

ARIS SUMMARY SHEET

District Geologist, Kamloops

Off Confidential: 89.04.26

ASSESSMENT REPORT 17631

MINING DIVISION: Osoyoos

PROPERTY: Banbury

LOCATION: LAT 49 21 34 LONG 120 07 29  
UTM 10 5471172 708781  
NTS 092H08E

CAMP: 011 Hedley Camp

CLAIM(S): Maple Leaf (L.43S), Maple Leaf 2 (L.3351S), Daisy (L.44S)  
Daisy 2 (L.3356S), Martin (L.45S), Pine Knot (L.46S), Pine Knot 11-14  
Mike

OPERATOR(S): Noranda Ex.

AUTHOR(S): Sanford, M.R.

REPORT YEAR: 1988, 20 Pages

COMMODITIES

SEARCHED FOR: Gold

GEOLOGICAL

SUMMARY: Triassic diorite intruding Upper Triassic Nicola Group sediments  
and volcanoclastics gives rise to gold-bearing veins and stockwork on  
contact margins.

KEYWORDS: Late Triassic, Nicola Group, Sediments, Volcanoclastics, Diorite  
Quartz veins, Skarn, Gold

DONE: Physical, Geochemical, Drilling  
DIAD 1676.4 m 8 hole(s); NQ  
Map(s) - 1; Scale(s) - 1:1000  
LINE 8.9 km  
SAMP 3593 sample(s); AU  
SOIL 1671 sample(s); AU, AS  
Map(s) - 4; Scale(s) - 1:1000  
TREN 954.0 m 11 trench(es)  
Map(s) - 2; Scale(s) - 1:5000, 1:1000

RELATED

REPORTS: 15601, 16746

MINFILE: 092HSE046

LOG NO 0127 RD 2

ACTION Date received report back from amendments.

FILE NO:

LOG NO 0702 RD.

SECTION:

FILE NO:

SUMMARY REPORT  
 1987 EXPLORATION PROGRAMME  
 ON THE  
 BANBURY-1 GROUP  
 SIMILKAMEEN AND OSOYOOS MINING DIVISIONS  
 HEDLEY AREA, B.C.

FILMED

Owner : Noranda Exploration Company, Limited  
 Banbury Gold Mines Ltd.

Operator : Noranda Exploration Company, Limited

Location : NTS 92H/8E  
 49°21'30"N Latitude: 120°08'00" Longitude

Author : Michael R. Sanford, Geologist

Date : July. 8, 1988

*Part 1 of 2*  
**GEOLOGICAL BRANCH  
 ASSESSMENT REPORT**

17,631

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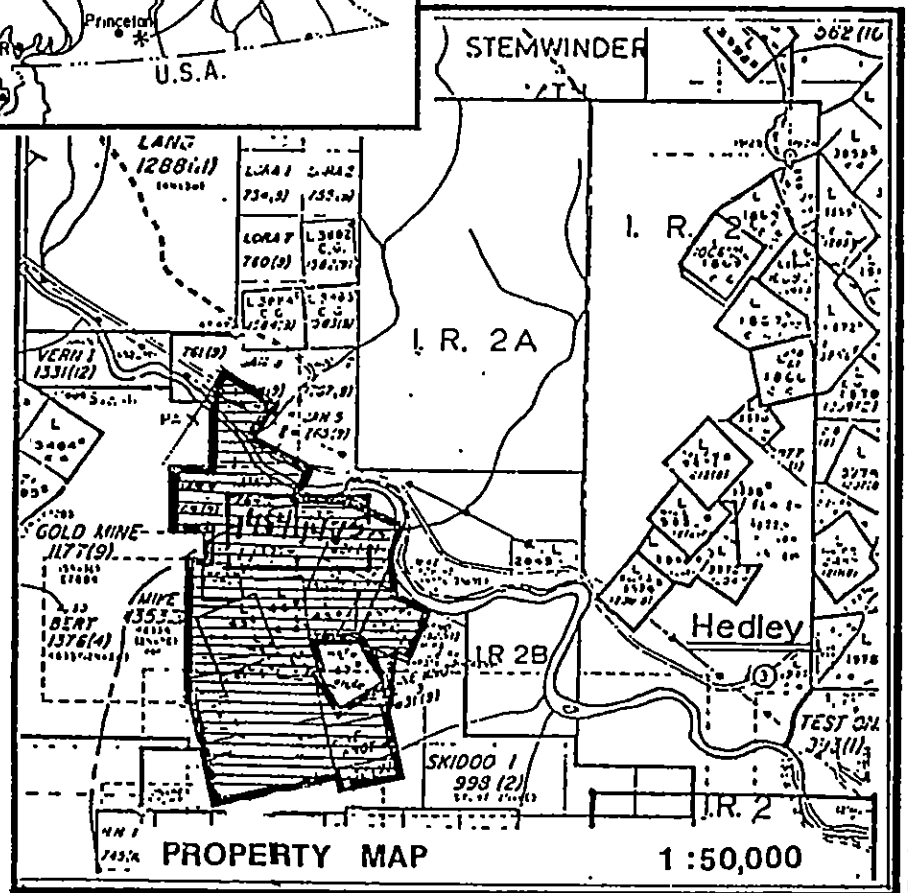
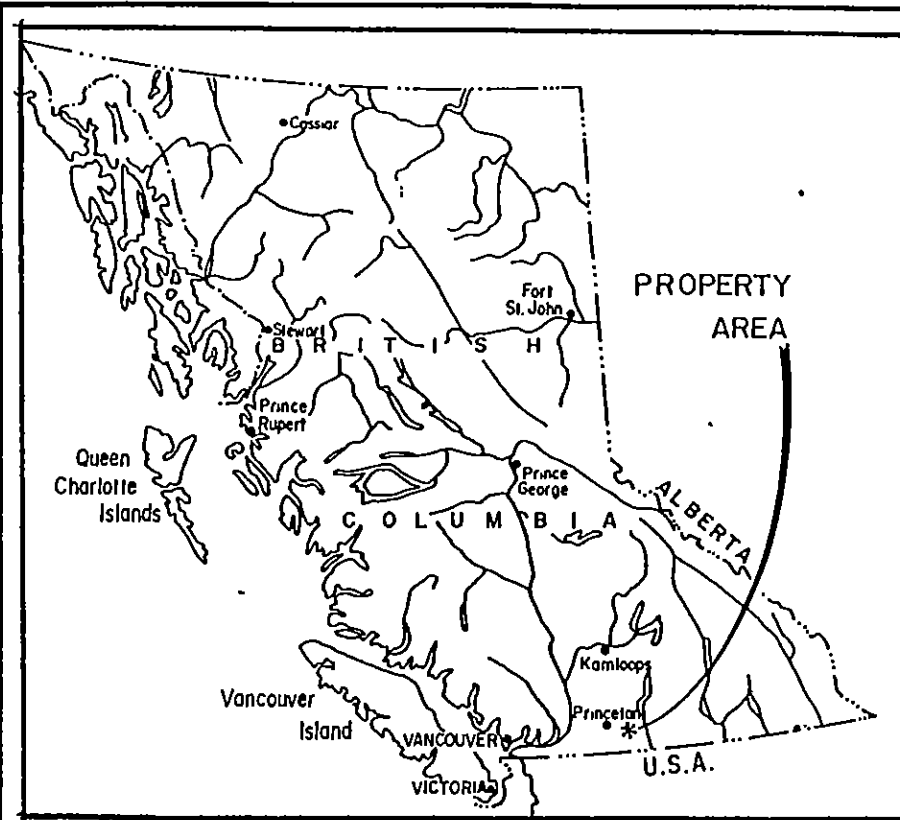
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REVISED	BANBURY PROJECT	
	PROPERTY LOCATION MAPS	
PROJ No 153	SURVEY BY _____	DATE Feb 20/88
N.T.S 22H/RE	DRAWN BY _____	SCALE _____
DWG. No _____	NORANDA EXPLORATION OFFICE _____	

