APPENDIX III

NOVA SCOTIA Natural Resources

PO Box 698
Halifax, Nova Scotia
B3J 2T9

Fax 902 424-7735

Our File Number

FACSIMILE TRANSMITTAL SHEET

If this fax is indecipherable or pages are missing,
please call (902) 424-2523 or fax (902) 424-7735. Thank you.

To Fax Number: (902) 582-7277	**No. of Pages** 3 **DATE: June 11 /2002**
To: Graham Fisher, Second Nature Ecological Design Services	
From: Michael A. MacDonald Minerals and Energy Branch Phone (902)424-2523; Fax (902)424-7735 E-mail: mamacdon@gov.ns.ca	**cc:**
Reference: Informatio Re: MacLeod Resources	

Dear Mr. Fisher:

Chris Trider has asked me to fax you some information pertaining to the 1 Window meeting held at Founders Square on Monday January 21, 2002. The following pages have the contact information for the attendees at the meeting. Unfortunately, I was unable to locate the agenda from the meeting.

Regards

Mike MacDonald

c:/NSGov/wpwin/correspo/Trider-Fisher_Fax.wpd

[redacted]

"One Window" Mine Development Approval Process

NOTICE OF MEETING

Project: MacLeod Resources Ltd., Proposed Red Marble Quarry
Purpose: To review the company's plans to operate a specialized red marble quarry near River Denys, Inverness County.
Date & Time: Monday, January 21, 2002, 1:00 pm to 4:00 pm
Location: 2nd floor boardroom, NSDNR offices, 1701 Hollis Street, Halifax

ATTENDEES

Name	Representing	Contact Number	In Attendance
John Campbell	N.S. Department of Natural Resources Manager, Mineral Development & Policy	902-424-8153 (p) 902-424-7735 (f)	✓
Chris Daly	N.S. Department of the Environment and Labour Manager, Environmental Review	902-424-4936 (p) 902-424-3571 (f)	
Garth Demont	N.S. Department of Natural Resources Mineral Inventory Geologist	902-424-8138 (p) 902-424-7735 (f)	✓
André Gauthier	Environment Canada Environmental Engineer	902-426-1855 (p) 902-426-3897 (f)	
Patrick Hannon	N.S. Department of Natural Resources Acting Director of Mines	902-424-8152 (p) 902-424-7735 (f)	✓
Dean Hart	N.S. Department of the Environment and Labour Inspector	902-625-0791 (p) 902-625-3722 (f)	✓
Tom Lamb	N.S. Department of Natural Resources Mining Engineer	902-424-4911 (p) 902-424-7735 (f)	✓
Albert Leblanc	N.S. Economic Development and Tourism Reg. Development Officer, Port Hawksbury	902-625-3200 (p) 902-625-3069 (f)	✓
Mike MacDonald	N.S. Department of Natural Resources Exploration Promotion Geologist	902-424-2523 (p) 902-424-7735 (f)	✓
Don MacNeil	N.S. Department of Natural Resources Regional Geologist	902-563-3370 (p) 902-567-2535 (f)	✓

Name	Representing	Contact Number	In Attendance
Lorne MacNei	N.S. Department of the Environment and Labour Environmental Engineer	902-625-0791 (p) 902-625-3722 (f)	
Bernie Matlock	N.S. Department of the Environment and Labour Environmental Engineer	902-424-2560 (p) 902-424-0597 (f)	✓
Mark McLean	N.S. Department of the Environment and Labour Program Administration Officer	902-424-2387 (p) 902-424-0501 (f)	✓
Eric Robichaud	Cape Breton Growth Fund	902-564-7330 (p) 902-564-7739 (f)	✓
Reg Sweeney	Fisheries and Oceans Canada Habitat Assessment Biologist	902-426-2253 (p) 902 426-1489 (f)	✓
Pleman Woodland	N.S. Department of Environment and Labour Mining Engineer	902-424-8055 (p) 902-424-3239 (f)	✓
Chris Towne	MacLeod Resources	902-890-5969	✓
Dick Sandeson	MacLeod Resources	902-890-5470	✓

APPENDIX IV

NOVA SCOTIA
Environment and Labour

Field Inspection Report

Date: May 6, 2002 Time: 11:50AM File number 95100-30-2000-0238
Name: MacLeod Resources Ltd. Location: Marble Mountain
Address: MARBLE MOUNTAIN Activity: Marble Quarry

Reason for inspection/observations/directions

- audit of quarry area prior to application for an undertaking under the Environmental assessment regulations and Environment Act.
- activity limited to clearing of land and working with existing material that had been quarried (under 100 tonnes - 30 tonnes quarried)
- erosion and sedimentation controls in place and satisfactory
- site is sufficiently managed to minimize impact.

Inspector: Sharon Carter Date: May 4, 2002
Contact Person: [signature] Phone: 9022890 5469 Date: May 6/02

❑ Samples ❑ Photos

Web site http://www.gov.ns.ca/enla

Page 1 of 1

Distribution: White - Original Yellow - File Pink - Inspector Blue - Duplicate

APPENDIX V

Chavin Consulting Limited

Mr. Chris Trider,
President,
Macleod Resources
Tuesday, August 06, 2002

Re : Analysis of sludge samples by Acme Analytical Laboratories Ltd.

This is a preliminary analysis of 2 sludge samples taken on July 22 2002 from the cutting machine at the Marble Mountain Quarry and submitted for packages 4A and B of Acme Analytical Laboratories Limited. These packages offer a comprehensive chemical profiling of geological samples including all Major and Trace Elements. Full details of the procedures can be obtained from www.acmelab.com.

Analytical Results

The results are attached in Analytical Certificate A202488.

For the Major elements average values are found as follows :

Calcium Oxide of 51% on average with Magnesium Oxide at 3.5%, Aluminum Oxide at 0.65% and Silica at 2.3%. There are very low values of the oxides of Sodium, Potassium, Phosphorous, Iron and Sulphur.

For the Trace elements average values are found as follows :

As a general statement there are very low levels found of all potential toxic elements such as Arsenic, Cadmium, Uranium, Bismuth, Mercury, Antimony and Thallium. Copper, Lead and Zinc are below Crustal Average and are of very small significance.

Discussion of Results

Based on the analysis of 2 samples these results indicate that the sludge is extremely benign and by inference the host rock contains no appreciable amounts of Deleterious or potentially toxic elements. The very low levels of all Trace Elements analyzed indicate that the area has no enrichment of metals which are commonly found in areas of mining interest. Sulphur is also very low and along with Iron indicates the very low abundance of Pyrite and so the risk of Acid Drainage is non existent. The samples are composed mostly of Calcium carbonate and this will ensure that any acidity or reactive materials released in the vicinity of this rock type would be quickly neutralized.

