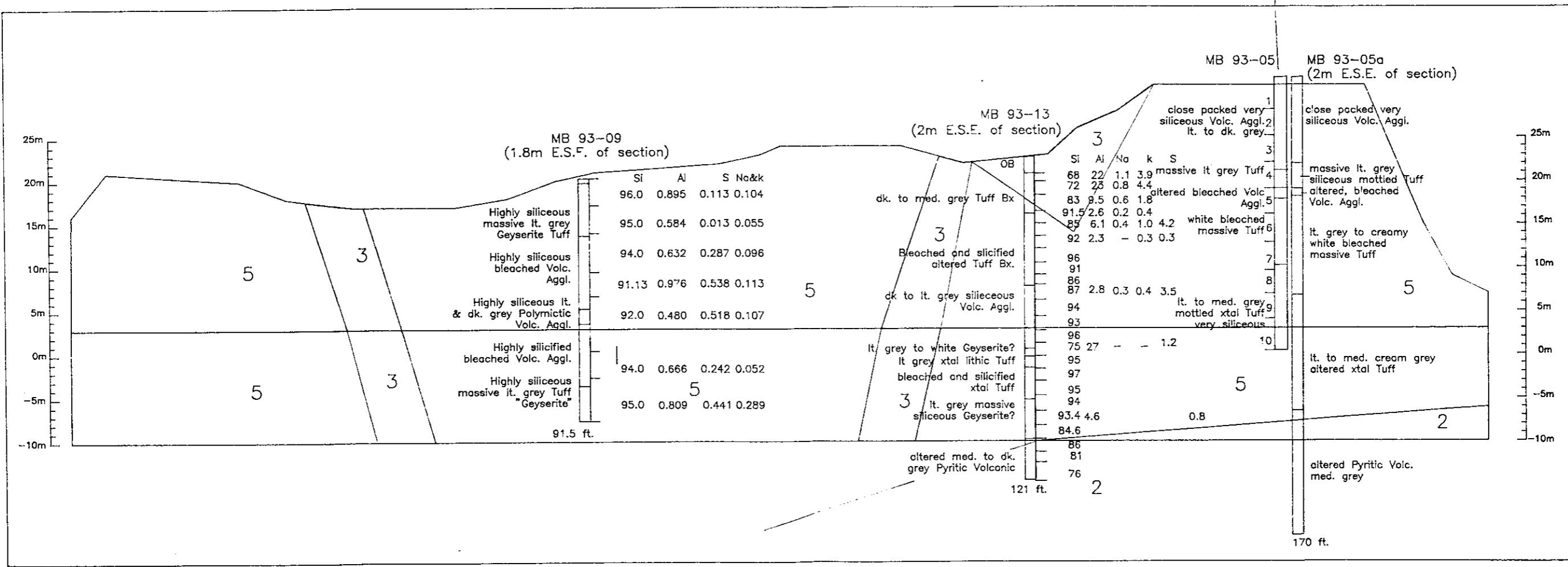
MONTEITH BAY PROJECT

SECTION 160 METERS

SCALE: 1:500	DATE: Nov'93	N.T.S. 92L/3S	WORK BY: JTS & SPB	FIGURE: 13
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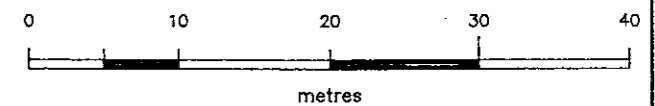
Eng: New Global Resources Ltd.

MB 93-5				
No.	Si	Al	S	Na&k
1	88.674	0.808	0.068	0.096
2	96.739	0.649	0.062	0.268
3	98.001	0.707	0.628	0.085
4	97.531	0.696	0.045	0.059
5	97.124	0.828	0.135	0.115
6	95.169	0.982	0.076	0.153
7	98.241	1.163	-	0.096
8	95.995	1.087	0.568	0.077
9	91.792	0.828	2.308	1.655
10	94.909	0.866	1.162	0.282



Legend

- 8 Andesite dyke
- 5 Geyselite
- 3 clay-silica alteration
- 2 altered pyritic Andesite



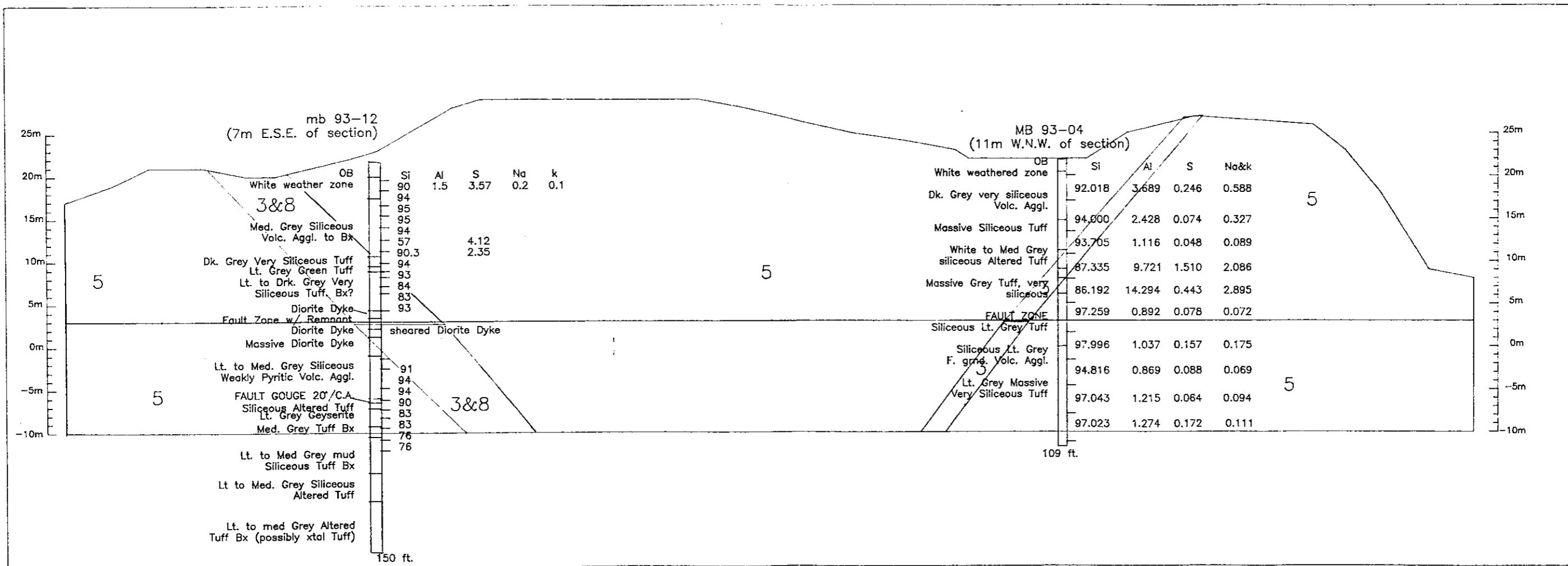
MONTEITH BAY RESOURCES LTD.

MONTEITH BAY PROJECT

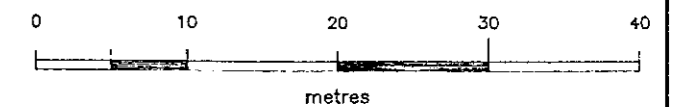
SECTION 180 METERS

SCALE: 1:500	DATE: Nov'93	N.T.S. 92L/3S	WORK BY: JTS & SPB	FIGURE: 14
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Eng. New Global Resources Ltd.



- Legend
- 8 Andesite dyke
  - 5 Geyserite
  - 3 clay-silica alteration
  - 2 altered pyritic Andesite



MONTEITH BAY RESOURCES LTD.

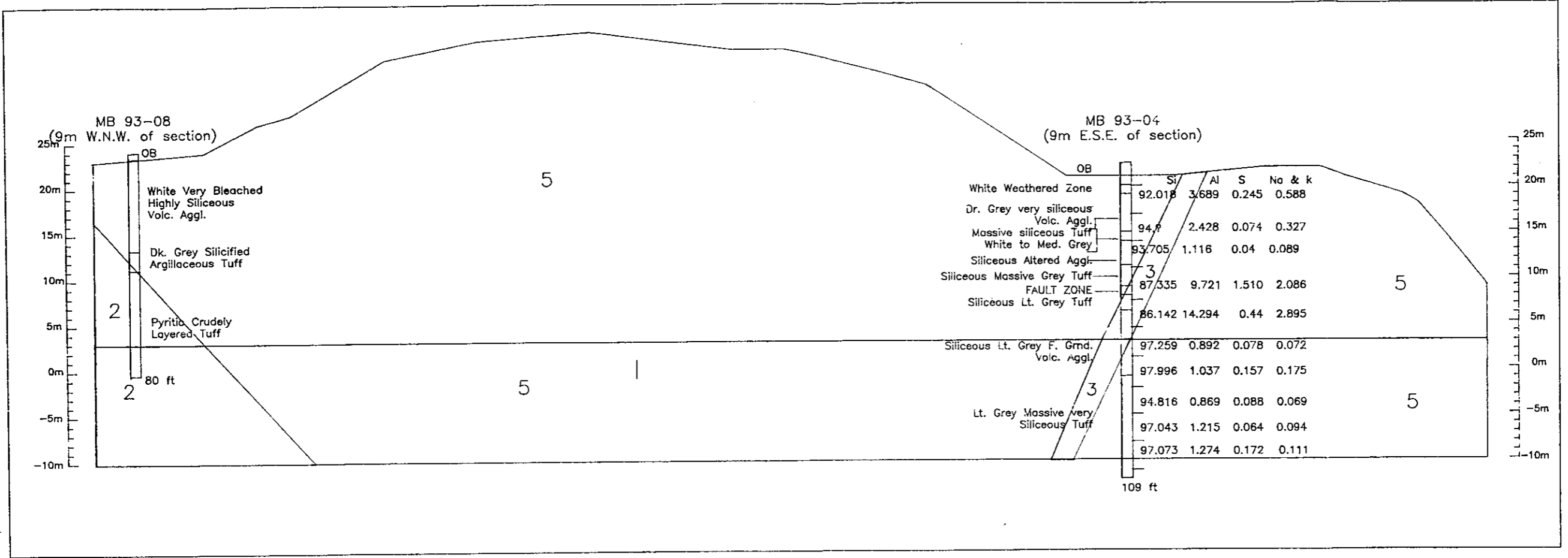
MONTEITH BAY PROJECT

SECTION 200 METERS

SCALE: 1:500	DATE: Nov'93	N.T.S. 92L/3S	WORK BY: JTS & SPB	FIGURE: 15
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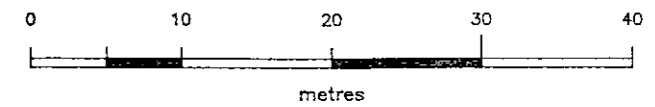
Eng. New Global Resources Ltd.





Legend

- 8 Andesite dyke
- 5 Geyserite
- 3 clay-silica alteration
- 2 altered pyritic Andesite



MONTEITH BAY RESOURCES LTD.

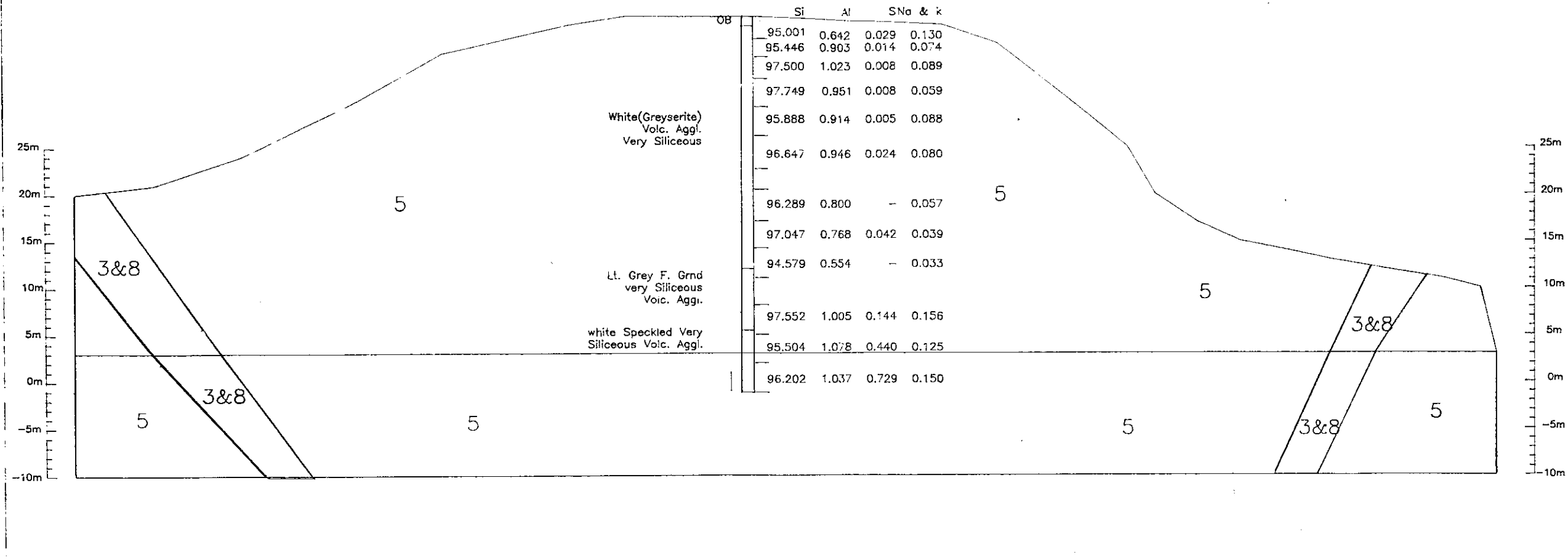
MONTEITH BAY PROJECT

SECTION 220 METERS

SCALE: 1:500	DATE: Nov'93	N.T.S. 92L/3S	WORK BY: JTS & SPB	FIGURE: 16
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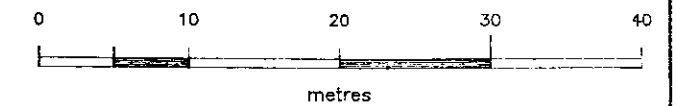
Eng. New Global Resources Ltd.

MB 93-06  
(2.5m E.S.E. of section)



Legend

- 8 Andesite dyke
- 5 Geyserite
- 3 clay-silica alteration
- 2 altered pyritic Andesite



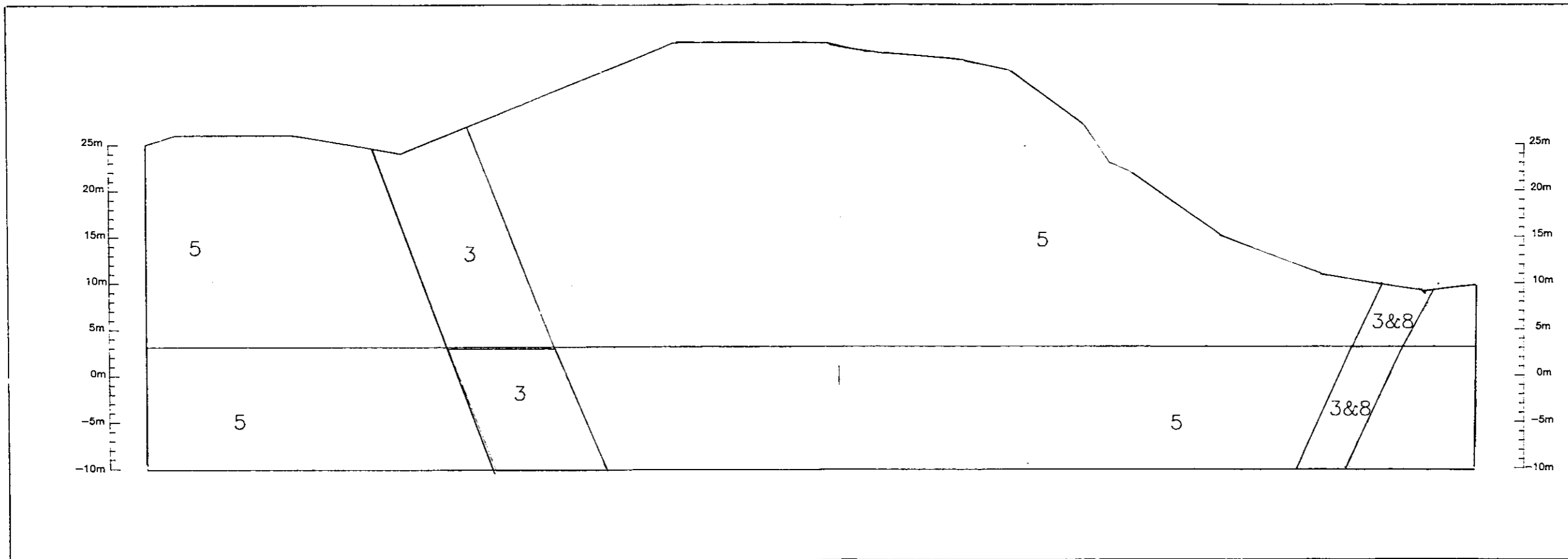
MONTEITH BAY RESOURCES LTD.

MONTEITH BAY PROJECT

SECTION 240 METERS

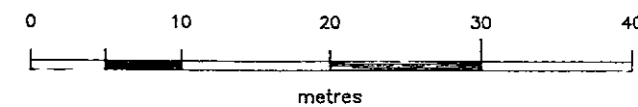
SCALE: 1:500	DATE: Nov'93	N.T.S. 92L/3S	WORK BY: JTS & SPB	FIGURE: 17
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Eng: New Global Resources Ltd.