1. INTRODUCTION AND SUMMARY

1.1 The Programme

On the Banbury Property within the Hedley Gold Camp in southern B.C. work was continued in 1987 to further develop a geological understanding and economic mineral potential of the claim group. Exploration on the Banbury project was carried out by Noranda Exploration Company, Limited under the terms of an option agreement signed in 1985 with Banbury Gold Mines Ltd. The programme consisted of grid geochemical sampling, trenching, diamond drilling and extensive assaying of previously unsampled diamond drill hole intervals. The work was conducted between April 1987, and November 1987 with Michael R. Sanford as the project geologist.

1.2 Results

Results of the geochemical, trenching and diamond drilling programme indicated a low-grade gold porphyry deposit near to the north contact of the Banbury diorite stock and helped to tie the results of the 1986 season into an overall conceptual package. The geologic mineral inventory of the North Contact Zone has been estimated at:

86 Zone -  $1.5 \times 10^6$  tonnes of 1.90 grams per tonne gold

87 Zone -  $1.0 \times 10^6$  tonnes of 1.33 grams per tonne gold

These are approximate figures only and are stated solely to reflect the presence of gold mineralization along the north contact of the Banbury Stock as drill hole and sample density is considered insufficient to define grade/tonnage parameters with confidence.

Two veins on the south contact have an indicated mineral inventory (proven, probable, possible) of:

160,000 tonnes grading 11 grams per tonne gold.

The trenching programme revealed a gold bearing vein from 1.0m to 1.5 m wide, 500m east of the Maple Leaf Vein, over a strike length of 40m, and grading from 2.7 to 3.9 gmt gold. The vein is open on strike both to the north and the south.

The diamond drilling programme also revealed a major vein structure which appears to be parallel and roughly 200m east of the Pine Knot Vein, grading 3.3 gmt over 2.9 metres.

1.3 Summary of Work Performed:

- 1. Grid Establishment - 8.9 km flagged line on 28 lines  
Station spacing: 8.3 or 16.7 metres
- 2. Soils Geochem Survey - 701 samples taken and analyzed plus an additional 970 samples analyzed. Tested for Au, As, Cu, Pb, Zn.

3. Trenching - 954 metres backhoe trench in 11 trenches dug and washed to bedrock.  
244 samples taken and assayed for Au.
4. Diamond Drilling - 1676.4 metres NQ core drilled in 8 holes.  
1184 samples split and assayed for Au.
5. Assaying of Old Diamond Drill Core
  - Pre - 1986: - 1089 samples split and assayed for Au.
  - 1986: - 1076 samples split and assayed for Au.

## 2. PROPERTY

### 2.1 Claims & Ownership

Currently there are 36 claims comprised of 77 units in the Banbury -1 claim group. There are 6 crown grants, 26 two-post claims, and 4 modified grid claims covering roughly 2150 hectares. They are owned by Banbury Gold Mines Ltd., and Noranda Exploration Company, Limited.

1987 exploration was limited to the six crown grants-Maple Leaf L43S, Daisy L44S, Martin L45S, Pine Knot L46S, Maple Leaf 2 L3351S, and Daisy 2 L3356S, as well as the Pine Knot 11-14 claims, record nos. 9112-9115, and the Mike Claim, record no. 1353.

