

Property File

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GEOLOGICAL REPORT  
ON THE  
PROPOSED TACHEEDA LAKES LIMESTONE QUARRY

TACHEEDA LAKES, BRITISH COLUMBIA  
NTS 93J/10  
LAT 54°43' LONG 122°32'

FOR.

CRAIG BOWMAN  
DIAMOND LIMESTONE  
#59 - 10460 No.3 ROAD  
RICHMOND, B.C. V7A 4W5

BY

GERALD H. KLEIN, P.ENG.  
AUGUST 5, 1983

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## INTRODUCTION

Geological investigation of this proposed quarry for agricultural limestone was carried out at the request of Mr. Craig Bowman of Diamond Limestone, Vancouver. Rock exposures were examined, mapped and sampled in order to make a preliminary estimate of volume and quality.

## LOCATION AND ACCESS

The proposed quarry site is on the north shore of East Tacheeda Lake, 90 km north of Prince George, and is situated within National Topographic System map sheet 93J/10. (Figs. 1 & 2).

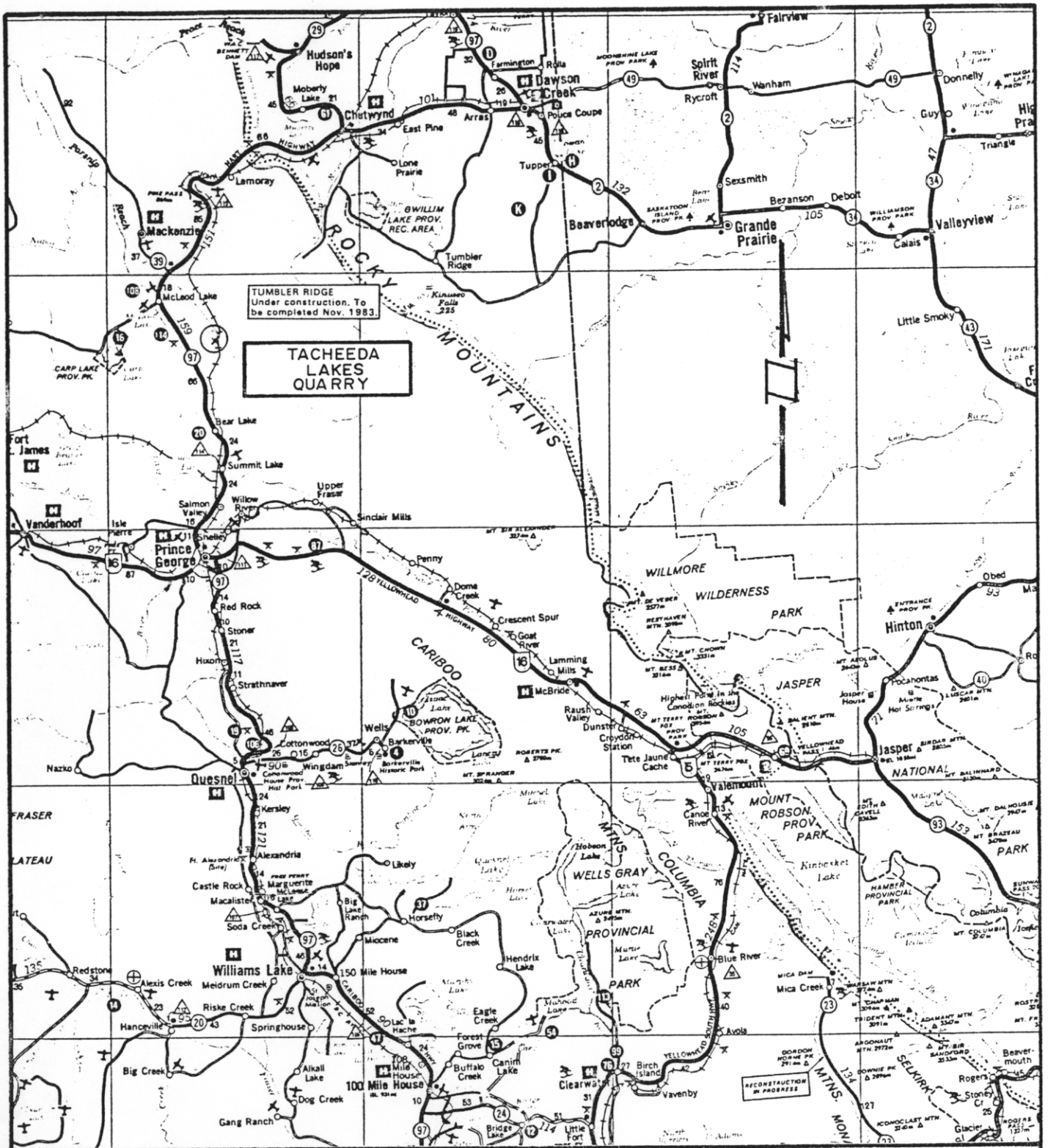
Access to the property is by Highway 97 North to Angusmac siding on the B.C.R. and then by good logging road to Tacheeda Lakes. The property is adjacent to the logging road and the B.C.R. mainline to Dawson Creek.

