Tom Schaeffer
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E&B Explorations Inc.

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BRALORNE PROJECT

STAGE I REPORT

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Suite 1440 - 800 West Pender Street, Vancouver, B.C. V6C 2V6 Telephone (604) 689-5453 Telex 04-508809

BRALORNE PROJECT
BRALORNE, B.C.

STAGE I REPORT

SUMMARY

E & B Exploration Inc., E & B Canada Resources Ltd., Geomex Development Inc., and Bralorne Resources Ltd. propose to reopen the Bralorne Mine. The management of the Bralorne Project will be handled by E & B Explorations Inc. through an operating subsidiary and under the guidance of a management committee which will have members appointed from the participating companies.

This Report summarizes the data required to obtain the necessary permits for production at the Bralorne Mine. A list of the permits requested is included at the end of this heading. The construction of the mill, the rehabilitation of the workings and the development of the ore blocks will commence when the permits for production are received.

The rehabilitation of the mine, the exploration by diamond drilling, and the preliminary engineering and ore reserve studies were started in the summer of 1980. Since that time, the main access into the mine has been overhauled, the water in the mine has been lowered to the 2000 Level, the Crown Shaft has been partly rehabilitated, well over 8,230 m (27,000 feet) of surface and underground diamond drilling have been completed and the accessible areas of the mine have been thoroughly explored.

In addition, a complete re-calculation of the ore reserves of the mine has been performed. Readily available reserves are estimated at close to 454,000 tonnes (500,000 tons) or 5 years of production at 272 TePD (300 TPD). Other known reserves, but not so readily available, make up an additional 5 years of production. Potential ore reserves are further estimated to allow for another 5 to 10 years of production. In all it would appear that, when this mine is placed into production, it will have a 15 to 20 year life.

Recently completed evaluations of manpower requirements indicate a total of about 140 employees will be required. The personnel will live at Bralorne, Gold Bridge, Gun Lake and the surrounding area. The expected annual mine payroll is expected to be $3.0 million. The annual expenditure for goods and services is an additional $3.5 million.

The proposed mining operation is expected to produce very little waste rock. Development rock and coarse mill tailings will be used underground, to backfill the open stopes whenever possible. A tailings disposal area has been located approximately 1.3 km (0.8 miles) northwest of the mill and covers approximately 8 hectares. The tailings pond is designed to handle an initial 10 years of production with the flexibility to store up to a total of 20 years of mine waste. Three storage ponds are to be constructed near the mill for emergency short term tailings storage and also to clarify and purify the mine drainage water on a regular basis.

The water used to pump the tailings slimes to the storage pond will be recycled and used in the mill. The volume of mill tailings and waste rock to be placed on surface will be less than 110,000 tonnes (120,000 tons) per year. A provisional reclamation scheme has been developed for the waste storage areas.

INTRODUCTION

GENERAL

The Stage I Report on the Bralorne Project has been completed under the headings outlined in "Procedures for Obtaining Approval of Metal, Mine Development April 1979". Extensive reports covering all of the phases required for this report have been completed by the consulting firms and individuals listed above the acknowledgments. The government personnel and agencies contacted during the compilation of the data for this Report are listed in Appendix 1.

HISTORY

The gold in the Bridge River area was discovered 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 the Bralorne Mine in 1932.

The capacity of the Bralorne mill which started in February 1932 was gradually increased to 550 tons per day. Total revenue from the Bralorne Mine until November 1958 was $71,434,138 from the 3,913,614 tons of ore treated. 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. Operations at the Pioneer were suspended in late 1960. Total Pioneer revenue to June 1958 was $41,666,596. The total production from the merged companies from 1959 to 1970 was 934,415 ounces of gold from 1,556,960 tons milled, valued at $33,325,913. The combined operations produced over 4.1

