

JCS -> Bralorne

SEP 15 1992

**AVINO MINES AND RESOURCES LTD.
BRALORNE PROPERTY**

Geological Survey Branch
MEMPR

881298

**A PRE-APPLICATION FOR A
MINE DEVELOPMENT CERTIFICATE
FOR THE
BRALORNE PROPERTY**

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July, 1992

EXECUTIVE SUMMARY

This Pre-Application is submitted by Avino Mines and Resources Ltd. (AVINO) as a first step towards obtaining approval for the reopening and redevelopment of the Bralorne Mine. AVINO has delineated ore reserves to warrant a 450 t/day operation. The feasibility study compiled in 1982 indicates that the project is economic. Thus, AVINO has decided to proceed with the redevelopment of the Bralorne Mine and the construction of a new mill at an estimated cost of \$5,000,000. It is estimated that the mill will require \$3,200,000 for the mill and the tailings disposal area, and \$1,800,000 for development and working capital.

The Bralorne area is a historic gold mining area known as the Bridge River Camp. The previous Bralorne and Pioneer Mines produced over 4.1 million ounces of gold between 1932 and 1971. Proven, Probable and Possible ore reserves in the Bralorne Mine above the 1,000 level total 322,000 st with an average grade of 0.35 oz/st (9 g/mt). Additional ore reserves are anticipated below the 1,000 level, subject to further exploration work. Also, new discoveries N/E of the Ferguson thrust will be developed, and exploration will continue.

New discoveries on the Peter vein that have the same geological properties as found at Bralorne site contained high values of gold. Drilling along the vein in 1989 encountered 215 feet grading 0.38 oz/st gold over an average width of 2.4 feet. This intersection included 105 feet grading 0.611 oz/st gold and terminated in mineralization averaging 0.58 oz/st gold. A surface trench on the zone produced an average grade of 2.90 oz/st gold over a width of 9.4 feet.

Early studies indicate that a portion of the old Bralorne workings intersected the Peter vein and also suggest that the Loco Property may host an undeveloped extension of the Bralorne's King mine. The King mine contained one of the company's richest veins, having an average grade of

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THE BRALORNE PROJECT

0.75 oz/st gold.

The proposed new mill will include semi-autogenous grinding, gravity separation and floatation. Spent tailings fines will be sent to a tailings impoundment and spent coarse tailings will be used as backfill in the mine. A detailed water balance has not been completed but the amount of recycle will be maximized wherever possible.

Environmental and socioeconomic concerns will be addressed in updated and additional studies to those completed in 1982 for the previous Stage I submission. Since the project was never developed at that time, a new Application For A Mine Development Certificate (Application) will be prepared and submitted later this year.

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1.0 INTRODUCTION

The Bralorne area has been an active mining camp since placer gold was discovered in the Bridge River area in 1863. Most of the important placer deposits, particularly in the Cadwallader Creek area, had been discovered and exploited by 1897. No active developments were commenced on vein deposits until 1928, when the Pioneer Mine began operation. The Bralorne Mine was put into operation in 1932.

The Pioneer and Bralorne Mines operated independently until 1959, when their operations were merged. Following the merger, the Pioneer Mill was closed and ore from the Pioneer Mine was treated in the Bralorne Mill. The Bralorne operations ceased in 1971.

An unsuccessful attempt was made to reopen the Bralorne Mine in 1974 and 1975, but the project proved to be uneconomical. In 1975, the mine was shut down completely and much of the equipment was removed from the mine and mill site.

In July 1980, E & B Exploration Inc. and Geomex signed an option agreement with Bralorne Resources Ltd. to earn 50% interest in the property for an expenditure of \$5 million. At that time, E & B Exploration Inc. planned to reopen the mine and, as part of its application to do so, prepared a Stage I submission in 1982 to the Ministry of Energy, Mines and Petroleum Resources, Inspection and Engineering Division. The Stage I Report consisted of three volumes, plus an Addendum submitted in 1983 and 1988, respectively, have been utilized by AVINO in the process of permitting the property for production. The total Bralorne property, equipment, infrastructure, etc., was taken over by AVINO on November 30, 1991. Since 1980, the previous owner spent approximately \$15,000,000 on the Bralorne property. Underground evaluation, drill out reserves, geological and engineering reports, 50 man camp, mining equipment and offices consumed the majority of the dollars spent.

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2.0 PROPERTY DESCRIPTION

2.1 LOCATION AND LAND TENURE

The Bralorne Mine is located in the Bridge River area of British Columbia (Figure 1) approximately 160 km (100 miles) due north of Vancouver at longitude 123°48.5' and latitude 50°46.5', and 65 km (40 miles) west of Lillooet, B.C.

Access to the Bralorne townsite is via the Trans-Canada Highway to Lytton, thence to Lillooet and continuing on a gravel highway to Gold Bridge and the mine site, a total distance of approximately 460 km (280 miles).

The Bralorne Mine can also be reached by travelling Highway #99 to Pemberton, and thence by logging road along the Hurley River to Gold Bridge and Bralorne, or by taking the Duffy Lake Road to Lillooet and then to Gold Bridge and the mine site.

