

INITIAL ASSESSMENT  
OF THE  
CLUX PROPERTY

Nanaimo Mining Division  
Vancouver Island, B.C.

GEOLOGICAL SURVEY BRANCH ASSESSMENT REPORTS
DATE RECEIVED JAN 25 1996

FOR  
MAMMOTH GEOLOGICAL LTD.  
GEOLOGICAL BRANCH  
ASSESSMENT REPORT

24,264

By: R. Tim Henneberry, P. Geo.  
January 12, 1996

## SUMMARY

The Haddington Island andesite is a well known building stone in the Lower Mainland and Pacific Northwest. The stone has been quarried intermittently since the 1890's with little production undertaken in the last 30 years, due primarily to lack of initiative from the present quarry owners.

A second site of Haddington andesite has been described in the literature since the turn of the century. 1:250,000 regional mapping completed by the Geological Survey of Canada in the late-1970's pinpointed locations of the Tertiary volcanics on the Alert Bay map-sheet. An investigation of the sites resulted in the staking of the Clux claim, covering the second occurrence.

The stone on the Clux claim is a grey-brown to light-blue aphanitic stone more accurately described as a dacite, similar to the Haddington Island stone. The Haddington stone has been used through recent history as a favored substitute for the Gabriola Sandstone, as it works similarly to sandstone but is much stronger. As at the Haddington Island site itself, the Clux claim site is vertically sheeted. Sheets appear to range in thickness from less than one to over five metres, meaning the extraction of large blocks is possible.

A staged three phase exploration program is recommended to test the potential of the Haddington andesite occurrence on the Clux claims as outlined below:

Phase I	\$3,623
Phase II	\$18,371
Phase III	\$43,183
<b>TOTAL BUDGET</b>	<b>\$65,176</b>

Phase I will consist of mapping and sampling of the claims at an estimated cost of \$3,623.

Phase II will consist of "sheet" testing to produce small test blocks for tile and split stone. A preliminary marketing survey will also be completed at a total phase cost of \$18,371.

Phase III, the pre-production bulk test, will include test quarrying of several rough quarry blocks, approximately 2.4m by 1.8m by 1.8m (8 ft. X 6 ft. X 6 ft) each. Phase III is estimated to cost \$43,183.

Costs of the mapping and sampling program completed to date is \$1,500.

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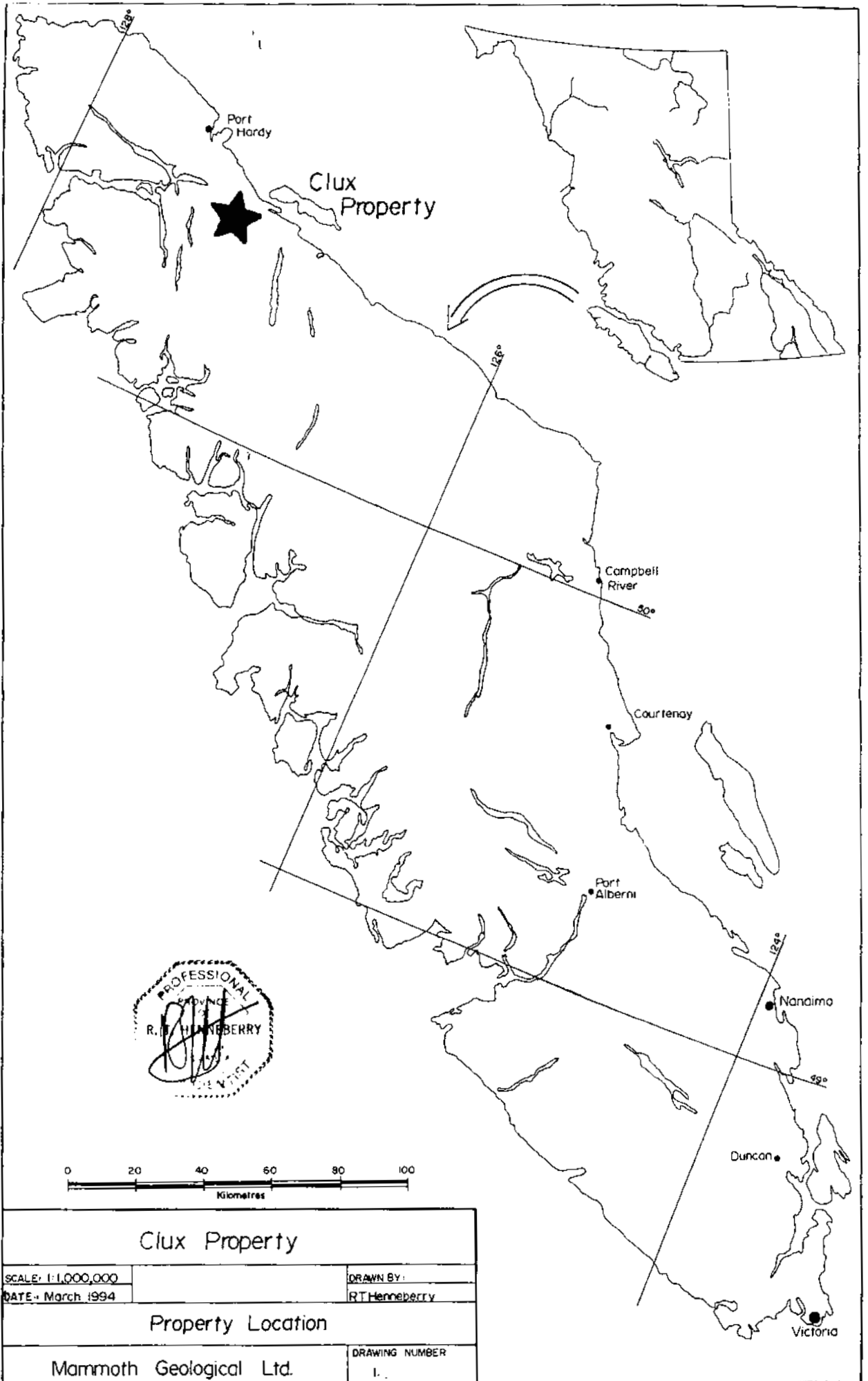
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## INTRODUCTION

