

ARIS SUMMARY SHEET

District Geologist, Kamloops

Off Confidential: 92.03.20

ASSESSMENT REPORT 21154

MINING DIVISION: Vernon

PROPERTY: Clifton
LOCATION: LAT 50 38 00 LONG 118 37 00
UTM 11 5610079 385666
NTS 082L10E
CLAIM(S): Clifton 12,Walled
OPERATOR(S): Clifton Dev.
AUTHOR(S): Yorke-Hardy, R.W.
REPORT YEAR: 1990, 92 Pages
COMMODITIES
SEARCHED FOR: Marble
KEYWORDS: Precambrian,Monashee Complex,Gneisses,Schists,Quartzites,Dolomites
Marble
WORK
DONE: Drilling,Geological,Geochemical,Physical
DIAD 320.0 m 7 hole(s);NQ
Map(s) - 4; Scale(s) - 1:1250,1:15 000
SAMP 11 sample(s) ;BULK
TOPO 10.0 ha
TREN 3900.0 m 6 trench(es)
RELATED
REPORTS: 07797
MILE: 082LNE041

LOG NO: March 27/91	RD.
ACTION:	
FILE NO:	

"1990 EXPLORATION & DEVELOPMENT PROGRAM"
"DIAMOND DRILLING AND PHYSICAL WORK"

- on the -

"CLIFTON #12 CLAIM"
"CLIFTON MABLE LAKE GROUP"

Vernon Mining Division
Province of British Columbia

- for -

Mr. Niamat A. Mughal, President
CLIFTON DEVELOPMENT LTD.
100 - 1854 Kirschner Rd.,
Kelowna, B. C. 1Y 4N6

Location:
Lat. 50° 37' N; Long. 118° 38' W.
N.T.S. 82L/10
60 kms. North-east of Vernon, B. C.

Prepared By:
Y-H TECHNICAL SERVICES LTD.,
P.O. Box 298,
Vernon, B. C. V1T 6M2

R. W. Yorke-Hardy, A.Sc.T.
October 30, 1990

21,154

GEOLOGICAL BRANCH
ASSESSMENT REPORT

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SUMMARY:

This report has been prepared to summarize the 1990 exploration and development program conducted on the Clifton #12 mineral claim and adjacent ground owned by Clifton Development Ltd., a private construction company based in Kelowna, British Columbia.

The report discusses the various field work activities including diamond drilling, chain and compass surveys, preliminary geology and physical work undertaken between April 29, 1990 and September 19, 1990. The report also includes recommendations and a suggested budget/program outline for continued exploration and development of the property.

The property is located on the east side of Mable Lake and adjacent to the Mable Lake Forestry Access Road, at a point some 55 kms. north of the town of Lumby, B.C.; this location is ~60 km. at Azimuth 50° from the City of Vernon, B.C.

The main objective of the project has been to explore the property with the view of locating marble horizons from which large dimension-stone blocks measuring a minimum of four (4) foot square by eight (8) foot long can be extracted. The long term objective for the property is, if economically viable, to develop a quarry from which production of these large "dimension-stone" blocks of marble can be undertaken.

To date two prime target areas have been identified. These consists of:

Firstly, two parallel "marble horizons" (Marble Horizon's #1 & #2) diagonally transecting from south-east to north-west the south-eastern quadrantal of the four unit Clifton #12 mineral claim;
The potential for producing large blocks of marble from the Clifton #12 mineral claim is considered good; and

Secondly, two additional "marble horizons", similarly oriented, have been noted; one crossing the north-eastern quadrantal of the Clifton #12 and Walled #7 mineral claims and the other crossing the Walled claim.
Only a small portion of these potential area has been examined in any detail during this program. Little work has been conducted on the Walled claim group. Preliminary inspection shows that significant outcroppings of marble occur on these claims; some of these being quite massive protrusions. It is therefore likely, considering the results from the program conducted on the Clifton #12 claim, that a significant number of large blocks will occur on the Walled claims.

Utilizing available data and extrapolating using geological "rules of thumb" gross "marble" volumes could exceed 500,000 cubic metres from Horizon = 1 alone. Inferring an equal potential and providing for only a 25% yeild from these four horizons a total of 2 million cubic metres of material in block form could be at hand.

This would equate to >500,000 full sized (or the equivalent) dimension-stone blocks. At an estimated market value of \$3,500.00 to \$4,000.00 per block, a gross market value of 1.75 to 2.00 billion dollars is within the realm of possibility.

The determination of competence of the "marble" has been undertaken by others and does not enter into discussion in this report. Any reference to competency or material strength herein relates strictly to visual inspection of structural defects. Likewise, the specifics of marketability of the "marble" is not discussed herein.

The areas chosen for stripping, and "test" block extraction to date have been those showing the best competence based on visual inspection of the available outcrops adjacent to existing roads; however, no full sized blocks have yet been extracted. Six blocks have had some degree of effort put into their extraction. One of these blocks (Block #2) requires only to be pulled or lifted from its location before loading for shipping.

An ongoing exploration/development program is warranted based on the encouraging results to date.

A follow-up program should consist of extensive geological (including both lithological and structural) mapping of all available outcrops with particular attention to the "marble" horizons; additional diamond drilling on a grid pattern to assist in determining overall volumes and geometry of the deposit; stripping, washing down and detailed examination of potentially favorable areas.

Additionally, continued effort to extract large sample blocks of "marble" should proceed on a test basis in order to provide material for product development and market research. This effort would necessitate the development of a preliminary test quarry which will require some forest cover logging and fairly extensive overburden and waste rock removal. Prior to proceeding a new Work Permit must be obtained.

The budget herein proposed anticipates an aggressive exploration and development program and preliminary test production. A total budget of \$500,000 to be spent in a proposed Phase 1 Program.

If no clearly defined mass of quarryable and marketable material is defined in the first phase, a second phase should be carried out to test other partially defined targets throughout the property.

INTRODUCTION & HISTORY:

The claims are situated approximately 2.5 kilometers east of the outlet of Tsuius Creek into Mable Lake some 55 Km. north of Lumby, B.C.. This location is ~60 km. at Azimuth 50° (north-east) of the City of Vernon, B. C..

Other than extensive logging activities only minor work has been documented on the property; which encompasses a three and one-half kilometer length along Tsuius Creek.

In June of 1979 Mr. Wallace Chaput of Lumby, B.C. contracted the drilling of three short diamond drill holes one each on the Walled 2, 3 and 4 claims. The details of this project are contained in Assessment Report #7797 entitled "Diamond Drilling Report on Walled Group Mineral Claims Mable Lake Area" by G. C. Singhai, P. Eng.; dated January 29, 1980. Elsewhere on the Walled Group of claims physical work in the form of trenching, blasting and removal of some "Dolomite?" was conducted by Mr. Chaput who is involved in marketing crushed, screened and washed Dolomite aggregate from a quarry in Rock Creek, B.C..

In the period 1983 to 1986 Noranda Exploration Company, Limited conducted exploration programs in search of massive sulphide mineralization, specifically sphalerite; on the Rebar and Sherpa claims located on the north side of Tsuius Creek. This work encountered extensive marble horizons which were apparently not of interest to them.

During the latter part of 1989 and early 1990 Mr. Mughal was attempting to negotiate an agreement with Mr. Chaput to acquire the Walled Group of claims, at that time totalling some 10 units.

During this period the Walled 2 and 3 mineral claims were allowed to lapse and this ground was obtained by Mr. Mughal by staking the Clifton #12 claim, the location of which was completed in early April 1990. The location of the Clifton #12 mineral claim L.C.P. was fixed to ensure no fraction between it and the main Walled four unit claim. The Clifton #12 claim overstakes a portion of the Walled and the Walled #7 mineral claim.

Commencing in late April 1990 an exploration and development program was undertaken on the property. The physical work portion of the program commenced on June 11, 1990; immediately upon receiving verbal permission to proceed. Advance notice of completion of work was submitted to the Kamloops Inspection Branch on August 28, 1990 and field work was substantially finished on September 7, 1990. Minor clean-up and log hauling was conducted after this date. All the field/physical work portion of this program ceased on September 19, 1990.

The 1990 program was operating under a Work Permit (Annual Work Approval Number KAM 90-0400266-718) granted by the Ministry of Mines; which required the posting of a \$1,000.00 reclamation bond.

LOCATION AND ACCESS:

The Clifton Mable Lake claim group is located some 55 kilometers north of Lumby, B. C.; near the east shore of Mable Lake. The claims are accessed via Mable Lake road and the Mable Lake Forestry Access road (see Figure =s 1 & 2). Kilometer markings along the forest access road commence 7 Km. south of the south end of Mable Lake; north of where the pavement also ends. The northern segment of the road is frequented by logging trucks hauling to Lumby, B. C..

The property is accessible by two-wheel drive vehicle along logging roads during summer months. Four wheel drive vehicle is recommended during wet weather and will be required during fall and winter months.

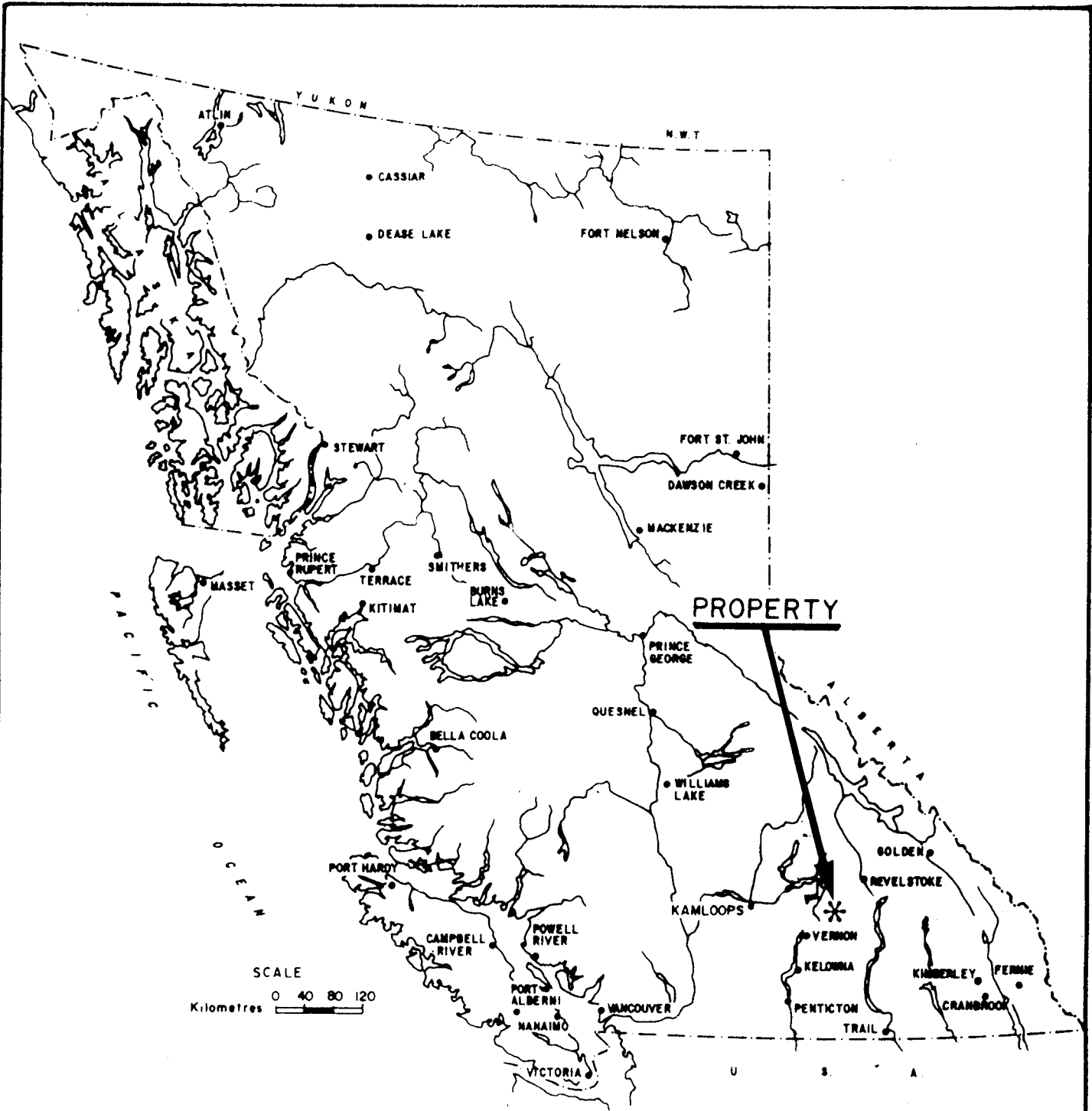
The road is maintained by the Ministry of Highways to the Latewhos Creek bridge approximately one kilometer past the Mable Lake Government Campsite at 10.5 Km.. Thereafter the road is maintained by Fletcher Challenge Canada Ltd., under contract with the Ministry of Forests. Continued work by Clifton will require working closely with Fletcher Challenge and will likely entail accepting some responsibility for maintaining road access at specific standards. Simard Rd. at ~29.5 Km. and Cottonwood Rd. at ~30.5 Km. provide excellent access to and within the claim block.

The property is located on the south side of Tsuius Creek on N.T.S. mapsheet 82L/10. The L.C.P. of the Clifton = 12 claim is located at approximately Latitude 50° 37' N. and Longitude 118° 38' W. at an elevation of approximately 2200 feet (670 m.) above sea level.

PHYSIOGRAPHY AND VEGETATION:

The claim block is situated mainly on the south side of the Tsuius Creek valley. The valley has moderate to steep sloping walls with localized near vertical cliff faces of rock (often marble outcrops). The elevations within the group reach heights of 5,700 feet on the south to 4,900 feet on the north. Tsuius Creek in the valley bottom drops from 2,300 feet in the east to 1,700 feet in the west. The elevation of Mable Lake, located to the west, is ~1250 feet.

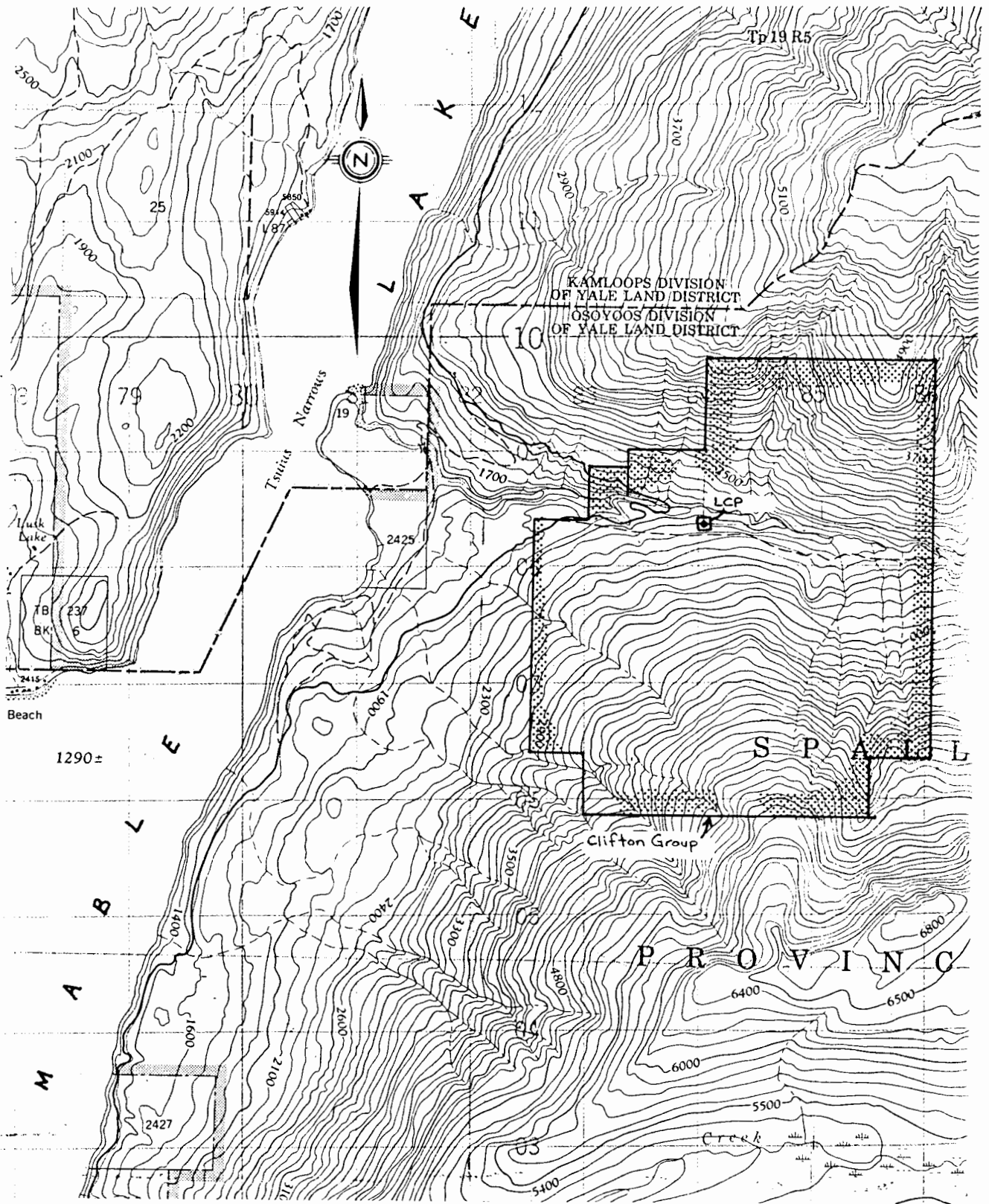
The vegetation consists of mixed, well treed merchantable stands of fir, larch, white pine, cedar and balsam; and locally of recently planted (Plantations) on previously "clear-cut" blocks which also have an established vegetation of poplar (cottonwood), alder, brush and grasses and naturally regenerated coniferous trees. The area can be generally classed as productive forest lands of which ~20 - 25% has been logged over the past 10 - 15 years. Some logging is planned for the winter of 1990-91 from the area accessed by Upper Simard Road. One of the currently approved cut permit blocks is situated over the site of the most favourable marble units located during the 1990 program. This logging is timely and will be of great benefit to the envisioned development of a test quarry in this area; however, it could delay stripping plans at the 32.5 km. site on Upper Simard Road.



CLIFTON DEVELOPMENT LTD.
 100-1854 Kirschner Rd., Kelowna, B.C.
 Clifton # 12 M.C. - Mable Lk. Area
 Vernon Mining Division, B.C.
 NTS Map Sheet No. 82L/10

LOCATION MAP

Technical Work By: Y.H. Technical Services Ltd.	Drawn By: R.W.Y.H.
DATE: October/90	SCALE: 1:8,000,000
	FIGURE No. 1



CLIFTON DEVELOPMENT LTD. 100-1854 Kirschner Rd., Kelowna, B.C.	
Clifton # 12 M.C. - Mable Lk. Area Vernon Mining Division, B.C.	
CLAIM LOCATION / OUTLINE	
Technical Work By: Y.H. Technical Services Ltd.	Scale: 1:50,000
Drawn By: R.W. Y.H.	NTS Map Sheet No. 82L/10
Date: October 1990	Drawing No. 2

PROPERTY DESCRIPTION:

The Clifton Mable Lake area claims consists of the following contiguous claims which will be grouped for assessment purposes:

CLAIM NAME (Units)	RECORD NUMBER	EXPIRY DATE
Clifton = 12 (4)	3293	April 7, 1991
Clifton A (10)	3296	May 11, 1991
Clifton B (1)	3297	May 11, 1991
Clifton C (1)	3298	May 11, 1991
Clifton D (1)	3299	May 11, 1991
Clifton E (1)	3300	May 11, 1991
Clifton F (1)	3301	May 11, 1991
Clifton G (1)	3302	May 11, 1991
Clifton H (1)	3303	May 11, 1991
Clifton I (1)	3304	May 11, 1991
Clifton J (1)	3305	May 11, 1991
Clifton K (1)	3306	May 11, 1991
Clifton L (1)	3307	May 11, 1991
Clifton M (1)	3308	May 11, 1991
Clifton N (1)	3309	May 18, 1991
Clifton O (1)	3310	May 18, 1991
Clifton P (1)	3311	May 18, 1991
Clifton Q (1)	3312	May 18, 1991
Clifton R (12)	3369	Sept. 1, 1991

All of the above claims are recorded in the Vernon Mining Division and are registered in the name of Niamat A. Mughal. The expiry dates above do not reflect the acceptance of assessment credits for the 1990 work program herein described.

Other Claims: (subject to purchase agreement)

Walled (4)	1625	November 17, 1991
Walled = 4 (1)	632	June 15, 1991
Walled = 5 (1)	1082	June 10, 1991
Walled = 6 (1)	1083	June 10, 1991
Walled = 7 (1)	1344	December 13, 1991

All the above claims are recorded in the Vernon Mining Division and are registered in the name of Wallace Chaput and are subject to a purchase agreement between Chaput and Clifton made in mid July 1990. The above expiry dates do not reflect the acceptance of assessment credits for the 1990 work herein described.

GEOLOGY:

The district is underlain by metamorphic rocks of the Monashee Group of the Archean or later eon Shuswap Series. These rocks are comprised of Granitic gneiss, paragneiss, schist (commonly garnet and sillimanite bearing); minor quartzite, marble and amphibolite. According to Open File 1988-26, Figure 3, Map 2 produced by the Ministry of Energy, Mines and Petroleum Resources, Province of B.C., a large plutonic boss comprised of Granite, Quartz monzonite and granodiorite lies on the south limits of the property.

Rock units identified to date within the Clifton claim block consist of several broad (possibly up to 50 meters thick) horizons of limestone marble (locally dolomitic?), biotite-quartz-feldspar gneiss (locally garnetiferous), pegmatites and minor schists and amphibolites.

The major strike trends of these lithologies is south-easterly. The units dip variable to the south-west from 10-30 degrees and appear to plunge to the north-west at ~20 degrees.

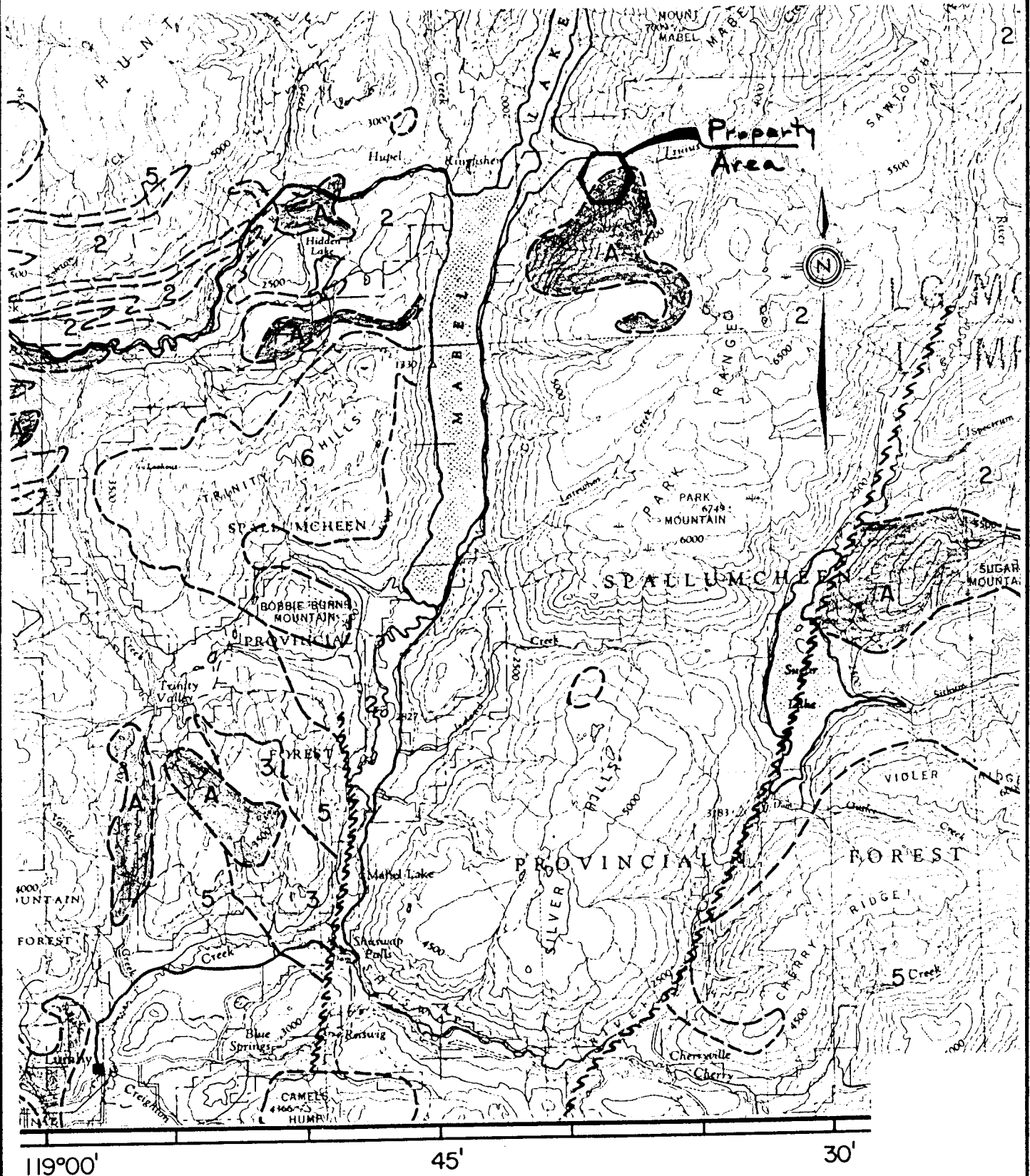
The rock units on the north side of Tsuius Creek as mapped by Noranda strike east north-east to north-east and dip northerly from 5 to 50 degrees. The geology of the region and the north side of the creek is further described in Assessment Report =14,612 prepared by Noranda Explorations Ltd. in 1986.

Specific geological information obtained to date can be found on the various site plans and or drill sections which form part of this report.

It appears likely that a regional anticlinal structure exists; down through the apex of which the Tsuius Creek valley has been cut.

Obvious deep seated joint structures and associated fracturing are evident throughout the claim block. The major joint sets strike ~020 degrees and 290 degrees, with variable steep >80 degree dips. As seen in the drilling, these joint sets will likely continue to depth throughout the mass and create breaks and/or planes of weakness within the marble units. The frequency, attitude and spacing of the major joint sets will be the most critical "defect" problem.

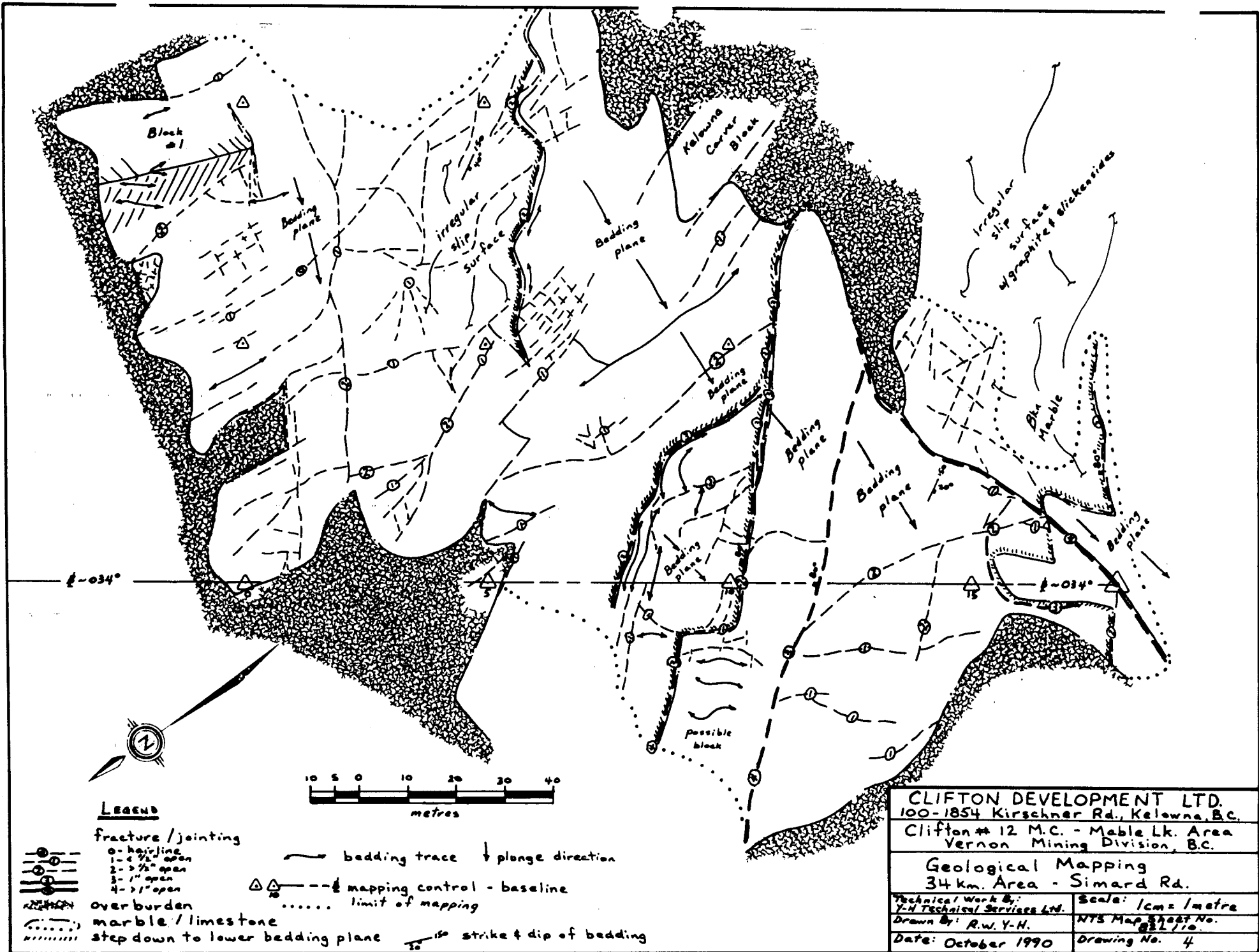
The marble varies from white to light grey in color and alternates from coarse crystalline to medium/small granular in texture and is locally prominently banded. Darker grey banding is commonly a result of randomly oriented platelets of graphite; seldom in significant concentration or consistently oriented so as to cause planes of weakness. Localized thinly bedded micaceous bands, often with associated white to light green talc, occasionally impart a weak foliation to the marble; these have locally developed into planes of weakness. Typically the marble units are well bonded on the remnant bedding planes with natural and mechanical breaks cutting across these boundaries; although, locally partings do occur on the remnants bedding planes, particularly near surface.



