

MacLeod Resources Limited.

**Environmental Registration Application for the Kennedys Big Brook
Red Marble Undertaking, Cape Breton Island, Nova Scotia**



REGISTRATION DOCUMENT, AUGUST, 2002

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PREFACE

This Registration Document is submitted by MacLeod Resources Limited, a privately traded Canadian company, in support of a Provincial Environmental Assessment registration for a proposed surface marble quarry and associated marble production facility. The undertaking proposal has been prepared utilizing the advice and expertise of a number of different agencies and persons including:

Troy Young – Environmental Screening, Canadian Environmental Assessment Agency
Joan Reid – Federal Department of Fisheries and Oceans
Art Lynds – Ecologist, Nova Scotia Department of Natural Resources (NSDNR)
Terry Power – Wildlife Biologist, NSDNR
Don MacNeil – Regional Geologist, NSDNR
Garth Demont – Mines and Energy Division, NSDNR
Dean Hart – Nova Scotia Department Environment and Labour (NSDE&L)
Mark MacLean – NSDE&L
Eric LeFort – NSDE&L Occupational Health Safety Officer
Albert LeBlanc – Nova Scotia Department of Economic Development (NSDED)
Robert Ogilvie – NS Museum of Natural History
Mercator Geological Services Limited – Geological Consultants
K.G. Thompson – Registered Engineer
Debra Donovan – President Scotia Slate Ltd.
Dr. Peter Rogers – Geochemist, Chavin Consulting Ltd.
Gordon Hendy – Quarry Master, Nelson Memorials
Gerry Pritchitt – President, Newfoundland Quarries Ltd.
Bill Warren – Chairman, Newfoundland Chamber of Mineral Resources
Maureen Carol – Business Plan Consultant
Donald Hamilton – Enterprise Cape Breton Corporation (ECBC)
Lynn Baechlar – Hydrological Consultant
Francis Gillies – Strait Highlands Regional Development Authority (SHRDA)
Tom Johnson – Eskasoni Fish and Wildlife Commission

EXECUTIVE SUMMARY

This Environmental Registration Document has been prepared by Second Nature Ecological Planning Services on behalf of MacLeod Resources Limited to provide details on a proposed marble quarry. The proposed undertaking is located near River Denys in Inverness County, Cape Breton Island. The proponent has complied with all required approvals and permits requisite for the undertaking and is part of the “One Window” process, and as such has met with government department representatives. Information contained within this document has been gathered from environmental assessments of the site, public domain documents, past and present consultants reports, and liaison with regulatory agencies.

MacLeod Resources was incorporated under the laws of the Province of Nova Scotia in 2000 to develop a red marble quarry, in the Kennedys Big Brook Formation, near River Denys. In this capacity the company has assembled a sound technical and financial plan from which to approach the undertaking as described.

The undertaking is the development of a marble quarry and on-site production facility on a previously disturbed, clearcut site in River Denys, Cape Breton. The quarry site will be accessed by existing roads, up-graded by the proponent. The site will be cleaned, overburden will be removed and stockpiled (for site reclamation) and initial marble cut zones will be pressure washed and mapped. In the quarrying process the quarry-face is drilled and then cut with a diamond wire-saw to excavate large blocks of marble, in a process known as benching. Once the bench is prepared, equipment is brought to the site to cut the blocks. Blocks are cut using quarry bars and removed for processing. MacLeod Resources recognizes the value-added potential for the marble and plans to develop on-site processing, which involves sorting the stone by colour and grade, and cutting the marble into custom-sized dimension stone. Cut stone is polished and manufactured into a wide range of marble products. In addition to dimension stone, colour-sorted aggregate (a by-product material) will be setup for crushing into a range of sizes. Market research shows that marble aggregate can be used to make terrazzo (aggregate-resin) tiles, used in landscaping and other applications, or sold in colour-sorted bulk bags.

