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GEOLOGICAL SURVEY

WEST BLOCK

SEWELL-REEVES PROJECT

PENHORWOOD TOWNSHIP

RECEIVED

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MINING LANDS SECTION

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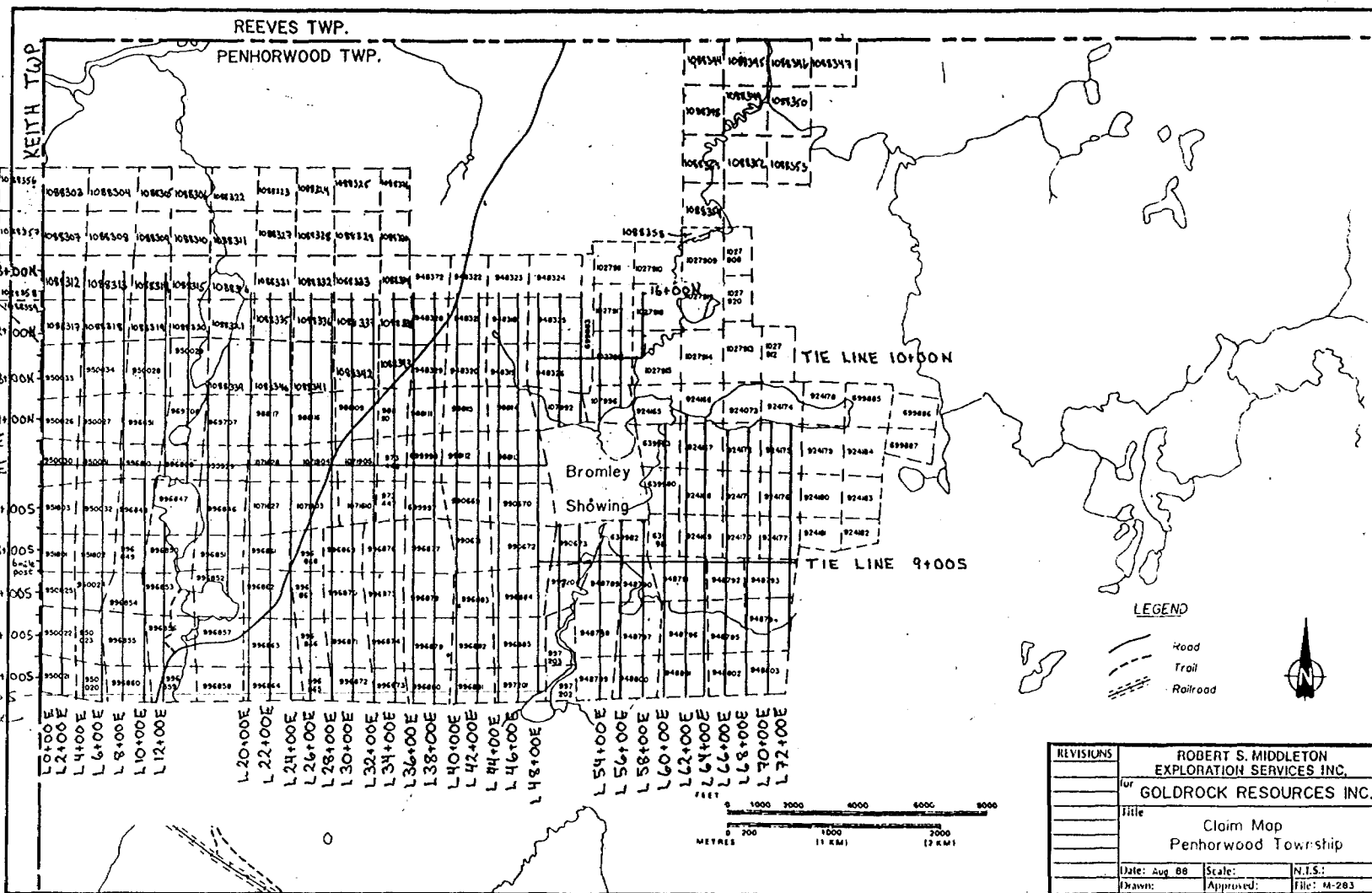
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- Claim Map, West Block, Sewell-Reeves Project,
Scale 1:10,000 ... in back pocket
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SUMMARY

The West Block property hosts a large window of stratigraphy comparable with the geological conditions in the Timmins camp. It is with this premise in mind that American Barrick Resources optioned the 219-claim property in May 1989 from Glen Auden and Goldrock Resources.

Some 175 of the claims are covered by the current geological survey. Recognizable folding and faulting can be outlined on the property and a variety of geological and geophysical targets exist along key fragments of the stratigraphy. The next step is to test some of those gold targets by diamond drilling.



BASE LINE
920m NORTH OF THE
6 mile POST
(920 metres)

REVISIONS	ROBERT S. MIDDLETON EXPLORATION SERVICES INC.		
	for GOLDROCK RESOURCES INC.		
	Title Claim Map Penhorwood Township		
	Date: Aug 88	Scale:	N.T.S.
	Drawn:	Approved:	File: M-283

INTRODUCTION:

Between July 24 and September 8, 1989 a reconnaissance geological survey was carried out over 175 claims in Penhorwood Township. The claims (a list of same is attached) form the bulk a larger 219-claim group in Penhorwood and eastern Keith Townships under option from Glen Auden and Goldrock Resources. American Barrick is the optionee of record. The claims are designated as the West Block, Sewell-Reeves Project -- a gold project.

Linecutting on the West Block was contracted to Laforest-Hlava Exploration Services, Timmins -- the contract being completed between May 15 and August 9, 1989. The fieldwork portion of the geological survey was attacked by a team of six geologists, all employed by American Barrick. The team included Gillian Kearvell, Michel Bergeron, Gary Potts, Stuart Beal, Chris Hibberd and Tony Zaruso.

The property sits in the northwestern quarter of Penhorwood Township and abuts the Glen Auden-Tarzan-Noranda joint venture on the Joburke property (west). Eastward, the West Block is separated from a 426-claim East Block by a wedge of patented claims owned by Manville Canada Inc. The claims are readily accessible via the Kukatush road which links Highway 101 to the community of Kukatush and points beyond. This all-weather road cuts diagonally across the center of the claim group. Additional access to the east part of the claim group is gained via an old road leading to the Bromley showing and Primer Lake although this road is in poor repair.

Topographic relief on the West Block is in the order of some 80 meters (260 feet) from the prominent Radio Hill area to the low-lying swamps adjacent to the several lakes on the property. The Radio Hill topographic 'high' is related to a broad band of weather-resistant iron formation occurring within a wide zone of moraine and esker sands and gravels covering the midsection of the claim group. North, south and east of Radio Hill the land slopes gently away from the topographic 'high', while the west margin is a scarp that may be fault-related. Vegetation in the central part of the claim group is largely jack pine with well-spaced trees and minimal undergrowth.

West of the Radio Hill iron formation and scarp edge, there is a chain of lakes crudely marking the western extremity of high ground. Here, most of the cover is swamp with small spruce trees, eastern larch, and alders common. East of the Radio Hill area, the land slopes gradually lower toward West Creek and Primer Lake. In this eastern half of the West Block the topographic relief is only in the order of a few meters but it is much more erratic. Bedrock exposure in the east approaches 10% of the cover

with low-lying bedrock areas supporting jack pine and poplar growths while the intervening ground is largely spruce, alder and cedar swamp. All of the lake margins are wet and swampy.

Overall, bedrock exposure is less than 5 percent.

GENERAL GEOLOGY:

For a long period of time the Sewell-Reeves area, or North Swayze Belt, has been felt to be the lateral equivalent of the Timmins camp although the commodities mined and the physical distance from Timmins tended to hamper direct correlations. Also, the apparent absence or unknown trace of the Porcupine-Destor Fault Zone between the two areas became a problem.

In the Timmins camp, subdivisions by Pyke (1982) outlined two main supergroups -- the Lower or Deloro Group and the Upper or Tisdale Group. The Lower Supergroup proceeds from komatiitic volcanics through calc-alkaline mafic and felsic volcanics to a cap of iron formation. The Upper Supergroup again commences with komatiitic vulcanism, followed by tholeiitic volcanics and eventually calc-alkaline rocks. A sedimentary sequence in Timmins, the Porcupine Group, is interpreted to span the Deloro and Tisdale time frames, distal to centers of vulcanism.

Within the Sewell-Reeves Project area two marked units of iron formation cap sequences of calc-alkaline intermediate to felsic volcanics and probably represent the upper extremities of the Deloro Group. In Sewell and eastern Penhorwood Township, above the Nat River iron formation, a sequence of komatiitic flows plus or minus ultramafic intrusives are followed by a thick sequence of tholeiitic volcanics -- the Tisdale rocks. On the West Block itself, in western Penhorwood Township, the Radio Hill iron formation marks the Deloro/Tisdale interface and is followed by komatiitic and tholeiitic rocks of probable Tisdale Group affinity. A short distance north and east of the Radio Hill iron formation, however, a strong east-trending shear zone appears to mark the end of the komatiitic sequence -- Porcupine Group (?) sediments, plus or minus scattered volcanic units, are noted further north.

While the sediments north of the east-trending shear in Penhorwood Township are assumed to be Porcupine Group in relative age, their character is far more enigmatic. Conglomerate units in the northeast corner of the West Block are typified by the occasional fuchsite clast -- ie. the sediments are not totally synchronous with vulcanism since the clasts appear to be altered previous to deposition. This particular sedimentary package is essentially fault bounded and is assumed to be younger in age although perhaps not Temiskaming.

In Timmins, the komatiitic sequence marking the onset of the Tisdale Group is a natural plane of weakness, along which the Porcupine-Destor Fault has focused for many kilometers. Similarly, within the project area, very strong shears are noted in the same stratigraphic position

- in the East Block a strong regional shear may represent the continuation of the Porcupine-Destor

- in the West Block a strong 060 to 070-trending shear in the southeast corner of the property could be either the continuation of the East Block Shear or a splay from it; while the previously mentioned east-trending shear north of Radio Hill appears to be a splay feature partly focussed on komatiitic rocks. This latter feature is tentatively correlated with the locally-named MacKeith fault just north of the Joburke Mine.

Overall, the immediate Sewell-Reeves area appears to be cut by a major 060 to 070-trending shear zone tentatively correlated with the Porcupine-Destor system. A number of 070 to 090-trending splays horsetail away from this zone and form distinct fault-bounded wedges. The MacKeith Fault is one of these splays.

The Reeves Mine (asbestos, Reeves Township) and the Joburke Mine (gold, Keith Township) have been the only producing properties in the project area.

PREVIOUS WORK:

The Sewell-Reeves area has received considerable attention since the turn of the century but most specifically after the discovery of the Joburke Mine some four kilometers west of the West Block in 1946. Asbestos, iron and gold were the most successful commodities sought, but base metal as well as barite and silica prospects were not overlooked. An excellent review of previous work was undertaken by Milne (1972) and the reader is urged to sample that publication for specifics prior to 1969-70.

In the Penhorwood Township area the Radio Hill iron formation was extensively explored between 1958 and 1967 by the Kukatush Mining Corporation and Radio Hill Mines Ltd. Some 140 claims were either leased or patented along the iron formation between 1964 and 1966. To that end, very little assessment data was generated around the current West Block until those leases began to expire in the mid-1980's.

A large body of work by 'Kukatush' and 'Radio-Hill' cover the iron formation prospect -- those data are, in part, photoreduced and added to the accompanying geological plans. Further work outside of the main prospect, particularly drilling, is poorly located with respect to the current survey and the reader is again urged to refer to Milne (1972) for interpretation of same.

A listing of the previous work includes:

- 1946 - discovery of Joburke deposit Keith Township
- 1946 - Brewis and White geological mapping and diamond drilling just north of the West Block in northern Penhorwood Township.
- 1946 - Bromley/Bragagnola property, patented in 1948, this block of 4 claims is surrounded by the West Block. Geological mapping, stripping and diamond drilling in 1946 by Kalbrook Mining -- little data available.
- 1946/47 - McIntyre Porcupine Mines Ltd/Castle Trethewey Mines Ltd., 105 claims in 3 groups east and north of Radio Hill including Primer and Jehann Lakes, and northward. Geological, magnetic and EM surveys completed plus 10 drillholes.
- 1947 - Nib Yellowknife Mines Ltd., 14 claims north of Jehann Lake. Mapping, stripping and trenching completed with samples up to .20 ozs gold.
- 1947 - Purdy Mica Mines Ltd., Mosher claim on the West Block near the Keith/Penhorwood boundary. One hole drilled.
- 1950 - Penwood Gold Mines Limited, 16 claims southwest of Radio Hill, 4 drillholes.
- 1950 - Transhorwood Mines Ltd., 19 claims south of Radio Hill, one hole drilled south of the iron formation.
- 1951/89 - Manville Canada, Canadian Johns Manville; various claim groups over a considerable length of time with some 76 patented claims in Penhorwood Township at present. The Reeves deposit (asbestos, Reeves Township) was discovered by Bromley and optioned to Manville in 1951. The Dupont and the Nat River Fiber zones occur on the patented claims separating the East and West Blocks with the ultramafic host to these zones just biting the southeast corner of the West Block. The Jehann Fiber zone is some 3 kms. north-northeast of Jehann Lake.