LEGEND

- 2 Shuswap Complex - Gneiss, Schist, Marble
- 3 Silver Creek Formations - metamorphics
- 5 Undifferentiated Sedimentary & Volcanic
- 6 Tertiary Volcanics & Sediments
- A Granite, Qtz. Monzonite, Granodiorite

CLIFTON DEVELOPMENT LTD. 100-1854 Kirschner Rd., Kelowna, B.C. Clifton # 12 M.C. - Mable Lk. Area Vernon Mining Division, B.C.	
REGIONAL GEOLOGY	
Technical Work By: X.H. Technical Services Ltd.	Scale: 1:250,000
Drawn By: R.W. Y.H.	NTS Map Sheet No. 82L/110
Date: October 1990	Drawing No. 3

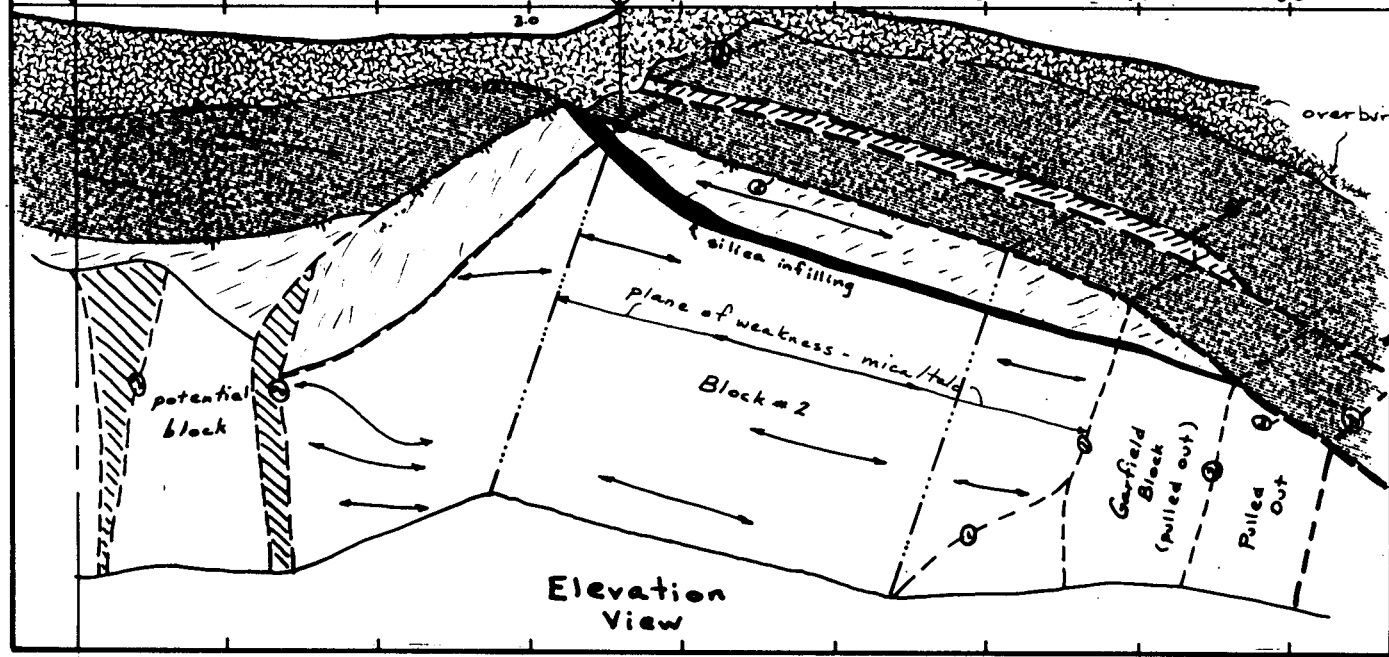
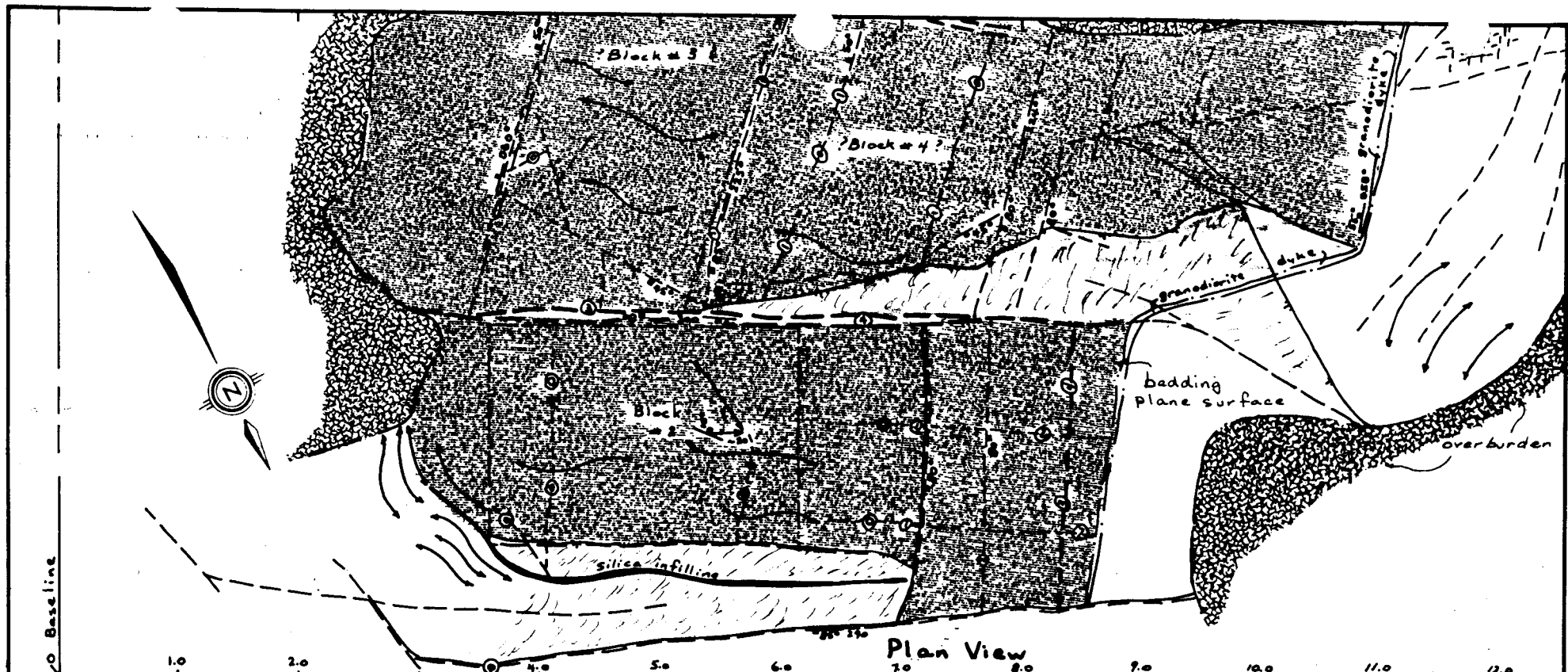


Legend

- fracture / jointing
 - 0 - hairline
 - 1 - $\frac{1}{8}$ inch open
 - 2 - $\frac{1}{4}$ inch open
 - 3 - $\frac{1}{2}$ inch open
 - 4 - > $\frac{1}{2}$ inch open
- overburden
- marble / limestone
- step down to lower bedding plane
- bedding trace ↓ plunge direction
- mapping control - baseline
- limit of mapping
- strike & dip of bedding



CLIFTON DEVELOPMENT LTD. 100-1854 Kirschner Rd., Kelowna, B.C.	
Clifton # 12 M.C. - Mable Lk. Area Vernon Mining Division, B.C.	
Geological Mapping 34 km. Area - Simard Rd.	
Technical Work By: Y-H Technical Services Ltd.	Scale: 1cm = 1metre
Drawn By: R.W. Y-H.	NTS Map Sheet No. 82L/10.
Date: October 1990	Drawing No. 4



CLIFTON DEVELOPMENT LTD.
 100-1854 Kirschner Rd., Kelowna, B.C.
 Clifton # 12 M.C. - Mable Lk. Area
 Vernon Mining Division, B.C.

Geological Mapping
 Block # 2 Plan and Elevation

Technical work by:
 Y-H Technical Services Ltd. Scale: 2cm = 1metre
 Drawn by: R.W. Y-H. NYS Map Sheet No. 826/10
 Date: October 1990 Drawing No. 5

1990 PROGRAM OUTLINE:

GENERAL DISCUSSION

The writer was contacted in late April 1990 to conduct a program of exploration and development on the Clifton #12 mineral claim; the broad scope of which was directed by Mr. Mughal on an ongoing basis; this included several visits by him to the site to assist and discuss the work in progress. No specific budget, program outline or schedule was provided for the project. The work program was constructed to suit the site and results obtained. The implementation of the field work portion of the program was developed and directed by the writer on a day to day basis. The writer felt it was in Clifton's best interests, considering the "uncertain nature and the learn/plan as you go nature" of the project; to be on site acting as "an inspector" whenever work was being performed by others, in order to monitor progress and to continuously direct the various operators. As a result much office work was left until the field work was completed. Considerable portions of the writer's time was spent conducting chain and compass surveys, preliminary geological mapping, prospecting, and doing physical work varying from waterline repair to outcrop washing, and from percussion drilling to driving wedges.

The writer commenced field work on the property in early May 1990. Initially the writer was directed to conduct a one thousand foot diamond drilling and exploration program on the large "marble" outcropping adjacent to Cottonwood Rd.. However, a preliminary examination of the ground status suggested that this area was covered by the Walled #7 mineral claim part of which the Clifton #12 claim had overstaked. To confirm this an initial chain and compass surveying was conducted in order to tie in the L.C.P. to the target outcrop area. Since there was no agreement in place over this ground (until mid July) this site could not be utilized.

Subsequent investigation along the logging roads located within the Clifton #12 claim resulted in the identification of five "marble" exposures in the road cuts. Further investigation resulted in the determination that these locations are interconnected to form what is now referred to as Marble Horizon #1. This "marble horizon" has a strike length in excess of one kilometre and it appears to have an average true width of twenty-five metres or more. More than one half of this length lies within the boundaries of the Clifton #12 mineral claim. No determination of down dip extension has been made to date. Testing this will require diamond drilling on a grid pattern.

The main focus of the 1990 exploration and development program took place at two main sites along the strike of MARBLE HORIZON #1. The location hereinafter labelled as the "34 km. site" initially appeared the most favourable. This site is located in the bite of the road switchback located just above the 34 km. marker on Upper Simard Rd.. This is the area in which six of the seven diamond drill holes were completed. The seventh drill hole was located some 500 metres to the north-west and was drilled to intersect the extension of this same marble horizon.

At the outset of physical work on the project, which commenced on June 11, 1990; there were no exposures of marble from which a dimension-stone block could be extracted. Likewise, no potentially productive area was evident. Little exposure of the various marble units was evident on the Clifton #12 claim.

The physical work portion of the program commenced with the installation of a two kilometre long 1.5" diameter gravity feed water line to provide water for the proposed diamond drilling program.

The diamond drilling program commenced with the mobilization of the drill on June 11, 1990. Due to excessive rain and road washout problems actual drilling did not commence until June 13, 1990.

The drilling was completed on June 19, 1990 with a total of 1050 feet being drilled, fifty feet more than planned.

Initial drill-site preparation and overburden stripping at the 34 km. site was commenced on June 12, 1990. A large Hitachi excavator (equivalent to a Cat 225) was used to develop the first two drill sites and access trails.

This excavator was also used to remove large surface boulders and heavy overburden. A small cat (TD 8) and mini Nissan excavator were used to complete the work in this area.

A surface area ~35 metres long by 10 to 15 metres wide was stripped in preparation for hand mucking and washing down. This excavation varied from zero to 3 metres in depth. Large pieces of marble were piled for possible later utilization.

This area was washed down and hand mucked for detailed examination which revealed only one area from which a large block might be excavated (Block "A"). A second location immediately adjacent to this stripped area was ultimately selected for the attempted excavation of "Block #1". This block is located just inside the Walled claim boundary.

A second site, hereinafter called the "32.5 km. site" was selected for stripping based on results of the seventh diamond drill hole. This site was initially a lower priority location, but good drill intersections and follow-up prospecting revealed that this area appeared favourable for producing large blocks of marble.

On June 28, 1990 stripping work was started at this lower site (32.5 km. site) on Upper Simard Road. Within the first few days of work it became apparent that this site had better potential for producing large blocks than did the 34 km. site. A potential large block (Block #2) was initially identified on July 5, 1990. Stripping in this area continued intermittently until July 13, 1990. Limited hand mucking and washing down was conducted in this area prior to commencing excavation activities on Block #2.

In total an area ~100 metres by 10 metres (up to 3 metres in depth) was exposed at the 32.5 km site. Activity directed towards

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In total an area ~100 metres by 10 metres (up to 3 metres in depth) was exposed at the 32.5 km site. Activity directed towards

excavating Block =2 continued to the end of the project. After stripping along approximately 50 metres (the balance completed later) of "Marble Horizon =1" at this location the excavator was relocated to the newly recognized "Marble Horizon =2" at a location along Lower Simard Rd. some 130 metres north-east of the 32.5 km. site.

Intermittently during the remainder of the 1990 program preliminary stripping was conducted on this lower unit utilizing a Cat 215 excavator. Numerous large loose block were excavated and stockpiled. An area 100 metres long and up to 25 metres wide was stripped. This resulted in the vertical exposure of some 15 metres of marble. It appears likely that this unit will yield large blocks of material similar to those at the 32.5 km. site on Upper Simard Rd. However, this area was not hand mucked or washed down for close inspection. This horizon appears to have a thickness from 25 to 50 metres were it has been examined; although a complete cross cutting exposure has not been completed to date.

This second unit (MARBLE HORIZON =2) was recognized along Lower Simard road on July 6, 1990. The strike and dip of this unit appear conformable with marble horizon =1 and the strike length is probably equal to that of the latter. No effort has been made to produce dimension-stone blocks at this site although some appear available.

Limited new work was undertaken after August 7, 1990. The emphasis was placed on extracting Block =2, clean-up of stripped areas, roughing in an access road to the top of Marble Horizon =2 from the 32.5 km. site and salvage logging and log hauling.

In addition to the above described horizons, there are at least two other marble horizons of apparently substantial thickness; within the overall claim block boundaries. These horizons lie mainly within the ground that is subject to the Chaput agreement. Outcrops of these are located in the northern portion of the claim block along Cottonwood Rd.. No physical work has been conducted on these units to date by Clifton.

EXCAVATION TECHNIQUES AND ACTIVITIES:

The first step at each site was to strip off covering overburden and loose rock to provide access to the bedrock interface and/or the underlying more competent sub-beds. The stripped areas were washed down with water or air/water combination and then examined for visible structural defects. The perimeter of proposed blocks were measured off and marked using spray paint.

In order to excavate the targeted blocks of marble, percussion holes were drilled around the perimeter and across the base of the block. Additionally, where possible, the surrounding rock was excavated in an effort to provide "open faces" for relief.

At the outset percussion drilling was conducted using a hand held Ingersol-Rand jack-hammer drill powered by 190 c.f.m. Gardner-Denver compressor rented from Fermco Rentals in Vernon. This work was commenced on July 12, 1990. This initial percussion drilling was only conducted on an intermittent basis until July 17, 1990. This method of drilling quickly proved to be inefficient.

As of July 18, 1990, percussion drilling was contracted to L.R.I. Blastrock Ltd., a Vernon based company who utilizing first an Ingersol-Rand 30 Drifter and later an Ingersol-Rand 35 Drifter percussion drill mounted on an Ingersol-Rand DM 150 air track. This unit was powered by a 300 c.f.m. Gardner-Denver compressor. The smaller 30 model drifter drilled 1 5/8" diameter holes using carbide insert cross bits. The 35 model drifter drilled 1 7/8" diameter holes using carbide insert button bits. A few 1 5/8" diameter holes were drilled with a Gardner Denver S 58 jack-hammer drill. In excess of 300 holes were drilled. These holes were drilled a depth of 5 to 9 feet as deemed necessary.

At the outset percussion drilling, to provide holes for fracturing the perimeter and base selvages, was conducted at ~ 10 - 12" centers based on discussions with the manufacturers of S-Mite (see below).

Fracture inducement around the perimeters and across the base of the blocks was initiated by using S-Mite, a cement-type product which is used to perform the task of primary fracture; or by using the age old method of wedging.

S-Mite was first used in an effort to demolish the rock laying in front of (along the toe of) Block #1 in order to facilitate its extraction. A total of 30 holes were drilled with hand held equipment between July 12 and July 17, 1990. These averaged three feet in depth and two cans of S-Mite were used. The results were not favourable as the cracks which developed were not sufficient to allow excavation.

Perimeter and base drilling on Block #1 and perimeter drilling on Block #2 was conducted on July 18 and 19, 1990.

Six cans of S-Mite were mixed and poured into the perimeter holes

of Block =1 and additional holes along the toe of the block on the morning of July 20, 1990.

Work was interrupted on the Clifton =12 property during the period commencing mid-day on July 20 until July 27, 1990 in order for the writer to travel to another Clifton project near McBride, B.C..

Upon recommencing work on July 27, 1990 it was recognized that closer spaced drilling would be required. Examination of the cracks induced by the S-Mite over the shut-down period indicated little success.

The perimeter and base of Blocks =1 and the perimeter of Block =2 were re-drilled at 4 to 6 inch centers. All new lines (the lifters and upper trim line of Block =2 and perimeter of Blocks =3 and =4) were drilled at ~4" centers. Two cans of S-Mite were mixed and poured into every third drill hole across the base of Block =2. A wide continuous crack was evident within twenty-four hours.

On July 30, 1990 explosives were used to remove partially cracked material at the toe of Block = 1 and the adjacent block and to break off the cracked north end of Block = 1. This blasting resulted in the development of a crack which crossed diagonally from the lower north-east to upper north-west corner of the block and extended at least one metre along the length of the block. This crack effectively ruined this block.

Apart from using two cans to assist in cracking the perimeter of Block =2 no further S-Mite was used. First steel pins and later "wedges and shims" were sent to the project for our use; instead of more S-Mite. These implements proved to be ineffective, labour intensive and hard on sledge hammer handles.

DISCUSSION OF AGENTS AND IMPLEMENTS USED:

S-MITE:

S-Mite is a silent, non-explosive demolition agent developed in Japan and marketed in Vancouver, B.C. by Granite North America, Inc., for Sumitomo Canada Ltd.. This product has been successfully used for demolition or cracking of rock and concrete in areas where the use of explosives is prohibited. The S-Mite is activated when mixed with water, starting a hydration process that creates expansion forces that can exceed 7,000 p.s.i.. This force pushes outwards against the walls of the containing drill hole and ultimately produces enough tensile pressure to overcome the tensile strength of the mass. A series of controlled cracks develop along the lines of drill holes thus breaking the block free from the mass.

STEEL PINS:

Six 2" diameter round two foot long tapered steel pins and later a series of 1 3/4" hexagonal (2" diagonal) two foot long tapered steel pins were manufactured and sent to the site by Mr. Mughal. These pins were to be utilized in place of the S-Mite to induce perimeter cracks. Unfortunately two important conditions were overlooked.

Firstly, these pins, when driven into the drill holes using a sledge hammer, created pressure only at the collar of the drill hole. This pressure was only sufficiently dispersed to break out the rock at the collar of the hole. Secondly, the hexagonal pins were too small to be effective considering the diameter of the drill holes.

These pins did provide a means of widening existing cracks but were ineffective in inducing cracks in the mass.

WEDGE AND SHIMS

Thirty sets of three foot long "wedges and shims" were purchased by Mr. Mughal from manufacturers in the United States. These implements have been utilized over many decades to perform the job of inducing cracks for block excavation in quarries. Unfortunately the size of the sets ordered were for use in smaller diameter holes than those that had been drilled on this project. These implements proved insufficient to create the cracks required to excavate the previously drilled blocks.

These wedges & shims, although labour intensive, will work in smaller diameter drill holes provided the rock burden and/or tensile strength is not too great. The shims, inset into the hole transfer a portion of the pressure over their full length as the wedge is driven in.

This system will become ineffective when the tensile force required to break the marble (create a crack) becomes greater than the compressive strength; i.e. the force required to crushing of the marble. Wedges & shims in combination with S-Mite would provide the best results.

DISCUSSION OF 1990 CHAIN AND COMPASS SURVEYS:

In order to provide control on the ground it was necessary to conduct numerous chain and compass surveys, mainly along roads. The drill holes and stripped areas were also tied in with these surveys. Each of the individual surveys was a closed loop and/or was tied in to another closed loop survey. Co-ordinates were calculated for each survey point and each was balanced or adjusted back to the L.C.P. of the Clifton #12 claim; which was used as a "zero" point of the survey. A total of 8.39 km. of traverse was completed. The adjusted co-ordinates and original field data are attached hereto in Appendix #1.

The L.C.P. was located on photocopies of air photos and then relocation on the forest cover map. In this process it was determined that one of the airphotos was seriously skewed (north not aligned). The chain and compass surveys were tied in to Forest Cover Maps acquired from the Ministry of Forests in Vernon, B.C..

The field location of claim lines and posts for the Clifton #12 claim, which were initially utilized to tie in add-on staking; were found to be off line and significantly short of their design position. This resulted in the development of some of the minor internal fractions depicted on the claim map (Fig. #5).

DISCUSSION OF 1990 DIAMOND DRILLING PROGRAM:

A total of 1050 feet of drilling was conducted utilizing NQ sized wire-line diamond drilling tools and a crawler mounter Longyear 38 Diamond Drill. A total of seven holes were drilled. Overall core recovery exceeded 95% with the maximum single identifiable core loss being 3' 3" of schistose material in a muddy fractured fault/shear zone from 31.5' to 35.0' in Hole #5. The worst core losses within the marble occurred near the top of Hole #2 and the 28 foot level in Hole #6 where respectively 2' 4" and 1' 2" core losses were encountered. These were due to blocky ground conditions. An 11" core loss at the 144' level in Hole #6 where the drilling encountered a sand infilled fracture opening. An 8" core loss was sustained at the 29' level in Hole #3 when a muddy fracture zone was encountered. There is little evidence of core being "ground".

The main objective of the drill program was to determine a volume of marble that could be classed as drill indicated reserves within a specific potential quarry area. The secondary objective was to test competency of this marble while recognizing that this determination would be tenuous at best.

A drill inferred reserve ranging from 189,000 to 240,000 cubic metres can be inferred from the drill section plots of Hole #s 1 to 4 and Hole #6. Hole #5 was almost entirely in gneissic rocks and is interpreted as an inlaying unit. Not enough drilling and surface trenching has been conducted to allow these reserves to be classed in the probable category.

DRILL HOLE INFORMATION:

Table =1
Diamond Drilling
Upper Simard Road

<u>HOLE NUMBER</u>	<u>TOTAL LENGTH (ft.)</u>	<u>MARBLE INTERCEPT (ft.)</u>
<u>34 km. Site:</u>		
D.D.H. = 1	152'	138'
D.D.H. = 2	106'	95.5'
D.D.H. = 3	243'	237.2'
D.D.H. = 4	85'	75'
D.D.H. = 5	103'	upper 29'
D.D.H. = 6	161'	142'

32.5 km. Site:

D.D.H. = 7	201'	191.5'
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VOLUME CALCULATIONS:

Table =2
DRILL INFERRED VOLUMES

Distance * along Strike of Unit	* Cross-Sectional Area = Interpreted Area max. (min.) of Unit	=	VOLUME max. (min)
25m. + 15m. *	1,788 (1,788) sq. m.	=	71,520 (71,520) cu. m.
15m. + 18m. *	2,926 (1,881) sq. m.	=	96,558 (62,173) cu. m.
18m. + 25m. *	1,690 (1,300) sq. m.	=	72,670 (55,900) cu. m.
Total volume upper (lower) limit			240,748(189,323) cu. m.

RESERVE POTENTIALS:

Table =3
RESERVE ESTIMATIONS

<u>Dimension of Horizon in metres</u> <u>length * thickness * depth</u>	<u>Est. Volume</u> <u>Cubic metres</u>
Horizon =1 500 m. * 25 m. * 167 m.	2,087,500 cu. m.
Horizon =2 500 m. * 25 m. * 167 m.	2,087,500 cu. m.
Horizon =3 500 m. * 25 m. * 167 m.	2,087,500 cu. m.
Horizon =4 500 m. * 25 m. * 167 m.	<u>2,087,500</u> cu. m.
Gross Volume Potential -----	8,350,000 cu. m.

Note: Depth measurements equal to one-third of the length have been used herein. This allowance is lower than the one-half of the length to depth figure which is accepted as a "rule of thumb" in some geological texts. However, there is no way of substantiating this number without additional diamond drilling.

DISCUSSION OF POTENTIAL VOLUMES AND VALUES:

It is too early to give more than an estimate of the potential volume of material which might be extractable in the desired 128 cubic foot (3.625 cubic metre) block form (or other acceptable sizes).

Marble in full dimension block form has a wide spread market price. The highest prices can reach eighty (\$80) dollars per cubic foot while the lowest prices can be as little as five (\$5) dollars per cubic foot. Price is totally dependent on availability and demand in close conjunction with color and quality. Being of average quality the marble value should be in the thirty (\$30) dollar per cubic foot range. The writer does not profess to be expert in the marketing or value of marble. The assumption of average quality and dollar values use herein are based on discussion with others.

Based on the apparent surface extent and the available diamond drilling data it is conceivable that reserves of "marble" could well exceed 2,000,000 cubic metres in Horizon =1 alone (see Table =3 above). If only 25% of this material is ultimately extractable in a marketable form, production potential could well exceed 500,000 cubic metres. At an annual production rate of 2,750 dimension stone blocks (~10,000 cubic metres, 4' * 4' * 8') per year a quarry would have a 50 year life expectancy. Based on values of \$3,500 to \$4,000 per block gross annual revenues would be \$9,625,000 to 11,000,000 at these production rates.

If one includes the inferred reserves from Horizon =2 the above production/value figures could more than double. By adding in inferred reserves from Horizon's =3 and =4 the overall potential volume could exceed 2 million cubic metres in block form (>500,000 blocks) with corresponding increased production, value and/or life expectancy. Gross value potentials in 1990 dollars could exceed 1.75 to 2.00 billion dollars.

Additional or supplemental cash flow may well be expected from the smaller material extracted from a quarry. In addition to possible tile and slab production there is the possibility that this material can be reconstituted into blocks for slicing into tiles and/or slabs. Still other uses may be found for the material as an industrial source of calcium carbonate and as decorative landscape material.

BLOCK PRODUCTION DISCUSSION:

As of early July a concerted effort was made to expose, identify and extract sample dimension-stone blocks measuring a minimum 8 ft. * 4 ft. * 4 ft.. Extensive stripping, hand mucking and washing-down was required as preliminary development before potential blocks could be reasonably identified. Blocks =1 and =2 were drilled off and then freed from the mass by cracking the perimeter with S-Mite and/or wedges. Unfortunately these efforts were not entirely successful as no full-sized blocks were extracted.

Block =1 was damaged by blasting to clear surrounding materials after having used "S-Mite" to initiate demolition of restraining material and for cracking of the perimeter of the block.

Block =2 to date remains contained by stubborn perimeter material. A combination of a limited volume of S-Mite before switching to using wedge & shims has developed prominent cracks on all sides and beneath the block between it and the mass. However, efforts to date have failed to completely dislodge this block. Subsequent blocks are awaiting the extraction of Block =2. Blocks =3 & =4, which lie behind Block =2, have been partially drilled off.

It was intended that one or both of these blocks would be shipped to Italy for processing and later to go on display at an international building stone exposition in Italy. Because of the excavation difficulties alternate pieces were chosen from the various stockpiles in order to at have sample pieces to ship.

On August 7, 1990 nine marble pieces were collected, loaded utilizing a TD 25 dozer and a 25 Ton crane; and then transported to Lumby, B.C.. On August 8, 1990 these nine pieces were re-loaded into containers using the 25 ton crane and transported to Vancouver for forwarding to Italy to undergo the above mentioned processing and display plus material testing studies; the costs and results of which do not enter into discussion herein. The total weight of this shipment, two container loads, is outlined below in Table =4.

