



41P15NW2008 2.19053 BANNOCKBURN

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# Outokumpu Mines Ltd.

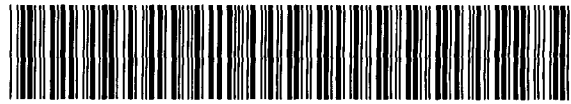
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Diamond Drilling Report  
On the  
Bannockburn Twp. Property

By Paul Davis  
December, 1998

2.19053

*Paul*



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## **1.0 Introduction**

Bradley Bros. Limited was contracted by Outokumpu Mines Ltd to drill 15 diamond drill holes on the Bannockburn Township property located in Bannockburn and Montrose Townships, Larder Lake Mining Division, District of Timiskaming. The property is comprised of 30 contiguous unpatented mining claims totaling 143 units.

A total of 5712.5 metres of BQ and NQ diamond drilling was completed in 15 diamond drill holes between October 23, 1996 to March 20, 1998. All drill core was logged by Outokumpu personnel at the Exploration Office in Timmins, Ontario. Copies of drill logs are attached in appendix 1 at the back of this report.

The objective of this program was to test the komatiitic stratigraphy and the continuity of Fe-Ni-Cu sulphides encountered on the property. The diamond drilling was concentrated on the komatiitic succession in the area. Coincident high magnetic and electromagnetic conductors as well as down hole pulse EM anomalies were targeted during this program.

## **2.0 Location, Access, and Infrastructure**

The Bannockburn property is approximately 100 kilometres southeast of the City of Timmins and is accessed by a network of gravel roads only driveable in the late spring, summer, and fall (figure 1). The property is approximately 27 kilometres west of the Town of Matachewan along Highway 566, a paved and gravel road maintained year round by the Ontario Government, and 5 kilometres south along a gravel bush road from the end of the highway (figure 2). The highway was originally constructed to access the Ashley Gold Mine and the Rahn Asbestos deposits located to the north and within our current property boundary, respectively. It is necessary to plow the final 5 kilometres of gravel road during the winter and early spring.

Power lines extend northwest of the Town of Matachewan along Highway 566 for approximately 7 kilometres to a barite processing mill. No other power lines extend close to the property.

## **3.0 Topography, Vegetation, and Water Availability**

The area is well drained with moderate topographic relief. Large sand and outcrop ridges trend north-south across the property. Outcrop exposure is approximately 5% but is generally restricted to the calc-alkaline volcanic sequences. The komatiitic rocks tend to lie in topographic lows, covered by swamps and lakes due to glacial erosion, and outcrop only on the edge of large dacite ridges. Several lakes are located on the property and represent approximately 10% of the area. There are only a few minor beaver ponds and swampy areas located along the edge of lakes and small streams between the ridges. The forests are a combination of jack pine, aspen, birch, and alders with the occasional red pine and cedar trees. Many of the forests in this area have been designated for cutting or already cut by forestry companies. Water accessibility is excellent throughout the year.

## **4.0 Property**

The property consists of 30 contiguous unpatented mining claims in Bannockburn and Montrose Townships (figure 3). The claims represent a total of 2288 hectares of land where Outokumpu Mines Limited holds a 100% interest in the property. The unpatented mining claims are as follows:

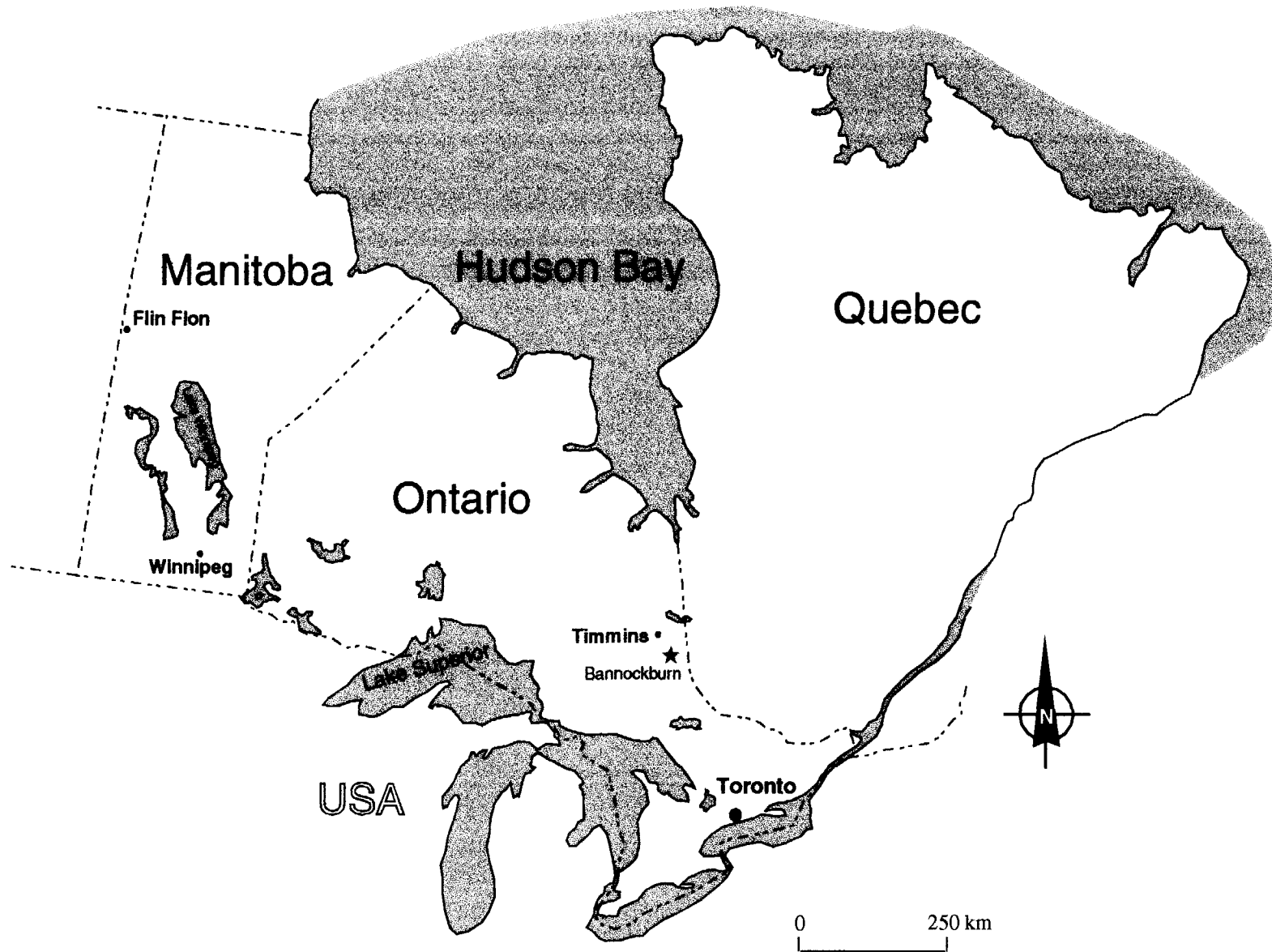
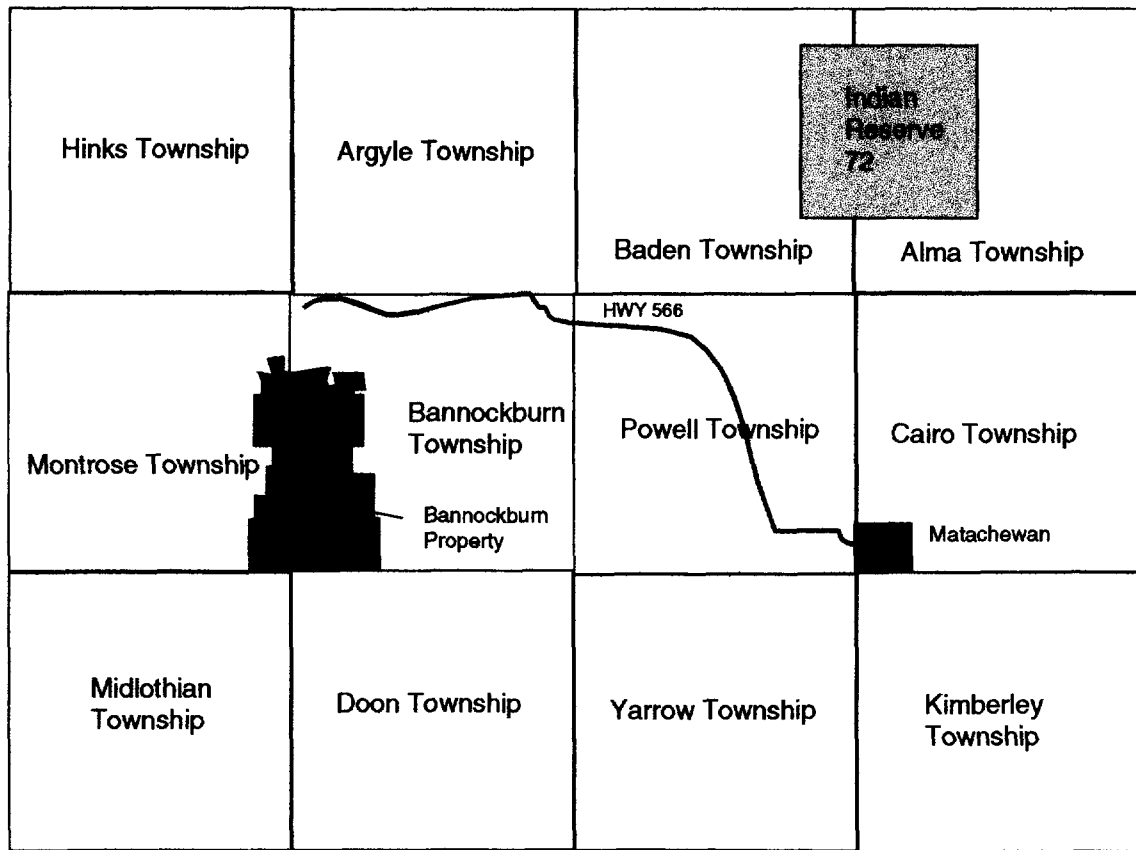


Figure 1: Location Map: Bannockburn Nickel Property

# Exploration Properties: Matachewan Area



0 10km



Figure 2: Property Location Map

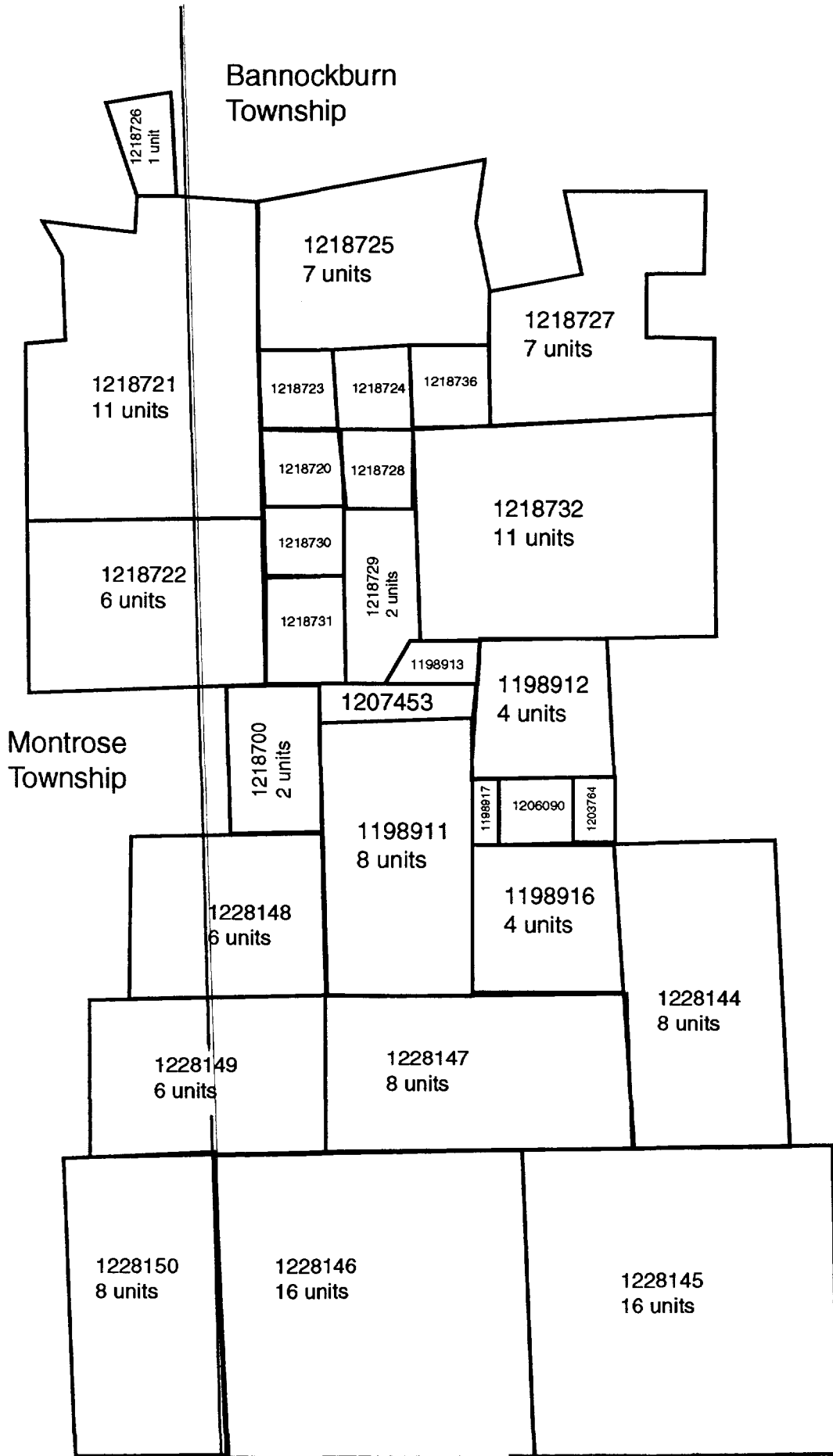


Figure 3: Property Position

<u>Claim Number</u>	<u>Township</u>	<u>16 Hectare Units</u>
L-1198911	Bannockburn	8
L-1198912	Bannockburn	4
L-1198913	Bannockburn	1
L-1198916	Bannockburn	4
L-1198917	Bannockburn	1
L-1203764	Bannockburn	1
L-1206090	Bannockburn	1
L-1207453	Bannockburn	1
L-1218700	Bannockburn	2
L-1218720	Bannockburn	1
L-1218723	Bannockburn	1
L-1218724	Bannockburn	1
L-1218725	Bannockburn	7
L-1218727	Bannockburn	7
L-1218728	Bannockburn	1
L-1218729	Bannockburn	2
L-1218730	Bannockburn	1
L-1218731	Bannockburn	1
L-1218732	Bannockburn	11
L-1218736	Bannockburn	1
L-1228144	Bannockburn	8
L-1228145	Bannockburn	16
L-1228146	Bannockburn	16
L-1228147	Bannockburn	8
L-1228148	Bannockburn	6
L-1228149	Bannockburn	6
L-1218721	Montrose	11
L-1218722	Montrose	6
L-1218726	Montrose	1
L-1228150	Montrose	8
<b>Total</b>	<b>143 units</b>	

## **5.0 Geology**

### **5.1 Regional Geology**

The rocks in west central Bannockburn Township and eastern Montrose Township are interpreted to be within the eastern extension of the Halliday assemblage and the Midlothian assemblage (figure 4). The Paleoproterozoic Huronian Supergroup covers the southern portion of the property (Jackson and Fyon, 1991).

The Halliday assemblage consists of rhyolitic to dacitic flows, breccias, and tuffs, and andesitic to basaltic flows and pyroclastic rocks, with a much lesser proportion of gabbroic and peridotitic rocks. The Halliday assemblage is estimated at greater than 2700 million years in age.

The Midlothian assemblage is described as neoproterozoic metasedimentary rocks that consist of interbedded turbidites, arkose, conglomerate, sandstone, and lesser argillite. Jackson and Fyon (1991) interpret the Midlothian assemblage as the western extension of the Timiskaming assemblage. This would make the Midlothian assemblage between 2685 and 2675 million years old. The Midlothian assemblage is interpreted to disconformably overly the Halliday assemblage.

The Paleoproterozoic Huronian Supergroup consists of sedimentary cycles that range from conglomerate, mudstone, siltstone, and coarse arenite (Bennett, Dressler, and Robertson, 1991). The rocks are approximately 2500 to 2220 million years old. The rocks in southern Bannockburn Township belong to the Cobalt group which represents the upper most sedimentary cycle in the Huronian Supergroup. The Huronian Supergroup unconformably overlies the Halliday and Midlothian assemblages.