In 1957, Manville staked the Radio Hill prospect but subsequently dropped the claims after an EM and mag survey.

All of the work on file for Manville was completed pre Milne (1972), and most of the drilling was oriented toward asbestos. Very limited drilling, however, falls within the current West Block map.

1958/87 - Kukatush Mining Corporation/Radio Hill Mines Ltd., some 140 claims leased or patented between 1964 and 1966 plus many other properties examined. Kukatush (later Radio Hill Mines Ltd.) undertook extensive exploration in the Sewell-Reeves area for iron. Again the reader is referred to Milne (1972) for summaries of the work. The vast majority of the drilling by Kukatush took place on the Radio Hill prospect where some 126 million tons grading 27.9% soluble iron were outlined to the 570-foot level.

Radio Hill Mines also optioned the Bromley claims and, in 1967, discovered the R.F. Zone -- a three-foot quartz stockwork with galena, argentite and moderate values in gold. Locations of diamond drilling are uncertain.

1960 - Texas Gulf Sulphur Company, one hole drilled roughly 300m north of the east end of Jehann Lake encountering graphite. No other work reported.

1985/89 - J.P. Patrie/Goldrock Resources/American Barrick, 219 claims at present. The West Block was acquired by American Barrick in May 1989 with airborne geophysical surveys having been undertaken by Goldrock Resources and limited ground work by Patrie.

1987 - BHP/Utah Mines, Bromley claims, 2 holes drilled on R.F. Zone, locations poor.

PROPERTY GEOLOGY:

A - OVERVIEW

To enlarge upon the General Geology, the setup of the West Block commences with the oldest rocks in the area, the calc-alkaline Deloro Group. Deloro rocks are represented by an open-ended (west), crudely elliptical sequence of calc-alkaline flows and tuffs capped by iron formation in the west central portion of the claim group. Closure of the ellipse is indicated by a southeasterly-trending antiformal axis astride the north arm of the Radio Hill iron formation. This axis strikes into the east-trending shear zone designated as the MacKeith Fault and its position is uncertain west of that junction.

The shear zone/MacKeith Fault traverses the northern third of the West Block and is in the order of 400 meters thick. The zone consists of several faults noted both within the iron formation and in sheared ultramafic on the north flank of the iron formation. Some of the ultramafic is thought to be komatiitic (ie. start of Tisdale sequence) but the magnetic signature of the iron formation combined with a lack of surface exposure hampers further subdivision.

North of the MacKeith Fault on the West Block most of the rock is sediment with scattered units of mafic volcanics and one, well defined, northwest-trending, magnetic unit that may be either iron tholeiite or ultramafic. The magnetic unit and the MacKeith Fault appear to define the southern limits of the Sediments. The sedimentary sequence trends westerly into Keith Township and is bounded to the north by a series of east-trending fault wedges or splays. Eastward the sediments abut the Sewell-Reeves Complex, host to the Reeves Mine some 5.5 kilometers northeast of Jehann Lake. The sediments are assumed to be Porcupine Group in relative age, and are cut by several dykes plus or minus irregular stocks and plugs of feldspar porphyry.

The Sewell-Reeves complex is a dividing line between sedimentary rocks to the west and mafic volcanics to the east. Most of the complex is on the patented Manville lands although its southern terminus occurs near the east end of Jehann Lake, where the complex is cut by the MacKeith Fault. The complex is described by Milne et al (1972) in the Reeves Mine area as 'a layered sheet, 400 to 1000 feet thick. The body appears antiformal, plunging 50 degrees northeast ... and takes the form of a domal structure ... wherein the Jehann Lake Zone represents the south vertex.' The Jehann Lake Zone is roughly 3 kilometers northeast of Jehann Lake. While the complex itself is only marginally operative on the West Block geology, its geometry and structural emplacement no doubt have a bearing on the northeast to north-northeast-trending breaks in the east half of the property.

South of Jehann Lake and the MacKeith Fault, east of the fold closure of Deloro rocks, and along the southern extremity of the property is a complicated sequence of komatiitic and tholeiitic volcanics. The volcanics overlie the Deloro Group and are thus interpreted as Tisdale rocks. The eastward extension of the fold axis implicating closure in the Deloro rocks is very difficult to trace into the Tisdale sequence -- partly a function of the amount of faulting in this area but also due to the difficulty in repeating units across the axis. The very southeast corner of the West Block is also cut by the broad regional shear that, as previously mentioned, may be an extension of the Porcupine-Destor system or a splay from it. This shear zone is in the order of 500 to 600 meters wide.

Timing of geological events on a property scale is often a futile exercise without having visited a broad spectrum of the regional exposure. Aside from the Deloro Group/Tisdale Group/Porcupine Group subdivisions, early ultramafic intrusives are noted, as well as felsic intrusive rocks south of the West Block (Kukatash Pluton), feldspar porphyry dykes et al in the northern sedimentary sequence and late-stage diabase dykes throughout the area. In many instances something less than relative ages results, particularly in the intrusive sequences. Some data, however, on relative ages of events follow.

Northeast to north-northeast-trending faults appear to postdate folding since the interpreted axial trace is staggered in the east-central part of the claim group. The almost 90 degree relationship with the fold axis and an increased density of these faults near the fold closure, probably signifies that folding is closely related to northeast faulting, ergo intrusion of the Sewell-Reeves Complex. North to north-northwesterly-trending faults are probably related to the period of diabasic intrusion.

The northeast faults tend to merge with or are offset by the large regional shears and splays which also offset diabase dykes locally. If the history of the Timmins camp is at all operative, however; these east-trending features have been active over a very long period of time and several movements are inferred.

Further, as previously mentioned, the development of fuchsite clasts in the conglomerate sequence north of the MacKeith fault suggests a conglomerate deposition post an alteration event since the fuchsite is not felt to be a diagenetic alteration phenomenon. This alteration event is thought to have occurred early in the history of sequence, but could be timed to most any event.

A proposed Stratigraphic Table includes:

STRATIGRAPHIC TABLE

Pleistocene and Recent - glacial sands, gravels and till.

-- Great Unconformity --

PRECAMBRIAN:

- ARCHEAN

Faulting

Diabasic intrusions with associated faulting

Faulting(?) and felsic intrusions.

Porcupine Group: conglomerates and wackes
Timing uncertain

Folding and related faulting (NE to NNE?)
intrusion of Sewell-Reeves complex (ultramafics)

Tisdale Group: calc-alkaline flows (absent)
: Mg and Fe-rich tholeiitic
volcanics + sediments.
: Komatiitic flows.

Deloro Group : Iron Formation + sediments (Radio Hill)
: Calc-alkaline mafics to felsics
+ sediments. (largely intermediate
tuffs)
: Komatiitic volcanics (absent)

B - DELORO GROUP ROCKS

The oldest part of the Deloro Group consists of calc-alkaline flows and tuffs in the west-central portion of the property. Fragmental varieties dominate by far, but isolated exposures of dacitic to andesitic flows are noted and units of interflow sediment are found in drillholes by Penwood Gold Mines (south and west of Leadbeater Lake), and Purdy Mica Mines Ltd. (north of the MacKeith Fault in the northwest part of the property). Both sedimentary intersections are greywacke and argillite.

The tuffs (and flows) are light grey-green to dull grey in colour with grey-brown to tan coloured weathered surfaces. The rocks are generally fine grained, non-magnetic, weakly chloritized and calcitic. Tuffaceous to agglomeratic exposures contain 15 to 25% lensoid fragments from a few millimeters to 5 cm in size. The matrix component is fine grained, weakly chloritic, calcitic and sericitic. Calcite fracture fillings are common and the rocks often contain trace amounts of pyrite.

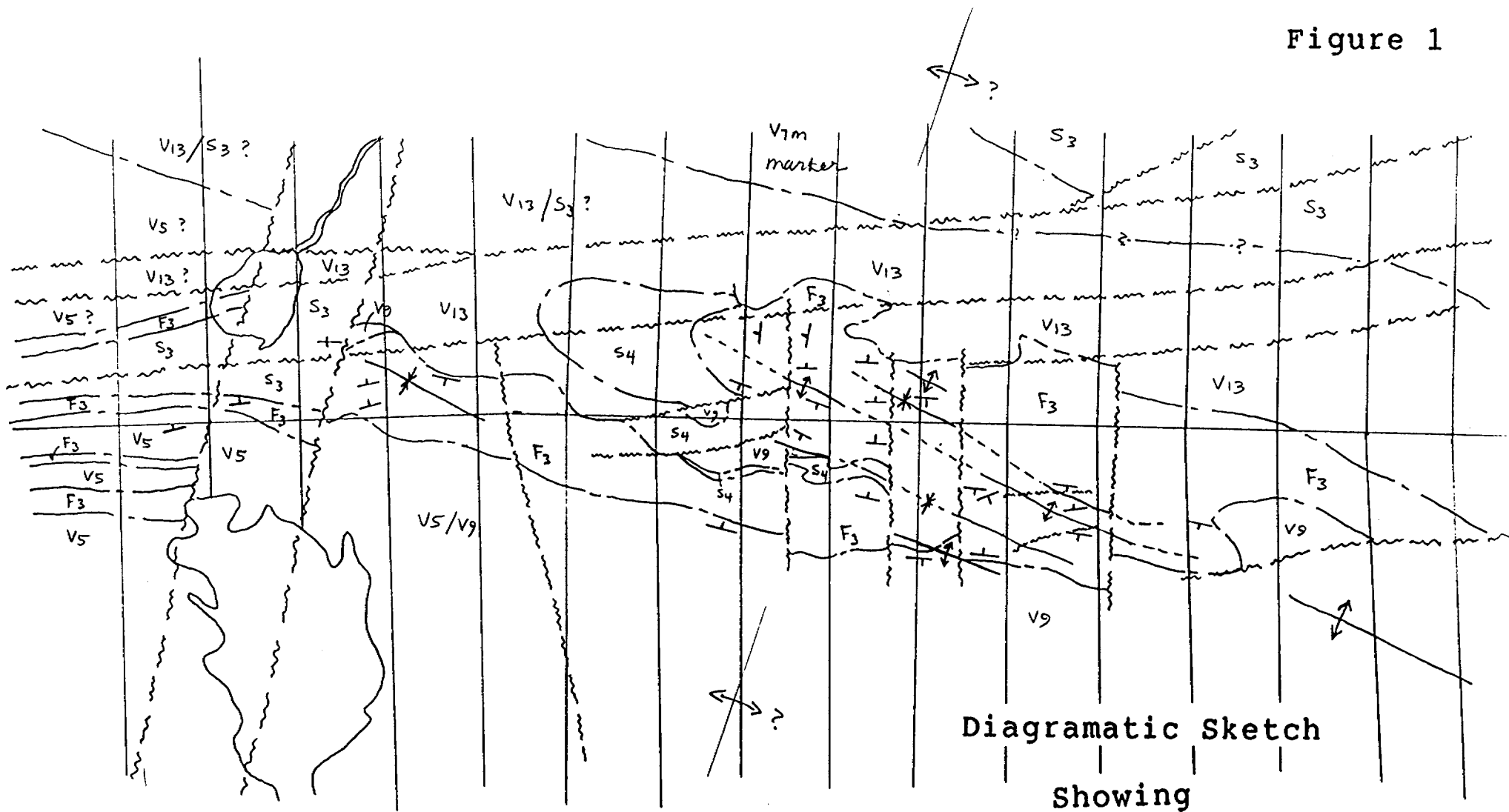
The upper part of the Deloro Group is marked by the prominent Radio Hill iron formation. Surprisingly, surface exposure is limited to scattered outcrops around the Kukatush Road and the Leadbeater Lake area combined with a number of partially overgrown trenches on the main body. To that end, descriptions by Milne (1972) present the best overview of the system which cannot be obtained from the surface mapping. In the West Block, the iron formation has a strike length of some 5000 meters with a maximum thickness approaching 1200 meters in the Radio Hill vicinity.

'Westwards from Radio Hill, the iron formation splits into two (4?) thin seams that continue to the western boundary of Penhorwood Township. Immediately east of Leadbeater Lake the two thin seams coalesce and thicken to form a single zone about 600 feet (180m) thick. Eastwards, at the Kukatush Road, the iron formation is folded into an isoclinal S-shaped fold, plunging north-northwest at about 50 (degrees).