Respectfully submitted,
Dr. Peter J. Rogers, President

CHAVIN CONSULTING LIMITED.
10902 Highway 215, South Maitland, RR 4 Shubenacadie, Nova Scotia, Canada B0N 2H0.
Phone : 902 261 2692 Fax : 902 261 2090 Internet : progers3@attglobal.net or chavin@ns.sympatico.ca

NOVA SCOTIA Natural Resources

PO Box 698
Halifax, Nova Scotia
B3J 2T9

Fax: 902 424-7735

Our File Number:

July 9, 2002

Chris Trider
MacLeod Resources

Dear Mr. Trider,

As per your request, I am writing this letter to address the concerns expressed by one of your environmental assessment report reviewers regarding the occurrence of sulphide mineralization in your project area. High concentrations of metallic sulphide minerals in this deposit would be problematic for the following reasons: 1) the potential of these minerals to generate acid drainage, 2) leaching of heavy metals into the local watershed, and 3) staining of marble tiles produced from the extracted building stone blocks in areas where they are exposed to rain or other water sources.

Fortunately, sulphide minerals were not detected in the marble units cored in the drilling surveys, to a drilled depth of 30+ m. The volume of sulphide free marble available within the drill defined marble reserve zone should sustain your operations for several years.

Quartzites and slate units which parallel the strike of the marble, and border it east and west of your proposed quarry site, contain variable amounts of sulphide minerals, composed primarily of pyrite. These 2 units are not well exposed, but in outcrop exposures and drill core intersections the observed sulphide mineral concentrations are low, suggesting that the should not pose an environmental hazard. The quarry operations will be confined to the wide marble beds so it is unlikely that these 2 units will be disturbed.

In summary, the geological data collected to date suggests that sulphide mineralization is not an environmental concern in the area of the proposed quarry and along the adjoining access roads. This opinion could however be modified as quarrying operations proceed beyond the drilled depth, or if new outcrops are exposed in areas peripheral to the quarry site, such as along access road or at the bottom of settling pond excavations. Should you encounter suspected mineralized zones in you operations, please notify me so that staff from the Mines and Energy Branch of DNR and DOE staff can examine the exposures and make recommendations on actions required to mitigate environmental impacts of this material.

Best Regards

Garth DeMont
Mineral Inventory Geologist

ESKASONI FISH & WILDLIFE COMMISSION INC.

4123 Shore Rd., Eskasoni, NS B0A 1J0
Tel 902-379-2024 • Fax 902-379-2159 • Email Pla_mu@fox.nstn.ca

August 1, 2002

Dear Mr. Trider:

This is just a brief note to inform you that the findings from the interviews and site reconnaissance from the Traditional Environmental Knowledge Study have not revealed or identified anything that should be of great concern to environmental issues. As you are aware of, a further visit to the site is deemed necessary, which could result in a different finding. If you have any questions or concerns, please do not hesitate to contact us here at the Eskasoni Fish & Wildlife Commission.

Sincerely,

Thomas J Johnson
Director Of Operations
Eskasoni Fish & Wildlife Commission

NOVA SCOTIA Natural Resources

PO Box 698
Halifax, Nova Scotia
B3J 2T9

Fax: 902 424-7735

E.L. # 03836
Our File Number:

August 2, 2002

Mr. Chris Trider
MacLeod Resources Limited
RR #1
Truro, Nova Scotia B2N 5A9

Dear Sir;

RE: EXPLORATION LICENCE NO. 03836

This is to confirm that Transfer No. 4886 whereby Richard Sandeson has transferred title to Exploration Licence No. 03836 to MacLeod Resources Limited has been completely registered as at July 31, 2002. Exploration Licence No. 03836 is now recorded in the name of MacLeod Resources Limited.

Yours truly,

R. Ratcliffe
Registrar of Mineral
and Petroleum Titles

RR/blh

APPENDIX VI

Existing Environment

The proposed quarry development consists of a 2.05 acre portion of a cut over area within a larger 263 acre property owned by the proponents. The proposed quarry is expected to produce a maximum of 3,000 cubic meters of marble per year for 15 years.

Surface Hydrology

The property is drained by one large and three small tributaries of Kennedy Big Brook. The surface drainage is shown on Figure 1. Kennedy Big Brook flows into River Denys and is therefore part of the River Denys Watershed. The Kennedy Big Brook water shed (IFG-2R) covers 1594 hectares (15.94 km^2) and accounts for approximately 7.4 % of the River Denys watershed. Because there are no stream gauges on Kennedy Big Brook, it is not known what percentage of fresh water in River Denys is contributed by Kennedy Big Brook. Kennedy Big Brook drains an upland area, North Mountain, underlain by granites, metasediments (slates and quartzites) and marbles. The water chemistries of tributaries flowing into Kennedy Big Brook reflect the presence of the underlying marbles.

The River Denys Basin is presently being studied by a joint group made up of the Federal Department of Fisheries and Oceans, Eskasoni Fish and Wildlife and various local community groups. The River Denys watershed (215. 20 sq km) covers approximately 8.7 % of the Bras d'Or Lakes watershed (2480 sq km).

Most of the watershed of Kennedy Big Brook is upland topography, a relatively small percentage of flow is over lowland terrain, through sand and gravel deposits which flank North Mountain. It has been reported, the lower reaches of Kennedy Big Brook intermittently disappear into the sands and gravels before reaching River Denys.

Runoff and Drainage

There is no quantitative flow data available for Kennedy Big Brook or for similar watersheds draining North Mountain. The nearest long term weather station is located at Sydney airport, approximately 90 km to the northeast, with a shorter term station at Port Hawkesbury about 30 km to the southwest.

Because the property is located on a marble ridge which generally trends northwest parallel to Kennedy Big Brook, drainage over the property occurs to the south toward the largest tributary brook recently named MacLean Brook, and toward the west in two small intermittent tributaries draining directly into Kennedy Big Brook. These have been named Homestead Brook (flows west then north) and Camp Brook (flows west) for the purposes of this project.

There are no defined water courses in the direct vicinity of the proposed quarry operations. Two springs in the vicinity are headwaters to tributary brooks. The spring which is the source of Red Brook, discharges approximately 65 meters down gradient and south of the proposed extraction site, at an elevation between approximately 159 metres (high flow) and 153 metres (low flow) (taken from survey plan). The large spring(s), which is the headwater for MacLean Brook discharges approximately 400 metres east of the site at an elevation of 135.7 metres. Red Brook flows into MacLean Brook approximately 150 m north of the Lime Hill Road.

Both Homestead Brook and Camp Brook begin in swales close to the top of the ridge (Figure 1), without obvious spring flow. The headwaters for Homestead Brook appears to be over the meta-sediments, which is reflected in the water chemistry as relatively low TDS, pH and hardness. The upper reaches of Homestead Brook, flow west parallel to the structure, however when it meets the carboniferous sediments northwest of the site it turns and flows northward to Kennedy Big Brook. According to geologic mapping, the headwater area of Camp Brook is over metasediments, although the water analysis indicates a significant carbonate component to the chemistry. In the upper reaches of Camp Brook no overland flow is observed in the water course until it meets a small tributary from the north. Camp Brook flows over a dolomite band and granite, before it continues on it's course west to meet Kennedy Big Brook near the first bridge on the road.

Surface Water Quality

Surface water quality was examined through three sampling events. The first sampling event, on February 20, 2002 represented relatively low flow, winter conditions, The sampling event was carried out during a non rainfall event and before snow melt. Two to three feet of snow covered the ground at the time of sampling and only the most visible sites could be accessed. Sites were accessed by snow shoes. Figure 2 shows the location of the monitoring stations.