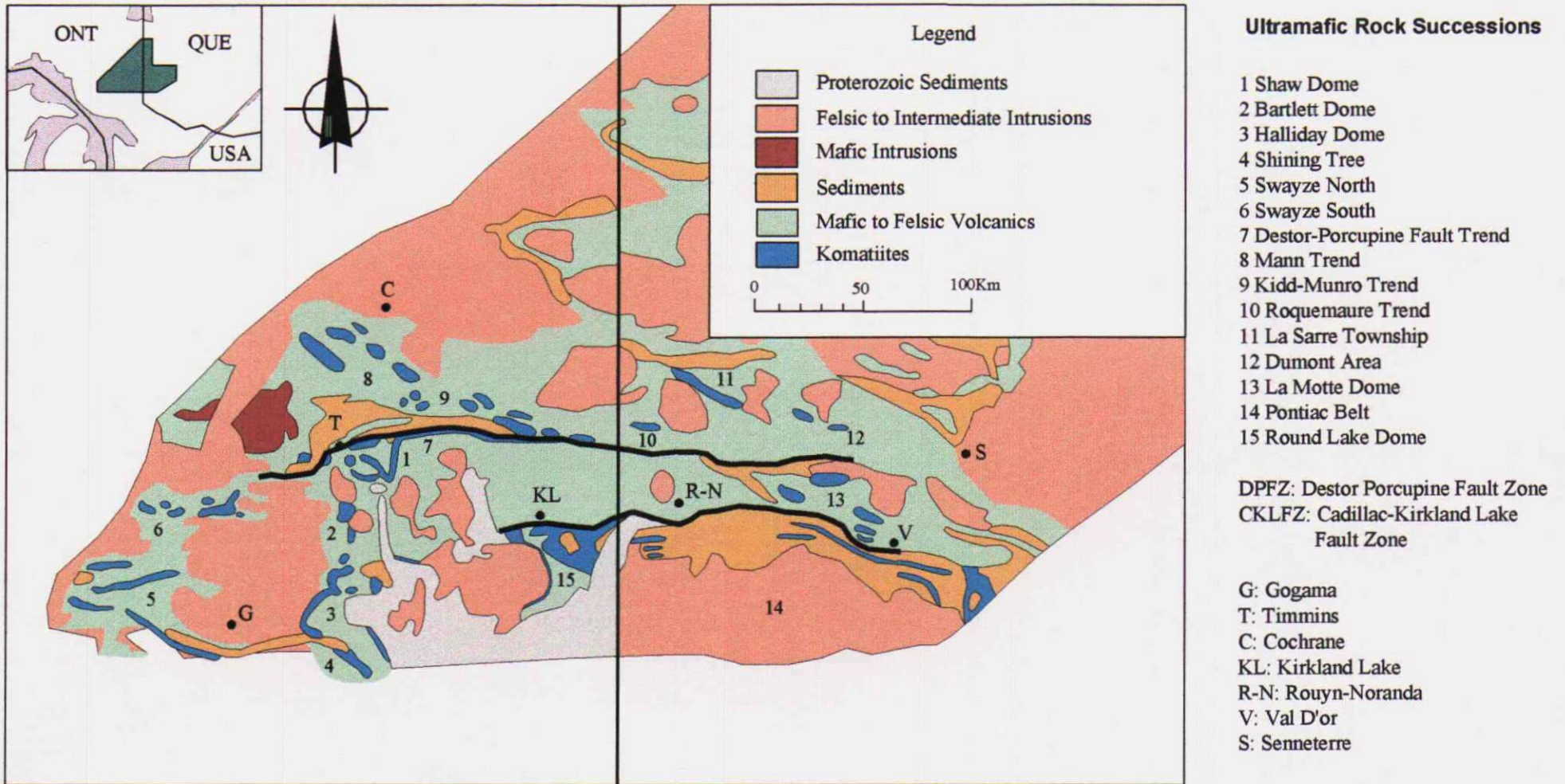


Figure 4: Regional geological map showing the distribution of komatiitic successions in the Abitibi greenstone belt (modified from Goodwin and Ridler, 1970; MERQ-OGS, 1983; and Heather, 1993).



## 5.2 Local Geology

The property consists of a complex sequence of calc-alkaline intermediate to felsic volcanic rocks, mafic volcanic rocks, komatiitic basalts to dunites, silicate to sulphide iron formations, gabbro intrusions, and a series of diamictites, arkoses, and conglomerates (figure 5).

The intermediate to felsic volcanic rocks range in composition from rhyo-dacites to dacitic-andesites. The units range from hyaloclastic-fragmental flows to pillowed flows, and massive flows. Chlorite and quartz filled amygdules are found throughout the units in varying proportions from 1 to 10%. Weak chlorite alteration is pervasive with lesser amounts of epidote and hematite alteration. The pillow selvages and flow contacts tend to display stronger chlorite alteration. Pyrrhotite and pyrite mineralization occurs throughout the sequence, but tends to be concentrated, up to 10%, within the hyaloclastic and fragmental zones.

The komatiitic rocks appear to be extrusive in nature with flow top rubble zones and spinifex-textured zones, indicating tops are to the east. The komatiitic rocks range in composition from pyroxenitic cumulates (chlorite-tremolite rocks) to olivine adcumulates (serpentinite rocks). A preponderance of the komatiites are olivine orthocumulates to mesocumulates laterally away from an olivine adcumulate cores. The komatiitic sequence is only exposed in a few areas and determinations of its composition and laterally continuity cannot be made. The komatiitic rocks trend north-northwest to south-southeast for a strike length of at least 4 kilometres as discrete lenses and/or horizons. Based on the ground magnetic surveys there appears to be at least 3 or possibly 4 horizons of komatiitic rocks.

The sedimentary rocks appear to have a similar strike and dip as the komatiitic rocks over the northern and central portion of the property. The bed thickness appears to vary throughout the area and range from a few centimetres up to several metres. The conglomerates are dominated by granitic clasts and white quartz clasts with varying proportions of mafic to felsic volcanic clasts and plagioclase porphyry clasts. The conglomerates tend to be clast supported. The southern portion of the property is covered by Huronian conglomerates and arkoses.

## 6.0 Diamond Drilling

Fifteen diamond drill holes for a total of 5712.5 metres were drilled on the Bannockburn Township property (table 1). Diamond drilling consists of both BQ and NQ drill core. Please refer to Appendix 1 for detailed drill logs and header pages.

Hole #	Easting (UTM)	Northing (UTM)	Azimuth (degrees)	Dip (degrees)	Elevation (m)	Depth (m)
BN-3-96	507554	5311482	250	-50	356	198.5
BN-5-96	507554	5311482	250	-65	356	356
BN-8-97	507308	5311391	070	-50	359	320
BN-10-97	507634	5311457	250	-45	357	275
BN-12-97	507681	5311476	250	-58	362	482
BN-13-97	507860	5311580	250	-50	362	488
BN-14-97	507860	5311580	250	-58	362	575
BN-15-97	507650	5311570	250	-50	356	431
BN-16-97	507650	5311570	250	-61	356	458
BN-17-97	507790	5311510	250	-58	362	527
BN-18-97	507865	5311355	215	-55	360	458
BN-19-98	506950	5313480	250	-50	362	299
BN-22-98	507115	5313580	250	-50	362	298
BN-25-98	506430	5313290	070	-50	359	251
BN-26-98	506950	5313475	250	-50	360	299

Table 1: Diamond Drill Hole Summary Table.

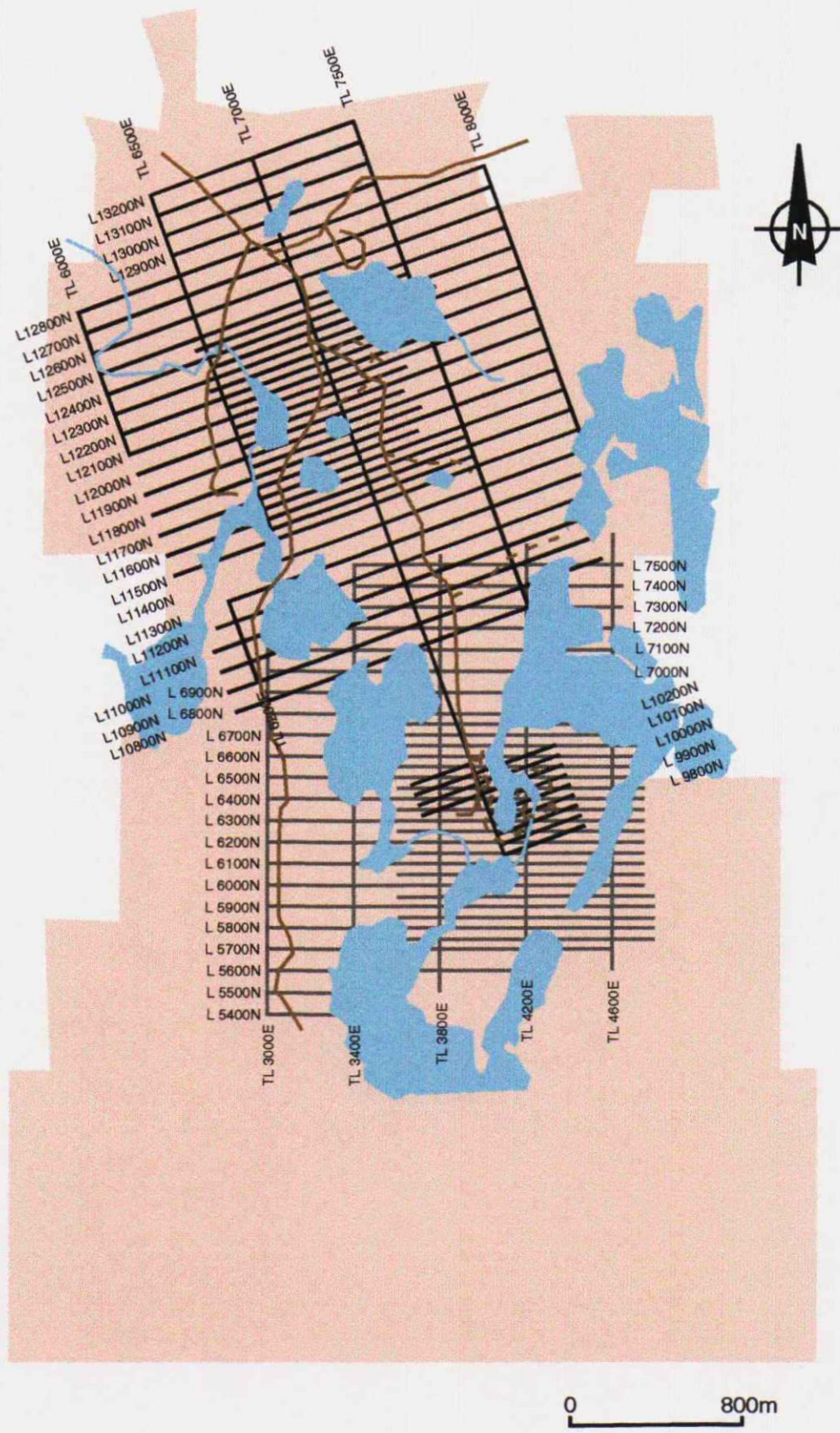


Figure 5: Bannockburn Property Grid Locations and Orientations

## 7.0 Results and Conclusions

Several intersections of komatiite associated disseminated, blebby, net-textured, and massive Fe-Ni-Cu sulphides were intersected during this program over a strike length of greater than 2 kilometres. Sulphide zones are associated at the basal contact of komatiitic flows and centrally within thick accumulations of olivine adcumulate. Fe-Ni-Cu sulphides have been identified on three separate horizons during this drill program. Table 2 summarizes the intersections of interest with greater than 0.4% Ni.

Hole Number	From (m)	To (m)	Width (m)	Ni (%)
BN-3-96	161.80	163.00	1.20	3.22
BN-5-96	263.00	265.90	2.90	0.98
BN-8-97	288.10	191.10	3.00	0.94
BN-12-97	411.40	429.00	17.60	0.81
Incl. BN-12-97	414.60	424.20	9.60	1.09
BN-13-97	336.20	341.20	5.00	0.54
BN-17-97	472.10	474.80	2.70	0.45
BN-19-98	104.70	126.90	22.20	0.5
Incl. BN-19-98	114.00	125.00	11.00	0.62
BN-22-98	86.83	91.10	4.27	0.85

Table 2: Summary of intersections with greater than 0.4% Ni.

The nickel tenor of the sulphide intersections range between 3.5% to greater than 70% for 100% sulphides; depending on the nature of the sulphide mineralization intersected (massive versus disseminated and blebby). This indicates that the sulphides are composed of a combination of non-magnetic pyrrhotite and pentlandite ((Fe,Ni)<sub>9</sub>S<sub>8</sub>). Some samples must contain appreciable proportions of millerite (NiS) or hazlewoodite (Ni<sub>3</sub>S<sub>2</sub>) to account for the high nickel tenor. The varying nickel tenors is probably a reflection of different R-factors (amount of silicate melt exposed to sulphide melt).

Most of the diamond drilling was concentrated on an area referred to as the Thalweg nickel showing (Thalweg is a term referring to the deepest part of a river's channel). Step-out and stratigraphic drilling have intersected other nickel zones associated with a thicker adcumulate body to the north of the komatiitic flow that hosts the Thalweg showing.

Komatiitic Fe-Ni-Cu sulphide occurrences tend to be concentrated in restricted areas (i.e. the Shaw Dome in Ontario and Kambalda, Western Australia). This in mind, the potential for additional komatiite associated Fe-Ni-Cu sulphide occurrences on the property must be considered as high.

## 8.0 Recommendations

Diamond drilling is recommended to test the down dip and strike extensions of the three Fe-Ni-Cu sulphide zones. Additional diamond drilling should test other targets associated with geophysical anomalies and/or areas that contain significant accumulations of komatiitic olivine orthocumulate to adcumulate.

## References

Bajc, A.F, 1997, A Regional Evaluation of Gold Potential Along the Western Extension of the Larder Lake-Cadillac Break, Matachewan Area: Results of Regional Till Sampling; Ontario Geological Survey, Open File Report, 5957, 50p.

**Bennett, G., Dressler, B.O., and Robertson, J.A., 1991, The Huronian Supergroup and Associated Intrusive Rocks; In Geology of Ontario, Special Volume 4, Part 1; Eds. Thurston, P.C., Williams, H.R., Sutcliffe, R.H., and Stott, G.M.; Ontario Geological Survey, pp. 549-591.**

**Jackson, S.L., and Fyon, J.A., 1991, The Western Abitibi Subprovince in Ontario; In Geology of Ontario, Special Volume 4, Part 1; Eds. Thurston, P.C., Williams, H.R., Sutcliffe, R.H., and Stott, G.M.; Ontario Geological Survey, pp. 405-482.**

Area/Township	N.T.S.	Year	Project	Property	Claim Numbers
Bannockburn	41P/NE	1996	Exploration	Bannockburn	1206090, 1198917


Hole Number	Survey Type	Dip (Deg.)	Azim Grid (Deg.)	Azim Astro. (Deg.)	Hole Length (m)	Core Size
BN-3-96	acid	-50	250	250	195.5	BQ

Northing (Grid m)	Easting (Grid m)	Northing (UTM)	Easting (UTM)	Northing (Lat.)	Easting (Long.)	Elevation (m)
6400	4070	5311559	507555			356

Logged By	Date Logged	Drilled By	Date Started	Date Finished	Core Storage
Paul Davis	30-Oct-96	Bradley Bros.	23-Oct-96	24-Oct-96	Hollinger Building

Casing Depth (m)	Casing Pulled (Y/N)	Cemented (Y/N)	Geophysics (Y/N)	Down Hole Geophysics (Type and Contractor)
13	N	N	Y	Time Domain; Crone Geophysics

Assay Numbers	Assay Lab	Certificate #	Whole Rock Geochemistry
37836-37847	Bondar-Clegg		568416-568422
931	Lakefield	OCT9145.R96	

<b>Comments:</b> Discovery hole of the Thalweg Fe-Ni-Cu sulphide mineralization	
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From (m)	To (m)	Rock Type	Legend	Description	Sulphides				Samples			Faults and Shears (1-10)						
					%	% Frags	Type	Mode	Type	Tag #	From (m)	To (m)	Brittle	Ductile	From (m)	To (m)		
0.00	13.00	Casing	casing															
13.00	42.40	Komatiitic Peridotite	Kmc/oc	-black-green, f.g., massive, moderately to strongly magnetic, olivine mesocumulate to orthocumulate -trace disseminated Py, Po within serp veins -serp, chl, trem, mag -serp veins up to 10cm wide -gradational lower contact -5500X10-5 SI units	tr		Po,Py	d	WR	568416	23.00	26.00	5			37.00	42.00	
42.40	43.10	Contaminated Komatiitic Pyroxenite	Koc/Px	-black to medium green, f.g., massive with schistose appearance, weakly to moderately magnetic -sharp undulatory lower contact -chl, trem, serp alteration -contaminated basal unit -1000X10-5 SI units	0													
43.10	51.00	Dacite	Da	-medium grey to light green-grey, aphanitic, non-magnetic -qtz-plag filled amygdules -qtz-plag-chl veining -trace Cpy along slip fractures -47.60-49.30: strong chl veining unit looks highly altered and weakly brecciated -35X10-5 SI units	tr		Cpy	d										
51.00	51.85	Komatiitic Pyroxenite/ Olivine Spinifex	KPx/ osx	-dark grey, f.g. to aphanitic, non-magnetic -chl, trem, serp -possibly random olivine spinifex -sharp upper contact, serp veins cross the contact -serp veining up to 3cm wide -trace Po at upper contact -gradational lower contact over 10cm -50X10-5 SI units	tr		Po	d	WR	568417	51.00	51.85						
51.85	55.10	Komatiitic Peridotite/ Pyroxenite	Koc	-black-green, f.g., moderately magnetic, olivine orthocumulate -some olivine grains appear to be bleached -serp, chl, trem, mag -some zones are weakly altered with pyroxene fans in the groundmass -serp veins up to 3mm wide -gradational increase in olivine downhole -4500X10-5 SI units	0				WR	568418	52.00	55.00						