The purpose of this report is to document the observations made of the andesite on the Clux Property. A preliminary examination was made on January 20, 1995 with a more detailed sampling and mapping program completed on May 12, 1995. This consisted of prospecting and mapping a continuous 200' outcrop exposure along the access road. Recommendations for further exploration have also been presented.

The exploration target is andesite for structural dimension stone. The andesite target was located as a result of on-going assessment of the dimension stone potential of the north end of Vancouver Island. An initial attempt to negotiate with the present quarry holders of the Haddington Island Quarry proved fruitless, so an successful attempt was made to locate the main island occurrence of the andesite first described in the 1904 British Columbia Ministry of Mines Annual Report.

The Clux property covers this main island target.



Clux Property	
SCALE: 1:1,000,000	DRAWN BY:
DATE: March 1994	RT Henneberry
Property Location	
Mammoth Geological Ltd.	DRAWING NUMBER
	I.

## LOCATION, ACCESS

The area of interest is the northern section of Vancouver Island, between latitudes 49° 45' and 50° 45' and longitudes 126° 30' and 127° 55'. Topography ranges from Sea Level to 1050 metres, with valleys generally less than 300 metres. There are numerous lakes, creeks and streams where water for diamond drilling is readily obtainable. Heavy duty equipment for trenching and road-building will be accessible locally, in either Port Hardy or Port McNeill.

The climate on the north island is relatively mild. The summers are warm and generally dry, while the winters are cool and wet. Snow will accumulate on the higher peaks, but generally the valley bottoms and lower hills are clear for year round work.

There are several towns and lesser communities in the map area where accommodation and lodging can be readily obtained, including Port Hardy, Port McNeill and Woss. The Island Highway cuts through much of the map area. The numerous logging roads of Canadian Forest Products, Timberwest Forest, MacMillan Bloedel, Western Forest Products and Canadian Pacific Forest Products provide access to different claim groups.

The Clux property lies on NTS Sheet 92L/11E, approximately 10 kilometres west of Port McNeill. Access to the property is via logging road N44, leaving the Island Highway 10 kilometres north of Port McNeill. The property is covered by mature second generation forest. Elevations range from 250 to 600 metres. Water for drilling will be available from a small creek within the road drainage ditch.

BROUGHTON STRAIT

PORT Mc NEILL

Cluxewe

CLUX 1  
333859

Keogh

River

River



Mammoth Geological Ltd.

CLUX Property

Claim Location

(From Sheet 92L/11E)