The April 2,2002 sampling event represented relatively high flow, and the July 25th sampling event represented low flow summer conditions.

The following describes the water at each sampling station based on the relatively low flow sampling event in mid-winter. Approximate discharge calculations were made on cross-sectional areas and velocity measurements, where possible.

SW - 1 (near mouth of Camp Brook) - The water is diluted with respect to carbonate dissolution when compared to the water from MacLean Brook. The water is soft and moderately low in dissolved solids. Calculations indicate the water has a tendency to be corrosive at both cold and hot temperatures. All measured parameters meet the Guidelines for Canadian Drinking Water Quality 2001 (GCDWQ). Of the 25 metals analyzed, only aluminum, barium, manganese, strontium, uranium and zinc were detected, all at very low levels and within the Guidelines for Freshwater Aquatic Life. The water chemistry represents the contribution of groundwater from both carbonates and granite. A stream discharge of approximately 227 L/min (50 igpm) was calculated.

SW -2 (near mouth of MacLean Brook, above bridge) - The water represents carbonate dissolution in the flow system. The water is relatively hard and moderate in dissolved solids. Calculations indicate the water has a tendency to be corrosive at cold temperatures and encrusting at high temperatures. All measured parameters meet the Guidelines for Canadian Drinking Water Quality 2001 (GCDWQ). Of the 25 metals analyzed, only aluminum, barium, boron, strontium, uranium and zinc were detected, all at very low levels and within the Guidelines for Freshwater Aquatic Life. A stream discharge of approximately

1704 L/min (375 igpm) was calculated. The bacteria analysis indicated a total coliform count of 10 MPN/100 ml and a fecal count of 0.

SPR-3 (MacLean Brook at spring source) - The water chemistry represents carbonate dissolution in the flowsystem. The water is relatively hard and moderate in dissolved solids. Calculations indicate the water has a tendency to be corrosive at both cold and hot temperatures. All measured parameters meet the Guidelines for Canadian Drinking Water Quality 2001 (GCDWQ). Nitrate-nitrogen (0.12 mg/L) likely reflects deforestation up gradient of the spring. Of the 25 metals analyzed, only aluminum, barium, boron, strontium and zinc were detected, all at very low levels and within the Guidelines for Freshwater Aquatic Life. A spring discharge of 886 L/min (195 igpm) was calculated.

SPR-4 (Red Spring, headwaters of Red Brook a tributary of MacLean Brook) The water from this spring is the most concentrated on the site with respect to calcium and alkalinity (carbonate dissolution). It is hard and moderate in dissolved solids (highest TDS on the site). Calculations indicate the water has a tendency to be corrosive at cold temperatures and encrusting at hot temperatures. All measured parameters meet the Guidelines for Canadian Drinking Water Quality 2001 (GCDWQ). This sample shows the highest Nitrate-nitrogen concentration of 0.34 mg/L of all sampling stations. The nitrate is likely contributed by leaching from the soil zone where deforestation has occurred directly up gradient and over the marbles. Of the 25 metals analyzed, only barium, strontium and zinc were detected, all at very low levels and within the Guidelines for Freshwater Aquatic Life. A visual estimate of 10 - 15 igpm was made for the discharge rate.

SW -5 (Homestead Brook) The headwaters of Homestead Brook were not found because of the snow cover. The sample was collected in the upper reaches of the small Kennedy Big Brook tributary, named Homestead Brook (all water course names with the exception of Kennedy Big Brook) were named during this project). The water is very soft and very low in dissolved solids. Calculations indicate the water has a tendency to be corrosive at both cold and hot temperatures. All measured parameters meet the Guidelines for Canadian Drinking Water Quality 2001 (GCDWQ). Of the 25 metals analyzed, only aluminum, barium, boron, manganese, strontium, and zinc were detected, all at very low levels and within the Guidelines for Freshwater Aquatic Life. This chemistry indicates only a small contribution of groundwater inflow from the carbonates in the area. The geology map supports the chemical results in that it shows the headwaters of the brook are underlain by slates and quartzites rather than marbles. This sample is the only one to show color and organic carbon, suggesting more of a seepage (boggy) area than any defined spring as source for this tributary.

The presence of detectable concentrations of uranium at SW -1 and SW - 2 may be evidence of the contribution of water moving through granites into the water courses. The water may be contributed by the major fault line trending northwest, which cuts through the east flank of the Kennedy Big Brook valley.

The second sampling event on April 2, 2002 represented high flow conditions. Samples were collected approximately 24 hours after a heavy rainfall event and a prolonged period of snow melt.

Very little snow was left in the woods except in hollows and northward facing slopes. Based on the results of the first sampling event, Homestead Brook was eliminated as a sampling station. Kennedy Big Brook (at the first bridge, near the outlet of Camp Brook) was added as a sampling station. One duplicate sample at MacLean Brook (bridge) was collected and submitted to the lab for filtration prior to analysis. This provided a comparison between filtered and non filtered aliquots.

Flows were much higher in April than in the February sampling event and were even lower for the July sampling event. The high April flow was estimated to be approximately six times higher than the measured winter flow in the brook. Based on the calculated flows it was determined that at high flow, MacLean Brook contributes approximately 5% of the total flow in Kennedy Big Brook (at the first bridge).

As expected, the second set of samples showed dilution of all water chemistry. All measured chemical constituents were within the Guidelines for Canadian Drinking Water Quality (2001), however, aluminum exceeded the Guidelines for Freshwater Aquatic Life at MacLean Brook (bridge station) and at Red Spring. The aluminum (200 ug/L) at Red Spring is accompanied by relatively high iron (210 ug/L), turbidity (4.1 NTU) and total suspended solids (9.5 mg/L), indicating the aluminum is not in the dissolved phase, but is included in the suspended solids.

Suspended sediment was not observed in the Red Spring sample at the time of collection. Cloudy water was however, observed in a ditch contributing water to MacLean Brook. The aluminum (150 ug/L), iron (90 ug/L), turbidity (2.2 mg/L) and total suspended solids (2.5 mg/L) therefore, were not unexpected in this sample. A duplicate sample submitted to the laboratory for filtration prior to analysis reported less aluminum (50 ug/L) and iron (nd) after filtration, indicating the aluminum and iron were present as suspended material (fine clays) in the sample.

On July 25, 2002, stream sediment samples were also collected upstream and downstream of MacLean Brook and near the mouth of MacLean Brook. The sediments will be analyzed on the -80 mesh fraction at PSC in Halifax. In order to assess the full range concentration of metals and to give an indication of bio-availability, two analytical techniques will be used on the samples: a weak acid leach (comparable to rainwater) and a total analysis. The procedures are CGSB 164 - GP-IMP protocol on -80 mesh fraction and CCME protocol on -80 mesh fraction, respectively. These analytical methods will allow for a comparison of stream sediment geochemistry from water courses on the north flank of the River Denys Basin. It should be noted, the Kennedy Big Brook stream bed is very coarse, made up mainly of small boulders and cobbles, and is in active transport. Minor deposits of fine sediments (gravel to coarse sand) are found down gradient of the coarse fraction. Deposits of fine sand and silt are rare along this portion of Kennedy Big Brook. During the July sampling event, minor accumulations of red-brown silts and clays were observed in quiet areas in the lower portion of MacLean Brook.