Legend

- 8 Andesite dyke
- 5 Geyserite
- 3 clay-silica alteration
- 2 altered pyritic Andesite



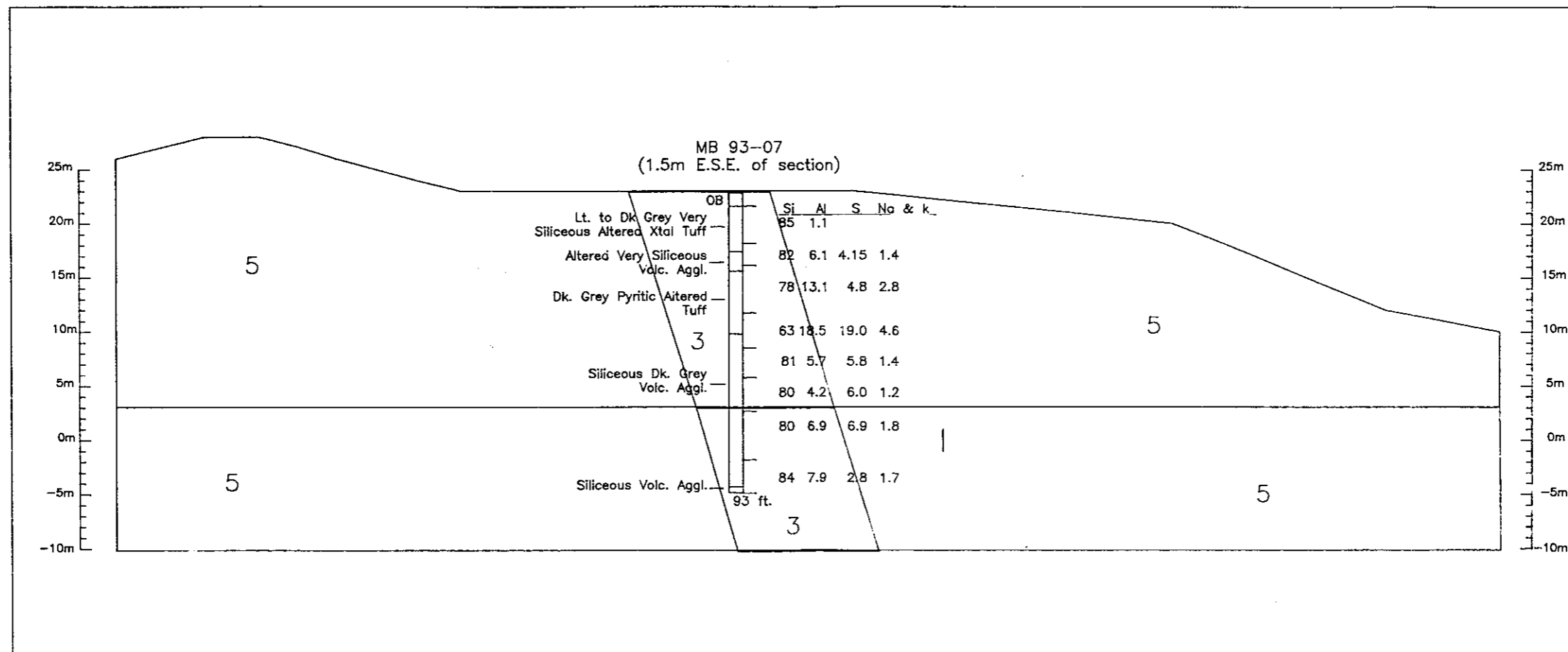
MONTEITH BAY RESOURCES LTD.

MONTEITH BAY PROJECT

SECTION 260 METERS

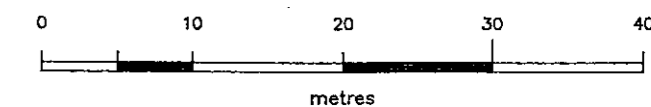
SCALE: 1:500	DATE: Nov'93	N.T.S. 92L/3S	WORK BY: JTS & SPB	FIGURE: 18
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Eng: New Global Resources Ltd.

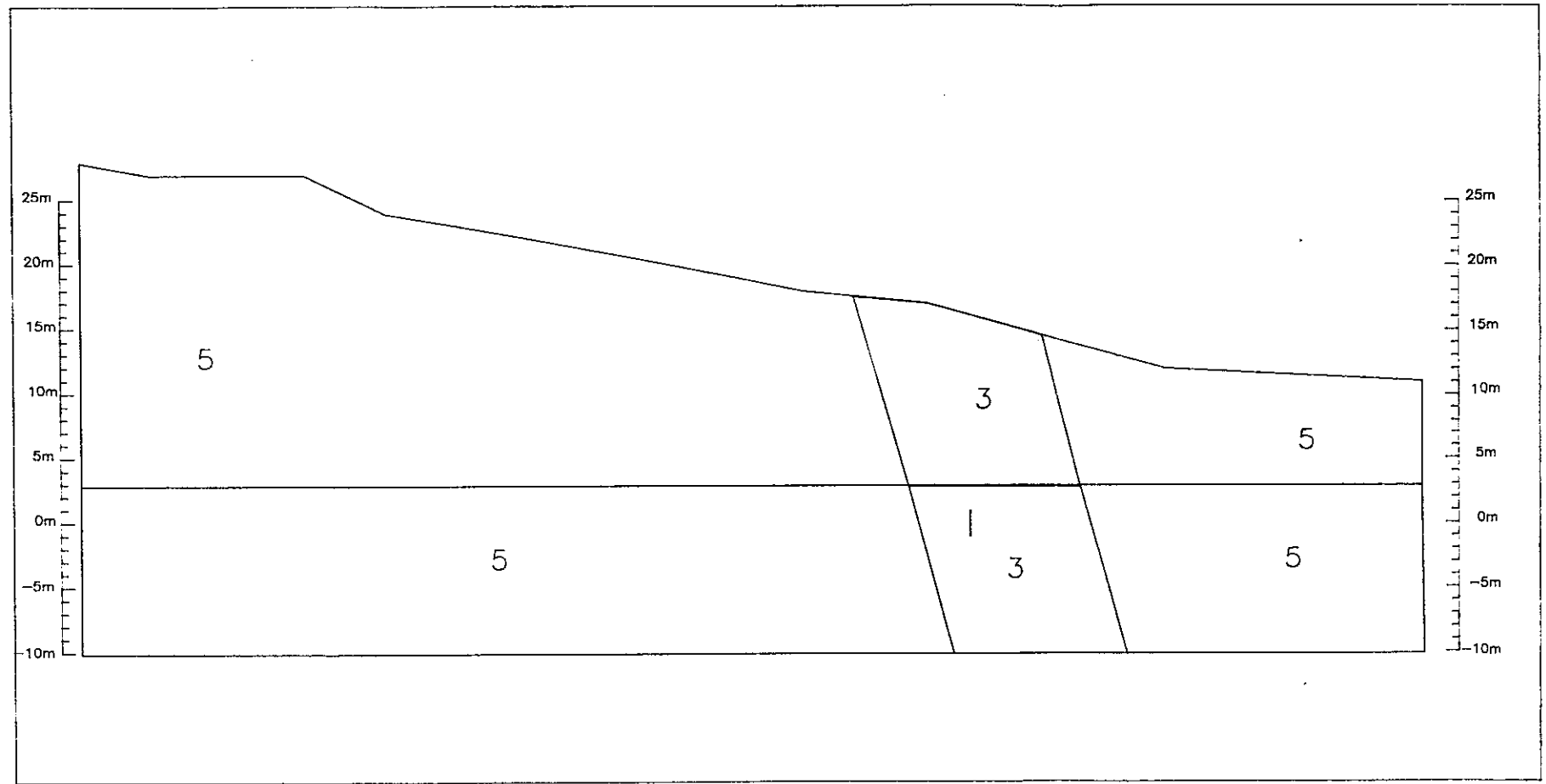


Legend

- 8 Andesite dyke
- 5 Geyserite
- 3 clay-silica alteration
- 2 altered pyritic Andesite

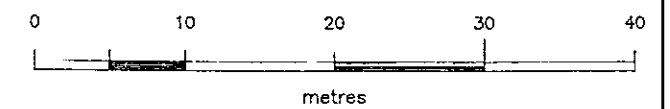


MONTEITH BAY RESOURCES LTD.			
MONTEITH BAY PROJECT			
SECTION 280 METERS			
SCALE: 1:500	DATE: Nov'93	N.T.S. 92L/3S	WORK BY: JTS & SPB
			FIGURE: 19
<i>Eng: New Global Resources Ltd.</i>			

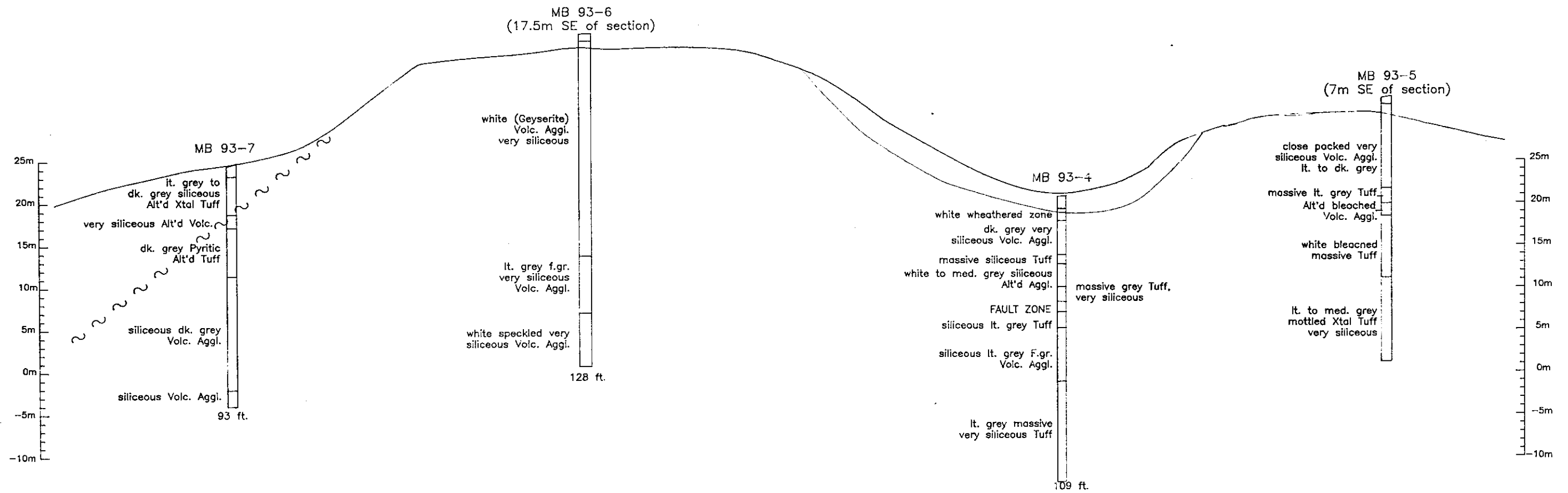


Legend

- 8 Andesite dyke
- 5 Geyserite
- 3 clay-silica alteration
- 2 altered pyritic Andesite



MONTEITH BAY RESOURCES LTD.			
MONTEITH BAY PROJECT			
SECTION 300 METERS			
SCALE: 1:500	DATE: 11/01/93	N.T.S. 92L/3S	WORK BY: JTS & SPB
			FIGURE: 20
<i>Eng: New Global Resources Ltd.</i>			

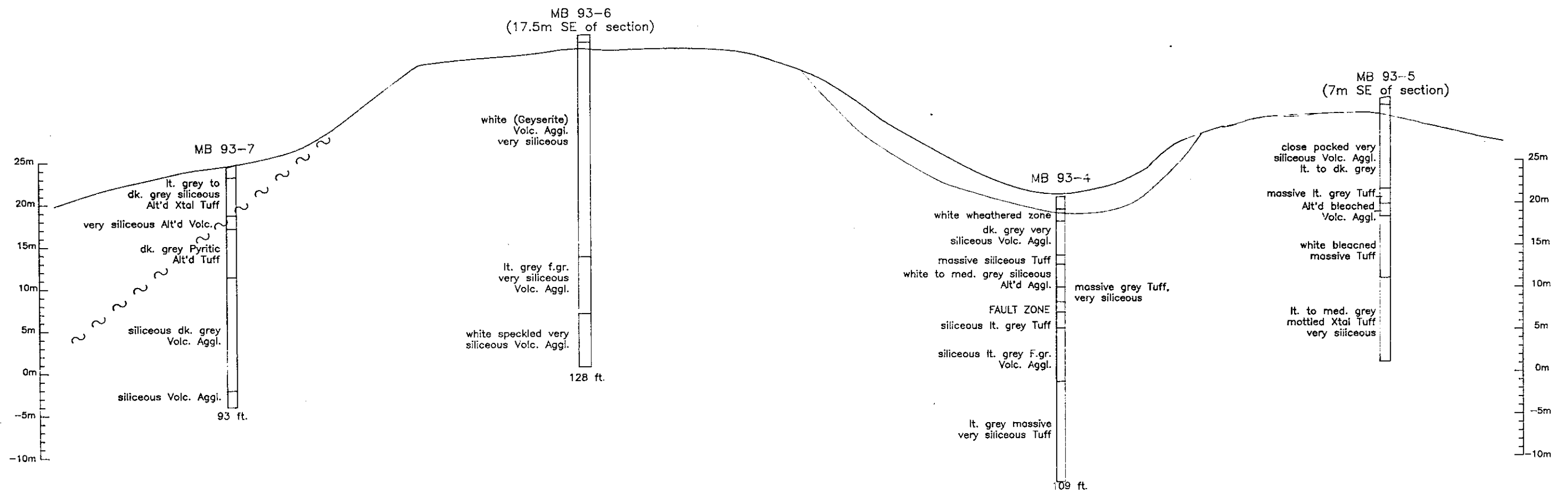


MONTEITH BAY RESOURCES LTD.

MONTEITH BAY PROJECT  
 GENERALIZED CROSS-SECTION  
 (LONGITUDINAL)  
 LOOKING N.N.W. (A-B)

SCALE: 1:500	DATE: Nov'93	N.T.S. 92L/3S	WORK BY: JTS & SPB	FIGURE: 21
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Eng. New Global Resources Ltd.



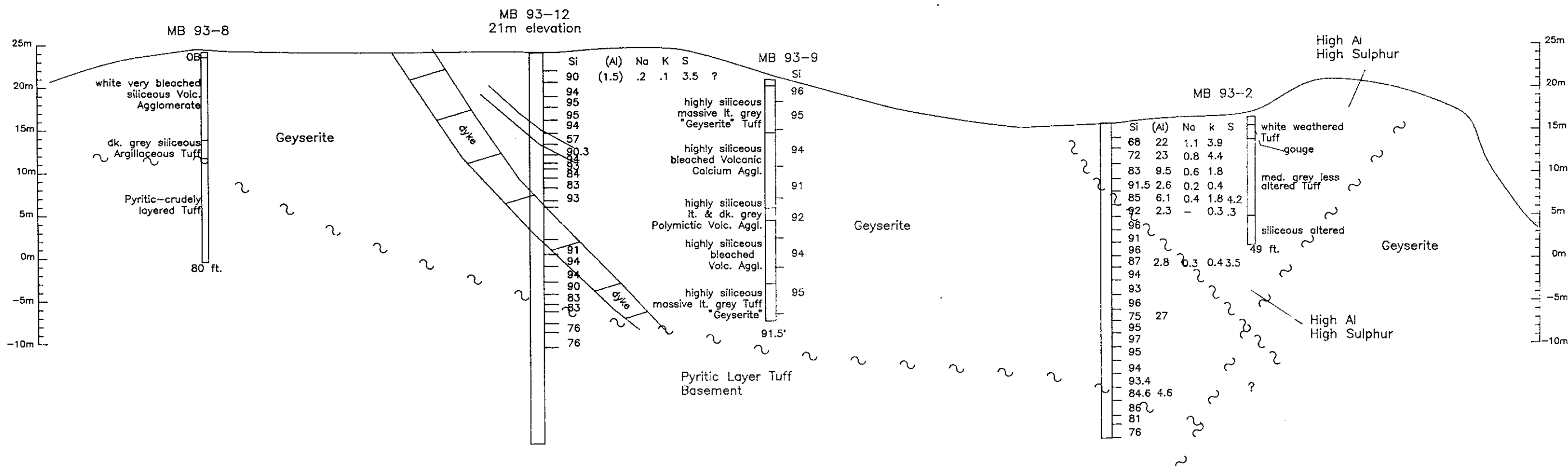
**MONTEITH BAY RESOURCES LTD.**

MONTEITH BAY PROJECT

**GENERALIZED CROSS-SECTION**  
 (LONGITUDINAL)  
 LOOKING N.N.W. (A--B)

SCALE: 1:500	DATE: Nov'93	N.T.S. 92L/3S	WORK BY: JTS & SPB	FIGURE: 21
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*Eng. New Global Resources Ltd.*

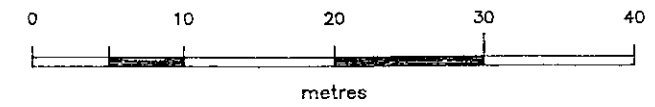
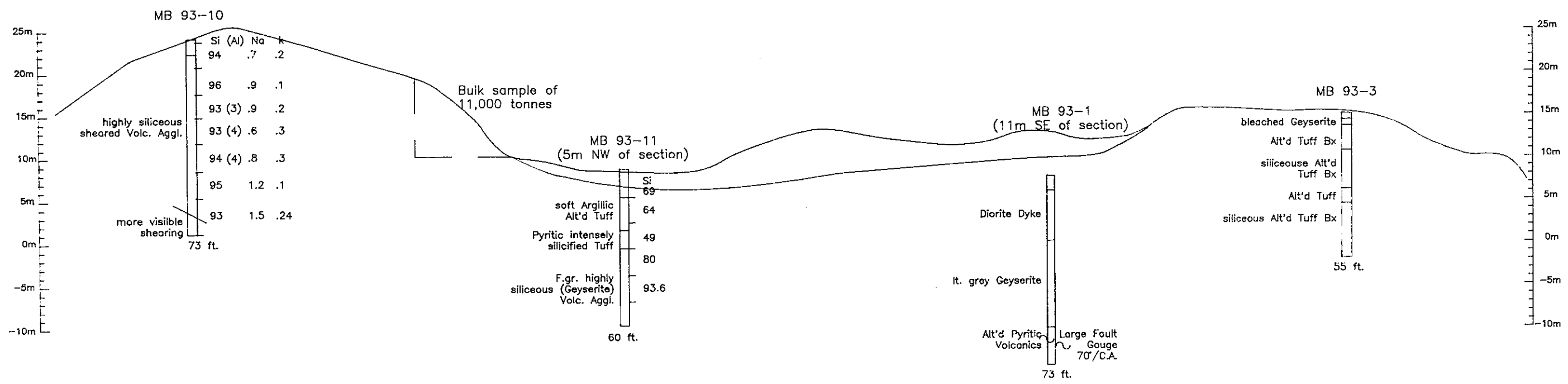


MONTEITH BAY RESOURCES LTD.  
 MONTEITH BAY PROJECT  
 OBLIQUE SECTION  
 LOOKING N.N.W. (C-D)

SCALE: 1:500	DATE: Nov'93	N.T.S. 92L/3S	WORK BY: JTS & SPB	FIGURE: 22
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Eng: New Global Resources Ltd.