### 2.2 Location

The Banbury property is located immediately south of the Similkameen River 4 km west of Hedley. The centre of the property is located at 49°21'30"N Latitude - 120°08'00"W Longitude

### 2.3 Access

The base camp is easily accessible via the old railway grade on the south side of the Similkameen River which joins the No. 3 Highway 7 km west of Hedley. A network of 4-wheel drive cat roads leads up from the base camp to access the drilling, and underground workings.

The southern part of the claim group is serviced by the John's Creek logging roads, which join the No. 3 Highway 7.5 km west of Hedley.

The base camp has an office trailer, a house trailer, a wash trailer, a shop, a lab, and storage buildings.

### 2.4 Physiography

The claim group occupies the south face of the Similkameen River valley and extends south onto the rolling uplands of the southern margins of the Thompson Plateau. Henri Creek runs in a northerly

direction through the property to join with the Similkameen River, and forms a prominent valley of its own. The slopes are all extremely steep and approach the maximum angle of repose except locally and south of the Similkameen River valley edge. Bluffs line the valley to the east and west of Henri Creek.

Elevations range from 540m at river level to 1460m at the south end of the property. The main Pine Knot workings are at 700m to 780m.

Forest cover is moderate with fir up to 50 cm diameter predominating over pine and spruce. Between the trees is generally open and grassy.

Water is provided by Henri Creek and has proven to be adequate for diamond drilling and mining operations.

### 3. HISTORY

#### 3.1 Regional History

The Similkameen River has been known as a source of placer gold since the mid-eighteen-hundreds, with significant production occurring until 1890.

Major quantities of lode gold were discovered on Nickel Plate Mountain above Hedley in the 1890's and was mined more or less continuously until 1955. Other significant gold occurrences have been widely distributed in the Hedley area and include the French Mine, Canty Mine, Good Hope Mine, Amalgamated Mine as well as at Banbury Gold Mine. A large number of minor gold showings have been discovered throughout the region.

Approximately fifty-three million grams of gold have been won from the various ore bodies, with the majority of that being from the Nickel Plate and Mascot Mines.

The region has been mapped at a reconnaissance scale several times since the discovery of gold. Camsell in 1910, Bostock in the 1930's and more recently Ray have worked out the regional sedimentary, intrusive, and metamorphic assemblages in the area.

The area has recently been under intense scrutiny with the re-opening of Mascot Mines as an open pit operation. Current open pit reserves total 8.9 million tonnes grading 4.56 grams per tonne gold.

#### 3.2 Property History

Lode gold in veins was discovered by prospectors in the 1890's on the Banbury claims and the property was dubbed Gold Mountain. Exploration activities in the form of prospecting, hand-dug trenches



and pits and small underground workings led to the eventual production of ore from the Maple Leaf Mine in 1937. This was short-lived, however, and from the early 1940's until 1979 the property sat idle.

In 1979 exploration activities were renewed by Banbury Gold Mines Ltd. and by 1983 some 160,000 tonnes of gold ore grading 11 grams per metric tonne had been indicated in the Pine Knot and Maple Leaf Veins by diamond drilling and underground development.

In 1985 Noranda Exploration Company signed an option agreement with Banbury Gold Mines and have managed the property since that date. Diamond drilling soils geochem anomalies in 1986 led to the discovery of a low grade auriferous zone within a diorite intrusive exhibiting visible gold. Subsequent diamond drilling and trenching in 1987 has led to the discovery of a similar zone.

Although exploration is far from complete in these zones, the results indicate 3.6 million tons of rock averaging 1.57 grams per tonne of gold.

#### 4. GEOLOGY

##### 4.1 Regional Geology:

Several generations of regional scale mapping have occurred in the Hedley area. Camsell in 1910, Bostock in the 1930's and Ray in the 1980's have all added to the understanding of the geology and mineral deposits of the district.

Gerry Ray of the Ministry of Energy, Mines and Petroleum Resources, has just completed an extensive three-year mapping project on the Hedley area and has produced a geological map at the scale of 1:20,000. The regional geology is fairly complex, but can be summarized in general terms. The Upper Triassic Nicola Group back-arc basin sediments and volcanosediments have been invaded by several intrusive stages with local concomitant metamorphism and have undergone at least two major structural phases. These form the major gold ore controls in the region, combining to produce a variety of geological environments that host skarn, vein, and porphyry-type deposits.

The country rocks have been broken down by Ray into three major sequences known as the Peachland Creek formation, the Hedley Sequence, and the Whistle Creek Sequence. The Peachland Creek formation is the basal unit of the Nicola Group and is only present north of the Similkameen River.

The Hedley Sequence is 100 to 700m thick in which three east to west facies changes have been identified by Ray as follows:

"The easternmost and most proximal facies, informally called the French Mine formation, has a maximum thickness of 150 metres and comprises massive to bedded limestone interlayered with thinner units of calcareous siltstone, chert-pebble conglomerate, tuff, limestone-boulder conglomerate and limestone breccia. The formation hosts the auriferous skarn mineralization at the French and Goodhope Mines.

The Hedley formation, further west, "hosts the gold-bearing skarn at the Nickel Plate mine. The Hedley formation is 400 to 500 metres thick and characterized by thinly bedded, turbiditic calcareous siltstone and units of pure to gritty, massive to bedded limestone that reach 75 metres in thickness and several kilometres in strike length. The formation also includes lesser amounts of argillite, conglomerate and bedded tuff: locally the lowermost portion includes minor chert-pebble conglomerate.