The footwall rocks on the south are predominately sericitized tuffs and agglomerates but thin lenses of blue-black graphitic and pyritic slate are common immediately below the iron formation contact. On the north, or hanging wall side, the iron formation is in contact over much of its length with highly carbonatized, altered, ultramafic rock (ie. Tisdale komatiites) now composed of chlorite talc and carbonate.

Oxide, carbonate, silicate and sulphide facies of iron formation are all present at Radio Hill ... and, the iron formation has been tightly folded into a flattened S-shaped fold overturned to the south and plunging northwest ... at the Kukatush road.

Figure 1



location of Minor Fold Axes

Radio Hill Iron Formation

≈ 1:12,000

Kukatush geologists subdivided the iron formation into a number of types designated by letters of the alphabet ... and based on a combination of magnetic iron content, texture and liberation. Three main types E, F and H constitute the bulk of the ore.

Type "E" material is characterized by layers of massive magnetite interlayered with light grey chert, with layers ranging in thickness up to 4 inches (10 cm). Jasper bands ... generally occur with the high-grade type "E" material ... and minor carbonate and minnesotaite layers (are present).

In Type "F" material the magnetite is generally finer grained and duller in appearance than in type "E" and layering is usually less than 1 inch (2.5 cm) thick. Light green, minnesotaite-rich layers and light grey sideritic carbonate layers are common.

The type "H" material consists mainly of banded sideritic carbonate and chert that is banded light and dark grey on fresh surfaces but weathers brick red and white and resembles banded hematite-chert. Slaty bands and layers of minnesotaite occur in the type "H" material and the slate increases westward towards Leadbeater Lake.¹

A number of the features outlined by Milne are confirmed by American Barrick personnel although most of the available exposure is "E" and "F"-type oxide iron formation with scattered outcrops of graphitic and cherty sediments. The unconfirmed feature mentioned by Milne is the overall impression of the system being a "tightly folded S-shaped fold, overturned to the south and plunging northwest". Although geometrically possible, this idea is somewhat at odds with the current data base.

An overview of the Radio Hill area suggests that the system is generally flanked by older calc-alkaline rocks to the south and younger komatiitic rocks to the north, both of which have a northerly dip. The iron formation forms the northern fringe of what appears to be an antiformal system enclosing calc-alkaline rocks to the south. Some semblance of that (?) axis trends southeasterly from the southeast corner of the main Radio Hill body -- the eastward extension of the Radio Hill iron formation having a folded equivalent along a sedimentary unit with an iron formation connotation on lines 32, 34 and 36E circa 10+00S. Within the main Radio Hill body itself, a number of minor fold axes are also evident, such that an element of crossfolding is likely at play (see sketch opposite).

¹ Milne (1972)

West of the north-northeasterly faults interpreted through the chain of lakes (lines 12E and 14E) the Tisdale/Deloro interface, ergo the komatiitic/iron formation contact, is suggested to be well north and south of the two (or four) west-trending bands of iron formation centered around the 00 Base Line. -- ie. to overcome this problem, a synformal axis would have to track along the Base Line with antiformal axes to the north and south in order to accommodate the calc-alkaline sequence obtained in the Purdy Mica Mines Ltd. drillhole (north) and the calc-alkaline exposures supported by drillholes to the south. This interpretation in some measure feels contrived and these potential axes are not plotted on the accompanying plans. Faulting most likely also plays a major role here. The iron formation west of Leadbeater Lake surrounded by older calc-alkaline rocks could just as easily represent a horst phenomenon.

C - TISDALE GROUP ROCKS

Given that the precise trace of the Radio Hill iron formation extremities are in doubt, the Tisdale/Deloro interface is consequently less than clear. North of the main body of the Radio Hill iron formation, komatiitic rocks of the lower Tisdale Group are represented by talc, chlorite and carbonate rocks within the MacKeith Fault Zone. These rocks are not exposed.

In the southwest corner of the property, the Tisdale/Deloro contact is again not exposed but it is interpreted to be between the calc-alkaline tuffs circa 12+00S on line 0E and the altered mafic volcanics south of 16+00S. The contact may be cued along the ground VLF anomaly but that is not confirmed by the Penwood Gold Mines drilling further east. The altered and foliated mafic volcanics are followed by komatiitic rocks and a potential marker horizon of iron tholeiite (outcropping on line 2+00E, 20+00S).

The iron tholeiite unit is interpreted to be a significant marker horizon due to its strong magnetic signature. The unit outcrops in the southwest corner of the property and tracks eastward near the south boundary of the West Block. It's folded equivalent is suggested to plot south of Jehann Lake and struggles westward to the MacKeith Fault (west of Primer Lake) where it is offset and subsequently trends northwesterly in the north part of the claim group. The marker horizon is not specifically a single unit but rather a package of strongly magnetic basalts intercalated with weakly to nonmagnetic basalt. Similarly, broad units designated on the accompanying plan tend to outline general suites as opposed to individual flows -- as the komatiitic zones which on the outcrop scale often host komatiitic and Mg-rich tholeiitic portions as well as thin altered equivalents.

The basal sequence of the Tisdale Group is a foliated, ankeritic basalt noted most prominently in the southwest corner of the property and north of Far Lake on lines 46E to 50E circa 15+00S. The western sequence is readily distinguished from the adjacent (south) komatiitic volcanics, while north of Far Lake this breakdown is more difficult. The rocks are grey-green to brownish grey in colour with rusty weathered surfaces related to the ankerite content. The rock is generally fine grained and nonmagnetic with a moderate to well developed foliation. Ankerite occurs as hairline stringers as well as pervasive carbonatization. Alteration minerals include chlorite, sericite and fuchsite plus local tremolite, actinolite and talc in the Far Lake exposures (a more definite komatiitic phase?). Quartz veining averages 1 to 5% in most locations with some accessory veining in stockwork zones north of Far Lake. Sulphide contents in most of these exposures are minimal. Variably ankeritic and fuchsitic-altered rocks are also noted on either side of the magnetic basalt south of Jehann Lake.

Although no whole-rock data has been completed on these rocks, colour, texture and alteration minerals suggest a Mg-rich tholeiitic to komatiitic composition.

The komatiitic volcanics between the basal unit and the magnetic marker horizon are dark green to black, variably magnetic flows with a weak to moderate serpentization. The rocks weather a bright orange-brown colour as opposed to the brown to tan coloured weathered surfaces of the ultramafic intrusives. Spinifex textures are noted in several outcrops.

The magnetic package of basalt, ergo iron tholeiite, includes dark greenish grey strongly magnetic iron tholeiite, grey-green weakly to nonmagnetic (on hand specimen scale) basalts and variably magnetic amphibolite. The highly magnetic basalts are relatively rare on the property. They are fine grained, generally fresh in appearance with little alteration, veining or mineralization.

Amphibolitic rocks associated with the magnetic package are dark green to greenish grey and fine to medium grained with numerous equigranular amphibole needles from 2 to 4 mm in size. Most of the amphibole crystals are actinolite (?) in the magnetic varieties but lighter coloured amphibolitic rocks do exist. Local exposures containing light coloured amphibole (tremolite?) are found in the basal Tisdale member and in a couple of exposures east of Jehann Lake. The Jehann Lake exposures are interpreted to be part of the Sewell-Reeves intrusive complex.

The grey-green, weakly to nonmagnetic basalt sections are found throughout the area, and are not confined to the magnetic package of rocks. The slightly duller grey-green units may be iron tholeiites while the medium to pale grey-green varieties are

suspected to be more Mg-rich. Most of the lighter coloured basaltic rocks are distinguished on the accompanying map by their magnetic signature and further distinctions should be made on whole-rock chemistry. The rocks are fine grained, pillowed to massive flows with variable alteration and little veining or mineralization.

Most of the Tisdale group exposure on the West Block is covered by the interval spanning the basal altered and foliated zone, the komatiitic section and the magnetic basalt package. Only two areas remain -- a zone of potentially older (?) tholeiitic rocks on lines 50E to 60E circa the 9+00S Base line and a zone of iron tholeiite along the southeastern corner of the property.

The potentially older tholeiitic sequence lies along the eastward extension of the antiformal axis from Radio Hill and is localized between two northeasterly-trending crossfaults. The sequence consists of a mixture of magnetic tholeiite, nonmagnetic tholeiite and komatiitic rocks that are separated on the basis of their magnetic signature. Given that the magnetic marker horizon is almost a constant distance apart from its folded equivalent, this mixed sequence is probably part of the basal Tisdale Group.

The iron tholeiite along the southeastern margin of the West Block is south of the regional shear or splay extending from the East Block. This sequence is characterized by magnetic foliated basalt, iron tholeiite, amphibolite and nonmagnetic flows as previously described.

South of this last unit (ie. younger) is a small exposure of medium grey-green nonmagnetic basalt along the extreme southeastern part of the claim group.

D - PORCUPINE GROUP ROCKS

Sedimentary rocks of the Porcupine Group are confined to an area north and west of Jehann and Primer Lakes in the northeastern part of the claim group. These rocks are generally considered synchronous with the Tisdale Group time frame although, as previously mentioned, the development of fuchsite clasts in the conglomerate member may signify deposition during late Tisdale times.

The dominant rock type in the sedimentary sequence is greywacke. It is greenish grey in colour and weathers grey to buff. The wackes are normally clean and granular with megascopically visible quartz and feldspar grains. The rocks are nonmagnetic, weakly foliated and weakly carbonatized although there are local strongly chloritic and schistose sections near interpreted shears related to the MacKeith Fault.

Locally, the wackes contain intercalated argillaceous material. The argillites are very fine grained, black, homogeneous units with brownish grey weathered surfaces. The argillites are nonmagnetic, weakly calcitic and sparsely mineralized with traces of pyrite.

Conglomerate units are scattered throughout the sedimentary package and are not only confined to the basal part of the sequence at the MacKeith Fault. The conglomerates are polymictic, with elongated pebbles averaging 3 to 4 cm in diameter sitting in a relatively clean arkosic matrix that is weakly ankeritic. The dominant clast type is whitish grey granitic material with minor cherty, fuchsitic and mafic volcanic clasts. South of the MacKeith Fault, one exposure of conglomerate is noted between the Radio Hill iron formation and the magnetic marker horizon -- an unusual position in the sequence. Its significance is unknown.

The only other unit occurring within the Porcupine Group system is a band of medium to dark green, magnesium-rich (?) tholeiite near the northern extremity of the mapped area. The sequence is fine grained, and is moderate to strongly foliated along the southern contact. Both massive and pillowed units are mapped. The rocks are variably altered with chlorite and calcite plus or minus local amphibole, but are very poorly veined and sparsely to unmineralized. The overall strike of this unit is inferred from a weak magnetic signature. The gentle warp in the trace of the zone is potentially related to a feature parallel to the Sewell-Reeves complex doming -- a phenomenon not incompatible with the complex folding and plunges noted on the Radio Hill iron formation to the south.

E - INTRUSIVE ROCKS

A variety of intrusive rocks are noted in the West Block mapping. The ultramafic intrusives are considered to be the oldest of this group and may be timed with the intrusion of the Sewell-Reeves Complex in northern Penhorwood and Reeves townships.

The ultramafic intrusives are dark green to black, fine to medium grained, magnetic rocks with a brownish weathered surface. A weak calcitic fracture filling is common in the ultramafic but serpentinization on most of the West Block exposures is minimal. Also, the grey-green, fine to medium grained, nonmagnetic amphibolitic rocks previously described east of Jehann Lake are interpreted by Milne (1972) to be part of this intrusive sequence.

Felsic intrusive rocks are represented by assorted narrow dykes of quartz-feldspar and feldspar porphyry along with a small plug (?) of granitic rocks on the east boundary circa 10+00S and a small exposure of granite/granodiorite on the south boundary near line 56E.

The small plug on the east boundary of the claim group is a dirty white, grey-weathering granite. The rock is composed in medium grained equigranular feldspar (60%), milky quartz (25%) and biotite (15%). The unit is nonmagnetic and finely mineralized with trace to 1% disseminated pyrite.

The small exposures of granitic to granodioritic rocks on the south boundary appear to be part of the Kukatush pluton which extends for some distance further south. These exposures are medium to coarse grained with 55 to 60% subhedral pinkish to white feldspar plus or minus quartz, and up to 45% amphibole. The strong amphibole content may be a contact phenomenon since many of the mafic rocks are also amphibolitized in this area.

The youngest intrusives on the claim block are fine to medium grained, north to north-northwest-trending dykes of diabase. The diabases are dark coloured, fresh units with a moderate to strong magnetic signature. Most of the wider dykes are readily noted on the airborne magnetics.

