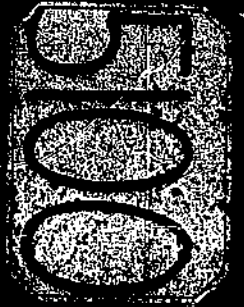


104I/2E, 7E, 7W  
JADE OCCURRENCES IN THE  
PROVENCHEUR LAKE AREA,

CWA, LIARD MINING DISTRICT,  
Jade, TO, BRITISH COLUMBIA  
E1, JW,  
BARRY J. PRICE, M.Sc., FGAC  
King Kong, JULY 20, 1974  
NCW

51508



# 51000

GEOLOGICAL REPORT  
JADE OCCURRENCES IN THE PROVENCHER LAKE AREA  
LIARD MINING DISTRICT  
BRITISH COLUMBIA

## 104I/2E, 7E & 7W

for  
DELPHI RESOURCES LTD.  
NEPHRO-JADE CANADA LTD.

by  
B. J. Price, M.Sc.,  
MANEX MINING LTD.

July 20, 1974

Department of Mines and Petroleum Resources ASSESSMENT REPORT	
NO.....	MAP.....

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## I - INTRODUCTION

Jade was discovered in the Provencher Lake area several years ago by Mr. A. Jensen, who formed Nephrite Mines Ltd. Intense exploration was begun in 1973 when Nephro Jade Canada leased the properties. Delphi Resources Ltd. is responsible for exploration and development of the property, under the supervision of Mr. L. D. Barr.

## II - LOCATION AND ACCESS

Provencher Lake is located in the south-central part of Cry Lake mapsheet [104 I], 52 miles east-southeast of Dease Lake, B.C. and 125 miles due south of Watson Lake, Y.T. [see figure 1]. The lake lies at 4,400 feet altitude in the pass between Letain Creek [draining into Kutcho Creek] and Kehlechoa River, which drains southerly to the Stikine River.

Easiest means of access to the camp at Provencher Lake is by float plane. The lake is long enough to accommodate aircraft as large as an Otter or twin-engined Beach [STOL-equipped]. Fixed wing aircraft are available for charter in Dease Lake or Watson Lake. Dease Lake is serviced by semi-scheduled DC3 flights and Watson Lake is serviced by CPA jets from Vancouver and Edmonton twice daily [Boeing 737]. Helicopter transportation is also available at Watson Lake and Dease Lake.

A rough gravel road affords access to Wheaton Creek mining camp on the Turnagain River [fifteen miles from Provencher Lake] and numerous mining access roads lead to Letain Lake, Wolverine Lake and Provencher Lake.

Numerous swampy areas exist in the area and it is likely that only a rugged four-wheel drive vehicle or all-terrain vehicle could be used during good weather, or after freeze up. Winter hauling of jade by cat-train is feasible after sufficient freezing and snow-fall. Trucking facilities are available at Watson Lake and an expediter based at Watson Lake has regular trips to Dease Lake. It is possible that truck haulage of jade to tidewater at Stewart, B.C. and subsequent transportation by ship to Vancouver could be economic.

A small, gravel-surfaced airstrip was built by Katanga Mines Ltd. to service their placer and hard-rock exploration camps on Letain Creek but this airstrip has been badly eroded by small streams and is not safe to use.

### III - TOPOGRAPHY AND VEGETATION

Provencher Lake lies at elevation 4,400 feet in the Cassiar Mountains of the Stikine Ranges. Valley bottoms in the area average 4,000 feet elevation. Peaks in the vicinity of the jade workings average 6,500 feet although peaks to the southwest, and also to the northwest in the rugged Cassiar batholith area are as high as 7,500 feet. Most of the area in which jade occurs is underlain by soft, easily eroded serpentine, and little trouble is encountered traversing anywhere on the property.