TABLE =4
MATERIAL SHIPPED

	Approx. Dimensions length * width * height	Est. Volume	Weight Estimates
Pc. =1	~5.0' * 5.0' * 8.0'	= 200.00 cu. ft.	30,900 lbs.
Pc. =2	~2.5' * 2.5' * 5.0'	= 31.25 cu. ft.	4,825 lbs.
Pc. =3	~2.0' * 4.5' * 2.5'	= 22.50 cu. ft.	3,476 lbs.
Pc. =4	~4.0' * 3.0' * 1.25'	= 15.00 cu. ft.	2,318 lbs.
Pc. =5	~5.0' * 2.5' * 1.5'	= 18.75 cu. ft.	2,897 lbs.
Pc. =6	~5.0' * 2.5' * 2.5'	= 31.25 cu. ft.	4,828 lbs.
Pc. =7	~5.5' * 5.0' * 3.0'	= 82.50 cu. ft.	12,746 lbs.
Pc. =8	~8.0' * 3.5' * 2.0'	= 56.00 cu. ft.	8,652 lbs.
Pc. =9	~7.0' * 4.0' * 2.0'	= 56.00 cu. ft.	8,652 lbs.
Total Estimated Weight -----			79,294 lbs.

The above estimated volumes and assumed weights based on 154.5 lbs./cu. ft. are high by 150 lbs. or 1.9%. The total weight shipped equalled 79,144 lbs. based on truck scale weights.

CONCLUSIONS:

In all, four "Marble Horizons" were recognized; each consisting of numerous generally conformable "marble" sub-beds of variable thickness, composition, color and competency.

Within the two horizons located on the south half of the Clifton #12 claim extensive volumes of marble have been discovered. Three areas within the "Marble Horizon #1" have been stripped and examined for potential large blocks. Two of these areas appear capable of yielding blocks of the desired dimensions - or larger.

However, it must be noted that the majority of the "marble" exposed to date will not yield large blocks. This is at least in part due to surface weathering and parting along the contact planes of the thinner sub-beds which comprise the larger units. This problem will likely diminish with depth. Deep seated joint structures and related fractures cause variably spaced defects within the marble units. It will be necessary to define area in which the frequency of these defects is low.

In addition to the above described horizons there are at least two other marble horizons of apparently substantial thickness within the overall claim block boundaries. These horizons lie mainly within the ground that is subject to the Chaput agreement; outcrops of which are located in the northern portion of the claim block. No physical work has been conducted on these units to date.

Excavation of blocks can be expected to become more routine and systematic as true open faces are developed. This can only be accomplished after first developing an overall development plan for a test quarry and providing flexibility and responsibility to the site manager. This will require commitment to a program and budget such as the one outlined hereinafter.

In the writers opinion the 1990 program herein described was successful in achieving the goals set. However, it would appear that the 1990 program fell short of Mr. Mughal's expectations - and ran over budget. In general this was a result of his over eagerness and/or high expectations coupled with an apparent lack of appreciation for the immensity of the task.

Lack of proper tools, equipment and materials in addition to having no specific program outline or budget resulted in the failure to extract any full sized blocks of marble.

No work was conducted on the project during the period commencing mid-day July 20, 1990 and ending July 27, 1990. This delay plus the decision not to use more S-Mite ultimately made the difference in being unable to extract Block #2 (and other blocks) for shipment.

RECOMMENDATIONS AND PLANNING BUDGET:

Additional exploration, comprised mainly of geological mapping and diamond drilling should be conducted prior to commencing "test production" at any specific site.

Since it is Clifton's intent to attempt the development of a quarry application for a preliminary Quarry Permit should be prepared and submitted immediately; in order to avoid future delay. This should also serve to expose any unforeseen restrictions to this development.

Additionally, a "Notice of Work" will be necessary in order to commence physical work such as the anticipated program. Since the intent of the future work will be to initiate test production a specific and detailed program outline will likely be required as part of the work permit application. These applications should not be treated simply, but instead seriously and with technical expertise.

Such a submissions should follow the form of a Stage One Mine Production Plan requiring specifics regarding quarry location and design along with other site installations and surface disturbances. A reclamation program plan must be an integral part of this submission.

Phase One Program Discussion:

Understanding that production and early cash flow are essential; and that product development, testing and marketing must move ahead; it is necessary to obtain limited "block" production. This can be obtained from the Block #2 and Lower Simard Rd. sites; but, should only advance on a reasonable and limited schedule in order to allow the proposed exploration program to be concluded. It is quite possible that the exploration program will determine more favourable sites than those presently at hand.

After logging by Fletcher Challenge stripping and the development of a working face(s) can commence. This working face(s) can be done most cost effectively by drilling and blasting the material to be excavated after first providing a pre-shear line to protect the remaining material. The blast holes should be decked at the base to protect the underlying material.

Having developed the required open face the systematic removal of blocks can begin.

This will be a time of trial and error with resulting high production costs per block removed.

This production can be achieved in a number of ways, some of which have already been attempted and none of which alone can be assured to work. Until proper development is achieved it is not feasible to attempt the use of a wire saw. Drilling of perimeter and lifter drill-holes on each block will be a major ongoing task. Spacing on these holes will be dictated by the planned extraction method. Whether using S-Mite or wedge & feathers as attempted to date hole spacing should remain small (3 to 4" centers) at the

outset. Should some other technique be attempted this spacing may vary.

Until full fledged quarry development is achieved it is not feasible to attempt the use of a wire saw or other sophisticated quarrying equipment. Until a full quarry development plan is produced - which is not feasible until after completion of Phase One - it is not possible to determine with any degree of accuracy what type or size of equipment is required or best suited for this site.

The following Phase One planning budget projects production of 50 blocks over as little as a two to three month period which could commence in the spring of 1991. This is contingent on permit approvals as well as equipment availability at rates outlined or better. Upon deciding the initial quarry site the stripping portion of the program should be commenced at least two months prior to scheduling "test production".

The specific details of a second phase (Phase Two) are contingent on results from Phase One. If the Phase One is successful in defining satisfactory volumes of marketable material then Phase Two would concentrate mainly on development of a full fledged quarrying operation with some continued exploration outside the immediate areas of current interest. The progression to Phase Two should be anticipated and included in the initial plans so that an easy transition can be made to full production. A minimum budget of ~\$1,000,000 would be a reasonable expectation but further work should be conducted to determine the validity of this number.

SUGGESTED PLANNING BUDGET:Phase 1

Diamond Drilling		
4000 metres at \$50/m.		\$200,000
Drilling Support/Sites/Roads		
D7 cat - 80 hrs.* \$ 90/hr.		\$ 7,200
Hoe - 40 hrs.* \$110/hr.		\$ 4,400
Faller -120 hrs.* \$ 30/hr.		\$ 3,600
Quarry Operation (Development)		
Logging		
To be performed by Fletcher Challenge		
for now. There will be a need to		
budget for this in the future.		
Stripping		
Loader -100 hrs.* \$100/hr.		\$ 10,000
Trucks -200 hrs.* \$ 50/hr.		\$ 10,000
Hoe - 40 hrs.* \$110/hr.		\$ 4,400
Hoe -100 hrs.* \$ 50/hr.		\$ 5,000
D7 cat - 50 hrs.* \$ 90/hr.		\$ 4,500
TDB cat-100 hrs.* \$ 50/hr.		\$ 5,000
Percussion Drilling/Blasting		
Airtrack - 80 hrs.* \$110/hr.		\$ 8,800
Quarry Operation (production)		
Percussion Drilling		
Airtrack -240 hrs.* \$110/hr.		\$ 26,400
S-Mite/Wedges/?		\$ 75,000
Geophysical Survey		
Seismic (incl. report)		\$ 10,000
Management		
2 months at \$5,000/mo.		\$ 10,000
Geological Mapping/core logging		
2 months at \$4,000/mo.		\$ 8,000
Labour (2 men)		
2 months at \$2,500/mo.		\$ 5,000
Room and Board		
2 months at \$1,750/mo.		\$ 3,500
Travel (3 vehicles + gas)		
2 months at \$6,000/mo.		\$ 12,000
Permits		
Increased bonding		\$ 5,000
Reclamation		
Site restoration		\$ 15,000
Core Shack / Logging Shed		\$ 10,000
Field Office		
+ equipment and supplies		\$ 5,000
Topographic Mapping and Survey Control		
For control and mapping		\$ 15,000
Contingency		\$ 37,200
	<u>Total</u>	<u>\$500,000</u>

Phase 2

 Allow a minimum for planning, say --- \$1,000,000
Total Two Phase Planning Budget ----- \$1,500,000.

Respectfully Submitted,
Y-H Technical Services Ltd.,

R. W. Yorke-Hardy, ASCT, mining
October 30, 1990

Cost Statement

CLIFTON MABLE LAKE CLAIM GROUP
FOR THE PERIOD APRIL 29, 1990 to OCT. 30, 1990 incl.

CONTRACT SERVICES

Lone Ranger Drilling, Lumby, B.C.	
-diamond drilling (1050 ft.) -	\$ 18,102.50
L. R. I. Blastrock Ltd., Vernon, B.C.	
-percussion drilling and cat work plus related expenses -	\$ 8,044.50
Friesen's Excavating Ltd., Lumby, B.C.	
-Hitachi Excavator ---	\$ 1,900.00
Ohashi Bros. Logging Ltd., Lumby, B.C.	
-Low-bedding equipment -	\$ 513.00
Tom Vicars Excavating, Kelowna, B.C.	
-Cat 215 Excavator ---	\$ 5,112.00
Pink Mtn. Excavating, Kelowna, B.C.	
-Nissan Mini Excavator -	\$ 4,640.00
Bissett Contracting, Vernon B.C.	
-chokerman, faller ---	\$ 250.00
Big Country Excavating, Lumby, B.C.	
-backhoe clean-up ----	\$ 720.00
P & M Contracting, Lumby, B.C.	
-TD B -----	\$ 2,240.00
Lumby Shell Service. Lumby, B.C.	
-towing charges -----	\$ 135.00
Nor-Jay Industries, Armstrong, B.C.	
-Crane Services and low-bed -	\$ 2,212.25
D. Spencer Trucking, Kelowna, B.C.	
-Tandem Dump Truck - hauling -	\$ 500.00
Vernon Moving and Storage, Vernon, B.C.	
-Low-bedding equipment -	\$ 868.00
Percy Verrault, Kelowna, B.C.	
-Pnuematic hammer & expenses -	\$ 916.25
Van-Kam Freightways, Vernon, B.C.	
-S-Mite shipping -----	\$ 99.05
Sub Total -	\$ 46,252.55

PURCHASES/RENTALS- Equipment & Supplies

Art Parker Industries, Vernon, B.C.	
-Water tank & trailer -	\$ 1,500.00
Granite North America Inc., Delta, B.C.	
-S-Mite -----	\$ 2,576.00
International Plastics Ltd., Kelowna, B.C.	
-Waterline pipe -----	\$ 3,598.24
Andrew Sheret Ltd., Vernon, B.C.	
-pipe connectors and clamps -	\$ 30.11

**** CONTINUED ****

(Clifton 1990 Cost Statement Cont'd)

S. P. Seymour Ltd., Vernon, B.C.	
-pipe fittings -----	\$ 59.63
G & C Enterprises Salvage, Armstrong, B.C.	
-pipe, hose and drums -	\$ 200.00
Fermco Rentals Ltd., Vernon, B.C.	
-compressor and drill rental -	\$ 1,052.95
Bigelow Hardware, Lumby, B.C.	
-misc. hardware and paint	\$ 20.41
Home Hardware, Armstrong, B.C.	
-pipe fittings -----	\$ 56.79
Sub Total -	\$ 9,094.13

TECHNICAL SERVICES

Y-H Technical Services Ltd.

Project Planning & Management	
Technician- R.W. Yorke-Hardy	
Dates: May 1, 1990 to Oct. 30, 1990 -	\$ 21,815.00
Assistant- various	
Dates: June 1 to Aug. 15, 1990	\$ 815.00
Related Expenses:	
Office -----	\$ 534.19
Vehicle - 76 days * \$50/day	\$ 1,025.00
Trailer - 6 * \$20/day -	\$ 120.00
Power Saw - 8 * \$25/day -	\$ 200.00
Other Expenses (incl. gas) -	\$ 2,719.24
Sub Total -	\$ 27,228.43

PROJECT ADMINISTRATION

Clifton Development Ltd.

Project Planning and Administration	
Officer- Niamat A. Mughal	
Dates- April 28 to Oct. 30, 1990 -	\$ 1,733.33
Assistant- Shahid Mughal	
Dates- May 1 to Oct. 30, 1990 -	\$ 766.67
Sect./Book Keeper-	
Dates- May 1 to Oct. 30, 1990 -	\$ 554.67
Equipment Charges-----	\$ 1,764.47
Freight-----	\$ 962.60
Sub Total -	\$ 5,781.74

Total project cost

GRAND TOTAL ----- \$ 88,356.85

SELECTED BIBLIOGRAPHY

- Stewart, James D. (1990) Personal discussion regarding
S-Mite and quarrying methods.
- Sumitomo Cement Co. Ltd., S-Mite Technical Data Manual.
- McKinstry, Hugh E. (1948) Mining Geology - Reference Text.
- Badgley, Peter C. (1959) Structural Methods for the
Exploration Geologist - Reference Text.
- Pell, Jennifer (1988) Open File 1988-26
Industrial Mineral Potential, Fig. 3, Map 2.
- Assessment Report =7797
Singhai, G. C. P.Eng. (1980) - Diamond Drilling Report
Walled Group Mineral Claims
NTS 82L/10 - Mable Lake Area, Vernon, M.D.
- Assessment Report =14347
McDonald J. geologist (Feb. 1986) - Drilling on the
Rebar #2 Mineral Claim
NTS 82L/10 - Mable Lake Area, Vernon, M.D.
- Assessment Report =14612
Bowen, B. K. P.Eng. (Jan. 1986) Report of Work
Geological Survey on the
Mable Lake Property - Rebar #2 claim.
NTS 82L/10 - Mable Lake Area, Vernon, M.D.

Certificate of Qualifications

I, Robert W. Yorke-Hardy, of Vernon, Province of British Columbia, do hereby certify that:

1. I am a Mining Technologist residing at 330 Stepping Stones Road, Vernon, B.C. and I am the owner/operator of Y-H Technical Services Ltd. of P.O. Box 298, Vernon, B.C., an exploration services company. In total I have accumulated 26 years of experience in Mining/Mining Exploration and related industries.

2. I am a graduate of the British Columbia Institute of Technology, Burnaby, British Columbia and a registered charter member of The Association of Applied Science Technologists and Technicians of British Columbia. I have practiced my profession for 21 years.

3. This report is based on my personal review of available data relating to the subject property and the Vernon area;

4. This report is based on field work conducted under my direct management and supervision in addition to technical work completed and data collected by myself during the period April 29, 1990 to October 30, 1990.

5. I have no direct or indirect interest, nor do I expect to receive any; in the mineral claims which comprise the Clifton Mable Lake Group; the subject property of this report.

Y-H Technical Service Ltd.,


R. W. Yorke-Hardy, A.Sc.T.
Mining Technologist

October 30, 1990
Vernon, B. C.

Appendix I

FIELD NOTES

and

SURVEY CALCULATIONS

Revised per TL 8/31/90 & 9/10/90

Title Drill Hole / Block # / Location Fb. Page Computed by: Date: Page of

STATION TO STATION	BEARING	DISTANCE	COSINE	SINE	NORTH	SOUTH	EAST	WEST	D.M.D.	AREAS		STATION
										+ LATITUDE	- DEPARTURE	
SRT 6/6/90 A12+97										-9+41.31s	-1+01.75w	
DDH#6	N 65° E 065	30.0	.4226	.9063	12.68	-	27.19	-		-9+28.68s	-0+74.56w	Callor DDH#6
SRT 6/6/90 A13+53										-9+36.36s	-0+46.93w	
TP#29A	N 84° E 84	12.56	.1045	.9945	1.31	-	12.49	-				
DDH#3	S 40° W 220	27.9	.7660	.6428	-	21.37	-	17.93		-9+47.64s	-0+44.22w	Callor DDH#3
TP#29B	S 56° W 236	42.64	.5592	.8290	-	23.84	-	35.35		-9+71.48s	-0+79.57w	
DDH#5	S 75° W 255	8.50	.2588	.9659	-	2.20	-	8.21		-9+73.68s	-0+87.78w	Callor DDH#5
SRT 6/6/90 A14+80										-8+85.52s	+0+63.30E	per revised survey A14+80 6/6/90
SRT 6/6/90 A14+52	S 86° W	27.73	.0698	.9976	-	1.94	-	27.66		-8+87.46s	+0+35.64E	Inside curve of upper Subk.
NW Corner of Block #1	S 52° W 232	10m	.6157	.7880	-	6.16	-	7.88		-8+93.62s	+0+27.76E	New Corner of Block #1

Revised
from
6/6/90

Final records, revised per TL 8/31/90 & TL 9/10/90

Title 8/29/90 - Lower Subk Area

Fb. Page

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STATION TO STATION	BEARING	DISTANCE	COSINE	SINE	NORTH	SOUTH	EAST	WEST	D.M.D.	+ LATITUDE	AREAS - DEPARTURE	STATION
SRT 6/6/90 Δ 0+05.9	roadside trench		survey							-5+72.84s	-2+13.22w	SRT 6/6/90 Δ 0+05.9
TP8	S 02° E 178	9.06	.9994	.0349	-	9.05	0.32	-		-5+81.89	-2+12.90w	Schurtzok
TP9	S 11° W 201	15.98	.9816	.1908	.	15.69	-	3.05		-5+97.58	-2+15.98	ditch trench - start
TP10	S 57° W 237	4.60	.5446	.8387		3.59	-	5.535		-6+01.17s	-2+21.49	Marble contact
TP11	S 76° W 256	13.79	.2419	.9703		3.34	-	13.38		-6+04.51	-2+34.87	ditch trench - end
TP12	S 47° W 227	30.00	.6820	.7314		20.46	-	21.94		-6+24.97	-2+56.81	Marble in ditch
TP13	S 38° W 218	24.95	.7880	.6157		19.66	-	15.36		-6+44.63	-2+72.17	
DDH #7	S 06° E 174	6.00	.9945	.1045		5.97	0.63	-		-6+50.60	-2+71.54	DDH #7
TP14	S 34° W 214	19.77	.8290	.5592	-	16.33	-	11.02		-6+66.93s	-2+82.56	approximate Schurtz contact
CAT 01/08/90 Δ 0+19.5	switchback extension									-5+58.71s	-2+02.68w	
TP15	S 64° E 116	20.45	.4384	.8988	-	9.06	18.46	-		-5+67.77	-1+84.22	
TP16	S 82° E 98	18.97	.1392	.9903	-	2.67	18.87			-5+70.44	-1+65.35	
TP17	N 81° E 81	21.0	.1564	.9877	3.24	-	20.84			-5+67.20	-1+44.51	
TP18	S 52° E 128	34.85	.6157	.7880	-	21.72	27.60	-		-5+88.92	-1+16.91	
TP19	N 85° W 275	25.66	.0872	.9962	2.21	-	-	25.44		-5+86.71	-1+42.35	
TP20	S 82° W 262	17.3	.1392	.9903	-	2.44	-	17.05		-5+89.15	-1+59.40	
TP21	S 78° W 258	34.91	.2079	.9781	-	7.34	-	33.98		-5+96.49	-1+93.38	
TP8	N 53° W 307	24.55	.6018	.7986	14.60	-	-	19.52		-5+81.89	-2+12.90w	
					x 0.9885751	x 1.0111249	1.0051702	0.9948298				

Final coords - per TL 9/10/90

Title Simard Rd Traverse (adjusted)

Fb. Page Computed by: Date: Page 1 of 2

STATION TO STATION	BEARING	DISTANCE	COSINE	SINE	NORTH	SOUTH	EAST	WEST	D.M.D.	+ LATITUDE	AREAS DEPARTURE	STATION
^{SRT 6/17/90} A 8+81										-5+97.15s	-3+48.82w	TL 6/17/90 A 0+00 ✓
9+22					16.61		37.31			-5+80.54	-3+11.51	
9+77.5					12.44		53.87			-5+68.10	-2+57.64	
^{SRT 6/17/90} A 10+17.0						2.04	39.23			-5+70.14	-2+18.41	^{SRT 6/16/90} A 0+00 ✓
<hr/>												
^{SRT 6/16/90} A 0+05.9						2.70	5.79			-5+70.14s	-2+18.41w	✓
0+17.6						11.16	1.18			-5+72.84	-2+13.22	✓
0+55.0						19.78		31.49		-5+84.00	-2+12.04	✓
1+08.3						38.09		36.77		-6+03.78	-2+43.53	✓
1+90.5						69.98		40.09		-6+41.87	-2+80.24	✓
2+47.8						41.53		38.65		-7+11.85	-3+20.33	✓
3+26.0						62.59		45.29		-7+53.38	-3+58.98	✓
3+62.0						11.96		33.96		-8+15.97	-4+04.27	✓
4+32.5					2.50			70.89		-8+27.93	-4+38.23	✓
4+64.5						17.94		21.41		-8+25.43	-5+09.12	✓
5+80.5						97.90		58.42		-8+43.37	-5+30.53	✓
6+24.0						35.28		24.60		-9+41.27	-5+88.95	✓
6+80						43.03		34.76		-9+76.55	-6+13.55	✓
7+18						36.45		5.29		-10+19.58	-6+48.31	✓
7+81					23.96		57.39			-10+56.03	-6+53.60	✓
										-10+32.07s	-5+96.23	✓

STATION TO STATION	BEARING	DISTANCE	COSINE	SINE	NORTH	SOUTH	EAST	WEST	D.M.D.	AREAS		STATION	
										+ LATITUDE	- DEPARTURE		
SRT 6/6/90 A 8+52					3.76		69.54				-10+28.31 S	-5+26.69	✓
9+67.5					16.33		112.37				-10+11.98	-4+14.32	✓
11+65.5					65.45		183.94				-9+46.53	-2+30.38	✓
12+02.5					5.22		35.94				-9+41.31	-11+94.44	✓
A 12+97.0					-		92.69				-9+41.31	-1+01.75	✓
13+53.0					4.95		54.82				-9+36.36	-0+46.93	
					12.20		22.21				-9+24.16	-0+24.72	
TP2 8/29/90					25.20		23.56				-8+98.96	-0+01.17 W	
					15.34		27.92				-8+83.62	+0+26.75 E	
SRT 6/6/90 B 14+80						1.90	36.55				-8+85.52	+0+63.30 E	SRT 15/6/90 Δ 3+84 ✓ TL 9/10/90 Δ 0+00
					171.60	499.83	733.37	435.585					
					x 1.0191383	x 0.9808607	x 0.9867484	x 1.0137516					
					174.88	490.26							
							723.28	441.57					

STATION TO STATION	BEARING	DISTANCE	COSINE	SINE	NORTH	SOUTH	EAST	WEST	D.M.D.	+ LATITUDE	AREAS DEPARTURE	STATION
Δ 13+53.0	N 86°E 86	55.79	.0698	.9976	3.89	—	55.66	—	8/29/90	-479.00	0+86.71w	—
14+22	N 53°E 53	30.93	.6018	.7986	18.61	—	24.70	—	} ?	? -960.39	0+66.71w	—
Δ 14+52.0	N 75°E 75	29.89	.2588	.9659	7.74	—	28.87	—				Inside curve of switchback - upper zone.
Δ 14+80.0	N 86°E 86	27.73	.0698	.9976	1.94	—	27.66	—		-9+28.235	-4.88	Revised per 8/24/90 check survey
	S 07°E 173	40.06	.9925	.1219	—	39.76	4.88	—		-9+67.99	0+30.47E	Delta 12 25 post
	West	31.0	0	1.0	—	—	—	31.0		-9+67.99	-0+00.53w	offset do walked line
	South	73.0	1.0	0	—	73.0	—	—		-9+40.99	-0+00.53w	25 post walked Also IP walked
SET 15/6/90										-10+99.87	-2+39.65w	—
10+39	N 44°E	38.85	.7193	.6947	27.94	—	26.99	—		-10+71.93	-2+12.66w	revised
Δ 0+84.5	N 72°E	45.25	.3096	.9511	13.98	—	43.04	—		-10+57.95	-1+69.162w	per 8/29/90
Δ 1+93.0	N 60°E	107.90	.5000	.8660	53.95	—	93.44	—		-10+04.00	-0+76.18w	# TL 9/10/90
Δ 2+65.0	N 62°E	71.60	.4695	.8829	33.62	—	63.22	—		-9+70.38	-0+12.96w	—
Δ 3+02.5	N 30°E	37.22	.8660	.5000	32.23	—	18.61	—		-9+38.15	0+05.15E	Δ 3+02.5
Δ 3+36.0	N 30°E	33.18	.8660	.5000	28.56	—	16.49	—		-9+09.59	0+22.14E	Δ 3+36.0
Δ 3+84.0	N 60°E	48.47	.5000	.8660	24.07	—	41.17	—		-8+85.525	0+63.30E	Δ 3+84 = 14+80-6/6/90
										-8+85.525	0+63.30E	
						39.76	4.88					
								31.0				
						73.0				9+98.08	0+37.18E	25 Post walked & IP walked

Final Coords - Revised per TL 9/10/90 & TL 8/31/90

Title Seward Rd. Traversa. 6/17/90

Fb. Page

Computed by:

Date:

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STATION TO STATION	BEARING	DISTANCE	COSINE	SINE	NORTH	SOUTH	EAST	WEST	D.M.D.	AREAS		STATION
										+ LATITUDE	- DEPARTURE	
A 67190 0400										-5+35.87s	-4+49.28w	✓
0460						5.22		59.67				
					-	3.99		25.19				
					7.90	-		49.88				
					-	4.16		18.02				
						29.33		60.14				
						6.54		46.54				
						15.55		80.00				
						5.98		16.44				
A 3474.5					-	3.60		6.00		602.34s	811.16w	Rd Jct.
A 3494.2					2.39	-	19.44			599.95	791.72	
					-	15.39	35.56			615.34	756.16	
						21.10	19.00			636.44	737.16	
						15.64	20.02			652.08	717.14	
						22.58	44.31			674.66	672.83	
						8.37	39.40			683.03	633.43	
					1.26	-	72.09			681.77	561.34	
					16.80		48.90			664.97	512.44	
					21.60		32.02			643.37	480.42	
7483					25.35		37.58			618.02	442.84	
A 8+38.5					4.82		55.08			613.20	387.76	

Adjusted - final coords per TL 8/31/90 & TL 9/10/90

Title TL 6/7/90 & Lansen Simard Rd. Traverse (6/7/90) ^{LSRT} Fb. Page Computed by: Date: Page of

STATION TO STATION	BEARING	DISTANCE	COSINE	SINE	NORTH	SOUTH	EAST	WEST	D.M.D.	+ LATITUDE	AREAS DEPARTURE -	STATION
LSRT 6/7/90 A0400										-5+35.87	-4+49.28	A0400 set 6/7/90
A0420	N64°E				8.77		17.98			-5+27.10	-4+31.30	
	N57°E				22.87		35.22			-5+04.23	-3+96.08	
	N62°E				11.27		21.19			-4+92.96	-3+74.89	
	N65°E				9.93		21.29			-4+83.03	-3+53.60	
	N67°E				14.65		34.51			-4+68.38	-3+19.09	
	N74°E				12.12		42.27			-4+56.26	-2+76.82	
A2+24.2	S74°E				-	8.58	29.91			-4+64.84	-2+46.91	LSRT 6/7/90 A2+24.2
	S82°E											
	S77°E											
A5+30	S80°E									-5+20.83	+0+48.96E	✓
LSRT 6/7/90 A0400										-5+35.87	-4+49.28	
1+22						7.73	9.84			-5+43.60	-4+39.44	edge of logging
1+44.0						15.47	7.85			-5+59.07	-4+31.59	
92.0						13.38	20.04			-5+72.45	-4+11.55	
69.5						7.72	18.78			-5+80.17	-3+92.77	
51.0						9.73	15.58			-5+89.90	-3+77.19	
27.0						5.84	17.49			-5+95.74	-3+59.70	
0+08.7						-	8.10			-5+95.74	-3+51.60	
TL 6/7/90 A0400						1.41	2.78			-5+97.15	-3+48.82	A8+81 set 6/7/90

Final coords (revised per TL 9/10/90 survey)

Title 8/29/90 (Check Survey upper Sub Area)

Fb. Page Computed by: Date: Page of

STATION TO STATION	BEARING	DISTANCE	COSINE	SINE	NORTH	SOUTH	EAST	WEST	D.M.D.	AREAS		STATION
										+ LATITUDE	- DEPARTURE	
SRT 6/6/90 A12+97										-9+91.31s	-1+01.75w	
SRT 6/6/90 A13+53	N85°E 85	55.79	.0871	.9962	4.86		55.58			-9+36.36	-0+46.93w	
TP1 (81.5)	N62°E 62	25.50	.4695	.8829	11.97		22.52			-9+24.16	-0+24.72w	
TP2	N44°E 44	34.37	.7193	.6947	24.72		23.85			-8+98.96	-0+01.17w	Per TL 9/10/90 check survey
TP3	S88°E 92	15.48	.0349	.9994		0.54	15.47			-8+99.50	+0+14.30E	
TP4	S40°E 140	13.60	.7660	.6428		10.42	8.74			-9+09.92	+0+23.04E	3+36 15/6/90
TP5	S30°W 210	32.98	.8660	.5000		28.56		16.49		-9+38.48	+0+06.55E	3+02.5 15/6/90
TP6 A200.5	S27°W 207	21.24	.8910	.4540		18.92		9.64		-9+57.40	-0+03.09w	
water table side (212.0)	S46°E 134	11.46	.6947	.7193		7.96	8.24			-9+65.36	+0+05.15E	schist contact
8/29/90 A200.5 (TP6)										-9+57.40s	-0+03.09w	
DDH #1	N87°W 273	20.56	.0523	.9986	1.08			20.53		-9+56.32s	-0+23.62w	DDH #1
TP2										-8+98.96s	-0+01.17w	
TP7	N62°E 62	32.06	.4695	.8829	15.05		28.31			-8+83.62s	+0+26.75E	
A14+80 (6/6/90)	S87°E 93	37.12	.0523	.9986		1.94	37.07			-8+85.52s	+0+63.30E	A14+80 6/6/90

Final coords - adjusted to TL 8/31/90

Title TL 9/14/90 Survey

Fb. Page Computed by:

Date:

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STATION TO STATION	BEARING	DISTANCE	COSINE	SINE	NORTH	SOUTH	EAST	WEST	D.M.D.	AREAS		STATION
										+ LATITUDE	- DEPARTURE	
TL 9/14/90 A to 00										-8+85.52	+0+63.30E	SRT 6/6/90 Δ 14+80
0+13.0	N13°W 347	12.72	.9744	.22495	12.39			2.86		-8+73.13	+0+60.44	
0+45.6	N0°E 001	30.23	.9998	.01745	30.23		0.53			-8+42.90	+0+60.93	
0+62.7	N06°W 354	15.37	.9945	.1045	15.37			1.60		-8+27.53	+0+59.37	
0+87.0	N02°W 357	21.46	.9986	.0523	21.43			1.12		-8+06.10	+0+58.25	
1+33.5	N01°W 359	41.79	.9998	.01745	41.78			0.72		-7+64.32	+0+57.53	
1+62.2	N06°W 354	25.79	.9945	.1045	25.65			2.70		-7+38.67	+0+54.83	
2+02.5	N03°W 357	35.58	.9986	.0523	35.53			1.86		-7+03.14	+0+52.97	Marble 172 No 213
2+41.5	N03°W 357	34.43	.9986	.0523	34.38			1.80		-6+68.76	+0+51.12	
2+76.0	N02°W 358	31.01	.9994	.0349	30.99			1.08		-6+37.77	+0+50.09	gneiss @ 2+60.5
3+04.0	N03°W 357	25.17	.9986	.0523	25.14			1.32		-6+12.63	+0+48.73	
3+21.5	N08°W 355	15.59	.9962	.0872	15.53			1.36		-5+97.10	+0+47.41	
3+66.9	N03°W 357	40.80	.9986	.0523	40.74			2.13		-5+56.36	+0+45.28	
3+94.1	N05°W 355	24.85	.9962	.0872	24.85			2.11		-5+31.51	+0+43.11	
4+07.4	N05°W 355	11.95	.9962	.0872	11.90			1.04		-5+19.605	+0+42.07	
4+18.7	N04°E 004	11.19	.9976	.0698	11.16		0.78			-5+08.445	+0+42.85	USE Wedge of Road
4+53.6	N06°W 354	32.58	.9945	.1045	32.40			3.40		-4+76.84	+0+39.65	15 post Clifton 12
5+00.1	N05°W 355	45.18	.9962	.0872	45.01			3.94		-4+31.02	+0+35.95	adjusted to balance
5+35.8	N06°W 354	33.66	.9945	.1045	33.47			3.52		-3+97.55	+0+32.66	per TL 8/31/90
5+58.2	N06°W 354	21.30	.9945	.1045	21.18			2.23		-3+76.37	+0+30.56	
5+74.0	N0°E 001	14.25	.9998	.01745	14.75		0.26			-3+61.61	+0+30.80	

Final COORDS Clifton Cottonwood Traverses.