From (m)	To (m)	Rock Type	Legend	Description	Sulphides			Mode	Samples		Faults and Shears (1-10)					
					%	% Frags	Type		Type	Tag #	From (m)	To (m)	Brittle	Ductile	From (m)	To (m)
55.10	158.79	Komatiitic Dunite	Kac/mc	-black-gree, massive, olivine adcumulate to mesocumulate -strongly magnetic -serp altered -serp-carb veining up to 5cm wide -possibly very fine grained disseminated Py throughout but might be reflections from magnetite or serpentine -sharp lower contact -5000X10-5 SI units	tr		Py?	d	WR	568419	56.00	59.00	2		109.30	109.80
									WR	568420	86.00	89.00	4		156.30	156.80
									WR	568421	116.00	119.00				
									WR	568422	146.00	149.00				
									AS	37837	68.00	71.00				
									AS	37838	98.00	101.00				
									AS	37839	128.00	131.00				
									AS	37840	156.79	157.79				
									AS	37841	157.79	158.79				
158.79	159.34	Komatiitic Peridotite/ Disseminated Sulphides	Kmc/\$7	-black and brown, f.g., olivine mesocumulate, weakly to moderately magnetic -serp altered -serp, carb, mag, Po, Pn -serp-carb veining up to 2cm wide -3-20% disseminated, magmatic, intragranular Po, Pn -sharp lower contact -850X10-5 SI units	7		Po,Pn	d,v	AS	37842	158.79	159.34				
159.34	160.13	Komatiitic Peridotite	Koc/mc	-black, f.g., moderately magnetic, massive, olivine orthocumulate to mesocumulate -serp altered -weak serp veining -trace to 2% disseminated Po, Pn -possibly contaminated komatiitic unit -gradational lower contact -4000X10-5 SI units	1		Po,Pn	d	AS	37843	159.34	160.13				
160.13	161.80	Komatiitic Pyroxenite/ Peridotite	Koc/\$4	-dark grey, f.g., massive, weakly to moderately magnetic, olivine orthocumulate -serp-chl-trem altered -serp-carb veining -2 to 10% disseminated and blebby, f.g., Po and Pn -sharp lower contact at 60 degrees to the core axis -350X10-5 SI units	4		Po,Pn	d,v	AS	37844	160.13	161.80				
161.80	163.00	Massive Sulphides	\$97	-massive sulphides, bronze and silver -up to 3% serp clasts -composed of Po, Pn, and Cpy -sharp upper and lower contacts -lower contact is undulatory at 45 degrees to core axis -2000X10-5 SI units	97		Po,Pn Cpy	m	As	37836	161.80	163.00				



From (m)	To (m)	Rock Type	Legend	Description	Sulphides		Type	Mode	Samples		From (m)	To (m)	Faults and Shears (1-10)			
					%	% Frags			Type	Tag #			Brittle	Ductile	From (m)	To (m)
163.00	163.20	Dacite/Veined Sulphides	Da/S5	-medium grey-green, f.g. to aphanitic, massive -chl altered -veins of Po, Pn extend from massive sulphides -300X10-5 Sl units	5		Po,Pn	v	AS	37845	163.00	163.20				
163.20	195.50	Dacite	Da	-medium grey-green, massive to fragmented, f.g. to aphanitic -chl filled amygdules -qtz, chl, veining up to 3cm wide -sulphides associated with fragmental zones -fragmental zones probably mark flow boundaries -10X10-5 Sl units	tr		Po	d	AS	37846	163.20	164.20				
									AS	37847	164.20	165.20				
195.50		End of Hole														

Area/Township	N.T.S.	Year	Project	Property	Claim Numbers
Bannockburn	41P/NE	1996	Exploration	Bannockburn	1206090, 1198917

Hole Number	Survey Type	Dip (Deg.)	Azim Grid (Deg.)	Azim Astro. (Deg.)	Hole Length (m)	Core Size
BN-5-96	acid	-65	250	250	356	BQ

Northing (Grid m)	Easting (Grid m)	Northing (UTM)	Easting (UTM)	Northing (Lat.)	Easting (Long.)	Elevation (m)
6400	4070	5311559	507555			356

Logged By	Date Logged	Drilled By	Date Started	Date Finished	Core Storage
Paul Davis	31-Oct-96	Bradley Bros.	25-Oct-96	29-Oct-96	Hollinger Building

Casing Depth (m)	Casing Pulled (Y/N)	Cemented (Y/N)	Geophysics (Y/N)	Down Hole Geophysics (Type and Contractor)
13	N	N	Y	Time Domain; Crone Geophysics

Assay Numbers	Assay Lab	Certificate #	Whole Rock Geochemistry
37851-37863	Bondar-Clegg		568424-568435

<p>Comments:</p> 
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From (m)	To (m)	Rock Type	Legend	Description	Sulphides				Samples			Faults and Shears (1-10)						
					%	% Frags	Type	Mode	Type	Tag #	From (m)	To (m)	Brittle	Ductile	From (m)	To (m)		
0.00	13.00	Casing	casing															
13.00	43.59	Komatiitic Peridotite	Kmc	-black-green, f.g. to m.g., massive, moderately to strongly magnetic, olivine mesocumulate with minor adcumulate -strong serp alteration, magnetite -serp veining up to 10cm wide -37.00-43.59m: core blocky -sharp lower contact but brecciated	0				WR	568424	27.00	30.00						
43.59	44.05	Dacite	Da	-medium grey-green, aphanitic, dacite xenolith -crackle brecciation caused by chl and serp veins -non-magnetic -komatiite penetrates upper and lower contacts -foliation at 25 degrees to the core axis	0													
44.05	46.61	Komatiitic Peridotite	Koc/mc	-dark green, f.g., massive to weakly foliated at 30 degrees to the core axis, non-magnetic, olivine orthocumulate to mesocumulate -serp-carb veining -contaminated basal komatiite -sharp lower contact at 75 degrees to core axis -possibly partially assimilated dacite as wispy veins near lower contact -trace Py associated with veining	tr		Py	d	AS	37851	44.05	46.61	5		44.07	44.22		
46.61	65.00	Dacite	Da	-medium to light grey-green, aphanitic to f.g., possibly pillowed -chl and qtz filled amygdules -qtz and chl veining -some veinlets of komatiitic material -upper contact is hornfised with pink green alteration -lower contact is obliterated by ground core	0													
65.00	257.40	Komatiitic Dunite	Kac/mc	-black-green, f.g., massive, weakly to strongly magnetic, olivine adcumulate to mesocumulate -strong serp alteration with mag development -core is blocky and ground in places -serp-carb veining throughout, up to 5cm wide -weak talc alteration in restricted zones -248.50-248.60m: possibly clasts of dacite or rodingite dykes -gradational lower contact to olivine mesocumulate	0				WR	568425	65.00	68.00	5		111.50	112.80		
									WR	568426	95.00	98.00						
									WR	568427	125.00	128.00						
									WR	568428	155.00	158.00						
									WR	568429	185.00	188.00						
									WR	568430	215.00	218.00						
									WR	568431	245.00	248.00						

From (m)	To (m)	Rock Type	Legend	Description	Sulphides				Samples				Faults and Shears (1-10)			
					%	% Frags	Type	Mode	Type	Tag #	From (m)	To (m)	Brittle	Ductile	From (m)	To (m)
257.40	263.07	Komatiitic Peridotite	Kmc	-black-green, f.g., massive, strongly magnetic, olivine mesocumulate -strong serp alteration -serp, carb, mag -serp-carb veining up to 3cm wide -olivine content decreases downhole -lower contact marked by an increase in magnetite and sulphides	tr		Po	d	AS	37852	261.07	262.07				
									AS	37853	262.07	263.07				
									WR	568432	260.00	263.00				
263.07	263.74	Komatiitic Peridotite	Kmc	-black-green, f.g., massive, strongly magnetic, olivine mesocumulate -serp alteration -serp, trem, mag, Po, Pn -serp-carb veins -2% disseminated, intragranular Po and Pn -sulphides appear to be replaced by magnetite and represents 4% of the unit -magnetite is also intragranular and rims the olivine grains -lower contact at 35 degrees to the core axis	2		Po,Pn	d	AS	37854	263.07	263.74				
263.74	265.96	Komatiitic Peridotite/ net texture sulphides	Kmc/ \$25	-black-green and brown, f.g., massive, olivine mesocumulate to orthocumulate -net textured, disseminated, and veined Po and Pn with trace Cpy -upper contact is marked by 10cm of massive magnetite -serp altered -serp-carb veins -sulphides veins associated with serp veins -sulphides are intragranular and replace some olivine grains from outside to inside -sharp lower contact is undulatory	25		Po,Pn Cpy	d,n,v	AS	37855	263.74	265.96				
265.96	268.30	Komatiitic Peridotite/ Pyroxenite	Koc	-black-green, f.g., massive, moderately magnetic, olivine orthocumulate -serp-trem alteration -trace disseminated Po -serp-carb veining -gradational lower contact marked by decrease in olivine and increase in sulphides	tr		Po	d	AS	37856	265.96	267.00				
									AS	37857	267.00	268.30				
									WR	568433	265.96	268.30				
268.30	270.73	Komatiitic Pyroxenite	Koc/Px	-black-green to dark grey, massive, weakly to moderately magnetic, olivine orthocumulate with pyroxene matrix -serp, chl, trem alteration -serp-carb veining -alteration obliterates f.g. texture	2		Po	d	AS	37858	268.30	270.73				

From (m)	To (m)	Rock Type	Legend	Description	Sulphides				Samples				Faults and Shears (1-10)					
					%	% Frags	Type	Mode	Type	Tag #	From (m)	To (m)	Brittle	Ductile	From (m)	To (m)		
268.30	270.73	con't	Koc/Px	-2% disseminated Po disappears at 270.73m														
270.73	275.85	Basal Komatiitic Pyroxenite	KPx	-dark grey with white veining, massive, non-magnetic -serp, chl, carb alteration -grain size lessens near lower contact -274.92-275.60m: dacite xenolith with chl-serp veining -lower contact is sharp but wispy at 30 degrees to the core axis -contaminated komatiite	tr		Po	d	WR AS	568434 37859	272.00 270.73	275.00 271.73						
275.85	276.70	Dacite	Da	-medium grey, f.g., massive, non-magnetic -chl and qtz filled amygdules -chl, serp, and plag veining -sharp lower contact at 60 degrees to the core axis	0													
276.70	277.22	Komatiitic Pyroxenite	KPx	-dark grey and green, massive, non-magnetic -chl, trem, serp alteration -chl-carb veining -lower contact at 60 degrees to the core axis -small step fault offsets lower contact by 2cm	tr		Po	d										
277.22	285.55	Dacite	Da	-medium grey to light grey-green, f.g. to aphanitic, massive -chl and qtz filled amygdules -light green alteration might be hornfelsing -non-magnetic -sharp lower contact at 70 degrees to the core axis	0													
285.55	285.78	Komatiitic Pyroxenite/ Rodingite	KPx	-black and creamy green, aphanitic, non-magnetic -possibly altered dacite -strong chl, serp, and rodingite alteration -20cm wide rodingite serp vein separates unit from mineralized unit	0													
285.78	287.90	Komatiitic Peridotite/ Disseminated Sulphides	Kmc/ \$10	-black-green and brown, massive, f.g., moderately to strongly magnetic, olivine mesocumulate to orthocumulate -net textured, disseminated, and blebby Po, Pn -strong serp alteration -serp-carb veining -sulphides end abruptly -lower contact is gradational over a few centimetres	10		Po,Pn	d,n,b	AS	37860	285.78	287.90						
287.90	289.95	Komatiitic Peridotite/ Pyroxenite	Kmc/\$3	-dark grey-green, f.g., massive, non-magnetic to weakly magnetic, olivine mesocumulate to orthocumulate -3% disseminated Po and abruptly disappears at contact -olivine content decreases downhole	3		Po	d	AS	37861	287.90	289.95						

From (m)	To (m)	Rock Type	Legend	Description	Sulphides				Samples				Faults and Shears (1-10)			
					%	% Frags	Type	Mode	Type	Tag #	From (m)	To (m)	Brittle	Ductile	From (m)	To (m)
289.95	292.30	Basal Komatiitic Pyroxenite	KPx/oc	-dark grey to medium green, f.g. to aphanitic, non-magnetic, massive, olivine orthocumulate -serp, chl, trem alteration -contaminated basal komatiite -decrease in olivine content downhole -might contain xenoliths of dacite -serp-chl-carb veining -lower contact marked by 10cm wide serp vein	tr		Po	d	AS	37862	289.95	292.30				
292.30	312.20	Dacite	Da	-medium to light grey, f.g. to aphanitic, massive, possibly pillowed, non-magnetic -chl and qtz filled amygdules -chl, qtz, feld veining -299.07-300.20m: Cpy veins, represent 0.5% of section -trace Po throughout associated with pillow selvages -brecciated lower contact	tr 5		Po, Cpy	d, v v	AS	37863	299.55	299.67				
312.20	313.12	Mafic Dyke/ Komatiitic Pyroxenite	Md/KPx	-dark grey, aphanitic, f.g., massive, non-magnetic -1% disseminated Po associated with upper contact -upper contact contains 30-50% dacite clasts -chl altered -sharp lower contact at 60 degrees to the core axis -quenched contacts	1		Po	d								
313.12	315.60	Dacite	Da	-medium grey, aphanitic to f.g., massive and fragmented, possibly pillowed, non-magnetic -chl and qtz filled amygdules -qtz and chl veining -sharp lower contact -baked margin with brecciated appearance	0											
315.60	322.73	Mafic Dyke/ Komatiitic Pyroxenite	Md/KPx	-dark grey, aphanitic margins, f.g. centre, non-magnetic, massive -strong chl, serp? alteration -chl, serp veining -carb-trem veining near lower contact -lower contact at 80 degrees to the core axis	0				WR	568435	317.00	320.00	7		322.20	322.28
322.73	324.30	Dacite	Da	-medium light grey, f.g., massive, well developed spaced cleavage at 60 degrees to the core axis -chl and qtz filled amygdules -qtz veining and chl -spaced cleavage filled with qtz -possibly weak epidote alteration	0											

From (m)	To (m)	Rock Type	Legend	Description	Sulphides				Samples				Faults and Shears (1-10)					
					%	% Frags	Type	Mode	Type	Tag #	From (m)	To (m)	Brittle	Ductile	From (m)	To (m)		
324.30	325.33	Mafic Dyke/ Komatiitic Pyroxenite	Md/KPx	-dark grey-green, f.g., massive, non- to weakly magnetic -possibly randomly oriented pyroxene spinifex leading into orthocumulate -chl, trem, serp alteration -contains up to 10% plag and qtz, possibly gabbro -sharp lower contact at 60 degrees to the core axis -lower contact is subparallel to spaced cleavage	0													
325.33	356.00	Dacite	Da	-light grey-green, aphanitic to f.g., massive to fragmental, non-magnetic, possibly pillowed -qtz and chl filled amygdules -qtz, chl, and plag veins -zones with well developed spaced cleavage at 50 degrees to the core axis														
356.00		End of Hole																



Area/Township	N.T.S.	Year	Project	Property	Claim Numbers
Bannockburn	41P/NE	1997	Exploration	Bannockburn	1198911/1198917


Hole Number	Survey Type	Dip (Deg.)	Azim Grid (Deg.)	Azim Astro. (Deg.)	Hole Length (m)	Core Size
BN-8-97	maxibor	-50	70	70	320	BQ

Northing (Grid m)	Easting (Grid m)	Northing (UTM)	Easting (UTM)	Northing (Lat.)	Easting (Long.)	Elevation (m)
10000	6802					359

Logged By	Date Logged	Drilled By	Date Started	Date Finished	Core Storage
Paul Davis	9-Jun-97	Bradley Bros.	5-Jun-97	8-Jun-97	Hollinger Building

Casing Depth (m)	Casing Pulled (Y/N)	Cemented (Y/N)	Geophysics (Y/N)	Down Hole Geophysics (Type and Contractor)
4	N	N	N	

Assay Numbers	Assay Lab	Certificate #	Whole Rock Geochemistry
122601-122618	Bondar-Clegg		37402-37406