The results of water sampling and stream sediment sampling on July 25th are pending. Upon receipt they will be appended to this report.

Sampling Protocol

All samples were collected and submitted “unfiltered” for laboratory analysis. The water was clear upon collection for each sampling event. Unfiltered samples were determined to provide valid data on the total chemical input to Kennedy Big Brook from the marble extraction site. The samples were not preserved in the field for any analyte. Analysis were carried out on a total water digest in the laboratory. One duplicate sample was collected from MacLean Brook (April high flow) at the bridge and was submitted for lab filtration prior to analysis. Filtration did not significantly change the chemical results (discussed below). Future chemical analysis will be carried out on unfiltered samples, unless the sample is turbid at which time two samples will be collected, one unfiltered and one field filtered at each monitoring station.

Water samples were submitted to Philip Analytical Services in Halifax within 24 - 36 hours of collection. The samples were transported by bus, in a cooler to the laboratory. Analyses included the general water chemistry (RCAp) plus metal scan and total suspended solids.

One bacteria sample was collected during the February sampling in MacLean Brook at the bridge. The sample was submitted for a quantitative analysis at the Environmental Services Laboratory in Sydney. Additional samples were collected for bacterial analysis during the April sampling event. Anticipating high counts based on a similar sampling program on the north side of the River Denys Basin, dilutions were requested to ensure coliform counts. Unexpectedly, the bacteria counts were low and did not require dilution. Unfortunately, even dilution protocols were not consistent and the bacteria data was essentially useless for that sampling event. Recent samples collected for bacterial analysis on July 25th were analyzed as straight and on a 10x dilution using the Quanti-Tray method. For this project, any future samples will be analyzed the same way. In order to perform both analysis the treated bacteria bottle must be filled to the top rather than to the 100 ml line.

The results of chemical analysis of surface water are tabulated in Table1. Although each of the waters sampled can be classified as a calcium bicarbonate type water, there are significant differences in the chemistry, especially when comparing the water from Homestead Brook to the water from MacLean Brook.

Should it be necessary to sample from a monitoring well on site, the sampling protocol will be the same as for the surface water samples, however the sample will be field filtered prior to analysis.

River Denys Watershed

At a scale of 1:50, 000, the proposed quarry lies within the Kennedy Big Brook watershed, a twelveth order stream draining into River Denys. River Denys is one of the five major rivers flowing into the Bras d’Or Lakes. Development in the watershed is generally rural, being mainly under agricultural cultivation or woodlot. The major portion of the watershed (lowland) is underlain by rocks of the Windsor Group, consisting of soft shales and siltstones, gypsum, anhydrite and salt deposits. River Denys Basin has had a long history of gypsum quarrying. These rocks and the overlying surficial materials are highly erodible and contribute a relatively high sediment load to River Denys Basin when compared to the brooks and rivers flowing off the highlands (Marble Mountain for example)

Most homeowners in the River Denys watershed rely on dug wells for potable water, as drilled wells typically yield poor quality water (hard, sulfates, high TDS). On site sewage disposal systems (mainly septic tanks) service both residential and commercial developments.

Historically, River Denys Basin has been an important area for shell fish culture. Due to bacterial contamination, the area near the mouth of River Denys has been closed to shell fish harvest. The water quality in River Denys is monitored under a cooperative study by Federal Fisheries and Oceans and Eskasoni Fish and Wildlife in an attempt to determine the source of bacterial contamination in the watershed.

Kennedy Big Brook is a classic mountain stream, characterized by peak flash flow and debris flow. Flows are high during heavy rainfall events, due to runoff from steep valley walls. Evidence of the problems associated with high flows are seen where a creosote retaining wall was built to protect the destruction of a woods road. Flow drops off in the summer to leave the stream bed dry along the lower reaches of the Brook. On July 25, 2002, the stream bed was dry for at least 400 metres becoming influent near the entrance of the abandoned farm. No field observations were made to determine the distance of the dry stream bed below the wood road on the north side of the marble ridge.

Most of the stream bed is well rounded boulders and cobbles of granitic and metamorphic origin. One stretch of the dry brook bed observed on July 25, 2002 was unusual in that the cobbles were covered with a white organic/precipitate? A sample was collected for analysis; results are pending.

Where Kennedy Big Brook crosses the Valley Mills Road, the field conductivity is much higher (354 umhos/cm) than the influent water of Kennedy Big Brook (145 umhos/cm) near the abandoned farm (measured Jul 25/02). Based on field conductivity only, it seems groundwater flow through the Windsor sediments in the lower reaches of the brook, has a greater impact on summer base flow than the water from the upper reaches of the brook.

MacLean Brook is the only one of the three brooks which shows up on the 1:10, 000 topographic map. It is fed constantly by MacLean Spring which discharges at an elevation of 135.7 m. Another marble source, intermittent spring (based on field conductivities) flows into MacLean Brook as a small tributary from the southeast side of the valley.

Red Spring which discharges at an elevation between approximately 158.8 m and 153.0 m, contributes additional calcium bicarbonate water to MacLean Brook as an intermittent stream.

Subwatershed boundaries have been estimated from the 1:10,000 air photos and are shown on Figure 1. These watercourses, Camp Brook, Homestead Brook, Red Brook and MacLean Brook are insignificant on a regional scale, and have never been officially named, not even indexed on the Nova Scotia Watershed Areas compiled by Maritime Resource Management Service (MRMS) in 1980. They were named for this project, not to assign importance to their contribution to the hydrologic system, but rather to maintain reference consistency for this project (report). The following indicates the estimated area of each watershed and references it to a percentage of the total Kennedy Big Brook watershed.

		Area (m^2)	% of Kennedy Big Brook
	Kennedy Big Brook	1.594×10^7	
WS-01	MacLean Brook	4.635×10^5	3%
WS-02	Red Brook	3.181×10^4	0.2%
WS-03	Camp Brook	1.559×10^5	1%
WS-04	Homestead Brook	N/A	

It should be noted Red Brook is within the subwatershed of MacLean Brook and comprises 6.9% of the area of the MacLean Brook watershed. The watershed area was not calculated for Homestead Brook as the watershed could not be delineated accurately from existing mapping or air photographs. With it's headwaters in the metasediments, it will not be impacted by quarry operations.

Groundwater Resources

The area of the proposed quarry is underlain by Precambrian age carbonate and clastic metasedimentary rocks previously known as the George River Group. The Kennedy's Big Brook Red Marble deposit occurs in the re-named carbonate units of the Malagawatch Formation, a stratigraphic unit consisting of an interbedded sequence of slates, calcitic and dolomitic marble, quartzite and minor mafic to intermediate metavolcanics (G. Demont, 2001).