Most valley bottoms are covered with mixed meadow and heavy buckbrush, with scattered clumps of

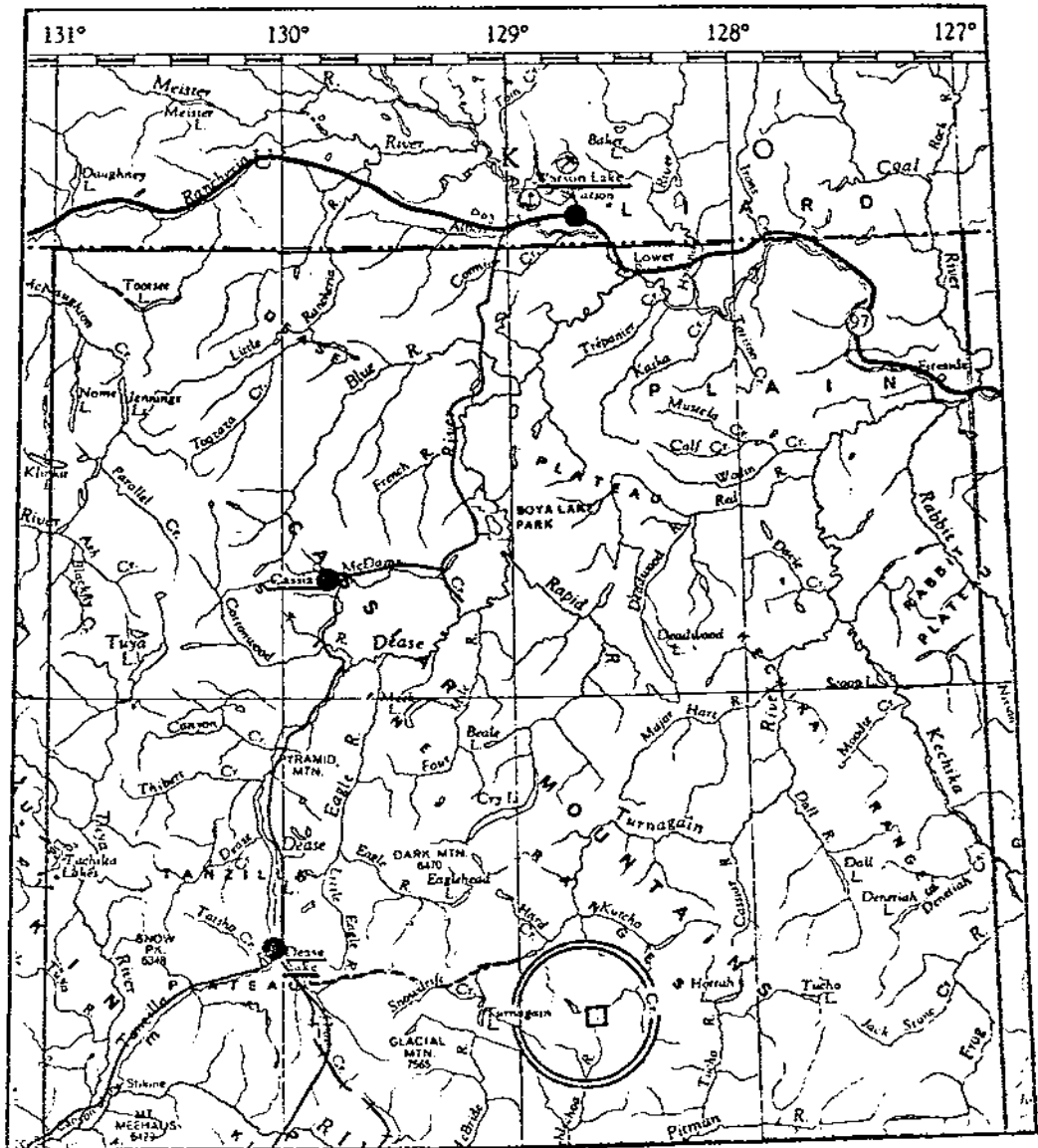


FIG. 1. Location map of Dease Lake - Watson Lake area. Large circular outlines Provencher Lake area. Scale: 1 in = 30 mi.

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NO. 5100 MAP #1

evergreens. Some areas of serpentine have very sparse vegetation, and occasionally areas of bare rock are present. Valley slopes are covered with moderately thick to sparse evergreen forest. Tree line varies between 5,000 feet and 5,500 feet elevation.

Numerous marshy and swampy areas exist along major drainages, particularly at junctions with tributary drainages.

The area is one of moderately high precipitation, although late summer and fall months are generally dry. Precipitation in the fall of 1973 was anomalously high, as in other parts of northeastern B.C. and the Yukon. Snowfall during the winter months is usually heavy and average temperatures are low.