<p>Comments:</p> 
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From (m)	To (m)	Rock Type	Legend	Description	Sulphides			Samples				Faults and Shears (1-10)					
					%	% Frags	Type	Mode	Type	Tag #	From (m)	To (m)	Brittle	Ductile	From (m)	To (m)	
0.00	4.00	Casing	Casing														
4.00	28.07	Dacite/ Andesite	Da/Ad	-medium to light grey-green, aphanitic to fine grained -qtz and plag phenocrysts and/or amygdules -some amygdules are also filled with chlorite -massive to fragmented, non-magnetic -possibly several compound flows -numerous qtz-plag veins and chl veinlets -weak to moderate chl alteration, very weak epidote alter. -trace disseminated Py, Po associated with veining -sharp lower contact at 15 degrees to the core axis	tr		Po,Py	d									
28.07	31.83	Komatiitic Pyroxenite	KPx/oc	-medium grey to medium green, very fine grained to fine grained, weakly magnetic - two cycles where olivine content increases to orthocumulate and changes back to pyroxenite -strong serp, chl-trem alteration -fine grained chromite throughout -trace Py occurs in some sections -serp-chl veining -gradational lower contact with increase in oliv content	tr		Py	d	AS WR	122601 37402	30.83 28.07	31.83 31.83					
31.83	44.34	Komatiitic Peridotite	Kmc	-black-green, fine grained, massive, moderately magnetic -strong serp alteration, serp-carb veining -olivine mesocumulate -trace to 3% disseminated Py, Po throughout along grain boundaries and increase to mainly Po at 42.76-44.33m -gradational lower contact marked by decrease in oliv content and increase in chl-trem	tr 1 1 1 2-3		Py,Po	d	AS AS AS AS WR	122602 122603 122604 122605 122606 37403	31.83 34.83 37.83 40.83 42.76 35.00	34.83 37.83 40.83 42.76 44.34 38.00					
44.34	52.50	Komatiitic Pyroxenite	KPx/oc	-medium grey-green, fine grained to very fine grained, weakly to non-magnetic -strong chl-trem-serp alteration, serp-chl-carb veining -olivine content decreases downhole -possibly weak spinifex development near lower contact -no sign of other flow features -lower contact has injected appearance -possibly intrusive unit	tr		Py,Po	d	AS WR	122607 37404	44.34 47.00	46.34 50.00					
52.50	78.56	Dacite	Da	-light grey-green, fine grained to aphanitic, fragmented, subrounded to angular clasts, non-magnetic -qtz-plag-chl filled amygdules, possibly qtz-plag phenos -qtz-chl veining, weak chlorite alteration -concentration of Py at contact -sharp lower contact at 25 degrees to the core axis	tr		Py	d									

From (m)	To (m)	Rock Type	Legend	Description	Sulphides				Samples				Faults and Shears (1-10)			
					%	% Frags	Type	Mode	Type	Tag #	From (m)	To (m)	Brittle	Ductile	From (m)	To (m)
78.56	79.53	Iron Formation	IF	-dark grey and white, aphanitic, non-magnetic -composed mainly of chert with approx 20% Py concentrated at the contacts -contains slasts or thin dacite in centre of iron formation -possibly soft sediment deformation features	20		Py	sm,d	AS	122608	78.56	79.53				
79.53	116.77	Dacite	Da	-medium to light grey-green, aphanitic to fine grained, fragmented, non-magnetic -more chl filled amygdulies than qtz and plag -qtz-plag-chl and epid veining -strong chl alteration near iron formation contacts -Py and Po development near iron formations -rusted out fault indicates water mobility at 84.60-84.92m -sharp lower contact at 45 degrees to the core axis	5		Py,Po	d,v	AS	12609	79.53	81.90	2		84.60	84.92
													4		86.60	87.00
116.77	117.15	Iron Formation	IF	-black and white, aphanitic, non-magnetic -composed primarily of chert, concentration of Py at contacts, possibly bedding preserved -lower contact at 40 degrees to the core axis	3		Py	v								
117.15	183.65	Dacite/ Andesite sulphides	Da/Ad	-medium grey-green, aphanitic to fine grained, massive and fragmented, poss pillowed, selveges marked by frags -first 20m of core displays striped appearance with veinlets oriented at 70 degrees to the core axis -qtz-plag-chl filled amygdulies, qtz-chl veining -veining becomes more intense between 1763-179m -sharp lower contact												
183.65	187.58	Dacite/ Andesite	Da/Ad	-contact marked by change to variolitic texture -medium grey and brown, aphanitic to very fine grained -non-magnetic -varioles are brown in colour and could be an alteration effect -sharp lower contact at 20 degrees to the core axis												
187.58	193.50	Dacite/ Andesite	Da/Ad	-strong chl altered unit, most original textures destroyed -non-magnetic -some amygdulies filled with chl, chl-qtz veins -chl content increases downhole -189.50-190.00m: brecciated qtz vein -still looks volcanic -gradational lower contact												

From (m)	To (m)	Rock Type	Legend	Description	Sulphides				Samples			Faults and Shears (1-10)				
					%	% Frags	Type	Mode	Type	Tag #	From (m)	To (m)	Brittle	Ductile	From (m)	To (m)
193.50	200.51	Mafic Dyke	Md	-dark grey, very fine grained to fine grained -possibly ultramafic dyke -strong chl-serp alteration -appears to display olivine cumulate textures near lower contact -no visible sulphides -core is fairly soft -upper and lower contacts appear to be sheared					WR	37405	197.00	200.00				
200.51	279.95	Andesite/ Dacite	Ad/Da	-medium to dark grey, aphanitic to fine grained, massive with minor fragmental -occasional zones of chl filled amygdules -qtz-chl veining, strong chl alteration assoc with veining -200.51-203.40: strong chl alteration -trace Py associated with chl veining -253.60- 254.36m: qtz veining with strong chl or serp alteration alteration, poss mafic or ultramafic dyke -lower contact is sharp at 45 degrees to the core axis -lower contact at 60 degrees to the core axis -small step fault offsets lower contact by 2cm	tr		Py	d								
279.95	290.94	Komatitic Pyroxenite/ Peridotite	Koc/mc	-dark grey to black, fine grained to medium grained, weakly magnetic, olivine ortho to mesocumulate -strong serp and chl-trem alteration, serp-carb veining -some olivine grains have platy appearance -weakly to moderately disseminated sulphides -good magmatic textures, net-textured in places -sharp lower contact	tr 2-4 1-3 2-4 10-15 50-60 3		PoPnPy d d,v d d,n d,v,n n,m v,d	AS AS AS AS AS AS AS	122610 122611 122612 122613 122614 122615 122616	279.95 281.80 284.15 286.15 288.15 288.95 289.48 290.94	281.80 284.15 286.15 288.15 288.95 289.48 290.94					
290.94	291.19	Massive Sulphides	\$\$97	-massive sulphides appears to have banding with Po and Py, sharp contacts	97		PoPnPy	m	AS	122617	290.94	291.19				
291.19	293.71	Dacite	Da	-medium to light grey, hard, aphanitic to fine grained -non-magnetic -lower portion looks recrystallized, spotted appearance -sulphides have migrated into the upper 70cm of unit -no sulphides observed in lower portion of unit -sharp lower contact at 15 degrees to the core axis	2-3 tr		PyCpy d,v d	AS	122618	291.19	291.82					
293.71	297.70	Komatitic Pyroxenite	KPx/oc	-medium to dark grey-green, fine to medium grained, massive, weakly to non-magnetic -strong chl-trem, serp alteration, serp-carb veining -no visible sulphides -sharp lower contact over a few centimetres												

From (m)	To (m)	Rock Type	Legend	Description	Sulphides				Samples		Faults and Shears (1-10)					
					%	% Frags	Type	Mode	Type	Tag #	From (m)	To (m)	Brittle	Ductile	From (m)	To (m)
297.70	320.00	komatiitic Peridotite/ Dunite	Kmc/ac	-dark green-black, fine grained to medium grained, massive olivine meso to adcumulate, moderately magnetic -strong serp alteration, serp-mag veining -no visible sulphides												
320.00		END OF HOLE														

Area/Township	N.T.S.	Year	Project	Property	Claim Numbers
Bannockburn	41P/NE	1997	Exploration	Bannockburn	1198917/1198911


Hole Number	Survey Type	Dip (Deg.)	Azim Grid (Deg.)	Azim Astro. (Deg.)	Hole Length (m)	Core Size
BN-10-97	maxibor	-45	250	250	275	BQ

Northing (Grid m)	Easting (Grid m)	Northing (UTM)	Easting (UTM)	Northing (Lat.)	Easting (Long.)	Elevation (m)
9950	7131					357

Logged By	Date Logged	Drilled By	Date Started	Date Finished	Core Storage
Paul Davis	25-Jun-97	Bradley Bros.	10-Jun-97	18-Jun-97	Hollinger Building

Casing Depth (m)	Casing Pulled (Y/N)	Cemented (Y/N)	Geophysics (Y/N)	Down Hole Geophysics (Type and Contractor)
13.44	N	N	N	

Assay Numbers	Assay Lab	Certificate #	Whole Rock Geochemistry
122648-122676	Bondar-Clegg		37408-37410

<p>Comments:</p> 
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From (m)	To (m)	Rock Type	Legend	Description	Sulphides				Samples			Faults and Shears (1-10)						
					%	% Frags	Type	Mode	Type	Tag #	From (m)	To (m)	Brittle	Ductile	From (m)	To (m)		
0.00	13.44	Casing	Casing															
13.44	22.40	Komatiitic Pyroxenite	KPx/oc	-medium to dark grey, fine grained, non-magnetic -olivine orthocumulate to pyroxene cumulate -composed primarily of chl-trem -serpentine altered, serp-carb veining -trace to 3% disseminated Po, Py with trace Cpy -sulphide content decreases downhole -sulphides are often associated with serp veins -gradational lower contact	2-3 1-2 tr tr		Po, Cp Po Po Po	d d d d	AS AS AS AS WR	122648 122649 122650 122651 37408	13.44 15.54 17.54 19.54 17.00	15.54 17.54 19.54 22.40 20.00						
22.40	24.10	Komatiitic Pyroxenite Quenched Contact	KPx	-medium grey green to black, fine grained to aphanitic -soft, non-magnetic -cross cut by serp-chl and qtz veins -possibly relict clasts of dacite and qtz veins -strong chl alteration, weaker serp alteration -no visible sulphides -sharp undulatory lower contact														
24.10	59.90	Dacite	Da	-medium to light grey, aphanitic, non-magnetic -qtz-chl-Po filled amygdulites, numerous qtz-chl veins -some zones appear to be variolitic -Po associated with some veins -53.12-58.53m: and 58.64-58.78m: large qtz veins with chl and Po -epidote altered associated with one qtz vein -small blebs of medium grained unit occur near lower contact -sharp lower contact	tr-1		Po	d,v	WR	37409	50.00	53.00						
59.90	69.81	Intermediate Dyke	kd	-light to medium grey with dark green flecks -fine to medium grained, non-magnetic -composed of qtz-plag-chl -cross cut by qtz-chl veins -some zones appear to be silicified -sharp upper and lower contacts -upper and lower contacts at 25 and 75 degrees to CA	tr		Po	d	WR	37410	62.00	65.00						
69.81	70.30	Komatiitic Pyroxenite Contact	KPx	-medium grey, fine grained, non-magnetic -strong chl-trem alteration, serp-chl veining -sharp lower contact, possibly faulted -possibly contaminated from dacite -no quench zone at upper contact														

From (m)	To (m)	Rock Type	Legend	Description	Sulphides				Samples			Faults and Shears (1-10)				
					%	% Frags	Type	Mode	Type	Tag #	From (m)	To (m)	Brittle	Ductile	From (m)	To (m)
70.30	83.41	Komatiitic Pyroxenite	Koc	-predominantly black with medium grey, fine grained to medium grained, moderately to strongly magnetic -black is serp olivine, grey is chl-trem intragranular matrix -olivine orthocumulate -entire zone contains disseminated and blebby sulphides -sulphide appears to be concentrated in more mafic zones -some olivines may be preserved -strong serp alteration with magnetite development -serp veining -sulphides are magmatic in appearance -gradational lower contact with increase in olivine over a few metres	tr tr-1 tr-1 1 1-2 5 tr-1 2-3 tr-1 tr-1 tr		Po Po Po Po Po Po Po Po Po Po	d d d d,b d,b d d,b d,b d d	AS AS AS AS AS AS AS AS AS AS	122652 122653 122654 122655 122656 122657 122658 122659 122660 122661 122662	70.30 72.12 73.12 74.12 75.12 76.56 77.91 79.12 79.90 81.00 82.10 83.41	72.12 73.12 74.12 75.12 76.56 77.91 79.12 79.90 81.00 82.10 83.41				
83.41	105.30	Komatiitic Peridotite/ Dunite	Kmc/ac	-black to dark green, fine to medium grained -moderately to strongly magnetic -ol mesocumulate to adcumulate -some variation to orthocumulate -some zones display brown olivines -serp altered, serp-carb veining -sharp lower contact	tr		Po	d	AS AS	122663 122664	83.41 104.30	84.41 105.30				
105.30	111.30	Komatiitic Peridotite	Koc/mc	-black with medium grey flecks, fine grained -weakly to moderately magnetic -olivine orthocumulate to mesocumulate -serp altered with chl-trem alteration -serp-carb veining -very fine grained disseminated Py and Po -gradational lower contact	tr 2 tr tr		Py Py,Po Py Py	d d d d	AS AS AS AS	122665 122666 122667 122668	105.30 107.00 107.60 109.30	107.00 107.60 109.30 111.30				
111.30	167.92	Komatiitic Peridotite/ Dunite	Kmc/ac	-black to dark green, fine to medium grained -moderately to strongly magnetic -possibly relict olivine, strong serp alter with magnetite -serp-carb veining with occasional smears of Py and Po -ol mesocumulate to adcumulate -trace very fine grained disseminated Py, Po -gradational lower contact	tr tr 3 tr		Po Po,Pn Po,Pn Po,Pn	d d d,b,n d	AS AS AS AS	122669 122670 122671 122672	111.30 164.52 165.52 166.20 166.20	112.30 165.52 166.20 167.92				
167.92	169.89	Komatiitic Peridotite/ Pyroxenite	Koc	-black and bronzy brown, fine grained -moderately to weakly magnetic -contains up to 20% disseminated and net textured Po, Cpy and Pn -serp-chl-trem alteration, serp-carb veining -gradational lower contact with decreasing olivine content downhole	10 3		popncp Po,Pn	d,n f	AS AS	122673 122674	167.92 169.11	169.11 169.89				



From (m)	To (m)	Rock Type	Legend	Description	Sulphides				Samples				Faults and Shears (1-10)			
					%	% Frags	Type	Mode	Type	Tag #	From (m)	To (m)	Brittle	Ductile	From (m)	To (m)
169.89	170.90	Komatiitic Pyroxenite	KPx/oc	-dark grey, fine grained to aphanitic, non-magnetic -serp-chl-trem altered, serp-carb-Po veining -lower contact brecciated by strong qtz-chl veining -possibly melt from dacitic footwall	1		Po	d,v	AS	122675	169.89	170.90				
170.90	275.00	Dacite	Da	-medium to light grey and green, aphanitic to fine grained -non-magnetic -chl-epid altered, varies throughout units -massive and fragmental zones -qtz-chl amygdules with the occasional Po filled -possibly pillowed in sections -selveges marked by stronger chl-alteration -qtz-plag-chl veining throughout, up to 50cm wide	tr		Po	d,v	AS	122676	170.90	171.90				
275.00		END OF HOLE														

Area/Township	N.T.S.	Year	Project	Property	Claim Numbers
Bannockburn	41P/NE	1997	Exploration	Bannockburn	1198917/1198911


Hole Number	Survey Type	Dip (Deg.)	Azim Grid (Deg.)	Azim Astro. (Deg.)	Hole Length (m)	Core Size
BN-12-97	maxibor	-58	250	250	482	BQ

Northing (Grid m)	Easting (Grid m)	Northing (UTM)	Easting (UTM)	Northing (Lat.)	Easting (Long.)	Elevation (m)
9950	7181					358

Logged By	Date Logged	Drilled By	Date Started	Date Finished	Core Storage
Paul Davis	27-Jun-97	Bradley Bros.	20-Jun-97	26-Jun-97	Hollinger Building

Casing Depth (m)	Casing Pulled (Y/N)	Cemented (Y/N)	Geophysics (Y/N)	Down Hole Geophysics (Type and Contractor)
13	N	N	N	

Assay Numbers	Assay Lab	Certificate #	Whole Rock Geochemistry
122692-122726	Bondar-Clegg		

<p>Comments:</p> 
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From (m)	To (m)	Rock Type	Legend	Description	Sulphides				Samples		Faults and Shears (1-10)							
					%	% Frags	Type	Mode	Type	Tag #	From (m)	To (m)	Brittle	Ductile	From (m)	To (m)		
0.00	13.00	Casing	casing															
13.00	53.20	Dacite	Da	-medium to light grey, aphanitic to fine grained -large Qtz filled amygdules with smaller chl filled amygs -weak chl alteration, Qtz veining and chl veinlets -disseminated Po associated with Qtz veins -massive or pillowed flows	tr		Po	d										
53.20	63.05	Dacite	Da	-light to medium grey, aphanitic, non-magnetic -fragmental with angular clasts -clasts range from 0.5 to 5.0 cm -some Qtz and chl filled amygdules -weak chl alteration -sharp upper and lower contacts														
63.05	87.90	Dacite	Da	-medium to light grey, aphanitic to fine grained -Qtz and chl filled amygdules, Qtz-chl veining -sharp lower contact -strong alteration possibly silicification results in muddy brown colour														
87.90	89.75	Komatitic Pyroxenite	KPx/osx	-medium grey-green, aphanitic to fine grained -non-magnetic -fine grained to medium grained olivine spinifex -tops appear to be uphole -upper contact is hard to define -serp-chl-carb veining -chl-trem alteration -gradational lower contact														
89.75	99.11	Komatitic Pyroxenite/ Peridotite	KPx/oc	-medium to dark grey-green, fine to medium grained -very weakly magnetic -serp-chl-trem alteration, serp-carb veining -sulphides increase over lower most 2 metres -fine grained disseminated Po and Py -gradational lower contact with increasing ol content	tr		Po,Py	d	AS	122692	97.11	98.11						
					2		Po,Py	d	AS	122693	98.11	99.11						
99.11	110.85	Komatitic Peridotite	Kmc	-black to dark green, fine grained, non-magnetic -serp altered, serp-carb veining -107.06-107.36m: pyroxenite dyke, no spinifex -sulphides are fine grained along grain boundaries and associated with veining -gradational lower contact	tr		Po,Py	d	AS	122694	99.11	100.11						
					1		Po,Pn	d	AS	122695	100.11	103.11						
					1		Po,Pn	d,v	AS	122696	103.11	106.11						
					1		Po,Pn	d,v	AS	122697	106.11	109.11						
					1		Po,Pn	d,v	AS	122698	109.11	110.85						