MONTEITH BAY RESOURCES LTD.				
MONTEITH BAY PROJECT				
OBLIQUE SECTION				
LOOKING N.N.W. (E-F)				
SCALE: 1:500	DATE: Nov'93	N.T.S. 92L/3S	WORK BY: JTS & SPB	FIGURE: 23
Eng: New Global Resources Ltd.				

## **6.0 PROJECT DESCRIPTION**

The proposed project includes a quarry with a mobile crushing plant with a capacity of 200 tonnes per hour, a stockpile area for crushed material, a loading conveyor and a barge docking facility.

### **6.1 Quarry Development**

The deposit, shaded on the development plan — Appendix 10.3, includes approximately the quarry area to be developed. Starting near the north boundary of the Too Easy claim, the quarry will be worked in a series of 11-meter-wide benches with backwalls of about 8 meters and will be developed as required to accommodate elevation increasing to about 40 meters to produce a total of about 2,000,000 tonnes at 70,000 to 100,000 tonnes per year. The initial quarry (Quarry A) containing about 1.3 million tons of geyselite will be mined to the +3 m elevation (just above highest high tide) for 15 years. An additional at least seven years of production will result from deepening the initial quarry to the -6 m elevation level, "Quarry B" (additional 500,000 tonnes).

If additional customers are found for the geyselite product, production could be up to 100,000 tons per year.

The removal of the minimal overburden, consisting of soil, sand, gravel and boulders, mainly in the southwest of the developing quarry, will be stored in a berm along the quarry edge. This may be utilized as filter beds for precipitation runoff and later in the reclamation of mined-out quarry areas and a portion will be mixed with sand and gravel for creation of the new saltmarsh area as described in Section 7.3.

### **6.2 Crushing Plant**

The material will undergo primary crushing through a Hewitt-Robbins 24 X 36 jaw crusher being fed by a Cat 980C wheel loader. This will reduce the material to approximately 150 mm size. From the primary crusher the material is conveyed directly to a Nordberg 1352 Omnicone crusher for secondary crushing. The secondary crushing

will reduce the material to 19 mm minus. From the secondary crusher the material is transported to the stockpile by a 30-meter radial stacking conveyor.

The crushing plant and surge pile will be located at the 3-meter level.

### **6.3 Conveyor System**

The loading of the 19-mm material will be accomplished by feeding through a 12-cubic-meter surge bin, then onto a 15 meter conveyor which feeds the 30 meter stacker which deposits the material onto the barge.

### **6.4 Stockpile**

A stockpile capable of holding up to 70,000 tonnes of crushed material ready for shipping will be required. The pile will cover approximately 4,000 to 6,000 square meters and reach a height of 8 to 10 meters. The stockpile will be located adjacent to the dock facility. Because of the proximity of the quarry to the foreshore, it will be necessary to fill between 500 and 1,500 square meters of high intertidal saltmarsh to accommodate the conveyor and possibly a portion of the stockpile. Section 7.3 outlines a plan to replace this lost habitat.

### **6.5 Barge Facilities**

An examination of soundings taken at Monteith Bay by Alpha Hydrographic Surveys Ltd. and an on-site review of barge docking with tug operators indicates that barges can be successfully manoeuvred in and out of the bay under all but the most severe weather conditions. When particularly poor weather exists, barges may need to lay off shore until conditions improve.

An examination of the material underlying the bay was carried out and a dock structure was proposed by P. Steffens, P.Eng., Westview Dredging Ltd.

Barges are anticipated to have 5,000 to 10,000-tonne capacity. Barges of this capacity are typically up to 105 meters long and 22.5 meters wide. The loading conveyor would fill at the middle of the barge. The loading conveyor will be either a shuttle or 60-degree oscillating type, supported with a steel tower.

The barge may be moved into different positions during filling by winch or by tug. Barge filling may be assisted by a loader placed on the barge.

## **6.6 Reclamation**

The quarry will be progressively reclaimed, as outlined in Section 7.5, as the mining area advances and sufficient ground is made available for reseeded to forest values.

## **7.0 ENVIRONMENTAL CONSIDERATIONS**

### **7.1 Existing Conditions**

The project, because of its proximity to Monteith Bay, affects upland, foreshore and marine environments. A report on a preliminary environmental assessment completed by New Pacific Ventures is included in this prospectus as Appendix 10.4.

The area is within the Nootka Public Sustained Yield Unit and has been extensively logged in the recent past. The largest nearby logging camp is located at Chamiss Bay. Other land uses include hunting, native food, sports and commercial fishing. There is an active salmon farm on the north side of Union Island (Intercan Resources Ltd.).

The on-site upland vegetation is mixed Cedar and Hemlock forest which is somewhat scrubby due to the presence of rock outcrops. No evidence of wildlife licks or trails has been observed, although bears and deer have been seen on the property during exploration work. Three small drainages convey runoff north, south and from the middle of the area. Two of these dry periodically and it is expected that the third will also dry. Some salmon fry were found using minnow traps in the mouth of the northern drainage. However, none were found above the intertidal zone. This third drainage is outside the area to be impacted directly by mining operations. Further ongoing studies are planned, Section 7.4.

The foreshore is divided between beach and rock and appears to be an area of low productivity. The beach is hard-packed mixed sand and gravel, inhabited by a few clams. A small area of saltmarsh exists in the bay adjacent to the barge-loading site.

The marine lands exhibit the same low productivity in evidence on the foreshore areas. The area does not directly support any commercially harvestable levels of fish or invertebrates. Some geoducks and eel grass were observed.

## 7.2 Environmental Impacts and Planned Mitigation

The rock to be quarried is relatively pure and chemically inert. Two knolls will be quarried leaving either level ground, or a quarry which will be below sea level. The total area to be affected by the quarry, stockpile and loading facilities will be about 4 hectares by the end of the 20-year mine life.

The overburden consists of a thin layer of topsoil which can be set aside and used as filter for quarry runoff until reclamation. The geyserite, with the exception of a few minor fault areas is fairly pure and the quarried material will be shipped out. The material in the fault areas is softer and somewhat mineralized and may not be useable. Thus, some waste material could be expected. This material can be used to form a base for the stockpile or returned to the pit. Some of the material will be used to create an intertidal platform for replacing saltmarsh area (Section 7.3).

Most of the stockpile will be located just above the high tide line, but a portion of the stockpile and/or the conveyor system will be placed in the high intertidal zone and will destroy an area of saltmarsh. A plan to replace this area in accordance with Department of Fisheries and Oceans policy is described in the next section.

Drainage from the quarry and from the stockpile will probably not be contained or treated. However, some filtration through overburden material or settling in a reservoir used for dust control is possible. The Workers' Compensation Board requires that workers who may be exposed to more than 50% crystalline silica dust above the regulated limits must wear suitable respiratory protection.

Subject to air-borne dust sampling, in most instances properly fit-tested one-half face respirators with High Efficiency Particulate Arrestor (HEPA) cartridges and disposable coveralls will be acceptable. Workers will be trained in the proper use of the respirators as well as the nature of the hazard to comply with Federal WHMIS regulations. Monteith Bay Resources Ltd. is committed to putting in place suitable controls to minimize the effects of dust generation.

The material, both the relatively pure geyselite and the mineralized geyselite will be tested for its acid-generating capacity. If it is necessary, the runoff from the material on site will be treated with lime.

Quarrying, crushing, stockpiling, and loading of the crushed rock are all physical activities. Water spray will be used to control dust if necessary, in which case some or all of the quarry drainage will be contained to provide a water source. All further processing will be off-site.

Reasonable efforts to minimize the visual impact of the project, particularly from the water, will be made. A screen of vegetation will be preserved wherever possible. Because the material is formed in a knoll, quarrying can be conducted either from the top down or back to front and this will be done subject to practical and economic constraints. The knoll formation also means that rock faces remaining at the end of the project will be low profile and easily screened by vegetation. A conveyor will be required for loading and some clearing and levelling of the immediate loading area will be required.

The loading facility is to be located just outside a small knoll, attached by a small isthmus to the mainland. The loading facility will consist of a floating pipe attached by stifflegs to the knoll and possibly some additional anchors. The bottom drops sharply to between 10 and 22 meters in the barge-loading area. This area is located to the north of the habitat containing geoducks and the habitat containing eel grass. Because the facility is floating and since the barges will not remain on-site for a prolonged period, impacts on the marine habitat are expected to be minimal.

As a result of the small scale of the project and the relatively benign nature of the environmental impacts, the anticipated environmental concerns for this project are relatively minor.

### **7.3 Replacement of Lost Saltmarsh Habitat**

In order to effectively load the barges and to stockpile the material without interfering with the operation of the quarry, it is necessary to fill up to about 1,500 square meters of the intertidal zone. The area to be filled is high intertidal and contains vascular plants which are inundated with salt water of widely varying salinities. This habitat is deemed to be valuable by the Department of Fisheries and Oceans and to comply with the policy of no net loss of fish habitat, Monteith Bay Resources Ltd. is planning to replace this habitat.

Monteith Bay Resources intends to create an area at least two to three times the size and of similar elevation to the area being filled. The area proposed for this is immediately to the north of the filled area in the next bay, adjacent to the shore.

The fill will be made up of waste geyserite, crushed to a similar size as the existing beach material, with larger material as required to curtail erosion. Once the area is graded, plants from the proposed fill area will be transplanted. This transplanting will take place in the late fall or early spring when the plants are dormant.

### **7.4 Additional Environmental Assessment Planned**

- 1) Collect water samples from the three drainages in the fall to complete baseline water quality information.
- 2) Continue to watch for wildlife signs as the developmental work continues.
- 3) Conduct additional trapping in any of the three drainages which maintain flows to determine presence or absence of fish.
- 4) Assess the acid generation potential of the geyserite and the soft mineralized geyserite either from the quarry or the stockpile.

These ongoing tests have been scheduled over the next few months.



## 7.5 Reclamation

At the end of the lifespan of this quarry (Phases I and II), it is expected that an excavation extending below sea level and in close proximity to the shoreline will remain. Two possible options for reclamation of the area involve flooding the quarry.

The first option would be to blast a short channel through the intertidal zone creating a lagoon. This small lagoon could be of interest to tourists and perhaps to a marine biology student wishing to study the colonization of new habitat.

The second option would be to use the pit as a mariculture facility and manipulate inflow and outflow using tidal variations and siphons. This would be a very desirable facility since it would be very secure and since water could be exchanged from various depths at each tide a significant control of parameters such as salinity, temperature and biotic content of the water could be attained.

The natural small cliff-scarp topography of the area would be replicated by the quarry walls. Backfilling is considered to be impractical since the geyselite product is shipped out in its entirety. The areas where quarrying is completed and the quarry floor is not below sea level, then the area will be progressively reclaimed.

In the event that the quarry is shut down before it extends below sea level, it would be graded and sloped with the overburden material remaining on site and reseeded. The stockpile base will be graded back down to the former level in order to reestablish saltmarsh habitat.

## **8.0 SOCIAL AND ECONOMIC CONSIDERATIONS**

The nearest community to the proposed quarry site is Kyuquot, which is approximately 20 kilometres away by water. The area population of Kyuquot is about 300, of whom about 80% are aboriginal.

Kyuquot band members live on Vancouver island as well as on two smaller islands. They participate extensively in commercial and traditional fishery activities, as well as in local logging activities.

The majority of the non-aboriginal community live on Walters Island and also rely heavily on commercial fishing and logging for their livelihood.

Informal contact has been made with members of the band and with members of the non-aboriginal community. The purpose of this contact has been to advise them of the project assessment procedure and of the likely impacts of the project.

Shortly after formal contact is made by the distribution of this prospectus, Monteith Bay Resources Ltd. will organize public meetings with the band and with the community at large to outline and discuss the development plans.

Monteith Bay Resources Ltd. is committed to working with community members to ensure that, to the extent possible, this project contributes to the wellbeing of both the aboriginal and non-aboriginal communities. Where possible, suitably qualified local workers will be utilized during the start-up and operation phases of the project.

The specific concerns of aboriginal peoples are also recognized, and Monteith Bay Resources Ltd. is committed to working with the Kyuquot Band to ensure that these concerns are addressed.

The nearest roadhead connecting to the Island Highway is at Fair Harbour, approximately 12 kilometres from Monteith Bay. Zeballos is approximately one hour by logging road from Fair Harbour (32 km) and the highway is a further 45 km. Purchase of support

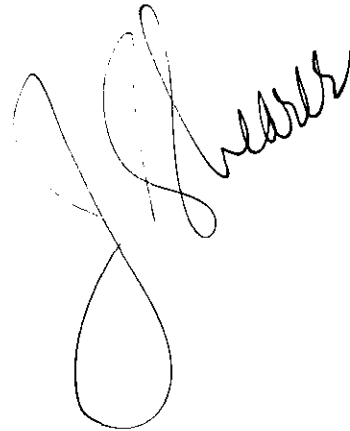
goods and services can be expected at local logging camps, and in the communities of Kyuquot, Zeballos and Campbell River.

Tilbury Cement Ltd. intends to receive its silica needs for a period of twenty years from this deposit. This will replace geyselite currently purchased from the United States. Cost savings will be realized. Significant foreign expenditures will be replaced with spending in British Columbia on jobs and purchases of goods and services, such as marine towing. In the event that sufficient additional reserves of geyselite are proved, some production may be sold to other cement producers.

One of the major markets for Tilbury is in the U.S. This cost saving will further enhance their competitiveness and help to ensure that they can retain market share.

This project therefore has significant economic benefits through increased spending and tax revenue generation in British Columbia as well as through improved balance of payments.

The purpose of this prospectus is to notify the government of the project and to obtain review comments from regulatory agencies on the environmental assessment process prior to application for a mine development certificate.

A handwritten signature in black ink, appearing to read "J. G. H. H. H.", is written in a cursive style. The signature is located in the lower right quadrant of the page.