There are no drilled wells to provide data on the groundwater resources in the vicinity of the proposed quarry. However, the two springs (SPR-3 and SPR-4) discharging to the south and east of the proposed quarry site indicate the groundwater chemistry in the carbonate aquifer and therefore are considered groundwater monitoring stations for this report.

The surface expression of the proposed quarry consists of exposed outcrops of both the calcitic and dolomitic marbles. In the area of initial marble extraction, two resistant marble knolls are separated by a depression or swale, possibly a solution collapse feature, typical of karst terrain. Karst terrain is characterized by efficient flow of groundwater through conduits which become larger as the bedrock dissolves. Water commonly drains quickly to the subsurface in recharge zones, such as the proposed quarry site, then moves through a network of fractures and caves (solution channels) to discharge at the surface as springs or seeps. The activities of soil stripping and marble extraction may mobilize sediments from the surface to the subsurface which in turn may cause turbidity in hydraulically connected springs.

A review of the drill logs recorded in the DNR 2000 drill program revealed sand and clay pockets and fracture coatings down to 54 feet in drill hole #KB-2000-4. The remaining drill logs reported highly fractured, broken marble to a depth of 25 - 30 feet below surface. These logs indicate the extensive dissolution processes occurring in the unsaturated zone.

The site map indicates marble will be extracted from the knolls, at an elevation of 178 metres to a floor elevation of 170 metres.

At the present time there is no information on the depth to water table. The depth to water table was estimated based on topographic elevations, expected high permeabilities and gradients. Because of the high permeability (karstification) in the near surface marbles, the water table is expected to be relatively flat in the quarry area. The water table is expected to be closest to the ground surface under the swale or presumed collapse feature. Generally, groundwater is expected to flow from the topographic highs around the central swale (marble ridge), toward the central swale, then continue south toward Red Spring. This is a relatively small, localized flow system as expressed by the intermittent discharge at Red Spring. The swale is hydraulically connected to Red Spring (based on turbidity observations during exploration drilling (G.DeMont, per.comm.)).

The water table under the marble ridge is expected to vary seasonally. This was presumed during the two earlier site visits and has been confirmed by the low spring levels observed in July. Red Spring, only a seep with a dry watercourse on July 25th, discharged at an elevation approximately 6 m lower than that observed on the April site visit. The recent cut face, has confirmed the assumptions, there is no dewatering of the quarry face onto the quarry floor. The cutting face has not encountered the water table.

Assumptions of the distance to water table (3 -5 m) can only be confirmed with a monitoring well. In my opinion, the springs provide the water table information needed, both physical and chemical information. However, if the plan is to extract marble below an elevation of 170 m, a monitoring well is recommended to confirm the expected level of the water table. During periods of groundwater recharge, spring and fall, the water table may be closer to the bottom of the swale (ground surface) than anticipated.

It should be noted, the Red Brook spring discharge rose from an elevation of 153.9 metres on February 20, 2002 to an elevation of 158.8 meters on April 2, 2002. This is a difference of 4.9 m (16 ft) between moderately low to high water table conditions.

Based on a site visit, and descriptions of drill core, permeability in the upper portion of the marble is expected to be high, resulting in a relatively flat or gently sloped water table in the area where marble is to be extracted. Marble extraction is not expected to be carried out below the water table, therefore quarry dewatering is not expected to be an issue in this operation.

MacLean Spring(s)near the headwaters of MacLean Brook contribute most of the flow to MacLean Brook during low flow periods. However, during high flow, the spring water is mixed (slightly) with other water originating beyond the springs. Measured just below the springs, the springs account for approximately 73% of the flow at high flow.

In limestones/marbles primary porosity and permeability is generally low. However, where small fractures are enlarged by solution, secondary permeability is commonly high. Therefore, when a well is constructed in limestone/marbles, it is only successful when it intersects voids where water is flowing. If no fractures or conduits are encountered, the well may be “dry”.

The diamond drill holes are not available as monitoring wells. Drill holes were abandoned by removing the casing and plugging with concrete from the surface. (G.DeMont, per.com). Assuming, the concrete did not make it’s way to the bottom of the holes, these in effect will be open conduits to the water table, as are the naturally occurring solution columns and voids in the marble.

Well Water Survey

Only one summer residence is located on the access road to the potential quarry site. The property is essentially abandoned, however it may be intermittently used during the summer/fall season. The house is located 1.15 km west of the proposed quarry. The house is separated from the quarry by Kennedy Big Brook and it's steeply incised valley and is located on an extensive sand and gravel deposit which has been partially extracted between the house and Kennedy Big Brook. The water supply for this residence is a gravity fed spring located 100 m south of the house. At times of high flow the spring overflows to MacIntyre Brook, therefore it can be assumed this spring is in the MacIntyre Brook watershed, the watershed immediately west of the Kennedy Big Brook watershed, rather than the Kennedy Big Brook watershed. The proposed quarry will have no impact on the quality or quantity of this water supply. Because the spring could have no possible hydraulic connection to the marble ridge in Kennedy Big Brook watershed, the well was not sampled for this project. Early in the project it was decided monitoring monies would be better spent on springs discharging from the marbles rather than from a spring outside the watershed and over 1 kilometer from the site.

There are no other water supplies within 1.6 kms of the site.

Valued Ecosystem Components

Environmental Components

The Canadian Environmental Assessment Act - Screening report which was complied by Troy Young of the Atlantic Canada Opportunities Agency identifies the valued ecosystem components (VEC's) relating to this project. These are: surface water quantity and quality, Fish and Fish Habitat, Soils, Climate, Rare and/or Endangered Species, and Archaeology.

With respect to the request by MacLeod Resources to investigate the ground and surface water on, and in the vicinity of the proposed quarry the following comments are presented on the VEC's dependent on the surface and groundwater resources.

1. Surface Water Quality and Quantity - The potential for erosional runoff is not restricted to the construction phase, but will be a concern through the entire construction, operational and decommissioning phases of the quarry. Sediment from surface runoff may enter surface depressions and make it's way directly into the groundwater, rather than into surface streams. Water courses with springs identified as headwaters, for example Red Brook and MacLean Brook) may therefore be susceptible to turbidity problems contributed by both the groundwater component and surface runoff. Besides turbidity (suspended solids), problems associated with soil erosion, hydrocarbons released from machinery and fueling operations, and accidental spills, may contribute hydrocarbon contamination to the groundwater and surface water resources. Required mitigation should follow that as described in the Screening Report, with supplemental monitoring of depressions and the water they hold. If surface depressions or swales do not hold water, they may be sink holes

and great care should be taken to protect the natural vegetation around the depression until testing is done (possible dye testing) to determine the direction of groundwater flow and the identification of springs hydraulically connected to the specific sink hole. Sediment transfer to the water table, by infiltrating surface water associated, with quarry construction and/or operation may result in turbidity in the springs. Because the quarry will be above the 168 metre elevation, it will not intersect the water table. Therefore, no quarry dewatering plan is proposed.

2. Fish and Fish Habitat - Silt laden runoff may impact downstream fish and fish habitat if soil erosion is directed into sink holes which are a rapid conduit to the water table (groundwater resources). Required mitigation is recommended to be the same as above.