## TOPOGRAPHY AND AREA DEVELOPMENT

Forested mainly by spruce and pine, the area has moderate relief with generally rounded hills. Drainage locally is into Tacheeda Lake, which in turn drains into the Parsnip River.

Less than 1km north-east, B.C.R. has developed a large quarry for road bed requirements, culverts and bridges, for upgrading of the line to the North-East coal project, which is 80 km to the north east.

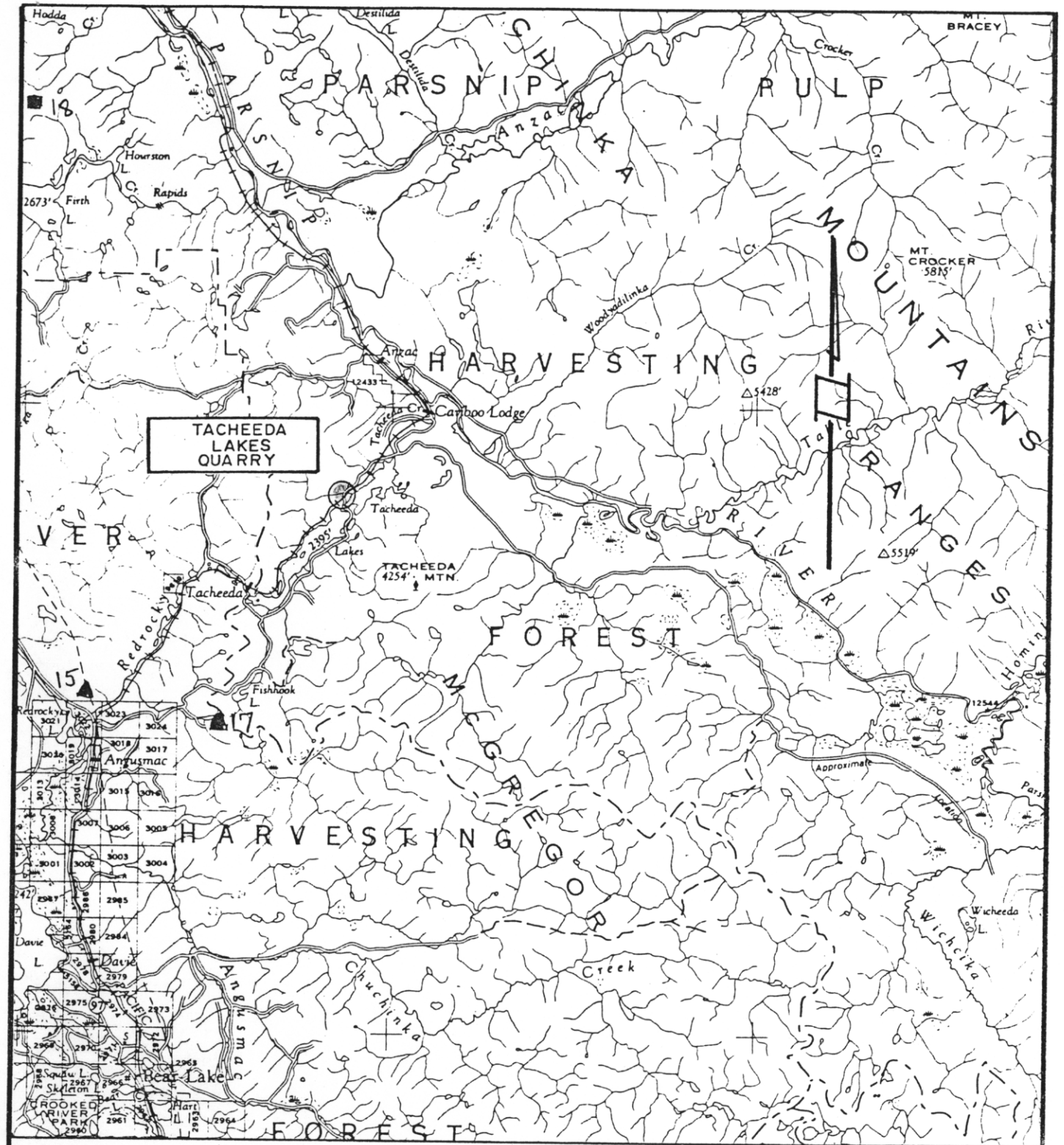
An old logging road, now grown in with alders, crosses the upper part of the proposed pit. Parts of the surrounding area have been logged, one parcel being adjacent to the proposed quarry site.