From (m)	To (m)	Rock Type	Legend	Description	Sulphides			Samples			Faults and Shears (1-10)					
					%	% Frags	Type	Mode	Type	Tag #	From (m)	To (m)	Brittle	Ductile	From (m)	To (m)
110.85	116.62	Komatitic Pyroxenite/ Peridotite	Koc	-dark grey-green, fine grained, non-magnetic -serp, chl-trem alteration, serp-carb veining -disseminated and vein associated Py and Po -gradational lower contact	1 tr		Po,Py Py,Po	d,v d,v	AS AS	122699 122700	110.85 113.85	113.85 116.62				
116.62	120.20	Komatitic Pyroxenite	KPx	-medium to dark grey, fine grained to aphanitic -non-magnetic -chl-trem altered, chl-serp-carb-qtz veining -possibly contaminated basal pyroxenite -sharp lower contact at 60 degrees to the core axis												
120.20	194.25	Dacite	Da	-medium to grey-green, aphanitic to fine grained -non-magnetic, massive to fragmental, possibly pillowed -weak chl alteration, qtz-plag-chl veining -some selvages have variolitic textures -172.02-172.07m: thin veinlet of ultramafic with 5 to 10% Po around the grain boundaries -qtz-chl filled amygdules -sharp lower contact at 45 degrees to the core axis												
194.25	198.80	Komatitic Pyroxenite	KPx/oc	-medium grey to black, aphanitic to fine grained -non-magnetic -fine grained pyroxene to olivine spinifex at upper contact -essentially composed of ol orthocumulate -trace disseminated Po associated with orthocumulate -lower contact appears to be contaminated to pyroxenite	tr		Po,Py	d								
198.80	216.80	Dacite	Da	-light to medium grey, massive, non-magnetic -qtz-chl veining, chl and qtz filled amygdules -unit almost has variolitic texture -bleached upper contact possible a result of overlying komatiitic unit -3-5cm of re-melted dacite just above contact -sharp lower contact at 70 degrees to the core axis												
216.80	220.10	Komatitic Pyroxenite	KPx	-medium grey, fine grained to aphanitic, non-magnetic -upper quench zone of approximately 1 metre -strong chl-trem alteration with lesser serp alteration -serp-carb veining, plus qtz-plag in quench zone -gradational lower contact with increasing of content	0				AS	122701	216.80	220.10				

From (m)	To (m)	Rock Type	Legend	Description	Sulphides			Samples				Faults and Shears (1-10)				
					%	% Frags	Type	Mode	Type	Tag #	From (m)	To (m)	Brittle	Ductile	From (m)	To (m)
220.10	225.57	Komatitic Pyroxenite/ Peridotite	Koc	-dark grey-green, fine grained, weakly magnetic -olivine orthocumulate -serp and chl-trem altered, serp-carb veining -sulphides occur as disseminations, blebs and associated with veins -blebs and veins appear to be Po -gradational lower contact	2		Po,Pn	d,v	AS	122702	220.10	223.10				
					2		Po,Pn	d,v,b	AS	122703	223.10	225.57				
225.57	350.90	Komatitic Peridotite/ Dunite	Kmc/ac	-black to dark green, fine grained -moderately to strongly magnetic -olivine mesocumulate to adcumulate -strong serp alteration, serp-carb veining -trace very fine grained disseminated Py and Po along grain boundaries throughout the unit -minor magnetite veining 270.00-275.55: blebby sulphide zone wher sulphide blebs appear to be partially replaced by magnetite -gradational lower contact with decreasing ol content	2		Po,Pn	d,v	AS	122704	225.57	226.92				
					tr		Po,Pn	d	AS	122705	226.92	227.92				
					tr-1		Po,Pn	d	AS	122706	271.00	272.00				
					3		Po,Pn	b	AS	122707	272.00	274.55				
					tr-1		Po,Pn	d	AS	122708	274.55	275.55				
350.90	374.00	Komatitic Pyroxenite/ Peridotite	Koc	-dark grey-green to black, fine grained -moderately to weakly magnetic -serp and chl-trem altered, serp-carb veining -trace disseminated very fine grained Po -sharp lower contact	tr		Po	d								
374.00	375.83	Komatitic Pyroxenite	KPx	-dark to medium grey, fine grained to aphanitic -primarily chl-trem with serp, serp-carb veining -non-magnetic -sharp lower contact at 35 degrees to the core axis -lower 5cm are contaminated with dacite to form quench zone												
375.83	386.74	Dacite	Da	-medium grey-green, fine grained to aphanitic -massive, non-magnetic, possibly pillowed -weak chl alteration, qtz-chl veining -qtz and chl filled amygdules -sharp undulatory lower contact												
386.74	387.78	Komatitic Pyroxenite	KPx	-dark grey, fine grained to aphanitic, non-magnetic -composed primarily of chl-trem with minor serp -looks like partially assimilated clasts or quenched material -lower contact marked by 26cm wide serp vein -serp-carb-chl veining												

From (m)	To (m)	Rock Type	Legend	Description	Sulphides			Samples			Faults and Shears (1-10)						
					%	% Fraga	Type	Mode	Type	Tag #	From (m)	To (m)	Brittle	Ductile	From (m)	To (m)	
387.78	397.31	Komatiitic	Kmc/ac	-black to dark green, fine grained	tr		Po,Py	d									
		Peridotite/ Dunite		-moderately to strongly magnetic													
				-olivine mesocumulate to adcumulate													
				-serp-carb veining													
				-weak magnetite development associated with serp													
				-very fine grained disseminated Po and Py throughout													
				-sharp lower contact at 65 degrees to core axis													
397.31	398.22	Komatiitic	KPx	-medium grey-green, fine grained to aphanitic													
		Pyroxenite		-non-magnetic, looks intrusive													
		Dyke		-composed of chl-trm, possibly plagioclase													
				-chl veining, possibly weak serp alteration													
				-sharp lower contact at 85 degrees to the core axis													
398.22	411.40	Komatiitic	Kmc/ac	-black to dark green-brown, fine grained	tr-1		Po,Pn	d	AS	122709	405.40	408.50					
		Peridotite/ Dunite		-weedy to moderately magnetic	tr-1		Po,Pn	d	AS	122710	408.50	411.40					
				-olivine mesocumulate to adcumulate													
				-serp-carb veining													
				-trace very fine grained disseminated Po and Pn along grain boundaries													
				-lower contact marked by increase in sulphide content													
411.40	412.09	Komatiitic	Kmc\$3	-black to dark green, fine grained, strongly magnetic	3		Po,Pn	d,b	AS	122711	411.40	412.09					
		Peridotite		-70-80% magnetite replacement of sulphide blebs													
				-total sulphides would have been approximately 3%													
				-lower contact marked by lesser magnetite and more sulphides													
412.09	414.62	Komatiitic	Kmc\$8	-black green with brassy flecks, fine grained	8		Po,Pn	d,n	AS	122712	412.09	414.62					
		Peridotite/		-moderately magnetic													
				-olivine meso to adcumulate													
				-net-textured and disseminated sulphides increasing downhole													
414.62	425.20	Komatiitic	Koc/mc	-black and brassy, fine grained, moderately magnetic	20		Po,Pn	n,v,d	AS	122713	414.62	415.69					
		Peridotite/	\$20	-net-textured sulphides with veins of Po and Cpy	25		Po,Pn	n,v,d	AS	122714	415.69	417.20					
		Pyroxenite		-serp-sulphide veins	20		Po,Pn	n,v,d	AS	122715	417.20	418.20					
				-several serp slips	20		Po,Pn	n,v,d	AS	122716	418.20	419.20					
				-variable sulphide content throughout between 15-30%	20		Po,Pn	n,v,d	AS	122717	419.20	420.20					
				-some sulphides replaced by magnetite	20		Po,Pn	n,v,d	AS	122718	420.20	421.20					
					20		Po,Pn	n,v,d	AS	122719	421.20	422.20					
					15		Po,Pn	n,v,d	AS	122720	422.20	423.20					
					20		Po,Pn	n,v,d	AS	122721	423.20	424.20					
					15		Po,Pn	n,v,d	AS	122722	424.20	425.20					

From (m)	To (m)	Rock Type	Legend	Description	Sulphides				Samples		Faults and Shears (1-10)					
					%	% Frags	Type	Mode	Type	Tag #	From (m)	To (m)	Brittle	Ductile	From (m)	To (m)
425.20	427.39	Komatiitic Pyroxenite/ Peridotite	Koc	-dark grey-green, fine grained -weakly to strongly magnetic -blebby sulphides along first 40 cm, but mostly replaced by magnetite -serp-carb veins -mainly serp altered by chl-trem altered -sharp upper and lower contacts	tr-1		Po,Pn	d,b	AS	122723	425.20	427.39				
427.39	429.06	Komatiitic Peridotite/ Pyroxenite	Koc\$20	-black and brassy, fine grained, moderately magnetic -olivine orthocumulate -serp-carb-sulphide veining -serp altered -sharp lower contact at 50 degrees to the core axis -disseminated and net-textured sulphides	20		Po,Pn	d,n	AS	122724	427.39	429.06				
429.06	433.52	Komatiitic Pyroxenite	Koc	-dark grey-green, fine grained, moderately magnetic -serp, chl-trem altered, serp-carb veining -trace disseminated and veined Po -gradational lower contact	tr		Po	d,v	AS	122725	429.06	430.86				
					tr		Po	d	AS	122726	430.86	431.06				
433.52	434.09	Komatiitic Pyroxenite	KPx	-medium grey, fine grained, non-magnetic -contact pyroxenite possibly contaminated -chl-trem altered, minor serp, serp veining -sharp undulatory lower contact, 15 degrees to core axis -possibly clasts of dacite caught up in pyroxenite												
434.09	482.00	Dacite	Da	-medium to light grey-green, aphanitic to fine grained -non-magnetic, massive to fragmental, possibly pillowed -hornfelsed zone extends 3m into footwall marked by light green alteration zone -qtz-chl veining -1-2mm qtz-chl amygdules -trace Po associated with veining -minor epid alteration	tr		Po	v								
482.00		END OF HOLE														

Area/Township	N.T.S.	Year	Project	Property	Claim Numbers
Bannockburn	41P/NE	1997		Bannockburn	

Hole Number	Survey Type	Dip (Deg.)	Azim Grid (Deg.)	Azim Astro. (Deg.)	Hole Length (m)	Core Size
BN-13-97	Physical Properties	-50	270	250	488.0 m	NQ

Northing (Grid m)	Easting (Grid m)	Northing (UTM)	Easting (UTM)	Northing (Lat.)	Easting (Long.)	Elevation (m)
9900	7306					362 m

Logged By	Date Logged	Drilled By	Date Started	Date Finished	Core Storage
Paul Davis	18-Sep-97	Bradley Bros.	11-Sep-97	17-Sep-97	Hollinger Bldg.

Casing Depth (m)	Casing Pulled (Y/N)	Cemented (Y/N)	Geophysics (Y/N)	Down Hole Geophysics (Type and Contractor)
37 m	N	N	Y	Crone

Assay Numbers	Assay Lab	Certificate #	Whole Rock Geochemistry
122801 -122830	Bondar- Clegg		

<p>Comments:</p> 
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From (m)	To (m)	Rock Type	Legend	Description	Sulphides				Samples		Faults and Shears (1-10)							
					%	% Frags	Type	Mode	Type	Tag #	From (m)	To (m)	Brittle	Ductile	From (m)	To (m)		
0	37	Casing																
37	87.15	Dacite Fragmental	Dabx	- light and medium grey, aphanitic to fine grained, pillow fragmental. - non magnetic - composed of large clasts of dacite ranging from <1cm to >20cm - some clasts contain chlorite and quartz filled amygdalae - weak chlorite alteration, aphanitic matrix is more chlorite altered - quartz-carbonate-plagioclase veining - minor epidote associated with veining - sharp lower contact														
87.15	114.82	Dacite Fragmental	Da	- light grey, aphanitic, pillow fragmental, non magnetic - looks like fine grained variolitic texture which gives core spotted appearance - clasts are less altered than matrix - clasts range in size from <1cm to >5cm but the average clast size is smaller than the overlying unit. - some clasts have chlorite filled amygdalae - clast concentration increases downhole and chlorite alteration decreases - gradational lower contact - weak chlorite alteration, fewer quartz veins														
114.82	143.6	Dacite	Da	- light grey green, aphanitic to fine grained - massive with an occasional clast - non magnetic - possibly several flows or one single pillowed flow - possibly plagioclase phyric - weak chlorite alteration - quartz-chlorite-plagioclase veining - fine grained chlorite filled amygdalae - stronger chlorite alteration at the pillow selvages - crackle breccia filled with quartz veins - sharp lower contact at 35 degrees to core axis (35CA)														
143.6	155.1	Dacite Altered	Da	- dark to light grey, aphanitic to fine grained - pillowed to fragmental, non magnetic - strong silicification - brecciation caused by veining - weak to moderate chlorite alteration - quartz-chlorite-carbonate veining - some pillow selvages exhibit hyaloclastic texture	1		Po	d,b	AS	122801	143.6	144.5	5		144.3	144.35		
									AS	122802	144.5	146						
									AS	122803	146	147.5						
									AS	122804	147.5	149						
									AS	122805	149	150.5						
									AS	122806	150.5	152						
									AS	122807	152	153.5						

From (m)	To (m)	Rock Type	Legend	Description	Sulphides				Samples				Faults and Shears (1-10)			
					%	% Frags	Type	Mode	Type	Tag #	From (m)	To (m)	Brittle	Ductile	From (m)	To (m)
				- trace to 1% blebby pyrrhotite associated with volcanics not the alteration (i.e. pyrrhotite is primary) - sharp lower contact marked by the end of pervasive silicification						122808	153.5	155				
155.1	209.62	Dacite	Da	- medium green-grey, fine grained to aphanitic - combination of pillowed and fragmental flows - non magnetic - alteration gives mottled appearance to the core - weak chlorite alteration - stronger chlorite alteration associated with selvages - quartz-plagioclase-chlorite veining - pillowed units contain 5% chlorite amygdales (<1 - 2mm) - some pillow selvages exhibit hyaloclastic texture - trace disseminated pyrrhotite and pyrite associated with veining - weak epidote alteration - sharp lower contact	tr		Po,Py	d								
209.62	233.05	Dacite	Da	- medium to light green-grey, aphanitic to fine grained - pillowed unit - 1 to 2% chlorite and quartz filled amygdales (<1 - 15mm) - pillow selvages exhibit some hyaloclastic texture - weak chlorite alteration - stronger chill alteration associated with pillow selvages - crackle breccia associated with cooling - quartz-plagioclase-chlorite veining - sharp lower contact with amygdaloidal unit												
233.05	245.42	Dacite	Da	- light to medium grey, aphanitic - 5 to 10% quartz-chlorite-pyrrhotite filled amygdales throughout unit (2 to > 15mm) - many amygdales are filled with both quartz and pyrrhotite - pervasive chlorite alteration - some areas of weak epidote alteration - quartz-plagioclase-chlorite veining - unit could possibly be pillowed - no fragmental zones - gradational lower contact marked by a decrease in quartz-pyrrhotite filled amygdales	2-3		Po	d								
245.42	255.68	Dacite/ Andesite	Da/Ad	- medium grey, aphanitic, massive, pillowed, fragmental. - fragmental zones confined to pillow selvages or flow contacts - 1 to 2% chlorite filled amygdales (<1 to 5mm)												