#### IV - PREVIOUS WORK

Much work has been done in the Provencher Lake area on both placer and hardrock claims. Extensive exploration for asbestos occurred during development of the Letain and Kutcho Creek asbestos properties from 1960 to 1969 and numerous companies have explored for nickel and copper in the same area. Numerous claim blocks were staked during 1969 and 1970 by Conrad Provencher in the vicinity of Provencher Lake, but all of these have expired. The large block of claims owned by Katanga Mines Ltd., centered on Letain Creek, are the only claims which could hinder exploitation of in-place jade.



V - EXPLORATION WORK

During the period September 9 to September 19, 1973, the writer visited the Provencher Lake jade property. In situ localities were mapped, placer jade areas were reconnoitered, and serpentine outcrop areas were delimited by mapping from G3-B1 helicopter chartered from Frontier Helicopters Ltd. at Watson Lake. A new jade occurrence was found by the writer and Mr. Jensen near Mt. King.

VI - CLAIMS

The following mineral claim groups are currently under lease to Nephro-Jade Canada Ltd.

	<u>Claims</u>	<u>Record Nos.</u>
CWA	1 - 4	69884 - 69887
Jade	1 - 6	69888 - 69893
TD	1 - 7	70220 - 70226
EL	1 - 2	70227 - 70228
JW	1 - 13	70229 - 70241
King Kong	1, 2	70751 - 70752
NCW	9, 10	69882 - 69883

Total - 36 mineral claims

VII - REGIONAL GEOLOGY [Ref GSC Map 29-1962]

The Provencher Lake area lies within a belt of Upper Devonian to Triassic sedimentary and volcanic rocks intruded by numerous serpentinized ultramafic bodies. This belt stretching from Atlin Lake in the

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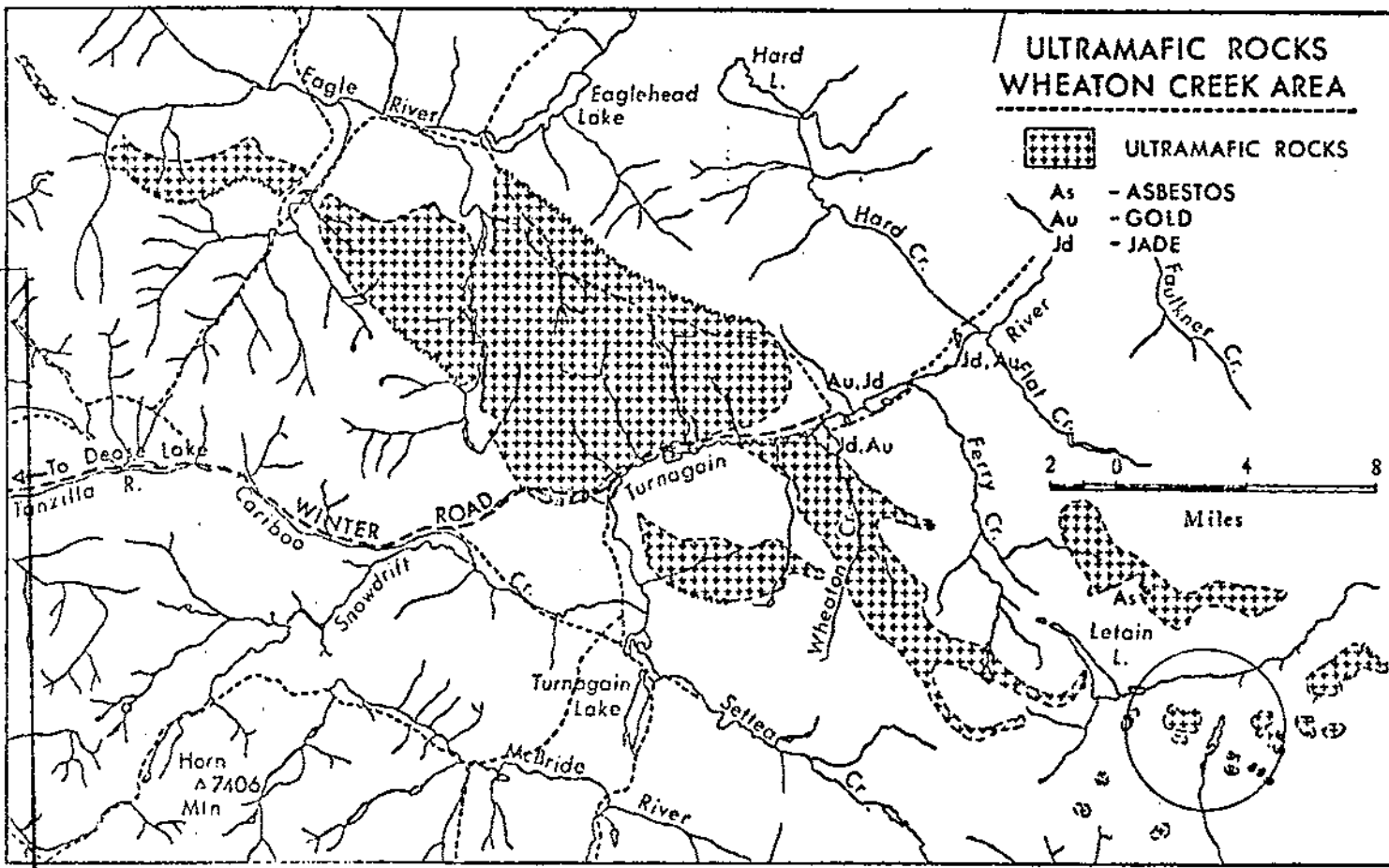