DISCUSSION/CONCLUSIONS:

The rock succession in the West Block is similar to the sequences noted in the Timmins camp. In both areas older calc-alkaline rocks capped by iron formation of the Deloro Group are overlain by komatiitic and tholeiitic volcanics of the Tisdale Group.

On the West Block, the Deloro Group occupies an antiformal structure in the west-central part of the property. Closure of the antiformal structure to the east is indicated along a southeasterly-trending axis (ie. plunges southeast as well) which plots from the southeastern extremity of the Radio Hill iron formation to the far eastern part of the property. Within the iron formation itself, crossfolding and faulting are at play, such that an unexpected northwesterly plunge articulated by Milne (1972) may be related to :

- : crossfolding on a minor scale in an easterly direction

- : faulting

- : crossfolding on a regional scale in a north-northeasterly direction related to intrusion of the Sewell-Reeves Complex.

A combination of the regional crossfolding and faulting is preferred at this point, since the westerly plunge of the iron formation can be accommodated in this fashion and the tholeiitic unit in the Porcupine Group (north of the MacKeith Fault) outlines a sense of warps compatible with crossfolding. The precise location of the antiformal axis within Deloro rocks west of its junction with the MacKeith Fault, however, is in doubt due to complications by faulting.

Most of the Tisdale Group on the West Block is represented by three packages of rocks inducing:

- : a basal altered and foliated sequence of tholeiitic to komatiitic volcanics followed by
- : a sequence of komatiitic volcanics, and
- : an upper series of iron tholeiitic flows.

The upper tholeiitic package has a well defined magnetic signature and serves as a recognizable marker horizon across the property limits. This unit is also interpreted to further outline the fold noted in the Deloro rocks.

Above the magnetic marker horizon komatiitic to tholeiitic volcanics are noted south of the MacKeith Fault and Porcupine Group sediments are indicated northwards. The MacKeith Fault is a regional east-trending feature that is one of several breaks in the West Block and northwards creating fault slices of sedimentary rocks. The Porcupine Group sediments are felt to be deposited some point after the magnetic basalt (marker) and early faulting related to intrusion of the Sewell-Reeves Complex. Conglomerate, greywacke and argillaceous units are found in the Porcupine Group.

The Stratigraphic Table, previously presented, reasonably outlines the current interpretation of the database.

From an exploration stand point, the West Block offers excellent opportunities for economic gold deposits. Surface assays taken thus far, however, have been disappointing and the next step is designed to test some of those geological/geophysical targets by diamond drilling.

Dale R. Alexander

Dale R. Alexander
Senior Exploration Geologist

SELECTED BIBLIOGRAPHY

- Milne, V.G.
1972: Geology of the Kukatush-Sewell Lake area, District of Sudbury; Ontario Div. Mines GR97, 116p. Accompanied by Maps 2230, 2231, scale 1 inch to 1/2 mile.
- Pyke, D.R.
1982: Geology of the Timmins Area, District of Cochrane; Ontario Geological Survey Report 219, 141p. Accompanied by Map 2455, Scale 1:50000, 3 Charts, and 1 Sheet Microfiche.
- Thurston, P.C., Siragusa, G.M., and Sage, R.P.
1977: Geology of the Chapleau Area, Districts of Algoma, Sudbury, and Cochrane; Ontario Div. Mines, GR157, 293p. Accompanied by Maps 2351 and 2352, scale 1:250,000, and Map 2221, Scale 1 inch to 4 miles (1:253,440).
- Assessment files - Resident Geologists Office Timmins.

APPENDIX I

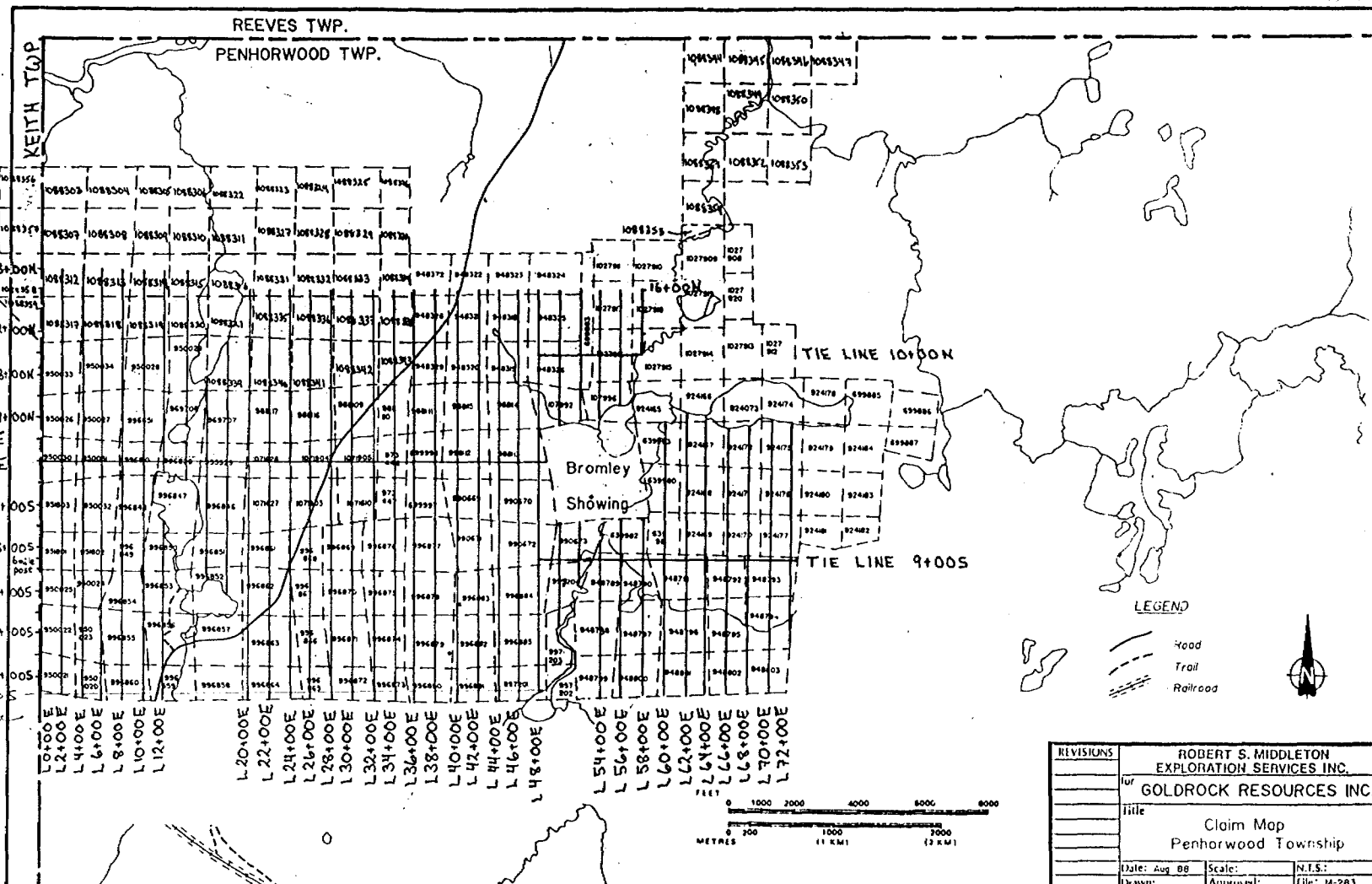
AMERICAN BARRICK EXPLORATION

MINING CLAIMS FOR P-177W

Sewell-Reeves (West)

CLAIM #

639978	948800	996857	1088306
639979	948801	996858	1088307
639980	948802	996859	1088308
639981	948803	996860	1088309
639982	950020	996861	1088310
639983	950021	996862	1088311
699883	950022	996863	1088312
699885	950023	996864	1088313
699886	950024	996865	1088314
699887	950025	996866	1088315
699997	950026	996867	1088316
699998	950027	996868	1088317
924165	950028	996869	1088318
924166	950029	996870	1088319
924167	950030	996871	1088320
924168	950031	996872	1088321
924169	950032	996873	1088322
924170	950033	996874	1088323
924171	950034	996875	1088324
924172	951801	996876	1088325
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924174	951803	996878	1088327
924175	969707	996879	1088328
924176	969708	996880	1088329
924177	973446	996881	1088330
924178	973447	996882	1088331
924179	988109	996883	1088332
924180	988110	996884	1088333
924181	988111	996885	1088334
924182	988112	997201	1088335
924183	988113	997202	1088336
924184	988114	997203	1088337
948318	988115	997204	1088338
948319	988116	1027908	1088339
948320	988117	1027909	1088340
948321	990669	1027910	1088341
948322	990670	1027911	1088342
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948324	990672	1027913	1088344
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948327	996651	1027916	1088347
948328	996809	1027917	1088348
948329	996810	1027918	1088349
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948793	996850	1071628	1088354
948794	996851	1071903	1088355
948795	996852	1071904	1088356
948796	996853	1071905	1088357
948797	996854	1088303	1088358
948798	996855	1088304	1088359
948799	996856	1088305	



BASE LINE
920m NORTH OF THE
6 mile POST
(920 metres)

Tie line

REVISIONS	ROBERT S. MIDDLETON EXPLORATION SERVICES INC.		
	for GOLDROCK RESOURCES INC.		
	title		
	Claim Map Penhorwood Township		
Date: Aug 08	Scale:	N.T.S.	
Drawn:	Approved:	file: M-283	

AMERICAN BARRICK EXPLORATION

Sewell-Reeves Project
West Block

Claims covered by geological survey (20 days)

CLAIM #

639978	948800	996857	1088306
639979	948801	996858	1088307
639980	948802	996859	1088308
639981	948803	996860	1088309
639982	950020	996861	1088310
639983	950021	996862	1088311
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924165	950028	996869	1088318
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924171	950034	996875	1088324
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924180	988110	996884	1088333
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948793	996850	1071628	1088354
948794	996851	1071903	1088355
948795	996852	1071904	1088356
948796	996853	1071905	1088357
948797	996854	1088303	1088358
948798	996855	1088304	1088359
948799	996856	1088305	

AMERICAN BARRICK EXPLORATION

Sewell-Reeves Project
West Block

Claims covered by geological survey (40 days)

CLAIM #

639978	948800	996857	1088306
639979	948801	996858	1088307
639980	948802	996859	1088308
639981	948803	996860	1088309
639982	950020	996861	1088310
639983	950021	996862	1088311
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948322	990670	1027911	1088342
948323	990671	1027912	1088343
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948325	990673	1027914	1088345
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948794	996851	1071903	1088355
948795	996852	1071904	1088356
948796	996853	1071905	1088357
948797	996854	1088303	1088358
948798	996855	1088304	1088359
948799	996856	1088305	

APPENDIX II



Ontario

Ministry of Northern Development and Mines

Geophysical-Geological-Geochemical Technical Data Statement

File _____

TO BE ATTACHED AS AN APPENDIX TO TECHNICAL REPORT
FACTS SHOWN HERE NEED NOT BE REPEATED IN REPORT
TECHNICAL REPORT MUST CONTAIN INTERPRETATION, CONCLUSIONS ETC.

Type of Survey(s) Geological
Township or Area Penhorwood Township
Claim Holder(s) American Barrick Resources Corp.
Box 1203, Kirkland Lake, Ontario P2N 3M7
Survey Company American Barrick Resources Corp.
Author of Report Dale R. Alexander
Address of Author c/o American Barrick, Kirkland Lake
Covering Dates of Survey May 15 to Sept. 8, 1989
Total Miles of Line Cut 131.4 kms

optionee of record

MINING CLAIMS TRAVERSED
List numerically

Table with 2 columns: P. (prefix) and (number). Lists mining claim numbers from 639978 to 948321, with a total of 157 claims.

If space insufficient, attach list

SPECIAL PROVISIONS CREDITS REQUESTED table with columns for Geophysical and Geological methods and DAYS per claim.

AIRBORNE CREDITS (Special provision credits do not apply to airborne surveys)

Magnetometer _____ Electromagnetic _____ Radiometric _____
(enter days per claim)

DATE: Nov. 3/89 SIGNATURE: Dale R. Alexander
Author of Report or Agent

Res. Geol. _____ Qualifications _____

Previous Surveys

Table with 4 columns: File No., Type, Date, Claim Holder. Contains 8 rows for recording previous surveys.