**DIAMOND LIMESTONE PROJECT  
TACHEEDA LAKES  
B. C.**

LOCATION MAP  
Scale 1:2,600,000

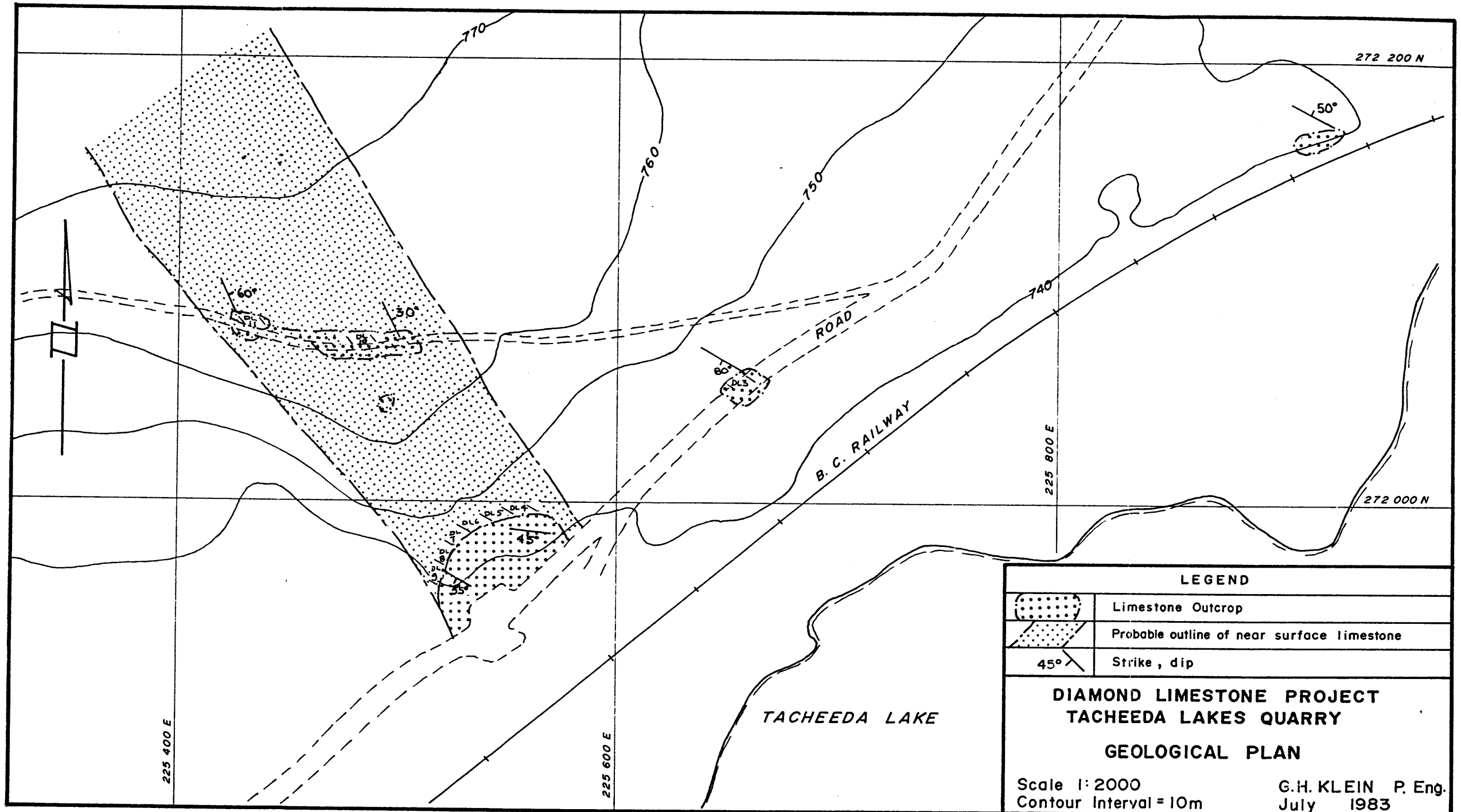
Figure 1



**DIAMOND LIMESTONE PROJECT  
TACHEEDA LAKES  
B. C.**

Scale 1:250 000  
Map sheet 93J

Figure 2



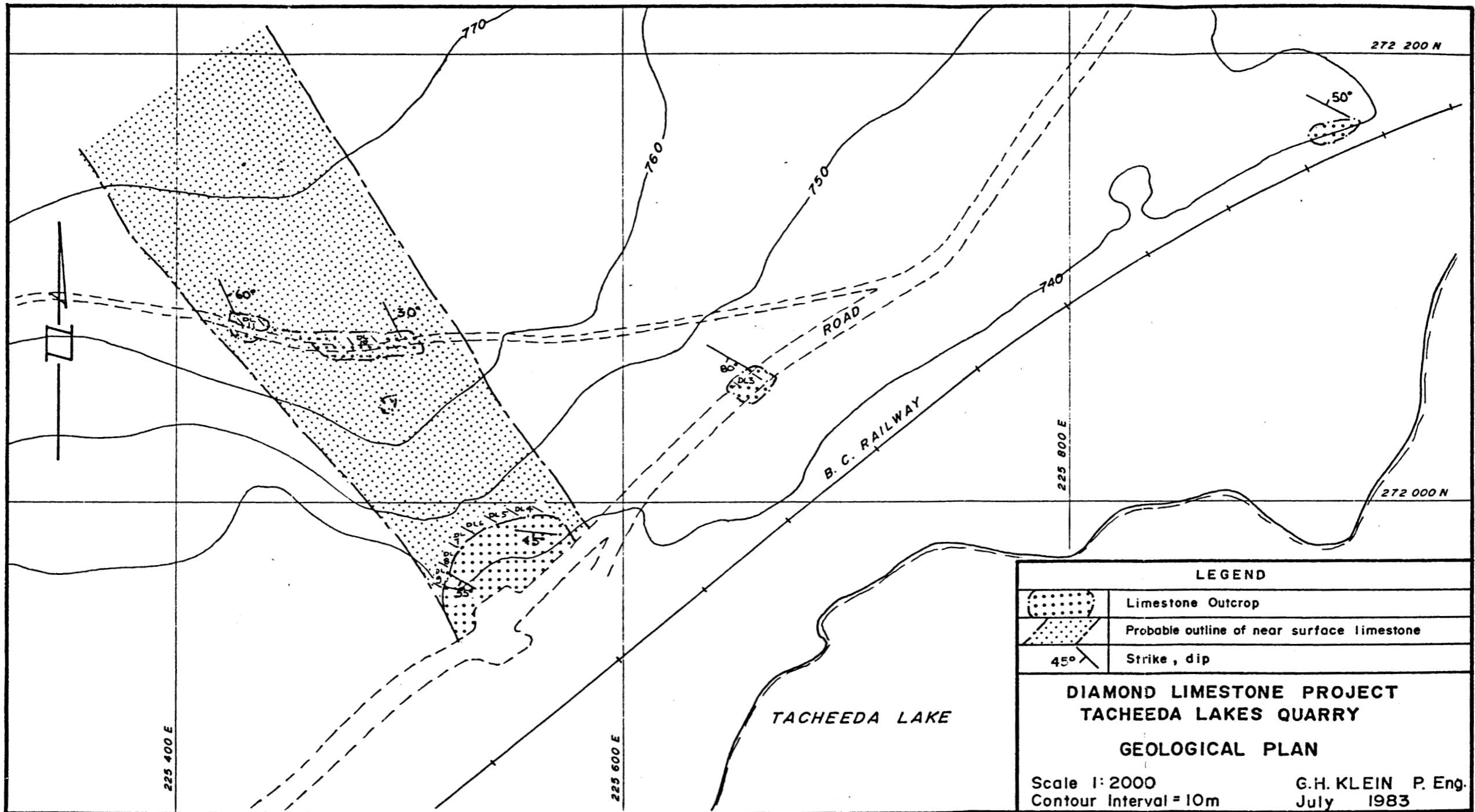


Figure 3

The proposed site is on a low knoll trending northerly from the main logging road, and is an extension of a former B.C.R. rock pit.

#### BRIEF SUMMARY OF AREA GEOLOGY

The property lies just west of the Rocky Mountain Trench and east of the McLeod Lake fault, both major structures, in an area underlain by early Paleozoic sediments and metasediments. (Muller, 1961, McLeod Lake Map 1204 A). Rock exposures in the vicinity of the property are all carbonates while a few kilometers distant, exposures of quartzite, quartzitic schist and argillite were observed.

Outcrops near Tacheeda Lakes are strongly sheared indicating a major fault trending in the same direction, north east, as the lakes, and under them. Cross fractures are abundant in the nearby rocks.

Tacheeda Lakes may have been the meltwater channel for the last stages of glaciation. Glaciofluvial gravels are noted a few tens of meters above the lakes, forming the cover for the rocks in the quarry area.

#### PROPERTY GEOLOGY - FIGURE 3

The main exposure of limestone is in a former B.C.R. rock quarry, adjacent to the main access road. Here, and other places where rock is exposed on the site, the limestone is dark grey to black, very fine grained, and has a very poorly defined bedding. No recognizable fossils were noted. In sharp contrast, cream white calcite fills cross fractures up to .5 m in width in the dark limestone. These cross fractures are probably related to the Tacheeda Lakes fault.



The strike of the gently undulating bedding in the old pit averages 290°, dipping approximately 50° to the south. Exposures on the old logging road 130 m above this pit indicate a strike of 335° and a dip to the east of 45°. Folding is indicated; it may be that the lower exposure was drag folded by the large Tacheeda Lakes fault.

It is apparent that bedrock is very near the surface from the pit to approximately 100 m above the logging road showings. Other areas may have shallow overburden, which can be determined by testing.