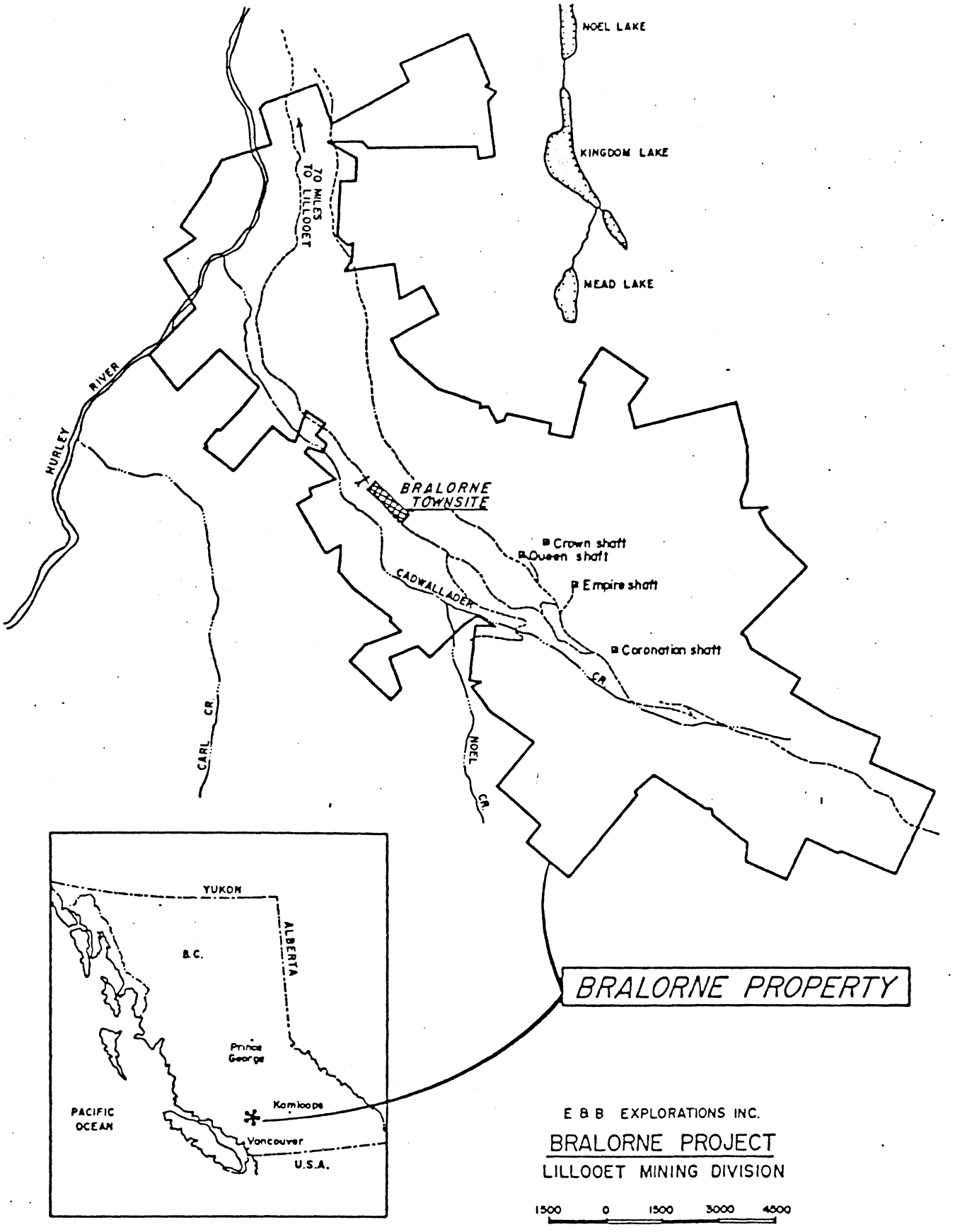

NOEL LAKE
KINGDOM LAKE
MEAD LAKE
70 MILES TO LILLOOET
HURLEY RIVER
BRALORNE TOWNSITE
Crown shaft
Queen shaft
Empire shaft
Coronation shaft
CADWALLADER CR.
CARL CR.
NOEL CR.
YUKON
ALBERTA
B.C.
Prince George
Kamloops
PACIFIC OCEAN
Vancouver
U.S.A.
BRALORNE PROPERTY
E & B EXPLORATIONS INC.
BRALORNE PROJECT
LILLOOET MINING DIVISION
1500 0 1500 3000 4500
MILES

FIGURE NO. 1

million ounces of gold with total revenue of over $147,100,000 from 1932 to 1971. The gold price at the cessation of operations was $38.50 Canadian per ounce. As with all gold mines, the Bralorne was subsidized by the Canadian Government. The Bralorne Mine produced about 2,561,800 ounces of gold and the Pioneer Mine, before the merger, about 1,538,200 ounces of gold. The total production to 1971 at the Bralorne Mine is listed in Table 1.

The 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 uneconomic. 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. It was looked at again briefly in late 1979 and early 1980 but considered again to be uneconomic.

In August 1980, E & B Exploration Inc. and Geomex signed an option with Bralorne Resources Ltd. to earn fifty percent of the mine for an expenditure of $5 million. The reopening and exploration of the Bralorne Mine, including the former Pioneer holdings, has been carried out under the supervision of E & B Exploration Inc. since 1980.