There has been a strong positive response to samples of the Cape Breton marbles in the marketplace. The rare combinations of deep red and blue colored marbles found on the site are considered to be at the upper end of the value-scale for dimension stone. Marble is used widely by the building industry, and as a result of preliminary marketing activities MacLeod Resources has determined there will be a positive demand for their range of marble products. The finished product will be sold to both domestic and international markets. In addition to the on-site processing aspect of the undertaking, rough blocks and slabs of marble will also be shipped in bulk to other fabrication plants around the world for further product development. Shipping options include rail or truck to Canadian and U.S. markets, or shipping via ocean containers to Italy and other European destinations.

MacLeod Resources Limited maintains a fully open and consultative process to development, and is committed to the safety of its employees and the protection of the environment during all phases of the undertaking. The company will address potential impacts to the environment through mitigation and has a full plan for site reclamation when the quarry ceases operation. Background studies to assess terrestrial and aquatic habitats, rare plants and animals, archeological and heritage resource studies, and hydrological and geotechnical assessments of the site and surrounding area have been completed and have been used to design the undertaking. No resources of significant, rare or otherwise special value have been identified on the site, which has been disturbed by former commercial forestry activities. A First Nations site evaluation is currently underway and to-date no conflicts have arisen regarding any native cultural or heritage value on the site. [See Appendix V: Correspondence]

The undertaking has been planned and designed to minimize any potential impacts to the surrounding environment. Early inclusion of environmental criteria in the planning stages of the undertaking has been used by the company to facilitate the reduction or avoidance of potential negative effects resulting from all aspects of the quarry development and operations. The quarry will use a diamond wire-saw to cut block of marble from the deposit. This technology is clean and does not produce large volumes of waste products. Unlike stone extraction methods such as blasting or drilling, the diamond saw operates at low noise levels and produces no dust. The company's goal is a zero waste operation and wherever possible materials produced in the operation of the quarry and processing facility will be utilized as marketable products.

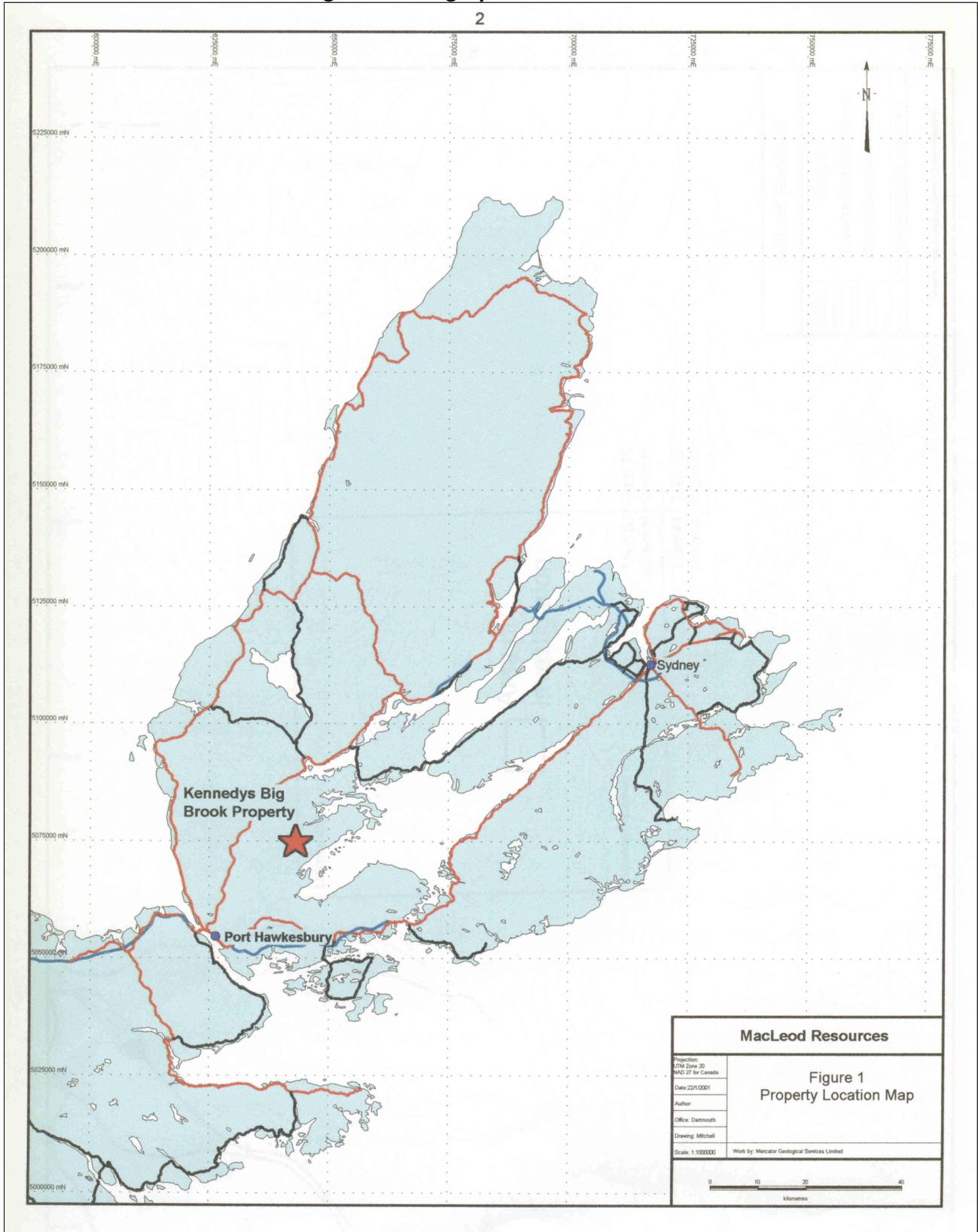
Water is required for the operation of machinery in the cutting and processing stages of the undertaking. The company plans to use a closed system of supply ponds and settling ponds to provide water for the diamond wire saws and as a means to remove suspended sediments produced during quarrying and processing. Overflow ponds, sediment traps and berms, in addition to vegetative buffers, will be established to ensure that adjacent hydrological resources are not impacted. The proponent has undertaken a comprehensive study of the groundwater resources associated with the site and established mitigation and monitoring protocols to be in place for the life of the quarry. These measures are intended to address the primary environmental concerns identified to date with respect to the undertaking. [See attached appendix VI: Water Resources Component].