From (m)	To (m)	Rock Type	Legend	Description	Sulphides				Samples		Faults and Shears (1-10)							
					%	% Frags	Type	Mode	Type	Tag #	From (m)	To (m)	Brittle	Ductile	From (m)	To (m)		
				- weak chlorite alteration - chlorite-plagioclase-quartz veining - lower contact is more intensely altered - sharp lower contact at 45CA														
255.68	264.95	Komatiitic Pyroxenite	KPx/oc	- medium to light grey-green, fine to medium grained - massive, non magnetic - chlorite-tremolite altered with lesser serpentine - serpentine-chlorite-carbonate veining - olivine content increases downhole - trace to 2% disseminated pyrrhotite, appears to be a replacement of other minerals - becomes more orthocumultic downhole - gradational lower contact	tr-2		Po	d										
264.95	311.11	Komatiitic Peridotite	Koc/mc	- black-green fine to medium grained, massive olivine ortho to mesocumulate - strong serpentine alteration - weakly to moderately magnetic - serpentine-carbonate veining upto 10cm wide - trace very fine grained disseminated sulphides occur within sections throughout the unit - gradational contact over 20cm	tr		Py,Po	d										
311.11	311.5	Komatiitic Pyroxenite	KPx	- medium grey-green, fine grained to aphanitic - non magnetic - pervasive serpentine veining - flame like immiscible melts of footwall rock - highly contaminated komatite - strong chlorite-tremolite alteration - sharp lower contact at 90CA														
311.5	313.58	Dacite	Da	- medium grey-green and pink - aphanitic, bleached - appears to be remelted and/or cross-cut by veins with a pink cast, quartz veins - could possibly be a xenolith - unit intruded by several dyklets of komatiitic pyroxenite - highly silicified - sharp lower contact at 60CA														
313.58	315.6	Komatiitic Pyroxenite	KPx/oc	- dark grey-green, fine to medium grained, massive - moderately to strongly magnetic - clasts and whips of dacite near upper contact - strong chlorite-tremolite and serpentine alteration	tr		Py,Po	d										

From (m)	To (m)	Rock Type	Legend	Description	Sulphides				Samples		Faults and Shears (1-10)							
					%	% Frags	Type	Mode	Type	Tag #	From (m)	To (m)	Brittle	Ductile	From (m)	To (m)		
				- serpentine-chlorite-carbonate veining and quartz veining near upper contact - trace disseminated sulphides throughout - gradational lower contact marked by an increase in olivine content														
315.6	336.28	Komatitic Peridotite	Koc/mc	- black-green, fine to medium grained, massive - moderately magnetic - olivine ortho to mesocumulate - strong serpentine alteration - serpentine-carbonate veining - trace disseminated sulphides associated with intercumulus material throughout the unit - becomes slightly more olivine rich toward lower contact - lower contact marked by the development of more sulphides	tr		Po	d	AS	122809	335.28	336.28						
336.28	342.6	Komatitic Peridotite	Koc/mc	- black-green, fine grained, massive. - moderately magnetic - strong serpentine alteration - serpentine-carbonate veining - unit is less olivine rich than the surrounding units - upto 5% disseminated-blebby sulphides - gradational lower contact with diminishing sulphides	5 1 5 1 1		Po,Py Po,Py Po,Py Po,Py	d,b d d,b d	AS AS AS AS	122810 122811 122812 122813 122814	336.28 337.27 339.13 339.95 341.25	337.27 339.13 339.95 341.25						
342.6	350.26	Komatitic Peridotite	Kmc	- black-green fine grained, massive - moderately magnetic - strong serpentine alteration - olivine mesocumulate with some minor zones of adcumulate - serpentine-carbonate veining - very fine grained disseminated sulphides throughout - some concentration of blebby sulphides around veins - gradational lower contact marked by an increase in olivine content and a decrease in sulphides	tr-1 1 4		Po Po Po	d d d,b	AS AS AS	122815 122816 122817	342.6 349 350	343.6 350 350.26						
350.26	417.2	Komatitic Dunite/ Peridotite	Kac/mc	- black-green, fine grained, massive - moderately to strongly magnetic - olivine adcumulate to mesocumulate - strongly serpentine altered - serpentine-carbonate veining - some chrysotile asbestos veins - trace very fine grained disseminated sulphides throughout - sharp lower contact	tr		Po	d	AS	122818	350.24	351.26						

From (m)	To (m)	Rock Type	Legend	Description	Sulphides				Samples				Faults and Shears (1-10)			
					%	% Frags	Type	Mode	Type	Tag #	From (m)	To (m)	Brittle	Ductile	From (m)	To (m)
417.2	424.35	Komatiitic	Kmc/oc	- black to dark grey-green, fine grained, massive	tr		Po,Py	d	AS	122819	422.35	423.35				
		Peridotite		- moderately magnetic	tr		Po,Py	d	AS	122820	423.35	424.35				
				- olivine ortho to mesocumulate												
				- strong serpentine alteration, some chlorite-tremolite												
				- serpentine-carbonate veining												
				- minor pyrite-pyrrhotite along serpentine slip planes												
				- lower contact marked by sulphide development												
424.35	425.09	Komatiitic	Koc/Px	- dark grey-green, fine grained, massive.	8		Po,Pn	d,n	AS	122821	424.35	425.09				
		Peridotite/		- olivine orthocumulate												
		Pyroxenite		- weakly magnetic												
				- strong serpentine alteration												
				- chlorite-tremolite altered												
				- serpentine veining												
				- heavily disseminated and net textured pyrrhotite and pentlandite												
				- lower contact marked by the end of sulphides												
425.09	425.68	Komatiitic	Koc/Px	- dark grey-green, fine grained, massive.	3		Po,Pn	v,d	AS	122822	425.09	425.68				
		Pyroxenite		- weakly magnetic												
				- strong chlorite-tremolite and serpentine alteration												
				- serpentine-carbonate veining												
				- fine grained disseminated and veined pyrrhotite and pentlandite												
				- sharp lower contact marked by the end of sulphides												
425.68	427	Komatiitic	KPx	- dark grey, fine grained to aphanitic	tr		Po	d	AS	122823	425.68	427				
		Pyroxenite		- basal contact zone is not magnetic												
				- chlorite-tremolite and serpentine altered												
				- serpentine-chlorite-carbonate veining												
				- trace disseminated pyrrhotite associated with veins												
				- sharp lower contact at 60CA												
427	432.92	Dacite	Da	- medium grey to grey-green, aphanitic to fine grained	tr		Po	d	AS	122824	427	428.5				
				- non magnetic	2		Po	v	AS	122825	428.5	430				
				- weak chlorite alteration												
				- chlorite-quartz-plagioclase-pyrrhotite veining												
				- possibly pillowed												
				- 2% chlorite-quartz filled amygdaloids (<1 to 2mm)												
				- crackle breccia												
				- lower contact marked by an increase in pyrrhotite content												
432.92	440.8	Dacite	Da\$	- medium grey-green to dark grey, aphanitic	2		Po,Py	v	AS	122826	432.92	434.5				
				- non magnetic	2		Po,Py	v	AS	122827	434.5	436				
				- pillowed and fragmental	4		Po,Py	v	AS	122828	436	437.5				

From (m)	To (m)	Rock Type	Legend	Description	Sulphides				Samples		Faults and Shears (1-10)					
					%	% Frags	Type	Mode	Type	Tag #	From (m)	To (m)	Brittle	Ductile	From (m)	To (m)
				- 2 to 4% quartz-chlorite-pyrrhotite filled amygdalae (<1 to 4mm)	1		Po,Py	v	AS	122829	437.5	439				
				- weak chlorite alteration	4		Po,Py	v	AS	122830	439	440.8				
				- chlorite-quartz-pyrrhotite veining												
				- lower contact marked by a decrease in sulphide content												
440.8	472.6	Dacite	Da	- light grey-green, aphanitic.	tr-1		Po	d,v								
		Fragmental		- non magnetic, pillow fragmental												
				- 1 to 10% quartz-chlorite-pyrrhotite filled amygdalae in clasts (<1 to >15mm)												
				- pyrrhotite content varies throughout												
				- weak chlorite alteration, chlorite-quartz veining												
472.6	488	Dacite	Da	- medium to light grey-green, aphanitic	1		Po	d,v								
				- chlorite-quartz-pyrrhotite filled amygdalae (1 to 15mm)												
				- weak chlorite alteration												
				- chlorite-quartz veining												
				- non magnetic												
				- pillowed, minor fragmental zones in selvages												
				- pyrrhotite associated with amygdalae and veins												
488				END OF HOLE												

Area/Township	N.T.S.	Year	Project	Property	Claim Numbers
Bannockburn	41P/NE	1997	Exploration	Bannockburn	


Hole Number	Survey Type	Dip (Deg.)	Azim Grid (Deg.)	Azim Astro. (Deg.)	Hole Length (m)	Core Size
BN-14-97	Physical Properties	-58	270	250	575.00 m	NQ

Northing (Grid m)	Easting (Grid m)	Northing (UTM)	Easting (UTM)	Northing (Lat.)	Easting (Long.)	Elevation (m)
9900	7306					362 m

Logged By	Date Logged	Drilled By	Date Started	Date Finished	Core Storage
Paul Davis	29-Sep-97	Bradley Bros.	17-Sep-97	26-Sep-97	Hollinger Bldg.

Casing Depth (m)	Casing Pulled (Y/N)	Cemented (Y/N)	Geophysics (Y/N)	Down Hole Geophysics (Type and Contractor)
36 m	N	N	Y	Crone

Assay Numbers	Assay Lab	Certificate #	Whole Rock Geochemistry
122831 -122851	Bondar- Clegg		

<p>Comments:</p> 
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From (m)	To (m)	Rock Type	Legend	Description	Sulphides				Samples		From (m)	To (m)	Faults and Shears (1-10)					
					%	% Frags	Type	Mode	Type	Tag #			Brittle	Ductile	From (m)	To (m)		
0.00	36.00	Casing																
36.00	35.40	Iron Formation	IF	- light grey, aphanitic - chert with bands of pyrite and pyrrhotite - sulphide veining causes some brecciation of chert - black quartz veins - possibly a boulder - contact not preserved in core	10		Po,Py	v	AS	122831	35.00	35.40						
35.40	122.30	Dacite	Da	- light and medium grey, aphanitic	tr-2		Po	d					3		106.00	107.00		
		Fragmental		- pillow fragmental - large clasts upto 15cm, some of which contain chlorite filled amygdalae with quartz and pyrrhotite - weak chlorite alteration - quartz-chlorite and epidote veining - some zones appear to be pillowed - trace to 2% pyrrhotite in sections - some evidence of shearing at 30CA - some zones are silicified - gradational lower contact marked by decreasing size of clasts									2		114.63	114.84		
122.30	140.17	Dacite	Da	- medium grey-green, aphanitic														
		Fragmental		- fragmental unit, average clast size is less than 1cm - some more massive zones may be large clasts - some clasts contain chlorite filled amygdalae - weak chlorite alteration - quartz-chlorite veins - sharp lower contact 80CA														
140.17	161.41	Dacite	Da	- light to medium grey-green, aphanitic														
		Fragmental		- fragmental unit with an average clast size of 5cm - chlorite-quartz filled amygdalae - weak chlorite alteration - quartz-chlorite veins - some zones are more highly altered masking the fragmental texture of the unit - sharp lower contact marked by the disappearance of fragments														
161.41	203.88	Dacite	Da	- medium grey, aphanitic to fine grained														
		Fragmental		- pillowed with fragmental selvages - weak chlorite alteration - quartz-chlorite veining - unit contains 5% chlorite filled amygdalae (<1 to 2mm)														



From (m)	To (m)	Rock Type	Legend	Description	Sulphides				Samples				Faults and Shears (1-10)					
					%	% Frags	Type	Mode	Type	Tag #	From (m)	To (m)	Brittle	Ductile	From (m)	To (m)		
				- sharp, undulating lower contact														
203.88	209.50	Dacite	Da	-medium green-grey, aphanitic, and massive - quartz filled amygdaloids (<1 to 8mm) - appears to be a massive flow - non magnetic - weak chlorite alteration - quartz-chlorite veining - sharp lower contact	tr		Po	d										
209.50	214.75	Dacite Fragmental	Da	- medium grey, aphanitic, fragmental - clasts range in size from 0.5cm to 4.0cm - average clast size is approximately 1cm - weak chlorite alteration - quartz-chlorite veining - clasts contain chlorite filled amygdaloids (<1 to 2mm) - sharp lower contact														
214.75	263.07	Dacite	Da	- medium grey-green, aphanitic - pillowed flows - 10% quartz filled amygdaloids (2 to 30mm), and chlorite filled amygdaloids (<1 to 3mm) - proportion of amygdaloids varies throughout the unit - weak to moderate chlorite alteration - quartz-chlorite veining - some pillow selvages exhibit variolitic texture - 259.30m to 263.07m: bleached contact zone with strong silicification and 2% pyrrhotite development replacing amygdaloids - sharp lower contact, but appears gradational	2 2		Po Po	d d	AS AS	122832 122833	259.30 261.00	261.00 263.07						
263.07	263.93	Gabbro Komatiitic?	Gb.K	-light grey, fine grained, massive - weakly magnetic - appears to be composed of plagioclase and pyroxene - contact zone - grain size increases downhole - looks gabbroic, equigranular - trace to 2% disseminated pyrrhotite - sharp lower contact at 85CA - quartz veining, and weak chlorite alteration of pyroxenes	2		Po	d	AS	122834	263.07	263.92						
263.93	269.18	Komatiitic Pyroxenite	KPx	- medium green, fine to medium grained, massive - non magnetic - pyroxene cumulate, possibly some olivine - strong chlorite-tremolite, and serpentine alteration														

From (m)	To (m)	Rock Type	Legend	Description	Sulphides				Samples		Faults and Shears (1-10)						
					%	% Frags	Type	Mode	Type	Tag #	From (m)	To (m)	Brittle	Ductile	From (m)	To (m)	
				- quartz-carbonate-chlorite veining													
				- minor serpentine veining													
				- gradational lower contact marked by the development of plagioclase													
				- some zones appear to have pyroxene spinifex													
269.18	302.69	Komatiitic Gabbro	KGb	- medium grey with white, fine to medium grained	tr		Po	d									
				- massive, non magnetic													
				- composed primarily of plagioclase, pyroxene, and leucoxene													
				- some zones are olivine-phyric													
				- weak chlorite alteration													
				- plagioclase occurs as zoned laths													
				- varying mineral contents throughout the unit													
				- quartz-chlorite veining													
				- trace disseminated pyrrhotite associated with veining													
				- leucoxene content increases downhole													
				- gradational lower contact with decreasing plagioclase content													
302.69	324.94	Komatiitic Pyroxenite-Gabbro	KPx/Gb	- medium grey-green, fine to medium grained													
				- massive, non magnetic													
				- composed primarily of pyroxene, leucoxene, with minor plagioclase													
				- some zones are olivine-phyric													
				- some zones contain felty pyroxene like pyroxene spinifex zones													
				- chlorite-tremolite alteration, with weak serpentine veining													
				- some zones may be more gabbroic													
				- sharp lower contact at 35CA													
				- moderate chlorite-tremolite alteration													
				- unit becomes more mafic downhole													
324.94	330.50	Dacite	Da	- medium grey, aphanitic	tr		Po	v,d									
				- massive to fragmental													
				- non magnetic													
				- crackle breccia													
				- weak chlorite alteration with chlorite-quartz veining													
				- stretched chlorite filled amygdales (<1 to 2mm)													
				- possibly pillowed with fragmental textures in selvages													
				- sharp lower contact at 20CA													
330.50	333.93	Komatiitic Pyroxenite	KPx/oc	- medium grey-green, fine grained to aphanitic													
				- non magnetic													
				- hopper olivine grains near upper contact													

From (m)	To (m)	Rock Type	Legend	Description	Sulphides				Samples			Faults and Shears (1-10)						
					%	% Frags	Type	Mode	Type	Tag #	From (m)	To (m)	Brittle	Ductile	From (m)	To (m)		
				- olivine orthocumulate - chlorite-tremolite and serpentine alteration - serpentine-chlorite-carbonate veining - unit becomes more mafic downhole - sharp lower contact at 50CA														
333.93	343.07	Dacite	Da	- medium grey, aphanitic to medium grained - massive, possibly pillowed - non magnetic - upper 2m of the unit have been recrystallised - strong chlorite alteration extends 50cm from upper contact, weak chlorite alteration throughout the rest of the unit - quartz-plagioclase-chlorite veining - the entire unit has possibly been partly recrystallised - trace pyrrhotite associated with veins - sharp lower contact at 30CA	tr		Po	d										
343.07	344.46	Komatiitic Pyroxenite	KPx/oc	- medium grey-green, fine grained, massive - non magnetic - olivine orthocumulate - equant and lath-like olivine crystals - chlorite-tremolite and serpentine alteration - serpentine-chlorite veining - probably intrusive with quenched upper & lower contacts - lower contact at 50CA														
344.46	367.38	Dacite	Da	- medium grey, aphanitic to fine grained - massive to pillowed - non magnetic - partially recrystallised - chlorite filled amygdales (<1 to 3mm) - weak chlorite alteration - chlorite-quartz-carbonate veining - trace sphalerite associated with veining at 347.63m and 349.01m, also chalcopyrite - trace disseminated pyrrhotite associated with veining - chlorite veining increases toward lower contact - sharp lower contact at 65CA	tr		Po	d,v										
					tr		Sph	d,v										
367.38	368.83	Komatiitic Pyroxenite	KPx/oc	- dark grey-green, fine to medium grained - non magnetic - olivine orthocumulate - quenched upper and lower contacts - strong chlorite-serpentine alteration														