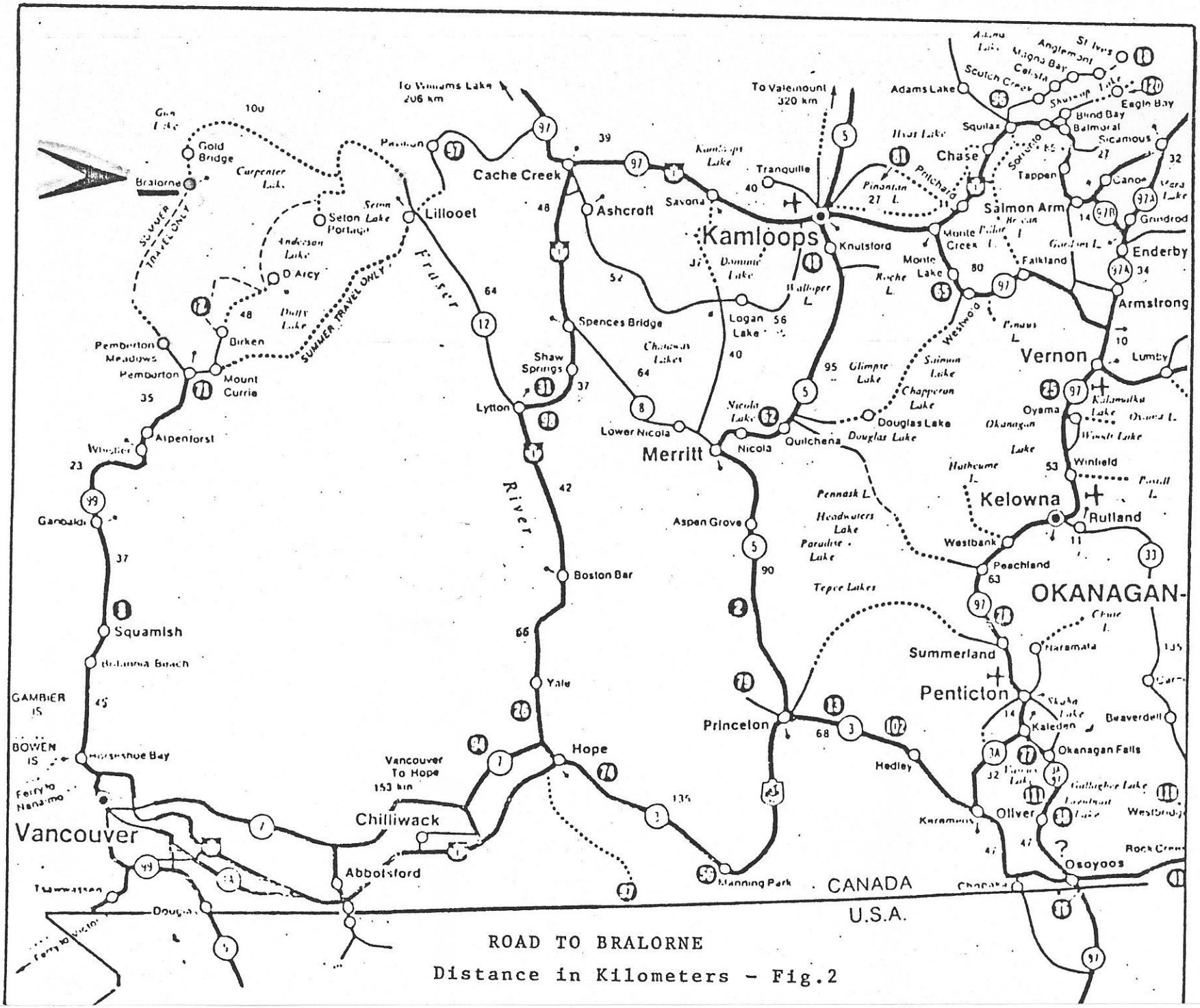
LOCATION (Figure 1)

The Bralorne Mine is located in the Bridge River area of British Columbia. It is approximately 160 kilometers (100 miles) due north of Vancouver at Longitude 123°00' and Latitude 50°10'. The site is 110 km (70 miles) west of Lillooet, B.C.

TABLE I

PRODUCTION FROM BRALORNE MINE 1932 to 1971
(Including Pioneer Ore after Merger in 1959)

Year	Milled Tons	Head (Gold-Oz. per ton)	Oz. Bullion Recovered
1932	32,657	.76	22,484
1933	54,283	.51	25,935
1934	98,664	.48	45,996
1935	145,113	.34	47,066
1936	167,264	.41	65,227
1937	170,686	.52	65,713
1938	180,526	.60	84,230
1939	184,922	.59	85,394
1940	191,412	.55	81,674
1941	191,970	.55	80,794
1942	171,095	.55	75,939
1943	118,462	.63	62,654
1944	109,751	.66	60,250
1945	105,283	.57	48,312
1946	64,534	.53	26,516
1947	133,047	.47	46,953
1948	148,119	.52	59,137
1949	178,995	.48	65,323
1950	185,074	.44	60,797
1951	168,194	.49	63,340
1952	175,005	.44	59,101
1953	185,168	.40	70,276
1954	181,494	.37	65,221
1955	166,831	.41	65,516
1956	131,662	.50	63,602
1957	141,192	.66	87,316
1958	145,558	.71	99,475
1959	142,122	.76	103,261
1960	153,482	.78	114,115
1961	154,040	.72	105,510
1962	149,998	.69	99,121
1963	152,601	.59	87,016
1964	153,080	.50	73,331
1965	115,731	.47	54,458
1966	105,813	.43	43,429
1967	97,332	.52	48,661
1968	100,660	.54	52,686
1969	94,396	.51	46,429
1970	76,545	.54	40,312
1971 Jan. to March, incl.	17,110	.57	9,275
	5,437,671	.53	2,561,855