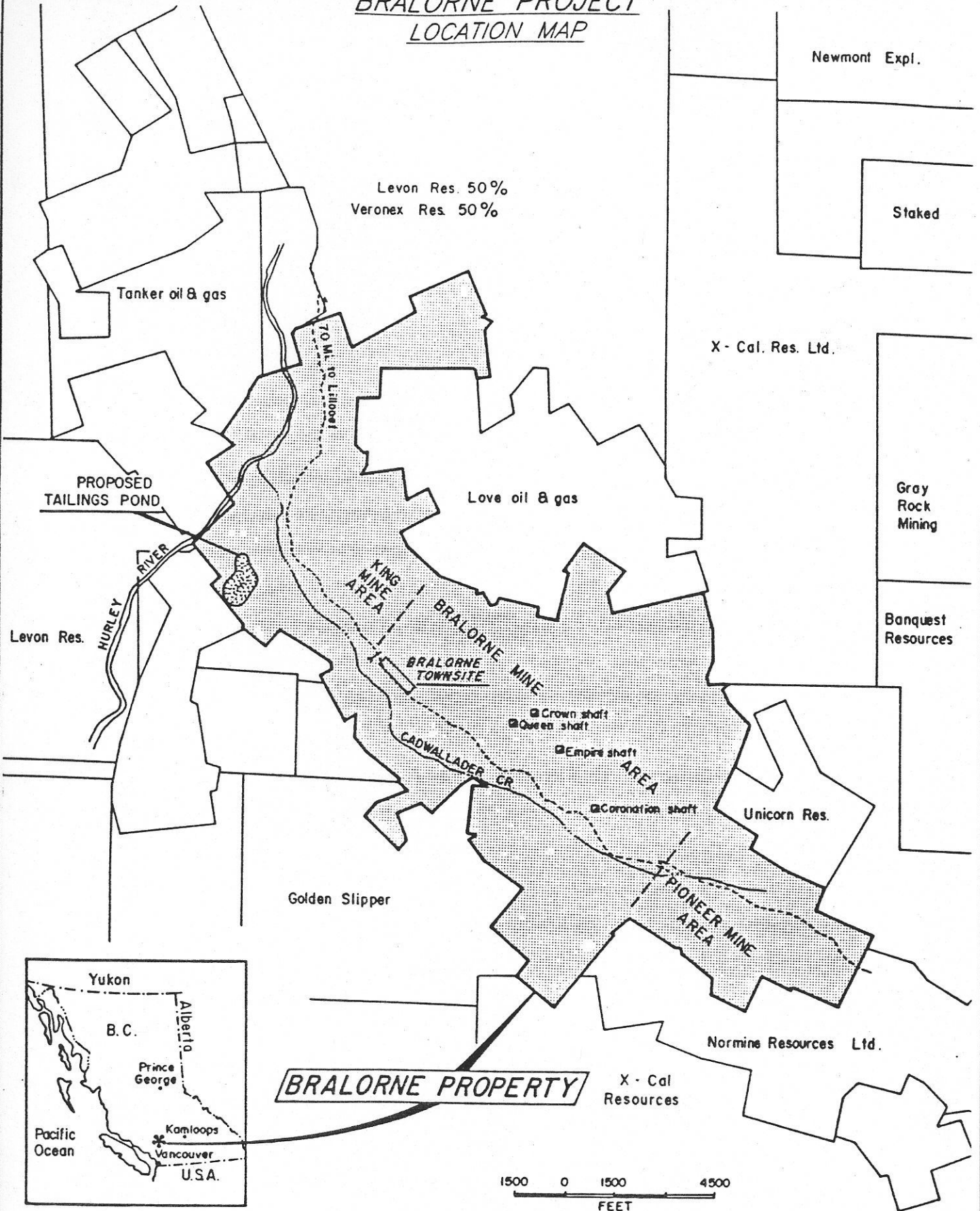
The Bralorne property is comprised of 133 Crown granted mineral claims, five reverted Crown granted claims, one located mineral claim and two placer leases. Surface title to nine parcels, including most of the land required for the plant and tailings area, is also held. The Love Oil property is comprised of 21 Crown grants and one staked claim.

2.2 HISTORICAL OVERVIEW

Gold was discovered in the Bridge River area in 1863 when prospectors found small, but rich, placer deposits in the Hurley and Bridge Rivers. The important deposits in the Bridge River area, particularly the Cadwallader Creek area, were discovered by 1897. No active development was completed on the vein deposits until 1928. The Pioneer Mine commenced operation in 1928 and

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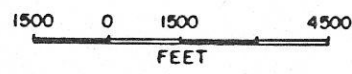
AVINO MINES AND RESOURCES LTD.
BRALORNE PROJECT
LOCATION MAP



CAD FILE: \CAD\HALLAM\HTRGH Plot scale 1=1



BRALORNE PROPERTY



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FIGURE 1

the Bralorne Mine in 1932.