From (m)	To (m)	Rock Type	Legend	Description	Sulphides				Samples				Faults and Shears (1-10)						
					%	% Frags	Type	Mode	Type	Tag #	From (m)	To (m)	Brittle	Ductile	From (m)	To (m)			
				- serpentine-carbonate-chlorite veining - matrix has been altered to black in colour - sharp lower contact at 40CA															
368.83	374.10	Dacite	Da	- medium grey, fine grained, massive - non magnetic - appears to be partly recrystallised with a separation of quartz and mafics - weak chlorite alteration - quartz-chlorite-plagioclase veining - lower portion of the unit seems to be more recrystallised - sharp lower contact at 50CA															
374.10	376.88	Komatiitic Gabbro / Pyroxenite	KGb/Px	- dark grey, fine to medium grained - massive, non magnetic - 3% leucoxene - chlorite-tremolite altered - plagioclase-chlorite veining - possible mixing of dacite and komatiite - sharp lower contact at 70CA marked by a change in colour and the disappearance of leucoxene															
376.88	377.75	Komatiitic Pyroxenite	KPx	- medium to light green, fine to medium grained - non magnetic - composed primarily of chlorite and tremolite - strong tremolite-chlorite alteration - minor shearing - chlorite-serpentine veining - gradational lower contact															
377.75	379.15	Komatiitic Peridotite/Pyroxenite	Koc	- medium to dark green - massive olivine orthocumulate - weakly magnetic - serpentine-chlorite alteration - serpentine-chlorite veining - gradational lower contact															
379.15	406.28	Komatiitic Peridotite	Kmc/oc	- black-green, fine grained, massive - matrix is light grey in colour - moderately magnetic - olivine meso to orthocumulate - strong serpentine alteration - possibly a few relict olivines - serpentine-carbonate veining - dacite clast from 400.73m to 400.82m. clast is partially	tr		Po,Py	d											

From (m)	To (m)	Rock Type	Legend	Description	Sulphides				Samples		Faults and Shears (1-10)						
					%	% Frags	Type	Mode	Type	Tag #	From (m)	To (m)	Brittle	Ductile	From (m)	To (m)	
				rodingitised with sharp but undulating contacts													
				- gradational lower contact with an increase in olivine content													
406.28	488.99	Komatiitic Dunite/ Peridotite	Kac/mc	- black-green, fine grained, massive	tr-1		Po,Py	d						5		457.75	457.85
				- moderately magnetic	tr		Py,Po	d	AS	122835	476.00	477.50					
				- olivine adcumulate to mesocumulate	tr		Py,Po	d	AS	122836	477.50	479.00					
				- strong serpentine alteration	1		Py,Po	d	AS	122837	479.00	480.50					
				- serpentine-carbonate veining	1		Py,Po	d	AS	122838	480.50	482.00					
				- trace - 1% disseminated pyrite and pyrrhotite throughout	1		Py,Po	d	AS	122839	482.00	483.50					
				unit with some zones having higher concentrations	1		Py,Po	d	AS	122840	483.50	485.00					
				- Dacite clast from 412.80m to 413.27m, the clast is partly	tr		Py,Po	d	AS	122841	485.00	486.50					
				rodingitised and recrystallised with sharp, undulating and	tr		Py,Po	d	AS	122842	486.50	488.00					
				jagged contacts	tr		Py,Po	d	AS	122843	488.00	488.99					
				- gradational lower contact marked by an increase in sulphides and a decrease in olivine													
488.99	490.13	Komatiitic Peridotite/ Pyroxenite	Koc/Px	- black to dark grey, fine grained to aphanitic	3		Po	b	AS	122844	489.99	490.13					
				- massive, non magnetic													
				- strong serpentine and chlorite-tremolite alteration													
				- serpentine-carbonate veining													
				- decrease in olivine content downhole													
				- 3% blebby sulphides													
				- gradational decrease in olivine content downhole													
				- lower contact sharp at 60CA marked by colour change													
490.13	491.84	Komatiitic Pyroxenite	KPx	- medium grey-green, aphanitic to fine grained	tr		Po	d	AS	122845	490.13	491.84	8.00		491.40	491.47	
				- massive													
				- contains some clasts of what appears to be bleached orthocumulate													
				- strong chlorite-tremolite alteration													
				- serpentine-chlorite-carbonate veining													
				- alteration masks textures													
				- sharp lower contact at 55CA													
491.84	496.30	Dacite	Da	- medium green-grey, aphanitic, pillowed													
				- non magnetic													
				- 2% chlorite-quartz filled amygdales (<1 to 8mm)													
				- crackle fractures filled with quartz and chlorite													
				- weak chlorite alteration, quartz-chlorite veining													
				- some brecciation associated with veining													
				- sharp lower contact at 85CA													
496.30	497.25	Mafic Dyke/ Intermediate Dyke	Md/Id	- dark grey, aphanitic to fine grained, mssive													
				- non magnetic													

From (m)	To (m)	Rock Type	Legend	Description	Sulphides				Samples				Faults and Shears (1-10)						
					%	% Frags	Type	Mode	Type	Tag #	From (m)	To (m)	Brittle	Ductile	From (m)	To (m)			
				- quenched upper and lower contacts - definitely intrusive - 5 to 10% quartz phenocrysts - almost exhibits a quartz gabbro texture - weak chlorite alteration - quartz-plagioclase veining - sharp lower contact at 85CA															
497.25	514.31	Dacite	Da	- medium grey, aphanitic, massive to pillowed - non magnetic - 5% chlorite-quartz filled amygdalae (<1 to 30mm) - larger amygdalae are filled with transparent quartz - weak chlorite alteration with quartz-chlorite-pyrrhotite veining - lower contact marked by an increase in pyrrhotite content	tr		Po	d,v											
514.31	522.33	Dacite	Da\$	- medium grey-green, aphanitic to fine grained - pillowed, non magnetic - weak chlorite alteration - quartz-chlorite-plagioclase veining plus pyrrhotite - contains alteration zones of quartz-chlorite-pyrrhotite & trace chalcopyrite, these zones may possibly represent pillow selvages - lower contact marked by a reduction in pyrrhotite content - 5% plagioclase-quartz-chlorite filled amygdalae (<1 to 7mm)	4		Po	d,v	AS	122846	514.31	515.05							
					2		Po	d	AS	122847	515.05	516.50							
					2		Po	d,v	AS	122848	516.50	518.00							
					3		Po	v,d	AS	122849	518.00	519.50							
					1		Po	d,v	AS	122850	519.50	521.00							
					4		Po	v,d	AS	122851	521.00	522.30							
522.33	575.00	Dacite	Da	- medium to dark grey, aphanitic to fine grained - massive to pillowed, non magnetic - 5 to 10% quartz-chlorite filled amygdalae (<1 to 10mm) - weak to moderate chlorite alteration - quartz-chlorite veining - some zones appear to be bleached and silicified - some quartz veins upto 20cm wide	tr		Po	d,v											
575.00				END OF HOLE															

Area/Township	N.T.S.	Year	Project	Property	Claim Numbers
Bannockburn	41P/NE	1997	Exploration	Bannockburn	


Hole Number	Survey Type	Dip (Deg.)	Azim Grid (Deg.)	Azim Astro. (Deg.)	Hole Length (m)	Core Size
BN-15-97	Physical Properties	-50	270	250	431	NQ

Northing (Grid m)	Easting (Grid m)	Northing (UTM)	Easting (UTM)	Northing (Lat.)	Easting (Long.)	Elevation (m)
10050	7185					356

Logged By	Date Logged	Drilled By	Date Started	Date Finished	Core Storage
Paul Davis	3-Oct-97	Bradley Bros.	26-Sep-97	1-Oct-97	Hollinger Bldg.

Casing Depth (m)	Casing Pulled (Y/N)	Cemented (Y/N)	Geophysics (Y/N)	Down Hole Geophysics (Type and Contractor)
13	N	N	Y	Crone

Assay Numbers	Assay Lab	Certificate #	Whole Rock Geochemistry
122852 - 122854	Bondar-Clegg		

<p>Comments:</p> 
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From (m)	To (m)	Rock Type	Legend	Description	Sulphides				Samples				Faults and Shears (1-10)						
					%	% Frags	Type	Mode	Type	Tag #	From (m)	To (m)	Brittle	Ductile	From (m)	To (m)			
0.00	13.00	Casing																	
														5	3	15.40	16.60		
13.00	16.60	Komatiitic Pyroxenite	KPx/opx	- light to medium grey-green, fine grained to aphanitic - non magnetic - appears to be pyroxene spinifex or foliation - bubbly core - chlorite-tremolite altered - chlorite veining - strong quartz veining increases toward lower contact - 1% vein associated pyrite - sharp lower contact at 20CA	tr		Py	d	AS	122852	13.00	14.27							
					2		Py	d,v	AS	122853	14.27	15.24							
					tr		Py	d	AS	122854	15.24	16.60							
16.60	53.05	Dacite	Da	- medium green-grey, fine grained to aphanitic - massive to pillowed with lesser fragmental associated with flow contacts or pillow selvages - non magnetic - quartz-chlorite filled amygdales (<1 to 10mm) - weak chlorite alteration - some sections exhibit variolitic textures - proportion of fragmentals increases downhole - sharp lower contact at 35CA	tr		Po	d											
53.05	121.96	Dacite Fragmental	Da	- medium green-grey, aphanitic - coarse fragmental with pillowed sections - looks like a pillow fragmental - non magnetic - weak to moderate chlorite alteration - quartz-chlorite veining - quartz-chlorite filled amygdales in clasts (<1 to 15mm) - spaced cleavage developed over some sections at 50CA - sharp lower contact marked by a decrease in fragmental component	tr		Po	d,v											
121.96	175.14	Dacite	Da	- medium green-grey, aphanitic, massive - pillowed with fragmental pillow selvages - non magnetic - weak chlorite alteration - quartz-chlorite veining - tension fractures filled with chlorite - upto 3% chlorite-quartz filled amygdales (<1 to 9mm) - sharp lower contact at 40CA															
175.14	176.14	Komatiitic Pyroxenite	KPx	- olive green, aphanitic, massive to brecciated - non magnetic - flow top quenched															



From (m)	To (m)	Rock Type	Legend	Description	Sulphides				Samples		Faults and Shears (1-10)							
					%	% Frags	Type	Mode	Type	Tag #	From (m)	To (m)	Brittle	Ductile	From (m)	To (m)		
				- composed primarily of chlorite-tremolite - chlorite-serpentine veining - sharp lower contact at 70CA														
176.14	176.70	Komatitic Olivine Spinifex	KPx/osx	- medium to dark green, fine to medium grained - olivine-pyroxene random spinifex - non magnetic - becomes coarser grained downhole - becomes more olivine rich downhole - strong serpentine-chlorite-tremolite alteration - serpentine-chlorite veining - gradational lower contact	tr		Py	d										
176.70	181.80	Komatitic Pyroxenite/ Peridotite	Koc	- dark grey and green, fine grained, massive - non to moderately magnetic - olivine orthocumulate, olivine content increases - downhole - serpentinised olivine, chlorite-tremolite altered matrix - trace very fine grained disseminated pyrite - gradational lower contact	tr		Py	d										
181.80	220.51	Komatitic Peridotite	Kmc	- black-green, fine grained, massive - olivine mesocumulate with minor orthocumultic zones - moderately magnetic - strong serpentine alteration - serpentine-carbonate veining - trace pyrrhotite smeared along serpentine veins - 1% very fine grained disseminated pyrite throughout unit - sharp lower contact at 70CA	tr		Po Py	v d										
220.51	220.80	Komatitic Pyroxenite	KPx	- medium green, fine grained, massive - non magnetic - contaminated contact zone - strong chlorite-tremolite alteration - some acicular pyroxene crystals - sharp lower contact at 45CA														
220.80	223.23	Dacite	Da	- light to medium grey, aphanitic to fine grained - massive, non magnetic - contaminated contact zone - unit appears to be bleached and silicified - minor recrystallisation - 2% quartz filled amygdales - possibly a Dacite raft (xenolith) - sharp, undulating lower contact at 35CA														

From (m)	To (m)	Rock Type	Legend	Description	Sulphides				Samples		Faults and Shears (1-10)							
					%	% Frags	Type	Mode	Type	Tag #	From (m)	To (m)	Brittle	Ductile	From (m)	To (m)		
223.23	225.18	Komatiitic Pyroxenite	KPx/oc	- dark grey to dark green, fine grained - weakly to non magnetic - chlorite-tremolite and serpentine altered - chlorite-serpentine veining - olivine content increases downhole - possibly contaminated - some acicular, randomly oriented, olivine and pyroxene crystals in groundmass - gradational lower contact														
225.18	230.88	Komatiitic Pyroxenite	Koc	- dark grey-black, fine grained, massive - olivine orthocumulate - weakly magnetic - serpentine and chlorite-tremolite altered - serpentine-chlorite-carbonate veining - gradational lower contact marked by an increase in olivine and light green altered groundmass														
230.88	247.30	Komatiitic Peridotite Pyroxenite	Koc/mc	- black-green and light green, fine grained, massive - olivine ortho to mesocumulate - weakly magnetic - composed of equant and tabular olivine grains - olivine content varies from 40 to 70% - olivine grains altered to dark green, matrix light - serpentine and chlorite-tremolite altered - serpentine-carbonate veining - gradational lower contact														
247.30	257.38	Komatiitic Peridotite	Kmc/oc	- black-green with light green matrix - fine grained, massive - olivine meso to orthocumulate - weakly to moderately magnetic - variable olivine content - equant olivine grains - serpentine altered and tremolite altered matrix - serpentine-carbonate veining - sharp lower contact marked by a sudden increase in olivine content														
257.38	358.00	Komatiitic Dunite/ Peridotite	Kac/mc	- black-green, fine grained, massive - moderately magnetic - strong serpentine alteration - serpentine-carbonate veining - olivine meso to adcumulate - trace to 1% very fine grained disseminated pyrite and	1		Po.Py	d										

From (m)	To (m)	Rock Type	Legend	Description	Sulphides			Samples		Faults and Shears (1-10)								
					%	% Frags	Type	Mode	Type	Tag #	From (m)	To (m)	Brittle	Ductile	From (m)	To (m)		
				pyrrhotite - bubbly core near lower contact - sharp lower contact at 40CA														
358.00	359.04	Komatiitic Pyroxenite/ Peridotite	KPx/oc	- dark grey-green, fine grained to aphanitic - non magnetic - olivine orthocumulate to pyroxenite - core quite bubbly - pyroxenitic contact zone - strong serpentine alteration with chlorite-tremolite - serpentine-carbonate veining - trace pyrrhotite associated with serpentine-carbonate veining - sharp lower contact marked by a 30cm serpentine vein with a Dacite clast at 40CA	tr		Po	v										
359.04	365.30	Dacite	Da	- light grey-green to medium grey - aphanitic to fine grained, massive - appears bleached and altered - weak chlorite alteration and possibly silicification - mainly massive with fragmental portions - only trace (<1mm) amygdales - lower few metres appear more rhyolitic - quartz-plagioclase-chlorite veining - sharp lower contact at 65CA														
365.30	368.75	Mafic Dyke/ Intermediate Dyke	Md/Id	- dark grey, fine to medium grained, non magnetic - massive, some portions appear to contain quartz phenocrysts - weak chlorite and epidote alteration - quartz-chlorite veining, some of which are brecciated - Dacite clast from 365.75m to 366.35m - quenched contacts - sharp lower contact at 60CA	tr		Po	d										
368.75	431.00	Dacite	Da	- medium to light green-gray, aphanitic - massive to fragmental, possibly pillowed - non magnetic - weak chlorite and epidote alteration - quartz-chlorite-epidote veining - quartz-plagioclase-chlorite filled amygdales (<1 to 4mm) - possible thin mafic veinlets - pillow selvages are fragmental - trace to 1% vein associated pyrite	tr		Py	d,v										
431.00				END OF HOLE														

Area/Township	N.T.S.	Year	Project	Property	Claim Numbers
Bannockburn	41P/NE	1997	Exploration	Bannockburn	


Hole Number	Survey Type	Dip (Deg.)	Azim Grid (Deg.)	Azim Astro. (Deg.)	Hole Length (m)	Core Size
BN-16-97	Physical Properties	-61	270	250	458	NQ

Northing (Grid m)	Easting (Grid m)	Northing (UTM)	Easting (UTM)	Northing (Lat.)	Easting (Long.)	Elevation (m)
10050	7185					356

Logged By	Date Logged	Drilled By	Date Started	Date Finished	Core Storage
Paul Davis	11-Oct-97	Bradley Bros.	1-Oct-97	9-Oct-97	Hollinger Bldg.