#### SAMPLING

Nine chip samples were taken from four sites. They were taken in 5 m. widths as near to perpendicular to the strike as could be done. Because the white calcite fracture filling is believed to be erratic, it was excluded as much as possible from the samples.

See figure 3 for sample locations.

Sample DL		<u>Width (meters)</u>	<u>CaCO<sub>3</sub> %</u>	<u>Remarks</u>
3		15.0	94.90	Road exposure
4		4.9	93.70	Pit face
5		5.0	93.80	"
6		5.0	93.60	"
7		5.0	93.60	"
8		5.0	94.80	"
9		5.2	95.30	"
10		5.0	95.10	Upper road
11		5.0	<u>92.20</u>	"
		<u>Average</u>	<u>94.1 %</u>	

It is thought that this sampling should give a fair basis on which to plan future work. It should be noted that the white calcite was not included in the samples, but, being relatively high in CaCO<sub>3</sub>, will raise the grade when pockets of it are en-

countered in drilling or mining. Considering the nature of the exposures and the method of sampling an arithmetic average can be used giving a grade of 94.1 % CaCO<sub>3</sub>.

#### TONNAGE ESTIMATES

<u>PROBABLE</u>	750,000 Tonnes	250 m X 80 m X 15 m X S.G. 2.5 to base 940 m el
<u>POSSIBLE</u>	750,000 Tonnes	250 m X 80 m X 15 m X S.G. 2.5 to base 910 m el
<hr/>		
1,500,000 Tonnes		

Reserves may be upgraded to the proven category through development work. It should be noted that the volume calculated is for the most readily accessible limestone, and in all probability much more exists, so far with an unknown quality.

#### CONCLUSIONS

The proposed Tacheeda Lakes limestone quarry contains in the probable and possible categories a total of 1,500,000 tonnes @ 94.1 % CaCO<sub>3</sub>, with a probability in the immediate area of much greater volume. While the intention is to develop the quarry for agricultural purposes, the possibility exists that the white calcite is in sufficient volume in places to market as a very attractive decorative stone. A very positive feature of this property is its proximity to rail.

REPORT: 723-1661

FROM: DIAMOND LIMESTONE

SUBMITTED BY: CRAIG S. ROWMAN

DATE: 29-JUL-83 PROJECT: TACHEEDA LAKES

ELEMENT	LOWER DETECTION LIMIT	EXTRACTION	METHOD	SIZE FRACTION	SAMPLE TYPE	SAMPLE PREPARATIONS
FeTot	.01 PCT				ROCKS	ASSAY PREP
MnO	.05 PCT					
CaO	.02 PCT					
LOI	.01 PCT					
SiO2	.01 PCT					

REPORT COPIES TO: DIAMOND LIMESTONE

INVOICE TO: DIAMOND LIMESTONE

MR. G. H. KLEIN F. ENG.

REMARKS: MILE 535

	Ca CO3%		CaCO3%
SNL-01	95.00	IL-07	93.60
SNL-02	83.50	IL-08	94.80
IL-03	94.90	IL-09	95.30
IL-04	93.70	IL-10	95.10
IL-05	93.80	IL-11	92.20
IL-06	93.60		

FeTDT EXPRESSES IRON AS Fe2O3

STATEMENT OF QUALIFICATIONS

I, GERALD HOWARD KLEIN, of 147 Parker Drive, Prince George, British Columbia certify:

1. I am a Consulting Geologist with an office at 610 Richard Road, Prince George, B.C., with mailing address at Box 2059, Prince George, B.C., V2M 2J6.
2. I graduated from the College of Arts & Science, University of Saskatchewan, with a B.A. in Geology in 1962.
3. I am a member of the Association of Professional Engineers of B.C., a fellow of the Geological Association of Canada and a member of the Canadian Institute of Mining.
4. I have practised my profession for twenty-one years.
5. I have no direct or indirect interest in this property, other than this report.
6. This report is based on my work on the property July 20th and 21st, 1983.

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Gerald H. Klein, P.Eng.