DRAWN BY : RTHenneberry

SCALE : 1:50,000

DATE : February 1995

FIGURE : 2

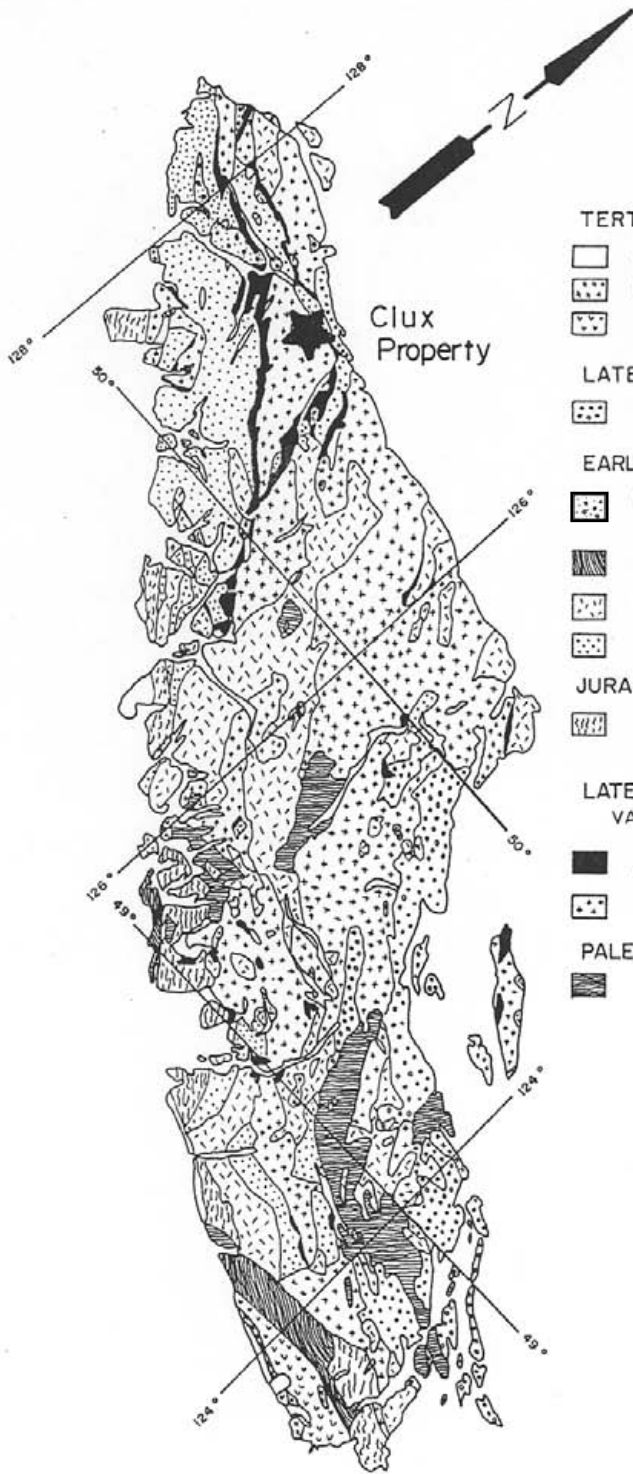
CLAIM OWNERSHIP

The Clux property consists of 1 two-post mineral claim encompassing an area 0.5 kilometre by 0.5 kilometre. This claim encompasses most of the outcropping of Tertiary volcanics at the top of Cluxwe Mountain.

Claim	Record Number	Anniversary Date
Clux 1	333859	January 20, 1996




The registered owner is R. Tim Henneberry of Port Hardy, B.C.





LEGEND







TERTIARY

-  CARMANAH GROUP
-  CATFACE INTRUSIONS
-  METCHOSIN VOLCANICS

LATE CRETACEOUS

-  NANAIMO GROUP





EARLY JURASSIC TO EARLY CRETACEOUS

-  QUEEN CHARLOTTE GROUP
-  KYUQUOT GROUP
-  LEECH RIVER FORMATION
-  PACIFIC RIM COMPLEX
-  ISLAND INTRUSIONS
-  BONANZA GROUP


JURASSIC AND OLDER

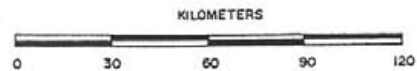
-  METAMORPHIC COMPLEXES

LATE AND MIDDLE TRIASSIC

-  VANCOUVER GROUP
-  PARSON BAY FORMATION
-  QUATSINO FORMATION
-  KARMUTSEN FORMATION

PALEOZOIC

-  SICKER GROUP



FROM MULLER 1977. GEOLOGY OF  
VANCOUVER ISLAND; GSC  
OPEN FILE 463

GEOLOGY OF VANCOUVER ISLAND

DRAWN BY: A. STANTA

SCALE:

CHECKED BY:

DATE:

APPROVED BY:

DRAWING NO: 3

## REGIONAL GEOLOGY

The geology of the north end of Vancouver Island has been described by Muller et al (1974) and Muller et al (1980). The area lies in the Insular Belt of the Canadian Cordillera. The map area is chiefly underlain by the middle to upper Triassic Vancouver Group, overlain by the lower Jurassic Bonanza Group. The Vancouver Group is intruded by large and small bodies of middle Jurassic Island Intrusions and the related (?) Westcoast Complex, and overlain unconformably by remnants of a lower Cretaceous clastic wedge on the southwest side and similar upper Cretaceous beds on the northwest side of Vancouver Island. There are some small early Tertiary (Cenozoic) intrusions also mapped. The region may be divided into several great structural blocks, separated mainly by important near-vertical faults and themselves fractured into many small fault segments.

The Vancouver Group is comprised of the lower Karmutsen Formation, middle Quatsino Formation and upper Parson Bay Formation. The Karmutsen Formation, the thickest and most widespread of the Vancouver Group formations, consists of basaltic pillow lavas, pillow breccias and lava flows with minor interbedded limestones, primarily in the upper part of the formation. Karmutsen rocks outcrop throughout the north part of Vancouver Island, primarily on the east side.

The Quatsino Formation overlies the basalts. The lower part of the Quatsino Formation consists of thick bedded to massive, brown-grey to light grey, grey to white weathering, fine to microcrystalline, commonly stylolitic limestone. The upper part is thin to thick bedded, darker brown and grey limestone, with fairly common layers of shell debris. The formation is in gradational contact with the overlying Parson Bay Formation by an increase in layers of calcareous pelites. Quatsino limestone outcrops as three narrow belts on the north part of Vancouver Island.

The Parson Bay Formation consists of a series of interbedded silty limestones and calcareous shales and sandstones, and occasional beds of pure limestone. Parson Bay rocks outcrop sporadically overlying the Quatsino limestone.

The Bonanza Group overlies the Vancouver Group. Bonanza Group rocks are primarily a Jurassic assemblage of interbedded lava, breccia and tuff with compositions ranging from basalt through andesite and dacite to rhyolite, deposited in a volcanic island arc environment. The Bonanza Group outcrop primarily on the west side of northern Vancouver Island.