ROAD TO BRALORNE

Distance in Kilometers - Fig.2

The access (Figure 2) to the Bralorne townsite is by vehicle on the Trans-Canada Highway to Lytton, thence to Lillooet and continuing on a gravel highway to Gold Bridge and the minesite, a total distance of about 460 kilometers (290 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. When the Bralorne Mine is in operation, consideration should be given to improving the unpaved portions of both of the access routes. With the improvement of the access the Bralorne area will become a more attractive area for winter and summer recreational purposes.

PROJECT DESCRIPTION AND SCHEDULE OF DEVELOPMENTS

The Bralorne Project involves the reopening of the former Bralorne gold mine. The mill, prior to closing in 1970, was treating 454 tonnes (500 tons) of ore per day. The new Bralorne mill will treat appoximately 270 tonnes (300 tons) per day. The ore is to be obtained from underground workings which are now largely dewatered.

The old mine and mill buildings, will be rehabilitated and will be used for the new operation. The basic structures of some of the buildings are in excellent condition and warrant re-use.

While some of the former dwellings may be used, it is expected that some new residences will be established in Bralorne, Gold Bridge, Gun Lake, and the surrounding area. Land to provide serviced lots for houses and trailers is being secured in Bralorne. These lots are within walking distance of the mine and mill and will be available for purchase by the

Bralorne personnel. Also consideration is being given to having lots, located on Bralorne property at Little Gun Lake, made available for purchase.

The Schedule for the Bralorne Project is as follows:

1. Complete the studies necessary for a comprehensive Stage I Report by February 28, 1982.

2. Complete the dewatering of the mine to the 20 level by February 28, 1982.

3. Complete the geological mapping, sampling and engineering studies by April 30, 1982.

4. Hold public meetings in Bralorne, Gold Bridge and Gun Lake in May and June 1982 when the feasibility studies are completed.

5. Start the rehabilitation of the workings and have the mine ready for production by August 31, 1983.

6. Commence mill construction on August 1, 1982 and complete the mill construction by August 31, 1983.

7. Construct tailings disposal system during summer of 1983.

8. It is planned that full production will be achieved by December 31, 1983. Initially, production will be at about two-thirds of the full 272 TePD (300 TPD) forecast rate.

terraces along the valley flanks. Along valley bottoms, and in some localized depressions on the lower slopes of the valley flanks, high organic soils have developed under conditions of poor drainage.

LAND TENURE

Land tenure affecting the Bralorne Project is in three forms: mineral title, placer title, and surface title, and these areas will be dealt with separately.

A. Mineral Title

E & B Explorations Inc. through its joint venture agreement with Bralorne Resources Limited controls 133 Crown granted mineral claims covering 1,544 hectares (3,815 acres). These claims are shown on Figure 3 on the plan entitled "Mineral Claims Maps" and are listed in Appendix 2. No other mineral title is required for actual mining purposes but the tailings disposal area will be sited over portions of two mineral claims held by other parties and the tailings and reclaim water pipelines will cross a third claim. E & B Explorations Inc. has recently acquired an option to purchase the "Cora Fraction", and the "Ace Fraction" is presently held for the benefit of the Bralorne Project. An easement for the pipeline crossing the "Ogden No. 1" Fraction is being negotiated with the owners of the surface rights. It should be noted that the area underneath the proposed tailings pond will be tested for mineral potential prior to the actual development of the tailings dam.

B. Placer Title

Cadwallader Creek, in the area of the plant buildings, is covered with placer leases which are held by parties other

than Bralorne Resources or E & B Explorations Inc. E & B Inc. has been advised by government personnel that because the Bralorne Project will control the surface rights through either ownership or easement, separate easement agreements will not be required for the placer leases. In the area of the planned tailings pond, Placer Lease No. 7234 and 7235 are owned by E & B Explorations Inc.

C. Surface Title

The surface title requirements for the Bralorne Project cover three areas: the main plant area, the tailings disposal pond and the housing development.

The surface to all the land required in the main plant area is registered in the name of Bralorne Resources Limited and includes Lot 670, Lot 5489, Lot 5582 and Lot 1, Plan 25080, D.L. 671. Lot 457 located to the southeast is also owned by Bralorne (Figure 4 and 5).