Title..... Fb..... Page..... Computed by:..... Date:..... Page 1 of 4

STATION TO STATION	BEARING	DISTANCE	COSINE	SINE	NORTH	SOUTH	EAST	WEST	D.M.D.	AREAS		STATION
					X1.0222731	X.977772	X1.0006683	X0.9993327		LATITUDE	DEPARTURE	
LCP Clifton #12 Cottonwood Rd. Trv. Δ 0400					-	-	-	-		0+00.00	0+00.00	LCP Clifton #12
0+15.5					-	15.32	0.80	-		- 0+15.32	+ 0+00.80E	
0+40.5					-	24.37	4.30	-		- 0+39.69	+ 0+05.10E	
0+66.6					-	14.07	-	21.67		- 0+53.76	- 0+16.57W	
1+01.7					2.476	-	-	34.64		- 0+51.28	- 0+51.21W	
1+13.5					-	0.401	-	11.65		- 0+51.68	- 0+62.86W	
1+43.9					-	11.753	-	56.50		- 0+63.43	- 1+19.36W	
2+11.6					-	2.679	-	39.175		- 0+66.11	- 1+58.535	
2+36.7					-	0.851	-	24.815		- 0+66.96	- 1+83.35W	
2+79.9					2.302	-	-	42.63		- 0+64.66	- 2+25.98W	
3+20.2					1.422	-	-	39.83		- 0+63.24	- 2+65.81W	
3+35.1					3.653	-	-	14.29		- 0+59.59	- 2+80.10W	
3+72.8					5.321	-	-	36.93		- 0+54.265	- 3+17.03W	
3+92.6					1.402	-	-	19.53		- 0+52.86	- 3+36.56W	
4+44.6					1.842	-	-	51.34		- 0+51.02	- 3+87.96W	
4+85.8					2.1795	-	-	40.69		- 0+48.84	- 4+28.65W	
5+16.3					-	-	-	30.17		- 0+48.84	- 4+58.82W	
5+71.3					2.916	-	-	54.33		- 0+45.93	- 5+13.15W	
5+91.0					3.121	-	-	19.235		- 0+42.80	- 5+32.385W	
6+56.7					5.802	-	-	64.755		- 0+37.00	- 5+97.14W	
7+71.0					18.879	-	-	56.73		- 0+18.12	- 6+53.87W	
7+62.4 Cottonwood Rd. 7+91.1					21.591 5.546	-	-	39.65 27.86		+ 0+03.47N - 0+09.01W	- 6+93.52W - 7+21.38W	SU-10 Δ 0400 Clifton Traverses

Final Coords

Title..... Page..... Computed by:..... Date:..... Page 2 of 4

STATION TO STATION	BEARING	DISTANCE	COSINE	SINE	NORTH	SOUTH	EAST	WEST	D.M.D.	AREAS		STATION	
					x1.0232731	x.977772	x1.0006683	x.9993327		+ LATITUDE	- DEPARTURE		
Clifton Transit Δ0+00											+ 0+09.01W	- 7+21.38W	Δ0+00 Clifton = 7+91.1671
0+30						17.649		23.944			- 0+08.64S	- 7+45.32W	-
0+60						15.977		25.143			- 0+24.62S	- 7+70.47	-
0+90						18.851		22.965			- 0+43.47	- 7+93.43	-
1+20						20.7385		21.196			- 0+64.21	- 8+14.63	✓
1+50						19.624		22.275			- 0+83.83	- 8+36.90	✓
1+70						8.575		17.968			- 0+92.40	- 8+54.87	✓
1+90						14.305		13.631			- 1+06.71	- 8+68.50	-
2+20						15.547		25.423			- 1+22.26	- 8+93.92	✓
2+35						7.773		12.7115			- 1+30.03	- 9+06.64	✓
2+55						18.979		4.837			- 1+49.01	- 9+11.47	✓ ✓
2+70						12.701	7.505				- 1+61.71	- 9+03.97	-
3+00						6.60	29.2495				- 1+68.31	- 8+74.72	✓
3+30					0	0	30.020				- 1+68.31	- 8+44.70	✓
3+60					8.974	7.302	28.709				- 1+59.34	- 8+15.99	✓
3+90					9.997		28.389				- 1+49.34	- 7+87.60	✓
4+20					5.331		29.560				- 1+44.01	- 7+58.04	✓
4+50					2.139		29.950				- 1+41.87	- 7+28.09	✓
4+80					6.385		29.360				- 1+35.48	- 6+98.73	✓
5+10					5.331		29.560				- 1+30.15	- 6+69.17	✓
5+40					10.499		28.209				- 1+19.655	- 6+40.96W	✓

Final Coords

Title: Fb. Page Computed by: Date: Page 3 of 4

STATION TO STATION	BEARING	DISTANCE	COSINE	SINE	NORTH	SOUTH	EAST	WEST	D.M.D.	AREAS		STATION
					x1.0232731	x.977772	x1.0006683	x0.9993327		+ LATITUDE	- DEPARTURE	
A 5+70					3.213	—	29.860	—		- 1+16.445	- 6+11.10W	✓
5+90						4.732	19.423			- 1+21.175	- 5+91.68	✓
6+20						9.064	28.549			- 1+30.23	- 5+63.13	✓
6+50						6.101	29.360			- 1+36.33	- 5+33.77	✓
6+80						4.087	29.730			- 1+40.42	- 5+04.04	✓ ✓
7+10						9.064	28.549			- 1+49.485	- 4+75.49	✓
7+40						8.575	28.709			- 1+58.06	- 4+46.78	✓
7+70						2.0435	29.950			- 1+60.10	- 4+16.83	✓
8+00						4.087	29.730			- 1+64.19	- 3+87.10	✓
8+30						4.087	29.730			- 1+68.28	- 3+57.37	✓
8+60						1.027	30.000			- 1+69.30	- 3+27.37	✓
8+90						2.0435	29.950			- 1+71.35	- 2+97.42	✓
9+20						5.593	29.470			- 1+76.94	- 2+67.95	✓
9+50						3.070	29.860			- 1+80.01	- 2+38.09	✓
9+80						2.0435	29.950			- 1+82.05	- 2+08.14	✓
10+05					—	2.552	24.877			- 1+84.61	- 1+83.26	✓
10+35					3.745	—	29.800			- 1+80.86	- 1+53.46	✓
10+65					0.532		30.010			- 1+80.33	- 1+23.45	✓
10+95					2.139		29.950			- 1+78.19	- 0+93.50	✓
11+25					11.000		28.029			- 1+67.19	- 0+65.48	✓
11+55					4.277		29.730	—		- 1+62.91	- 0+35.75	✓

Feral Coords

Title..... Fb..... Page..... Computed by:..... Date:..... Page 4 of 4

STATION TO STATION	BEARING	DISTANCE	COSINE	SINE	NORTH	SOUTH	EAST	WEST	D.M.D.	AREAS		STATION
					x1.0232731	x.977772	x1.0006683	x.9993327		+ LATITUDE	- DEPARTURE	
11+85					11.502		27.839			-1+51.415	-0+07.91w	-
12+10					13.180		21.444			-1+38.235	+0+13.53E	-
12+40					4.799		29.650			-1+33.43	+0+43.18	-
12+70					17.1705		24.887			-1+16.26	+0+68.07	-
13+00					5.853		29.470			-1+10.41	+0+97.54	-
13+30					6.385		29.360			-1+04.02	+1+26.90	
13+60					3.213		29.860			-1+00.81	+1+56.76	
13+90					4.799		29.650			-0+96.01	+1+86.41	
14+20					6.907		29.2495			-0+89.105	+2+15.66	
14+35					10.6625		10.797			-0+78.44	+2+26.46	- Switch back to just the Cheyenne
14+65					4.277			29.690		-0+74.165	+1+96.77	
14+95					2.139			29.910		-0+72.03	+1+66.86	
15+25					2.139			29.910		-0+69.89	+1+36.95	
15+55					5.331			29.520		-0+64.56	+1+07.43	-
15+75					5.986			19.117		-0+58.57	+0+88.31	-
16+05					2.671			29.870		-0+55.90	+0+58.44	-
16+35					0.532			29.970		-0+55.36	+0+28.47E	-
16+80					1.6065			45.040		-0+53.76	-0+16.57w = Δ 0+66.6 Cottonwood Rd. Traverse	

Clifton Traverse

Appendix II

DAILY DRILL REPORTS

and

DIAMOND DRILL LOGS

LONE RANGER DIAMOND RIG REPORT

TIME SHEET # 1

A. OPERATING RIG FUNCTIONS		RIG HOURS		EXTRA LABOUR (man hours)		MATERIALS CONSUMED E. (specify quantities and types)	CHARGEABLE TO CLIENT	CHARGEABLE TO RANGER	OFFICE USE ONLY		
		CLIENT	RANGER	CLIENT	RANGER						
1	Drill O.B. O to					54 Gel (bags)					
2	Drill O.B. to					55 Trol (bags)					
3	Set Casing to					56 Diesel in Mud / Hole;					
4	Core O to					57 Polymers					
5	Core to					58					
6	Core to					59 Rod Grease (pails)					
7	Core to					60 Soluble Oil (bbl)					
8	Trip Rods (bit) at					61 LCM					
9	Trip Rods (other) at					62 Cement (bags)					
10	Pull Casing					63					
11	Ream Rods / Casing					64					
12	Drill Sand/Cave					65 Core Boxes & (lids)					
13	Condition Hole					F. MATERIALS LEFT IN HOLE (recovered)					
14	Reduce Hole					66 _____ Rods _____ ft.					
15	Survey Hole					67					
16	Log Hole					68 _____ Casing _____ ft.					
17	Engineering Work					69					
18	Cement / Grout					70 _____ Casing Shoe #					
19	Wedging Operations					71					
20	Recover Equipment					72					
21						G. OTHER MATERIALS CHARGEABLE TO CLIENT QTY					
22						73					
23						74					
24	TOTAL OPERATING					75					
B. NON-OPERATING RIG FUNCTIONS		RIG HOURS		EXTRA LABOUR (man hours)							
		CLIENT	RANGER	CLIENT	RANGER						
25	Mob / Demob					76					
26	Setup / Teardown					77					
27	Move					78					
28	Water Supply					79					
29	Repairs					H. A/R MATERIALS - OFFICE USE ONLY					
30	Service / Maint.					80 Length of Move	103	Hole Start Time			
31	Delays - access					81 Length of Waterline / Haul					
32	- water					82 Lift of Waterline	104	Hole Finish Time			
33	- cement set					I. EQUIPMENT SUMMARY					
34	- parts					83 Water Truck Mileage		# Loads			
35						84 Cat Hours					
36	TOTAL NON-OP. TIME					85 Crane Truck Mileage					
37	TOTAL RIG TIME					86					
C. EXTRA LABOUR		MAN HOURS									
		CLIENT	RANGER								
38	Supervisor					J. RECEIVED ON SITE (specify items, delivery, and weigh bill #'s)					
39	Expeditor					K. LABOUR SUMMARY					
40	Water Truck					DRILLER	J	K	L		
41	Cat Operator					<i>K. Caldwell</i>		6			
42	Serviceman					HELPER					
43	Mechanic					<i>Jody Caldwell</i>		6			
44											
45	Travel Time to Rig					94					
46	TOTAL EXTRA LABOUR (man hours)					95 OTHER					
47						96					
48						97					
D. HOLE SPECIFICATIONS		47	ANGLE _____ °	Payroll		Invoicing		Contract Sup			
HOLE NUMBER M	SIZE N	FROM O	TO P	FOOTAGE Q	# RUNS R	BIT S/N S	SHELL S/N T	SHOE S/N U	Noncore Bit S/N V		
49											
50											
51											
52											
53											
REMARKS		102	TOTAL FTGE.			CLIENT					
<p>Pulled 8-250' LENGTHS OF 1 1/2" POLY FROM SLIDE AREA TO CREEK - PULLED ONE LENGTH UP CREEK BED TO GIVE INITIAL HEAD FOR GRAVITY FEED.</p>				LOCATION		CLIFTON DEVI.					
				DATE (d/m/y)		MABLE LAKE					
				SHIFT:		10 A		06N		90	
				RIG No.		101		JOB No.			
		RANGER									
		CLIENT									

LONE RANGER DIAMOND RIG REPORT

TIME SHEET # 2

A. OPERATING RIG FUNCTIONS		RIG HOURS		EXTRA LABOUR (man hours)		MATERIALS CONSUMED E. (specify quantities and types)	CHARGEABLE TO CLIENT	CHARGEABLE TO RANGER	OFFICE USE ONLY	
		CLIENT	RANGER	CLIENT	RANGER					
1	Drill O.B. O to					54 Gel (bags)				
2	Drill O.B. to					55 Trol (bags)				
3	Set Casing to					56 Diesel in Mud / Hole;				
4	Core O to					57 Polymers				
5	Core to					58				
6	Core to					59 Rod Grease (pails)				
7	Core to					60 Soluble Oil (bbl)				
8	Trip Rods (bit) at					61 LCM				
9	Trip Rods (other) at					62 Cement (bags)				
10	Pull Casing					63				
11	Ream Rods / Casing					64				
12	Drill Sand/Cave					65 Core Boxes & (lids)				
13	Condition Hole					F. MATERIALS LEFT IN HOLE (recovered)				
14	Reduce Hole					66 _____ Rods _____ ft.				
15	Survey Hole					67				
16	Log Hole					68 _____ Casing _____ ft.				
17	Engineering Work					69				
18	Cement / Grout					70 _____ Casing Shoe #				
19	Wedging Operations					71				
20	Recover Equipment					72				
21						G. OTHER MATERIALS CHARGEABLE TO CLIENT				
22						73	qty			
23						74				
24	TOTAL OPERATING TIME					75				
B. NON-OPERATING RIG FUNCTIONS		RIG HOURS		EXTRA LABOUR (man hours)						
		CLIENT	RANGER	CLIENT	RANGER					
25	Mob / Demob				11	76				
26	Setup / Teardown					77				
27	Move					78				
28	Water Supply				20	79				
29	Repairs					H. A/R MATERIALS - OFFICE USE ONLY				
30	Service / Maint.					80 Length of Move	103	Hole Start Time		
31	Delays - access					81 Length of Waterline / Haul				
32	- water					82 Lift of Waterline	104	Hole Finish Time		
33	- cement set					I. EQUIPMENT SUMMARY				
34	- parts					83 Water Truck Mileage		# Loads		
35						84 Cat Hours				
36	TOTAL NON-OP. TIME				31	85 Crane Truck Mileage				
37	TOTAL RIG TIME				31	86				
C. EXTRA LABOUR						MAN HOURS				
						CLIENT	RANGER			
38	Supervisor					K. LABOUR SUMMARY				
39	Expeditor					DRILLER	J	K	L	
40	Water Truck					J. CADWELL		15		
41	Cat Operator									
42	Serviceman					HELPER				
43	Mechanic					J. CADWELL		8		
44						JODY CADWELL		6		
45	Travel Time to Rig				4	OTHER BRAD. ANDRIES.		6		
46	TOTAL EXTRA LABOUR (man hours)				4	96				
						97	TOTAL MAN HOURS			
D. HOLE SPECIFICATIONS		47	ANGLE _____ °		Payroll		Invoicing		Contract Sup	
48	HOLE NUMBER M	SIZE N	FROM O	TO P	FOOTAGE Q	# RUNS R	BIT S/N S	SHELL S/N T	SHOE S/N U	Noncore Bit S/N V
49										
50										
51										
52										
53										
REMARKS			102	TOTAL FTGE.		CLIENT		CLIFTON DEV.		
DROVE TO ADAMS LAKE AND					LOCATION		MAPLE LAKE			
PICKED UP BEAR & DRILL - PRKED					98 DATE (d/m/yr)		11 06 90			
UP JAMIE COMING THROUGH LUMBY					99 SHIFT:		D A N G			
- UNLOADED DRILL AT 31 KM WALKED					100 RIG No.		101 JOB No.			
TO 34 KM - PUT BASKET ETC ON -					RANGER		[Signature]			
BRAD & JODY IN TO HELP WITH WATER LINE					CLIENT		[Signature]			
PUT 13 - 250' LENGTHS IN - TOUGH GOING										
BECAUSE HOSE HAD TO BE PUT IN AT										
APPROX 5-7° DROP										

LONE RANGER DIAMOND RIG REPORT

TIME SHEET # 3

A.	OPERATING RIG FUNCTIONS		RIG HOURS		EXTRA LABOUR (man hours)		E. (specify quantities and types)	CHARGEABLE TO CLIENT	CHARGEABLE TO RANGER	OFFICE USE ONLY	
	CLIENT	RANGER	CLIENT	RANGER	CLIENT	RANGER					
1	Drill O.B.	0 to					54 Gel (bags)				
2	Drill O.B.	to					55 Trol (bags)				
3	Set	Casing to					56 Diesel in Mud / Hole				
4	Core	0 to					57 Polymers				
5	Core	to					58				
6	Core	to					59 Rod Grease (pails)				
7	Core	to					60 Soluble Oil (bbl)				
8	Trip Rods (bit) at						61 LCM				
9	Trip Rods (other) at						62 Cement (bags)				
10	Pull Casing						63				
11	Ream Rods / Casing						64				
12	Drill Sand/Cave						65 Core Boxes & (lids)				
13	Condition Hole						F. MATERIALS LEFT IN HOLE (recovered)				
14	Reduce Hole						66 _____ Rods _____ ft.				
15	Survey Hole						67				
16	Log Hole						68 _____ Casing _____ ft.				
17	Engineering Work						69				
18	Cement / Grout						70 _____ Casing Shoe #				
19	Wedging Operations						71				
20	Recover Equipment						72				
21							G. OTHER MATERIALS CHARGEABLE TO CLIENT				
22							73				
23							74				
24	TOTAL OPERATING TIME							75			
B.	NON-OPERATING RIG FUNCTIONS		RIG HOURS		EXTRA LABOUR (man hours)						
	CLIENT	RANGER	CLIENT	RANGER	CLIENT	RANGER					
25	Mob / Demob			3			76				
26	Setup / Teardown						77				
27	Move						78				
28	Water Supply					20	79				
29	Repairs						80 Length of Move	103	Hole Start Time		
30	Service / Maint.						81 Length of Waterline / Haul	JKM			
31	Delays - access						82 Lift of Waterline - 500	104	Hole Finish Time		
32	- water						I. EQUIPMENT SUMMARY				
33	- cement set						83 Water Truck Mileage		# Loads		
34	- parts						84 Cat Hours				
35							85 Crane Truck Mileage				
36	TOTAL NON-OP. TIME						3	86			
37	TOTAL RIG TIME						3	20			
C. EXTRA LABOUR							MAN HOURS		88		
							CLIENT	RANGER	89		
38	Supervisor						K. LABOUR SUMMARY				
39	Expeditor						DRILLER	J	K	L	
40	Water Truck						K. Caldwell		11		
41	Cat Operator										
42	Serviceman						HELPER				
43	Mechanic						J. Caldwell		12		
44							B. ANDRIES		4		
45	Travel Time to Rig						OTHER P. PATT.		4		
46	TOTAL EXTRA LABOUR (man hours)						4	96			
							97	TOTAL MAN HOURS			
D. HOLE SPECIFICATIONS			47 ANGLE _____ °			Payroll		Invoicing		Contract Sup	
48 HOLE NUMBER M	SIZE N	FROM O	TO P	FOOTAGE Q	# RUNS R	BIT S/N S	SHELL S/N T	SHOE S/N U	Noncore Bit S/N V		
49											
50											
51											
52											
53											
REMARKS			102 TOTAL FTGE.			CLIENT		CLIFTON DEW			
PULLED SOME HOSE INTO PLACE -						LOCATION		MARBLE LAKE			
NO JOINING NIPPLES LEFT - SUPPLIER						98 DATE (d/m/yr)		12 1 06 190			
DIDN'T SEND ENOUGH - MARBLE LAKE						99 SHIFT:		D A N G			
ROAD BREAK WASHED OUT - 2 MILES TO						100 RIG No.		T-44		101 JOB No.	
TOWN - BOB NOT ABLE TO GET IN						RANGER		A. J. [Signature]			
TILL LATE BECAUSE OF SLIDE - FINALLY						CLIENT		[Signature]			
GOT IN WITH HOE OPERATOR TO FINISH.											

BUILDING ROAD TO SITE'S NIPPLES TO
 ENABLE HOSE TO BE PUT TOGETHER -
 GOT WATER TO DRILL AREA.

LONE RANGER DIAMOND RIG REPORT

TIME SHEET # 4

A. OPERATING RIG FUNCTIONS		RIG HOURS		EXTRA LABOUR (man hours)		MATERIALS CONSUMED E. (specify quantities and types)	CHARGEABLE TO CLIENT	CHARGEABLE TO RANGER	OFFICE USE ONLY	
		CLIENT	RANGER	CLIENT	RANGER					
1	Drill O.B. 0 to 14		1			54 Gel (bags)				
2	Drill O.B. 0 to 12		1			55 Trol (bags)				
3	Set NW Casing to 12-14		1			56 Diesel in Mud / Hole				
4	Core 0 to					57 Polymers WDS550		1		
5	Core 14 to 152		6			58				
6	Core 12 to 55		2			59 Rod Grease (pails)				
7	Core to					60 Soluble Oil (bbl)				
8	Trip Rods (bit) at					61 LCM				
9	Trip Rods (other) at 152		1/2			62 Cement (bags)				
10	Pull Casing		1/2			63				
11	Ream Rods / Casing					64				
12	Drill Sand/Cave					65 Core Boxes & (lids)				
13	Condition Hole					F. MATERIALS LEFT IN HOLE (recovered)				
14	Reduce Hole					66 _____ Rods _____ ft.				
15	Survey Hole					67				
16	Log Hole					68 _____ Casing _____ ft.				
17	Engineering Work					69				
18	Cement / Grout					70 _____ Casing Shoe #				
19	Wedging Operations					71				
20	Recover Equipment					72				
21						G. OTHER MATERIALS CHARGEABLE TO CLIENT				
22						73		QTY		
23						74				
24	TOTAL OPERATING TIME		12			75				
B. NON-OPERATING RIG FUNCTIONS		RIG HOURS		EXTRA LABOUR (man hours)						
		CLIENT	RANGER	CLIENT	RANGER					
25	Mob / Demob					76				
26	Setup / Teardown					77				
27	Move					78				
28	Water Supply					79				
29	Repairs					H. A / R MATERIALS - OFFICE USE ONLY				
30	Service / Maint.					80 Length of Move	103	Hole Start Time		
31	Delays - access					81 Length of Waterline / Haul				
32	- water					82 Lift of Waterline	104	Hole Finish Time		
33	- cement set					I. EQUIPMENT SUMMARY				
34	- parts					83 Water Truck Mileage		# Loads		
35						84 Cat Hours				
36	TOTAL NON-OP. TIME					85 Crane Truck Mileage				
37	TOTAL RIG TIME		12			86				
C. EXTRA LABOUR						MAN HOURS				
						CLIENT	RANGER			
38	Supervisor					K. LABOUR SUMMARY				
39	Expeditor					DRILLER	J	K	L	
40	Water Truck					90 K. Caldwell		12		
41	Cat Operator					91				
42	Serviceman					92 HELPER				
43	Mechanic					93 J. Caldwell		12		
44						94				
45	Travel Time to Rig					95 OTHER				
46	TOTAL EXTRA LABOUR (man hours)					96				
						MAN HOURS				
						CLIENT	RANGER			
						L. LABOUR SUMMARY				
						DRILLER				
						HELPER				
						OTHER				
						TOTAL MAN HOURS				
D. HOLE SPECIFICATIONS		47	ANGLE = 45° - 60°			Payroll	Invoicing	Contract Sup		
HOLE NUMBER M	SIZE N	FROM O	TO P	FOOTAGE Q	# RUNS R	BIT S/N S	SHELL S/N T	SHOE S/N U	Noncore Bit S/N V	
49 CLIFTON 12-1	NW	0	14	14				U. DIA	3 1/8 TWC	
50	NW	14	152	138		AR.	DIA			
51 CLIFTON 12-2	NW	0	12	12					3 1/8 TWC	
52		12	55	43		AR.	DIA	U DIA		
53										
REMARKS		102 TOTAL FTGE.		207		CLIENT		CLIFTON DEV.		
MOVED RIG IN TO FIRST SITE						LOCATION		MAPLE LAKE		
I SET UP. PUT CASING IN - CORED						98 DATE (d/m/yr)		13 / 06 / 90		
HIT. SHUT - SHUT HOLE DOWN						99 SHIFT:		D A N G		
PULLED RODS & CASING - TIPPED						100 RIG No.		T-44 101 JOB No. 11		
HEAD AND STARTED 60° HOLE - PUT						RANGER		K. Caldwell		
CASING IN & CORED						CLIENT		Clifton Dev.		