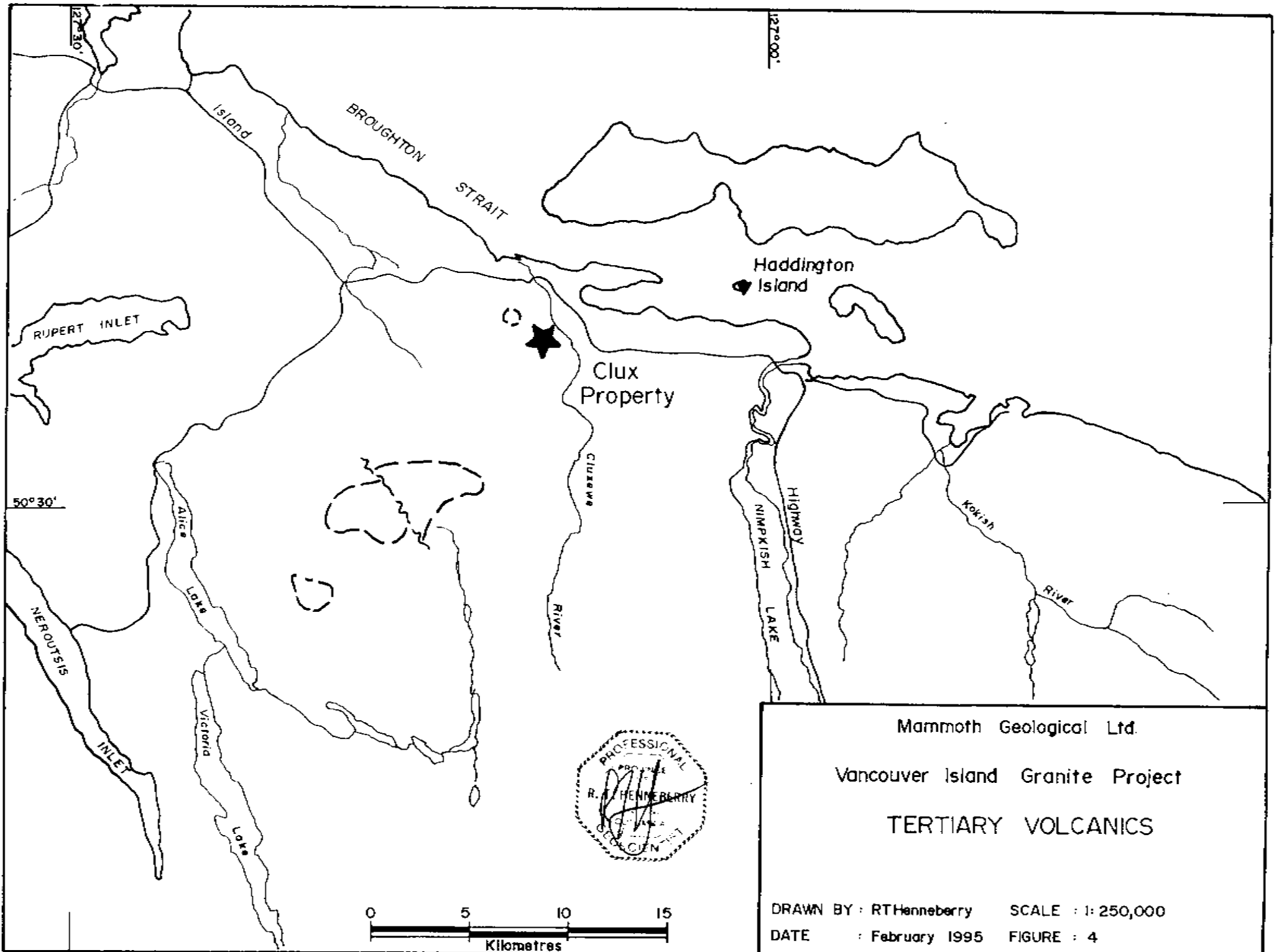
The Westcoast Complex is a heterogeneous assemblage of amphibolite and basic migmatite with minor metasedimentary and metavolcanic rocks of greenschist metamorphic grade. The Westcoast Complex outcrops in a loosely defined belt on the west coast of Vancouver Island.

Granitoid batholiths and stocks of the Island Intrusions underlie large parts of Vancouver Island. These intrusions range in composition from quartz diorite and tonalite to granodiorite and granite. Island Intrusions outcrop in a belt through the central section of Vancouver Island.

The Cretaceous clastic wedge includes the Queen Charlotte and Nanaimo Groups. These groups consist of cyclical successions of sandstone, conglomerate and shale, with interbedded coal in the Nanaimo Group. These rocks outcrop around Quatsino Sound.

Small intrusive stocks of early Tertiary age and of general quartz dioritic composition are known in many parts of Vancouver Island. These rocks are generally massive, light colored, fine to medium grained equigranular to locally porphyritic granitoid rocks. They are commonly regularly and closely jointed.

The network of faults displayed on the north end of Vancouver Island appears to be the super position of two or more fracture patterns, each with a characteristic directions and of different age and origin.



### **Tertiary Volcanics**

The Tertiary volcanics have been quarried for dimension stone in the early part of the century from a location on Haddington Island, off Port McNeill in Broughton Strait. A number of small outcroppings of Tertiary volcanics were mapped by Muller et al (1974) in the hills in a general southwest direction from Port McNeill.

These volcanics and associated sediments range in composition from black vesicular basalt to brightly colored tuffs to light-colored dacites. The light colored dacites are the stones quarried on Haddington Island for building stone. These are the focus of the present exploration.