The undertaking will employ eleven fulltime positions and the quarry will operate on a nine-month season, while the processing facility will operate on an eleven-month season. The indirect economic benefits related to the undertaking include the use of local trucking companies, local suppliers of small wares, and project related skills development. The establishment of on-site marble manufacturing and the introduction of those products in the market place also have the potential to bring sustainable long-term benefits to local communities in the area. MacLeod Resources has a well-planned marketing strategy and projects that the quarry will be operational for twelve to fifteen years, over which period revenues are projected to steadily increase. The total net revenue projected for the first year of production is \$405,000.00.

INTRODUCTION

The purpose of this document is to register a proposed marble quarry development undertaking located at River Denys, Inverness County (Figure 1). MacLeod Resources Limited is the owner of the property and is the project proponent having made sixteen mineral claims on the property in 2001, under mineral exploration Licence 03836. The proposed project would involve the extraction of marble blocks from a red marble deposit located near the top of North Mountain, by quarrying the rock from the deposit with a diamond wire-saw. The undertaking also involves a processing facility where marble is cut into slabs and polished to manufacture a variety of value-added products for both domestic and international markets.

Figure 1: Geographical Location



(Source: Mercator Geological Services, 2002)

1. THE UNDERTAKING

Name of Undertaking

Kennedys Big Brook Red Marble Quarry

Location of Undertaking

MacLeod Road, River Denys, Inverness County, Cape Breton Island

2. PROPONENT DESCRIPTION

Proponent:	MacLeod Resources Limited
Project Manager:	Mr. Christopher Trider, President
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Environmental Consultant	Mr. Graham Fisher Second Nature Ecological Planning Services Site 5, Box 1, Comp. 9 RR2, Canning, N.S., B0P 1H0 Telephone/Fax – 902 582 7277 E-mail: graham.fisher@ns.sympatico.ca