3. Soils - Although the soil to be removed over the marble is expected to be thin, it must be stockpiled away from surface water drainage and from sink holes. Soil erosion may occur until a vegetative mat stabilizes the pile. The overburden removed should be stockpiled where the bedrock surface is smooth, not with karst development. The overburden should be compacted as it is applied to the pile to help stabilize the material. The top of the pile should be concave, with drainage from the top of the pile, and from around the perimeter of the pile, directed toward the settling pond.

Groundwater in the marbles should be identified as a valued ecosystem component as it relates to the springs which feed Red Brook, MacLean Brook and Camp Brook. Besides the groundwater which discharges naturally into the main spring (MacLean Spring) and into Red Spring (the closest intermittent spring and directly down gradient of the marble extraction area), there is no extraction of groundwater from the marble deposit. An unidentified spring or seep from the marbles appears to be the headwaters of Camp Brook, however, based on the water chemistry previously collected and field conductivities, there is more dilution by fresh water (precipitation or other lower TDS groundwater) than in MacLean Brook.

Groundwater which does not exit from one of the springs along the valley flank, becomes part of the deeper flow system, discharging into Kennedy Big Brook or into River Denys. As the groundwater moves through the overlying geologic units (metasediments and granites, overlain by Horton and then Windsor sediments (gypsum, salt, etc.), the quality of the groundwater as a potable water source deteriorates.

The lineament where the water ponds have been constructed to supply the wire-saw, appears to be a perched water table in the surficial till and upper fractured metasediments. The lineament crosses two subwatersheds - the south end - MacLean Brook, the north end Homestead Brook, a small intermittent stream flowing to the north into Kennedy Big Brook. Based on field conductivities collected in the winter, there was more shallow groundwater flow in this area than groundwater contributed by the marbles. Recent water chemistries and monitoring of water use and pond response will provide a better understanding of this shallow flow system and it’s hydraulic connection to the marble deposit.

Potential Environmental Impacts

As previously recognized, a valued ecosystem component in the vicinity of the proposed quarry, is surface water quality and quantity. Because of the contribution of the springs in the area to the surface water, the surface water quality and quantity is dependent on the groundwater resource. Groundwater determines the integrity of the springs discharging from the marble. To date two springs (Red Spring and MacLean Spring) plus several small seeps north of the site, have been identified as contributors to Kennedy Big Brook.

A groundwater tracer test will be conducted during fall recharge (during a heavy precipitation event). Green Fluorescein dye will be placed in the swale near the extraction site. Springs will be monitored using passive charcoal samplers as well as water samples. The passive samplers allow for continuous sampling but result in qualitative numbers rather than quantitative numbers. (i.e. they will confirm the direction of groundwater flow but not the amount of flow in a particular direction). The dye test will confirm any hydraulic connection between the extraction area and specific discharge points. The analyses will be conducted at Ozark Underground Laboratory in Missouri.

Presently three suites of water chemistries have been collected (low winter flow, high spring flow, and low summer flow). These will provide baseline water quality data. Another suite of samples will be collected during fall recharge (presumably mid - late October). Samples will be collected using the same protocol, sampling stations, and laboratories as previous sampling events. It should be noted the surface water sampling program, has already incorporated groundwater sampling stations (spring discharges). After the four data sets have been analyzed along with the results of a dye test, the final sampling stations will be identified.

Based on the information to date, it is anticipated the surface water stations will include:

4. Kennedy Big Brook (upstream of MacLean Brook)
5. Kennedy Big Brook (above the bridge near Camp Brook)
6. MacLean Brook (just upstream of the bridge)

Groundwater stations will include:

7. MacLean Spring
8. Red Spring
9. Camp Brook Headwater Spring (if possible) - some distance from the quarry activities this station would likely provide background groundwater conditions

If dye testing does not confirm a hydraulic connection with MacLean Spring, this station will be used as a background groundwater monitoring station rather than the Camp Brook Headwater Spring. As the most significant spring in the area, MacLean Spring should be better understood and will be protected from deleterious substances.

Samples will be collected quarterly for the first year of operation (at least until fall 2003), at which time the sample frequency will be re-assessed. Samples will continue to be run for RCAp-MS, TSS and bacteria over this period. After two years of full data is collected and reviewed, the monitoring program may be reduced to indicator parameters such as TSS, Ca, alkalinity, Cl, pH and conductivity. Monthly, and during rainfall events exceeding 20 mm, each monitoring station listed above, plus any other springs, should be monitored visually (photos), and should be accompanied by field conductivity, temperature and discharge measurements.

Regardless of the reduction in monitoring over the years, one set of surface and groundwater samples should be collected annually, in low flow summer conditions and analyzed for RCAp+MS, TSS and bacteria.

The settling pond, if located in the central swale near the quarry face, should be engineered with an impermeable liner to prevent deterioration in Red Spring.

Other potential impacts on the ground and surface water resources will be degradation of water quality due to dust and or ice control on the roads. No on site sewage disposal system is proposed for the quarry area.

Quarry Face Water Supply

The only water demand at the quarry site will be for operating the wire saw at the quarry face. The water demand is reported to be low, < 5 igpm. The water needs will be supplied by a series of three ponds dug into fractured slates and quartzites northeast of the extraction area. These metasediments are located in a lineament which parallels the strike of the marble. The lineament represents a fractured zone which seems to provide sufficient water needs for the operation. Water is pumped from one pond to another as needed. A water sample (RCAp-MS) was recently collected from one of these ponds. The water chemistry will be documented and will be considered as potential recharge to the marble deposit.

Essentially the water system is to be a closed loop, from water in the settling pond pumped back to the water supply ponds. In theory, the only removal of water from this system will be by evaporation. To date, the water used at the face, is being reused by the wire saw. The solids (marble paste) have been found to settle out immediately, resulting in relatively clear water available for reuse. This also cuts back on the demand from the water ponds. Water accumulating in the settling pond will be pumped back up over the hill toward the water ponds, and will be dispersed over the vegetative mat for filtration and volume reduction, back into the aquifer. To date there has been no accumulation of water in the settling pond from daily extraction activities. During the heavy rainfall event of July 6 -7th, 2002, the water which accumulated in the settling pond was dispersed successfully over the vegetative mat and there was no problem reported with runoff from the site.

In the future a dug well will be developed near Kennedy Big Brook, to supply potable water at the proposed stone cutting facility. The quarry will employ less than 25 people, therefore the water supply will not be designated as a public water supply. No potable water supply is planned for the marble extraction site.