OFFICE USE ONLY

GEOPHYSICAL TECHNICAL DATA

GROUND SURVEYS – If more than one survey, specify data for each type of survey

Number of Stations _____ Number of Readings _____

Station interval _____ Line spacing _____

Profile scale _____

Contour interval _____

MAGNETIC

Instrument _____

Accuracy – Scale constant _____

Diurnal correction method _____

Base Station check-in interval (hours) _____

Base Station location and value _____

ELECTROMAGNETIC

Instrument _____

Coil configuration _____

Coil separation _____

Accuracy _____

Method: Fixed transmitter Shoot back In line Parallel line

Frequency _____
(specify V.L.F. station)

Parameters measured _____

GRAVITY

Instrument _____

Scale constant _____

Corrections made _____

Base station value and location _____

Elevation accuracy _____

**INDUCED POLARIZATION
RESISTIVITY**

Instrument _____

Method Time Domain Frequency Domain

Parameters – On time _____ Frequency _____

– Off time _____ Range _____

– Delay time _____

– Integration time _____

Power _____

Electrode array _____

Electrode spacing _____

Type of electrode _____

SELF POTENTIAL

Instrument _____ Range _____

Survey Method _____

Corrections made _____

RADIOMETRIC

Instrument _____

Values measured _____

Energy windows (levels) _____

Height of instrument _____ Background Count _____

Size of detector _____

Overburden _____

(type, depth - include outcrop map)

OTHERS (SEISMIC, DRILL WELL LOGGING ETC.)

Type of survey _____

Instrument _____

Accuracy _____

Parameters measured _____

Additional information (for understanding results) _____

AIRBORNE SURVEYS

Type of survey(s) _____

Instrument(s) _____

(specify for each type of survey)

Accuracy _____

(specify for each type of survey)

Aircraft used _____

Sensor altitude _____

Navigation and flight path recovery method _____

Aircraft altitude _____ Line Spacing _____

Miles flown over total area _____ Over claims only _____

GEOCHEMICAL SURVEY – PROCEDURE RECORD

Numbers of claims from which samples taken _____

Total Number of Samples _____

Type of Sample _____
(Nature of Material)

Average Sample Weight _____

Method of Collection _____

Soil Horizon Sampled _____

Horizon Development _____

Sample Depth _____

Terrain _____

Drainage Development _____

Estimated Range of Overburden Thickness _____

SAMPLE PREPARATION

(Includes drying, screening, crushing, ashing)

Mesh size of fraction used for analysis _____

General _____

ANALYTICAL METHODS

Values expressed in: per cent
p. p. m.
p. p. b.

Cu, Pb, Zn, Ni, Co, Ag, Mo, As, -(circle)

Others _____

Field Analysis (_____ tests)

Extraction Method _____

Analytical Method _____

Reagents Used _____

Field Laboratory Analysis

No. (_____ tests)

Extraction Method _____

Analytical Method _____

Reagents Used _____

Commercial Laboratory (_____ tests)

Name of Laboratory _____

Extraction Method _____

Analytical Method _____

Reagents Used _____

General _____

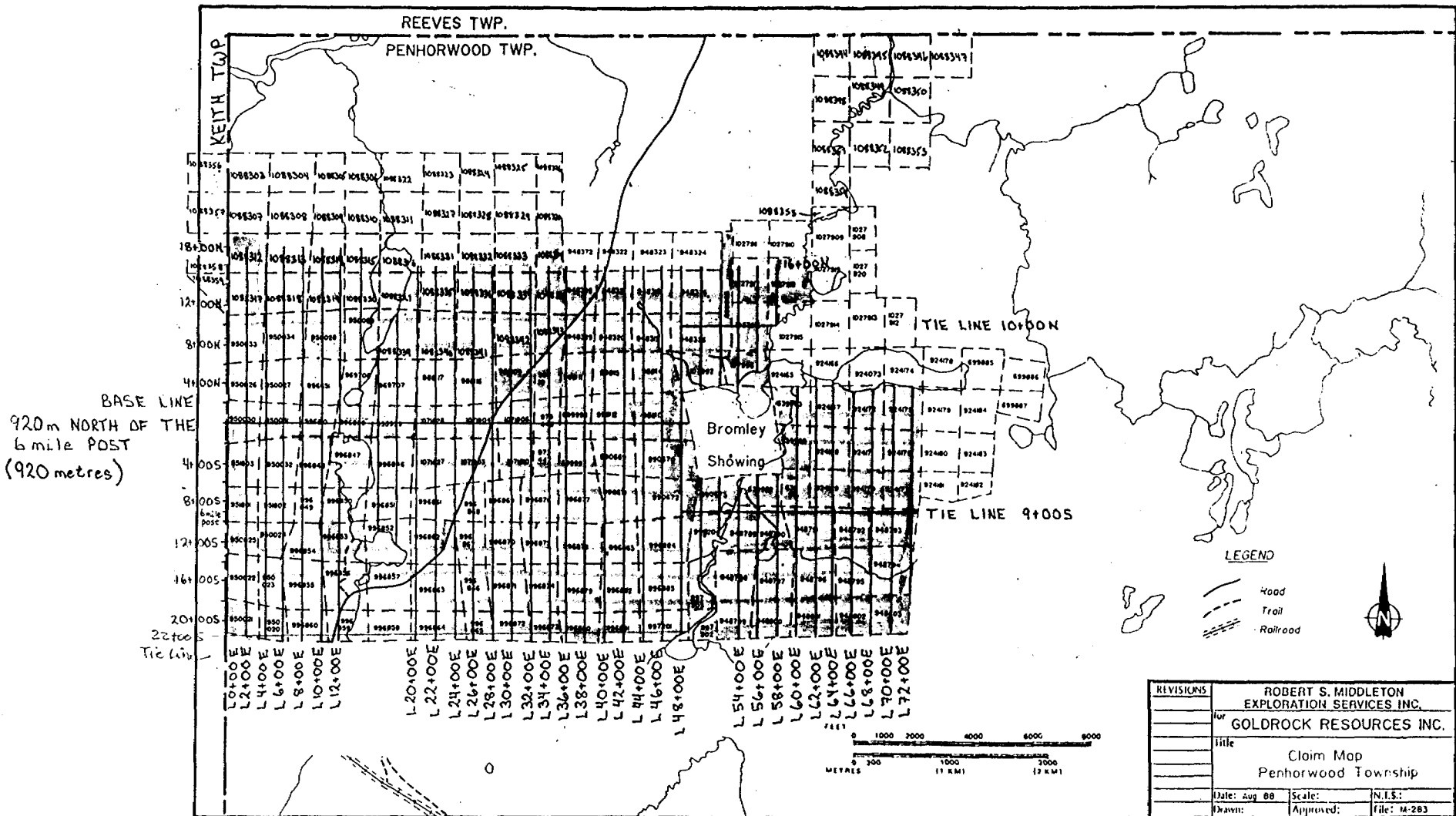
AMERICAN BARRICK EXPLORATION

Sewell-Reeves Project
West Block

Claims covered by geological survey (40 days) cont'd

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	996851	1088318	
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	996853	1088320	
	996854	1088321	
	996855		
	996856		
<u>CLAIM #</u>			
948325			
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948790			
948791			
948792			
948793			
948794			
948795			
948796			
948797			
948798			
948799			

Claims covered by geological survey (20 days)
 Claims covered by geological survey (40 days)





Ontario

Ministry of Northern Development and Mines

Geophysical-Geological-Geochemical Technical Data Statement

File _____

TO BE ATTACHED AS AN APPENDIX TO TECHNICAL REPORT
FACTS SHOWN HERE NEED NOT BE REPEATED IN REPORT
TECHNICAL REPORT MUST CONTAIN INTERPRETATION, CONCLUSIONS ETC.

Type of Survey(s) Geological
Township or Area Penhorwood
Claim Holder(s) American Barrick Resources Corp.
Box 1203, Kirkland Lake, Ontario P2N 3M7
Survey Company American Barrick
Author of Report Dale R. Alexander
Address of Author c/o American Barrick, Kirkland Lake
Covering Dates of Survey July 24 to Sept. 8, 1989
Total Miles of Line Cut n/a

optionee of record

MINING CLAIMS TRAVERSED
List numerically

Table with columns for P. (prefix) and (number), listing mining claim numbers from 699885 to 948327, with a total of 18 claims.

If space insufficient, attach list

SPECIAL PROVISIONS
CREDITS REQUESTED

DAYS per claim

ENTER 40 days (includes line cutting) for first survey.
ENTER 20 days for each additional survey using same grid.

Geophysical
-Electromagnetic
-Magnetometer
-Radiometric
-Other
Geological 20
Geochemical

AIRBORNE CREDITS (Special provision credits do not apply to airborne surveys)

Magnetometer Electromagnetic Radiometric
(enter days per claim)

DATE: Nov. 3/89 SIGNATURE: Dale R. Alexander
Author of Report or Agent

Res. Geol. Qualifications

Previous Surveys

Table with columns for File No., Type, Date, and Claim Holder, containing previous survey data.

OFFICE USE ONLY

TOTAL CLAIMS 18

GEOPHYSICAL TECHNICAL DATA

GROUND SURVEYS – If more than one survey, specify data for each type of survey

Number of Stations _____ Number of Readings _____
Station interval _____ Line spacing _____
Profile scale _____
Contour interval _____

MAGNETIC

Instrument _____
Accuracy – Scale constant _____
Diurnal correction method _____
Base Station check-in interval (hours) _____
Base Station location and value _____

ELECTROMAGNETIC

Instrument _____
Coil configuration _____
Coil separation _____
Accuracy _____
Method: Fixed transmitter Shoot back In line Parallel line
Frequency _____
(specify V.L.F. station)
Parameters measured _____

GRAVITY

Instrument _____
Scale constant _____
Corrections made _____

Base station value and location _____

Elevation accuracy _____

**INDUCED POLARIZATION
RESISTIVITY**

Instrument _____
Method Time Domain Frequency Domain
Parameters – On time _____ Frequency _____
– Off time _____ Range _____
– Delay time _____
– Integration time _____
Power _____
Electrode array _____
Electrode spacing _____
Type of electrode _____

SELF POTENTIAL

Instrument _____ Range _____

Survey Method _____

Corrections made _____

RADIOMETRIC

Instrument _____

Values measured _____

Energy windows (levels) _____

Height of instrument _____ Background Count _____

Size of detector _____

Overburden _____

(type, depth - include outcrop map)

OTHERS (SEISMIC, DRILL WELL LOGGING ETC.)

Type of survey _____

Instrument _____

Accuracy _____

Parameters measured _____

Additional information (for understanding results) _____

AIRBORNE SURVEYS

Type of survey(s) _____

Instrument(s) _____

(specify for each type of survey)

Accuracy _____

(specify for each type of survey)

Aircraft used _____

Sensor altitude _____

Navigation and flight path recovery method _____

Aircraft altitude _____ Line Spacing _____

Miles flown over total area _____ Over claims only _____

GEOCHEMICAL SURVEY - PROCEDURE RECORD

Numbers of claims from which samples taken _____

Total Number of Samples _____

Type of Sample _____
(Nature of Material)

Average Sample Weight _____

Method of Collection _____

Soil Horizon Sampled _____

Horizon Development _____

Sample Depth _____

Terrain _____

Drainage Development _____

Estimated Range of Overburden Thickness _____

SAMPLE PREPARATION

(Includes drying, screening, crushing, ashing)

Mesh size of fraction used for analysis _____

General _____

ANALYTICAL METHODS

Values expressed in: per cent
p. p. m.
p. p. b.

Cu, Pb, Zn, Ni, Co, Ag, Mo, As, -(circle)

Others _____

Field Analysis (_____ tests)

Extraction Method _____

Analytical Method _____

Reagents Used _____

Field Laboratory Analysis

No. (_____ tests)

Extraction Method _____

Analytical Method _____

Reagents Used _____

Commercial Laboratory (_____ tests)

Name of Laboratory _____

Extraction Method _____

Analytical Method _____

Reagents Used _____

General _____



Ontario



42B01NE0087 2.12861 PENHORWOOD

900

Ministry of
Northern Development
and Mines

Ministère du
Développement du Nord
et des Mines

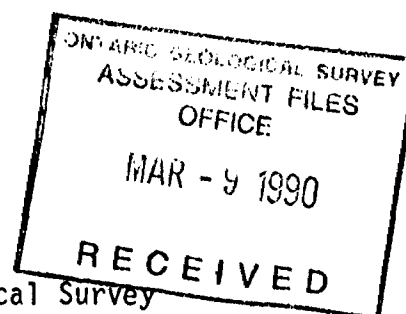
Mining Lands Section
880 Bay Street, 3rd Floor
Toronto, Ontario
M5S 1Z8

Telephone: (416) 965-488

March 4, 1990

Your File: W8906-425,426
Our File: 2.12861

Mining Recorder
Ministry of Northern Development and Mines
60 Wilson Avenue
Timmins, Ontario
P4N 2S7



Dear Sir:

Re: Notice of Intent dated February 2, 1990 for Geological Survey
submitted on Mining Claims P 639978 et al in Penhorwood
Township.