The Stenwinder formation, "the westernmost, more distal facies...is at least 700m thick and characterized by a monotonous sequence of black, organic-rich, thinly bedded calcareous argillite and turbiditic siltstone, minor amounts of siliceous fine-grained tuff and dark impure limestone beds that seldom exceed 3 metres in thickness.

The Whistle Creek Sequence overlies the Hedley Sequence. It is comprised of a basal unit, called the Copperfield conglomerate, and the Whistle Creek formation. These are described by Ray as follows:

The Copperfield conglomerate is "a limestone-boulder conglomerate that forms the most distinctive and important stratigraphic marker horizon in the district. The conglomerate is well developed west of Hedley where it forms a northerly trending, steeply dipping unit that is traceable for over 15 kilometres along strike. The same conglomerate outcrops in small areas within up-faulted slices along Pettigrew creek to the south, and as outliers near Nickel Plate and Lookout Mountains to the east.

"It locally reaches 200 metres in thickness but is often less than 10 metres wide. It varies from clast to matrix-supported and is characterized by abundant, well-rounded to angular pebbles, cobbles and boulders of limestone, generally up to 1 metre in diameter. Rare limestone blocks up to 15 metres in diameter are locally present, usually at the base of the unit.

"The Copperfield conglomerate is interpreted to be an olistostrome, presumably derived from an upslope source to the east. Locally, the larger limestone blocks were autobrecciated during their catastrophic downslope movement

"and some large siltstone clasts exhibit soft-sediment deformation structures, suggesting they were unconsolidated when incorporated into the conglomerate.

The Whistle Creek formation "is 700 to 1200 metres thick and distinguishable from the underlying rocks by general lack of limestones and a predominance of andesitic volcanoclastic material. Its lower portion contains tuffaceous, often turbiditic siltstone and rare argillite, but the upper part of the succession is characterized by bedded to massive crystal ash and lapilli tuff with minor volcanic breccia."

There are two main plutonic suites that invade the Nicola country rocks. These are the early Jurassic Hedley intrusions and the somewhat later early Jurassic granodiorite-quartz monzonite intrusions.

The Hedley intrusions are the oldest known in the region. They are economically important and are the source of the gold mineralization in the Hedley camp. They are variable in both composition and texture. The Hedley intrusions generally form elongate stocks up to 3 km long on sill-dyke swarms with the sills and dykes being from 10cm to 200m thick.

"The sills and dykes are coarse grained and massive diorites and quartz diorites with minor gabbro, while the stocks range from gabbro through granodiorite to quartz monzonite. Many of the sills and dykes are porphyritic and characterized by coarse phenocrysts of hornblende and zoned plagioclase. When unaltered they are dark coloured, commonly contain minor disseminations of pyrite and pyrrhotite and are often rusty weathering".

(Ray)

The Hedley intrusives are genetically related to the skarn development in the Nicola rocks.

The granodiorite-quartz monzonite intrusions generally form large batholithic bodies and major apophyses that are coarse-grained and massive in nature.

Regional structure is described by Ray as follows:

"Following lithification of the Nicola Group rocks, two distinct phases of folding took place but the relative age of these phases is uncertain. One phase resulted in a major, north-northeasterly striking, easterly over-tuned asymmetric anticline which is the dominant structure in the district. The axial plane of the fold dips steeply west, the axis runs subparallel to Cahill Creek, and the core of the anticline is occupied by both the

"Cahill Creek pluton and rocks of the Peachland Creek formation. A related, but poorly developed, northerly striking axial planar cleavage is present in some argillites and the axes of smaller scale folds related to this deformation dip gently north and south.

The asymmetric anticlinal folding was accompanied by the development of several high-angle, easterly directed northerly striking reverse faults. The largest of these faults makes up the Cahill Creek fracture zone which runs subparallel to both Cahill Creek and the axial plane of the major antiform. Along the Cahill Creek fracture zone, rocks of the Peachland Creek formation were upthrown eastwards against overturned, easterly younging Whistle Creek formation; this suggests an overall vertical movement of at least 400 to 500 metres (the estimated thickness of the Hedley formation at this location). Further west, a similar westerly dipping fracture, the northerly trending Bradshaw fault, is related to a major monoclinial flexure in the sedimentary rocks. Along the Bradshaw fault, steeply dipping rocks of the Stemwinder Mountain formation are upthrown against the gently dipping Hedley formation to the east.

The other phase of folding recognized in the district is economically important as it took place during the emplacement of the Hedley intrusions and partly controlled the late-magmatic auriferous skarn mineralization. It produced the small-scale northwesterly striking, gently plunging fold structures that are an ore control at the Nickel Plate Mine as well as a series of westerly to northwesterly trending fractures. Although there was little movement along these fractures, they did control the emplacement of the Hedley intrusive dykes and the elongate Banbury, Stemwinder and Toronto stocks".

#### 4.2 Property Geology:

The Banbury property lies on the contact between the Hedley Sequence and the Whistle Creek Sequence. These units strike north-south, are steeply dipping, and young to the west. A Hedley intrusion known as the Banbury Stock cuts through all stratigraphic units. Many small dykes invade the country rocks and represent at least two generations. Two major phases of deformation are recognized. A more comprehensive description of the geology follows:

##### 4.2a STRATIGRAPHIC UNITS

The oldest rocks on the property are the Stemwinder formation. These are found on the eastern part of the property both east and west of Henri Creek. They are thinly bedded generally calcareous argillites, siltstones, and impure limestone interbedded with black pyritiferous to non-pyritiferous fine organic argillites.