## 9.0 REFERENCES

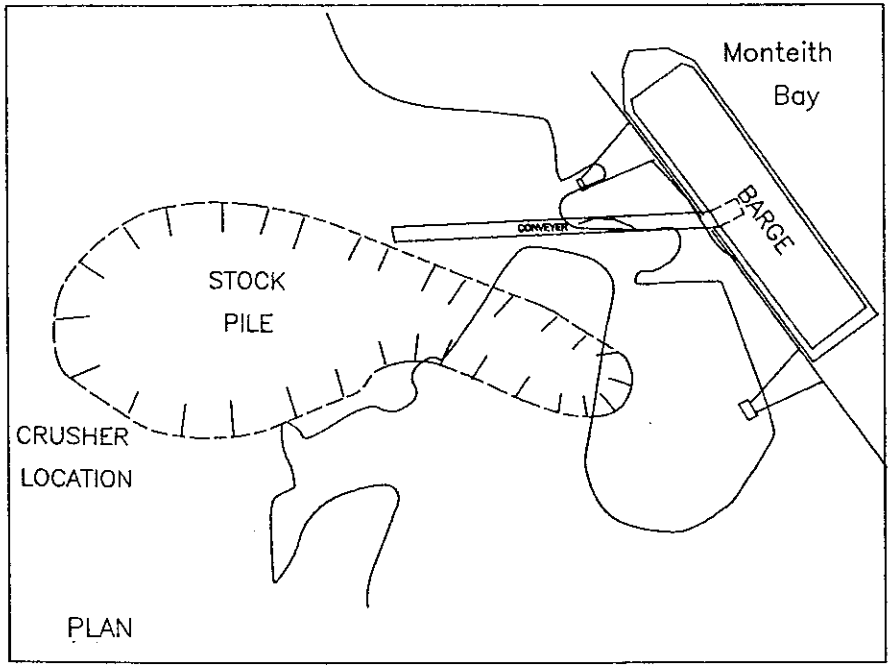
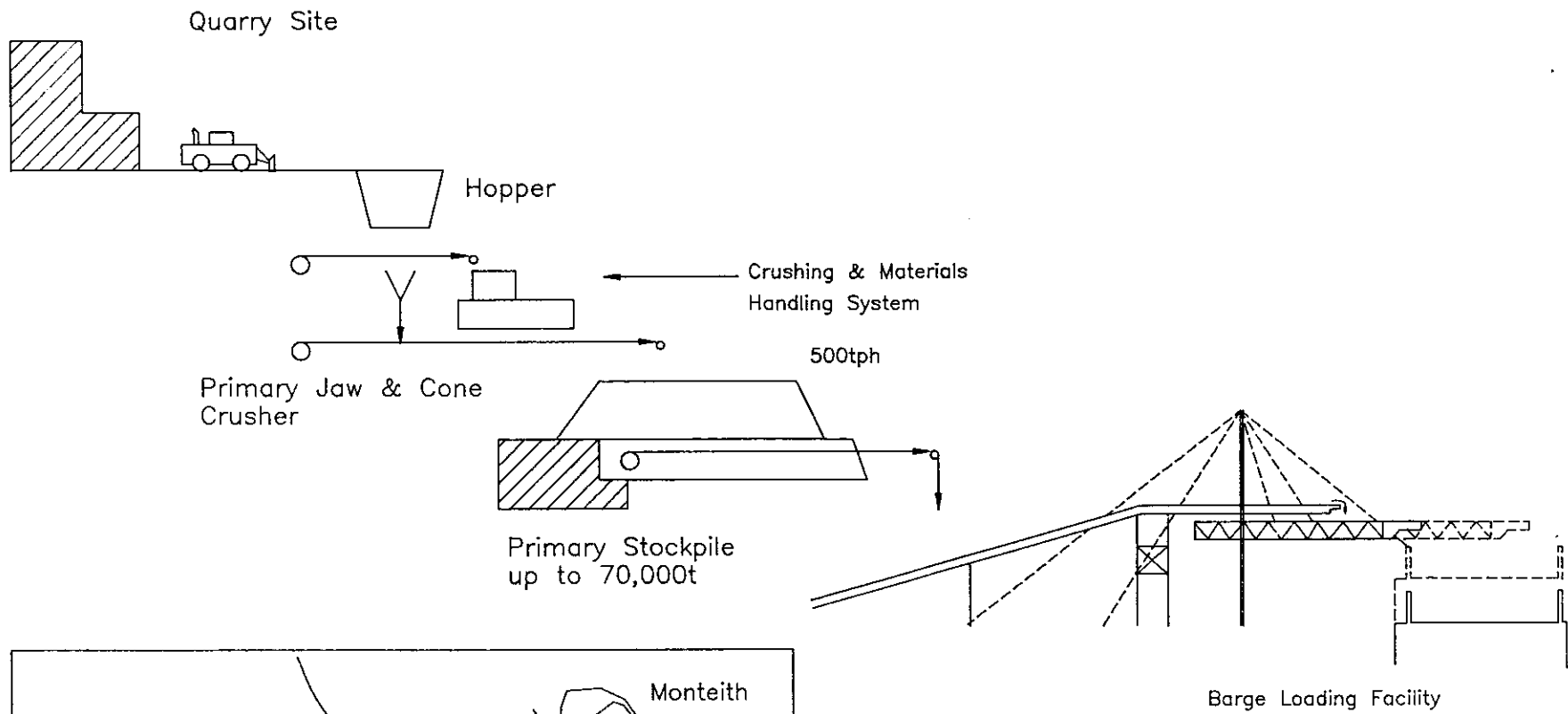
- Adams, M.A. and White, I.W., 1990. Fish Habitat Enhancement: A Manual for Freshwater, Estuarine, and Marine Habitats. Department of Fisheries and Oceans Canada. DFO 4474.330p.
- Band, R.B., 1971. Geochemical Report on the EASY, ON, BP and BW Claim Groups, B.C. Department of Mines Assessment Report 3008.
- British Columbia Minister of Mines, Annual Report: Geology, Exploration and Mining in British Columbia: 1971 p. 316, 1973 pp. 256, 552.
- Carson, D.J.T., 1973. The Plutonic Rocks of Vancouver Island, Geological Survey of Canada Paper 72-44, 70 pp.
- Clapp, C.H., 1915, The Geology of the Alunite and Pyrophyllite Rocks of Kyuquot Sound, Vancouver Island, Geological Survey of Canada Summary Report 1913, pp. 109-126.
- Fish Habitat Management Branch, 1986. Policy for the Management of Fish Habitat, Minister of Supply & Services Canada 1986. Cat. No. Fs 23-98/1986E.
- Gower, S.C. and Ney, C.S., 1973. Rock Geochemical Survey on Kashu Group #1, B.C. Department of Mines Assessment Report 4539.
- Heagy, A.E., 1984. Geological and Geochemical Report on the Too Easy Claim 92L/3W, Alberni M.D. Assessment Report 12,681, June 1984, 17 pp.
- Hoadley, J.W., 1953. Geology and Mineral Deposits of the Zeballos-Nimkish Area, Vancouver Island, Geological Survey of Canada Memoir 272, 82 pp.

- Ministry of Energy, Mines and Petroleum Resources, 1992. Guidelines for Mineral Exploration: Environmental Reclamation and Approval Requirements. Revised January 1992, 57 pp.
- Muir, J.E., 1984. Hydrothermal Alteration at the Kyuquot Gold Property, Vancouver Island, B.C. Private Falconbridge Report, March 30, 1984, 50 pp. and Analyses.
- Muller, J.E., Northcote, K.E., Carlisle, L., 1974. Geology and Mineral Deposits of Alert-Cape Scott Map Area, Vancouver Island, Geological Survey of Canada Paper 74-8, 77 pp.
- Norman, D.K., 1992. Reclamation of Quarries, Washington Geology Vol. 20, No. 4, Dec. 1992, pp. 3-9.
- Resource Management Branch 1992: Health, Safety and Reclamation Code for Mines in British Columbia. Ministry of Energy, Mines and Petroleum Resources, 1992, 13 parts plus Index, 200 pp.
- Robertson, W.F., 1921. Quartz Alunite Rocks, Kyuquot Sound, B.C. Department of Mines Annual Report, pp. N198-N202.
- Shearer, J.T., 1980. Geological and Geochemical Report on the Easy Group, Alberni M.D. Available as Assessment Report No. 8279, B.C. Department of Mines, Nov. 1980, 23 pp.
- \_\_\_\_\_, 1993. Prospectus on the Monteith Geyselite Deposit, Submitted to the Mine Development Steering Committee, Sep. 1993, 34 pp.
- Wilson, J.R., 1983. Diamond Drilling Report, KYU Group, B.C. Department of Mines Assessment Report 11,374, 7 pp.

## **10.0 APPENDICES**

**10.1**

**Preliminary Flow Sheet**



MONTEITH BAY RESOURCES LTD.				
MONTEITH BAY PROJECT				
PRELIMINARY FLOW SHEET				
SCALE:	DATE: Nov'93	N.T.S. 92L/3S	WORK BY: JTS & SPB	FIGURE: 25
Eng: New Global Resources Ltd.				



10.2

**Preliminary Schedule**

Months  
0 2 4 6 8 10 12 14 16 18

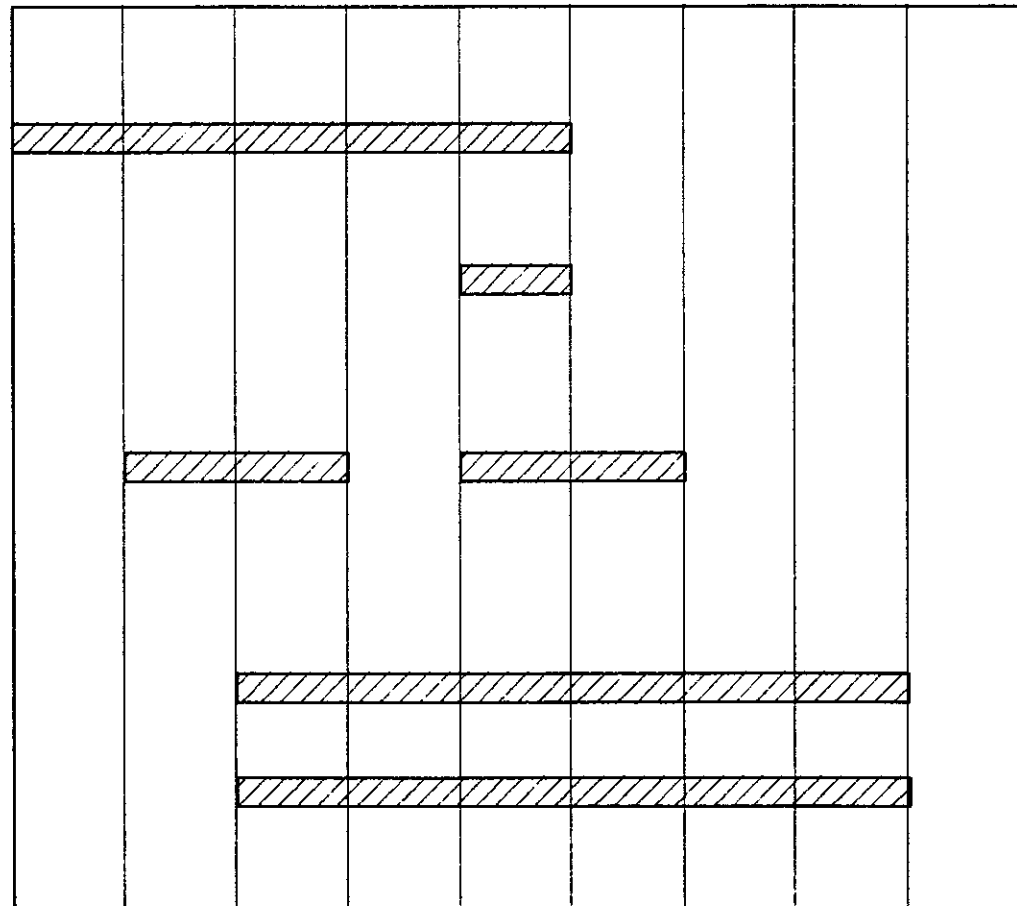
Exploration Phase  
Preliminary Engineering  
Nov.92–July 93

Bulk Sample:  
June–July 93

Final Engineering  
Layouts

Clearing Site & Prep.:  
For Primary Crusher

For Other Work



note:

1. Schedule begins after all Government Approvals have been had.

MONTEITH BAY RESOURCES LTD.

MONTEITH BAY PROJECT

PRELIMINARY SCHEDULE

SCALE:

DATE:  
Nov/93

N.T.S.  
92L/3S

WORK BY:  
JTS & SPB

FIGURE: 24

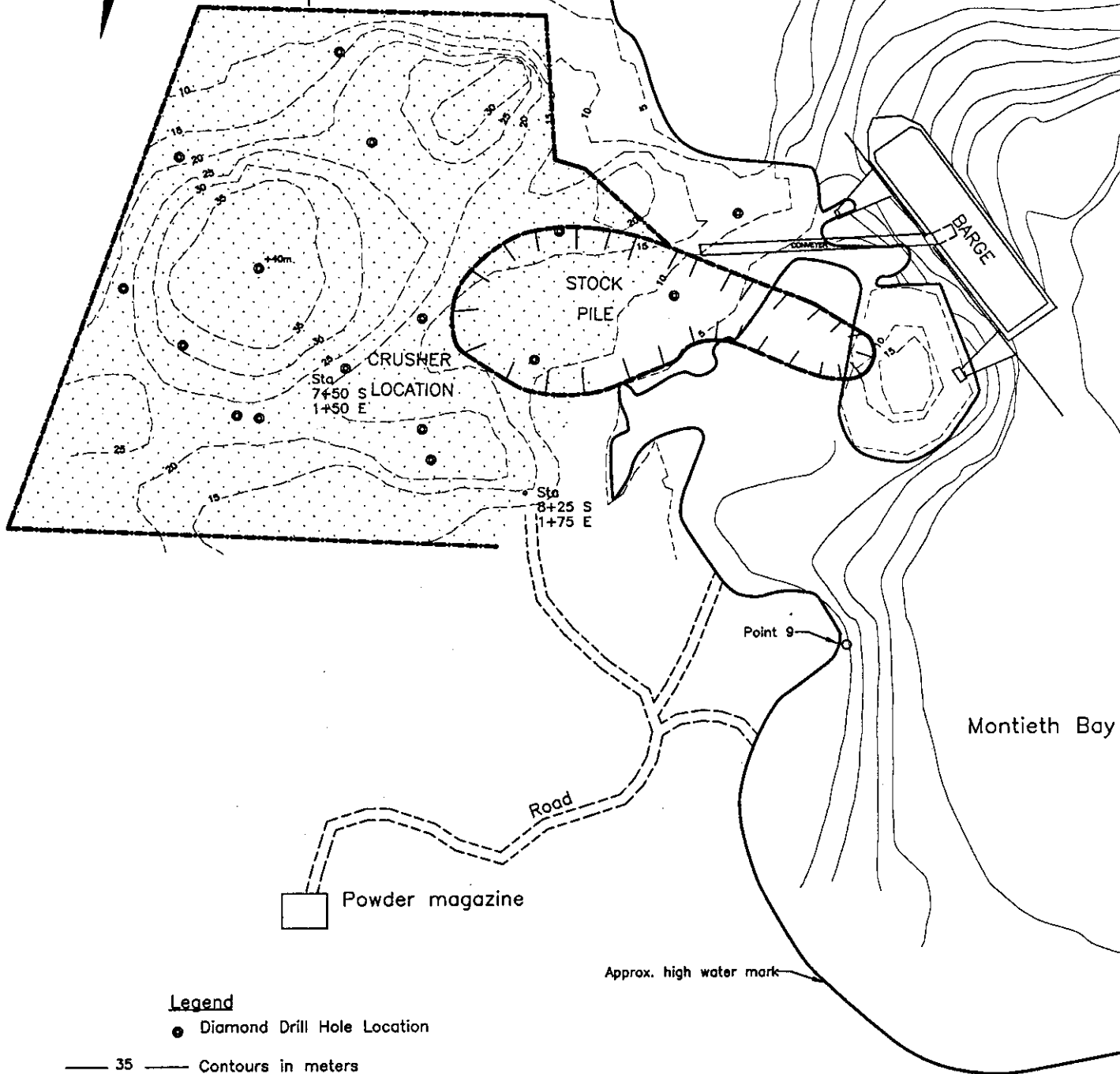
Eng: New Global Resources Ltd.

**10.3**

**Development Plan**

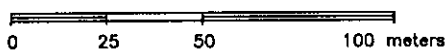


LIMITS OF MINING



**Legend**

- Diamond Drill Hole Location
- 35 — Contours in meters
- ~ underwater contours
- - - topo contours in meters



**NEW GLOBAL RESOURCES LTD.**

MONTEITH BAY PROJECT

**QUARRY DEVELOPMENT PLAN**

SCALE  
1:2,000

DATE  
July '93

N.T.S.  
92L/3W

DRAWN  
JTS

Figure: 2.6

10.4

**Environmental Report**

REPORT ON PRELIMINARY ENVIRONMENTAL ASSESSMENT  
OF QUARRY SITE AT MONTEITH BAY, KYUQUOT SOUND

Prepared for:

New Global Resources Ltd.  
548 Beatty Street  
Vancouver, B.C.  
V6B 2L3

Prepared by:

New Pacific Ventures  
3676 Yale Street  
Vancouver, B.C.  
V5K 1C8

February 18, 1993

# REPORT ON PRELIMINARY ENVIRONMENTAL ASSESSMENT OF QUARRY SITE AT MONTEITH BAY, KYUQUOT SOUND

## INTRODUCTION

The purpose of this report is, first, to describe the results of a preliminary environmental assessment on the proposed site of a geyserte quarry to be located at Monteith Bay; second, to discuss the likely environmental impacts; and third, to discuss the implications for the developmental process of this project.

The assessment covers the upland, foreshore and marine areas which will be affected by the project. The information contained in this report is based on a field trip to the site on January 23 and 24, 1993, and on personal communication with relevant parties during January and February of 1993.

Environmental impacts are expected to be minimal because the area affected is small, the rock is to be quarried and crushed only, the rock is relatively inert, and the amount of economically or ecologically significant resources in the area is limited. As a result, the environmental problems this project is likely to face should be relatively easy to manage.

## RESULTS

### Topography

The property is located on Monteith Bay, about half-way up Kashutl Inlet. Monteith Bay is on the northern and seaward end of a small peninsula between Easy Inlet and Kashutl Inlet. Much of the terrain in this region has been logged.

Two small knolls rising to about 40 meters contain the bulk of the deposit. The surrounding hills rise to between 65 and 250 meters. The site is relatively small and the total developed area is not expected to exceed seven hectares.

## Limnology

There are three small drainages on the property, located north, south, and between the two principal knolls of geysersite. All three of these streams are small and likely dry in summer. The following measurements were taken on January 24 in heavy rain conditions. On January 23, flows were about one-third of those reported below, indicating the effect of 24 hours of rain and snow melt.

Stream No.	Location	Temperature	Flow
1	South	3°C	15 litres/sec
2	Centre	5°C	8 litres/sec
3	North	3.5°C	125 litres/sec

Streams 1 and 3 contained no gravel for spawning and were mostly too shallow to place gee (minnow) traps, even in high flow conditions. Several small barriers would prevent or curtail migration of both adult and juvenile salmonids. No fish were captured in the gee traps placed in these streams.

Stream 2 is primarily groundwater which emerges about 10 meters from the high tide line. During the heavy rain and snow melt of January 24 there was surface flow, but this was on top of the soil and vegetation. There was no surface flow on January 23, despite the presence of melting snow.

To establish baseline information, a water sample was taken from each of the three drainages and analyzed for minerals, anions and physical parameters. The result of this testing is included as Appendix 1.

One sample from each water source is assumed to be adequate since the streams are very small, less than 300 meters long and are essentially all downstream from the geysersite deposit.