LONE RANGER DIAMOND RIG REPORT

TIME SHEET # 5

A. OPERATING RIG FUNCTIONS		RIG HOURS		EXTRA LABOUR (man hours)		MATERIALS CONSUMED E. (specify quantities and types)	CHARGEABLE TO CLIENT	CHARGEABLE TO RANGER	OFFICE USE ONLY	
		CLIENT	RANGER	CLIENT	RANGER					
1	Drill O.B. 0 to 14		1			54 Gel (bags)				
2	Drill O.B. to					55 Trol (bags)				
3	Set NW Casing to 14		1/2			56 Diesel in Mud / Hole;				
4	Core 0 to					57 Polymers				
5	Core 55 to 106		3			58				
6	Core 14 to 103		5			59 Rod Grease (pails)				
7	Core to					60 Soluble Oil (bbl)				
8	Trip Rods (bit) at					61 LCM				
9	Trip Rods (other) at 106		1/4			62 Cement (bags)				
10	Pull Casing		1/4			63				
11	Ream Rods / Casing					64				
12	Drill Sand/Cave					65 Core Boxes & (lids)				
13	Condition Hole					F. MATERIALS LEFT IN HOLE (recovered)				
14	Reduce Hole					66 _____ Rods _____ ft.				
15	Survey Hole					67				
16	Log Hole					68 _____ Casing _____ ft.				
17	Engineering Work					69				
18	Cement / Grout					70 _____ Casing Shoe #				
19	Wedging Operations					71				
20	Recover Equipment					72				
21						G. OTHER MATERIALS CHARGEABLE TO CLIENT QTY				
22						73				
23						74				
24	TOTAL OPERATING TIME		10			75				
B. NON-OPERATING RIG FUNCTIONS		RIG HOURS		EXTRA LABOUR (man hours)		76				
		CLIENT	RANGER	CLIENT	RANGER	77				
25	Mob / Demob					78				
26	Setup / Teardown					79				
27	Move					H. A/R MATERIALS - OFFICE USE ONLY				
28	Water Supply					80 Length of Move	103	Hole Start Time		
29	Repairs					81 Length of Waterline / Haul				
30	Service / Maint.					82 Lift of Waterline	104	Hole Finish Time		
31	Delays - access					I. EQUIPMENT SUMMARY				
32	- water					83 Water Truck Mileage		# Loads		
33	- cement set					84 Cat Hours				
34	- parts					85 Crane Truck Mileage				
35	INSTRUCTIONS	2				86				
36	TOTAL NON-OP. TIME	2				J. RECEIVED ON SITE (specify items, delivery, and weigh bill #'s)				
37	TOTAL RIG TIME	2	10			87				
C. EXTRA LABOUR		MAN HOURS				88				
		CLIENT	RANGER	CLIENT	RANGER	89				
38	Supervisor					K. LABOUR SUMMARY			TRAVEL	HRS WKD
39	Expeditor					DRILLER	J	K	L	
40	Water Truck					<i>K. CALDWELL</i>		12		
41	Cat Operator									
42	Serviceman					HELPER				
43	Mechanic					<i>J. CALDWELL</i>		12		
44										
45	Travel Time to Rig					95 OTHER				
46	TOTAL EXTRA LABOUR (man hours)					96				
47						97				
D. HOLE SPECIFICATIONS		47	ANGLE	60° - 45°		Payroll	Invoicing	Contract Sup		
48	HOLE NUMBER M	SIZE N	FROM O	TO P	FOOTAGE Q	# RUNS R	BIT S/N S	SHELL S/N T	SHOE S/N U	Noncore Bit S/N V
49	CLIFTON 12-2	NQ	55	106	51		BR			
50	CLIFTON 12-3	NW	0	14	14					3 5/8 MIC
51		NQ	14	103	89		BR			
52										
53										
REMARKS		102	TOTAL FTGE.	154		CLIENT	CLIFTON DEV			
DRILLED TO 96' - ROCK NOT LOOKING GOOD - BOB CAUGHT BEHIND SLIP						LOCATION	MABLE LAKE			
DIDN'T KNOW TO SHUT HOLE DOWN OR CONTINUE - WAITED FOR BOB - INSTRUCTIONS TO CONTINUE - HOLE SHUT DOWN PULLED						98	DATE (d/m/yr)	14 06 90		
RODS & CASING MOVED AND SETUP - PUT CASING IN CORED						99	SHIFT:	D A N G		
						100	RIG No.	101	JOB No. 11	
						RANGER	<i>[Signature]</i>			
						CLIENT	<i>[Signature]</i>			

LONE RANGER DIAMOND RIG REPORT

TIME SHEET # 7

A. OPERATING RIG FUNCTIONS		RIG HOURS		EXTRA LABOUR (man hours)		MATERIALS CONSUMED E. (specify quantities and types)	CHARGEABLE TO CLIENT	CHARGEABLE TO RANGER	OFFICE USE ONLY		
		CLIENT	RANGER	CLIENT	RANGER						
1	Drill O.B. 0 to					54 Gel (bags)					
2	Drill O.B. to					55 Trol (bags)					
3	Set Casing to					56 Diesel in Mud / Hole					
4	Core 0 to					57 Polymers					
5	Core <u>47</u> to <u>84</u>		<u>2 1/2</u>			58					
6	Core to					59 Rod Grease (pails)					
7	Core to					60 Soluble Oil (bbl)					
8	Trip Rods (bit) at					61 LCM					
9	Trip Rods (other) at <u>84</u>		<u>1/4</u>			62 Cement (bags)					
10	Pull Casing		<u>1/2</u>			63					
11	Ream Rods / Casing					64					
12	Drill Sand/Cave					65 Core Boxes & (lids)					
13	Condition Hole					F. MATERIALS LEFT IN HOLE (recovered)					
14	Reduce Hole					66 _____ Rods _____ ft.					
15	Survey Hole					67					
16	Log Hole					68 _____ Casing _____ ft.					
17	Engineering Work					69					
18	Cement / Grout					70 _____ Casing Shoe #					
19	Wedging Operations					71					
20	Recover Equipment					72					
21						G. OTHER MATERIALS CHARGEABLE TO CLIENT					
22							QTY				
23											
24	TOTAL OPERATING TIME		<u>3 1/4</u>								
B. NON-OPERATING RIG FUNCTIONS		RIG HOURS		EXTRA LABOUR (man hours)		MATERIALS CONSUMED E. (specify quantities and types)	CHARGEABLE TO CLIENT	CHARGEABLE TO RANGER	OFFICE USE ONLY		
		CLIENT	RANGER	CLIENT	RANGER						
25	Mob / Demob					76					
26	Setup Teardown		<u>1/4</u>			77					
27	Move					78					
28	Water Supply					79					
29	Repairs					H. A/R MATERIALS - OFFICE USE ONLY					
30	Service / Maint.					80 Length of Move	103	Hole Start Time			
31	Delays - access <u>FALLBACK</u>			<u>2</u>		81 Length of Waterline / Haul					
32	- water <u>CAT</u>		<u>1 1/2</u>			82 Lift of Waterline	104	Hole Finish Time			
33	- cement set					I. EQUIPMENT SUMMARY					
34	- parts					83 Water Truck Mileage		# Loads			
35	<u>STAND BY</u>			<u>4</u>		84 Cat Hours					
36	TOTAL NON-OP. TIME	<u>1 1/2</u>	<u>1 1/4</u>	<u>6</u>		85 Crane Truck Mileage					
37	TOTAL RIG TIME	<u>1 1/2</u>	<u>3 1/2</u>	<u>6</u>		86					
C. EXTRA LABOUR		MAN HOURS		MATERIALS CONSUMED E. (specify quantities and types)	CHARGEABLE TO CLIENT	CHARGEABLE TO RANGER	OFFICE USE ONLY				
		CLIENT	RANGER								
38	Supervisor										
39	Expeditor										
40	Water Truck										
41	Cat Operator										
42	Serviceman										
43	Mechanic										
44											
45	Travel Time to Rig										
46	TOTAL EXTRA LABOUR (man hours)										
D. HOLE SPECIFICATIONS		MAN HOURS		MATERIALS CONSUMED E. (specify quantities and types)	CHARGEABLE TO CLIENT	CHARGEABLE TO RANGER	OFFICE USE ONLY				
		CLIENT	RANGER								
47	ANGLE = <u>90</u>										
K. LABOUR SUMMARY		TRAVEL	HRS WKD	Payroll		Invoicing	Contract Sup				
DRILLER		J	K	L							
90	<u>K. CAIDWELL</u>		<u>8</u>								
91											
HELPER		J	K	L							
92	<u>J. CAIDWELL</u>		<u>8</u>								
93											
94											
95	OTHER										
96											
97	TOTAL MAN HOURS										
L. RECEIVED ON SITE (specify items, delivery, and weigh bill #'s)		Payroll		Invoicing		Contract Sup					
MATERIALS CONSUMED E. (specify quantities and types)		CHARGEABLE TO CLIENT	CHARGEABLE TO RANGER	CHARGEABLE TO CLIENT	CHARGEABLE TO RANGER	CHARGEABLE TO CLIENT	CHARGEABLE TO RANGER				
48	HOLE NUMBER M	SIZE N	FROM O	TO P	FOOTAGE Q	# RUNS R	BIT S/N S	SHELL S/N T	SHOE S/N U	Noncore BH S/N V	
49	<u>CLIFTON 4</u>	<u>NQ</u>	<u>47</u>	<u>84</u>	<u>37</u>		<u>GR.</u>	<u>DIA.</u>			
50											
51											
52											
53											
REMARKS		102	TOTAL FTGE.	37	CLIENT		<u>CLIFTON DEV.</u>				
FINISHED HOLE - PULLED RODS AND CASING - TORE DOWN - FELL TREES TO NEXT SET-UP - STARTED PUSHING TRAIL TO NEXT SITE - SOFT CLAY AREA GOT CAT WITH DRILL ON STUCK - FINALLY GOT OUT - TRIED TO FIX SOFT SPOT - NO MATERIAL - COULDN'T CONTINUE - WAITING FOR P. WARNES CAT TO ARRIVE.					LOCATION		<u>MABLE LAKE</u>				
		98	DATE (d/m/yr)	<u>16 1 06 1990</u>	SHIFT:		<u>D</u> A N G				
		100	RIG No.	<u>T-44</u>	101	JOB No.	<u>11</u>				
		RANGER		<u>[Signature]</u>		CLIENT		<u>[Signature]</u>			

LONE RANGER DIAMOND RIG REPORT

TIME SHEET # 8

A. OPERATING RIG FUNCTIONS		RIG HOURS		EXTRA LABOUR (man hours)		E. MATERIALS CONSUMED (specify quantities and types)	CHARGEABLE TO CLIENT	CHARGEABLE TO RANGER	OFFICE USE ONLY	
		CLIENT	RANGER	CLIENT	RANGER					
1	Drill O.B. 0 to 20		12			54 Gel (bags)				
2	Drill O.B. to					55 Trol (bags)				
3	Set NW Casing to 20		12			56 Diesel in Mud / Hole				
4	Core 0 to					57 Polymers				
5	Core 20 to 103		5			58				
6	Core to					59 Rod Grease (pails)				
7	Core to					60 Soluble Oil (bbl)				
8	Trip Rods (bit) at					61 LCM				
9	Trip Rods (other) at					62 Cement (bags)				
10	Pull Casing					63				
11	Ream Rods / Casing					64				
12	Drill Sand/Cave					65 Core Boxes & (lids)				
13	Condition Hole					F. MATERIALS LEFT IN HOLE (recovered)				
14	Reduce Hole					66 _____ Rods _____ ft.				
15	Survey Hole					67				
16	Log Hole					68 _____ Casing _____ ft.				
17	Engineering Work					69				
18	Cement / Grout					70 _____ Casing Shoe #				
19	Wedging Operations					71				
20	Recover Equipment					72				
21						G. OTHER MATERIALS CHARGEABLE TO CLIENT				
22						73				
23						74				
24	TOTAL OPERATING TIME		7			75				
B. NON-OPERATING RIG FUNCTIONS		RIG HOURS		EXTRA LABOUR (man hours)		76				
		CLIENT	RANGER	CLIENT	RANGER	77				
25	Mob / Demob					78				
26	Setup / Teardown		12			79				
27	Move		12			H. A/R MATERIALS - OFFICE USE ONLY				
28	Water Supply					80 Length of Move	103	Hole Start Time		
29	Repairs					81 Length of Waterline / Haul				
30	Service / Maint.					82 Lift of Waterline	104	Hole Finish Time		
31	Delays - access					I. EQUIPMENT SUMMARY				
32	- water				2	83 Water Truck Mileage		# Loads		
33	- cement set					84 Cat Hours				
34	- parts					85 Crane Truck Mileage				
35						86				
36	TOTAL NON-OP. TIME		1	4		J. RECEIVED ON SITE (specify items, delivery, and weigh bill #'s)				
37	TOTAL RIG TIME		8	4		87				
C. EXTRA LABOUR		MAN HOURS				88				
		CLIENT	RANGER	CLIENT	RANGER	89				
38	Supervisor					K. LABOUR SUMMARY			TRAVEL	HRS WKD
39	Expeditor					DRILLER	J	K	L	
40	Water Truck					<i>K. CALDWELL</i>		10		
41	Cat Operator									
42	Serviceman					HELPER				
43	Mechanic					<i>J. ADRIE CALDWELL</i>		10		
44										
45	Travel Time to Rig					OTHER				
46	TOTAL EXTRA LABOUR (man hours)					96				
						97	TOTAL MAN HOURS			
D. HOLE SPECIFICATIONS		47	ANGLE = 60°			Payroll	Invoicing	Contract Sup		
48	HOLE NUMBER M	SIZE N	FROM O	TO P	FOOTAGE Q	# RUNS R	BIT S/N S	SHELL S/N T	SHOE S/N U	Noncore Bit S/N V
49	CLIFTON 12-5 NW	NW	0	20	20				DIA.	3 1/16 THIN
50		NW	20	103	83		68.	DIA.		
51										
52										
53										
REMARKS		9:30 AM	102	TOTAL FTGE.	103	CLIENT	CLIFTON DEV.			
		WATER LINE HAD AIR LOCK NEAR CREEK HAD TO TAKE LINE APART AT FIRST JOINT AND GET WATER SIFONING AGAIN - SHOWED PAUL SITE & ROAD TO BE MADE - WAITED FOR ROAD TO BE FINISHED MOVED - SET CASING DRILLED - REPAIRED BOB RE BROWN'S ROCK TYPE IN HOLE DRILLED TO 103 - SHUT HOLE DOWN.				LOCATION	MAPLE LAKE			
		98	DATE (d/m/yr)	17 106 190		99	SHIFT:	(D) A N G		
		100	RIG No.	7-44	101	JOB No.	11			
						RANGER	<i>Ken J. Caldwell</i>			
						CLIENT	<i>Clifton Dev.</i>			

LONE RANGER DIAMOND RIG REPORT

TIME SHEET # 10

A. OPERATING RIG FUNCTIONS		RIG HOURS		EXTRA LABOUR (man hours)		MATERIALS CONSUMED E. (specify quantities and types)	CHARGEABLE TO CLIENT	CHARGEABLE TO RANGER	OFFICE USE ONLY	
		CLIENT	RANGER	CLIENT	RANGER					
1	Drill O.B. 0 to 16		1			54 Gel (bags)				
2	Drill O.B. to					55 Trol (bags)				
3	Set NW Casing to 16		1/2			56 Diesel in Mud / Hole				
4	Core 0 to					57 Polymers				
5	Core 16 to 201		7			58				
6	Core to					59 Rod Grease (pails)				
7	Core to					60 Soluble Oil (bbl)				
8	Trip Rods (bit) at					61 LCM				
9	Trip Rods (other) at 201		1/2			62 Cement (bags)				
10	Pull Casing		1/2			63				
11	Ream Rods / Casing					64				
12	Drill Sand/Cave					65 Core Boxes & (lids)				
13	Condition Hole					F. MATERIALS LEFT IN HOLE (recovered)				
14	Reduce Hole					66 _____ Rods _____ ft.				
15	Survey Hole					67				
16	Log Hole					68 _____ Casing _____ ft.				
17	Engineering Work					69				
18	Cement / Grout					70 _____ Casing Shoe #				
19	Wedging Operations					71				
20	Recover Equipment					72				
21						G. OTHER MATERIALS CHARGEABLE TO CLIENT				
22						73		OTY		
23						74				
24	TOTAL OPERATING TIME		9 1/2			75				
B. NON-OPERATING RIG FUNCTIONS		RIG HOURS		EXTRA LABOUR (man hours)		MATERIALS CONSUMED	CHARGEABLE TO CLIENT	CHARGEABLE TO RANGER	OFFICE USE ONLY	
		CLIENT	RANGER	CLIENT	RANGER					
25	Mob / Demob					76				
26	Setup / Teardown		1			77				
27	Move					78				
28	Water Supply			2	1	79				
29	Repairs					H. A/R MATERIALS - OFFICE USE ONLY				
30	Service / Maint.					80 Length of Move	103	Hole Start Time		
31	Delays - access					81 Length of Waterline / Haul				
32	- water					82 Lift of Waterline	104	Hole Finish Time		
33	- cement set					I. EQUIPMENT SUMMARY				
34	- parts					83 Water Truck Mileage		# Loads		
35						84 Cat Hours				
36	TOTAL NON-OP. TIME		1 1/2		1	85 Crane Truck Mileage				
37	TOTAL RIG TIME		10 1/2		2	86				
C. EXTRA LABOUR						87				
						88				
						89				
38	Supervisor					K. LABOUR/SUMMARY				
39	Expeditor					DRILLER	J	K	L	
40	Water Truck					R. CADWELL		12		
41	Cat Operator					HELPER				
42	Serviceman					JAMIE CADWELL		12		
43	Mechanic									
44										
45	Travel Time to Rig					95 OTHER				
46	TOTAL EXTRA LABOUR (man hours)					96				
D. HOLE SPECIFICATIONS		47	ANGLE 60			97	TOTAL MAN HOURS			
48	HOLE NUMBER M	SIZE N	FROM O	TO P	FOOTAGE Q	# RUNS R	BIT S/N S	SHELL S/N T	SHOE S/N U	Noncore Bit S/N V
49	CLIFTON 127	NW	0	16	16				DIA.	3/8" x 1/2"
50		NW	16	201	185		BLUE	DIA.		
51										
52										
53										
REMARKS		102	TOTAL FTGE. 201			CLIENT	CLIFTON DEV			
FINISHED SETTING UP DRILL - BUILT DAM		LOCATION		MARBLE LAKE						
IN DITCH + RAN WATER ACROSS ROAD TO		98	DATE (d/m/yr)	17 106 190						
DITCH THROUGH P.V.C. - DUG DITCH OUT SO		99	SHIFT:	D A N G						
WATER COULD FLOW TO DRILL SITE - SET		100	RIG No. T-44	101	JOB No.					
UP SUPPLY PUMP TO PUMP TO WATER		RANGER		[Signature]						
BARREL - TRICONED - FINISHED HOLE - PULLED		CLIENT		[Signature]						
RODS AND CASING - TORE DOWN READY TO										

DEMOP

LONE RANGER

AMOND RIG REPORT

TIME SHEET # 11

A. OPERATING RIG FUNCTIONS		RIG HOURS		EXTRA LABOUR (man hours)		MATERIALS CONSUMED E. (specify quantities and types)	CHARGEABLE TO CLIENT	CHARGEABLE TO RANGER	OFFICE USE ONLY											
		CLIENT	RANGER	CLIENT	RANGER															
1	Drill O.B. ✓ O to					54 Gel (bags)														
2	Drill O.B. ^{AC} to					55 Trol (bags)														
3	Set Casing to					56 Diesel in Mud / Hole														
4	Core O to					57 Polymers														
5	Core to					58														
6	Core to					59 Rod Grease (pails)														
7	Core to					60 Soluble Oil (bbl)														
8	Trip Rods (bit) at					61 LCM														
9	Trip Rods (other) at					62 Cement (bags)														
10	Pull Casing					63														
11	Ream Rods / Casing					64														
12	Drill Sand/Cave					65 Core Boxes & (lids)														
13	Condition Hole					F. MATERIALS LEFT IN HOLE (recovered)														
14	Reduce Hole					66 _____ Rods _____ ft.														
15	Survey Hole					67														
16	Log Hole					68 _____ Casing _____ ft.														
17	Engineering Work					69														
18	Cement / Grout					70 _____ Casing Shoe #														
19	Wedding Operations					71														
20	Recover Equipment					72														
21						G. OTHER MATERIALS CHARGEABLE TO CLIENT														
22						73														
23						74														
24	TOTAL OPERATING TIME					75														
B. NON-OPERATING RIG FUNCTIONS		RIG HOURS		EXTRA LABOUR (man hours)		76														
		CLIENT	RANGER	CLIENT	RANGER	77														
25	Mob <u>Demob</u>					78														
26	Setup / Teardown					79														
27	Move					H. A/R MATERIALS - OFFICE USE ONLY														
28	Water Supply					80 Length of Move	103	Hole Start Time												
29	Repairs					81 Length of Waterline / Haul														
30	Service / Maint.					82 Lift of Waterline	104	Hole Finish Time												
31	Delays - access					I. EQUIPMENT SUMMARY														
32	- water					83 Water Truck Mileage		# Loads												
33	- cement set					84 Cat Hours														
34	- parts					85 Crane Truck Mileage														
35						86														
36	TOTAL NON-OP. TIME					J. RECEIVED ON SITE (specify items, delivery, and weigh bill #'s)														
37	TOTAL RIG TIME					87														
C. EXTRA LABOUR		MAN HOURS		88																
		CLIENT	RANGER	CLIENT	RANGER	89														
38	Supervisor					K. LABOUR SUMMARY														
39	Expeditor					DRILLER	J	K	L											
40	Water Truck					<i>F. CADWELL</i>		6												
41	Cat Operator																			
42	Serviceman					HELPER														
43	Mechanic					<i>JAMIE CADWELL</i>		6												
44						<i>JODY CADWELL</i>		6												
45	Travel Time to Rig					OTHER <i>DARREN CADWELL</i>		6												
46	TOTAL EXTRA LABOUR (man hours)					96														
47						97														
D. HOLE SPECIFICATIONS		47 ANGLE _____ °		Payroll		Invoicing		Contract Sup												
HOLE NUMBER	M	SIZE	N	FROM	O	TO	P	FOOTAGE	Q	# RUNS	R	BIT S/N	S	SHELL S/N	T	SHOE S/N	U	Noncore Bit S/N	V	
48																				
49																				
50																				
51																				
52																				
53																				
REMARKS:		102 TOTAL FTGE.		CLIENT		LOCATION		DATE (d/m/yr)		SHIFT:		RIG No.		JOB/No.		RANGER		CLIENT		
<i>DE-MOB TO LUMBY.</i>				<i>CLIFTON DEV.</i>		<i>MABLE LAKE</i>		<i>20 06 190</i>		<i>D A N G</i>		<i>744</i>		<i>11</i>		<i>[Signature]</i>		<i>[Signature]</i>		

EXPLORATORY DRILLING - BEDROCK LOG

HOLE NO. Clifton 12-1 2013

PROJECT Clifton #12-1990 CO. ORDS. _____ REF. ELEV. _____ BEDROCK ELEV. _____
 LOCATION _____ CORE SIZE NQ ANGLE FROM HORIZ. -45° BEARING 034°
 CONTRACTOR _____ HOLE COMMENCED _____ HOLE COMPLETED _____

DRILLING INFO.					ROCK SUBSTANCE			ROCK MASS						
DEPTH	CASING & BITS	WATER	PERMEABILITY	LIFT & % CORE RECOVERY	R.Q.D.	ROCK UNIT CORE LOSS	FOLIATION	ROCK TYPE & DESCRIPTION Lithological classification, fabric, hardness, colour, alteration, Primary Structures	WEATHERING	STRENGTH	DEFECT SPACING (FEET)	GRAPHIC LOG OF DEFECTS	DEFECT DESCRIPTION type, orientation, planarity, roughness aperture, coatings, cement, strength, etc. PARTICULAR GENERAL	ROCK CONDITION NO. (Predicted)
50								White to Lt. grey marble			0.3-10.0	60-70 mud on 20° frac - minor silt on 60° frac 70-80 minor slickensides? at 70° 75 muddy & water pitted frac at 15° to CA 76 contact at 30° 77-80 numerous open vuggy frags & voids - water pitted - 70-80° to CA 80-85 minor mud & water pitting on 15° frac 85 contact at 30° 90-95 mud, frags @ 60-90° to CA - 74° to 64° 95-100 2" section of vuggy calc. w/ calcite crystals - muddy & minor rust 100-105 Bx w/ slickensides - white clay cherty alteration - minor graphite on 75° frac. 105-110 minor mud & white clay - slickensides at 65° 110-115 minor white clay on 35° frac at 66°		
								54'8" Grey granular limestone/marble w/ minor white bands & wispy mica inclusions - contacts at 30° to CA						
60								61'8" White to Lt. grey marble - crystalline - minor banding - more granular segments w/ brecciated fragments re cemented - yellowish tint - white to Lt. Grey crystalline						
								- local incl. mica						
70								77'1" Grey granular limestone/marble w/ minor white inclusions.						
								80'7" White to Lt. grey crystalline marble						
								87'10" Contact not distinct gradational transition Grey banded limestone/marble - banding at 30-40° to CA (bedding) - locally micaceous - locally white to Lt grey crystalline bands - locally graphitic - not aligned. } micaceous/graphitic band						
90								- banding at 30-40° to CA - micaceous - 6" micaceous zone at 99'6"						

Logged By R.W.Y-H Checked By R.W.Y-H FR Fresh Rock MW Moderately Weathered
 Date _____ Date Oct 30/90 FS Fresh Stained HW Highly Weathered
 SW Slightly Weathered EW Extremely Weathered

Water Level
 Water inflow gph
 Partial mud loss

Note: All angles measured from the core axis.

EXPLORATORY DRILLING - BEDROCK LOG

HOLE NO. Clifton 12-1 3of3

PROJECT Clifton #12 - 1990 CO. ORDS. _____ REF. ELEV. _____ BEDROCK ELEV. _____
 LOCATION Simard Rd. CORE SIZE NQ ANGLE FROM HORIZ. -45° BEARING _____
 CONTRACTOR _____ HOLE COMMENCED _____ HOLE COMPLETED _____

DRILLING INFO.						ROCK SUBSTANCE			ROCK MASS						
DEPTH	CASING & BITS	WATER	PERMEABILITY	LIFT & % CORE RECOVERY	R.Q.D.	ROCK UNIT CORE LOSS	FOLIATION	ROCK TYPE & DESCRIPTION Lithological classification, fabric, hardness, colour, alteration, Primary Structures	WEATHERING	STRENGTH	DEFECT SPACING (FEET) 0.0-3.00 3.00-10.0	GRAPHIC LOG OF DEFECTS	DEFECT DESCRIPTION type, orientation, planarity, roughness aperture, coatings, cement, strength, etc. PARTICULAR GENERAL	ROCK CONDITION NO. (Predicted)	
100								- as above - flakes of graphite in darker bands at 10° to CA					20° - 20° frac at 100'11" - water pitted - calcite deposition, minor discoloration - talc? 70° - 70° fracs at 101'1" & 101'3" - mechanical? 80° - 80° frac at 102'2" - 80 to 50° - mechanical break at 103' 125° - parting along bedding plane - water pitted - calcite 80-130° - frac at 30° - mech break? at 80° at 105'6" 30° - 3 fracs at 30° to CA at 106'8" - 106'10" - minor mud & water pitting 60-115° - weathered frac at 107'2" - vuggy - calcite crystals - minor weathering on 60° frac at 107'4" - micaceous patches		
110								- 3" white band - crystalline - 6" white band - crystalline - 3" white band - crystalline 4'3" segment of banded to mottled grey limestone/marble w/whisps of mica - locally folded/remnant bedding at 30° to CA ↓ wavy banding w/ micaceous zones					solid core 108'7" to 112'10" - 4'3" segment 60° - frac at 112'10" - commenced along micaceous bedding at 30° 65° - 60° frac at 113' - minor clay 65° - 60° frac at 113' - minor clay & slickensides on 65° frac at 114" 15-75° - minor talc on frac at 115'8" 80-115° - two 15° fracs @ 115'8" & 116' - plus 15° frac at 90° to these at 115'11" - minor mud & oxide near bedding plane orientation 90-125° - 116'8" - 80° frac - mech? 125-130° - 125° frac at 117', 30° frac at 117'11" - both w/ minor weathering		
120								124' - light grey to white crystalline marble 124' - grey - weakly banded material					80-140° - minor mud on 40° frac at 122'4" - plus mech break? at 80° to CA 80-160° - 123' - mechanical break? - fine drusy calcite on 60° frac at 123'10" 15-85° - minor mud & water pitting on 15° frac at 125'7" 85° - mechanical frac?		
130								129' - light grey to white crystalline marble - locally grey banded 133'9" - Gray banded at 20-30° to CA - locally micaceous 138'5" - Quartz incl. 138'5" to 138'9" 138'9" - mixed Biotite Gneiss & Quartz 139'3" - Quartz band at 139 Biotite Schist - brownish grey - bedding at 30° to CA - locally rusty - vuggy seams parallel to bedding						50° - white clay on slickensided shear at 128'10" 40° - minor mud & water pitting on frac. at 129'6" 120° - frac at 20° - not broken (hairline) 10° - fracture along core axis - heavy mud 40-110° - mud on 40° frac at 132'4" 80° - mech break? at 133 & 133'4" 50° - minor residue on 50° frac at 136' 55° - minor rust spots & slickensides on 55° frac at 136'5" 55° - frac at 137'3" 50° - frac at 138'2" w/ mica books, graphite, specks - water pitted - minor rusty residue minor rusty coating on 50° frac at 138'5" rusty Shear zone 141'6" rusty - parallel to bedding pegmatite/Rtz. 3" at 142' ~ 20° to CA.	
140								- Gray Gneiss 141' to 149'7" - no bedding evident - contact at 40° - Brownish grey Gneiss to 152' - EoH - 40 to 70° bedding.					40° - 40° contact - gradational parting at 70° - white 1" peg/rtz at 148'5" - parallel to bedding		
152															

Logged By _____ Checked By RWY-H FR Fresh Rock MW Moderately Weathered
 Date _____ Date Oct 30/90 FS Fresh Stained HW Highly Weathered
 SW Slightly Weathered EW Extremely Weathered

Water Level
 Water inflow gph
 Partial mud loss

Note: All angles measured from the core axis.