Stratigraphically overlying these is the Copperfield conglomerate. It is up to 350m wide on the Banbury property, representing the thickest development of the unit in the region. Locally, and predominantly near the bottom contact, it contains blocks of argillite and limestone from 10 m to 50m across. As expected texture and composition vary widely in both clasts and matrix. The clasts are generally light grey, coarse grained, fossiliferous limestone, argillite, and chert from pebble to boulder size and larger. The matrix is limy to non-calcareous, black to buff. The rock is variously matrix and clast supported. Generally the top contact is characterized by a layer or layers of chert pebble conglomerate.

Conformably sitting on top of the Copperfield conglomerate is the Whistle Creek formation. This has been mapped on the Banbury property as a series of discrete units from 10m to 200m wide. They are generally fine to medium-grained rhyolitic to andesitic tuffs with a small clastic fraction. Except for several thin limestone lenses they are non-calcareous.

#### 4.2b INTRUSIVE UNITS

Cross-cutting all members of the stratigraphic sequence is the Banbury Stock. It is 1500m long, 400 m across at its widest and is elongate in a northeast-southwest orientation. It is composed of two phases: a hornblende diorite nearing gabbroic composition lies along its southern margin and comprises 50 per cent of its area; and a quartz diorite lies along its northern margin. Contacts with the country rocks and between the two phases are highly irregular.

The hornblende diorite phase is medium to coarse-grained, dark green and commonly has 1-3% finely disseminated pyrrhotite and pyrite. Locally, it contains up to 5% magnetite. Fine carbonate and quartz stringers are fairly common, but of economic interest are the larger veins that it has given rise to, namely the Pine Knot and Maple Leaf Veins, and two veins east and west of these discovered in last year's trenching and drilling programmes. The veins extend from the edge of the hornblende diorite into the Nicola country rocks that are contacted to the south.

The quartz diorite phase is generally medium to fine-grained, light grey, with very minor disseminated pyrite and pyrrhotite. Of economic interest are the zones of low grade carbonate-quartz stockwork and very low grade alteration that hosts gold mineralization.

Porphyritic diorite of the Hedley intrusions form dykes up to 20m wide, and fine dyke and sill swarms within 300m of the stock margins. These are green to purple in colour, are coarsely porphyritic or slightly porphyritic with a fine-grained ground mass, and have from 2-3% disseminated pyrrhotite. Their economic significance is not clear, but in places they are spatially related to gold mineralization. Perhaps they occupy zones of migration of gold enriched fluids emanating from the diorite stock, and may be in part responsible for creating these zones. Field relationships have indicated that these dykes are of roughly the same age as the diorite.

Three other types of intrusives are found on the property. These all form fairly narrow dykes. Felsic dykes have a hard, very fine grained light groundmass, up to 3% pyrrhotite, and are up to 10m wide. Feldspar porphyry dykes are grey, have roughly 20% medium grained feldspar phenocrysts, and, are up to 3m wide. Green andesite and spotted andesite dykes are up to 5m wide with extensive strike lengths. All three are thought to be related to the large granodiorite quartz monzonite intrusions widespread in the region.

#### 4.2c ALTERATION

Regionally the Nicola Group rocks are weakly to moderately hornfelsed, and rarely a slaty cleavage is developed in the argillites.

The Banbury Stock has produced a weak contact metamorphic aureole. It extends from 30m to 70m from the contact and is characterized by a general silicification or alteration to buff coloured marble. Thin garnet pyroxene skarn beds and pockets have been developed locally along the contact, and are always within 15m of it.

Minor sericite accompanies the auriferous veins and stockwork.

#### 4.2d STRUCTURAL GEOLOGY

Two main phases of folding, with accompanying faulting are recognized on the Banbury claims.

The first is related to the dominant structure in the district, the major north-northeasterly striking easterly overturned asymmetric anticline that controls the geology of the region. The sediments in the core of the fold exhibit considerable deformation, and on the south side of the Similkameen River are folded and faulted along this north-northeast axis. The Henri Creek fault is steeply dipping to the east, and is probably related to a major monoclinial flexure of the western limb of the anticline. Here the bedding dips steeply to moderately east while the top of the stratigraphic pile is to the west. Besides the Henri Creek Fault, several other structures are products of this deformational axis, including shear zones occupied by gold veins, including the Pine Knot and Maple Leaf Veins, the north-northeasterly running air photo lineament/fault, and Hedley diorite dykes with accompanying gold geochem anomalies to the east of Henri Creek.

The second phase of folding occurs along a west northwesterly axis. A series of steeply north-northwesterly plunging open anticlines extend north and south of the Banbury Stock on the west side of Henri Creek, but do not appear in the sediments east of the creek. The synclines form sharp cusps that are sheared and faulted and are occupied by steep gullies. The northernmost synclinal axial plane has controlled the emplacement of the Banbury Stock. The wavelength of these folds, two to three hundred metres, is similar to that of

the crumples on Nickel Plate Mountain which have been shown to be important structural ore controls. The folding has affected the Copperfield conglomerate and the Whistle Creek formation as well as the Stemwinder formation sediments. Other features are products of this phase of deformation including a felsite dyke occupying a syncline, the west-northwesterly running air photo lineament/fault along the northern diorite contact, and the gold geochem anomaly on the south part of the property.