3. PROJECT AND SITE HISTORY

Mineral Exploration History

The geology and mineral potential of the proposed undertaking site is well known. Records at the Nova Scotia Department of Natural Resources (NSDNR) indicate that the presence of colored marble deposits in the Kennedys Big Brook area was known prior to the turn of the century. A brief report written by Mr. Hugo Carlsson in 1902 represents the first documented mineral exploration survey work conducted in this area (Miscellaneous Reports, 1902-1969). In this report Carlsson describes a large area of pink marble located along the north side of Kennedys Big Brook. The area underwent further exploration in the 1960s when the Nova Scotia Provincial Department of Mines conducted horizontal diamond drilling in the Kennedys Big Brook marble deposit (Milligan, 1970). During this investigation marble on the site was tested to determine if it would meet the chemical grades required for use in the manufacture of concrete or for use as a metallurgical flux in the Sydney Steel plant operations. In 1987 the area, including the proposed quarry site was surveyed and mapped by the Geological Society of Canada field program (Hill, 1987).

The period from 1987 to 1992 was marked by exploration activity by Aurion Minerals Limited and associated company Lodestone Minerals. Aurion completed detailed assessments of the red marble deposits through geological mapping of the site, seven diamond drill holes, and excavation of several trenches. A market study by Aurion Minerals conducted in 1991 obtained favourable comments, and suggests that some of the marble colours found in this deposit are not currently available in the world market, and therefore should be in high demand (McInnis, 1989, McNulty and Purdy, 1992). Aurion, however, did not proceed with the development of a quarry.

An interest in the proposed quarry site was shown by the NSDNR and Strait Highlands Regional Development Agency (SHRDA) in 1999 as part of a program to develop mineral resources on Cape Breton Island. The two agencies conducted a mineral resource evaluation study on the site and submitted a proposal the same year. The project approval was granted in February 2000 and between March 16 and March 21, 2000 a 226-meter drilling program consisting of 2 vertical and 3 angled holes was completed on the Kennedy Big Brook Property under the supervision of G. Demont, NSDNR. Richard Sandeson, currently vice president of MacLeod Resources, held the mineral claims in 2000 and these have subsequently been transferred to MacLeod Resources [see attached Appendix V: correspondence] The proponent, MacLeod Resources Limited was formed to develop a building stone industry for Cape Breton and the company has been working since 2000 on the Kennedy Big Brook project.

MacLeod Resources Exploration Activities To-Date

Based on their work in the area in the early 1990s, Aurion Minerals Limited calculated that an insitu volume of red to pink marble exceeding a million cubic metres is present on the property and is recoverable through quarry development (Mercator, 2002). In order to supplement existing geological information the proponent contracted Mercator Geological Services to conduct further geological analysis of the proposed quarry site. Mercator conducted a comprehensive re-evaluation of Aurion's geological information, in addition to re-logging the diamond drill cores from the MacLeod property. Mercator concluded in their summary report that of the insitu marble, pale-pink to red calcitic marble accounts for 56% of the deposit and gray to white marbles account for the remaining 44%. They report that all marble resources are located above the 150-meter elevation of North Mountain and outcrop at the surface, making the proposed undertaking site particularly suited to quarrying (Figure 2). In their summary report they state that: "Indicated resources at the MacLeod marble property are considered sufficient to justify assessment of commercial development potential." (Mercator, 2002).