FIG. 2 Map of ultramafic rocks and jade occurrences in the Wheaton Creek-Provencher Lake region. (G.S.C. Paper 72-53)

Northwestern corner of British Columbia southeast through Dease Lake area to Tucho River, is bounded on the northeast by the Cassiar batholith, an extensive body of quartz monzonite and granodiorite. Margins of the belt [known previously as the Atlin Horst] are fault-bounded in places. The horst raises "oceanic rocks" of Upper Paleozoic age in contact with sedimentary rocks of Triassic-Cretaceous-Tertiary age. [R.A. Price, R.J.W. Douglas, 1972].

The ultramafic intrusives are probably of Early Triassic age, as are similar intrusives in the figure 2.

#### VIII - IN-PLACE JADE OCCURRENCES

Numerous in situ occurrences are present within the Provencher Lake area. Occurrences seen by the writer were small and of poor quality. However, the large tonnage of good quality placer material on the property indicates that good quality in situ jade will probably be found with further prospecting. The jade occurrences occur at the contacts of serpentized ultrabasic rocks or as altered zones within the serpentine. Alteration zones are mineralogically identical with those surrounding jade outcrops in other parts of British Columbia. The separate jade occurrences are described in detail in the following pages.

##### a] C.W.A. Claims:

The C.W.A. claims cover the southeast trending ridge and slope due east of the south end of Pro-

vencher Lake. From an initial post on the ridge, claim line runs N 75 E according to date on the tags. Thus the claims would appear to cover a band of serpentine approximately 200 feet wide which trends almost due east toward a small cirque lake. The serpentine band is sandwiched between two steeply dipping zones of greenstone, schist and metasedimentary rocks. The central portion of the serpentine band is bright green antigorite but the margins are dense and dark green. A thin limestone band is included on the north side between the two types of serpentine. At the northern contact of serpentine and metasediments a narrow [1 - 2 foot] band of poor quality black jade is present. At the southern contact, 3 feet of poor quality green jade was seen.

Farther north on the same ridge a serpentine band of approximately the same thickness is strongly sheared and altered to talc with poor jade present in patches. On the northern contact with strongly altered greenstones, a thin band of very poor quality jade is also present.

Neither of these two occurrences is worthy of development.

b] N.C.W. Claims:

N.C.W. 9 and N.C.W. 10 claims were staked June 26, 1973 to cover an in situ jade exposure situated two miles due east of the widest portion of Provencher Lake. The claim cairn was seen on a small bench approximately 300 feet south of the jade exposure, which is halfway between the ridge and the valley

floor, on a steep east-facing slope.

The jade occurs as alteration product at the margin of an inclusion of metamorphosed country rock lying parallel to the contact of serpentine and meta-sedimentary country rock about 800 feet to the south. The contact trends  $125^{\circ}$  southeast and dips steeply southwest. Alteration at the contact seen at the ridge is intense with much diopside present.