#### 4.2e GEOLOGICAL HISTORY

The presumed history of geological events that transpired on the Banbury property are as follows:

- 1) Deposition of the Stemwinder formation, the moderately deep ocean basin facies of late Triassic age.
- 2) Subsidence of basin and/or collapse of the westerly basin margin, giving rise to the gravity slide Copperfield conglomerate.
- 3) Initiation of Nicola Arc volcanism and subsequent widespread deposition of the volcanoclastic Whistle Creek formation.
- 4) Crumpling and accompanying minor faulting along the west-northwest axis.
- 5) Major folding along the north-northeast axis. The Henri Creek structure cuts off all of the crumples to the east, seeming to indicate that the major phase of folding and accompanying faulting dislocated and removed the crumples along the fault. However, reactivation of the fault during later tectonism may have done the same thing.
- 6) Emplacement of the Banbury Stock along one of the north-northeasterly fractures, and the Hedley diorite dykes into partings and structural weaknesses in the deformed sediments, and subsequent alteration and metamorphism.
- 7) Emplacement of gold bearing veins and stockwork at the margins and within the Banbury Stock.
- 8) Intrusion of felsite, feldspar porphyry, and andesitic dykes.
- 9) Tectonic remobilization along faults and the creation of new parallel faults to the two major deformational axes.

#### 4.2f ECONOMIC GEOLOGY

High level tension-fracture gold-bearing quartz-carbonate vein systems either within the diorite or at its margins characterize the deposits on the Banbury property. Along the southern contact, and emanating from the dark hornblende diorite phase are a number of discrete quartz-carbonate veins from 20cm to 4m wide. They cut both the diorite and the sediments, but seem to have higher grades in an envelope with 30m to 100m from the contact, the thermal and chemical environment being optimal here. The veins are found in the Hedley and Whistle Creek formations. They have 10 to 20 per cent sulphides, mainly arsenopyrite and pyrite, with lesser amounts of pyrrhotite and sphalerite, and minor amounts of chalcopyrite and galena. All reserves are within the Pine Knot and Maple Leaf Veins. Four other veins are known, but remain unassessed. These include the Mike Vein, the Musical Ride Vein, each 40cm wide and of unknown strike length, the vein cut by trenching in the 1987 programme, and the so-called 87-Vein cut by the extension of diamond drill hole NB 86-4 drilled in 1987.

The northern contact region is characterized by low intensity gold bearing quartz-carbonate stockwork within the quartz diorite. It is randomly oriented, but controlled by the contact and major fractures. The gold is generally coarse, often visible, and highly erratic.

Diamond drilling in 1987 has led to the discovery of a previously unknown auriferous gold porphyry. It is low grade and near surface. Results from this programme have been used to interpret data from a similar zone discovered by diamond drilling in 1986.

The geologic mineral inventory indicated in these zones total 3.61 million tonnes of rock averaging 1.57 grams per tonne of gold. This mineral inventory is contained in two zones that lie mainly within the quartz diorite stock, and adjacent to the north contact as follows:

- i) 87 ZONE: 2.08 million tonnes at 1.33 grams per tonne.
- ii) 86 ZONE: 1.53 million tonnes at 1.90 grams per tonne.

The 87 ZONE is based on five drill holes, NB 87-13,14,16,17, and 18, and is contained within a roughly tabular body within the quartz diorite. It has rough dimensions of 185 metres along strike, 150 metres of dip length, and 30 metres of thickness. It is subparallel to the diorite-sediment contact. The sub-vertical footwall lies within 40 metres to 90 metres from the contact. The zone splits into two discrete limbs that are separated by a septum of waste rock for its southern half. These limbs appear to be diverging to the south. Control of the zone by the major lineaments to the south-east and north-west is not clear.



The 86 ZONE is based on seven drill holes, NB 86-4,5,6,8,9, 11 and 12, and appears to be contained within three steeply southeast dipping, roughly tabular, en echelon bodies in an envelope straddling the diorite-sediment contact, called Zones I, II and III. This envelope has rough dimensions of 100 metres along strike, 250 metres of dip length, and 50 metres of thickness, and appears to be sub-parallel to the contact. Two of the three bodies lie within the quartz diorite, while the third lies within the sediments. Zone I comprises 35% of the total 86 ZONE. It lies in the diorite within 30 metres to 50 metres from the contact. Zone II comprises 12% of the total 86 ZONE. It lies in the diorite within 2 metres to 35 metres from the contact. Zone III lies in porphyritic diorite dyke intruded sediments within 10 metres to 20 metres from the contact.

These tabular zones either terminate rapidly or have holes of virtually unmineralized rock within them. Due to the close spacing and irregular geometry of the drill holes, structural interpretation is difficult for this zone, and may change substantially with the introduction of new data.

Calculations of all grades have been done on uncut assay values. Gold is present in low intensity quartz-carbonate stockwork and in slightly altered quartz diorite. No visible gold was observed in the 87 ZONE core. Several small nuggets and flakes of gold were observed in 86 ZONE core. Minor pyrite and pyrrhotite and very minor arsenopyrite and chalcopyrite are associated with gold values.

Individual gold assays in the 87 ZONE ranged from as low as undetectable (0.07 gmt) to 24.41 grams per tonne. In general, drill intersections of the 87 ZONE encountered gold values fairly consistently elevated above background levels.

Individual gold assays in the 86 ZONE exhibited a far wider range of values from as low as background values to as high as 873.10 gmt. The numerous intersections of nugget gold observed in the drilling helps to explain this difference. Four assay values of above 30 grams per tonne were reported as follows:

<u>HOLE</u>	<u>WIDTH</u>	<u>GRADE</u>	<u>% OF GOLD IN 86 ZONE</u>
NB 86-4	0.3 m	148.39 gmt	11.9%
NB 86-6	0.3 m	489.43 gmt	20.1%
NB 86-8	0.3 m	126.52 gmt	6.3%
NB 86-11	0.3 m	873.10 gmt	1.5%

These represent a total of 39.8% of the gold in the 86 ZONE.