### Haddington Island Andesite Quarry

Stone was first quarried from Haddington Island sometime in the early 1890's. Extensive quarrying appears to have started in 1895 when stone was obtained for the construction of the Legislature Buildings in Victoria, completed in 1897. Operations continued on an extensive scale, and by 1904 it was reported that two separate quarries had been opened up at the southern end of the island. One large quarry was in operation in 1908.

When Parks (1917) visited the site in 1915, the quarry was not operating and operations at the two dressing plants in Vancouver had practically ceased. He gave 1915 production as 18,000 cubic feet, and mentioned that the andesite had been used in the construction of some of the most important buildings in the province.

Carr (1955) reported that for the past number of years the quarry was operated on a demand basis by J.A. and C.H. MacDonald Limited. The company operated a well-equipped dressing plant in Vancouver, which is capable of handling large building contracts. 1952 production was given at 20,000 cubic feet.

The stone is of very uniform grain throughout, although there are some variations in color. Carr (1955) described two varieties being produced, namely, a bluish-grey variety, and a greyish-yellow or buff-tinted variety, which apparently is a result of the blue-grey having undergone the slow process of oxidation. The stone consists of a light colored homogeneous and minutely crystalline groundmass, which in the greyish-yellow or buff-tinted variety, is dotted through with light brown specks up to 2 mm. in diameter that, on examination under the microscope, prove to be twinned plagioclase feldspar with a distinct zonal structure. A chemical analysis (Parks, 1917) is as follows: silica 70.5%, alumina with a little iron 18.7%, lime 2.7%, magnesia a very small quantity - undetermined, alkalis - undetermined, loss on ignition 0.8%.

The quarry sill is 15 feet above high water. Dimensions (Carr 1955) are 450 feet long and 200 feet wide (back from the water). The bedding, or sheeting, is highly inclined and seems to vary in both strike and dip in different parts of the quarry. At the northeastern half of the quarry where present (1955) operations are centred, the sheets are nearly vertical, striking N50W, and are commonly spaced 8 to 10 feet apart. Jointing in the quarry is well defined but very irregular, one set being nearly vertical with strikes varying between due north and N45E. Another prominent set, with joints spaced 12 and 15 feet apart, strike N50E and dips to the southeast at 54 degrees, paralleling the quarry face. A less marked set with a somewhat similar strike, dips to the northwest at 40 degrees.

As the joints rarely cut the bedding at right angles, there is some waste in obtaining rectangular blocks. This is counteracted to a considerable extent by the wide spacing of the joints, except in certain narrow headings, enabling large blocks to be obtained which can be split into rectangular sizes as required. Due to the wide spacing of the vertical and northwesterly dipping joints (approximately 40 feet, as exposed in the east wall of the quarry), large blocks over 10 feet square and 20 feet in length with their long axis inclining 55 degrees to the southeast (grain?), may be obtained at this locality.

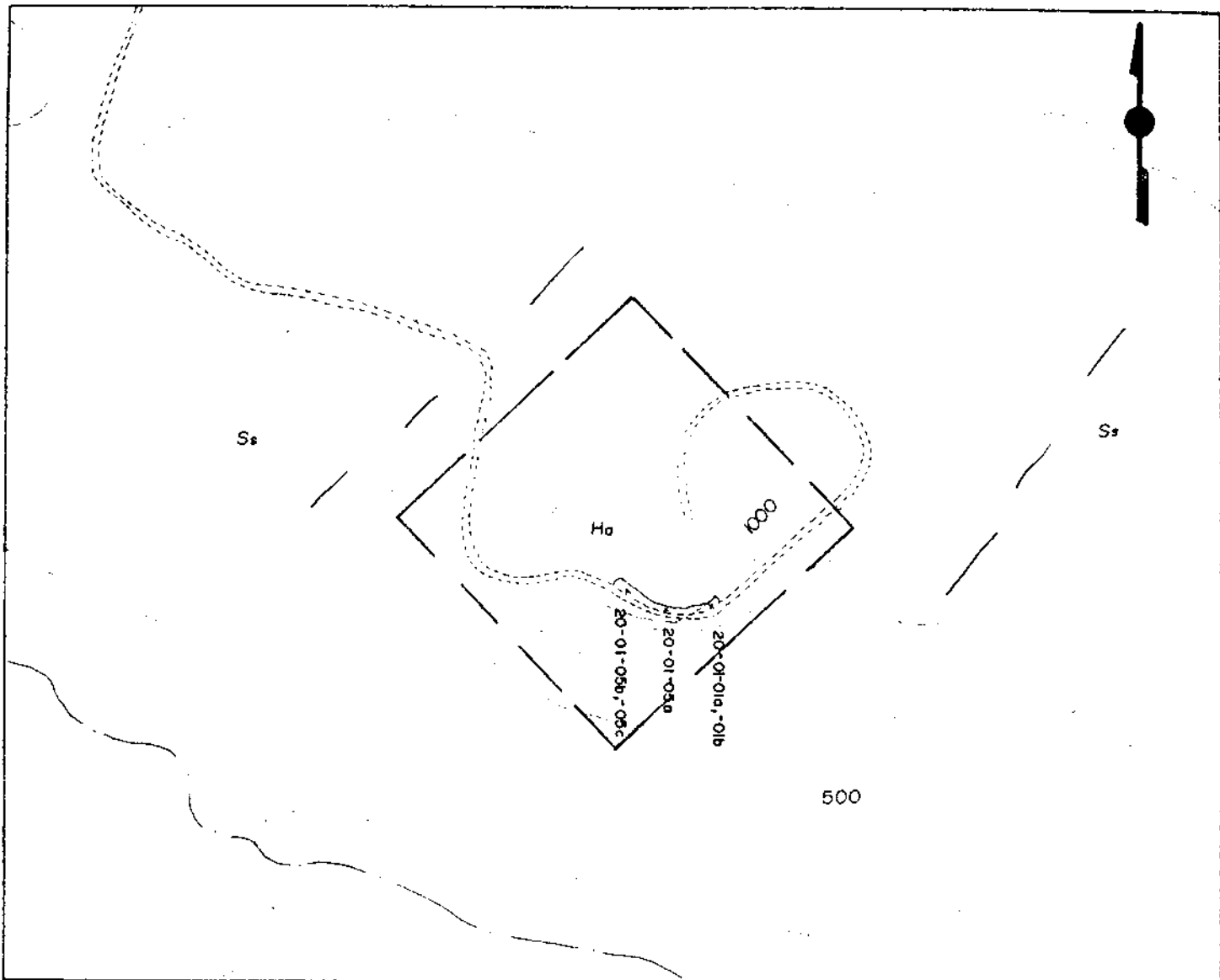
Although channeling methods have been used in the past, Carr (1955) reported all stone was being quarried by drilling and blasting with black powder. In a quarry of this type where the beds and dips are steeply inclined, where the face is over 100 feet in height, and most of the holes have to be drilled at angles around 45 degrees, it has been found to be more convenient to quarry the stone by simple drilling and blasting. However, to ensure a clean break in quarrying the stone and in sub-dividing the large quarry blocks, it is the usual practice to drill all the holes on 5 or 6 inch centres to the full depth of the block concerned. Approximately 60 percent of the stone quarried is eventually discarded as waste, with the greater part coming from the upper section of the quarry face near the surface.