The water sample analyses indicate clean water with low dissolved solids. The low pH is probably due to the high content of rainwater or to organic acids dissolved as the water runs through the organic material of the forest floor. The high colour readings would also arise as a result of flow through organic materials.

### Vegetation

The area is covered by a mixed cedar and hemlock forest with moderately thick underbrush. The outcropping of geyserite appears to have limited topsoil formation over much of the site area, but a few of the trees are large enough to have commercial value.

### Wildlife

Other than a few ducks in the distance, no wildlife or tracks were observed despite the snow on ground. Impacts on wildlife should be minimal since only a very small area will be affected. In addition, the Easy Inlet side of the peninsula will remain intact, allowing wildlife to migrate to the end of the peninsula.

### Foreshore

About half the foreshore is beach and half is rock. Five test clam holes revealed two juvenile horse clams in one and none in the other four. Digs took place at the most favourable tide available during this field trip, but were still at about the 1.5 meter level.

The beach was mixed gravel and sand. The material was angular and packed in a way which made digging difficult. The white gravel, presumably geyserite, made spotting clams difficult. A few butter clam shells were observed on the beach, but this does not appear to be a clam beach. No oysters were observed on January 23 or 24, but one native oyster was observed by another field worker on another occasion.

A small area of saltmarsh comprises part of the intertidal area adjacent to the site.

## Marine Lands

A SCUBA survey was completed for each of the two principal sites being considered for installation of loading facilities. These two sites are immediately adjacent to one another. The results of the survey are included in Appendix 2. The observed flora and fauna were typical of a low-current, protected site.

The area identified as site 1 had a mixed sand, gravel and silt bottom, similar to the beach material described above. About 10% of the area observed was rock outcrop. About 5% of the observed area supported sparse eel grass. A patchy band of geoducks was observed at about -10 meters. Geoducks are an important fishery in B.C., but this particular bed would not support commercial activity. The eel grass in this area could be an important repository for herring spawn, but the quantity of eel grass in this location is limited. In addition, the eel grass area is not likely to be significantly impacted by the activities planned for this site.

The area identified as site 2 was entirely rock and dropped quickly to depths beyond what is normally included in this type of survey. Only minimal flora and fauna were observed.

A third dive site contemplated for the Easy Inlet side was dropped upon consideration of topography and distance from the site of the deposit.

## Fishery Considerations

It is unlikely that any commercial food or recreational fishery would occur in the immediate area of this project. There is a possibility that a herring spawn could take place, but this is unlikely since herring spawning in Kyuquot Sound has been very limited since the 1970s. It may be necessary to temporarily suspend developmental activities, if these activities are deemed by DFO to be detrimental to the herring spawn.

Jansen Lake Creek flows north into Easy Inlet. Annual escapement of sockeye, reported in the department of Fisheries and Oceans Stream Catalogues, ranges from 0 to 5,000 and for coho, 0 to 3,500. Coho salmon runs dropped off sharply after 1956, presumably as a result of logging

activities which took place in that watershed between 1953 and 1955. Sockeye were less adversely affected and are occasionally fished for food by members of the Kyuquot Band.

According to the DFO Stream Catalogue, a large log jam at the mouth of the lake and smaller log jams in the stream require continuous clearing because of the large amount of debris in the lake.

The Jansen Lake fishery is too far from Monteith Bay to be impacted by this project; however, if loading facilities were constructed on the Easy Inlet side, additional concerns might be raised by some of the regulatory agencies and other interested parties.

## ENVIRONMENTAL IMPACTS

### Physical Alteration of Quarry Area

The extent of the physical alteration of the area will depend on the extent and shape of the deposit. Once this is determined, a plan for restoration of the area can be formulated. The minimal overburden can be set aside, then utilized for restoration of the area once quarrying is completed.

### Dust and Spillage

Dust from quarrying and crushing and spillage during loading is unlikely to have a significant impact because of the inert nature of the material. Large quantities of spillage and dust could increase turbidity and impact upon herring spawning or other fishery values but it should be fairly simple to prevent this and thus avoid any significant impacts.

### Quarry Drainage

Water draining through the quarry and through the stockpile could introduce contaminants to the environment. The low level of dissolved minerals in the water samples, however, indicates that

this is unlikely to be a problem. Also, the discharge will probably be directly to salt water, which is more able to receive such discharge without ill effects.

#### Miscellaneous

Environmental concerns related to storage of fuel, disposition of sewage, source of domestic water, etc., will come to the attention of regulatory agencies through referrals from the Ministry of Crown Lands and will need to be addressed in later planning.

### RECOMMENDATIONS AND CONCLUSIONS

This project is not likely to give rise to major environmental concerns. The material to be extracted is inert, only physical processes are taking place on site and the environment of the project area is not particularly sensitive either economically or ecologically. The small area to be affected by the project further reduces the scope of any environmental problems and the risk of any unforeseen problems.

Some further effort to demonstrate that there are no fish in stream 3 may be a reasonable part of the ongoing assessment since one session of gee trapping in winter is not really conclusive. Field personnel should continue to monitor water flows to obtain an indication of high and low water levels and continue to collect water samples for each season. If flows in these creeks are maintained, then some further effort to look for fish could be undertaken.

Other items to check or monitor would be the presence of wildlife and wildlife trails or licks and the abundance of clams and suitable substrate at lower tide levels.

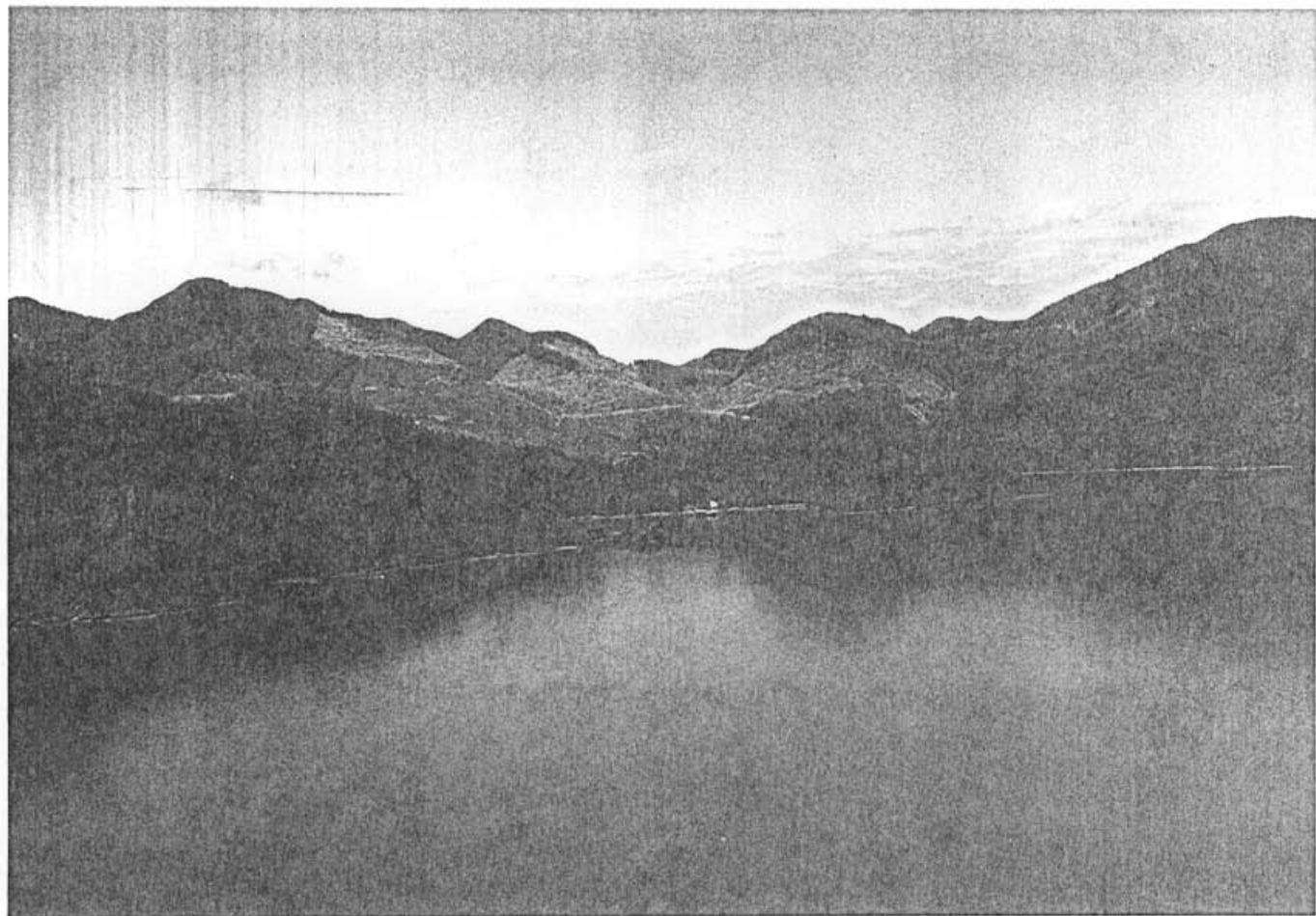
The expected impact on marine resources is minor for both of the areas checked, and development of docking facilities in either area should be acceptable. However, development of docking facilities on dive site 2, the rock face area, would, other things being equal, be preferable.

Assay results following the drilling program and acid generation prediction or testing should address any concern regarding pollutants from quarry or stockpile drainage. In the event that drainage from this material is problematic, some type of containment system or treatment system would be required.

The quarry itself will obviously have a physical impact on the landscape, and some plan to restore this area should be developed in conjunction with the concerns of the regulatory agencies.

Continuation of the environmental assessment program throughout the development of the quarry should ensure that the concerns of the public and of the regulatory agencies can be adequately addressed. Those parties contacted during the course of this study appeared to support and appreciate the effort being made to inform them of the planned development.

PHOTOGRAPH OF MONTEITH BAY  
VIEWED FROM KASHUTL INLET  
LOOKING WEST



Barge in loading position.  
Screen of trees in front of bulk sample site.  
(Quarry will be hidden behind geyserite knoll immediately south of barge site.)

**10.5 Statement of Costs on the Monteith Bay Geyserite Project**

Wages and Benefits

J.T. Shearer, P.Geo. (Project Geologist)	64.5 days x \$312/day	\$ 20,125.00
S.P. Butler, P.Geo. (Geologist)	9 days x \$250/day	2,250.00
S.L. Shearer (core splitter, helper)	9 days x \$125/day	1,125.00
S.E. Angus (prospector)	11 days x \$175/day	1,925.00
W.B. Lennan, P.Geo. (Geologist)	11.5 days x \$286/day	<u>3,290.00</u>
Total Wages and Benefits		\$ 28,715.00
Surveying (Wright Parry Taylor & Fuller, B.C.L.S. and Consulting Engineers)		8,570.00
Timber Cruising — as required prior to obtaining cutting licence		2,300.00
Excavating — trenching, road construction (Uplands Excavating) (using excavator, bulldozer and tank drill)		205,000.00
Barge Service — (Seaspan) to bring in drilling, excavating and crushing equipment		85,000.00
Diamond Drilling — Cancor Drilling (cost plus) 14 holes totalling 1,356 feet (413.21 m)		75,000.00
Room and Board — for surveyors at Jansen Lake Camp		1,042.18
Room and Board — for geologist and helper for drill program Jansen Lake Camp, 16 Mondays x \$53.50/Monday		856.00

Travel and Transportation to Property

1.	Truck Rental — 33 days x \$73.23/day (includes rent, insurance and mileage)	2,416.59
2.	B.C. Ferries — Trips on Jan. 20, 24, Feb. 24, Mar. 6, April 21, May 10, 11, 13, 14, July 22, 30, Sep. 9, 14	574.50
3.	Meals	373.45

4.	Accommodation (hotels, motels) — Jan. 20, Apr. 19, 20, May 9, 10, 13	276.35
5.	Fuel (trucks and boat)	973.07
6.	Boat Rental — 21 days x \$106.43/day	2,235.00
	Analytical (Tilbury Lab and Chemex)	5,000.00
	Geological Studies — thin section preparation and report	130.81
	Equipment Rental (a) Chainsaw	150.00
	(b) Core splitter	100.00
	Operating Supplies — sample bags, oil, rope, chains, etc.	126.79
	Communications	50.00
	Field Data Compilation and Report Preparation — maps, photo, computer drafting, word processing	<u>1,665.04</u>
	TOTAL COSTS	<u>\$ 430,554.78</u>

*[Handwritten signature]*  
430 554.78



## 10.6 List of Personnel on the Monteith Bay Geyserte Project

### **Johan T. Shearer, P.Geo.**

1817 Greenmount  
Port Coquitlam, B.C.

Days worked:        January 1993 — 14, 18, 19, 20, 21, 22, 23, 24, 25  
                         February 1993 — 4, 11, 17, 18, 22, 24, 25, 26, 27  
                         March 1993 — 2, 3, 4, 5, 6, 9, 10  
                         April 1993 — 7, 8, 13, 14, 16, 19, 20, 21, 22, 23, 26, 28, 29  
                         May 1993 — 3, 5, 6, 7, 10, 11, 12, 13, 14, 19, 20  
                         June 1993 — 21, 28 (½)  
                         July 1993 — 5 (½), 8 (½), 9, 15 (½), 16 (½), 19, 20 (½)  
                         August 1993 — 2 (½), 16, 23, 30, 31  
                         September 1993 — 1, 3

### **Sean P. Butler, P.Geo.**

2657 West 2nd Avenue  
Vancouver, B.C.

Days worked:        January 1993 — 19 (½), 20, 21, 22, 23, 24, 29 (½)  
                         February 1993 — 11, 12, 18

### **Scott E. Angus, Prospector**

12719 — 24A Avenue  
Surrey, B.C.

Days worked:        February 1993 — 24, 25, 26, 27, 28  
                         March 1993 — 1, 2, 3, 4, 5, 6

### **Steve L. Shearer, Helper**

3345 Mason  
Coquitlam, B.C.

Days worked:        July 1993 — 22, 23, 24, 25, 26, 27, 28, 29, 30

### **W. Brian Lennan, P.Geo.**

876 Lynwood Avenue  
Port Coquitlam, B.C.

Days worked:        April 1993 — 7, 8  
                         July 1993 — 22, 23, 24, 25, 26, 27, 28, 29, 30, 31 (½)

10.7

**Diamond Drill Logs**

# DIAMOND DRILL RECORD

Hole Number MB93-01

Location

Dip 90°, Direction

Length 76.5 feet

1 ft = 30.5 cm



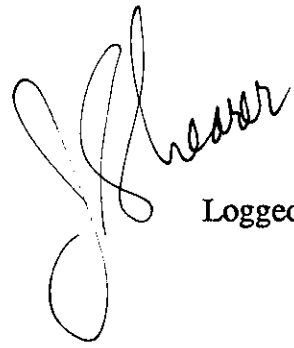
Logged by J.T. Shearer

February 1993

		Footage Blocks	Recovery
0-5'	<u>CASING</u> . No recovery.	0-5'	0
5'-24'6"	<u>DIORITE DYKE</u> : Dark green to light green, chloritized mafics. Medium crystalline. Lower contact chilled margin — much finer-grained for bottom 8". Gouge on lower fractures, trace fine py., 1 cm quartz vein at 40° to C.A. at 16°10'	5'-8' 8'-13'8" 18'8"-17'6" 17'6"-20' 20'-26'6" 26'6"-32'6" 32'6"-35' 35'-37' 37'-39'	52½" 62½" 50" 23" EOB 24' 56" 52" 22" 13" 19"
24'6"-56'6"	<u>LIGHT GREY GEYSERITE</u> : Highly fractured in upper part of hole. Fractures sub-parallel to 60° and 20°. Very vague, slightly darker, angular fragments (more mottled than fragmental), small vugs become common at 29'8" — small vugs common throughout remainder of interval, vugs elongated at about 20° to C.A., very vuggy at 40'10". Round dark lenses up to 2 mm long in more competent section. Sparse greenish fragments subangular at 49'. Fractures are at 80-90° to C.A. Vugs elongated parallel to fractures. Fractured mottled phase at 52'.	39'-40'7" 40'7"-43' 43'-46' 46'-47' 47'-49' 49'-52'6" 52'6"-55' 55'-56'6" 56'6"-59'6" 59'6"-61' 61'-64' 64'-72'6" 72'6"-73'6"	17" 23" better hole 15" 8" 15" 10" EOB 52'9" 17" 9" 12" 6" 34" 9" sand seam 0
56'6"-76'6" (EOH)	Altered pyritic volcanics. Dark grey, fine-grained, pyrite seams parallel and 90° to C.A.  Large fault gouge at 59'6"-61' 70° to C.A. Thicker pyrite seams 61'-64', bleached, finely fragmental, filled anygdaloidal. Hematitic volcanics last piece of core altered section.		