The tailings area, Figure 5, is sited primarily on Crown land with the exception of a seven lot subdivision (Plan 7161). Lots 3, 4, 6, and 7 are now controlled by E & B Explorations Inc. through agreement. Lots 1 and 5 are Crown land and discussions have commenced with the Ministry of Lands, Parks, and Housing with the view to obtaining approval for the use of this area. E & B Explorations Inc. has a tentative agreement with the owner of Lot 2. However, because of confusion as to who actually owns this lot, E & B Explorations Inc. is actively pursuing the ownership question. The confusion over the ownership of this lot began with the death of the original owner in 1971.

The tailings and water reclaim pipeline will traverse mainly private land and easement discussions have commenced.

PROJECT DESCRIPTION

GENERAL

The Bralorne Project involves the reopening of the former Bralorne Mine. The ore reserves, which will keep the mine in operation for the first 10 years, are located on the margins of areas which have been previously mined. This material was not economic when the mine operated prior to 1971. These ore reserves were calculated from data collected while the mine was in operation. With the access to the areas of gold mineralization being established, it is expected that additional reserves will be found and the life of the mine will be extended beyond this 10 year period. Potential ore reserve areas have been outlined through the previous programs of surface and underground drilling.

EXPLORATION

A program of surface and underground drilling was completed in 1980 and 1981 by E & B Explorations Inc. The drill holes were completed to investigate known veins, the Ida May, Alhambra, Alhambra F.W., 809, 51 F.W. and the 51 (see Figure 6) from the surface and the 800 Level of the mine. A total of 36 holes were completed of which only 2 holes failed to intersect vein structures. The drilling indicates the continuity of these veins. These mineralized intercepts will require some drifting to determine not only the gold content and the true width of the mineralized intercepts.

Sixteen diamond holes were drilled from the surface and twenty diamond drill holes were drilled from the 800 Level by E & B Explorations Inc. in 1980 and 1981. A total of 5,030 m (16,500 feet) were drilled from the surface and a total of 3,400 m (11,100 feet) were drilled from the 800 Level.

DESCRIPTION OF DEPOSIT

The Bralorne deposit includes the veins of the former King, Lorne, Coronation, Bralorne, and Pioneer Mines (see Figure 6). The holdings of 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 peridotite (now serpentine) gabbro, diorite, quartz-diorite, quartz and feldspar porphyries, soda granite and albitite.

The 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.

Genetic too ?!

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 degrees and the north-south veins dip to the west at angles of 45 to 60 degrees (see Figure 7).

The main productive veins from the Bralorne property were as follows.

FORMER MINE NAME	VEIN
KING MINE	808 Shaft King
BRALORNE MINE	55 59 51 53 51 Footwall 77 75 73 52
PIONEER Mine	27 Main Vein Hanging Wall Veins

The veins consist of quartz and contain minor amounts of sulphides, tellurides and usually fine gold. The majority of veins have widths varying from 0.75 to 1.5 m (2.5 to 5.0 feet) and the length of the veins varies from a few meters to thousands of meters horizontally and vertically. The ore-shoots are vertical and have a horizontal length from 50 to 100 meters (164 to 328 feet) and a vertical length which varies from 50 to 800 meters (164 to 2,625 feet).

Stoping of the ore was carried out by the former operators of the Bralorne Mine on the veins from the surface to the 4577 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. It is reported that 100,000 tons, of plus 0.5 ounces of gold per ton, material remains below the 4577 Level.

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.

ORE RESERVES

Evaluation of the ore remaining as pillars and unmined blocks within the old workings were completed in 1974, 1979 and 1981. There are over 630,000 tonnes (700,000 tons) of ore containing 8.22 grams of gold per tonne (0.24 ounces of gold per ton) remaining in the mine above the 2600 Level. Of this reserve, 475,000 tonnes (525,000 tons) of ore containing 8.91 grams of gold per tonne (0.26 ounces of gold per ton) are in the "readily available" category. Since the mine has been reopened, the old mine records have been examined and a sampling program is being carried out to confirm this reserve. Results of this sampling indicate that the grades are vey close to those previously reported.

The system used in 1974, by N. Croome, P. Eng., to calculate ore reserves was also used in 1981 by J. DeLeen and W.T. Irvine to calculate ore reserves. Croome was able to visually check the existence of each block on the levels that he examined above the 2600 Level. Only the blocks located in areas where no mining has been carried out were included. The assays were those completed by Bralorne prior to 1971.

The ore reserve calculations completed by J. DeLeen and W.T. Irvine in 1981 confirmed, within limits, those of N. Croome. Croome's tonnage was lower and his grade was higher. The parameters used for the calculations in 1981 included a 15 percent mining dilution and a minimum mining width of 1.2 meters (4.0 feet). All high grade gold samples containing values greater than 51.4 grams of gold per tonne (1.5 ounces

of gold per ton) were reduced to 51.4 grams (1.5 ounces). The blocks were extended only one-half the distance, 26.67 meters (71.1 feet), to the next level. Only the ore blocks where there are no major rehabilitation problems were used for the "readily available" ore reserves. Further geological evaluations point to an additional 5 years of ore that are not so "readily available". In addition, potential reserves adding up to at least ten years of production have been outlined.