The rough undressed blocks are usually about 180 to 200 cubic feet in size, although blocks of 250 to 300 cubic feet (20 to 25 tons) are frequently shipped.

Haddington island andesite works well under machine and hand tools, dresses easily to fine sharp edges, and is especially good for fine detail carvings. It is slightly harder to work than some of the sandstones found on the coast, but considerably softer than any of the other "granites" produced in Canada. The machinery employed in dressing the stone, i.e. the swing gang-saw, carborundum saw, planers, etc. are of the type normally employed in a sandstone dressing plant. Polished finish does not fill well nor is there much contrast between it and the hammered and other finishes, and so polished surfaces are rarely used.

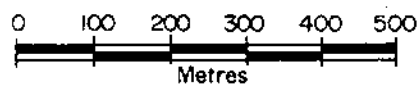
The stone weathers well and in buildings erected over 50 years ago it shows practically no deterioration. Parks (1917) made the following comments:

*Viewed from a short distance the buildings have a light yellowish-grey appearance very pleasing to the eye. Examined closely the stone shows minute, light brownish grains embedded in a lighter colored matrix. The older parts of the buildings, constructed about 20 years ago, are somewhat darker, more grey, and less yellow, than the part recently built. Rock-face work is darker than work with a smooth finish, owing to the inhibition of dirt. A variation in colour is to be observed, but it is not striking; some blocks are decidedly more brownish than others and in a few instances a pinkish cast is shown as in the case of weathered stone in the quarry. Where water has been allowed to run over the masonry, the stone is much darker, doubtless on account of the soaking in of dirt. The buildings show numerous pillars 6 to 8 feet long without any signs of flaws. The suitability of the stone to fine carving is attested by numerous statues and other highly ornamental work. The surface of the stone is hard without any sign of deterioration.*



**LEGEND**

- Ss Clastic sediments
- Ha Haddington andesite
- Boulder
- - - - - Creek
- ▭ Outcrop
- - - - - Road
- 20-01-01a Sample location
- 100 foot contour interval



Mammoth Geological Ltd.  
Clux Property  
GEOLOGY

DRAWN BY : RT Henneberry      SCALE : 1:10,000  
DATE : February 1995      FIGURE : 5

## PRELIMINARY PROPERTY GEOLOGY

The Clux property covers the small exposure of Tertiary volcanics capping Cluxewe Mountain. The stone outcrops in a continuous 200 metre rock cut along an existing logging road. The stone is vertically fractured (sheeted?), at regular intervals in at least two locations. There are several sheeted pieces that could be easily pulled from the rock cut and tested.

The stone ranges in color from a light blue to a grey-brown color. It is aphanitic with 1-2mm disseminated blebs (quartz eyes ?) comprising 1/2%-1% by volume. Within 15 centimetres of surface there is a limonite brown color associated with the blebs, though this was only seen in two of the five samples taken. At both locations water was seen streaming down the rock face and all fractures were wet.

The stone has an appealing appearance on fresh break. In general, the stone seems to weather well as there is no rusting or other deleterious substance on any weathered surface, including those with the limonite within them. One of the five samples shows distinct banding as grey-brown to brown horizons. No sulfides were noted.