ASSAYS											
Footage	Na	Mg	Al	Si	S	Cl	K	Ca	Ti	Fe	Total
12'-24'5"	2.314	6.044	19.897	53.807	1.906	0.002	2.037	0.803	0.436	9.619	96.863
24'5"-35'	0.117	0.303	1.562	93.536	0.213	0.00	0.108	0.877	0.207	0.347	97.27

# DIAMOND DRILL RECORD



Hole Number MB93-02  
 Location  
 Elevation  
 Dip 90°  
 Length 49 feet

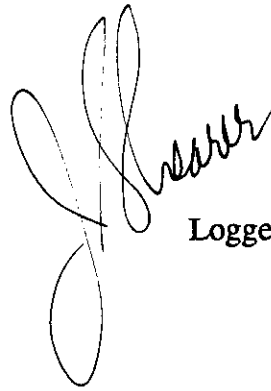
Logged by J.T. Shearer  
 February 1993

		<u>Footage</u> <u>Blocks</u>	<u>Recovery</u>
0-5'	No core (casing to 10'), rubble and core starting at 5.0 feet		
5'-8'6"	White weathered zone — soft material. Pyrophyllite altered tuff?, silvery grey gouge at 7'0". Rusty stained, very fractured 10° to C.A. Knobbly texture. Lower contact another silvery grey gouge zone 1½" thick.		
8'6"-37'6"	Medium grey [argillic?], (less) altered tuff, soft, finely fragmental, minor pyrite hair lines at 19'6". Yellowish green fragments at 25'8". Wispy-looking indistinct fragment boundaries, largest fragments ½ long. Original plagioclase matrix, highly altered, well fractured rubbly core 34'-36', 14-19½ red angular fragment at 34.0, welded tuff appearance. Pyrite veinlet ½ mm wide 30° to C.A. at 23'6" and 33', veinlets and patchy pyrite on fractures. Talc-pyrophyllite at 35? White calcite-like mineral 85° to C.A. at 33½		
37'6"-49' (EOH)	SILICEOUS altered tuff, gradational change to much more siliceous. Only rubble 45'-49'. Vuggy at 45', much more siliceous.		

ASSAYS											
Footage	Na	Mg	Al	Si	S	Cl	K	Ca	Ti	Fe	Total
5'-15'	0.902	1.302	32.480	72.188	4.855	0.002	4.191	0	0.233	2.960	109.102
15'-25'	0.675	1.390	20.236	66.922	4.173	0.002	3.254	0	0.415	2.836	99.902
25'-35'	1.031	1.223	24.492	71.638	7.678	0.002	4.290	0	0.209	2.484	113.042
35'-49'	0.748	0.960	23.466	72.307	6.55	0.002	4.277	0	0.216	2.226	110.856

# DIAMOND DRILL RECORD

Hole Number MB93-03  
Location  
Elevation  
Dip 90°  
Length 55 feet



Logged by J.T. Shearer  
February 1993

		<u>Footage</u> <u>Blocks</u>	<u>Recovery</u>
0-2'	<u>CASING</u> . No core recovered, soil and rubble.		
2'-4'2"	<u>White weathered zone</u> . Bleached Geyselite 0.5 to 2 mm long irregular transparent ghost grains including original quartz grains. Mottled dark grey less bleached patches.		
4'2"-14'6"	<u>Altered tuff breccia</u> . Dark to light grey, relict mafic mineral ghosts abundant throughout. Pyrite common along fractures and as interstitial between secondary breccia fragments. Relatively soft section. Slickensides roughly developed internally. No HCl reaction. Well fractured. Gradational lower contact.		
14'6"-28'	<u>SILICEOUS altered tuff breccia</u> . More siliceous appearance, much harder overall, fewer relict mafic grain ghosts, finer-grained small vugs more common, secondary brecciation parallel to core axis, vague primary breccia fragments just discernible, distinct quartz veinlets at 21'; 3" wide, 1/4" wide 60° to C.A. Py. along fractures at 22.5, quartz veinlets 25.0 parallel to C.A. Gradational low contact.		
28'-33'6"	Altered tuff white relict feldspars, phenocrysts prominent. Very siliceous, 20% white grains. Massive in appearance, darker matrix very indistinct. Less fractured than units above. Some vague banding. Gradational lower contact over 1'.		

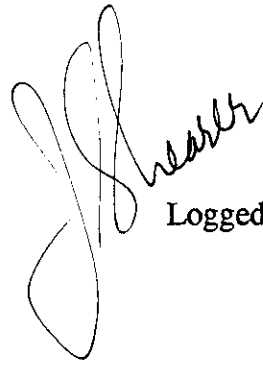
33'6"-55'  
(EOH)

SILICEOUS altered tuff (breccia). Sharp fracturing, more fractured. Micro vuggy. No primary fragments noticeable to well fractured slickensides at 20° to C.A. at 34', trace of pyrite film, occasional white phenocryst at 36.0. 36'6" fracture filled white mineral (calcite appearance but no HCl reaction) and 51'2". Very well fractured, 10° to C.A. and 70° to C.A. More mass in appearance in general but is still finely banded irregularly, mafic ghosts vaguely tuffaceous appearance. Veinlets of quartz and soft white mineral at 10° to C.A. Soft shear zone at 54'6", sheared very siliceous tuff.

ASSAYS											
Footage	Na	Mg	Al	Si	S	Cl	K	Ca	Ti	Fe	Total
2'-10'	1.094	1.258	22.194	72.205	7.594	0.001	0.864	0	0.203	2.843	111.257
10'-20'	0.579	0.631	12.681	82.729	4.552	0.001	2.281	0.102	0.202	1.881	105.639
20'-30'	0.648	0.781	13.045	80.400	6.023	0.001	2.320	0.107	0.202	2.610	106.186
30'-40'	0.154	0.340	2.816	88.048	1.758	0.00	0.455	0.862	0.266	1.229	95.923
40'-45'	0.167	0.327	1.668	94.789	0.172	0.00	0.121	0.502	0.176	0.649	98.569
45'-55'	0.070	0.340	3.754	87.405	2.633	0.00	0.687	0.458	0.223	1.489	97.055

# DIAMOND DRILL RECORD

Hole Number MB93-04  
Location  
Elevation  
Dip 90°  
Length 109 feet



Logged by J.T. Shearer  
February 1993

		<u>Footage</u> <u>Blocks</u>	<u>Recovery</u>
0-5'	CASING. No core recovery, geyserite rubble.		
5'-6'6"	White weathered zone. FeO on fracture surfaces. Very fractured, massive white with vague darker speckling. Minor dark grey mottling.		
6'6"-21'	Dark grey, very SILICEOUS. Close-packed volcanic agglomerate. Very sharp fracture edges. Almost cherty in appearance. Sections of densely palose packed well rounded polymictic clasts between 2 mm and 6 mm in diameter. Rubbly core at 8'-10' and from 18'-21'. Very well fractured. Slight FeO on fractures still at end of interval. Some larger, more angular fragments at 17'6" still very siliceous. Welded tuff textures in places.		
21'-23'	Massive SILICEOUS. Light grey tuff, very sparse fragments, well fractured parallel and 30° to C.A.		
23'-32'	White to medium grey. Altered agglomerate. <u>Very siliceous</u> . Fragments indistinct, healed fractures common. Fragment size variable but generally less than 5 mm. Some 1-3 mm diameter black round fragments. Wispy yellow brown fragments. Rubbly core 27'-32. Short sections of creamy yellow massive "geyserite" (could be large fragment). Down-hole there are smaller fragments of yellowish-brown massive tuff. Massive tuff more common towards bottom of interval.		

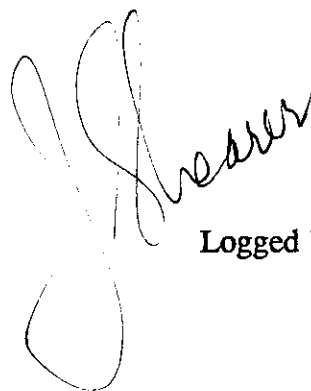
- 32'-38'6" Massive grey tuff, very siliceous. Fragments largely absent, well fractured 10° and 30° to C.A. most common. Minor hematite on rare fractures. Occasional fragment — agglomerate layer — dark grey to yellow-brown elongated fragments up to 5 mm long. Fragments increase in frequency around 37'6".
- 38'6"-42' Fault zone. Dark grey, very silicified but somewhat less siliceous than upper part of hole. Light green talc present on fracture surfaces, very well fractured.
- 42'-48'6" Siliceous light grey tuff, distinct yellowish tinge down to 48'6". Narrow, softer section noted at 48'6".
- 48'6"-70' Siliceous light grey fine volcanic agglomerate. Indistinct light grey fragments present but small 1-5 mm dark grey-black, very well rounded fragments are the most pronounced. Very poor core recovery between 60' and EOH. 60-75, 30%; 75-90, 25%. Agglomerate at 15° to C.A. elongation of clasts.
- 70'-109' (EOH) Light grey massive, very siliceous tuff at 70' down to 80'. Rubbly core 80-90, 15% core recovery but rubble is massive tuff. Variegated appearance at 108'3". Massive light grey siliceous tuff at 109'.

ASSAYS											
Footage	Na	Mg	Al	Si	S	Cl	K	Ca	Ti	Fe	Total
5'-15'	0.014	0.288	3.689	92.018	0.245	0	0.544	0.497	0.193	0.426	97.914
15'-25'	0	0.278	2.428	94?	0.074?	0	0.327	0.829	0.190	0	95.739
25'-35'	0	0.294	1.116	93.705	0.043	0	0.089	1.072	0.246	0.011	95.576
35'-45'	0.398	0.497	9.721	87.335	1.510	0	1.688	0.245	0.224	0.659	107.276
45'-55'	0.225	0.403	14.294	86.142	0.493	0.001	2.670	0	0.193	0	104.281
55'-65'	0	0.249	0.892	97.259	0.078	0	0.072	0.493	0.178	0	99.22
65'-75'	0.093	0.298	1.037	97.996	0.157	0	0.082	0.471	0.175	0	100.308
75'-85'	0	0.276	0.869	94.816	0.088	0	0.069	0.936	0.221	0	97.277
85'-95'	0	0.268	1.215	97.093	0.064	0	0.094	0.469	0.186	0	99.339
95'-105'	0	0.262	1.274	97.073	0.172	0	0.111	0.469	0.18	0	99.542



# DIAMOND DRILL RECORD

Hole Number MB93-05  
Location  
Elevation  
Dip 90°  
Length 103 feet



Logged by J.T. Shearer  
March 1993

	<u>Footage</u> <u>Blocks</u>	<u>Recovery</u>
0-35'		No core (casing 0-5')
35'-41'6"		CLOSE PACKED, VERY SILICEOUS VOLCANIC AGGLOMERATE. Light to dark grey, with a general purplish tinge throughout. Flow banding (?) suggested at 4'. Short crystal tuff section at 5', very siliceous, finer-grained zones at 5.5' contact at 65-70° to core axis. Quartz-rich, translucent fragments (well rounded) begin to appear at 10', bluish cast. Well fractured at 15', 5° to C.A. and 70° to C.A., very siliceous. Wispy yellow-brown "staining" common at 17'9" and down. Micro vugs start to appear also. Fragments gradually becoming more and more bleached out below 20', lighter grey-white with traces of yellow — very siliceous. Darker grey interval 27'-28', more highly fractured 5° and 30°.
41'6"-45'		Massive light grey tuff, no discernible fragments except for minor very small, slightly darker grey indistinct clasts, fractures stained with limonite (this is where the limonite-stained fractures start). Limonite is common on fractures down to 70'.
45'-70'		Altered and bleached volcanic agglomerate, indistinct fragments, but gives the appearance of originally being crowd and densely packed, well fractured, low angle to core axis, good core recover 0-45'.
70'-103' (EOH)		White bleached massive tuff, creamy white mainly. Rare dark grey fragment, well rounded, some fractures as high as

70'-103'  
(cont'd)  
(EOH)

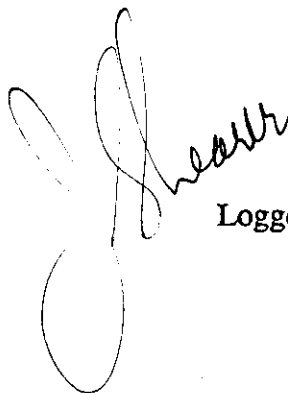
70°, most 5-15°, very siliceous core recovery 70-80% 45-70'. End of limonite on fractures is at lower contact (possibly weathered zone).

Light to medium grey mottled "crystal" tuff. White chalky relict crystals, mottling in places seems to grade into rough flows. Micro vuggy throughout, structures very well fractured, extremely siliceous in situ brecciation at 75.0 outlined by light brown yellow wispy "matrix". Dark grey banding at 82 at about 60° to C.A. Speckled interval. Vuggy. 91-103 10% core recovery. Very siliceous all the way to 103. Suggestion of bleached agglomerate at 90'.

ASSAYS											
Footage	Na	Mg	Al	Si	S	Cl	K	Ca	Ti	Fe	Total
0'-10'	0.029	0.286	0.808	98.674	0.068	0	0.067	0.491	0.150	0	100.572
10'-20'	0.198	0.300	0.649	96.739	0.068	0	0.070	0.474	0.253	0	98.751
20'-30'	0.038	0.270	0.707	98.001	0.028	0	0.047	0.474	0.188	0	99.752
30'-40'	0	0.246	0.696	97.521	0.045	0	0.059	0.504	0.157	0	99.237
40'-50'	0.042	0.275	0.828	97.124	0.135	0	0.073	0.475	0.183	0.104	99.239
50'-60'	0	0.240	0.982	95.169	0.076	0	0.153	0.682	0.231	0	97.483
60'-70'	0.042	0.275	1.163	98.241	0	0	0.054	0.470	0.183	0	100.427
70'-80'	0.012	0.275	1.087	95.995	0.568	0	0.065	0.497	0.181	0.131	98.815
80'-90'	1.61	0.311	0.828	91.792	2.308	0	0.045	0.492	0.186	1.292	97.411
90'-103'	0.223	0.315	0.866	94.909	1.162	0	0.059	0.473	0.181	0.508	98.696

# DIAMOND DRILL RECORD

Hole Number MB93-06  
Location  
Elevation  
Dip 90°  
Length 128 feet



Logged by J.T. Shearer  
March 1993

		<u>Footage Blocks</u>	<u>Recovery</u>
0-3'	Rock starts at 6" below surface. Hole open. No core (casing to 5'). Casing actually 2' below surface. Very siliceous.		
3'-86'	White (geyserite) volcanic agglomerate, floating dark grey fragments with indistinct borders, highly fractured, limonite on all fractures. Bleached appearance overall. Very bleached and weathered appearance down to 21'. More crowded fragments between 21' and 28' and less bleached fragments still very well rounded. Very vuggy, very siliceous. Bleached volcanic agglomerate 28-45. Extremely fractured, limonite common and in places associated with minor MnO <sub>2</sub> , very siliceous. Traces of MnO <sub>2</sub> down to 41'6". Very bleached 45-. Rough slickensides at 46' at 30° to C.A. Striations across yellow-brownish colour to rock starting at 56'. Fragments are very vague 60-65, more distinct clasts start at 66', very siliceous throughout. MnO <sub>2</sub> only on fractures at 74'-74'6". More crowded finer-grained clasts at 80-81'. Less bleaching, but apparently just as siliceous with intense bleaching prominent from 81'-86'. 85'-86' faulted — fractured appearance. Vugs filled with MnO <sub>2</sub> — water course?		

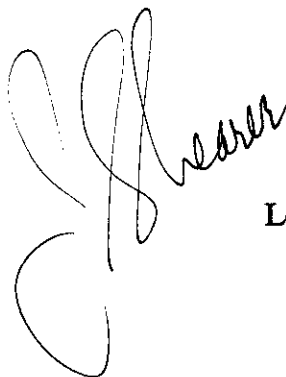
86'-107' Light to moderate grey highly siliceous fine-grained volcanic agglomerate. Not bleached, still micro vuggy, some yellow wispy matrix and also chalky yellow replacement of individual crystals at 88'6"-89' associated with rough flow banding. Less prominent fragments below 91 and becomes slightly darker grey. Distinctly angular fragments occur at 95'6"-97' being light grey fragments in dark grey matrix. Very siliceous.

107'-128' (EOH) White speckled, very siliceous volcanic agglomerate. Fragments are generally fuzzy borders but have an unusual greenish-yellow colour. Clasts are floating, some purplish tinge to matrix. Bright white matrix 114-128 (EOH) very siliceous. Trace of pyrite replacing 2 mm fragments at 115'6". Traces of talc at 116 along open fractures. Light mottling by darker grey lines at 123'4" to EOH reminiscent of syrolites, well fractured 5° to C.A. and less rough slickensides at 80° to C.A. at 124.

ASSAYS											
Footage	Na	Mg	Al	Si	S	Cl	K	Ca	Ti	Fe	Total
0'-10'	0.069	0.277	0.642	95.001	0.029	0	0.061	0.981	0.168	0	96.729
10'-20'	0	0.258	0.903	95.446	0.014	0	0.074	0.474	0.226	0	97.396
20'-30'	0.030	0.278	1.023	97.500	0.008	0	0.059	0.470	0.170	0	99.543
30'-40'	0	0.266	0.951	97.749	0.008	0	0.059	0.474	0.183	0	99.691
40'-50'	0	0.239	0.914	95.888	0.005	0	0.088	0.495	0.178	0	97.807
50'-60'	0	0.270	0.946	96.647	0.024	0	0.080	0.472	0.189	0	98.626
60'-70'	0	0.271	0.800	96.289	0	0	0.057	0.595	0.192	0	98.203
70'-80'	0	0.233	0.768	97.047	0.042	0	0.039	0.471	0.154	0	98.754
80'-90'	0	0.229	0.554	94.579	0	0	0.033	0.470	0.168	0	96.034
90'-100'											
100'-110'	0.067	0.282	1.005	97.552	0.144	0	0.089	0.491	0.161	0	99.792
110'-120'	0	0.269	1.078	95.504	0.440	0	0.125	0.516	0.254	0.028	98.214
120'-128'	0.026	0.269	1.037	96.202	0.729	0	0.124	0.486	0.163	0.179	99.214

# DIAMOND DRILL RECORD

Hole Number MB93-07  
Location  
Elevation  
Dip 90°  
Length 93 feet



Logged by J.T. Shearer  
March 1993

		<u>Footage Blocks</u>	<u>Recovery</u>
0-4'	No core (casing to 5')		
4'-18'	LIGHT GREY to DARK GREY, very SILICEOUS altered CRYSTAL TUFF. Intense limonite staining at 4'6", limonite on fractures down to 15', sheared appearance 12-14', very siliceous but granulated and fractured 10°, sheared 30°. Flow banding at 11'6" 10° to C.A. Some minor fragments, pronounced flow banding at 17'6" at 15° to C.A., slightly crenulated.		
18'-23'	Altered, very siliceous volcanic agglomerate. Very siliceous matrix. Fragments well to sub-rounded, light and dark fragments. Rough slickensides at 22'. Lower contact faulted at 25° to C.A.		
23'-42'	Dark grey pyritic, altered tuff. Pyrite wisps at 28'. Top part silified, sheared appearance, softer than siliceous crystal tuff or agglomerate. Abundant pyrite at 31' 1" wide. Pyrite seam at 41' 2 mm wide.		
42'-88'6"	Siliceous dark grey volcanic agglomerate. Fragments indistinct near top, has dull appearance. Traces of fine-grained disseminated pyrite in short intervals. Well fractured, traces of pyrite replacing 1-2 mm fragments at 55', 1 mm quartz veining at 50' 20° to C.A. Short pyritic section 56'6"-57'. very siliceous (but dark grey) down to 75'. Disseminated pyrite 75'-79', volcanic agglomerate. Irregular quartz veinlets at 78'6" 10° to C.A. associated with slightly softer white		

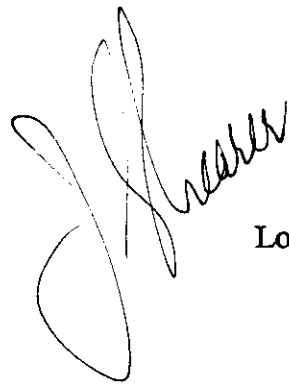
42'-88'6"  
(cont'd)

mineral. Pyrite replacing a few fragments at 78'10". Very siliceous 79'-93'. End of hole. Highly fractured. Fault zone — shearing at 85'-86'6". EOB3-88'6".