By cutting these values by 50%, the average overall grade of the 86-ZONE and 87-ZONE combined would be 1.41 grams per tonne.

## 5. GEOCHEMICAL SURVEY

The 1671 results of the 1987 programme were compiled with those of the 1986 programme and gold and arsenic were plotted at a scale of 1:1,000. These were compared to a broader survey completed in 1981.

*cm* The soils were taken from the B-Horizon wherever possible, from 10~~m~~ to 30~~m~~ deep. Soil from this horizon is predominantly a light reddish brown colour. The results are presented in the maps in the back pockets of this report.

The survey helped to define targets on an intimate scale. As well several conclusions were drawn from the survey:

1. The erratic results encountered in the soils reflect the erratic nature of gold mineralization within the rocks.
2. The predominant control of gold in soils is the diorite-sediment contact.
3. Several cross structures seem to also be controlling gold distribution.
4. Gold-Arsenic coincidence is stronger along the south contact than the north contact.

The results of the survey directly led to the discovery of the north contact 87-ZONE by diamond drilling, and a 1.5m wide vein by trenching. Both of these discoveries have been reviewed earlier in this report.

## 6. TRENCHING PROGRAMME

Eleven trenches were prepared and sampled in 1987 covering six zones. The results are discussed below:

Trench No. 1: Dug above diamond drill hole NB 87-13 this 83m trench confirmed the grade and continuity of gold mineralization in the 87-ZONE.

Trench No.2: Dug on a gold geochem soils anomaly along the northern contact, this 105m trench discovered several small mineralized quartz-carbonate veins, and mineralized sheared tuff.

Trench No.3, 4, and 5: These were completed on a gold geochem soils anomaly 350m west of the Maple Leaf Vein. They encountered a quartz-carbonate vein from 1.0 to 1.5m wide over a strike length of 40m. Potential at depth and along strike is good. These trenches totalled 246m.

Trench No.6: Dug on soils anomaly on the north contact zone southwest of the 86-ZONE, this 68m trench had one narrow high grade section sampled in rusty Stenwinder formation sediments.

Trench No.7: Dug on pyrite-rich skarned carbonate veins and fractures exposed on main road cut, low gold values were encountered in this 85m trench.

Trench No.8, through 11: These were dug on a major gold geochem anomaly discovered in the 1981 geochemical survey in soils south of the Banbury Stock. No gold values were encountered in these 4 trenches comprising 367 m.

## 7. DIAMOND DRILLING PROGRAMME

Eight holes were drilled in 1987 on three targets:

Hole NB-86-4x: Targeted to intersect Mascot style skarn alteration at depth on the south contact. Though the hole encountered several quartz-carbonate veins within the diorite, no major skarn was encountered. The hole was extended by 360.6 m.

Holes NB-87-13 through 18: Drilled on the north contact 87-ZONE, these five holes tested for continuity and grade over strike and dip. The results of these holes are discussed thoroughly in the Economic Geology Section of this report. These holes comprised 1164.2m of drilling.

Hole NB-87-19: Drilled on a broad geochem high along the southern contact, this hole encountered several small quartz stringers in the sediments, but did not penetrate a stockwork zone in the diorite as along the northern contact. This hole was 151.4m long.

Brief geological summaries of each hole, along with complete assay information and surveyed locations are presented in Appendix A.

*Complete detailed logs are given in Appendix B.*

*The core is stored on a core shack on the property.  
All core drilled was NQ, 1 7/8" diameter.*

8. ITEMIZED COST STATEMENT OF 1987  
EXPLORATION EXPENDITURES

Grid Establishment- 8.9 km of flagged  
line on 28 lines.....\$ 3,615.00

Soils Geochem Survey - 1,671 samples  
taken @ \$20.91 per sample.....\$ 41,216.00

Trenching - 954 meters in 11 trenches  
@ \$41.74 per meter, plus 244 samples for  
assay @ \$ 8.37 per sample.....\$ 41,908.00

Diamond Drilling - 1,676.4 meters in 8 holes  
@ \$118.15 per meter, plus 905 samples split  
for assay @ \$ 8.58 per sample.....\$205,826.00

Assaying Old Diamond Drill Core  
3349 Samples @ \$ 8.57 .....\$ 28,715.00

Geological Studies - Core Logging  
7696 meters of core plus Geological Supervision \$ 47,972.00