The assessment work credits, as listed with the above-mentioned Notice
Intent have been approved as of the above date.

Please inform the recorded holder of these mining claims and so indicate
on your records.

Yours sincerely,

W.R. Cowan
Provincial Manager, Mining Lands
Mines & Minerals Division

DM DM:pt
Enclosure

cc: Mr. G.H. Ferguson
Mining and Lands Commissioner
Toronto, Ontario

Resident Geologist
Timmins, Ontario

American Barrick Resources Exploration Div.,
Kirkland Lake, Ontario



Recorded Holder AMERICAN BARRICK RESOURCES
Township or Area PENHORWOOD TOWNSHIP

Type of survey and number of Assessment days credit per claim	Mining Claims Assessed
Geophysical	
Electromagnetic _____ days	P 699885 to 887 incl.
Magnetometer _____ days	924165 to 924166
Radiometric _____ days	924179 to 184 incl.
Induced polarization _____ days	948322 to 324 incl.
Other _____ days	948327
Section 77 (19) See "Mining Claims Assessed" column	
Geological <u>20</u> days	
Geochemical _____ days	
Man days <input type="checkbox"/> Airborne <input type="checkbox"/>	
Special provision <input checked="" type="checkbox"/> Ground <input type="checkbox"/>	
<input checked="" type="checkbox"/> Credits have been reduced because of partial coverage of claims.	
<input type="checkbox"/> Credits have been reduced because of corrections to work dates and figures of applicant.	

Special credits under section 77 (16) for the following mining claims

<u>10 days Geological</u> P 924173
<u>5 days Geological</u> P 924174, 924178

No credits have been allowed for the following mining claims

<input type="checkbox"/> not sufficiently covered by the survey	<input type="checkbox"/> insufficient technical data filed
---	--

The Mining Recorder may reduce the above credits if necessary in order that the total number of approved assessment days recorded on each claim does not exceed the maximum allowed as follows: Geophysical - 80; Geological - 40; Geochemical - 40; Section 77(19) - 60.



Recorded Holder
AMERICAN BARRICK RESOURCES

Township or Area
PENHORWOOD TOWNSHIP

Type of survey and number of Assessment days credit per claim	Mining Claims Assessed
Geophysical	
Electromagnetic _____ days	P 639978, 699883 P 1088317 to 319 incl.
Magnetometer _____ days	639980 to 983 incl. 1088331 to 343 incl.
Radiometric _____ days	699997, 699998
Induced polarization _____ days	924167 to 172 incl.
Other _____ days	924175 to 177 incl.
Section 77 (19) See "Mining Claims Assessed" column	948318 to 321 incl.
Geological <u>40</u> days	948325, 948326
Geochemical _____ days	948328, 948329
Man days <input type="checkbox"/> Airborne <input type="checkbox"/>	948789 to 803 incl.
Special provision <input checked="" type="checkbox"/> Ground <input type="checkbox"/>	950020 to 028 incl.
<input checked="" type="checkbox"/> Credits have been reduced because of partial coverage of claims.	950030 to 034 incl.
<input type="checkbox"/> Credits have been reduced because of corrections to work dates and figures of applicant.	951801 to 803 incl.
	969707, 969708
	973446, 973447
	988109 to 117 incl.
	990669 to 673 incl.
	995929, 996651
	996809, 996810, 996846
	996848, 996849, 996851
	996853 to 885 incl.
	997201 to 204 incl.
	1027916 to 918 incl.
	1071610
	1071627, 1071628
	1071903 to 905 incl.
	1088312 to 315 incl.

Special credits under section 77 (16) for the following mining claims

30 days Geological - P 639979, 950029, 996850, 996852, 1088316, 1088320

20 days Geological - P 1088321

10 day Geological - P 996847

No credits have been allowed for the following mining claims

not sufficiently covered by the survey

insufficient technical data filed

The Mining Recorder may reduce the above credits if necessary in order that the total number of approved assessment days recorded on each claim does not exceed the maximum allowed as follows: Geophysical - 80; Geological - 40; Geochemical - 40; Section 77(19) - 60.



Nov 3

Instructions

- Please type or print
- Refer to Section 77, the Mining Act for assessment work requirements and maximum credits allowed per survey type.
- If number of mining claims traversed exceeds space on this form, attach a list.
- Technical Reports and maps in duplicate should be submitted to Mining Lands Section, Mineral Development and Lands Branch.

Report of Work
(Geophysical, Geological and Geochemical Surveys)

Mining Act

Type of Survey(s) **Geology 2.1286** Mining Division **Porcupine** Township or Area **Penhorwood Twp**

Recorded Holder(s) **American Barrick Resources (optionee)** Prospector's Licence No. **T-834**

Address **P.O. Box 1203, Kirkland Lake On. P2N 3M7** Telephone No. **(705) 567-4941**

Survey Company **American Barrick Resources, Exploration Division**

Name and Address of Author (of Geo-Technical Report) **DALE R ALEXANDER % AMERICAN BARRICK** Date of Survey (from & to) **24 07 89 23 08 89**

Credits Requested per Each Claim in Columns at right

Mining Claims Traversed (List in numerical sequence)

Special Provisions	Geophysical	Days per Claim
For first survey: Enter 40 days. (This includes line cutting)	- Electromagnetic - Magnetometer	
For each additional survey: using the same grid: Enter 20 days (for each)	- Other Geological Geochemical	20
Man Days Complete reverse side and enter total(s) here	Geophysical - Electromagnetic - Magnetometer - Other Geological Geochemical	Days per Claim
Airborne Credits Note: Special provisions credits do not apply to Airborne Surveys.	Electromagnetic Magnetometer Other	Days per Claim

Mining Claim		Mining Claim		Mining Claim	
Prefix	Number	Prefix	Number	Prefix	Number
P.	699885	P.	948327		
	699881		10279		
	699887				
	924165				
	924166				
	924173				
	924174				
	924178				
	924179				
	924180				
	924181				
	924182				
	924183				
	924184				
	948322				
	948323				
	948324				

RECORDED
SEP 1 1989

Total miles flown over claim(s) _____

Date **Sept 12/89** Recorded Holder or Agent (Signature) **Dale R Alexander**

Total number of mining claims covered by this report of work. **18**

I hereby certify that I have a personal and intimate knowledge of the facts set forth in this Report of Work, having performed the work or witnessed same during and/or after its completion and annexed report is true.

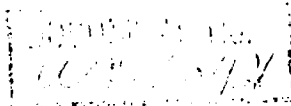
Name and Address of Person Certifying **DALE R ALEXANDER % AMERICAN BARRICK RESOURCES, EXPLORATION**
KIRKLAND LAKE ON. (705) 567-4941

Date **Sept 12/89** Certified By (Signature) **Dale R Alexander**

For Office Use Only

Total Days Cr. Recorded 360	Date Recorded Sept 14 1989	Mining Recorder <i>[Signature]</i>
	Date Approved as Recorded <i>[Signature]</i>	Provincial Manager, Mining Lands <i>[Signature]</i>

RECEIVED
SEP 14 1989
12:10 PM



Instructions

- Please type or print
- Refer to Section 77, the Mining Act for assessment work requirements and maximum credits allowed per survey type
- If number of mining claims traversed exceeds space on this form, attach a list.
- Technical Reports and maps in duplicate should be submitted to Mining Lands Section, Mineral Development and Lands Branch

DALE Nov 3 1989

Mining Act Report of Work (Geophysical, Geological and Geochemical Surveys) **2. 1286!**

Type of Survey(s) GEOLOGY w LINECUTTING	Mining Division Porcupine	Township or Area Penhorwood Twp.
Recorded Holder(s) American Barrick Resources Corp. (optionee)	Prospector's Licence No. T-834	
Address P.O. Box 1203, Kirkland Lake On. P2N 3M7		Telephone No. (705) 567-4941
Survey Company American Barrick Resources, Exploration Division.		
Name and Address of Author (for Geo-Technical Report) Dale R. Alexander American Barrick.		Date of Survey (from & to) From 24 07 89 Day 23 08 89

Credits Requested per Each Claim in Columns at right

Special Provisions	Geophysical	Days per Claim
For first survey: Enter 40 days. (This includes line cutting)	- Electromagnetic - Magnetometer	
For each additional survey: using the same grid: Enter 20 days (for each)	- Other	
	Geological	40
	Geochemical	
Man Days Complete reverse side and enter total(s) here	Geophysical - Electromagnetic - Magnetometer - Other	Days per Claim
	Geological	
	Geochemical	
Airborne Credits Note: Special provisions credits do not apply to Airborne Surveys.	Electromagnetic Magnetometer Other	Days per Claim

Mining Claims Traversed (List in numerical sequence)

Mining Claim		Mining Claim		Mining Claim	
Prefix	Number	Prefix	Number	Prefix	Number
P.	639978	P.	924177	P.	948795
	639979		948318		948796
	639980		948319		948797
	639981		948320		948798
	639982		948321		948799
	639983		948325		948800
	699883		948326		948801
	699997		948328		948802
	699998		948329		948803
	924167		948789		950020
	924168		948790		950021
	924169		948791		950022
	924170		948792		950023
	924171		948793		950024
	924172		948794		950025
	924175				
	924176				

Total miles flown over claim(s).
Date **Sept 12/89** Recorded Holder or Agent (Signature) **Dale R. Alexander**

Total number of mining claims covered by this report of work. **157**

Certification Verifying Report of Work **4pgs she**

I hereby certify that I have a personal and intimate knowledge of the facts set forth in this Report of Work, having performed the work or witnessed same during and after its completion and annexed report is true.

Name and Address of Person Certifying
**DALE R ALEXANDER 90 AMERICAN BARRICK RESOURCES EXPLORATION
KIRKLAND LAKE (705) 567-4941**

Certified By (Signature) **Dale R Alexander**
Date **Sept 12/89**

For Office Use Only

Total Days Cr Recorded	Date Recorded	Mining Recorder	RECEIVED SEP 14 1989	RECORDED SEP 14 1989
	Date Approved as Recorded	Principal Manager Mining Lands		
See revised work statement				



Instructions

- Please type or print.
- Refer to Section 77, the Mining Act for assessment work requirements and maximum credits allowed per survey type.
- If number of mining claims traversed exceeds space on this form, attach a list.
- Technical Reports and maps in duplicate should be submitted to Mining Lands Section, Mineral Development and Lands Branch.

Report of Work **2.12861**
(Geophysical, Geological and Geochemical Surveys)

Mining Act

Type of Survey(s) <i>Geology w linecutting</i>	Mining Division <i>Porcupine</i>	Township or Area <i>Penhorwood Twp.</i>
Recorded Holder(s)	Prospector's Licence No. <i>T-834</i>	
Address		Telephone No.
Survey Company		
Name and Address of Author (of Geo-Technical Report)		Date of Survey (from & to) Day Mo Yr Day Mo Yr

Credits Requested per Each Claim in Columns at right

Mining Claims Traversed (List in numerical sequence)

Special Provisions	Geophysical	Days per Claim
For first survey: Enter 40 days. (This includes line cutting)	- Electromagnetic	
	- Magnetometer	
For each additional survey: using the same grid: Enter 20 days (for each)	- Other	
	Geological	<i>40</i>
	Geochemical	
Man Days	Geophysical	Days per Claim
Complete reverse side and enter total(s) here	- Electromagnetic	
	- Magnetometer	
	- Other	
	Geological	
	Geochemical	
Airborne Credits	Geophysical	Days per Claim
Note: Special provisions credits do not apply to Airborne Surveys.	- Electromagnetic	
	- Magnetometer	
	- Other	
Total miles flown over claim(s).		
Date	Recorded Holder or Agent (Signature)	

Mining Claim		Mining Claim		Mining Claim	
Prefix	Number	Prefix	Number	Prefix	Number
<i>P.</i>	<i>950026</i>	<i>P.</i>	<i>988110</i>	<i>P.</i>	<i>996809</i>
	<i>950027</i>		<i>988111</i>		<i>996810</i>
	<i>950028</i>		<i>988112</i>		<i>996846</i>
	<i>950029</i>		<i>988113</i>		<i>996847</i>
	<i>950030</i>		<i>988114</i>		<i>996848</i>
	<i>950031</i>		<i>988115</i>		<i>996849</i>
	<i>950032</i>		<i>988116</i>		<i>996850</i>
	<i>950033</i>		<i>988117</i>		<i>996851</i>
	<i>950034</i>		<i>990669</i>		<i>996852</i>
	<i>951801</i>		<i>990670</i>		<i>996853</i>
	<i>951802</i>		<i>990671</i>		<i>996854</i>
	<i>951803</i>		<i>990672</i>		<i>996855</i>
	<i>969707</i>		<i>990673</i>		<i>996856</i>
	<i>969708</i>		<i>995929</i>		<i>996857</i>
	<i>973446</i>		<i>996651</i>		<i>996858</i>
	<i>973447</i>				
	<i>988109</i>				
Total number of mining claims covered by this report of work.				<i>157</i>	

Certification Verifying Report of Work

I hereby certify that I have a personal and intimate knowledge of the facts set forth in this Report of Work, having performed the work or witnessed same during and/or after its completion and annexed report is true.