88'6"-93'  
(EOH)

SILICEOUS VOLCANIC  
AGGLOMERATE. Crowded polymictic agglomerate, some light grey massive tuff (very siliceous) fragments. Chalky white fragments rare, smaller dark grey rounded. Highly fractured.

# DIAMOND DRILL RECORD



Hole Number MB93-08  
Location  
Elevation  
Dip 90°  
Length 80 feet

Logged by J.T. Shearer  
March 1993

		<u>Footage</u> <u>Blocks</u>	<u>Recovery</u>
0-3'	No core (casing to 5')		
3'-34'	White, very bleached, highly siliceous <u>volcanic agglomerate</u> . Chalky white matrix, slightly lighter grey fragments, some in situ brecciation. Very well fractured, limonite on fractures down to 25'. Fractures 70° and 80°, some at 30° and 0°. Rubble 11-17', some very white pebbles. Gradational lower contact 28-34 less siliceous. More chalky and argillaceous-appearing.		
34'-40'	Silicified dark grey argillaceous tuff. Wispy fragments, still very siliceous. Rubbly core, highly fractured.		
40'-80' (EOH)	Pyritic crudely layered tuff. Moderate grey colour, pyritic matrix around lensoid fragments, much softer but still silicified. Some short, very silified section between softer and more argillaceous zones. Generally rubbly core 45'6"-80'. Rough slickensides at 79'6" at 30° to C.A. Silicified interval at 74'-76' mottled light grey (possibly a gradational contact below 80').		

# DIAMOND DRILL RECORD

Hole Number MB93-09  
Location  
Elevation  
Dip 90°  
Length 91.5 feet (siliceous entire length)



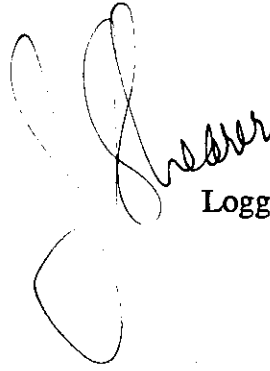
Logged by J.T. Shearer  
March 1993

	<u>Footage</u> <u>Blocks</u>	<u>Recovery</u>
0-2'		No core (casing to 5')
2'-21'		HIGHLY SILICEOUS MASSIVE LIGHT GREY "Geyselite" tuff, very few fragments, mainly fine-grained to aphanitic light grey tuff. Slight mottling in some sections 11'-12'. Well fractured, bleached-out light grey-white fragments at 1', brownish fragments in purplish matrix at 16', fractures at 20° to C.A.
21'-48'6"		HIGHLY SILICEOUS Bleached VOLCANIC AGGLOMERATE (Geyselite). Very bleached out 21'-24'. Slightly darker grey 24' and down, suggestion of banding at 25'. Vuggy, very bleached down to 48'6". Dark grey, well-rounded fragments distinctive. Limonite on fractures down to 50'. Abrupt lower contact.
48'6"-54'		HIGHLY SILICEOUS light and dark grey, crowded polymictic VOLCANIC AGGLOMERATE. Fractures 0-5° to C.A. (not bleached). Abrupt lower contact.
54'-77'		HIGHLY SILICEOUS BLEACHED VOLCANIC AGGLOMERATE. Light grey to white, very well fractured 0-5° to C.A. Suggestion of vertical banding. Rubble 66-EOH at 91'6" = 30% C.R. Darker grey section 70-75 ?, traces of pyrite — very siliceous.
77'-91'6" (EOH)		HIGHLY SILICEOUS, massive LIGHT GREY (Geyselite) Tuff. Slight mottling throughout, especially at 80' — banding of wispy mottling at 5° to C.A. Vuggy, very siliceous, highly fractured.



# DIAMOND DRILL RECORD

Hole Number MB93-10  
Location  
Elevation  
Dip 90°  
Length 73 feet (FeO down to 60')

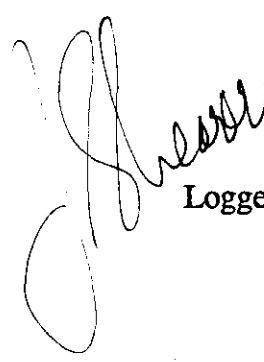


Logged by J.T. Shearer  
March 1993

		<u>Footage Blocks</u>	<u>Recovery</u>
0-4'	No core.		
4'-73' (EOH)	Highly siliceous sheared volcanic agglomerate. Some dark fragments in upper part. Rubbly core 10-15' white. No core 34'6"-40'. Brownish hue to pebbles. Very vuggy 40-50'. Trace of pyrite 53'. No core 54'6"-56'. Lighter grey volcanic agglomerate 65'-67'4". Somewhat sheared appearance — friable. 73' EOH: Loose rock.		

# DIAMOND DRILL RECORD

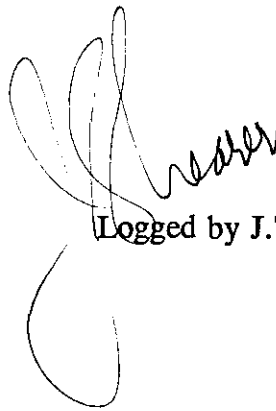
Hole Number MB93-11  
Location  
Elevation  
Dip 90°  
Length 60 feet



Logged by J.T. Shearer  
March 1993

		<u>Footage Blocks</u>	<u>Recovery</u>
0-10'	No core casing.		
10'-25'	Rubble, tiny chips. <u>Soft argillic altered TUFF</u> , 5% core recovery.		
25'-30'	Pyritic, highly siliceous tuff (maybe caved section). Dark grey, 5% finely disseminated pyrite, aphanitic.		
30'-60' (EOH)	Fine-grained, highly siliceous (Geyselite). Volcanic agglomerate. Medium grey, vuggy, minor chalky white fragments. Some black, well rounded fragments at 51' up to 5 cm long. Trace of grey chlorite wisps at 57'. Crowded — welded appearance near end of hole.		

# DIAMOND DRILL RECORD



Hole Number MB93-12  
 Location  
 Elevation  
 Dip 90°  
 Length 150 feet

Logged by J.T. Shearer, W.B. Lennan  
 July 1993

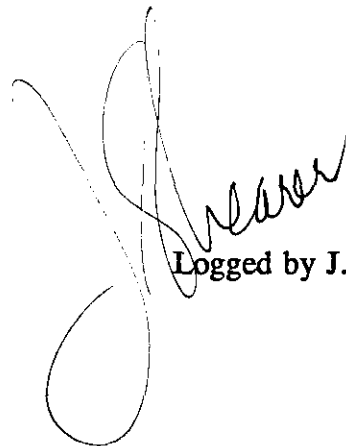
		Footage Blocks	Recovery
0-6'	Casing — no recovery	6'-8'	8"
6'-16'	<u>White weathered zone.</u> Cream-coloured with rusty fractures. Dark grey to black angular fragments to 1 cm diameter. Weak pyrite, although at 6'3" 2 m thick fracture with heavy pyrite. More narrow vuggy fractures from 11-16'. Prominent fracturing 50° to C.A. and 15° to C.A. Very broken core, poor recovery, high bit loss.	8'9"9"	15"
		9'9"-11'	8"
		11'-15'6"	7"
		15'6"-18'	16½"
		18'-19'6"	15"
		19'6"-27'	33"
		27'-29'6"	6"
		29'6"-30'6"	7"
		30'6"-31'6"	10"
		31'6"-33'6"	7"
		33'6"-35'	9"
16'-38'6"	Medium grey SILICEOUS VOLCANIC AGGLOMERATE ? TO BRECCIA. Small sections of dense grey siliceous (cherty) material with ghosts of crystal? fragments and clasts. Dark grey clasts (angular) to 1 cm. Occasionally dark clasts are pyritic. From 19'6"-29'6" rock is highly brecciated with open vuggy texture adjacent to clasts along fractures. Core very rubbly. At 30' <u>heavy pyritic</u> 2 mm thick along fracture 30° to C.A. At 31'6" contact with vuggy section 25° to C.A. From 31'6" to 38'6" very vuggy with vugs aligned along fractures at 40° to C.A. Some very distinct fragments to lens while some are ghostly. Pyrite dissemination along fracture with occasionally forms as fragment replacements generally less than 2%. From 33'6"-34', pyrite dissemination and along fracture to 5%. Brecciated with vuggy rock 15 to 20° to C.A. Fracturing from 35'6"-36' strongly puritized as vug fillings and along fracture 15 to 20° to C.A. Vugs aligned along 70° to C.A. Fracturing. Pyrite mineralization weakens from 36'-38'6".	35'-36'6"	10"
		36'6"-37'6"	11"
		37'6"-38'6"	9"
		38'6"-39'	6"
		39'-40'	6"
		40'-41'6"	5"
		41'6"-45'	43"
		45'-47'	23"
		47'-49'	26"
		49'-54'	56"
		54'-59'	32"
		59'-65'	30"
		65'-68'	29"
		68'-73'	45"
		73'-78'	46"
		78'-83'	43"
		83'-86'6"	23"
		86'6"-90'	22"
		90'-94'	30"
94'-97'	26"		
97'-100'	21"		
100'-102'6"	20"		
102'6"-108'	50"		
108'-112'	43"		
112'-116'6"	26"		
116'6"-120'	26"		
120'-122'	9"		

38'6"-40'	Dark grey, very siliceous tuff. Textures indistinct. Well fractured. Fractures healed with fine crystalline quartz. At 40', contact with light creamy greenish tuff. Rubbly contact so no contact angles.	122'-126'6" 126'6"-130'6" 130'6"-132' 132'-136'6" 136'6"-141'6" 141'6"-146'6" 146'6"-150'	26" 11" 9" 14" 60" 54" 42"
40'-42'	Light grey-green (creamy) tuff. Possible a Fault Zone feature. Softer than silicified tuff. Green veinlets of talc ? or sericite 2 mm thick cut core axis at approximately 30° although angle is quite irregular. Rock has a soapy feel and is slickensided. Slickenside at 25-30° to C.A. Minor pyrite. Lower contact angle unknown.		
42'-58'	Light to dark grey, very siliceous tuff. Breccia? Some large dark grey fragments to 2 cm diameter. Intensely fractured. Fractures healed with white-coloured lacy network of sericite, carbonate and quartz. A minor number of greenish blebs of talc? Strong reaction with HCl. At 46', a 3 mm thick white vein cuts C.A. at 70°. Dominant fracturing at 70-75° to C.A. and at 15° to C.A. At 45'6", very strongly silicified section. Dark grey. Polished by drill bit. From 48'-49', rock is moderately bleached. Strong fracturing 10° to C.A. Mottled appearance due to mafic clasts. From 50'-58', dominant fracture system indicated by lacy white lines of calcite and sericite filling 70° to C.A.		
58'-59'	DIORITE DYKE — Dark green with small mafic phenos. Fault contact with chloritized and sheared fine-grained diorite.		
59'-59'6"	FAULT GOUGE CLAY AT 52'6". Very rubbly core.		
59'6"-65'	FAULT ZONE WITH REMNANTS OF SILICIFIED TUFF BRECCIA AND DIORITE MATERIAL.		

- 65'-68'      **SHEARED DIORITE DYKE.** Dyke is strongly sheared and chloritized in this area. Slickensiding is prevalent along feature 10 to 15° to C.A.
- 68'-74'      **MASSIVE DIORITE DYKE.** Dark green with mottled appearance due to 1 mm to 2 mm mafic phenos. Calcite and chlorite alteration occur along widely spaced fractures. At 71', dyke becomes nearly aphanitic and phenos disappear. At 73', dyke becomes very fractured and rubbly. Chlorite on slickensides. Lower contact with highly fractured and sheared. Silicified volcanic agglomerate on 55° to C.A.
- 74'-93'      **LIGHT TO MEDIUM GREY SILICEOUS, WEAKLY PYRITIZED VOLCANIC AGGLOMERATE?**  
Purplish grey tinge to rock. Intensely fractured 80° and 15° to C.A. Minor pyrite seam at 74'. White clay alteration along fracture surfaces. At approximately 77', a white 4-5 cm thick quartz vein cuts core axis at 20°. Speckled appearance due to darker angular fragments up to 2 cm diameter. At 81', intensely fractured. Looks vuggy but mainly material removed from fractures by drill. Some minor blebs of chalcopyrite. More intense silicification from 86'6". At 90'6", rubbly zone then silicified and pyritized zone to 93'.
- 93'-94'      **FAULT GOUGE.** 20°? to C.A. Grey clay with rock fragments. Minor greenish talc.
- 94'-97'      **SILICEOUS ALTERED TUFF.** Medium to dark grey, highly fractured with rubbly core. Dark angular fragments to 3 mm diameter. Minor specks of pyrite.
- 97'-101'      **LIGHT GREY GEYSERITE ?** Clay gouge at 97'6" (1 cm). Highly fractured and rubbly core. Small 2-3 mm vugs common throughout. Ghosts of white phenos and darker fragments.

- 101'-105' MEDIUM GREY TUFF BRECCIAS.  
Fairly soft section. Felsic and mafic mineral ghosts as well as host fragments. Well fractured and rubbly core. Clay and talc ? development on slickensided surfaces. Fractures 65° to C.A. Weak banding 25-30° to C.A. at 102'6". More siliceous and bleached from 104-105'. At 105', sharp contact with buff-coloured, weakly siliceous tuff breccia. Banding at contact 30° to C.A.
- 105'-119' LIGHT TO MEDIUM GREY MODERATELY SILICEOUS TUFF BRECCIA. Rubbly core from 105-108' has a buff colour. Strong white clay alteration on fractures. At 113'6", small vugs along fracturing at 35° to C.A. and parallel to C.A. Dark grey massive siliceous section from 116'6" to 118'. Indistinct contact with cream-coloured bleached siliceous altered tuff.
- 119'-130' LIGHT TO MEDIUM GREY SILICEOUS ALTERED TUFF. Very broken rubbly core. Massive appearing rock. Sandy rubble at 122' (possible Fault Zone — no clay gouge though). At 130', very rubbly core — possible gradational contact with a massive altered tuff.
- 130'-150' (EOH) LIGHT TO MEDIUM GREY ALTERED TUFF BRECCIA (possibly crystal tuff). Unit is intensely fractured with fractures healed with white soft material. Non-reactive with HCl. This fracture filling material gives the rock an intensely veined appearance 40-50° to C.A. is dominant. CLAY FAULT GOUGE from 142'6"-142'9". At 148', veining diminished dramatically. Rock is soft to drill.