The capacity of the Bralorne Mill, which started in February 1932, was gradually increased to 550 tons per day. The Pioneer Mill, which commenced with an initial capacity of 100 tons per day in 1928, was increased to 400 tons per day in 1934. The combined operations produced over 4.1 million ounces of gold from 1932 to 1971.

Increasing costs of production resulted in the mine closure in 1971. An attempt was made to reopen the Bralorne Mine in 1974 and 1975. The low price of precious metals in 1975 and the provincial royalties on the gold price, made the project uneconomical. In 1975, the mine was shut down completely. The hoisting and pumping equipment were removed from the mine and some of the buildings, houses, and land lots were sold.

3.0 GEOLOGY AND MINERALIZATION

3.1 GEOLOGICAL SETTING

The Bralorne Deposit includes the veins of the former King, Lorne, Coronation, Bralorne and Pioneer Mines. The holdings of the Bralorne Project cover the majority of the producing veins in the area known as the "Bridge River Camp".

The rocks in the Cadwallader Creek area are made up of a series of cherty sediments and volcanics (Ferguson Series of Permian age), which are overlain by the Pioneer Greenstones and the Hurley and Noel Formations of Triassic age. The assemblage of sediments and volcanics has been folded and intruded by a series of periodite (new serpentine) gabbro, diorite, quartz-diorite, quartz and feldspar porphyries, soda granite and albitite.

3.2 MINERALIZATION

Gold-bearing veins occur principally in the greenstones, to a lesser extent in the sediments, and in all of the intrusive rocks except the serpentine and the gabbro. The veins show a spatial relationship to the sodic intrusive rocks.

The veins have, in general, an east-west and north-south strike. The east-west veins dip to the north at angles of 60° to 80° and the north-south veins dip to the west at angles of 45° to 60°. The veins consist of quartz and contain minor amounts of sulphides, tellurides and usually fine gold. Thirty-five veins have been traced in the workings of the Bralorne Mine.

Stoping of the ore was carried out by the former operators of the Bralorne Mine on the veins from the surface to the 4,577 level, a slope distance of about 2.4 km (1.5 miles). There appears to be little change in the gold content of the veins in this distance. When the mine closed in 1971, the gold ore from the lower levels contained 0.57 ounces of gold per ton. The gold content of the ore from the Bralorne Mine over the previous 40 years of operation averaged 0.53 ounces of gold per ton.

3.3 PRELIMINARY GEOLOGICAL ORE RESERVES

The Bralorne Deposit has been delineated by drilling from the surface and underground. Based on the data from these drill holes, a preliminary ore reserve has been calculated:

	PROVEN & <u>PROBABLE</u>	<u>POSSIBLE</u>
Above 800 level	182,000 st @ 0.43*	74,000 st @ 0.34*
800 - 1,000 level	49,000 st @ 0.24*	17,000 st @ 0.25*
	<hr/>	<hr/>
Total above 1,000 level	231,000 st @ 0.33	91,000 st @ 0.40
TOTAL	322,000 st @ 0.35*	

Exploration work is continuing on both surface and underground deposits and additional ore reserves are expected to be defined.

In addition, the following reserves are available below the 1000 level

	PROVEN & <u>PROBABLE</u>	<u>POSSIBLE</u>
1000-2600 level	688,000 st @ 0.24*	54,000 st @ 0.19*
Total below 1000 level	742,000 st @ 0.24*	

* Ounces/short ton. Cutoff grade 0.14 oz/st.

4.0 CONCEPTUAL DEVELOPMENT PLAN

4.1 CONCEPTUAL MINE PLAN

Of the total ore reserves above the 1,000 level (322,000 st), 80%, or 264,000 st, are located in the 51 Vein and the 51B FW Vein (Figure 2). These veins will therefore be developed first.

The 51 Vein has drifts driven on all levels. Some of these require rehabilitation or re-driving because of deterioration. The 51B FW Vein requires level drifting on all levels except the 400 and 800 levels. General access to both veins will be through surface adits at the 200 and 300 levels, and through the Empire Shaft for the other levels.

Concurrent with development of the 51 and 51B FW Veins, other areas of the mine will be rehabilitated for access to other veins.

All blocked-out ore reserves will be recovered by shrinkage stope mining. Eleven shrinkage stopes plus development ore will be required to maintain the mill throughput of 450 st/day.

4.2 CONCEPTUAL MILLING PLAN

The proposed mill will be located close to the site of the old Bralorne Mill. Based on preliminary test work on ore samples reported in the Feasibility Study (E & B Explorations Inc., 1982), the milling operations are expected to comprise semi-autogenous grinding, gravity separation and floatation. Figure 3 presents the updated mill process flow sheet compiled by R.M. Samuels Consulting Inc. (1992) based on a milling rate of 450 st/d production level. Spent tailings fines will report to a tailings pond and coarse tailings will be returned to the mine workings. The updated milling plan does not include cyanidation or mercury amalgamation.

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AVINO MINES AND RESOURCES LTD. BRALORNE PROJECT TAILINGS FACILITY LOCATION

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100
0
200
400 m

FIGURE 4