NATURE OF THE UNDERTAKING

Purpose and Need for the Undertaking

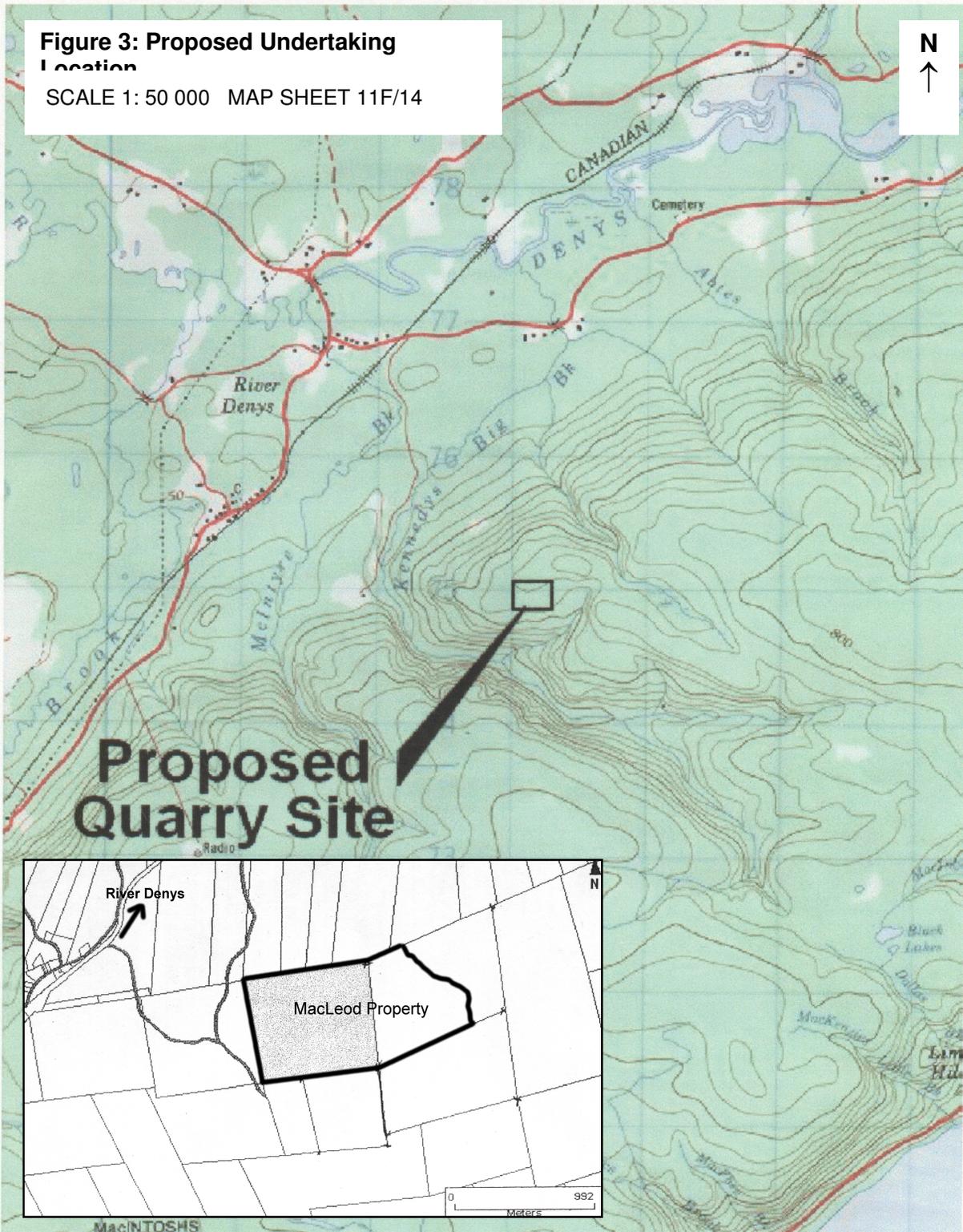
The undertaking is the development of a small, building stone marble quarry and production facility in River Denys. The proposal involves using existing developed lands in River Denys to establish a cutting and processing plant, and to quarry the plant's marble supply from the Kennedys Big Brook deposit. The marble deposit is exposed at the surface and the undertaking would employ a diamond wire-saw to cut benches and create a series of terraces in the deposit. The natural topography of the site allows marble to be easily extracted using the diamond wire saw technology. The large blocks cut from the benches are then cut into smaller merchantable blocks. This method will be used throughout the lifespan of the undertaking. Extracted blocks of raw marble will be transported from the quarry site to a small, 3000 square foot plant located on the public road at the base of the mountain for squaring into export blocks or cutting slabs for additional value added products such as countertops, vanities or furniture.