Water Balance Analysis

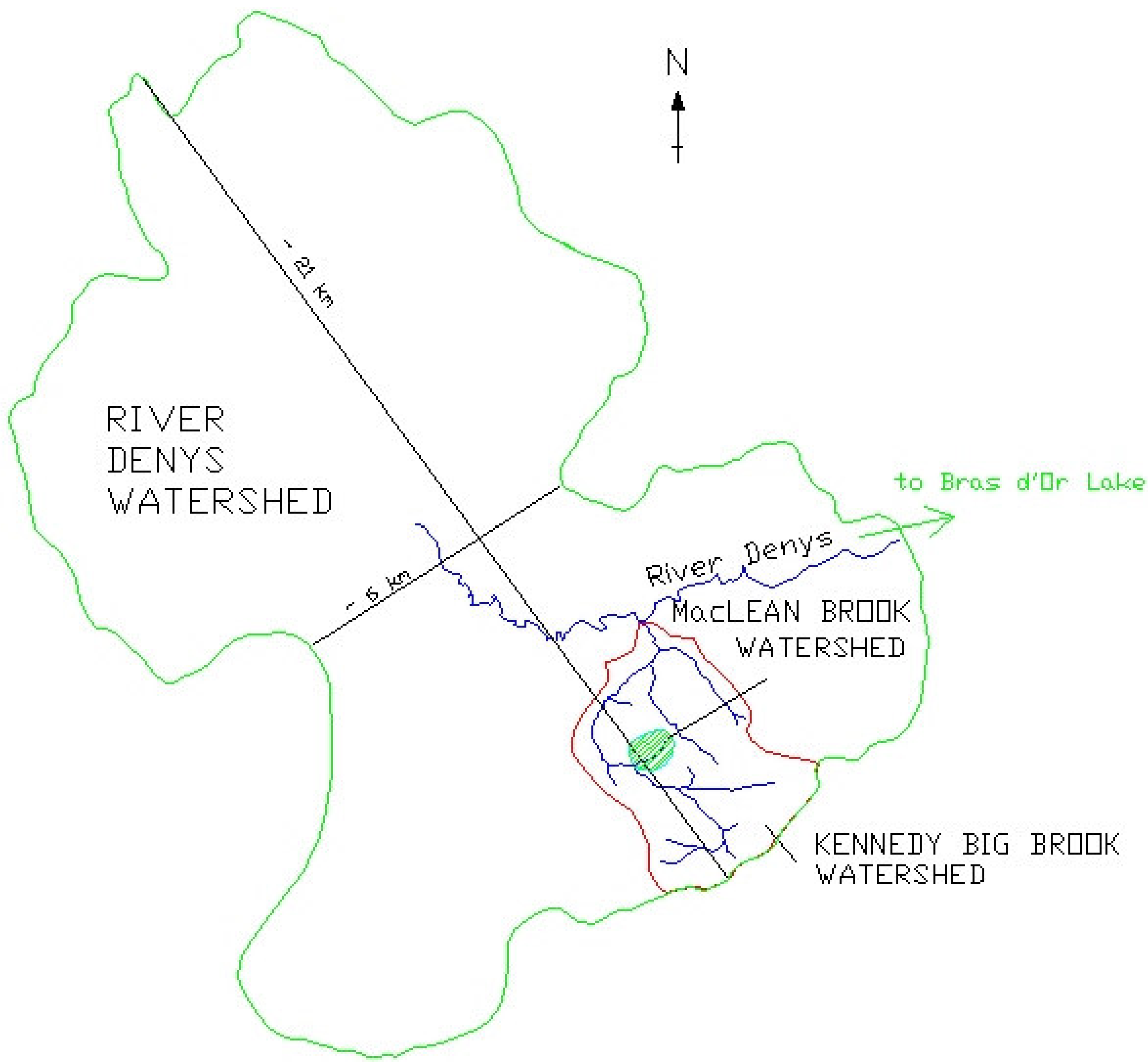
The following is a simplified conceptual - analytical model of the water budget in the Kennedy Big Brook Watershed. The model must be simplified because of the complex geologic conditions which result in high permeability karst flow (marbles), to low permeability and fracture flow in the metasediments and granite terrain of the watershed. Usually the upland regions in similar water sheds are resistant rocks, relatively impermeable, with low infiltration rates and high runoff. However, in MacLean Brook, the sub watershed under investigation, the upland region is relatively permeable with high infiltration rates and very little runoff. The steep valley flanks are underlain by impermeable metasediments and granitic rocks which result in high runoff rates and low infiltration except into the root mat and soil zone. Stream flow is contributed mainly from karst springs rather than significant baseflow into the brook. The MacLean Brook subwatershed was found to represent ~ 30% of the entire Kennedy Big Brook watershed.

Using the precipitation data from Environment Canada's Sydney Airport Port Hawkesbury climate stations, an average annual total precipitation of 1400 mm was used for input to the water budget. The evapotranspiration loss reported from Sydney is 500 - 550 mm using the Thornthwaite method (F. Baechler, pers. comm.). Because the watershed is mainly forested an evaportranspiration rate of 550 mm will be used in this analysis. Calculations, therefore indicate a replenishable resource of 850 mm. Therefore, over the watershed area of 1.594 x 10^7 m^2, approximately 1.355 x 10^7 m^3 of precipitation is available to runoff and/or recharge the groundwater annually.

Most water balances in this region assume approximately 45% of the replenishable resource as recharge to the aquifer 382 mm (15"), the remaining 55% (468 mm) being surface water runoff. Therefore, groundwater recharge is calculated to be 6.09 x 10^6 m^3 per year and surface water runoff to be 7.45 x 10^6 m^3 per year.

The maximum water use on the site, assuming no re-cycling of water, with a maximum of 5 igpm (22L/min) over 8 hours per day, for a total of 10,560 L/day. Assuming a maximum of 20 days/month of quarrying at the face, a maximum yearly extraction of 2.5344 x10^6 liters or 2.53 x 10^3 m^3 was calculated. This means 0.05% of the annual groundwater recharge will be extracted for quarry operations. As a percentage of the annual replenishable resource, the annual water demand of this quarry operation is 0.018%.

Extrapolating the data from Environment Canada's Hydrometric Station on April Brook (a small watershed draining into the SW Margaree River), with an average annual flow of 0.252 m^3/s and a drainage area of 6.22 km^2, an annual stream runoff of 2.03 x 10^7 m^3 was calculated for Kennedy Big Brook. This method results in a calculated runoff greater than the 55% - 45%, runoff - recharge respectively, method. The two methods of calculation result in annual stream runoff values within one order of magnitude. Considering the complexity of the geology, this may be an acceptable difference.


N
~ 21 km
RIVER
DENYS
WATERSHED
to Bras d'Or Lake
River Denys
~ 6 km
MacLEAN BROOK
WATERSHED
KENNEDY BIG BROOK
WATERSHED

APPENDIX VII

BOTANICAL SURVEY IN THE IMMEDIATE VICINITY OF THE MARBLE QUARRY, NORTH MOUNTAIN, INVERNESS COUNTY, NOVA SCOTIA

Prepared by: CWC & AES Associates.
Boularderie Center, Nova Scotia

BOTANICAL SURVEY IN THE IMMEDIATE VICINITY OF THE MARBLE QUARRY, NORTH MOUNTAIN, INVERNESS COUNTY, NOVA SCOTIA

DESCRIPTION OF SITE: The marble quarry is part of holdings of MacLeod Resources, Inc. (Chris Trider, President); and it is located on the northwestern slope of North Mountain, about 4 km distance from the River Denys Basin, overlooking River Denys Center and part of Southside River Denys (see attached aerial photograph; **Fig.1**). Most of the area proposed for the mining or quarrying of the marble deposit was previously clear-cut by local interests for logging prior to the purchase of the approximately 175 ha. property by the present owners. The areas of concern from a botanical prospective are adjacent to the 2-4 hectares containing the major marble deposits. A preliminary visual survey was conducted of these areas, and sites representative of the plant communities which could be affected by mining and quarrying activities were selected for sampling.