MINING OPTIONS CONSIDERED

Various new methods, such as trackless mining and sub-level long-hole blasting of mining narrow veins were considered by Canadian Mine Services. These methods, however, are not viable in the veins that will be mined initially. Consequently, the old mining system involving shrinkage and cut and fill stoping methods will be used again at Bralorne. The ore will be hauled to the shaft by conventional tramming equipment and hoisted in the Crown shaft to the 800 Level. The ore will then be trammed to the surface where it will be crushed and treated in a mill having a capacity of 272 tonnes (300 tons) per day. The underground operations will produce 100,000 tonnes (110,000) tons per year or about 400 tonnes (440 tons) per day based on a 250 day working year.

MINE DEVELOPMENT

A. Introduction

The mine development has been studied by Canadian Mine Services. All the levels and ore blocks that were accessible in order to complete the proposed work schedules were examined. The study indicates that all of the levels should be reopened, but in some cases track and airlines should only be installed on every second level.

The plan proposed by Canadian Mine Services is to reopen and mine the veins which have the largest ore reserves. Development details have been completed for each level on all veins being studied. A typical cross-section of the "55" vein has been included (see Figure 8). This section shows the position of thirty four blocks of ore representing approximately 86,136 tonnes (94,950 tons) of 8.22 grams per tonne (.24 ounces per ton) gold ore. A typical rehabilitation and mining plan of the 14 Level on the "55" vein has been included (see Figure 9).

B. General Commentary

The study is aimed at mining 100,000 tonnes (110,000 tons) per year between 1000 and the 2600 Levels. This may be expanded to include those levels above 1000 as the data becomes available.

The scope of rehabilitation and development work necessary to carry out the mining has been appraised and is accurate for those areas visited by Canadian Mine Services' staff. These levels which include portions of 800, 1000, 1100, 1200, 1300, 1400, 1500, 1600, and 1900 Levels are highlighted in a typical development schedules shown in Figures 10 and 11. The scope of work in those areas which were not accessible at the time of the site visits, has been based on conversation with former mine operators; notes concerning access provided by Mr. W.T. Irvine (Consulting Engineer); and conditions observed in the stoped areas on accessible levels. Generally there is no access beyond previously stoped areas on those levels visited and in many cases serious sloughing from stope walls has occurred. This sloughing now appears to be more prevalent than during inspections in 1973 and 1974. The scope of development work in most cases includes by-pass

drifts around the caved stope areas rather than timbering or spiling through them, with the exception of crosscuts between mined areas which can be rehabiliated. Wherever possible, by-pass drifts have been laid out to follow a parallel vein with crosscuts in appropriate locations to access the main vein. The by-pass drifts therefore give exploration potential although for the purposes of this study, by-pass drift rock is considered to be waste.

C. Development Philosophy

The following parameters were given consideration in laying out a mine development and rehabilitation schedule:

- Commencement of production in areas of relatively high grade ore and easy access.
- Development of the ore reserve in such a manner as to yield a sufficient number of stopes to provide the desired tonnage and grade control.
- Provision of access between the Crown and Empire Shafts on every second or third level in working areas of the mine to provide an emergency escapeway.
- Rehabilitating only those levels which yield an appreciable tonnage in order to keep development costs to a minimum.
- Provision for exploration drifting to develop new ore reserves.
- Provision of spare working places near the Crown Shaft which could be used for backup in case of unforeseen delays in the development program or disappointments in the ore reserves.

Although many bypass drifts have been scheduled, each situation will be assessed on an individual basis as it becomes accessible. It will undoubtedly be possible to rehabilitate drifts in some previously mined areas, while conditions in other areas may be worse than assumed in this study.

Similarly, exploration drifts which have been identified in the schedule will be assessed during the course of mining and new exploration targets substituted as required.

Development schedules have been produced on a semi-annual basis only to the end of period eight (year four). To carry any type of semi-detailed planning further than this stage is not considered practical or realistic at this time.

No provision has been made for developing a separate waste pass. Therefore, the ore-waste pass has been divided into three sections. Waste development for each period has been scheduled to be drawn from a different section than the ore production for that period. In addition, ore pass control chutes at each level have been included to allow segregation of ore and waste on a level by level basis if required.

D. Preproduction Development And Rehabilitation

The preproduction period will have a duration of ten to twelve months following completion of dewatering. Work will be scheduled three shifts per day, seven days per week. The following items of work will be completed:

Shaft Work:

(1) Replace the pipes and repair the manway in the Crown Shaft.

(2) Rehabilitate Crown Shaft stations (grizzlies, floors, drain lines).

(3) Replace the skip dump in the Crown Shaft.