The jade outcrop covers a relatively large area on the slope. Quality of the material is unknown at present as surface samples are partly oxidized, but the jade appears to be hard and dense with an attractive bluishgreen coloration. Packsack drilling of the exposure is needed. Water supply is limited at the occurrence although there is a chance that surface runoff in the spring would be adequate. Otherwise pumping from a major creek 1,500 feet due east would be needed.

c] J.W. Claims:

J.W. 1 - 13 claims are situated surrounding a low hill on the west side of Provencher Valley three miles southwest of the south end of Provencher Lake. The claims were staked July 17, 1973 to cover several small in-place jade deposits. Only one post was seen [IP for J.W. 1,2,4,5] but at this point the claim line trended  $S 60^{\circ} E$ .

[1] Near the post, at the junction of two small south-westerly flowing creeks, an area of small placer or talus boulders was seen. Mr. Jensen reports talus occurrences farther to the northwest.

- [2] Near the low peak southeast of this post, whitish clay alteration in serpentine indicates an area where in situ jade has been seen in narrow lenses. Quality of this material is unknown.
- [3] One mile due east of the above-mentioned post, at the base of a steep cliff of altered greenstone, numerous boulders of greyish and grey-green jade were seen. Although quality of this material is low, a large tonnage is probably present in talus, and in situ material is undoubtedly present at the serpentine-greenstone contact.
- [4] Placer boulders were found by Mr. Jensen a short distance upstream from the talus area mentioned above.
- [5] Approximately 1,500 feet southeast of locality [2] several large lenses of jade were seen in serpentine in an area of probable cross-faulting. The jade occurs on a south-facing slope above a small, north-easterly draining stream.

d] "Jade" Claims:

The "Jade" 1 - 6 claim group is staked across Provencher Valley at the north end of Provencher Lake. Several small in-place occurrences are present on Jade 5, 6 claims.

A narrow band of altered greenstone, sediments and jade occurs on a small creek draining northerly and easterly into the west side of Provencher Lake near its

north end. This creek is the middle one of three parallel drainages. At this locality 15 - 20 placer boulders were seen in the drainage gully, and a narrow schistose band of jade up to one foot wide occurs at the contact of tremolite-veined serpentine and altered metasediments. The jade is of unknown quality. Sediments close to the contact are dense, fine grained and greyish-green - probably a mixture of diopside, chlorite and clinozoisite. Farther to the southwest sediments are cherty rocks resembling tremolitized quartzites ["metacherts"] seen at several other jade localities in B.C. The altered contact strikes  $110^{\circ}$  and dips  $60^{\circ}$  to the southwest.

To the northwest 500 feet [approximately on strike] are two jade bands up to 3 feet wide at serpentine-chlorite schist contacts separated by a probable fault. Jumbled blocks of jade and schist also occur close to the in situ material.

Several other areas of strongly altered sediments and greenstones, with patches of peridotite and serpentine occur upstream in the two parallel drainages, and it is possible that additional jade outcrops could be uncovered by intensive prospecting.

An outcrop area near base camp contains altered serpentine and jade-like material. Abundant outcrop exists in this area and mapping could be done quickly and efficiently from base camp.

Access to the area is excellent and the locality is only a short distance [2,500 feet] from base camp. Water supply is excellent and helicopter pads

could quickly be cleared. Thus, X-ray or packsack drilling would be a practical method of quickly evaluating tonnage and quality of jade in this area.

Slightly downstream from the first occurrence is an area of placer jade boulders with measured tonnage of 83 tons in boulders seen. Potential exists for discovery of further placer material.

e] "TO" Claims:

The "TO" claim group [TO 1 - 7] was not examined in detail although one traverse was run along the claim location line. The block covers the west side of Provencher Lake. As serpentine-metasediment contacts are present on ridges both east and west of the lake, and because both serpentine and metamorphic rocks are present on the claims, it is inevitable that altered contact rocks are also present within the group. Boulders of "metachert", elsewhere indicative of in situ jade, are present on the location line of TO 1 and 2. In addition, a large "boulder" of jade, - possibly of talus origin, is present near the location line on T04 [originally covered by Placer Mining Lease 1596, owned by A.O. Zeemel, now restaked by Nephro-Jade Canada Ltd.]. Thus the claim group should be prospected thoroughly, and possibly extended to cover the serpentine contacts present on the ridge to the west.

f] E.L. Claims:

The E.L. 1, 2 claims were not visited by the writer but location of the posts was pointed out by Mr. Jensen. These claims are approximately 1½ miles south-



west of the south end of Provencher Lake and cover possible in-place jade outcrops in the valley bottom adjacent to the creek draining the lake.

g] King Kong Claims:

King Kong 1 and 2 claims were staked by A. Jensen for Howard Lo following discovery of in situ jade on the ridge immediately north of the eastern peak of King Mountain during regional reconnaissance by the writer accompanied by Mr. Jensen.