# DIAMOND DRILL RECORD



Hole Number MB93-5A  
 Location  
 Elevation  
 Dip 90°  
 Length 170 feet

Logged by J.T. Shearer, W.B. Lennan  
 July 1993

		Footage Blocks	Recovery
0-2'	No core — casing.	2'-11'	89"
2'-32'6"	<u>CLOSE-PACKED, VERY SILICEOUS VOLCANIC AGGLOMERATE.</u> Light to medium grey with a light purplish tinge. Minor vugs along fractures. Bleached section from 13'-14' with some rusty zones. At 16'4", contact with a short section of very siliceous crystal tuff. Contact at 40-45° to C.A. (upper). Lower contact 65° to C.A. From 19', rock appears a little less silicified. At 21', a 5 cm thick white quartz vein cuts C.A. at 65°. Core very broken up. Intensely fractured 25° to C.A. and 70-75° to C.A. Darker purplish grey fragments common in a dense matrix of white quartz — feldspar? clasts. From 26'-32', core is broken into pea gravel-sized pieces. At 32'6", a contact with a massive siliceous light grey to mottled tuff occurs. Contact attitude is indistinct but possibly 55° to C.A.	11'-16' 16'-24' 24'-26'6" 26'6"-32' 32'-34'6" 34'6"-38'6" 38'6"-39' 39'-41' 41'-44'6" 44'6"-46' 46'-48' 48'-52' 52'-57'6" 57'6"-62' 62'-65' 65'-71'3" 71'3"-78'6" 78'6"-81'6" 81'6"-91'6" 91'6"-101'6" 101'6"-103' 103'-107' 107'-110' 110'-116'6" 116'6"-121'6" 121'6"-126'6" 126'6"-132' 132'-139' 139'-144' 144'-156'6" 156'6"-162'- 170'	44" 70" 18" 6" 9" 0 3" 22" 30" 16" 19" 44" 51" 49" 30" 46" 38" 26" 107" 15" 19" 5" 6" 27" 15" 54" 59" 30" 26" 22" 28" 11"
32'6"-41'6"	<u>Massive Siliceous Light Grey to Mottled Tuff.</u> Upper contact is massive dense ophanitic light-coloured siliceous material. Appears to be a chilled margin. Core is very rubbly from 32'6" to 35'. From 35'-41'6", core is massive and takes on a light grey speckled or mottled appearance. Strong limonite (rusting) on fractures in this section. Darker grey siliceous fragments surrounded by white fragments and matrix impart the mottled appearance. Most prevalent fracturing is 10° to 15° to C.A. and 35-40° to C.A. Strong fracturing at 75° to C.A. also occurs. At 41'6", the tuff contacts an intensely		

- 32'6"-41'6"  
(cont'd) fractured and rubbly bleached volcanic agglomerate. The contact is a wavy banded feature with limonite at  $\sim 35^\circ$  to C.A.
- 41'6"-44'6" Altered and Bleached Volcanic Agglomerate. This section very broken up and weathered. Drill rods and core tube were stuck to hole for a while. Fragments have a ghostly appearance and are indistinct. Overall colour is beige due to weathering and limonite staining. Poor recovery.
- 44'6"-82' Light Grey to Creamy White Bleached Massive Tuff. Dark grey fragments are rare due to bleaching with silicification. Very siliceous (hard on bits). Minor vuggy areas. Limonite on fractures. Fracturing is not as intense as in previous units. From 44'6"-53', more darker grey large fragments. From 53'-61', fragments become more bleached out. From 61'-64', rock is creamy white and totally bleached. Minor vuggy appearance along fractures. Most dominant fracturing  $10-20^\circ$  to C.A. and at  $70^\circ$  to C.A. From 60'-61', white speckled appearance due to clay-ser. alteration of small (1 mm) phenos. From 64'-69', rock becomes greyer again and limonite disappears. Core is very broken up past 69'. Indistinct contact at 82'? Wavy banding and white ghostly altered fp. phenos mark contact with medium cream-grey massive crystal tuff. Core is still very broken up.
- 82'-125' LIGHT TO MEDIUM CREAM-GREY ALTERED CRYSTAL TUFF (occasional mottled sections). Although core is very broken up, this appears to be a relatively homogeneous unit with respect to colour and texture. Not as strongly silicified as previous unit. Vague speckling due to small chalky altered feldspar phenos. Greenish-grey speckling caused by chlorite? sericite alteration of mafic crystals and fragments. Patchy sections



82'-125'  
(cont'd)

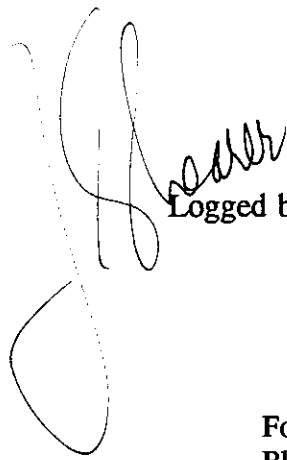
of micro vugs. Minor brecciation at 103'. Dominant fracturing  $5^{\circ}$ - $15^{\circ}$  to C.A. and  $50^{\circ}$  to C.A. Heavy core loss from 91'6"-110'. Brecciated at 110' primarily along fractures  $40^{\circ}$  to C.A. Very silicified from 113'. From 121'-124', good texture is visible. Crowded bleached felsic fragments of crystals with irregular shapes to 1 cm diameter. Translucent quartz-rich fragments and rare altered mafic fragments. Crystalline quartz on vugs following fractures. Minor quartz veining (~2 mm thick).

125'-170'  
(EOH)

ALTERED PYRITIC, VOLCANIC — MEDIUM GREY — fine-grained. From 124' on crystal tuff texture is bleached out; only vague ghosts remain. At approximately 130'-131' fault breccia only minor clay gouge material. Core loss from 128'8" to 132'. From 131'-135', minor pyrite along fracture and in some vugs. The rock is brecciated in this area. Fracturing is primarily at  $70^{\circ}$  to C.A. and  $15$ - $30^{\circ}$  to C.A. From 135' to approximately 142', coarser pyrite showing cubes to 2 mm across along fracture  $10$ - $20^{\circ}$  to C.A. At approximately 137'6", talc-coated slickenside. Faulted zone  $40^{\circ}$  to C.A. Rock is softer with clay alteration. At 140', Fault Gouge — sticky blue clay for 5". Lower fault contact ~ $25$ - $30^{\circ}$  to C.A. Intensely pyritized. Core is very broken up to 142'. From 142'-147', unit is more siliceous with decrease in pyrite. Overall less than 1% along fractures. Core is very broken up from 144'-146'. Fracturing mainly  $15$ - $20^{\circ}$  to C.A. and  $40^{\circ}$  to C.A. At 146'6", clay altered and pyritized shear zone  $45^{\circ}$  to C.A. From 147'-148', FAULT ZONE clay-rich gravels. From 148'-156', core is hard and broken up to consistency of gravel. Pyrite is very minor. From 156'-170', core is siliceous but broken up with clay alteration along fractures  $10$ - $15^{\circ}$  to C.A. and  $30^{\circ}$  to C.A. Pyrite increase along fracture from 161'-163'.

# DIAMOND DRILL RECORD

Hole Number MB93-13  
 Location  
 Elevation  
 Dip 90°  
 Length 121.5 feet



Logged by J.T. Shearer, W.B. Lennan  
 July 1993

		Footage Blocks	Recovery
0-6'	Casing — no core.	6'-12'	27"
6'-21'	<u>DARK TO MEDIUM GREY TUFF BRECCIA.</u> Softer material. Core broken up. Darker grey angular clasts to 3 mm diameter are aligned to form a weak banding at approximately 40° to C.A. A few large clasts to 3 cm across. Matrix is lighter grey with a few areas where clay altered feldspar have weathered out, leaving a pocked appearance to core. Sulfide mineralization (pyrite) is weak; however, some 1 mm thick fracture fillings occur at 25°-30° to C.A. around 8 to 10' depth. From 12'-21', core is very rubbly and softer due to clay alteration. Some in situ brecciation and shearing appears to be the cause. Main fracturing 20-25° to C.A. At 23', unit contacts white fracture brecciated and silicified tuff breccia. Contact attitude unknown as core is rubble for this area.	12'-15'	8"
		15'-22'	10"
		22'-25'	31"
		25'-33'6"	22"
		33'6"-38'6"	24"
		38'6"-43'6"	24"
		43'6"-45'6"	22"
		45'6"-49'	24"
		49'-53'6"	23"
		53'6"-56'	25"
		56'-62'	69"
		62'-65'6"	38"
		65'6"-71'	57"
		71'-81'	106"
81'-89'	61"		
89'-90'	12"		
90'-100'	105"		
100'-109'	88"		
109'-116'6"	84"		
116'6"-121'6"	45"		
21'-48'	<u>BLEACHED AND SILICIFIED ALTERED TUFF BRECCIA.</u> White-coloured with grey patches where bleaching has not invaded. Intensely cross-fractured to form a secondary fracture breccia. Main fracture sets at 10-20° to C.A. and 65-70° to C.A. Intense limonite staining occurs throughout this unit. Bleaching has occurred along the fractures. From 25'-~27', a darker grey zone similar to 6'-21' but more siliceous. From 38'-48' has a more mottled appearance as purplish translucent clasts ranging from 2 mm to 1.5 cm diameter are scattered throughout unit. At 48', unit contacts a medium to dark grey		

21'-48'  
(cont'd) siliceous volcanic agglomerate. Contact indistinct but appears to be approximately 35° to C.A. Core broken up.

48'-72' **DARK TO LIGHT GREY SILICEOUS VOLCANIC AGGLOMERATE.** Unit is intensely fractured and altered to 51'. The unit is soft and less siliceous in this area. Some limonite staining. Dominant fracturing 20-30° to C.A. Patches of white speckled appearance due to weathering of 1 mm feldspar phenos. **FAULT ZONE** at 51'. No clay gouge but sheared gravelly material. From 51'-56', unit is dark grey but becomes progressively lighter towards 56'. \*This section is weakly pyritic with very fine-grained disseminated pyrite throughout. From 52'-52'3", more intense pyrite mineralization in a brecciated section. From 56'-62', unit is intensely silicified and lighter grey-coloured. Purplish patches due to angular clast of translucent purplish quartz. Pyrite is absent. Vuggy appearance and limonite due to open spaces at fracture intersections. Prominent fracturing at 10-15° to C.A. and 65-70° to C.A. From 62'-63', small section of dark grey aphanitic siliceous tuff? only vague ghosts of fragments. From 63'-68', colour becomes lighter again as from 56'-62'. Floating purplish clasts to 1 cm reoccur in a white milky quartz matrix. Fracturing remains prominent 10-25° to C.A. From 68'-72', unit becomes darker grey and more mottled. Fault Zone 70'-71' at 75° to 80° to C.A. Clay altered slickensides (possibly talc — soapy feel). At 72', contact with light grey to milky white Geyselite? or bleached agglomerate. Contact is approximately 55° to C.A.

72'-75' **LIGHT GREY TO MILKY WHITE GEYSERITE?** Primarily milky quartz. Dominant fracturing 15° to C.A. and 50° to C.A. Limonite staining on fracture surfaces. Most original textures are bleached out. Some grey translucent

- 72'-75'  
(cont'd) angular clasts to 1 cm diameter remain but edges are fuzzy. Small vugs distributed along fractures — primarily the 50° to C.A. fracture. At 75', grades to a silicified crystal lithic tuff.
- 75'-78'6" LIGHT GREY CRYSTAL LITHIC TUFF? Slight banded appearance. Crystals? and dark grey fragments are roughly aligned 70-80° to C.A. Fragments to 3 mm common. Fine-grained crystals form matrix. Some limonite staining along fractures at 35°-40° to C.A. At 78'6", strong bleaching due to silica flooding occurs. Rough contact 40-50° to C.A.
- 78'6"-90' BLEACHED AND SILICIFIED CRYSTAL TUFF. From 78'6"-93', intense fracturing and silica, clay and limonite alteration start to obliterate tuffaceous textures of previous unit. In situ fracture brecciation in this area. Vugs common in areas of intense fracturing. Some dark grey translucent fragments to 3 mm still visible. From 83'-90', rock becomes massive light grey aphanitic and very siliceous. From 88'-90', speckled appearance due to altered mafics and/or very fine-grained blebs of pyrite. At 90', grades to a massive aphanitic light grey siliceous unit with few textural features. Possibly Geyselite, although vugs are not common. Broken core throughout this section.
- 90'-105'6" LIGHT GREY MASSIVE SILICEOUS GEYSERITE? Fracturing not as intense. Featureless unit with minor small vugs along fracture 5-10° to C.A. and 25° to C.A. From 94'6"-95'6", small zone of weakly pyritized unit. Pyrite as fine-grained blebs along fractures. From 96'-98', fracturing parallel to core axis. From 101'-104', core is broken up along fractures 10-20° to C.A. and 40° to C.A. Clay alteration occurs along fracture. Fault Zone from 103'6"-104' with clay alteration and some pyrite. At 105'6",

90'-105'6"  
(cont'd)

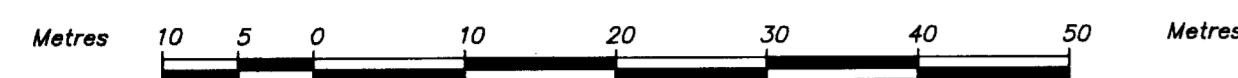
unit contacts a sheared altered pyritic volcanic unit. Clay sericite alteration along a shear-like contact approximately 40° to C.A.

105'6"-121'6"  
(EOH)

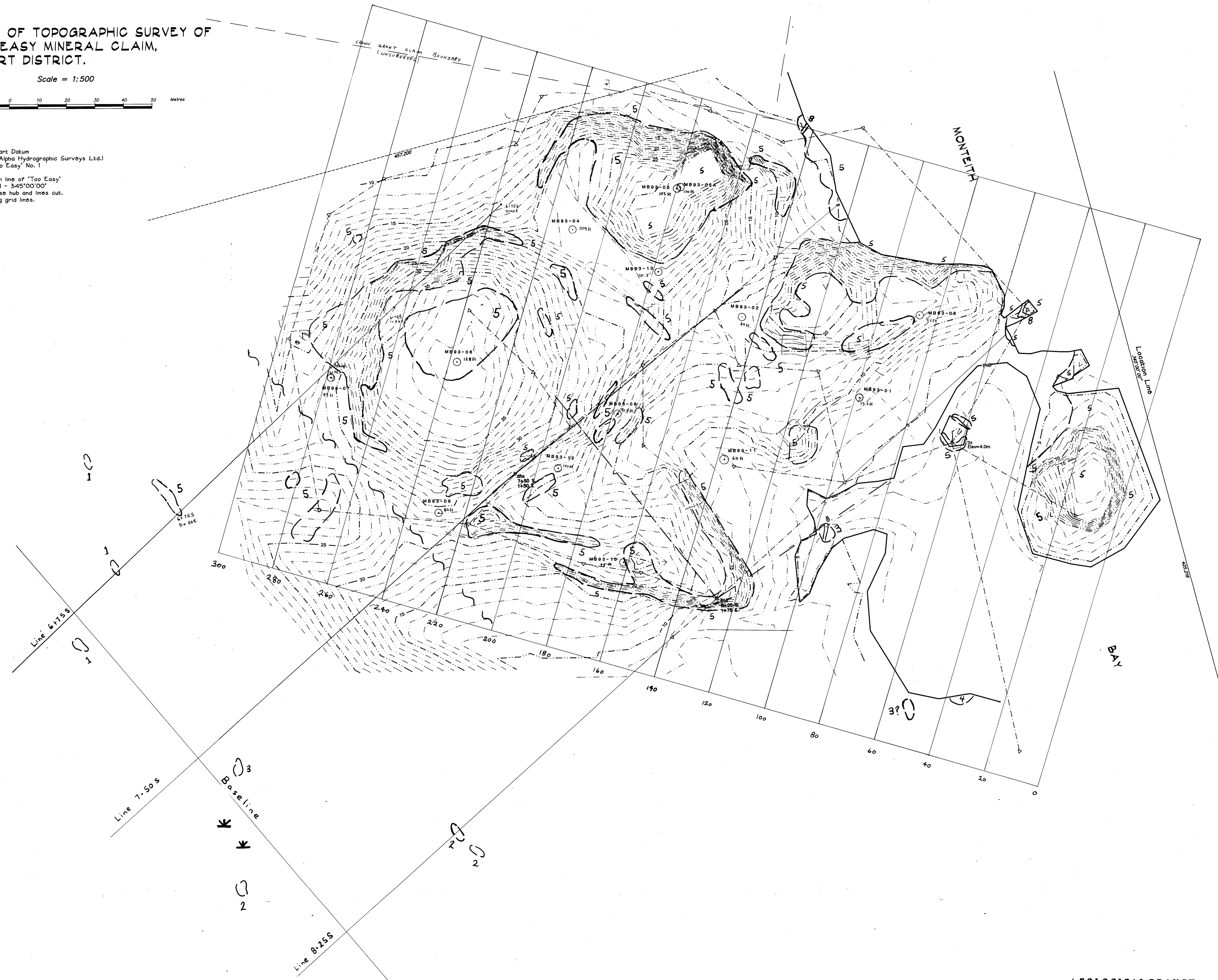
ALTERED MEDIUM TO DARK GREY PYRITIC VOLCANICS. Moderate to heavy pyrite mineralization throughout. Pyrite is finely disseminated and along seams parallel to C.A. and at fractures running 5-15° to C.A. Fault gouge with clay and sericite? from 108'-109' and 116'6" to 117' at 20° to C.A. Some patches in core from 118'-120' exhibit 1-2 mm pock marks where clay altered phenos have been corroded.

PLAN OF TOPOGRAPHIC SURVEY OF  
TOO EASY MINERAL CLAIM,  
RUPERT DISTRICT.

Scale = 1:500

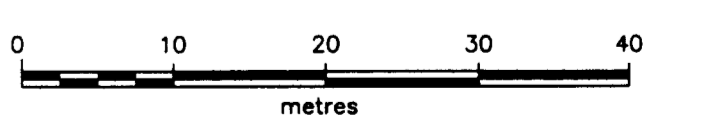


NOTE:  
Contour interval = 1 metre.  
Contours are referred to Chart Datum  
(from information supplied by Alpha Hydrographic Surveys Ltd.)  
Coordinates assumed with 'Too Easy' No. 1  
post N5000, E5000.  
Bearings derived from location line of 'Too Easy'  
mineral claim (Record No. 1154) - 345°00'00"  
▲ denotes traverse hub and lines out.  
--- denotes existing grid lines.



GEOLOGICAL LEGEND

- 8 DIABASE DYKE
- 5 GEYERITE
- 4 SILICA WITH PYRITE ALTERATION
- 3 SERICITIC/CLAY-SILICA ALTERED ROCK
- 2 WEAKLY ALTERED HEMATITIC ANDESITES
- 1 HEMATITIC ANDESITES
- OUTCROP BOUNDARIES
- MB93-04 1993 DIAMOND DRILL HOLES



GEOLOGICAL BRANCH  
ASSESSMENT REPORT  
**23,139**

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SCALE: 1:500 DATE: Feb. '93 N.T.S. 92L/3W WORK BY: JTS & SPB FIGURE: 4