(4) Install Crown Shaft conveyances (two double deck cage over skip combinations).

(5) Rehabilitate the Crown Shaft loading pockets on 1400, 1900 and 2600 Levels.

(6) Install 200 mm (8 inch) airline to the Crown Shaft on 800 Level. Salvage the 150 mm (6 inch) pipe.

(7) Slash the backs of the ore dumps at the Crown Shaft to accommodate vent duct.

(8) Rehabilitate the Crown ore (waste) pass including chutes and transfer chutes on all levels.

(9) Install new sumps on 1400, 2300 and 2600 Levels.

(10) Install pumps at the new sump locations.

(11) Rehabilitate the Empire Shaft manway between 800 Level and 2600 Level.

(12) Rehabilitate the sump at Empire 1000 Level to control water from the Coronation adit and install a submersible pump.

(13) Install the waste chute on 800 Level.

General

(1) Repair the ventilation; raise bulk heads on all levels between 800 and 2600.

(2) Install an electrical distribution system as required for all auxiliary fans, pumps, and battery chargers.

(3) Rehabilitate the 800 Level haulageway.

(4) Install ventilation doors, fans and ducts where required.

(5) Slash drifts and crosscuts to bypass backfill holes where required.

(6) Rehabilitate the backfill system, including feed from the mill, the underground and distribution lines on Levels where required.

(7) Rehabilitate and develop 1200, 1300, 1400, 1900, and 2000 and 2200 Levels as shown in schedule.

(8) Commencing stope preparation in 52 and 55 veins.

(9) Exploration diamond drilling.

E. Stoping Methods and Performance

The choice of mining method must take the following into consideration:

- The veins are narrow generally 1.0 - 1.5 meters (3 to 5 feet);
- At the lower levels, the walls tend to squeeze under pressure when the stope is opened;
- Care must be taken not to break the hanging wall when drilling and blasting. Experience has proven this causes serious dilution;
- The walls in some areas are weak enough to require support by backfill. A review of literature indicates that backfilling became very prevalent as the mine progressed below 2000 Level;
- The dip of the veins is generally steeper than 60°.

The stoping methods selected were shrinkage stoping and cut and fill stoping using hydraulic backfill.

Shrinkage stoping will be used as much as possible, being the more productive of the two methods when mining narrow veins. Drilling will be done using stopers to drill upholes. This will result in maximum productivity in a narrow vein as there can be long uninterrupted drilling cycles and also control of dilution will be possible.

Cut and fill mining will utilize a similar drilling and blasting procedure to shrinkage stoping but each 2.5 metre (7.0 foot) lift will be filled using classified mill tailings. Cut and fill mining will be done in areas with weak walls or where veins dip flatter than 60°.

In an emergency, ethyl mercaptan will be introduced into the compressed air and ventilation system in order to alert the underground personnel that it is necessary to evacuate the mine.

MINERAL PROCESS PLANT (See Figures 13-20)

A. Introduction

Historically, two flowsheets have been used to process ore from the Bralorne Mine. The initial flowsheet used until 1962, utilized crushing, grinding, jigging and amalgamation and then floation of the jig tails to produce a gold-sulfide concentrate which was shipped directly to a toll smelter. The new mill built in 1962 incorporated a flowsheet utilizing crushing, grinding, jigging, and amalgamation to recover free gold, followed by cyanidation of the jig tails and Merrill Crowe precipation of the gold and silver. The locations of the reuseable buildings at the minesite are shown on Figure 20.

The milling flowsheet proposed for the Bralorne mill consists of crushing, grinding, jigging, and amalgamation, followed by cyanidation of the jig tails and conventional Merrill Crowe zinc precipitation to recover gold and silver. The flowsheet is presented in detail in Figures 13 and 14. An alternative flowsheet utilizing flotation of the jig tails, followed by cyanidation of the gold-sulfide concentrate was tested in the laboratory. However, the overall gold recovery was significantly lower than the all-cyanidation route, thus outweighing the advantages of lower overall capital costs. This flowsheet is presented in Figure 19 for comparative purposes.

B. Crushing And Ore Storage

The crushing section of the plant will operate a nominal five days per week, one shift per day. Ore from the mine will be dumped directly from ore cars into the 600 ton coarse ore bin through a rail grizzly with 300 mm (12") spacing. Hoisting and dumping from the mine will be done on a two or three shift basis, five days per week.

Coarse ore will be taken from the bin via vibrating feeders, and placed on to two 750 mm (30") belt conveyors feeding a 500 mm x 915 mm (20"x36") jaw crusher. The jaw crusher discharges onto an 450 mm (18") conveyor belt, which is joined by the cone crusher discharge, then transferred via a scissors conveyor to discharge onto a 1.5 m x 3.65 m (5'x12') double deck vibrating screen with a 25 mm (1") opening top deck and 10 mm (3/8") bottom deck. The oversize fraction discharges to the 10 mm (4-1/4") short head cone crusher set at 6.35 mm (1/4"). Screen undersize falls via a transfer chute onto an 450 mm (18") conveyor leading to the 9.15 m (30') diameter by 12.2 m (40') high, 1,000 ton capacity fine ore bin. Both crushers and the screen will be hooded and connected to a dry dust collection system. All transfer points will also be enclosed for dust collection purposes. The dust collector will discharge onto the conveyor belt leading to the fine ore bin (see Figure 18 for details).