Name and Address of Person Certifying

Telephone No.

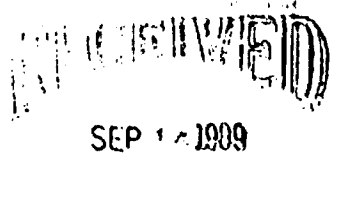
Date

Certified By (Signature)

Received Stamp

For Office Use Only

Total Days Cr. Recorded	Date Recorded	Mining Recorder
<i>See Attached Page 1</i>		
Date Approved by Recorder		





Instructions

- Please type or print.
- Refer to Section 77, the Mining Act for assessment work requirements and maximum credits allowed per survey type.
- If number of mining claims traversed exceeds space on this form, attach a list.
- Technical Reports and maps in duplicate should be submitted to Mining Lands Section, Mineral Development and Lands Branch.

Report of Work **2,12861**
(Geophysical, Geological and Geochemical Surveys)

Type of Survey(s) <i>Geology w linecutting</i>	Mining Division <i>Porcupine</i>	Township or Area <i>Penhorwood Twp.</i>
Recorded Holder(s)	Prospector's Licence No. <i>T-834</i>	
Address	Telephone No.	
Survey Company		
Name and Address of Author (of Geo-Technical Report)		Date of Survey (from & to) Day Mo Yr Day Mo Yr

Credits Requested per Each Claim in Columns at right

Special Provisions	Geophysical	Days per Claim
For first survey: Enter 40 days. (This includes line cutting)	<ul style="list-style-type: none"> Electromagnetic Magnetometer 	
For each additional survey: using the same grid: Enter 20 days (for each)	<ul style="list-style-type: none"> Other 	<i>40</i>
Man Days Complete reverse side and enter total(s) here	Geophysical	Days per Claim
	<ul style="list-style-type: none"> Electromagnetic Magnetometer Other 	
	Geological	
	Geochemical	
Airborne Credits Note: Special provisions credits do not apply to Airborne Surveys.	Electromagnetic	Days per Claim
	Magnetometer	
	Other	
Total miles flown over claim(s).		
Date	Recorded Holder or Agent (Signature)	

Mining Claims Traversed (List in numerical sequence)

Mining Claim		Mining Claim		Mining Claim	
Prefix	Number	Prefix	Number	Prefix	Number
P.	996859	P.	996876	P.	1027917
	996860		996877		1027918
	996861		996878		1071610
	996862		996879		1071627
	996863		996880		1071628
	996864		996881		1071903
	996865		996882		1071904
	996866		996883		1071905
	996867		996884		1088312
	996868		996885		1088313
	996869		997201		1088314
	996870		997202		1088315
	996871		997203		1088316
	996872		997204		1088317
	996873		<i>1027916</i>		1088318
	996874				
	996875				

Total number of mining claims covered by this report of work.

157

Certification Verifying Report of Work

I hereby certify that I have a personal and intimate knowledge of the facts set forth in this Report of Work, having performed the work or witnessed same during and/or after its completion and annexed report is true

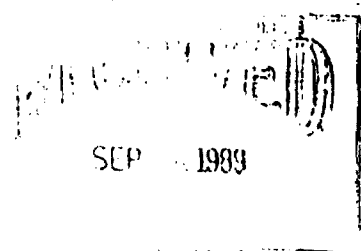
Name and Address of Person Certifying _____

Telephone No. _____ Date _____ Certified By (Signature) _____

For Office Use Only

Total Days Cr. Recorded	Date Recorded	Mining Recorder
<i>See ATTACHED Page 1</i>		

Received Stamp



W. O. Yell

Under Department
 Title to Section 72, the Mining Act for assessment work required that
 not more than 20 claims allowed per survey type.
 If number of mining claims covered exceeds space on this form

Report of Work 2. 12861
 (Geophysical, Geological and Geochemical Surveys)

ing Act

Type of Survey: *Geology w. linecutting*

Recorded Holder(s): *Percepine & Kennerwood Prop.*

Address: _____

Survey Company: _____

Name and Address of Author (of Geo-Technical Report): _____

Date of Survey (from A to): _____

Prospector's License No: *7-834*

Telephone No: _____

Credits Requested per Each Claim in Columns at right

Special Provisions	Geophysical	Days per Claim
For first survey: (Enter 40 days. (This includes line cutting))	- Electromagnetic - Magnetometer - Other	
For each additional survey: using the same grid. (Enter 20 days for each)	Geological Geochemical	<i>40</i>
Man Days Complete rows on side and enter totals here	Geophysical	Days per Claim
	- Electromagnetic - Magnetometer - Other	
	Geological	
	Geochemical	
Airborne Credits Note: Special provisions credits do not apply to Airborne Surveys	Electromagnetic Magnetometer Other	Days per Claim
Total miles flown over claim(s): _____		
Date: _____	Recorded Holder or Agent (Signature): _____	

Mining Claims Have been (List in numerical sequence)

Priority	Number	Priority	Number	Priority	Number
<i>P.</i>	<i>1088319</i>				
	<i>1088320</i>				
	<i>1088321</i>				
	<i>1088331</i>				
	<i>1088332</i>				
	<i>1088333</i>				
	<i>1088334</i>				
	<i>1088335</i>				
	<i>1088336</i>				
	<i>1088337</i>				
	<i>1088338</i>				
	<i>1088339</i>				
	<i>1088340</i>				
	<i>1088341</i>				
	<i>1088342</i>				
	<i>1088343</i>				

Total number of mining claims worked by this tract or lot: *157*

Certification Verifying Report of Work

I hereby certify that I have a personal and intimate knowledge of the facts set forth in this Report of Work, having supervised the work or witnessed same during progress after its completion and annexed report is true.

Name and Address of Person Certifying: _____

Telephone No: _____ Date: _____

Certified By (Signature): _____

For Office Use Only

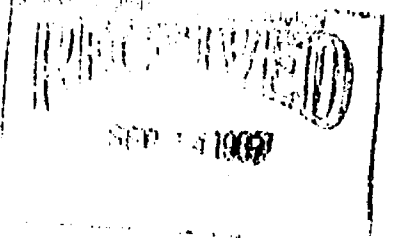
Total Days or Recorded: _____

Date Recorded: _____

Mining Recorder: _____

Date: _____

See attached PAGE 1



BARRICK

AMERICAN BARRICK RESOURCES CORPORATION

2. 12861

November 6, 1989

Mining Lands Section
Mineral Development and Lands Branch
880 Bay Street, Third Floor
Toronto, Ontario
M5S 1Z8

Dear Mr. Musgrove:

Enclosed are duplicate copies of a geological report for assessment covering 175 claims in Penhorwood Township. One copy of the geological maps is coloured while on the second copy only the main marker horizons are highlighted. To avoid cluttering a separate 1:10,000-scale claim map is also enclosed.

The front pages of the Report of Work are also enclosed.

I trust that all is in order but should there be any questions please do not hesitate to call.

Sincerely,



Dale R. Alexander
Senior Exploration Geologist

DRA/ag
Encls.

c.c. Mr. Gary White
Mining Recorder, Timmins



IRON FORMATION

- F1 "UNDIFFERENTIATED IRON FORMATION"
- F2 "SULPHIDE IRON FORMATION"
- F3 "OXIDE IRON FORMATION"
- F4 "CARBONATE IRON FORMATION"

METAMORPHIC ROCKS

- M1 "SCHIST"
- M3 "HYBRID ROCKS"
- M5 "MIGMITE"
- M7 "GNEISS"
- M8 "AMPHIBOLITE"
- M9 "GRANULITE"
- M10 "MYLONITE"
- M11 "QUARTZITE"
- M12 "MARBLE"

SEDIMENTARY ROCKS

- S1 "CONGLOMERATE"
- S2 "ARKOSE"
- S3 "GREYWACKE"
- S4 "ARGILLITE"
- S5 "QUARTZITE"

VOLCANIC ROCKS

- V1 "FELSIC OR INTERMEDIATE VOLCANICS"
- V2 "RHYOLITE"
- V3 "TRACHYTE"
- V4 "DACITE"
- V5 "INTERMEDIATE OR MAFIC VOLCANICS"
- V6 "ANDESITE"
- V7 "BASALT"
- V7M "HIGH MAG BASALT"
- V8 "PYROCLASTIC"
- V9 "TUFF"
- V10 "AGGLOMERATE"
- V13 "ULTRAMAFIC FLOW"

INTRUSIVE ROCKS

- 1A "ALBITITE"
- 1G "GRANITE"
- 1D "GRANODIORITE"
- 1M "MONZONITE"
- 1S "SYENITE"
- 1P "PEGMATITE"
- 1X "APLITE"
- 1Z "GRANOPHYRE"
- 1R "FELSIC INTRUSIVE"

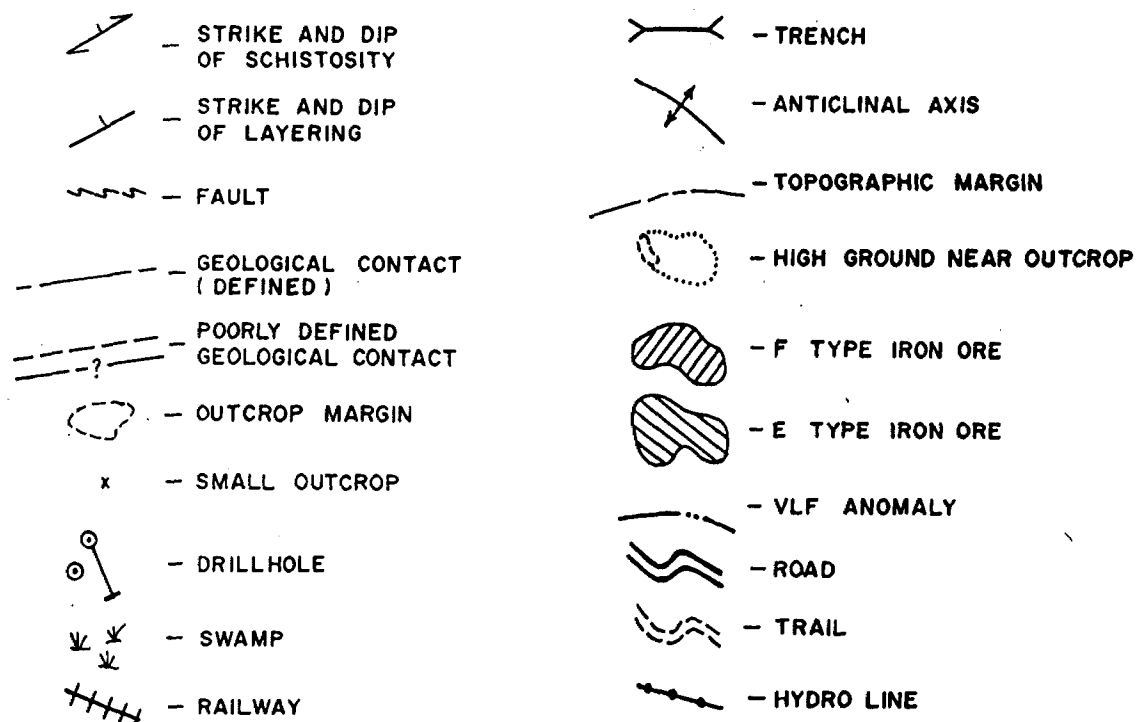
- 2T "QUARTZ DIORITE (TONALITE)"
- 2D "DIORITE"

- 3D "DIABASE"
- 3G "GABBRO"
- 3L "LAMPROPHYRE"
- 3R "ANORTHOSITE"

- 4D "DUNITITE"
- 4H "HORNBLENDITE"
- 4P "PERIDOTITE"
- 4Y "PYROXENITE"
- 4S "SERPENTINITE"
- 4U "ULTRAMAFIC"

MISCELLANEOUS

- FOB "FOLIATED BASALT"
- QV "QUARTZ VEINING"
- CS "chlorite schist"
- FPor "Feldspar Porphyry"
- pd "pillowed"
- bx "breccia"
- alt "altered"
- ank "ankerite"
- ser "sericite"
- chl "chlorite"
- fu "fuchsite"