Jade occurs as small to large blocks [up to several tons] in a linear zone within sheared serpentine parallel to the serpentine volcanic contact 500 feet to the north. The jade occurs with diopside-quartz alteration. Some of the fine grained diopside is an attractive green color and could possibly be exploited for gemstone material.

IX - SUMMARY

Placer and in situ jade occurs in the vicinity of Provencher Lake, 125 miles due south of Watson Lake and 52 miles southeast of Dease Lake. The jade occurs as narrow lenses at contacts of serpentinized ultrabasic intrusions with metamorphosed sedimentary and volcanic rocks of Devonian and Mississippian age, and as placer boulders. The in situ occurrences are presently of limited value compared to the placer ground which is more easily worked, but diamond drilling could demonstrate the presence of high grade lenses which could be economically mined. Thirty-four mineral claims, and forty-nine placer mining leases are now under option.

X - RECOMMENDATIONS

a] Staking:

Staking of serpentine areas should be dependent on results of prospecting and should be quite selective because although large areas of serpentine exist, only small areas within these bodies will be productive and the holding of large claim blocks has become prohibitively expensive.

b] Map Work:

Under the new regulations for filing assessment work, maps with scale of at least 1 inch = 1,000 feet are required. These maps could be prepared from existing 1 inch = 4 miles maps by photographic enlargement. Air photos of the working areas should be enlarged to the same scale since they are extremely useful base maps for plotting boulder locations and field data. Enlargements of both maps and photos should be made to cover all placer areas and all areas in which further mapping or development of in-place jade is anticipated. Stereo air-photo coverage for all serpentine areas should be ordered well in advance of the exploration season.

c] Prospecting:

All serpentine areas in the vicinity of Provencher Lake should be prospected in conjunction with reconnaissance mapping. These areas are shown in figure 6. All areas not within walking distance from base camp could be prospected by a two man crew with light back-

pack flycamp equipment. If helicopter is used for other camp work such as drill moves, periodic helicopter support of the field crew would greatly help, as the helicopter could also be used for reconnaissance.

d] Surveying and Geology:

All placer leases and mineral claims should be surveyed by at least chain and compass methods and mapped in on the prepared 1 inch to 1,000 feet maps. Jade boulders on the placer leases should be counted, coded by letter and number, and quality and size estimated, to provide an estimate of total recoverable jade on the remainder of the property.

Detailed mapping of in-place localities is only necessary for areas in which some potential exists for production, or where further exploration by drilling is necessary.

Reconnaissance mapping of all serpentine bodies would be extremely useful in aiding relegation of prospecting priorities.