Total mud loss
 Page 3 of 3

EXPLORATORY DRILLING - BEDROCK LOG

HOLE NO. Clifton 12-2 / of 2

PROJECT Clifton #12 - 1990 CO. ORDS. 9+56.32S 0+23.62W REF. ELEV. ~3400ft. BEDROCK ELEV. _____
 LOCATION Simard Rd. CORE SIZE NQ ANGLE FROM HORIZ. -60° BEARING Az. 034°
 CONTRACTOR Lone Ranger HOLE COMMENCED 13/06/90 HOLE COMPLETED 13/07/90

DRILLING INFO.					ROCK SUBSTANCE				ROCK MASS					
DEPTH	CASING & BITS	WATER	PERMEABILITY	LIFT & % CORE RECOVERY	R.Q.D.	ROCK UNIT CORE LOSS	FOLIATION	ROCK TYPE & DESCRIPTION Lithological classification, fabric, hardness, colour, alteration, Primary Structures	WEATHERING	STRENGTH	DEFECT SPACING (FEET)	GRAPHIC LOG OF DEFECTS	DEFECT DESCRIPTION type, orientation, planarity, roughness aperture, coatings, cement, strength, etc. PARTICULAR GENERAL	ROCK CONDITION NO. (Predicted)
0														
10	Casing to 15'6"							overburden Boulders of limestone						
20								-15'6" Light Grey to white limestone - w/ brownish colored zones (mica) - banded at 70-80° to CA - brownish bands are micaceous - grey color from graphite grains - mica band at 65° to CA				-80° frac at 16'7" -90° mechanical break? at 17'8" - on band of white crystalline marble -90° mech? at 18'4 1/2" -90° frac at 19' -90° mech? at 19'10 1/2" - minor grinding		
30								-24'4" White to Lt. grey crystalline marble - fractured - some grey granular limestone bands - graphite grains					-85° minor grinding on frac at 21'2 1/2" - white crystalline band -80° 80° frac w/ minor white residue at 22'11" - white crystalline band. 85° -85° frac w/ white residue at 24'7" 80° -30-35° frac w/ white residue & minor mud at 25'11" Parting on grey granular band. 50° -50° frac at 26'0" 40° -40° frac at 26'3" & 26'9" -90° rotation - minor white residue and mud - minor white residue and mud on frac surfaces - many mechanical multiple fracs at 20-30° & 60° to CA - 2'4" CL 30° -45° at 29'8" 50° -50° frac w/ mud at 29'8" 50° -50° frac w/ mud to bedding - minor clay & mud 85° -85° frac w/ minor mud & clay at 30'0" 30° -30° and on 42'75" fracs at 1st 30° -30° into crossing fracs - light mud coatings & evidence of water pitting 50° -50° frac w/ white mica at 32'2" 50° -50° frac w/ minor clay & water pitting at 33' to 33'2" 50° -50° frac at 33'7" - white residue - minor rust. 85° -85° frac at 34'6" - mechanical break. 150° -50° frac w/ water pitting - minor white residue and mud at 35'8"	
40								Grey to Lt. grey granular limestone - faint banding to 45° to CA - white mica inclusions - locally graphitic grains aligned at 50° to CA.					-50° frac w/ water pitting - minor white residue and mud at 35'8" - mechanical break? at 38'2" - minor grinding	
50								-39'5" White to Lt. grey crystalline marble - contact @ 50° - weak banding at 50-70° 42'9"-42'11" Granodiorite dyke - 80° contact to 70° White to Lt. grey limestone 44'7" Granodiorite dyke - minor foliation - chl & minor staining (rust) 48' White to Lt. grey crystalline marble					- hairline fracs at 40'8" & 41'2" - fracs w/ minor white clay & slickensides? at 41'3" 70° -70° frac (rough) - minor white residue at 41'10" 80° -80° frac at 42' - minor white residue - frac at 42'3" starts at 60' - affects to 25° - minor stain & white residue 80° -80° contact at 42'11" and 70° contact at 42'11" - welded - minor white residue on 15° frac at 43' 60° -60° contact at 44'11" - welded 50° -50° fracs in granodiorite from 40° to 70° - minor rust, slickensides w/ chl on some fracs 70° -70° frac w/ rust at 47' 110° 55° -55° wavy tight contacts at 48' to 48'2" - 20° to CA 50° -15° frac w/ water pitting - weak staining at 49'8"	

Logged By R.W.Y-H. Checked By RWY-H FR Fresh Rock MW Moderately Weathered
 Date _____ Date Oct 25, 1990 FS Fresh Stained HW Highly Weathered
 SW Slightly Weathered EW Extremely Weathered

Water Level
 Water inflow gph
 Partial mud loss
 Total mud loss
 Page 1 of 2

Note: All angles measured from the core axis.

EXPLORATORY DRILLING - BEDROCK LOG

HOLE NO. Clifton 12-2 ^{LOT 4}

PROJECT Clifton 12-1990 CO. ORDS. _____ REF. ELEV. _____ BEDROCK ELEV. _____
 LOCATION Simard Rd. CORE SIZE _____ ANGLE FROM HORIZ. _____ BEARING _____
 CONTRACTOR _____ HOLE COMMENCED _____ HOLE COMPLETED _____

DRILLING INFO.					ROCK SUBSTANCE			ROCK MASS						
DEPTH	CASING & BITS	WATER	PERMEABILITY	LIFT & % CORE RECOVERY	R.Q.D.	ROCK UNIT CORE LOSS	FOLIATION	ROCK TYPE & DESCRIPTION Lithological classification, fabric, hardness, colour, alteration, Primary Structures	WEATHERING	STRENGTH	DEFECT SPACING (FEET)	GRAPHIC LOG OF DEFECTS	DEFECT DESCRIPTION type, orientation, planarity, roughness aperture, coatings, cement, strength, etc. PARTICULAR GENERAL	ROCK CONDITION NO. (Predicted)
50								50'3" Granodiorite dyke - 30° contact w/ minor limestone at 51'6" - locally stained			0.3-10.0	40'30" - 40° frac w/ water pitting & clay at 50'2" Contact at 30° - not welded as above		
								6" limestone at 54'6" - contacts 60° & 80° opposing				60'60" - some frags have rusty coatings		
								57'9" - Grey alt marble to 57'10 1/2" - transition contact at 57'11"				60'60" - crusty slickensides - graphite at 56'4" contact at 90°		
60								White to Lt grey limestone - fine grained to granular				60'60" - frags locally water pitted w/ white residue		
								64' Grey to Light grey banded limestone				60'60" - mechanical frac at 61'2"		
								66'7" Brecciated Zone - Chloritized - w/ graphite				60'60" - folding - mica bands		
								67'5" Granular zones in Lt grey to grey banded limestone				60'60" - minor chl & clay banding - mica - weak folding		
70								White to light grey limestone - indistinct banding - locally greenish to brownish w/ chlorite & mica.				60'60" - Bx zone - chl/graphite - slickensides - water pitted & fractured to 68'9"		
								71'6" Banded Grey to Lt. grey limestone - locally brown mica bands 80' to 81'6"				60'60" - bedding at 30° - frags at 60° - white clay deposition / graphite / pitted		
								82'4" Lt. grey limestone - faint banding				60'60" - tight fractures - minor chl & mica 40° - 90°		
								85'5" Grey to grey brown banded limestone - brown coloration from mica				60'60" - minor talc - cracked at 1.5° to CA		
								95'2" to 105'7" Micaceous zones parallel to bedding - folded				60'60" - minor mud & water pitting on 45° frags at 72' - slightly discolored		
								97'9" Mica rich Gneiss - folded to 97'9" - banded at 50° to CA - locally rusty / chl. - rusty bands 102' to 105'7" - along bedding				60'60" - slightly weathered frac.		
								105'7" to 106' - Pegmatite - FeH				60'60" - mechanical? - mud/cuttings on frac.		
												60'60" - spiral mechanical? frac		
												60'60" - pitted & rusty on frac at 76'7" to 77' - parallel to bedding - parting!		
												60'60" - muddy / pitted frac. at 77'6"		
												60'60" - minor slickensides on 60° frac at 78'7" - mechanical frac also - fine crystals		
												60'60" - fold nose at 79' - minor slickensides on frac at 79'10"		
												60'60" - minor clay / cuttings on frags at 80'10" & 81'2" - possibly mechanical		
												60'60" - mechanical break at 82'8"		
												60'60" - mechanical break at 85'		
												60'60" - mechanical break at 86'		
												60'60" - wavy frac at 87'8" - minor mud & clay deposition - possibly drill cuttings		
												60'60" - water pitted & muddy frac at 90'		
												60'60" - minor residue on 30° frac at 91' intersected by 10° frac at 91'6"		
												60'60" - mechanical frac at 92'7"		
												60'60" - fold nose at 93' } folded		
												60'60" - minor folding in contact zone - contact at 50 to 60°		
												60'60" - numerous rusty partings & frags - some slickensides		
106														

Logged By R.W. Y-H Checked By R.W. Y-H FR Fresh Rock MW Moderately Weathered
 Date _____ Date Oct 25, 1990 FS Fresh Stained HW Highly Weathered
 SW Slightly Weathered EW Extremely Weathered

Water Level 50
 Water inflow gph
 Partial mud loss
 Total mud loss
 Page 2 of 2

Note: All angles measured from the core axis.

EXPLORATORY DRILLING - BEDROCK LOG

HOLE NO. Clifton 12-3 (1 of 5)

PROJECT Clifton 12 - 1990 CO. ORDS. 9+47.64S 0+44.22W REF. ELEV. ~3400 ft. BEDROCK ELEV. _____
 LOCATION Simard Rd. CORE SIZE No ANGLE FROM HORIZ. -45° BEARING Az. 024°
 CONTRACTOR Lone Ranger HOLE COMMENCED 06/14/90 HOLE COMPLETED 06/15/90

DRILLING INFO.						ROCK SUBSTANCE				ROCK MASS					
DEPTH feet	CASING & BITS	WATER	PERMEABILITY	LIFT & % CORE RECOVERY	R.Q.D.	ROCK UNIT CORE LOSS	FOLIATION	ROCK TYPE & DESCRIPTION Lithological classification, fabric, hardness, colour, alteration, Primary Structures	WEATHERING	STRENGTH	DEFECT SPACING (FEET)	GRAPHIC LOG OF DEFECTS	DEFECT DESCRIPTION type, orientation, planarity, roughness aperture, coatings, cement, strength, etc. PARTICULAR	GENERAL	ROCK CONDITION NO. (Predicted)
0											0.300 0.300 3.00				
10								OB							
20								-18'7" Grey crystalline marble							
								-20'10" White to Lt. grey crystalline marble - locally grey - altered w/ mica							
								-25'3"							
								-28'6" 6" Granodiorite dyke							
30					8" CL			-28'6" White to Lt. grey crystalline marble					60° contacts w/ 10° frac		
								-30'6"					29'3" - 8" CL - w/ mud seams - water washed		
								-32'2" - reheated breccia - water washed - vuggy frags cemented w/ creamy / rusty carbonates.					30'2" - micaceous		
								-36'10" grey granular limestone / marble					45° white clay gouge on frags.		
								-37'6" White to Lt. grey crystalline marble					Breccia Zone - main frags at 70° to CA - pitted & vuggy throughout		
40								-40' grey granular limestone / marble					- minor mud on contact at 45°		
								-43'6" white to Lt. grey crystalline marble					- muddy frac at 30'10"		
								-46'5" grey granular limestone / marble					fine discolored re-heated frags		
													mechanical break at 43'		
													60° - white residue		
													60° - water pitted frac. w/ calcite crystals at 46'9" - mud & rust		
50													40° - rusty residue - water pitted - vuggy		
													60.5° - vuggy frac. - healed w/ creamy carbonate		

Logged By R.W.Y.-H. Checked By R.W.Y.-H. FR Fresh Rock MW Moderately Weathered
 Date _____ Date Oct 30/90 FS Fresh Stained HW Highly Weathered
 SW Slightly Weathered EW Extremely Weathered

Water Level
 Water inflow gph
 Partial mud loss

Note: All angles measured from the core axis.

Total mud loss
 Page 1 of 5

EXPLORATORY DRILLING - BEDROCK LOG

HOLE NO. Clifton 12-3 (2 of 5)

PROJECT Clifton 12-1990 CO. ORDS. _____ REF. ELEV. _____ BEDROCK ELEV. _____
 LOCATION _____ CORE SIZE _____ ANGLE FROM HORIZ. _____ BEARING _____
 CONTRACTOR _____ HOLE COMMENCED _____ HOLE COMPLETED _____

DRILLING INFO.					ROCK SUBSTANCE			ROCK MASS						
DEPTH (feet)	CASING & BITS	WATER	PERMEABILITY	LIFT & % CORE RECOVERY	R.Q.D.	ROCK UNIT CORE LOSS	FOLIATION	ROCK TYPE & DESCRIPTION Lithological classification, fabric, hardness, colour, alteration, Primary Structures	WEATHERING	STRENGTH	DEFECT SPACING (FEET)	GRAPHIC LOG OF DEFECTS	DEFECT DESCRIPTION type, orientation, planarity, roughness aperture, coatings, cement, strength, etc. PARTICULAR GENERAL	ROCK CONDITION NO. (Predicted)
50								Grey granular limestone/marble - locally folded w/white fine grained zones.			0.3-10.0		vuggy discolored frags at 50' 3" & 50' 6" - carbonate crystals folding drusy crystals on frac. at 53'	
60								White to Lt. grey crystalline marble - locally grey granular incl. w/ staining - 61'10" to 62'8"					minor mrd & slickensides on 50° frac at 57' vuggy rusty frac (20°) at 57'10" frags w/ calcite crystals at 58'5" water worn - some mud vuggy contact w/ staining & calcite mechanical break at 63'	
65								Mixed crystalline / granular zone w/ orange to creamy incls.					vuggy frac minor rust pitted frac w/ minor staining @ 66' partly healed frac at 66'	
70								White crystalline (to Lt. grey) marble						
73'9"								- graduation to granular - folded					drusy crystals on vuggy frac at 73'	
74								White to Lt. grey crystalline marble - locally mottled in appearance					rusty irregular frac at 74'	
80								- Lt grey crystalline to white					minor staining vuggy stained frac. 45° frac - minor white clay - mech? 70° frac cemented w/ calcite micro frac at 83' mechanical break	
85'7"								Grey granular limestone/marble					contact at 35° w/ opposing 35° frac.	
87'8"								White to Lt. grey crystalline marble						
90													frags at 35° are pitted, stained w/ residue - drusy crystals mech? 90° frags are clean / fresh mechanical break @ 93'	
95													rusty stained vuggy frac w/ calcite mech? mech @ 80° opposing calcite healed frac at 75° - water pitted	
100													minor residue - water washed	

Logged By R.W.Y.H. Checked By R.W.Y.H. FR Fresh Rock MW Moderately Weathered
 Date _____ Date Oct 30/90 FS Fresh Stained HW Highly Weathered
 SW Slightly Weathered EW Extremely Weathered

Water Level 50
 Water inflow gph
 Partial mud loss

Note: All angles measured from the core axis.

Total mud loss
 Page 2 of 5

EXPLORATORY DRILLING - BEDROCK LOG

HOLE NO. *Clifton 12-3 (3 of 5)*

PROJECT *Clifton #12-1990* CO. ORDS. _____ REF. ELEV. _____ BEDROCK ELEV. _____
 LOCATION _____ CORE SIZE _____ ANGLE FROM HORIZ. _____ BEARING _____
 CONTRACTOR _____ HOLE COMMENCED _____ HOLE COMPLETED _____

DRILLING INFO.					ROCK SUBSTANCE				ROCK MASS					
DEPTH	CASING & BITS	WATER	PERMEABILITY	LIFT & % CORE RECOVERY	R, Q, D.	ROCK UNIT CORE LOSS	FOLIATION	ROCK TYPE & DESCRIPTION Lithological classification, fabric, hardness, colour, alteration, Primary Structures	WEATHERING	STRENGTH	DEFECT SPACING (FEET) 0-3 3-10 10-30	GRAPHIC LOG OF DEFECTS	DEFECT DESCRIPTION type, orientation, planarity, roughness aperture, coatings, cement, strength, etc. PARTICULAR GENERAL	ROCK CONDITION NO. (Predicted)
100								White to Lt. grey crystalline marble					130 minor mud-crystals on surface - water washed 45/30 minor mud-crystals on surface	
110													mech? mech? mechanical break Vuggy frac - healed at 115' muddy vuggy frac @ 115'3" - calcite crystals	
120								-115'8" - contact at 30° Grey granular limestone bedding 20-30° -118'2 1/2" - contact at 30° White to Lt. grey crystalline marble					55' minor mud & staining on frac. - calcite crystals 25/11 - 2 frags at 25° to CA - muddy - also healed vuggy frac. 70/60 water pitted & stained - vuggy - creamy calcite	
130								-121' Grey granular limestone -123'6" Mixed white crystalline marble to grey granular limestone -30° contact/bedding -125'10" mixed unit of light grey to grey granular limestone - locally white & yellow - micaceous unit 127'2" to 128'3" transition					mech? 25/40 mechanical break 70 - mech? 30/15 vuggy, rusty frac at 127'9" - water washed	
140								-130'6" - grey granular limestone - bedding ~20° to CA w/ mixed interbeds - locally minor folding - graphite flakes cause grey color					130 60 mech? break on white crystalline band 70 vuggy closed frac at 132'5" - white crystalline - healed frac at 132'7" mechanical break at 133' - rehealed frac. at 133'1" - also hairline frags 90-50 mechanical? 50 drusy calcite on frac. 60 75 mud & creamy calcite on frac. at 138'11" 30 clean frac. across bedding at 139'11" 30/30 frags w/ vugs & calcite 70/60 minor mud on frac at 141'6"	
150								-143'9" White to grey - mixed unit - marble - locally discolored w/ creamy/rusty calcite, vugs? / frags. - 3" micaceous band 148'3" + 149' crosses CA at 30° (bedding)					60 irregular mechanical break at 143'11"	

Logged By _____ Checked By _____ FR Fresh Rock MW Moderately Weathered
 Date _____ Date _____ FS Fresh Stained HW Highly Weathered
 SW Slightly Weathered EW Extremely Weathered

Water Level
 Water inflow gph
 Partial mud loss

Note: All angles measured from the core axis.

Total mud loss
 Page 3 of 5

EXPLURATORY DRILLING - BEDROCK LOG

HOLE NO. _____

PROJECT Clifton #12 - 1990 CO. ORDS. _____ REF. ELEV. _____ BEDROCK ELEV. Clifton 12-3 (4 of 5)
 LOCATION _____ CORE SIZE _____ ANGLE FROM HORIZ. _____ BEARING _____
 CONTRACTOR _____ HOLE COMMENCED _____ HOLE COMPLETED _____

DRILLING INFO.						ROCK SUBSTANCE				ROCK MASS				
DEPTH	CASING & BITS	WATER	PERMEABILITY	LIFT & % CORE RECOVERY	R.Q.D.	ROCK UNIT CORE LOSS	FOLIATION	ROCK TYPE & DESCRIPTION Lithological classification, fabric, hardness, colour, alteration, Primary Structures	WEATHERING	STRENGTH	DEFECT SPACING (FEET)	GRAPHIC LOG OF DEFECTS	DEFECT DESCRIPTION type, orientation, planarity, roughness aperture, coatings, cement, strength, etc. PARTICULAR GENERAL	ROCK CONDITION NO. (Predicted)
150								-150'10" - narrow schist bed - rusty CL			0.3-10.0		thinly bedded - sheared / frac. - ~20° to CA broken core - muddy / stained - some vugs - altered	
				100				granular light grey limestone / marble - brecciated zone -	SW / MW				3ft. of fractured granular limestone - altered to clays - muddy frac surfaces - locally stained vuggy hairline fractures.	
160								-161'11" - Contact at 65-70° to CA Marble - light grey - mottled appearance - locally folded - banding not distinct					165 - calcite crystal lined frac - vuggy at 161'3" @ 65° 166 - contact w/ calcite crystals - vuggy 165 - mechanical break at 163' 135 - frac at 35° to CA - discolored - pitted - crystalline calcite (fine)	
								-167'3" Grey granular limestone / marble -168'11"					60 115 - muddy frac at 15° to CA - water pitted - vuggy - 60° break at 167'9" - water washed - stained fracs at 167'11" & 168' - 25° to CA - irreg. frac at 168'8" - minor mud.	
170								Light grey marble - mottled - locally white - locally micaceous					mechanical break at 173' 175'11" - mech? break at 75° - minor water washed 25° frac at 176'1"	
								-177'9" Grey granular limestone / marble -179' White to lt. grey crystalline marble					80 125 - mechanical? 80 125 - minor dirt & residue on 25° frac at 176' - mechanical break at 176'4" 90 - mech. breaks at 176'7" & 177' 90 - mech.?	
180								-184'9" Grey granular limestone / marble					75 115 - 181'4" - 75° irreg. frac. - hairline cracks - minor healed frac at 181'5" at 45° to CA 115 - 182'7" to 182'9" - calcite healed fracs at 45° - core at 182'8" broken at 45° to CA 50 - calcite & minor mica on frac at 183' - 50° to CA - mechanical. 45 - 184'10" - frac at 45° - calcite healed 185'6" - 55° frac.	
								Grey granular limestone / marble					70 15 30 - 186'10" - crossing fracs 15 30 - 187'4" - frac at 50° - minor mud discontinuous open crack at 75° to CA - 187'11"	
190								- transition - mottled - minor mica -192'2" Light grey to white crystalline marble					80 85 - 50° healed frac - minor vugs at 189' - irregular break - 80°-85° at 189'4" mech? 40 70 - mechanical break at 193' - probable open hairline crack at 40° to CA	
200													irregular 85-90 - mechanical break at 198'1/2" -199'8" - irregular 70° to 85° frac in crystalline white marble	

Logged By RWY-H Checked By RWY-H FR Fresh Rock MW Moderately Weathered
 Date _____ Date Oct 30/90 FS Fresh Stained HW Highly Weathered
 SW Slightly Weathered EW Extremely Weathered

Water Level
 Water inflow gph
 Partial mud loss

Note: All angles measured from the core axis.

EXPLORATORY DRILLING - BEDROCK LOG

HOLE NO. _____

PROJECT Clifton #12-1990 CO. ORDS. _____ REF. ELEV. _____ BEDROCK ELEV. Clifton 12-3 (50fs)
 LOCATION _____ CORE SIZE _____ ANGLE FROM HORIZ. _____ BEARING _____
 CONTRACTOR _____ HOLE COMMENCED _____ HOLE COMPLETED _____

DRILLING INFO.					ROCK SUBSTANCE				ROCK MASS						
DEPTH	CASING & BITS	WATER	PERMEABILITY	LIFT & % CORE RECOVERY	R.Q.D.	ROCK UNIT CORE LOSS	FOLIATION	ROCK TYPE & DESCRIPTION Lithological classification, fabric, hardness, colour, alteration, Primary Structures	WEATHERING	STRENGTH	DEFECT SPACING (FEET)	GRAPHIC LOG OF DEFECTS	DEFECT DESCRIPTION type, orientation, planarity, roughness aperture, coatings, cement, strength, etc. PARTICULAR GENERAL	ROCK CONDITION NO. (Predicted)	
200								White to Lt. grey crystalline marble			0.3-0.0 0.1-0.0 10.0		200'1" - healed calcite frac at 60° to CA - broken parallel at 200'2" fracs at 200'10", 201'1", 201'2" - 70° to 80° 202'1" - break at 85° to CA 202'6" - irregular break - mechanical at 60-80° - 203' - white crystalline 205'8" - 80° frac - minor white residue - mech? 207'6" - irregular break at 75° - crystalline - mechanical? mechanical break? at 75° 209'6" - 80-85° break - minor white residue 211'3" - irregular break w/ minor white residue - 80-85° to CA 211'11" - mechanical break - irreg. ~80° - white crystalline unit mechanical break at 213' - 70°/30° - vuggy open frac & parallel hairline frac. at 213'6" - 30° to CA - water washed - minor mud 215'11" - muddy frac at 20° to CA - also 85° mech break 216'24" - frac at 20° - minor mud - water worn 216'9 1/2" to 217'3 1/2" 218'8" - mechanical breaks? 219'9" - breaks? 70° break at 221' - mechanical? 70° break at 223' - mechanical! 224'3" - 80° break - mechanical? 225'3" - muddy - minor slickensides 228'9" - slickensides - micaceous muddy frac - weathered frac at 230'3" - minor mica - 230'11" & 231' - fracs at 70-80° - residue calcite filled healed frac at 231'2" - 90° to CA weathered frac at 40° to CA - 232' rusty - slickensides at 233' - open hairline frac - 30° at 233'5" 85° frac at 233'6" 235'4" frac at 30° to CA - water washed - minor stain 236'4" frac at 80° to CA - mech? also 236'5" 236'6" - 20° frac - vuggy - discolored - muddy - Peg contact at 237' muddy frac 237'2" at 40° - 1/8" mud longitudinal fracs & cross breaks - minor slickensides open fracs - hairline - not broken		
210															
220								-217'10 1/2" - contact 50° grey granular to grey mottled marble/limestone - locally banded w/ brown mica							
230								mica knots micaceous zone } bedded/zoned -231'6" White to Lt. grey crystalline marble -234'5" Grey mottled marble - transition contact - folded contact ~30° to CA - locally brownish bands at 40° to CA 237' Pegmatite - 60° to CA - locally garnetiferous - locally micaceous Quartz - feldspar EOH - 243'							
240															
243															

Logged By Rwy-H Checked By Rwy-H FR Fresh Rock MW Moderately Weathered
 Date _____ Date _____ FS Fresh Stained HW Highly Weathered
 SW Slightly Weathered EW Extremely Weathered

Water Level
 Water inflow gph
 Partial mud loss
 Total mud loss
 Page 5 of 5

Note: All angles measured from the core axis.

EXPLORATORY DRILLING - BEDROCK LOG

HOLE NO. Clifton 12-4 1 of 2

PROJECT Clifton #12-1990 CO. ORDS. 9+74.645 0+44.22W REF. ELEV. ~3400 ft BEDROCK ELEV. _____
 LOCATION Simard Rd CORE SIZE NQ ANGLE FROM HORIZ. -90° BEARING _____
 CONTRACTOR Lone Ranger HOLE COMMENCED 06/15/90 HOLE COMPLETED 06/16/90

DRILLING INFO.					ROCK SUBSTANCE				ROCK MASS						
DEPTH	CASING & BITS	WATER	PERMEABILITY	LIFT & % CORE RECOVERY	R.Q.D.	ROCK UNIT CORE LOSS	FOLIATION	ROCK TYPE & DESCRIPTION Lithological classification, fabric, hardness, colour, alteration, Primary Structures	WEATHERING	STRENGTH	DEFECT SPACING (FEET)	GRAPHIC LOG OF DEFECTS	DEFECT DESCRIPTION type, orientation, planarity, roughness aperture, coatings, cement, strength, etc. PARTICULAR GENERAL	ROCK CONDITION NO. (Predicted)	
0								overburden w/ boulders of marble							
10	← casing to 14 ft							14'0" Broken Marble - core ground - 8" recovered - boulders	FRFS		10	10	mud & sand on joint surfaces, water pitted, vuggy		
							17'0" ? bedrock at 17'0" ?				15	15			
20								Lt. grey marble - minor mica inclusions				20	20	mud on joint planes - vuggy - water pitted	
								-24'6" 15" granodiorite dyke/sill - 3° cl -25'9" - contact ~ 80°	FS			60	20	rusty joints at 20° & 60° ~ 90° rotation contact ~ 80° to core axis	
30							Marble - white bands in light grey marble grading to mainly white crystalline marble w/ light grey bands				40	20			
							remnant bedding - banding ~ 80° to core axis	FS			45	45	open muddy joint surface - mechanical break at 34'5"		
							34'5" minor mica inclusions - brown/translucent				60	60			
40							White to Lt. grey marble - banding not distinct				70	70	white residue at 40'4" - 70-80° break - mechanical? - 80-90° break - mechanical?	Competent crystalline material up to 6'10" zone possible - mech? breaks	
											75	75	80-90° break - mech? mechanical break - water washed - muddy frac. joint at 55° to core axis - 47'2" - 80-90° break - mechanical?		

Logged By RWY-H Checked By RWY-H FR Fresh Rock MW Moderately Weathered
 Date June 21/90 & June 23/90 Date Oct 30/90 FS Fresh Stained HW Highly Weathered
 SW Slightly Weathered EW Extremely Weathered

Water Level
 Water inflow gph
 Partial mud loss

Note: All angles measured from the core axis.