REFERENCE

AREAS WITHDRAWN FROM DISPOSITION

- M.R.O. - MINING RIGHTS ONLY
- S.R.O. - SURFACE RIGHTS ONLY
- M.+S. - MINING AND SURFACE RIGHTS

Description	Order No.	Date	Disposition	File
400' RESERVE			S.R.O.	135537
SEC 43/70	W.91/72	27/12/72	S.R.O.	163006 V.2
SEC. 36/80		11/7/81	S.R.O.	135537
ORDER OF THE MINISTER #33187 DATED MARCH 30/87 WITHDRAWS MINING AND SURFACE RIGHTS UNDER SECTION 36 OF THE MINING ACT, R.S.O. 1980				

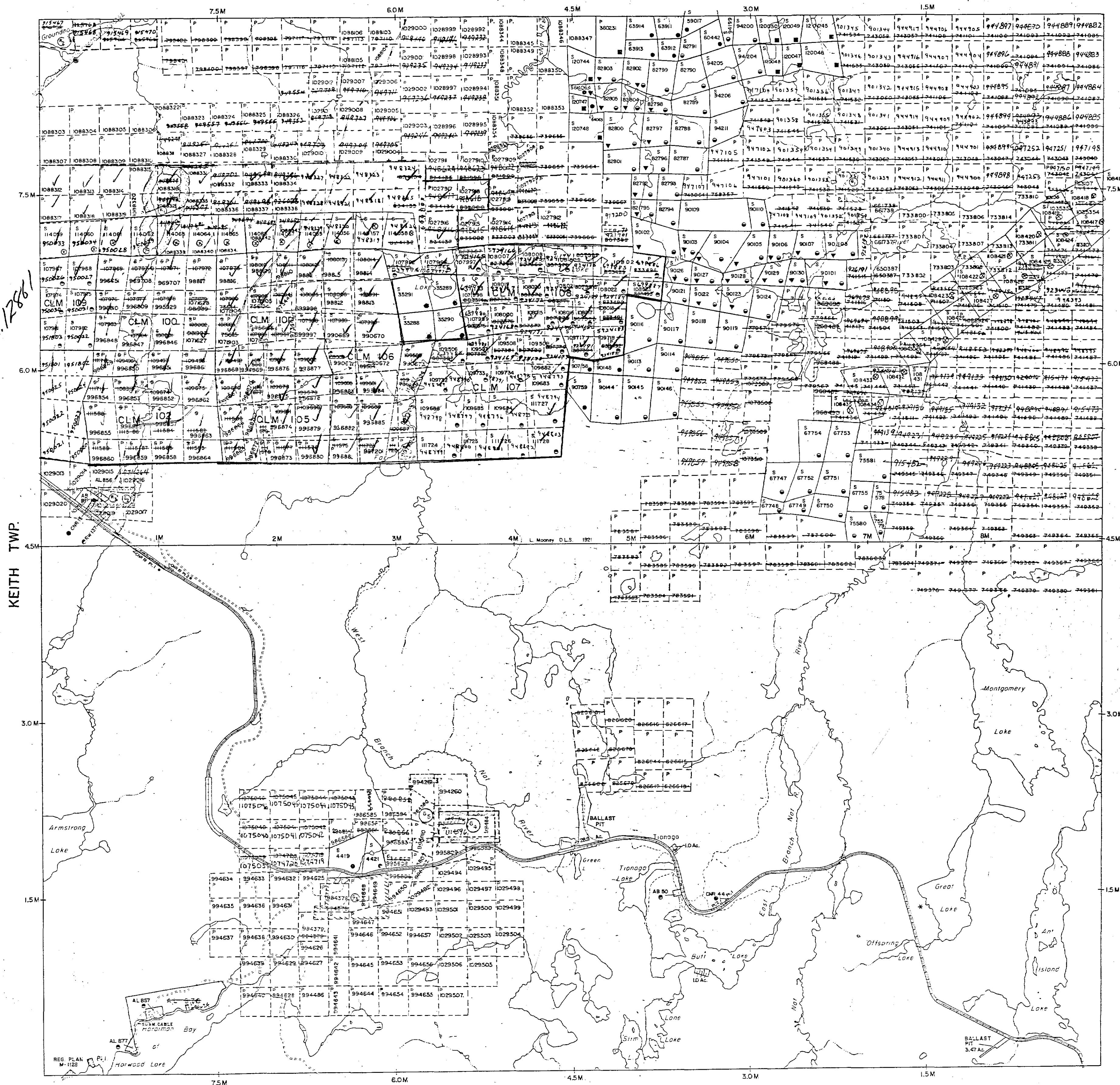
SAND AND GRAVEL

GRAVEL	FILE	38729
GRAVEL PIT	FILE	13555 V.6
GRAVEL	FILE	106274
QUARRY PERMIT # 22805 ISSUED FOR THE REMOVAL OF QUARTZ JULY 1, 1987		
QUARRY PERMIT # 22808 ISSUED FOR THE REMOVAL OF QUARTZ SEPT. 10, 1987.		

NOTES

FLOODING RIGHTS ON HORWOOD LAKE RESERVED TO ONTARIO HYDRO TO CONTOUR ELEVATION 117' L.O. 7746

REEVES TWP.



LEGEND

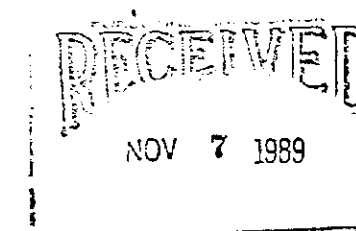
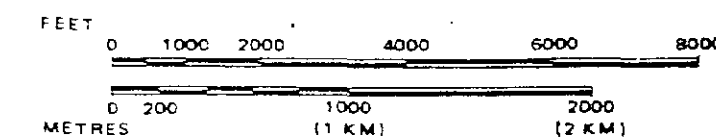
- HIGHWAY AND ROUTE No.
- OTHER ROADS
- TRAILS
- SURVEYED LINES
- TOWNSHIPS, BASE LINES, ETC.
- LOTS, MINING CLAIMS, PARCELS, ETC.
- UNSURVEYED LINES:
 - LOT LINES
 - PARCEL BOUNDARY
 - MINING CLAIMS ETC.
- RAILWAY AND RIGHT OF WAY
- UTILITY LINES
- NON-PERENNIAL STREAM
- FLOODING OR FLOODING RIGHTS
- SUBDIVISION OR COMPOSITE PLAN
- RESERVATIONS
- ORIGINAL SHORELINE
- MARSH OR MUSKEG
- MINES
- TRAVERSE MONUMENT

DISPOSITION OF CROWN LANDS

TYPE OF DOCUMENT	SYMBOL
PATENT, SURFACE & MINING RIGHTS	
" SURFACE RIGHTS ONLY	
" MINING RIGHTS ONLY	
LEASE, SURFACE & MINING RIGHTS	
" SURFACE RIGHTS ONLY	
" MINING RIGHTS ONLY	
LICENCE OF OCCUPATION	
ORDER-IN-COUNCIL	
RESERVATION	
CANCELLED	
SAND & GRAVEL	
LAND USE PERMIT	

NOTE: MINING RIGHTS IN PARCELS PATENTED PRIOR TO MAY 6, 1913, VESTED IN ORIGINAL PATENTEE BY THE PUBLIC LANDS ACT, R.S.O. 1970, CHAP. 380, SEC. 63, SUBSEC. 1.

SCALE: 1 INCH = 40 CHAINS



TOWNSHIP
PENHORWOOD
M.N.R. ADMINISTRATIVE DISTRICT
CHAPLEAU
MINING DIVISION
PORCUPINE
LAND TITLES / REGISTRY DIVISION
SUDBURY

Ministry of Land
Natural Resources Management
Ontario Branch

Date MARCH 1985

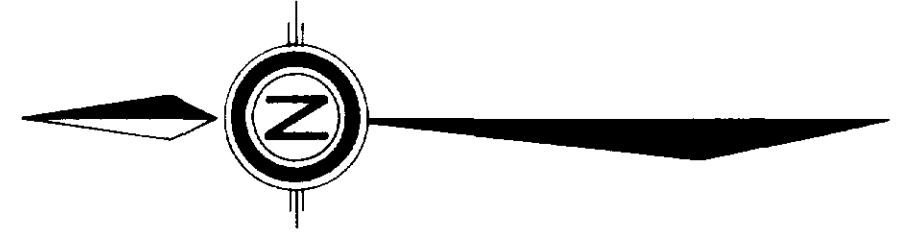
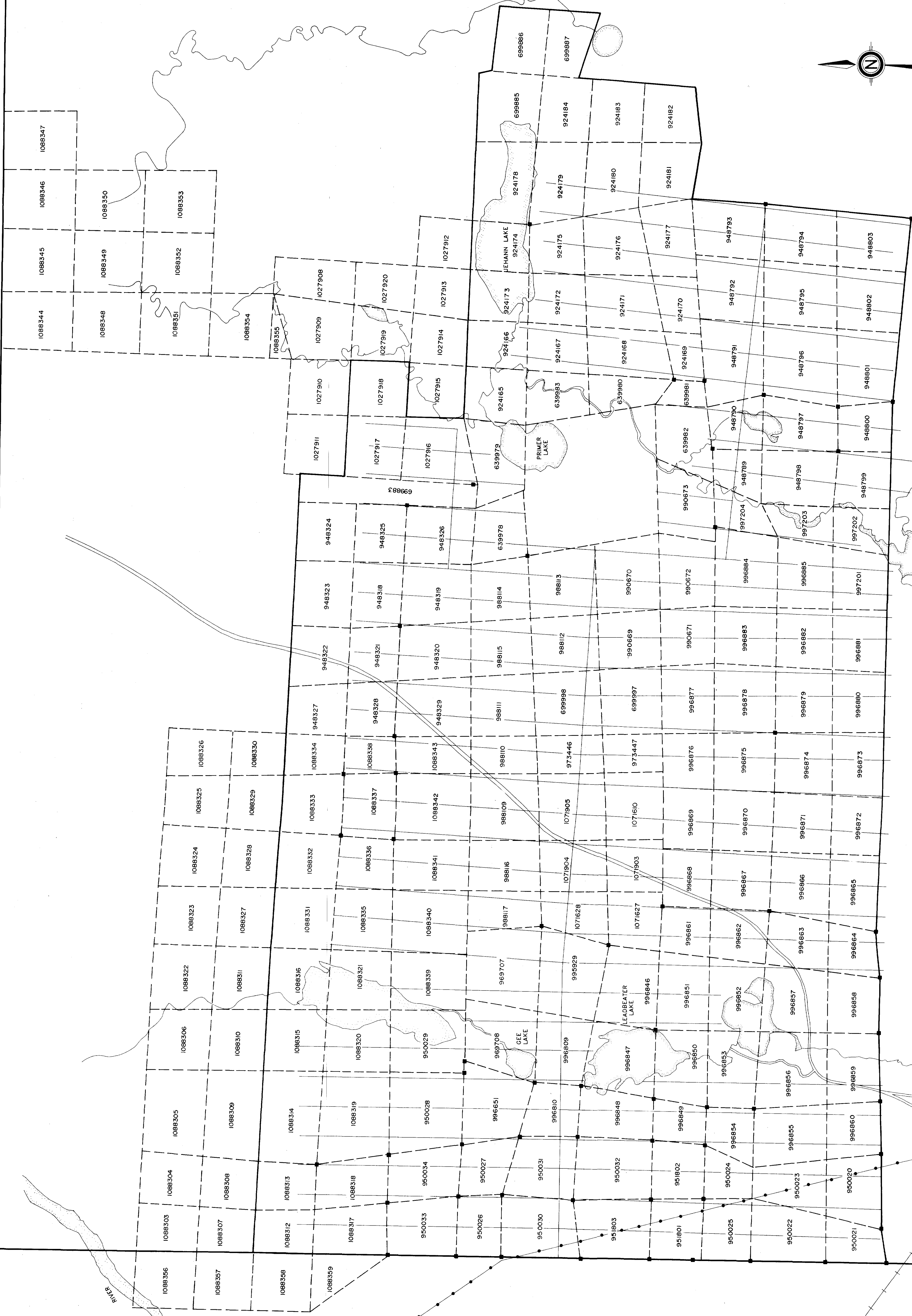
Number

checked June 14/85
P.F. D.D.

G-3244



REEVES TOWNSHIP
PENHORWOOD TOWNSHIP



Dave R. Alexander
AMERICAN BARRICK
RESOURCES CORPORATION

2.12861

AMERICAN BARRICK
RESOURCES CORPORATION
SEWELL-REEVES PROJECT
WEST BLOCK
CLAIM MAP
SCALE 1:10,000

DATE: 10/26/09 DRAWN BY: JPM CHECKED BY: JPM METERS
100 200 300 400 500 600 700 800