The quarrying and production of marble products has been an integral part of the Cape Breton economic landscape for 130 years. Dimension stone from Marble Mountain, Cape Breton Island is found around the world. Until the beginning of the century building stone was a major construction material in urban areas of many countries. Concrete surpassed dimension stone in the twentieth century, however, within the last 10 years there has been strong, rapid growth in the dimension stone industry worldwide fueled by demand from the construction sector. MacLeod Resources Limited believes that their company can produce a beautiful and natural product that is well received in the marketplace. The deep red and blue colors and intense patterns found to date in the marble are considered rare in a global context. The value-added potential for the full range of multicolored marbles located on the property is considerable and lead to the proponent's decision to develop limited on-site processing capability. Development of export markets for Cape Breton building stone products will bring sustainable, long-term economic and social benefits to the Island in a time of growing unemployment. The building stone industry is ideally suited to the skills of the existing workforce. The successful establishment of the River Denys quarry will lead to the growth of an industry and attract further private investment.

Other Quarrying Methods

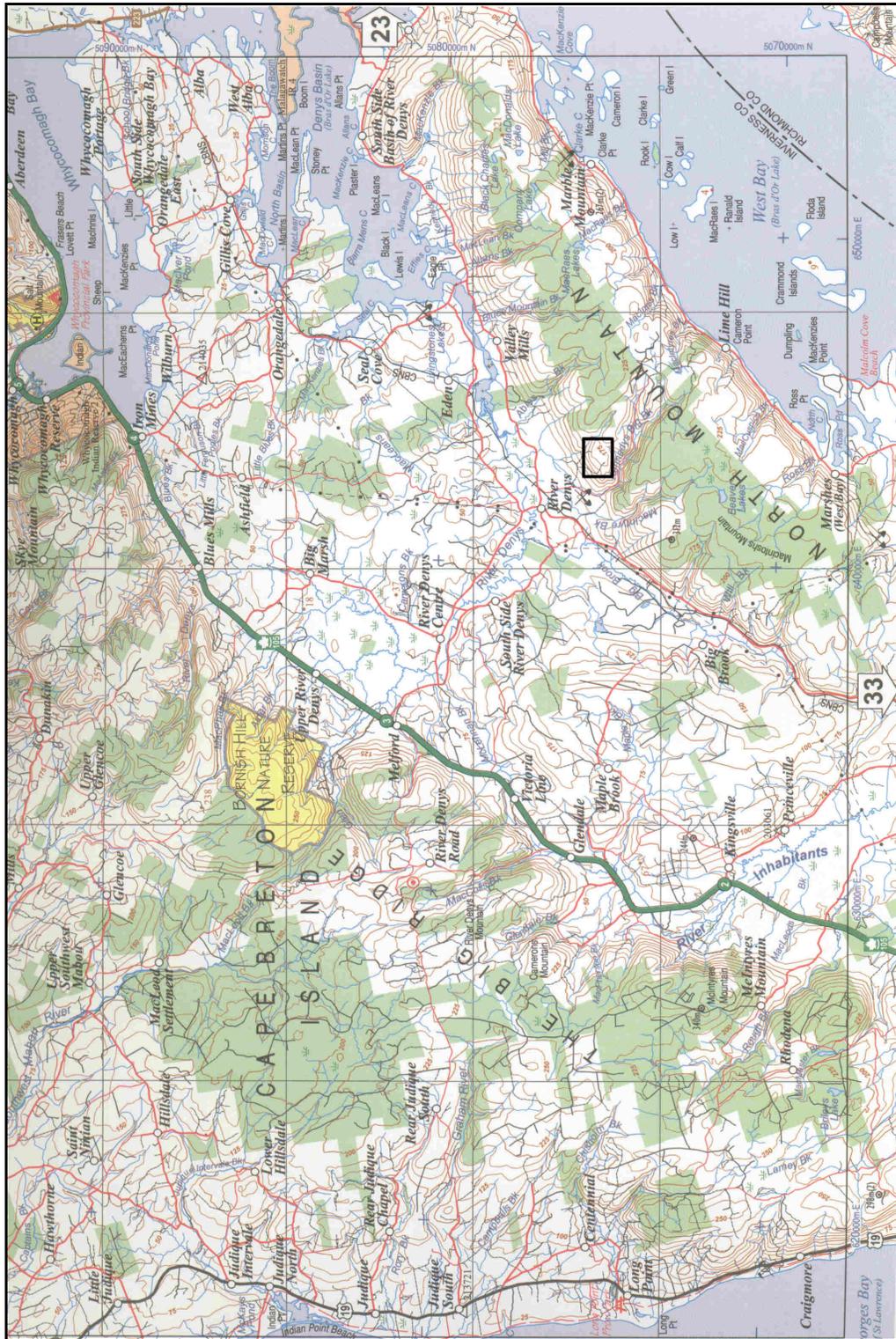
The production method used to quarry marble combined with the natural topography influences quarry layout and morphology. MacLeod Resources Ltd. will use the diamond wire-sawing method to extract the marble. This method is detailed in Section 6. Other quarrying techniques marble include: (a) exact drilling techniques, (b) the use of explosives and blasting, (c) water-jet cutting, (d) specialized chainsaw cutting techniques, (e) jet flame cutting, and (f) slot drilling. The diamond wire-sawing technique has been chosen by the proponent because it is the most appropriate technique for the geology and morphology of the deposit, and because it is safe, quiet, and produces virtually no dust. Other methods are considered unfeasible or unsuitable as a means of extraction because of the nature of the quarry site and bedrock strata; or because they posed potential environmental or safety hazards.