The outcrop ranges from massive to heavily fractured. The more massive sections are almost sheeted, though the sheets are vertical as opposed to horizontal. The rock cuts are along an existing logging road, with two sites identified for initial testing.

The dominant variety is an aphanitic grey-brown stone. Speckled with 1-2mm blebs of limonite stained material, only within 15 cm of surface. They do not appear to be sulfides. Occasional 5-10mm rounded mafic blebs. There are occasional 5-10mm rounded mafic blebs.

The second important variety is an aphanitic light blue stone. Rusty blebs are much less noticeable. Weak banding of grey-brown material.

This site was located as a result of reports by Parks (1917) and Muller et al (1974).

## MARKETING

Marketing carries almost an equal importance to geology for any industrial mineral property. The two key aspects of marketing for the north Island dimension stone project are: acceptability of the stone in the marketplace and transportation of the stone from quarry to fabrication or job site.

The marketing assessment of a north Island stone is a three step process. After the property has been acquired and prospected, resulting in the identification of a potential quarry site, a small (20 to 50 ton) amount of the desired end product, in this instance both block and split face andesite, is produced. This stone is then shown to end users, namely masons and landscapers, for opinions and general comments. The most important function of this phase of the marketing is to get some of the end users to agree to try the stone on a few job sites.

The second step is to produce a small volume, 500 to 1000 tons, of either 5 or 20 ton block if the mason will make the split face himself or desires other end products, or split face itself to be supplied to a few job sites. This will provide frank opinions of the stone and allow the initial compilation of a photo portfolio for future marketing and eventual sales.

The other key aspect to be completed by this time is to establish firm numbers for transportation. In the case of the north Island plutons the options are water (barge) or truck (Super "B" train). While water appears to be considerably cheaper on first appearance, there are numerous costs and problems associated with water transportation:

- 1) loading - moving product from quarry site to barge
- 2) unloading - moving product from barge to job site
- 3) volume - at least 1000-2000 tons must be moved to make the barge economical

Transportation by Super "B" train appears to be the most economical on an overall basis, because:

- 1) minimal handling - quarry to truck to job site
- 2) minimal volume - only 46 tons must be moved at one time

The third stage in the marketing process is to establish the quarry bench and produce a bulk test of 5 and 20 ton block in the range of 1000 to 2000 tons. The 5 ton block is supplied to the masons, again to show the stone is consistent in color, texture and grain. The 20 ton block is supplied to fabricators to produce the end products for distribution to potential purchasers. Purchasers of block will demand to see the quarry site and actual **quarry bench** before they will consider block purchases. They want to verify consistency of color, grain and texture and ensure sufficient reserves are in place for continued supply.

While the marketing program for the Clux andesite will be similar to the north Island granite, much of the marketing has been completed for the andesite over the last 90 years, as evidenced by the numerous buildings in Victoria and Vancouver. More emphasis should be placed on completing the bulk test to prove the stone can be quarried and the show the Clux andesite is the same or very similar to the *Haddington Andesite*.



## DISCUSSION

The stone located on the Clux property is similar in appearance to the Haddington Island stone. More importantly, the structure of the occurrence is very similar with irregularly spaced vertical cooling fractures resulting in relatively thick continuous vertical sheets of stone. The bedding appears to be somewhat horizontal, again a similar situation to Haddington Island, though further measurements need to be made to verify this.

A staged, three phase exploration program is recommended for the Clux property. At the conclusion of each stage, a report will be presented and the project will be evaluated before continuing.

The first phase is to complete a mapping and sampling program on the property. The purpose of this phase of the program is to assess the stone, both structurally and lithologically. Structural mapping should include fracture patterns and joint densities. Lithological mapping includes mineralogical descriptions and polished sample suites.

The second phase is to evaluate the structural competency of the andesite by testing a number of the readily accessible sheets. The first step will be to cut a number of 5-10 ton blocks as a test of competency. One or two of these blocks will then be sent out and processed into tile. The second step will be to cut some of these blocks into squared split stone again checking the competency of the stone. The third stage will be take the squared split and tile and conduct a preliminary marketing survey.

The final phase will consist of pre-production stripping to clear the quarry site of overburden and quarrying of 10-20 rough blocks at least 8 ft. X 6 ft. X 6 ft (2.4m X 1.8m X 1.8m). These rough blocks will be processed into facings and tiles to ensure output from the quarry will meet the specifications required for andesite facings and/or tiles. Once the actual quarry site(s) has been designated, an engineering study, a calculation of reserves and a permitting program is required to get the quarry set up for initial production.

Though the British Columbia Ministry of Energy, Mines and Petroleum Resources has determined the stone does not take a polish, the expanding market for unpolished slate and sandstone tiles and facings strongly suggest this market should be pursued as well as the dominant structural market.

## CONCLUSIONS AND RECOMMENDATIONS

The andesite located on the Clux property has potential use as both structural stone and dimension stone. A staged three phase exploration program is recommended for the Clux property.

Phase I will consist of property mapping, and sampling for hand and thin sections. Mapping will concentrate on locating outcrops, on lithologic descriptions and on fracture patterns and joint densities. Sample specimens will be cut to evaluate the potential of the andesite. Estimated cost of Phase I is \$3,623.

Phase II will consist of "sheet" testing. The small blocks cut from the sheeted outcrop will be cut into tiles and squared split stone and a preliminary market survey will be completed. Cost of Phase II is estimated at \$18,371.