Total mud loss
 Page 1 of 2

EXPLORATORY DRILLING - BEDROCK LOG

HOLE NO. *Clifton 12-4 2 of 2*

PROJECT *Clifton #12-1990* CO. ORDS. _____ REF. ELEV. _____ BEDROCK ELEV. _____
 LOCATION _____ CORE SIZE _____ ANGLE FROM HORIZ. _____ BEARING _____
 CONTRACTOR _____ HOLE COMMENCED _____ HOLE COMPLETED _____

DRILLING INFO.					ROCK SUBSTANCE				ROCK MASS					
DEPTH	CASING & BITS	WATER	PERMEABILITY	LIFT & % CORE RECOVERY	R.Q.D.	ROCK UNIT CORE LOSS	FOLIATION	ROCK TYPE & DESCRIPTION Lithological classification, fabric, hardness, colour, alteration, Primary Structures	WEATHERING	STRENGTH	DEFECT SPACING (FEET)	GRAPHIC LOG OF DEFECTS	DEFECT DESCRIPTION type, orientation, planarity, roughness aperture, coatings, cement, strength, etc. PARTICULAR GENERAL	ROCK CONDITION NO. (Predicted)
50								Light grey moderately banded marble - banding 65-75° to CA			0.3-10.0		90° - mechanical break at 90° to muddy frac at 50° to CA 50'6" to 53'6" 88° - mica on parting at 51'4" 75° - oxidized frac plane at 52' 5'35" - 35° frac at 90° rotation from 5° frac 5'75" - 75° graphitic coating on parting at 55'2" - continuation? of 5° frac. - longitudinal frac. continues to 57'6" 40' - open cracks w/ calcite / mud on surfaces - minor rust & graphite 30'15" - graphite & slickensides at 60' 20'40" - 20° frac w/ mud & graphite at 60'10" 15'20" - mechanical break at 61'2" - mica & flakes of graphite 10'40" - brecciated / fracture zone 61'2" to 62'2" - minor rust - open crack w/ rust at 62'2" - mechanical break? at 63'4" - minor flakes of graphite 45' - mechanical break at 66' 35'55" - 55° frac at 66'10" - minor weathering - talc! - mechanical break at 67' 35'50" - mud weathered at 68'2" - stained / minor weathering at 68'10" 60' - frac w/ mica & minor flakes of graphite - 71'3" 45' - banding at 60-70° to CA 75' - rusty frac parallel to bedding at 74'5" 75' - schistose - folded at 68' 15' - rusty frac at 82'6" 70'15" - 60'15" -	
60						34 1/2" CL		- increase grey (graphite) banding 67'0" Lt. grey to white crystalline marble - minor banding - 55° - white crystalline increasing grey banding 75' inter bedded limestone / gneiss - bedding ~ 75° 75'1" Biotite Gneiss - locally schistose - bedding ~ 55°						
70														
80														
85								85 - End of Hole						

Logged By *RWY-N* Checked By *RWY-H* FR Fresh Rock MW Moderately Weathered
 Date *June 23/90* Date *Oct 30/90* FS Fresh Stained HW Highly Weathered
 SW Slightly Weathered EW Extremely Weathered


Water Level
 Water inflow gph
 Partial mud loss

Note: All angles measured from the core axis.

EXPLORATORY DRILLING - BEDROCK LOG

HOLE NO. *Clifton 12-5 1 of 2*

PROJECT *Clifton #12-1990* CO. ORDS. *9+73.68S 0+87.78W* REF. ELEV. *~3400 ft* BEDROCK ELEV. _____
 LOCATION *Simard Rd* CORE SIZE *NA* ANGLE FROM HORIZ. *-60°* BEARING *Az. 034°*
 CONTRACTOR *Lone Ranger* HOLE COMMENCED *06/18/90* HOLE COMPLETED *06/18/90*

DRILLING INFO.					ROCK SUBSTANCE				ROCK MASS					
DEPTH	CASING & BITS	WATER	PERMEABILITY	LIFT & % CORE RECOVERY	R.Q.D.	ROCK UNIT CORE LOSS	FOLIATION	ROCK TYPE & DESCRIPTION Lithological classification, fabric, hardness, colour, alteration, Primary Structures	WEATHERING	STRENGTH	DEFECT SPACING (FEET) 0.3 1.0 3.0 10.0	GRAPHIC LOG OF DEFECTS	DEFECT DESCRIPTION type, orientation, planarity, roughness aperture, coatings, cement, strength, etc. PARTICULAR GENERAL	ROCK CONDITION NO. (Predicted)
0														
10								<i>overburden w/ marble boulders</i>						
20								<i>Dirty-discolored limestone Grey banded limestone/marble - w/ interbedded bands of quartzite & granodiorite - bedding/banding ~75° to CA (variable from 60-80°)</i>	<i>FR</i>					
30								<i>-29'6"-75° contact Quartzite - locally w/ granodiorite & gneiss bands -35'0" Rusty Stained Gneiss - locally garnetiferous - 1/4" mud seal at 37'10" - calcite stringers at 38'5" - rusty bands and bedding at 80° to 90° to CA</i>				<i>partings on bedding planes - 70 to 85° - locally joints/fracs at 10° to 20° to CA</i>		
40						<i>7'11" 3'3" CL/ 1'11"</i>		<i>- locally schistose zones - fault/shear zone 40'6" to 45'0" - blocky, rusty-muddy - fault/shear zone at 49' - some calcite</i>	<i>FR FS FS</i>			<i>Sheared/fractured core Bx - shear zone</i>		
50														

Logged By *RWVH* Checked By *[Signature]* FR Fresh Rock MW Moderately Weathered
 Date _____ Date _____ FS Fresh Stained HW Highly Weathered
 SW Slightly Weathered EW Extremely Weathered

Water Level
 Water inflow gph
 Partial mud loss
 Total mud loss
 Page *1* of *2*

Note: All angles measured from the core axis.

EXPLORATORY DRILLING - BEDROCK LOG

HOLE NO. *Clifton 12-5 2 of 2*

PROJECT *Clifton #12-1990* CO. ORDS. _____ REF. ELEV. _____ BEDROCK ELEV. _____
 LOCATION _____ CORE SIZE _____ ANGLE FROM HORIZ. _____ BEARING _____
 CONTRACTOR _____ HOLE COMMENCED _____ HOLE COMPLETED _____

DRILLING INFO.					ROCK SUBSTANCE				ROCK MASS						
DEPTH	CASING & BITS	WATER	PERMEABILITY	LIFT & % CORE RECOVERY	R.Q.D.	ROCK UNIT CORE LOSS	FOLIATION	ROCK TYPE & DESCRIPTION Lithological classification, fabric, hardness, colour, alteration, Primary Structures	WEATHERING	STRENGTH	DEFECT SPACING (FEET)		GRAPHIC LOG OF DEFECTS	DEFECT DESCRIPTION type, orientation, planarity, roughness, aperture, coatings, cement, strength, etc. PARTICULAR GENERAL	ROCK CONDITION NO. (Predicted)
											0-3.0	3.0-10.0			
58								Gneiss - Qtz feldspar mica - locally micaceous bands	FR FS					Partings on bedding planes common	
60						XX 2ft CL XX		- 1" mica schist at 60'2" ↑ increased mica - rusty	FS to SW					- 70° to 85° - locally frac at 5° to 15° to CA	
70								↓ Grey gneiss - minor rusting	FS to FR						
80								- mica schist 79'3" to 79'5" } minor folding 80'0" folded Grey gneiss - localized limestone bands 83'6" grey gneiss - folded - 86'6" to 87'	FR FR						
90								↓ - 94'6" Schist - biotite bedding ~ 50° locally folded grading to grey gneiss ↓ competency increasing	FR FS						
103								Bot 103' graphitic slickensides at 10° to 15° to CA and at 25° to CA - movement across core - net along axis fold nose at 102'5" 40° 30°	FR FS						

Logged By *RWY-H* Checked By *[Signature]* FR Fresh Rock MW Moderately Weathered
 Date _____ Date _____ FS Fresh Stained HW Highly Weathered
 SW Slightly Weathered EW Extremely Weathered

Water Level
 Water inflow gph
 Partial mud loss
 Total mud loss
 Page *2* of *2*

Note: All angles measured from the core axis.

EXPLORATORY DRILLING - BEDROCK LOG

HOLE NO. Clifton 12-6 1 of 4

PROJECT Clifton #12-1990 CO. ORDS. 9+28.68s 0+74.56w REF. ELEV. ~3400 ft. BEDROCK ELEV. _____
 LOCATION Simard Rd. CORE SIZE NQ ANGLE FROM HORIZ. -60° BEARING Az. 032°
 CONTRACTOR Lone Ranger HOLE COMMENCED 06/18/90 HOLE COMPLETED 06/18/90

DRILLING INFO.						ROCK SUBSTANCE				ROCK MASS				
DEPTH	CASING & BITS	WATER	PERMEABILITY	LIFT & % CORE RECOVERY	R.Q.D.	ROCK UNIT CORE LOSS	FOLIATION	ROCK TYPE & DESCRIPTION Lithological classification, fabric, hardness, colour, alteration, Primary Structures	WEATHERING	STRENGTH	DEFECT SPACING (FEET) 0-3 3-10 10-30	GRAPHIC LOG OF DEFECTS	DEFECT DESCRIPTION type, orientation, planarity, roughness aperture, coatings, cement, strength, etc. PARTICULAR GENERAL	ROCK CONDITION NO. (Predicted)
0														
10														
20								overburden w/ boulders of marble						
30														
32'0"						CL 1'2"		White to Lt. grey crystalline marble					Blocky - some breaks on bedding - others irregular	
35'0"								Grey banded limestone/marble - granular - local micaceous layers					30-36'6" - break at 30° - minor talc	
38'3"								Dirty limestone - micaceous - minor talc.					37'3" - break at 10-15° - stained - water washed	
39'4"								Grey banded limestone/marble - remnant bedding 55-60° to CA					partings on micaceous layers	
40								43'0" - local swirls & blebs of mica					40'6" - calcite infilling on frac - some stained - locally crystalline - open	
								Lt. Grey to white crystalline marble - minor banding - locally granular bands - grey					42'1" break at 75° to CA - breaks on bedding at 42'3" to 42'4"	
								47'4" - contact at 65°					20-75 weathered frags at 35° & 70° to CA - at 42'6"	
								Lt. grey to white crystalline marble - weak bedding					83 mech? breaks at 43'10" & 44'10"	
													80-90 mech break at 45'2"	
													46'9" - mechanical break? at 90° to CA	
													47'11" - stained vuggy frac at 50° to CA - calcite deposit.	
													48'5" - break (mech?) at 55° - on bedding plane	
													stained frags at 48'11" & 49'1" - stained calcite deposit - vuggy pitted - crystals	
													mechanical break at 48'11" & 49'1" - 55° to CA	

Logged By Rwy-H Checked By Rwy-H FR Fresh Rock MW Moderately Weathered
 Date _____ Date Oct 30/90 FS Fresh Stained HW Highly Weathered
 SW Slightly Weathered EW Extremely Weathered

Water Level
 Water inflow gph
 Partial mud loss

Note: All angles measured from the core axis.

Total mud loss
 Page 1 of 4

EXPLORATORY DRILLING - BEDROCK LOG

HOLE NO. Clifton 12-6 2 of 4

PROJECT Clifton #12-1990 CO. ORDS. _____ REF. ELEV. _____ BEDROCK ELEV. _____
 LOCATION _____ CORE SIZE _____ ANGLE FROM HORIZ. _____ BEARING _____
 CONTRACTOR _____ HOLE COMMENCED _____ HOLE COMPLETED _____

DRILLING INFO.					ROCK SUBSTANCE			ROCK MASS						
DEPTH	CASING & BITS	WATER	PERMEABILITY	LIFT & % CORE RECOVERY	R.Q.D.	ROCK UNIT CORE LOSS	FOLIATION	ROCK TYPE & DESCRIPTION Lithological classification, fabric, hardness, colour, alteration, Primary Structures	WEATHERING	STRENGTH	DEFECT SPACING (FEET)	GRAPHIC LOG OF DEFECTS	DEFECT DESCRIPTION type, orientation, planarity, roughness aperture, coatings, cement, strength, etc. PARTICULAR GENERAL	ROCK CONDITION NO. (Predicted)
5'								Lt. grey to white marble - crystalline - locally stained on hairline fracs at 52' & 54'3"			0.3 0.0 3.0 10.0	393 395 397 399 401 403 405 407 409 411 413 415 417 419 421 423 425 427 429 431 433 435 437 439 441 443 445 447 449 451 453 455 457 459 461 463 465 467 469 471 473 475 477 479 481 483 485 487 489 491 493 495 497 499 501 503 505 507 509 511 513 515 517 519 521 523 525 527 529 531 533 535 537 539 541 543 545 547 549 551 553 555 557 559 561 563 565 567 569 571 573 575 577 579 581 583 585 587 589 591 593 595 597 599 601 603 605 607 609 611 613 615 617 619 621 623 625 627 629 631 633 635 637 639 641 643 645 647 649 651 653 655 657 659 661 663 665 667 669 671 673 675 677 679 681 683 685 687 689 691 693 695 697 699 701 703 705 707 709 711 713 715 717 719 721 723 725 727 729 731 733 735 737 739 741 743 745 747 749 751 753 755 757 759 761 763 765 767 769 771 773 775 777 779 781 783 785 787 789 791 793 795 797 799 801 803 805 807 809 811 813 815 817 819 821 823 825 827 829 831 833 835 837 839 841 843 845 847 849 851 853 855 857 859 861 863 865 867 869 871 873 875 877 879 881 883 885 887 889 891 893 895 897 899 901 903 905 907 909 911 913 915 917 919 921 923 925 927 929 931 933 935 937 939 941 943 945 947 949 951 953 955 957 959 961 963 965 967 969 971 973 975 977 979 981 983 985 987 989 991 993 995 997 999 1001 1003 1005 1007 1009	fracs w/ calcite residue - wk. weathered - 50' mech frac at 80° to CA at 501" 51'3" - 70° parting on bedding plane - white mica 53'9" 30° frac w/ stained calcite residue - 80° mech break? hairline frags - stained - vuggy locally break at 30° - irregular on crystal boundaries - minor stain - 54'8" 35° & 20° frags - water washed - stained - vuggy - healed frac at 56'6" hairline frac at 10° - fades out 57'1/2" - 70° break - mech? 59'9/2" - mech? 80° 61'11" - mech? 80° - white band - hairline crack at 62'6" - contact 62'9" - break at 80-85° 64'6" - mechanical 65'6" - mechanical 67'9" - mechanical? 68'3" - muddy frac at 30° - some calcite crystal growth 69'2" & 69'6" - mech? - multiple breaks 69'6" to 69'9" calcite residue - minor discoloration - vuggy - assoc. w/ 15-20° frac at 69'9" mech break at 80° hairline at 15° - Bx 71'2" to 71'7" 72'11" - mech? break minor staining on washed frac - 73'6" to 74' 75'5" to 75'9" - Bx 76' - water washed & stained frac at 85° 77'1" to 77'9" - Bx - broken across & along CA mech at 90° white powder residue on 40° frac at 78'2" - coarse crystalline marble 79'3" - 30° frac w/ white powdery residue 80'2" - 35° frac w/ calcite deposit - stained - slickensides on base contact - porous 80'2" - 60° frac w/ white residue 81'4" - 90° break broken into 1/2 to 3" segments - 60° to 70° frac w/ white residue - mainly 85-90° frags - mech? 83'4" - at 90° frac at 83'11" break at 85'2" mech? break at 86' 86'6" break - irregular 87'5" & 87'10" - rough breaks 88'10" break at 90° 4 breaks 80-85° > 89'1" to 89'6" 90'7 1/2" - break - mech? 92'6" break (mech?) 93'8 1/2" - break (mech?) 85-90° 95'5" - break at 80° - mech? 97'4" - break at 85° 98'8" & 98'9" - breaks at 80° 99'3" slightly weathered frags at 20-30° to CA	
60'								White to Lt. grey crystalline marble - locally grey zones/mottled caused by graphite - bedding? to 72'5" granular (bed of grey limestone 62' to 62'6" - locally wisps of brown mica						
70'								- contact ~ 50° - 72'5" Lt. grey - crystalline marble - 73'8 1/2" - locally white coarse crystalline marble - 78'6" Grey granular limestone/marble - locally stained on healed frags. - 81'2 1/2" - contact at 40°						
80'								White to Lt. grey crystalline - coarse crystals break out on surface of core leaving pits						
90'								- 90'11" Lt. Grey crystalline - locally white crystalline - remnant bedding at 40° - 95'3" to 95'6" - Lt. grey granular at 40° - 96'10 1/2" to 97'1" - Lt. grey granular at 50°						
100'														

Logged By RWY-A Checked By RWY-A FR Fresh Rock MW Moderately Weathered
 Date _____ Date _____ FS Fresh Stained HW Highly Weathered
 SW Slightly Weathered EW Extremely Weathered

Note: All angles measured from the core axis. Water Level 50 Water inflow gph Partial mud loss Total mud loss Page 2 of 4

EXPLORATORY DRILLING - BEDROCK LOG

HOLE NO. Clifton 12-6 3 of 4

PROJECT Clifton #12 - 1990 CO. ORDS. _____ REF. ELEV. _____ BEDROCK ELEV. _____
 LOCATION _____ CORE SIZE _____ ANGLE FROM HORIZ. _____ BEARING _____
 CONTRACTOR _____ HOLE COMMENCED _____ HOLE COMPLETED _____

DRILLING INFO.					ROCK SUBSTANCE			ROCK MASS							
DEPTH	CASING & BITS	WATER	PERMEABILITY	LIFT & % CORE RECOVERY	R.Q.D.	ROCK UNIT CORE LOSS	FOLIATION	ROCK TYPE & DESCRIPTION Lithological classification, fabric, hardness, colour, alteration, Primary Structures	WEATHERING	STRENGTH	DEFECT SPACING (FEET)	GRAPHIC LOG OF DEFECTS	DEFECT DESCRIPTION type, orientation, planarity, roughness aperture, coatings, cement, strength, etc. PARTICULAR GENERAL	ROCK CONDITION NO. (Predicted)	
100								Lt. grey to white crystalline marble -101'7" - 1" grey granular limestone bed at 40°			0.3 0.0 10.0	80 70 60 50 40 30 20 10	fracs at 80-90° -101'2" trace at 80° - fracs at 101'6" & 101'10" - staining at 101'10" muddy coated frac - shallow angle to CA (0 to 10°) from 101'10" to 104'1" - calcite xhals - cross broken at ~80° - open hairline crack (irreg) to 104'5" - vuggy -105'10 1/2" - 40 to 70° frac -106'11" - 30° frac - broken core 107 to 108' - long frac - // to CA w/ cross breaks - break at 90° to bedding -109'10" -110'4" break -110'5" & 110'7" - healed - hairline fracs -113'4" - break mech? -114'11" - mech? - mechanical break at 116' - 2 breaks (117'8" & 117'2") - 80° to 85° to CA -118'4" - mech? -119'4" - mech?		
110								105'5" Micaceous limestone unit w/ -106'2" - light brown mica - 40° contacts - remnant bedding at 30° -109'10" Grey granular limestone / marble - locally Lt. grey to white crystalline marble bands - bedding at 50°							
120								-119'4" Lt. grey mottled marble - contact 50° - locally non-distinct bedding marked by concentrations of mica - 50° to CA (Some at 40-45° to CA) - pulling on mica -124'2" contact at 50° Grey granular limestone / marble -126'7" White to Lt. grey crystalline marble w/ mica rich bands at 30 to 40°							
130								-126'7" White to Lt. grey crystalline marble w/ mica rich bands at 30 to 40° - remnant bedding marked by mica bands 35-40° - (Folded) Lt. Grey Marble - note bedding changes -136' = 30-35°, 136'4" = 40°, 136'7" = 50° from 35° to 65° - bedding at 138' = 55-60° in ~3' h. -138'3" - mica band at 65° -139'2" - lower contact 50° (talc/graphitic layer)							
140								-141'0 1/2" - contact at 65° Gneiss - micaceous Sand - water coarse? -143'9" -144'9" - 11" core loss White to Lt. crystalline marble - top 2" rusty staining - remnant bedding marked by mica bands - 40° -149'11 1/2" contact w/ Gneiss at 55°							

Logged By RWY-A Checked By RWY-A FR Fresh Rock MW Moderately Weathered
 Date _____ Date _____ FS Fresh Stained HW Highly Weathered
 SW Slightly Weathered EW Extremely Weathered

Water Level
 Water inflow gph
 Partial mud loss

Note: All angles measured from the core axis.

Total mud loss
 Page 3 of 4

EXPLURATORY DRILLING - BEDROCK LOG

HOLE NO. *Clifton 12-6 4 of 4*

PROJECT *Clifton #12 - 1990* CO. ORDS. _____ REF. ELEV. _____ BEDROCK ELEV. _____
 LOCATION _____ CORE SIZE _____ ANGLE FROM HORIZ. _____ BEARING _____
 CONTRACTOR _____ HOLE COMMENCED _____ HOLE COMPLETED _____

DRILLING INFO.						ROCK SUBSTANCE				ROCK MASS				
DEPTH	CASING & BITS	WATER	PERMEABILITY	LIFT & % CORE RECOVERY	R.Q.D.	ROCK UNIT CORE LOSS	FOLIATION	ROCK TYPE & DESCRIPTION Lithological classification, fabric, hardness, colour, alteration, Primary Structures	WEATHERING	STRENGTH	DEFECT SPACING (FEET) 0.3 1.0 3.0 10.0	GRAPHIC LOG OF DEFECTS	DEFECT DESCRIPTION type, orientation, planarity, roughness aperture, coatings, cement, strength, etc. PARTICULAR GENERAL	ROCK CONDITION NO. (Predicted)
151								Gneiss - minor folding - bedding 30-40° to CA - rusty fracs & partings on bedding planes - some graphite & slickensides - calcite / Qtz. 153 to 156'					Bx Zone	
160								bedding 40°						
End								End of Hole 161'						

Logged By _____ Checked By _____
 Date _____ Date _____
 FR Fresh Rock MW Moderately Weathered
 FS Fresh Stained HW Highly Weathered
 SW Slightly Weathered EW Extremely Weathered

Water Level
 Water inflow gph
 Partial mud loss

Note: All angles measured from the core axis.

Total mud loss
 Page *4 of 4*

EXPLORATORY DRILLING - BEDROCK LOG

HOLE NO. Clifton 12-7 (1 of 4)

PROJECT Clifton 12 1990 CO. ORDS. -6+50.60s 2+71.54w REF. ELEV. ~2950ft BEDROCK ELEV. _____
 LOCATION Simard Rd. CORE SIZE NQ ANGLE FROM HORIZ. -60° BEARING A2.022°
 CONTRACTOR Lone Ranger HOLE COMMENCED 06/19/90 HOLE COMPLETED 06/19/90

DRILLING INFO.					ROCK SUBSTANCE				ROCK MASS					
DEPTH	CASING & BITS	WATER	PERMEABILITY	LIFT & % CORE RECOVERY	R.Q.D.	ROCK UNIT CORE LOSS	FOLIATION	ROCK TYPE & DESCRIPTION Lithological classification, fabric, hardness, colour, alteration, Primary Structures	WEATHERING	STRENGTH	DEFECT SPACING (FEET)	GRAPHIC LOG OF DEFECTS	DEFECT DESCRIPTION type, orientation, planarity, roughness aperture, coatings, cement, strength, etc. PARTICULAR GENERAL	ROCK CONDITION No. (Predicted)
0														
0-17								CASING 0-17'						
10								Note: marked 16' but no evidence of core missing - remarked 17'						
17								17' Banded Grey/White granular marble - locally creamy colored interbeds caused by surface weathering to 29' - remnant bedding 55 to 60° to CA						
20								bedding 55-60° to CA				20' - 17' 8" - slightly weathered 20' 85" - 18' 8" - minor mud 20' 85" - 19' 6" - rough break 85-90° to CA 20' 70" - 20' 30" - 2 cracks w/ 1/4" mud - also partially healed frac (20') at 20' 9" 20' 30" - 20' 10" - irregular break 20' 10" - 21' 8" intersecting fracs at 30°/50° plus 70° frac at 21' 11" mech? 20' 10" - parting on 65° bedding plane at 22' 11" - intersecting 35/50° fracs at 22' 5" 20' 10" - 3" broken core 20' 10" - minor mud & stain on frac at 23' 11" 20' 10" - mech break at 23' 11"		
30												20' 10" - 23' 4 1/2" - 1/2" mud on 40° wavy frac. 20' 10" - 25' 7" - 40° - all healed 20' 10" - mech break at 70° - 26" 20' 10" - 27' 11" frac @ 40° 20' 10" - 28' 7" - open vuggy discolored parting on weak bedding plane - graphitic? - also numerous healed fracs. parting on 60° bedding plane		
40								locally porous/stained bedding 60° 44 1/2" White to Lt. grey crystalline marble 45' 6" locally porous/stained Lt grey to white crystalline marble locally banded 49' 7" to 50' 3" vuggy porous stained beds - partly alt. to clay				20' 10" - 32' 9" - mechanical? 20' 10" - hairline frac @ 10° - open 32' 10" to 33' 11" 75° frac at 33' 9" 20' 10" - 2 fracs at 10° - opposing - parting on bedding @ 60° + 35° frac. Parting on bedding at 34' 9" w/ 1/4" mud 20' 10" - hairline frac at 35° w/ 2 fracs at 35' 3" - 35' 10" 20' 10" - hairline frac at 35' 6" 20' 10" - rusty frac at 36" 20' 10" - 33' 4" - rusty frac 10° to 30° - brecciated & partly healed - vuggy 20' 10" - 38' 5" - rusty w/ calcite crystals - vuggy 20' 10" - 39' 2 1/2" } breaks on or near bedding planes - minor rust staining 20' 10" - 40' 3" } 20' 10" - 41' 5" - parting on old bedding - minor rust 20' 10" - 42' 3" } numerous hairline fracs. 20' 10" - 44' 1 1/2" 20' 10" - 45" 20' 10" - 48' 2 1/2" - porous - vuggy core 20' 10" - 48' 8" - fracs at 10°, 35°, 60° - intersecting 20' 10" - 48' 1 1/2" 20' 10" - 49' 7"		

Logged By R.W.Y.-H. Checked By RWY-H FR Fresh Rock MW Moderately Weathered
 Date Sept 18/90 Date Oct 29/90 FS Fresh Stained HW Highly Weathered
 SW Slightly Weathered EW Extremely Weathered

Water Level 50
 Water inflow gph Δ
 Partial mud loss

Note: All angles measured from the core axis.

EXPLORATORY DRILLING - BEDROCK LOG

HOLE NO. Clifton 12-7 2 of 4

PROJECT Clifton #12 - 1990 CO. ORDS. _____ REF. ELEV. _____ BEDROCK ELEV. _____
 LOCATION _____ CORE SIZE _____ ANGLE FROM HORIZ. _____ BEARING _____
 CONTRACTOR _____ HOLE COMMENCED _____ HOLE COMPLETED _____

DRILLING INFO.					ROCK SUBSTANCE			ROCK MASS						
DEPTH	CASING & BITS	WATER	PERMEABILITY	LIFT & % CORE RECOVERY	R.Q.D.	ROCK UNIT CORE LOSS	FOLIATION	ROCK TYPE & DESCRIPTION Lithological classification, fabric, hardness, colour, alteration, Primary Structures	WEATHERING	STRENGTH	DEFECT SPACING (FEET)	GRAPHIC LOG OF DEFECTS	DEFECT DESCRIPTION type, orientation, planarity, roughness aperture, coatings, cement, strength, etc. PARTICULAR GENERAL	ROCK CONDITION NO. (Predicted)
50						5 1/2"		Grey granular limestone/marble remnant bedding at 50° to CA - Ankeritic Zone 52' 1/2" to 52' 9" - 52' 7" Dark grey fine grained calc silicate - no evidence of old bedding - 55' 7" - contact at 45° - mottled creamy to grey marble - solution in filled? fracture zone - locally brecciated - partially healed - 59' 3 1/2" to 59' 8" - Quartzite - fractured - 61' 1/2" to granular marble - Grey to Lt. grey granular limestone/marble - 62' 11" talc & mica zone - 64' 5"			0.300 3.00 10.0		- 52' 2" - hairline healed frac at 20° - 52' 2" - clay gouge - 5 1/2" CL (mud?) 52' 2 1/2" to 52' 8" - 53' 9" - hairline frac - 53' 2" break at 70° - 54' 4 1/2" - irregular frac - mech? - hairline fracs at ~20° - 55' 3 1/2" - irregular frac - mech? - 55' 9" - irregular frac - mech? - 55' 9 1/2" - mech? - 56' 3" - calcite lined frac - 56' 3" - drusy calcite crystals - 56' 7" to 56' 9" - Breccia zone 56' 7" to 56' 9" - 56' 3" - granular breccia zone - fillings to 1/4" wide - 56' 3" - white powdery residue - 60° frac - calcite deposit, creamy partly healed - 56' 3" - minor dx at 58' 160" - 56' 3" - areas w/ creamy calcite filling - 56' 3" - multiple hairline fracs - 70° frac at 61' w/ minor mica and soft white gouge - 61' 2" - 63' - parting at 55° - minor mica - 63' 1/2" - irregular breccia - 55° - not an bedding - 64' 1/2" - 1" mica / talc zone - some calcite crystals - minor rust 55 to 60° - 65' 8 1/2" - mech? at 75° - 65' 11 1/2" - minor white residue on 70° frac - 66' 8" - mech? at 75° - irregular - 66' 8" - irregular frac w/ white residue at 45° partly healed cross fracs. - 67' 6 1/2" - irregular break - mech? - 68' 1/2" - irregular break - mech? - 69' 9" - mech? - 70' 2 1/2" - minor rust - breccia zone 75° - ankeritic - healed lower contact (open upper) - 70' 10 1/2" - calcite crystals - 72' 4" - minor white residue - 73' - mech? at 85° - 73' - mech? at 85° - fine w/ white granular residue - multiple mechanical breaks ~80° - 74' 2" - break at 80° - mech? at 78° - mech? at 76° - 78' 3" - minor mica - parting on bedding 60-70° - 78' 3" - mud residue & calcite crystals on frac at 10-15° - 80' 10" - mech? - 81' 3/4" - mech? - 85' 4" - mech? - irregular along bedding - 86' - mod residue & white residue - 86' 10 1/2" parting on bedding? - 87' 3" - parting on mica - 88' 10" - white residue - 89' 11" - mech? near bedding - 91' 4" to 91' 8" - hairline frac at 25° - 95' 5" to 96' - parting on bedding - folded - white residue & talc - 96' 3 1/2" - white talc ~20° to CA - 98' 8" - 30° frac + mech break 90°	
60								Dark grey fine grained calc silicate - 61' 1/2" to granular marble - Grey to Lt. grey granular limestone/marble - 62' 11" talc & mica zone - 64' 5" - 67' 6" - Grey granular limestone - marble - w/ localized white - grey - 70' 6 1/2" to 70' 8 1/4" - ankeritic breccia zone - remnant bedding 50-70° - most ~60° - remnant bedding ~65° - remnant bedding ~70° - 86' - bedding at ~75° - 86' 3" - white to Lt grey crystalline marble - not as coarse as at other locations - numerous discontinuous mica bands - tablets mark remnant bedding ~80° to CA - 90' 8" Grading ↓ - 91' 10 1/2" - Grey granular limestone/marble - remnant bedding not distinct - locally folded - folding ~11 to CA 0° to 20° - Bedding ~20 to 40° - folded						
70														
80														
90														
100														

Logged By _____ Checked By [Signature] FR Fresh Rock MW Moderately Weathered
 Date _____ Date _____ FS Fresh Stained HW Highly Weathered
 SW Slightly Weathered EW Extremely Weathered

Water Level
 Water inflow gph
 Partial mud loss

Note: All angles measured from the core axis.