*Barry Price*

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Geologist  
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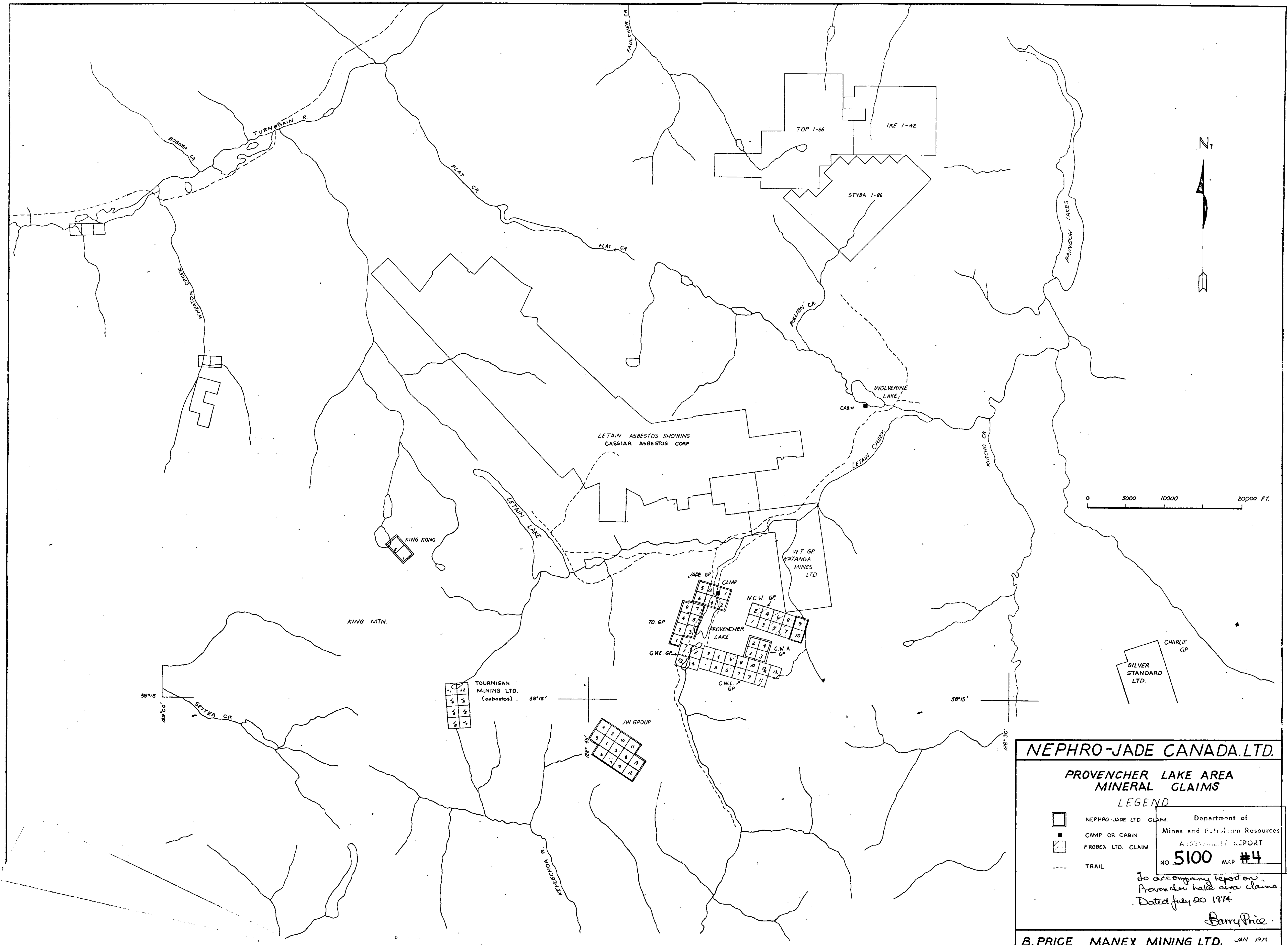
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ACT 1985 REPORT  
NO. 5100 #3

**NEPHRO-JADE CANADA LTD.**  
**PROVENCHER LAKE AREA, B.C.**

**GEOLOGICAL MAP**  
**LEGEND**

- |   |                            |  |                           |
|---|----------------------------|--|---------------------------|
| 7 | Ultrabasics, Serpentinized |  | Bedding, Foliation        |
| 2 | Jade occurrence            |  | Fault                     |
| 3 | Limestone                  |  | Contact, mapped by G.S.C. |
| 4 | Metasediments              |  | Contact, mapped by Price  |
| 5 | Metavolcanics              |  | Outcrop                   |
| 6 | Diorite, Gabbro, etc.      |  |                           |

**5100**  
**m3**  
An accompanying report on  
Provencher Lake area  
dated July 20 1974  
Barry Price



**NEPHRO-JADE CANADA LTD.**

**PROVENCHER LAKE AREA  
MINERAL CLAIMS**

LEGEND

	NEPHRO-JADE LTD. CLAIM.	Department of Mines and Petroleum Resources
	CAMP OR CABIN	ASSESSMENT REPORT
	PROBEX LTD. CLAIM.	NO. <b>5100</b> MAP <b>#4</b>
	TRAIL	

To accompany report on  
Provencher lake area claims  
Dated July 20 1974

BARRY PRICE