Transects were laid out in each of four representative sites and all species, number of plants of each species, and general observations regarding abundance and distributions were recorded. The overall area was determined by preliminary observations to be comprised mostly of clear-cuts, bordered by semi-climax communities characterized by Sugar maple (*Acer saccharinum Marsh.),* American beech *(Fagus grandifolia* Ehrh.*),* Moose or striped maple *(Acer pensylvanicum* L.*),* several fern species, and *Wild* Sarsaparilla *(Aralia nudicaulis* L.*);* Heal-all *(Prunella vulgaris* L.) occurred along forest edges and roadsides near the quarry. Hay-scented fern, *Dennstedia punctulobia* also occurred in scattered patches.

The survey location is typical of the Acadian Forest region; and the area has been further classified as the hardwood plateau, Subunit (b) North Mountain forming part of the North Bras d' Or Uplands (Anonymous, 1970, 1966a,b). The soil layer is rather thin and geologically it is comprised of folded sedimentary rocks of the George River Group of metamorphosed limestones (Roland, 1982). Interestingly, for Cape Breton Island, there is little or no mossy ground cover due, perhaps, to the limited availability of ambient moisture or soil moisture retaining capability in the immediate vicinity of the quarry site or the nearby forest (personal observation).

METHODS: After a thorough visual examination in the vicinity of the quarry, four sites were deemed to be of eco-botanical interest. Site I is a regenerating forest situated 50m to the southeast of the quarry. Site II was also a regenerating forest, but located northeast of the quarry. Site III was located west of the quarry and consisted of a recently logged area, and included many introduced weeds along with some native species Site IV could be divided into three habitats: Subsite A was a semi-climax forest; Subsite B comprised a less advanced forest with a more open canopy compared to subsite A. and Subsite C, is a transitional zone between the climax forest and more open areas adjacent to the road, and includes a $20m^2$ damp area, and a small sink-hole. In summary, Site IV varied from semi-climax to climax forest with a light to heavy canopy layer, mainly of sugar maple (see **Fig. 2** for photographs of the four sites).

Three of the sites, namely sites I., II. and III were quite homogeneous in habit and species composition. We therefore decided that a relatively small transect of 40m would be sufficient to obtain a representative sample of the species present at sites I, II, and III while a larger transect of 240m would provide more representative botanical information relative to site IV. **Figure 3** shows the placement of the four transects relative to significant features of the location as well as the general layout of the area. The gully indicated on Figure 3 was of interest because MacLeod Resources has dug three small ponds to acquire water for cooling their marble-cutting saw. The gully, the man-made ponds and the damp area are potential sites for the invasion of wetland species.

Several lists of rare and endangered species were consulted (Maher *et al*. 1978, Argus and Pryer 1990, Pronych and Wilson 1993) and a list was prepared of all species regarding which regulators had expressed concern (i.e. correspondence in **Appendix**). The entire area was visually inspected to determine whether any of these species were present.

RESULTS & DISCUSSION: The species found on each site are given in **Tables I** to **IV.** A total of 66 species , including 7 ferns, 3 conifers 9 monocots and 47 dicotyledons were present in the transected areas or in the immediate vicinity of the quarry. Most of these species are common in eastern North America, and several are weeds (Crompton *et al.* 1988).

There are no naturally occurring wetlands associated with the lands adjacent to the marble quarry operation. As indicated earlier, there are three man-made ponds. In a small, damp depression which occurs between the lower and middle ponds, there is a small, conspicuous population of *Typha angustifolia* L. (narrow-leaved cat-tail). *Typha angustifolia* L. does not appear in the tables because the plants occurred outside of the transects. It is our opinion that the creation of these ponds may have created the habitat for the cat-tail.

Great care was taken while conducting the survey to take into account the comments made by provincial regulators, botanists and biologists (see **Appendix** for copies of relevant correspondence and DNR database). Only one species mentioned in the correspondence, (ACCDC) the fern *Dryopteris filix-mas* (L.) Schott, was present in the study area (Site 1). According to several major floras, this species, though perhaps not abundant, is still frequent enough to be characteristic of deciduous woodlands. Zinck (1998) stated " known only from central Cape Breton becoming more common northward. Frequent around Aspy Bay and Bay St. Lawrence, Victoria Co." Fernald 1950 indicated the species occurred "in rich woods, glades, upland pastures and rocky slopes (chiefly limestone, trap or slate), Nfld to B.C. , s to C.B. York Co. N.B., Mt Katathadin, Me, Vt., Niagara Falls to Bruce Pen., Ont. n. Mich., mts. to SD, w Okla., w. Tex., Mex. Ariz. and s. Calif......Greenl.; Eurasia and n. Afr." **Table V** lists and comments on it and other species which are of concern to the regulatory agencies and institutions represented in the correspondence (**see Appendix**) . Three facts are apparent from this table. Firstly, a number of species have never been reported from Cape Breton, and therefore it is not surprising that these were not found in the study area. Secondly, while some species in **Table V** have been reported from Cape Breton (e.g. *Juncus caesariensis* Cornille), the quarry site does not have habitats suitable for these species. In fact it is obvious from the habitat notes, that most of the species in **Table V** would not be expected to occur in the survey area because there were no suitable habitats. Thirdly, a several of the species were introduced either as fodder contaminants or as garden escapees. Although rare in Nova Scotia, *Asclepias incarnata* L. , native to more southern areas of North America is offered for sale as an ornamental. According to local nurserymen, it does not do well here not surprisingly since it is really beyond the limits of its range. *Cardamine pratensis* L. also rare in Nova Scotia, is an introduced plant, sometimes used as a pot-herb or garnish in salads (Bailey 1976). In most of its range, it is a weed. The name scurvy-grass has been applied to a number of species including: *Barbarea verna* (Mill.) Asch. (European native introduced to North America); *Cochlearia officinalis* L. (a circumpolar species) ; *Crambe maritima* L. (a native of Europe and Asia Minor is another introduction *);* *Oxalis enneaphylla* Cav. is native to the Falkland Islands. It is not clear which of these species is being alluded to in the correspondence, but none of them were found around the quarry. Anonymous (1996a) also mentioned several plant species that are considered to be rare and endangered. **None of these rare species were found in the study area. (See table IV)**

According to Dr. David McCorquodale (UCCB Biologist) the eastern wood turtle mentioned in the correspondence (see Appendix), occurs in and about the Inhabitants River near the Trans-Canada Highway in Richmond County. One individual eastern wood turtle was seen at Aspy Bay, Victoria County and it is believed to be a pet which was released.

Submitted to: Chris Trider, President, MacLeod Resources Inc.

Clifford W. Crompton, M.Sc. & Alina Stahevitch-Crompton, Ph.D.
CWC & AES Associates.
11384 Kempt Head Road. Boularderie Center NS
B1X 1K9

902 674 2524
cwcromp@auracom.com