Total mud loss
 Page 2 of 4

EXPLORATORY DRILLING - BEDROCK LOG

HOLE NO. Clifton 12-7 3 of 4

PROJECT Clifton #12 - 1990 CO. ORDS. _____ REF. ELEV. _____ BEDROCK ELEV. _____
 LOCATION _____ CORE SIZE _____ ANGLE FROM HORIZ. _____ BEARING _____
 CONTRACTOR _____ HOLE COMMENCED _____ HOLE COMPLETED _____

DRILLING INFO.						ROCK SUBSTANCE				ROCK MASS				
DEPTH	CASING & BITS	WATER	PERMEABILITY	LIFT & % CORE RECOVERY	R.Q.D.	ROCK UNIT CORE LOSS	FOLIATION	ROCK TYPE & DESCRIPTION Lithological classification, fabric, hardness, colour, alteration, Primary Structures	WEATHERING	STRENGTH	DEFECT SPACING (FEET) 0-1 1-3 3-10 10-30	GRAPHIC LOG OF DEFECTS	DEFECT DESCRIPTION type, orientation, planarity, roughness aperture, coatings, cement, strength, etc. PARTICULAR GENERAL	ROCK CONDITION NO. (Predicted)
100								- locally micaceous } - fold nose/bi - micaceous } Prominent mica - 102' 3" - folding					100' 6" - parting on micaceous plane 101' 2" - mech break along calcite infilling & micaceous bedding	
								Dk. Grey limestone/calc-silicated - irregular bedding - fine grained					- break at 65° 101' 11/2" - irregular break - mech 102' 8" - calcite slickensides - vuggy for 1" above contact 105' 11/2" - healed fault/Bx zone 101' 8" to 105' 7/2"	
								- 105' 8 1/2" Grey to Lt. grey marble - no bedding - local healed frags - locally vuggy					105' 11/2" - mechanical break 108' - mech? 106' - break on revealed Bx zone 108' 11" - healed calcite 107' 0" - vuggy/porous zone w/ evidence of brecciation - 30° break at 108' 108' 6" - solution cavity at 108' 6"	
110								- 110' 7" Grey granular limestone/marble - bedding ~ 40° - locally white to Lt. grey granular - bedding less distinct					110' 2" - break at 60° 111' 6" - parting on remnant bedding - graphitic w/ white residue - slickensides 112' 7" - white talceous residue on 15-20° frag 113' 10" - hairline frac w/ white infilling (0-25° to CA) - irregular 114' 8" - mech? - minor talc - minor hairline fracs to 115'	
								- micaceous segment + quartzite - 116' 5" 1/4" Quartzite at 116' 8" to 116' 9 1/2" - 117' 3 1/2" 1/2" Quartzite - bedding ~ 70° Variable grading to mottled Lt Grey to Grey marble					115' 11" - breaks at 55° & 90° 116' 8" - breaks at 65° & 70° 117' - 1/2" crush zone 117' 3 1/2"	
120								- bedding ~ 70° Variable grading to mottled Lt Grey to Grey marble - bedding 50°					118' 9" - crush zone - minor clay - 55 to 60° 118' 3/4" - 1/4" talc - white w/ calcite on frags 122' 3" - 80° frac w/ 1/4" calcite venter 122' 11/4" - mech?	
								- bedding at 50°					125' - mech? 125' 19" - 50° parting w/ white talc & calcite - slickensides 126' 2" - mech - broke out on mica band - bedding 127' - break across bedding 128' 13" - parting w/ white residue & talc - slickensides 128' 10 1/4" to 128' - crushed zone w/ white talc - partings 129' 6" - white residue 130' 8 1/2" - frac at 30°	
130								bedding 70°-75°					132' 10 1/2" - minor green talc & chlorite - also at 132' 11 1/2" 133' 7" - healed low angle fracs w/ crossing 65-70° fracs at 133' 1" (with talc) & 133' 2" 134' 7" - rough break - minor white residue 135' 10" - parting on micaceous unit plus 15 to 20° frac mech break at 136' - low angle fracture - rotated by 90° - continues to 137' 7"	
								bedding ~ 60° bedding at 70°					137' 7" - 137' 7" 138' 7" - partial parting then mech. at 80° 139' 5" to 139' 9" - 20° break - minor white residue 140' 8" - mechanical break 141' 7" - mech - minor residue 141' 6 1/2" - mech - tries to follow micaceous planes	
140								- bedding weakly folded &/or non-distinct - locally to 50° - bedding at 50°					144' 2 1/2" - mechanical - some tendency to follow micaceous planes 144' 10 1/2" - mechanical 145' 6" - mechanical 146' 2" - mechanical 147' 4" - break at 30° - talc coating - across bedding at 90° rotation 148' 10 1/2" - mech plus fracs at 25° along partially healed lines	
150								- 149' 2 1/2" Quartzite - contact ~ 35°						

Logged By _____ Checked By [Signature] FR Fresh Rock MW Moderately Weathered
 Date _____ Date _____ FS Fresh Stained HW Highly Weathered
 SW Slightly Weathered EW Extremely Weathered

Water Level
 Water inflow gph 50
 Partial mud loss

Note: All angles measured from the core axis.

EXPLORATORY DRILLING - BEDROCK LOG

HOLE NO. *Clifton 12-7 4 of 4*

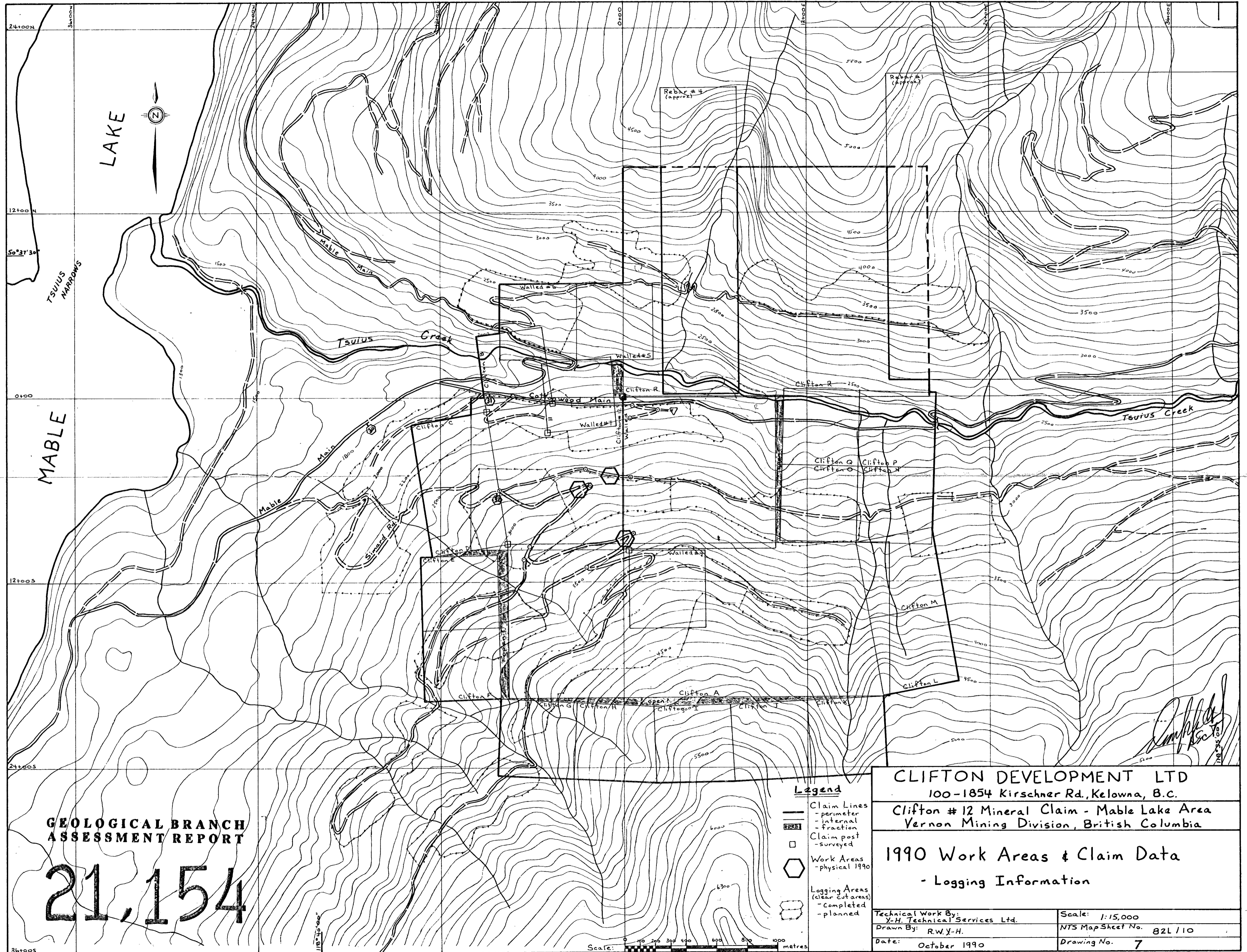
PROJECT *Clifton #12 - 1990* CO. ORDS. _____ REF. ELEV. _____ BEDROCK ELEV. _____
 LOCATION _____ CORE SIZE _____ ANGLE FROM HORIZ. _____ BEARING _____
 CONTRACTOR _____ HOLE COMMENCED _____ HOLE COMPLETED _____

DRILLING INFO.					ROCK SUBSTANCE			ROCK MASS							
DEPTH	CASING & BITS	WATER	PERMEABILITY	LIFT & % CORE RECOVERY	R.Q.D.	ROCK UNIT CORE LOSS	FOLIATION	ROCK TYPE & DESCRIPTION Lithological classification, fabric, hardness, colour, alteration, Primary Structures	WEATHERING	STRENGTH	DEFECT SPACING (FEET) 0.3 1.0 3.0 10.0	GRAPHIC LOG OF DEFECTS	DEFECT DESCRIPTION type, orientation, planarity, roughness aperture, coatings, cement, strength, etc. PARTICULAR GENERAL	ROCK CONDITION NO. (Predicted)	
150								Quartzite - Gray to Dk gray - locally Lt. grey to white - locally hackly fractures - no bedding - lower contact 30-35° - w/c bedding - 154'11" Lt. Grey granular limestone (marble) - 156'4" Quartzite - grey - contacts not distinct - 157'1/2"					150'8" 2 breaks at 60° - quite planar in appearance 151'3/4" - possibly some talc residue at 151'3/4" 153'2" & 153'4" - 50-55° breaks in white quartz } hackly mech? at 154'11" } hairline fracs mech? 158'6" - graphitic shear at 50° 158'2" - frac at 30° w/ 90° mechanical breaks / minor talc - greenish tint - not planar. 159'2" - mechanical breaks? 160'9 1/2" - mech? 163'1" - micaceous & talceous band - parting ~ 80° to CA 165'0" & 165'4" - healed longitudinal fracs 165'8" - mech? - 165'8 1/2" - mech? 166'1" - micaceous parting - 25° frac 166'2 1/2" + 166'9" 168'4" - 168'10" - frac from 15° to 20° 169'5 1/2" - break at 75° 172'2 1/4" - mech? 175'3" - minor mud & calcite crystal growth mechanical break at 176" 177'0" - partially healed fracs w/ mica at 177' plus 30° frac w/ minor mud & white residue at 177" 177'8" - mech? 178'9" - break on calcite stringer - 178'9" 179'3" - 30° frac & start of 5° frac which continues to 180'2 1/2" - extends to 180' 180'2 1/2" to 180'5" - hairline at 5° plus 60° frac. 183'5" to 183'11 1/2" - TALC w/ sheared marble 184'11" - frac w/ talc - slickensides 184'9 1/2" - mech - minor grinding 185'5" - frac at 60° w/ white residue 186' - calcite? stringer - frac at 70° 189'4 1/4" - mech - 80° 190'2" - 45° frac w/ white residue - water washed 191'3 1/2" - parting at 80° - minor mica growth & white residue 193'8" - contact broken - micaceous to 193'11" - rusty 194'1 1/2" - rusty - calcareous deposit numerous partings - rusty		
160								Lt. grey to white granular to moderately crystalline marble - locally mottled in appearance w/ mica rich incls. 162'3" to 165' - bedding not distinct at 70°-80° - minor folding/displacement at 166'11" - remnant bedding 45-60° - bedding not distinct							
170								- remnant bedding 60° - minor micaceous incls - mica incls to 179'5"							
180								- 181'5" to 183'11 1/2" - TALC w/ sheared marble							
190								- remnant bedding 80° - 193'7 1/4" - contact at 65 to 70° Gneissic Unit - sheared to 193'11" - calcareous w/ mica to 194'10" - gneodiorite 194'10" to 196'0" - grading to gneiss - locally garnetiferous - bedding 70° - grading to gneiss w/ rusty zones.							
201	End							End 201 Ft.							

Logged By *RWY-H* Checked By *RWY-H* FR Fresh Rock MW Moderately Weathered
 Date *Oct 24/90* Date *Oct 29/90* FS Fresh Stained HW Highly Weathered
 SW Slightly Weathered EW Extremely Weathered

Note: All angles measured from the core axis.

Water Level
 Water inflow gph
 Partial mud loss
 Total mud loss
 Page *4* of *4*



GEOLOGICAL BRANCH
ASSESSMENT REPORT

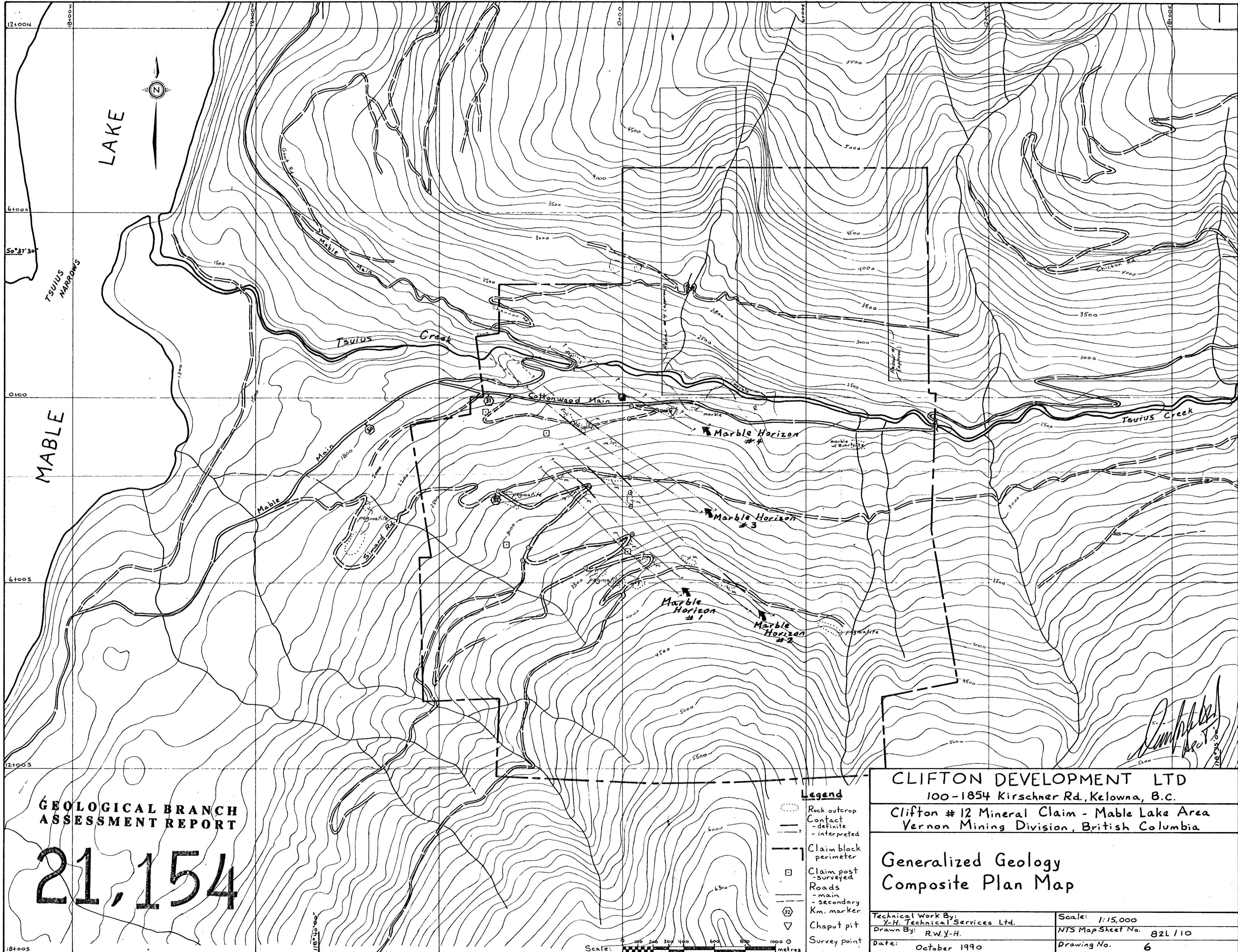
21,154

Legend

- Claim Lines
 - perimeter
 - internal
 - fraction
- Claim post
 - surveyed
- Work Areas
 - physical 1990
- ⊞ Logging Areas (clear cut areas)
 - completed
 - planned

CLIFTON DEVELOPMENT LTD 100-1854 Kirschner Rd., Kelowna, B.C.	
Clifton # 12 Mineral Claim - Mable Lake Area Vernon Mining Division, British Columbia	
1990 Work Areas & Claim Data - Logging Information	
Technical Work By: Y.H. Technical Services Ltd.	Scale: 1:15,000
Drawn By: R.W.Y.-H.	NTS Map Sheet No. 82L/110
Date: October 1990	Drawing No. 7

Scale: 0 100 200 300 400 500 600 700 800 900 1000 metres



GEOLOGICAL BRANCH
ASSESSMENT REPORT

21,154

Legend

- Rock outcrop
- Contact - definite
- interpreted
- Claim block perimeter
- Claim post - surveyed
- Roads - main
- secondary
- Km. marker
- Chaput pit
- Survey point

Scale: metres

CLIFTON DEVELOPMENT LTD
100-1854 Kirschner Rd., Kelowna, B.C.
Clifton # 12 Mineral Claim - Mable Lake Area
Vernon Mining Division, British Columbia

**Generalized Geology
Composite Plan Map**

Technical Work By:
Y.H. Technical Services Ltd.
Drawn By: R.W.Y.H.
Date: October 1990

Scale: 1:15,000
NTS Map Sheet No. 82L/110
Drawing No. 6

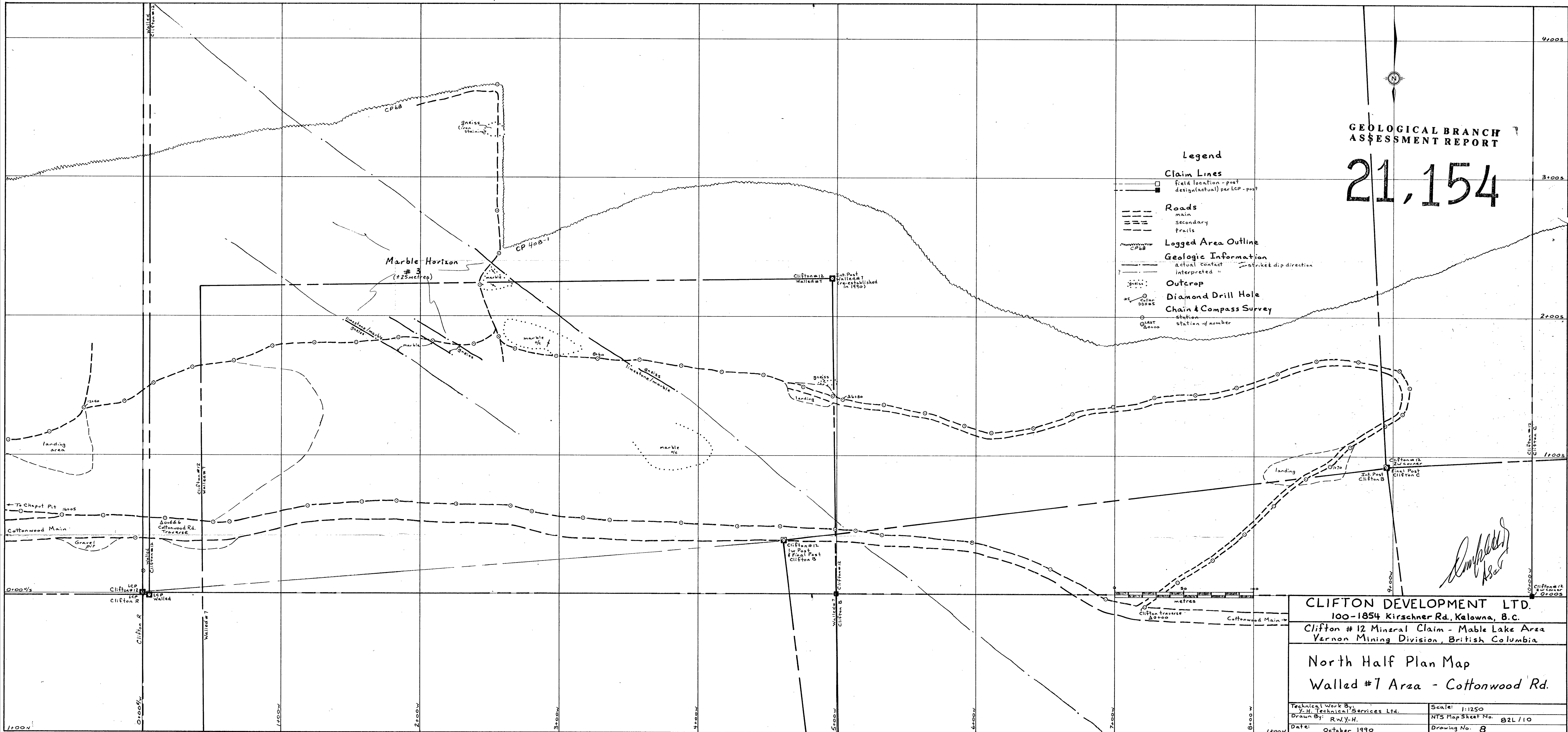
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1990

GEOLOGICAL BRANCH
ASSESSMENT REPORT

21,154

Legend

- Claim Lines**
 - Field location - post
 - design (actual) per LCP - post
- Roads**
 - main
 - secondary
 - trails
- Logged Area Outline**
- Geologic Information**
 - actual contact
 - interpreted " "
 - strike & dip direction
- Outcrop**
- Diamond Drill Hole**
- Chain & Compass Survey**
 - station
 - station # of number



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CLIFTON DEVELOPMENT LTD.
100-1854 Kirschner Rd., Kelowna, B.C.
Clifton #12 Mineral Claim - Mable Lake Area
Vernon Mining Division, British Columbia

North Half Plan Map
Walled #7 Area - Cottonwood Rd.

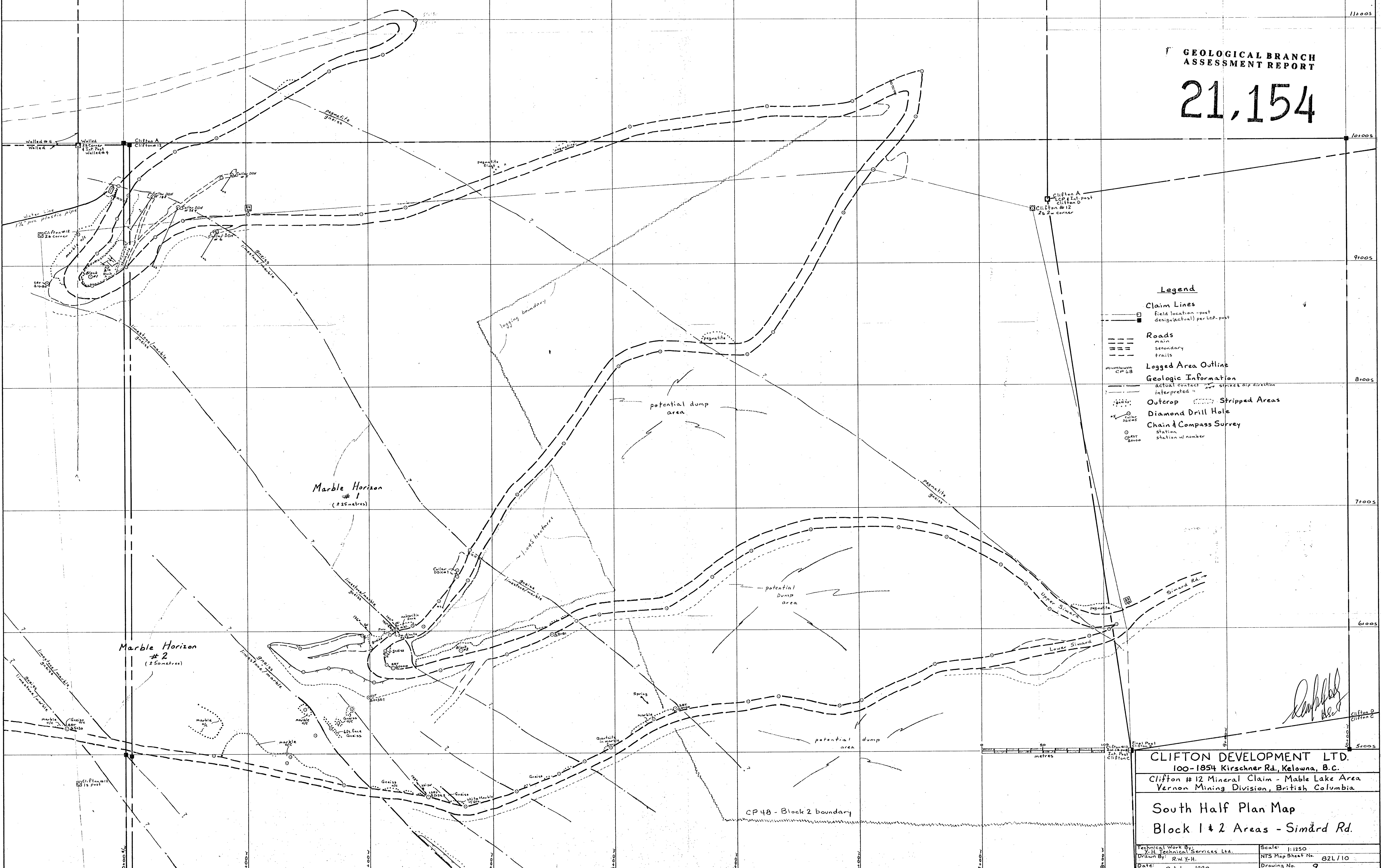
Technical Work By: V.H. Technical Services Ltd.	Scale: 1:1250
Drawn By: R.W.Y.H.	NTS Map Sheet No. B2L/10
Date: October 1990	Drawing No. 8

GEOLOGICAL BRANCH
ASSESSMENT REPORT

21,154

Legend

- Claim Lines
 - Field location - post
 - design (actual) per L.C.P. post
- Roads
 - main
 - secondary
 - trails
- Logged Area Outline
 - minimum CP 48
- Geologic Information
 - actual contact
 - striated dip direction
 - interpreted "
- Outcrop Stripped Areas
- Diamond Drill Hole
- Chain & Compass Survey
 - station
 - station w/ number



[Handwritten Signature]
Clifton D
Clifton C

CLIFTON DEVELOPMENT LTD.
100-1854 Kirschner Rd., Kelowna, B.C.
Clifton #12 Mineral Claim - Mable Lake Area
Vernon Mining Division, British Columbia

South Half Plan Map
Block 1 & 2 Areas - Simard Rd.

Technical Work By: Y.H. Technical Services Ltd.	Scale: 1:1250
Drawn By: R.W.Y.H.	NTS Map Sheet No. 82L/10
Date: October 1990	Drawing No. 9