Phase III is basically the pre-production test. This phase includes the stripping and clearing of the quarry site. It also includes the test mining of several rough quarry blocks. The test blocks should be roughly 8 ft. X 6 ft. X 6 ft. (2.4m X 1.8m X 1.8m). The purpose of the test mining is first to ensure blocks of this size can be successfully quarried and secondly to ensure these blocks can be successfully processed into dimension stone and/or squared split structural stone. Phase III cost is estimated at \$43,183.

Phase I	\$3,623
Phase II	\$18,371
Phase III	\$43,183
<b>TOTAL BUDGET</b>	<b>\$65,176</b>

The mapping and sampling program completed to date cost \$1,500.

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Muller,J.E., B.E.B.Cameron and K.E.Northcote (1981). Geology and Mineral Deposits of Nootka Sound Map-Area, Vancouver Island, British Columbia. Geological Survey of Canada Paper 80-16. 53p.

Parks,W.A. (1917). Report on the Building and Ornamental Stones of Canada. Canadian Department of Mines, Volume V, Report Number 452.

STATEMENT OF QUALIFICATIONS

I, R. Tim Henneberry, am the principle of Mammoth Geological Ltd., a geological consulting firm with offices at 9250 Carnarvon Road, Port Hardy, B.C. The mailing address is Box 5250, Port Hardy, B.C. V0N 2P0

I earned a Bachelor of Science Degree majoring in geology from Dalhousie University, graduating in May 1980.

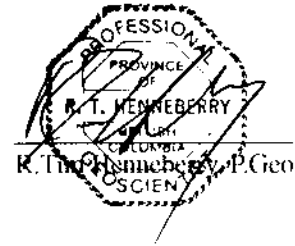
I have practiced my profession continuously since graduation.

I am registered with the Association of Professional Engineers and Geoscientists in the Province of British Columbia as a Professional Geoscientist. I am also a Fellow of the Geological Association of Canada.

I staked and examined the Clux property on January 20, 1995 and conducted a mapping and sampling program on May 12, 1995. I am presently the owner of the Clux 1 mineral claim.

This report may be used for any purpose normal to the business of Mammoth Geological Ltd., provided no part is used in such a manner to convey a meaning different than that set out in the whole.

Dated this 14<sup>th</sup> day of January in the Town of Port Hardy, British Columbia.



STATEMENT OF COST

Clux Property			
Project Manager	2 days	@ 300.00 /day	\$600.00
Room and Board			\$0.00
Vehicles	2 days	@ 50.00 /day	\$100.00
Analysis	4 samp	@ 50.00 /sample	\$200.00
Documentation	2 days	@ 300.00 /day	\$600.00
<b>Clux Property Costs</b>			<b>\$1,500.00</b>

COST ESTIMATES

Phase I - Mapping and Sampling (2 days)		
Field Costs (Geological and Supervision)	\$1,600	
Support Costs (Room and Board, Vehicles)	\$400	
Analysis Costs (Polished/Thin Sections)	\$250	
Documentation (Reports)	\$900	
Contingency (15%)	\$473	\$3,623
Phase II - Sheet Testing (5 days)		
Quarrying Costs (Personnel and Equipment)	\$3,375	
Field Costs (Geological and Supervision)	\$2,250	
Support Costs (Room and Board, Vehicles)	\$1,625	
Market Assessment	\$4,225	
Documentation (Reports)	\$4,500	
Contingency (15%)	\$2,396	\$18,371
Phase III - Pre-production Bulk Test (10 days)		
Contractor Cost (Machinery)	\$8,000	
Quarrying Equipment Cost	\$2,300	
Quarrying Personnel Cost	\$5,000	
Field Costs (Geological and Supervision)	\$4,500	
Support Costs (Room and Board, Vehicles)	\$3,250	
Sample Preparation	\$10,000	
Documentation (Reports)	\$4,500	
Contingency (15%)	\$5,633	\$43,183
Phase I - Property Mapping	\$3,623	
Phase II - Sheet Testing	\$18,371	
Phase III - Bulk Test	\$43,183	
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<b>TOTAL BUDGET FOR CLUX PROPERTY</b>	<b>\$65,176</b>	

SAMPLE DESCRIPTIONS

- Sample 20-01-01a - Aphanitic grey-brown stone. Speckled with 1-2mm blebs of limonite stained (quartz eyes?) material, only within 15 cm of surface. They do not appear to be sulfides. Occasional 5-10mm rounded mafic blebs.
- Sample 20-01-01b - Aphanitic grey-brown stone. Speckled with 1-2mm blebs of limonite stained (quartz eyes?) material, only within 15 cm of surface. They do not appear to be sulfides. Occasional 5-10mm rounded mafic blebs.
- Sample 20-01-05a - Aphanitic light blue stone. Rusty blebs are much less noticeable. Weak banding of grey-brown material.
- Sample 20-01-05b - Coarser-grained with distinct 2-4mm white plagioclase phenocrysts. Aphanitic brown groundmass. No rusting noted.
- Sample 20-01-05c - Aphanitic grey-brown stone. Similar to (-01A) but without the speckled rust nature. Occasional 5-10mm rounded mafic blebs. Distinct 1-4cm banding of lighter brown material within stone.