DESCRIPTION OF THE UNDERTAKING



Geographical Location

Figure 4: Regional Context



The Kennedys Big Brook Marble Quarry site is located at Kennedys Big Brook (45° 50' 00"N - 61° 10' 00" W) in the North Mountain Sub-Unit of the North Bras d'Or Upland eco-region of Nova Scotia, in Inverness County, Cape Breton Island (Figure 3). The proposed quarry site is situated approximately 30 kilometres northeast of the town of Port Hawksbury, between the rural areas of Lime Hill and River Denys. The site borders and parallels the east side of Kennedys Big Brook Road, commencing approximately 2 km south of the juncture of Kennedys Big Brook Road with the River Denys-Marble Mountain Road and ending approximately 4.5 km south of this road junction.

The closest residential development to the proposed quarry site is the community of River Denys (population of approximately 300 residents), located over 6.4 kilometres away (Figure 3). An abandoned farm property, used occasionally in the summer/fall seasons is located on the access road to the quarry site, approximately 1.6 kilometres from the proposed undertaking.

Physical Features

Access to the area is via a 100-series highway (Route 105) located 10.5 kilometres northwest of the proposed quarry site. Paved secondary roads leading to Route 105 also come within 3 kilometres of the proposed quarry site. A rail line is located 3.1 kilometres north of the property and harbours are located at nearby Point Tupper and Port Hawkesbury (Figure 4).

An existing all-weather public road, MacLeod Road, leads to within 0.5 kilometres of the site, following the main branch of Kennedys Big Brook. Two other existing roads, one the former access road to an abandoned farm, the other a forestry road, access the site from MacLeod Road. The northern most of these two roads leads to the abandoned nineteenth century farm (MacLeod Farm) and the old farm foundation is still visible in the landscape. This road will not be used by the proponent for the undertaking. The other forestry road, which follows the north bank of a west flowing tributary of Kennedys Big Brook, winds its way up the hillside and doubles back along the top of the ridge until it joins the MacLeod farm road. This existing track has been selected as the quarry access road. Over a kilometre and a half of the southern road has been upgraded by MacLeod Resources to an all-weather gravel road suitable for trucks and heavy equipment. The access road to the site will be further upgraded as quarry development progresses.

Construction Description

The approach proposed by MacLeod Resources is to develop the undertaking as follows:

- Upgrade/construction of an access road to the quarry.
- Site preparation and clearing.
- Removal of existing, limited overburden to expose the deposit, and allow for surface mapping.
- Developing a water supply and settling pond system.
- The installation of cutting equipment and storage facilities.
- The construction of a processing facility.

The undertaking is small in scale, and consequently site development and construction is a relatively straightforward procedure. The Production facility will cover 3,000 square feet, and is a single story building. All buildings and structures associated with development of the Kennedys Big Brook Red Marble Quarry will have a small development footprint, and are not associated with special methods of construction or the use of hazardous construction materials. Construction is ready to proceed immediately upon approval. This is anticipated by MacLeod Resources Limited to be in July 2002 (see Section 11). The construction crew will be hired from local communities.