Claim Staking ..... ~~\$ 1,715.00~~

TOTAL \$370,967.00

~~- 1,715.00~~

369,252.00

*TK*

9. GEOLOGIST'S CERTIFICATE

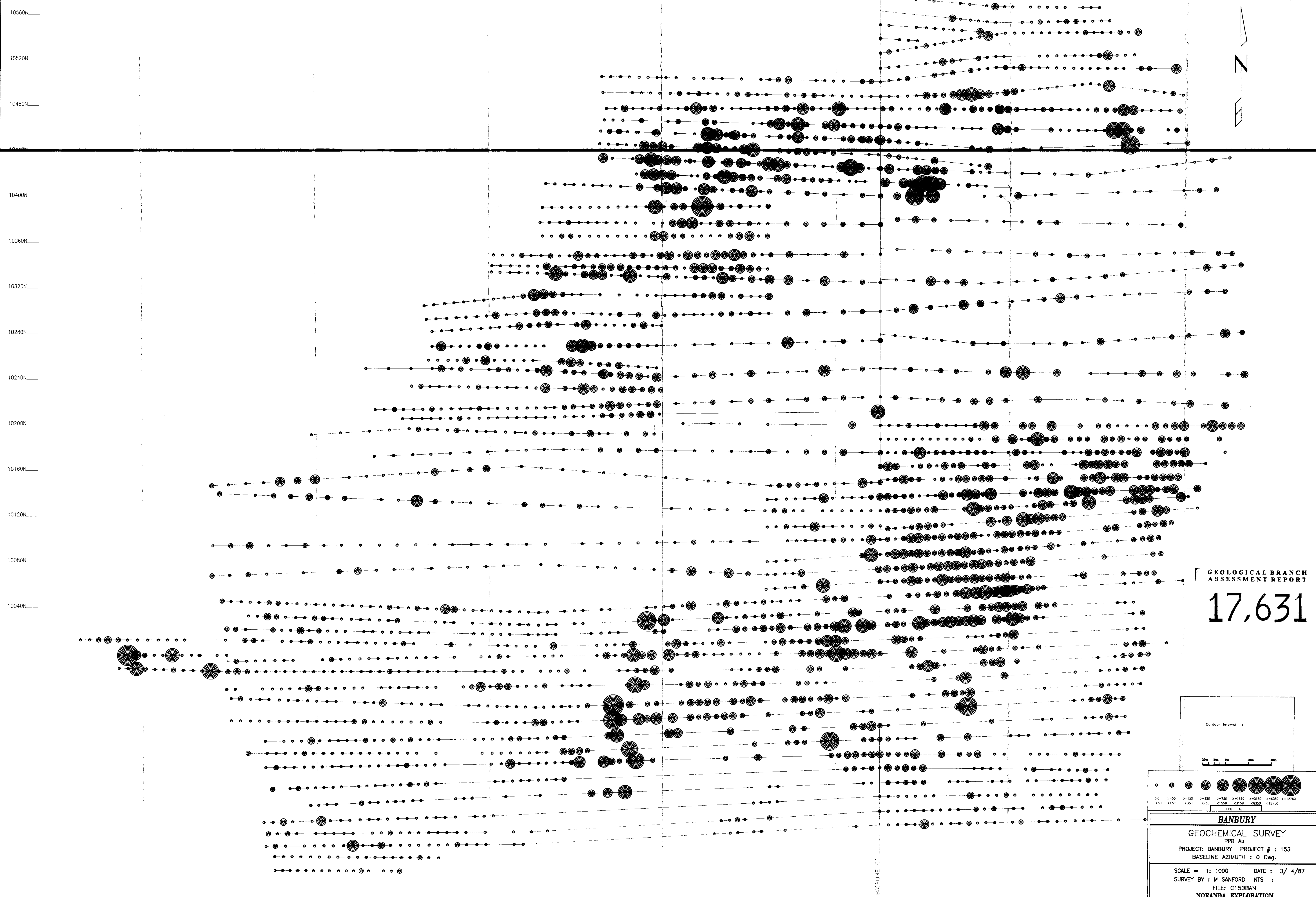
I, Michael R. Sanford, of Hedley, B.C. do hereby certify:

1. that I am a graduate of the University of British Columbia, 1978, and hold a B.Sc. degree in geology.
2. that I have been the geologist for Banbury Gold Mines Ltd. for the past 8 years.
3. that I have been active in the field of mineral exploration for the past 14 years.
4. that I am a Fellow of the Geological Association of Canada, membership #F5258.
5. that this report is based on observations made in the field on the Banbury-1 Claim Group, near Hedley, B.C.

Dated at Hedley, B.C., this 8th day of July, 1988.

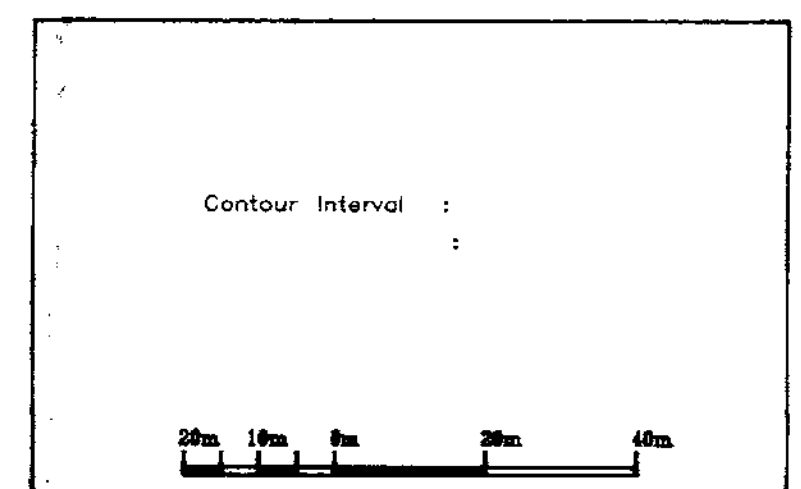


MICHAEL R. SANFORD  
GEOLOGIST



GEOLOGICAL BRANCH  
ASSESSMENT REPORT

17,631



<p><b>BANBURY</b> GEOCHEMICAL SURVEY PPB Au PROJECT: BANBURY PROJECT # : 153 BASELINE AZIMUTH : 0 Deg.</p>
<p>SCALE = 1: 1000      DATE : 3/ 4/87 SURVEY BY : M SANFORD    NTS : FILE: C153BAN NORANDA EXPLORATION</p>