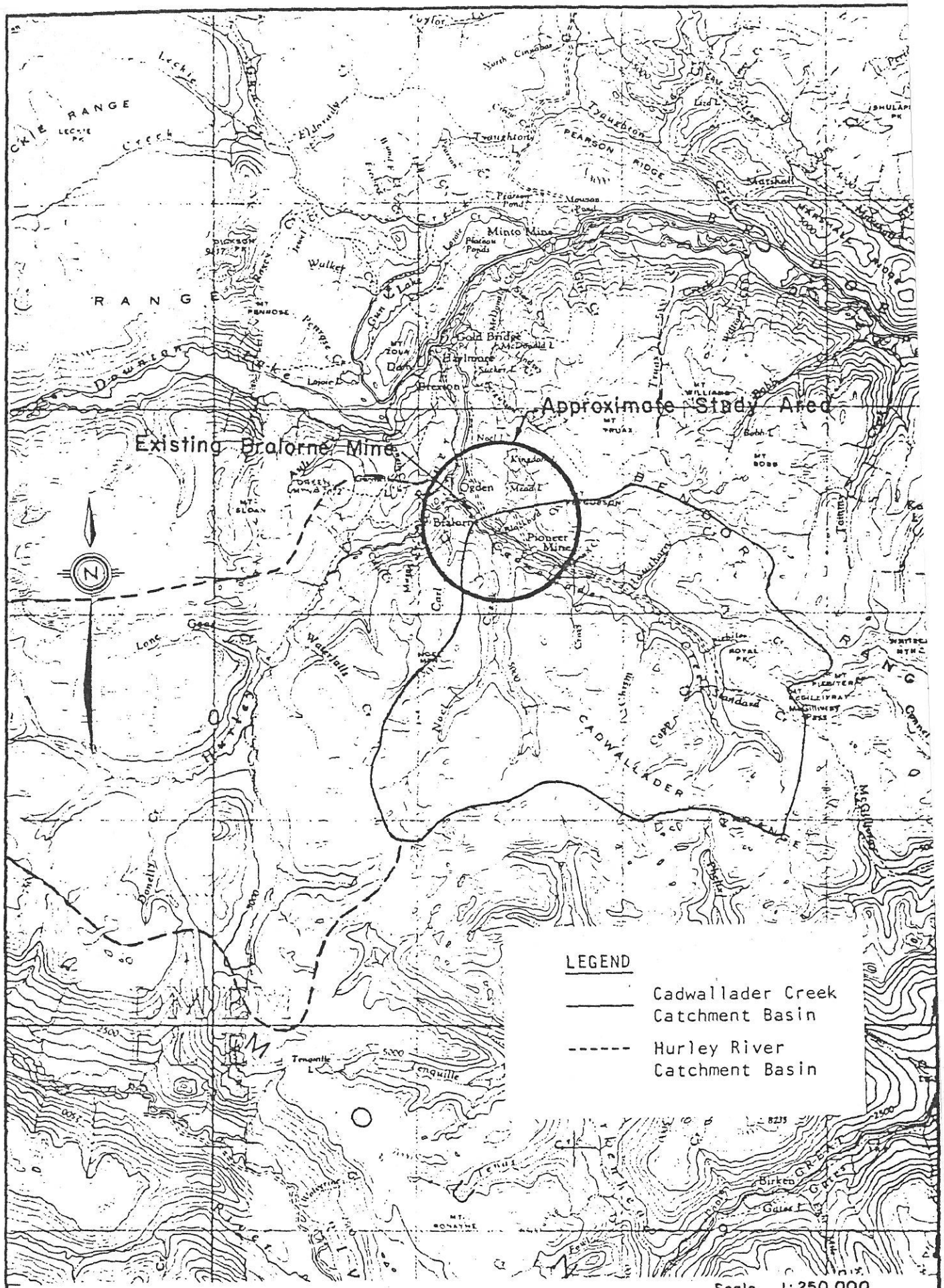
C. Grinding And Cyanidation

The grinding and cyanidation circuits will operate seven days a week, three shifts per day. Fine ore will be reclaimed at 12.9 tonne (14.2 short tons) per hour (90% availability) by a 0.75 m (30") wide belt feeder located centrally under the fine ore bin. This feeder will discharge onto the 600 mm

REVISIONS BY DATE

FILE

CHECKED BY



Scale 1:250,000

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VICINITY PLAN

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