Casing Depth (m)	Casing Pulled (Y/N)	Cemented (Y/N)	Geophysics (Y/N)	Down Hole Geophysics (Type and Contractor)
13	N	N	Y	Crone

Assay Numbers	Assay Lab	Certificate #	Whole Rock Geochemistry
122855 - 122860	Bondar-Clegg		

<p><b>Comments:</b></p> 
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From (m)	To (m)	Rock Type	Legend	Description	Sulphides				Samples				Faults and Shears (1-10)						
					%	% Frags	Type	Mode	Type	Tag #	From (m)	To (m)	Brittle	Ductile	From (m)	To (m)			
0.00	13.00	Casing																	
13.00	15.39	Dacite	Da	- medium grey, aphanitic to fine grained, massive - non magnetic - 2% quartz filled amygdales (2 to 5mm) - weak chlorite alteration but becoming moderate at basal contact - quartz-chlorite veining - sharp lower contact at 55CA															
15.39	18.77	Komatitic Pyroxene Spinifex	Kpx	- medium grey-green, fine to medium grained - non magnetic - composed of felty pyroxene laths - central portion of unit becomes slightly olivine porphyritic - chlorite-tremolite alteration - quartz-chlorite-serpentine veining - a little mud or fault gouge at the basal contact - sharp lower contact at 40CA - quenched upper contact															
18.77	35.97	Dacite	Da	- light to medium grey, aphanitic - pillowed, non magnetic - 3% quartz-chlorite filled amygdales (1 to 10mm) - weak chlorite alteration - quartz-chlorite-plagioclase veining - may contain mafic dyklets or more intensely chlorite altered pillow selvages - lower contact more strongly chlorite altered - sharp lower contact at 25CA															
35.97	47.50	Komatitic Pyroxenite/ Olivine Spinifex	KPx/oxp	- medium grey-green, fine grained, massive - quenched upper and lower contacts - non magnetic - olivine spinifex over the first 20cm of the unit - chlorite-tremolite-carbonate altered - carbonate-chlorite veining - 30% carbonate minerals - trace pyrite and pyrrhotite disseminated throughout unit - grain size increases downhole - possibly intrusive - sharp lower contact	tr		Py, Po	d											
47.50	72.21	Dacite	Da	- medium grey to grey-green, aphanitic to fine grained - non magnetic - 4% chlorite-quartz filled amygdales (<1 to 30mm)															

From (m)	To (m)	Rock Type	Legend	Description	Sulphides				Samples		Faults and Shears (1-10)						
					%	% Frags	Type	Mode	Type	Tag #	From (m)	To (m)	Brittle	Ductile	From (m)	To (m)	
				- large amygdalae have graphic texture - pillowed unit - weak chlorite alteration - quartz-plagioclase-chlorite veining - stronger chlorite alteration associated with selvages - sharp lower contact marked by a 20cm wide quartz vein													
72.21	83.23	Dacite Fragmental	Da	- medium grey, aphanitic, fragmental - non magnetic - appears to be autobrecciated - alteration possibly highlights clasts - weak chlorite alteration - 1% chlorite filled amygdalae (<1mm) - quartz-chlorite-plagioclase veining - sharp lower contact at 25CA													
83.23	212.39	Dacite	Da	medium to dark grey-green, aphanitic to fine grained - mainly pillowed but some fragmental sections associated with pillow selvages - non magnetic - 1 to 4% quartz-chlorite filled amygdalae (<1 to 10mm) - weak to moderate chlorite alteration - quartz-chlorite veining - some pyrrhotite within amygdalae - lower contact is more intensely chlorite altered - sharp lower contact at 70CA													
212.39	216.65	Komatiitic Pyroxenite	KPx	- light green-grey, aphanitic - has a brecciated appearance, may once have been spinifex but now altered to chlorite-tremolite - non magnetic - strong chlorite-tremolite alteration - core has a mottled appearance - possibly sheared or faulted - sharp lower contact at 30CA					AS	122855	215.15	216.65	5		213.46	213.80	
216.65	221.82	Komatiitic Pyroxenite	Koc/Px	- medium green, fine grained, massive - non magnetic - olivine orthocumulate to olivine-phyric - some primary textures have been obliterated by shearing - strong chlorite-tremolite-serpentine alteration - equant and bladed olivine grains - serpentine veining - gradational lower contact	1		Po, Cpy	d	AS	122856	216.65	218.00					
					1		Po, Cpy	d	AS	122857	218.00	219.50					
					1		Po, Cpy	d	AS	122858	219.50	221.00					
					1		Po, Cpy	d	AS	122859	221.00	221.82					

From (m)	To (m)	Rock Type	Legend	Description	Sulphides				Samples		Faults and Shears (1-10)					
					%	% Frags	Type	Mode	Type	Tag #	From (m)	To (m)	Brittle	Ductile	From (m)	To (m)
221.82	223.40	Komatitic Pyroxenite	KPx	- medium grey-green, aphanitic to fine grained - non magnetic - basal pyroxenite - strong chlorite-tremolite alteration, also serpentine alteration - serpentine veining -sharp lower contact at 30CA					AS	122860	221.82	223.40				
223.40	268.53	Dacite	Da	- medium grey, aphanitic to fine grained - massive to pillowed - non magnetic - 5% chlorite-quartz and pyrrhotite filled amygdaloids - weak chlorite alteration - quartz-chlorite-plagioclase veining - chlorite altered contacts and selvages - sharp lower contact at 45CA	tr		Po	d								
268.53	269.95	Komatitic Pyroxenite	KPx/oc	- medium grey, fine grained, massive - very weakly magnetic - pyroxenitic unit in contact with Dacite - chlorite-tremolite altered - serpentine-carbonate veining - gradational lower contact	tr		Py	d								
269.95	295.11	Komatitic Peridotite	Koc/mc	- black-green and light green, fine grained - massive olivine ortho to mesocumulate - weakly to moderately magnetic - matrix has a light green colour - serpentine altered - matrix is possibly rodingitised - serpentine-carbonate veining - trace amounts of talc - gradational lower contact - trace amounts of magnetite and disseminated sulphides	tr		Po,Py	d								
295.11	374.54	Komatitic Peridotite/ Dunite	Kmc/ac	- black-green, fine grained, massive - weakly to moderately magnetic - olivine meso to accumulate - strong serpentine alteration - magnetite development - serpentine-carbonate veining - some asbestos veining - trace very fine grained disseminated pyrite throughout - gradational lower contact	1		Py	d								

From (m)	To (m)	Rock Type	Legend	Description	Sulphides				Samples				Faults and Shears (1-10)						
					%	% Frags	Type	Mode	Type	Tag #	From (m)	To (m)	Brittle	Ductile	From (m)	To (m)			
374.54	375.73	Komatiitic Pyroxenite	KPx/mc	- medium grey, aphanitic to fine grained - massive and brecciated - olivine orthocumulate, basal pyroxenite - chlorite-tremolite and serpentine alteration - serpentine-chlorite-quartz veining - alteration causes brecciation - non magnetic sharp lower contact at 20CA															
375.73	458.00	Dacite	Da	- medium to light grey, aphanitic to fine grained - massive to pillowed, some crackle breccia - 2 to 3% quartz-chlorite filled amygdalae (<1 to 20mm) - mainly weak chlorite alteration - moderate to strong silicification from 396.0m to 412.0m - quartz-chlorite alteration - minor epidote associated with quartz veining - minor brittle faults offset unit - from 456.0m to the end of the hole; well developed spaced cleavage at 40CA giving the core a striped appearance															
458.00				END OF HOLE															



Area/Township	N.T.S.	Year	Project	Property	Claim Numbers
Bannockburn	41P/NE	1997	Exploration	Bannockburn	

Hole Number	Survey Type	Dip (Deg.)	Azim Grid (Deg.)	Azim Astro. (Deg.)	Hole Length (m)	Core Size
BN-17-97	Physical Properties	-58	270	250	527	NQ

Northing (Grid m)	Easting (Grid m)	Northing (UTM)	Easting (UTM)	Northing (Lat.)	Easting (Long.)	Elevation (m)
9950	7300					362

Logged By	Date Logged	Drilled By	Date Started	Date Finished	Core Storage
Paul Davis	23-Oct-97	Bradley Bros.	14-Oct-97	20-Oct-97	Hollinger Bldg.

Casing Depth (m)	Casing Pulled (Y/N)	Cemented (Y/N)	Geophysics (Y/N)	Down Hole Geophysics (Type and Contractor)
34	N	N	Y	Quantec

Assay Numbers	Assay Lab	Certificate #	Whole Rock Geochemistry
122861 to 122870	Bondar-Clegg		

<p>Comments:</p> 
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From (m)	To (m)	Rock Type	Legend	Description	Sulphides				Samples				Faults and Shears (1-10)					
					%	% Frags	Type	Mode	Type	Tag #	From (m)	To (m)	Brittle	Ductile	From (m)	To (m)		
0.00	34.00	Casing																
34.00	53.84	Dacite Fragmental	Da	- medium to dark grey, aphanitic, coarse fragmental - composed of large clasts in an aphanitic matrix - clasts range from massive to quartz and chlorite filled amygdales, 1 to 5% (<1 to 5mm) - some sections are massive to pillow textured flows - weak chlorite alteration - quartz-chlorite veining - some weak epidote associated with veining - gradational lower contact marked by an increase of spotted texture in matrix	tr		Py	d										
53.84	122.70	Dacite Fragmental	Dabx	- medium to light grey, fine grained to aphanitic - matrix appears to be altered to saussuritized plagioclase - plagioclase content increases downhole from 5 to 70% - possibly related to hydrothermal alteration - plagioclase porphyroblasts upto 2mm - some clasts appear to have alteration reaction rims - clasts contain chlorite and quartz filled amygdales - weak chlorite alteration, minor epidote - some short sections of moderate chlorite alteration - quartz-chlorite-carbonate veining - gradational lower contact	tr		Po	d					4 6		75.50 77.68		77.00 77.84	
122.70	151.10	Dacite Fragmental	Dabx	- medium grey-green, aphanitic, fragmental - differential alteration of matrix and fragments - fragments contain quartz-chlorite filled amygdales - weak chlorite alteration - quartz-chlorite veining, some of which contain carbonate - sharp lower contact marked by the disappearance of fragments	tr		Py	d										
151.10	253.45	Dacite	Dapbx	- light to medium grey, aphanitic - pillowed with fragmental selvages and flow contacts - 1 to 3% quartz-chlorite filled amygdales (<1 to 3mm) - weak chlorite alteration - quartz-chlorite-carbonate veining - trace disseminated pyrrhotite concentrated within selvages and veins - some amygdales filled with pyrrhotite - some tension cracks filled with chlorite - sharp lower contact marked by the development of larger amygdales	tr		Po	d										

From (m)	To (m)	Rock Type	Legend	Description	Sulphides				Samples				Faults and Shears (1-10)				
					%	% Frags	Type	Mode	Type	Tag #	From (m)	To (m)	Brittle	Ductile	From (m)	To (m)	
253.45	278.92	Dacite	Da	- light to medium grey-green, aphanitic, pillowed - 5% quartz-chlorite filled amygdalae (<1 to30mm) - well developed pillow selvages - weak chlorite alteration - quartz-chlorite veining - trace pyrrhotite and pyrite associated with veins - sharp lower contact marked by quartz-chlorite vein	tr		Py,Po	d									
278.92	293.47	Komatiitic Pyroxenite	KPx	- medium grey-green, fine grained, massive - composed of pyroxene altered to chlorite-tremolite - some gabbroic textures - upto 3% leucoxene - non magnetic - weak serpentine alteration - chlorite-serpentine-carbonate veining - unit maintains a consistent composition throughout - sharp lower contact at 30CA	tr		Po	d									
293.47	302.96	Dacite	Da	- light to medium grey, aphanitic to fine grained - non magnetic, massive - weak chlorite alteration, stronger in lower half of unit - chlorite-plagioclase-quartz veining - pyrrhotite, pyrite, and trace chalcopyrite as alteration products, developed as blebs, smears, and disseminations - possible minor foliation - unit possibly consists of two separate flows - sharp lower contact at 75CA	3		Py,Po	d,b	AS	122861	295.67	297.90					
302.96	305.81	Komatiitic Pyroxenite	Kpx	- medium to dark green, fine grained to aphanitic - composed of chlorite and tremolite - possibly some minor pyroxene spinifex - weak serpentinisation - chlorite-serpentine veining - upper contact looks rubbly - lower contact could be an altered dacite but is very soft - lower contact is hazy									4		304.85	305.03	
305.81	316.63	Dacite	Da	- medium grey, aphanitic, massive to pillowed - 2 to 3% quartz filled amygdalae (<1 to3mm) - weak chlorite alteration - quartz-plagioclase-chlorite veining - lower contact has onion-skinned fragments - sharp lower contact at 60CA													

From (m)	To (m)	Rock Type	Legend	Description	Sulphides				Samples		Faults and Shears (1-10)							
					%	% Frags	Type	Mode	Type	Tag #	From (m)	To (m)	Brittle	Ductile	From (m)	To (m)		
316.63	320.70	Komatiitic Pyroxenite	KPx/oc	- medium green, fine grained, non magnetic - quenched upper and lower contacts - olivine orthocumulate - chlorite-tremolite and serpentine altered - serpentine-chlorite veining - increase in olivine downhole - sharp lower contact at 80CA														
320.70	355.05	Dacite	Da	- medium grey-green, aphanitic - non magnetic - 1 to 2% quartz-chlorite filled amygdales (<1 to 13mm) - weak chlorite alteration - quartz-chlorite veining - trace disseminated and veined pyrrhotite and pyrite - sharp lower contact marked by rubbly core	tr		Po	d,v										
355.05	356.35	Komatiitic Pyroxenite/ Peridotite	Koc	- dark grey, fine grained, massive - non magnetic - equant and bladed olivine crystals - chlorite-tremolite and serpentine altered - serpentine-chlorite veining - sharp lower contact at 35CA														
356.35	364.10	Dacite	Da	- medium grey, aphanitic, massive - non magnetic - 2% chlorite-quartz filled amygdales (<1 to 7mm) - weak chlorite alteration - quartz-chlorite veining - strong chlorite alteration at lower contact - sharp lower contact at 40CA														
364.10	368.30	Komatiitic Peridotite/ Pyroxenite	Koc	- black-green with light flecks, fine grained - quenched upper and lower contacts - non magnetic - olivine orthocumulate - carbonate development - serpentine-carbonate-chlorite alteration - serpentine-chlorite-carbonate veining - trace pyrite and pyrrhotite associated with veining - sharp lower contact masked by alteration	tr		Py,Po	d,v										
368.30	372.20	Dacite	Da	- light to medium grey, aphanitic - non magnetic, massive - <1% chlorite filled amygdales (<1mm) - weak chlorite alteration														

From (m)	To (m)	Rock Type	Legend	Description	Sulphides				Samples		Faults and Shears (1-10)							
					%	% Frags	Type	Mode	Type	Tag #	From (m)	To (m)	Brittle	Ductile	From (m)	To (m)		
				- quartz-chlorite-plagioclase veining - sharp lower contact at 90CA - thin peridotite dykelets														
372.20	375.82	Komatiitic Peridotite/ Pyroxenite	Koc	- black-green, fine grained, massive, non magnetic - olivine orthocumulate - upper contact appears to be contaminated - serpentine-chlorite-tremolite altered - serpentine-chlorite veining - sharp lower contact at 30CA														
375.82	376.75	Dacite	Da	- medium grey, aphanitic, massive - possible xenolith - moderate chlorite alteration - quartz-chlorite veining - sharp lower contact at 40CA														
376.75	377.41	Komatiitic Pyroxenite/ Peridotite	Koc	- black-green, fine grained to aphanitic, massive - non magnetic - chlorite-tremolite-serpentine alteration - serpentine-chlorite veining - sharp lower contact at 30CA														
377.41	381.64	Dacite	Da	- light grey, aphanitic, massive - non magnetic - 2% stretched, chlorite filled amygdalae (<1 to 4mm) - weak chlorite alteration, possibly silicified - some mottled texture - quartz-chlorite veining - altered lower contact zone - sharp lower contact at 70CA														
381.64	382.48	Komatiitic Gabbro/ Pyroxenite	KGb/Px	- dark grey, fine grained, massive - probably intrusive - weak chlorite alteration - lots of quartz-plagioclase veining - sharp, undulating lower contact														
382.48	384.24	Dacite	Da	- medium grey, aphanitic, massive - non magnetic - weak chlorite alteration - quartz-chlorite veining - sharp, undulating lower contact														

From (m)	To (m)	Rock Type	Legend	Description	Sulphides				Samples				Faults and Shears (1-10)						
					%	% Frags	Type	Mode	Type	Tag #	From (m)	To (m)	Brittle	Ductile	From (m)	To (m)			
384.24	394.90	Komatitic Pyroxenite	KPx	- medium grey-green, fine to medium grained - massive, with some gabbroic textures - contains upto 3% leucoxene or altered olivine with hopper olivine crystals - becomes more medium grained downhole - non magnetic - gradational lower contact															
394.40	402.20	Komatitic Pyroxenite/ Peridotite	Koc	- dark grey, fine grained, massive - weakly to moderately magnetic - olivine orthocumulate with some pyroxene grains - serpentine veining - serpentine-chlorite veining - gradational lower contact marked by an increase in olivine content															
402.20	424.40	Komatitic Peridotite	Koc/mc	- black-green, fine grained, massive - olivine meso to orthocumulate - weakly to moderately magnetic - strong serpentine alteration - serpentine-carbonate veining - weakly to moderately magnetic - core has speckled texture - gradational lower contact															
424.40	465.87	Komatitic Dunite/ Peridotite	Kmc/ac	- black-green, fine grained, massive - moderately magnetic - olivine adcumulate to mesocumulate - strong serpentine alteration - serpentine-carbonate veining - trace very fine grained disseminated pyrite throughout - sharp lower contact extends into the dacite below, like an injection	tr		Py	d						7		454.30	454.35		
465.87	469.13	Dacite/ Komatitic Peridotite/ Pyroxenite	Da/Koc	- light to dark grey, aphanitic to fine grained - non magnetic - komatiitic veins cross-cut unit - bleached with weak chlorite alteration - serpentine and chlorite altered komatiite - quartz-chlorite veining - sharp lower contact, probably a xenolith															
469.13	476.00	Komatitic Peridotite	Koc/mc	- black-green, fine grained, massive - moderately to strongly magnetic - strong serpentine alteration	tr		Po	d											
					tr		Po	d	AS	122862	470.00	472.10							
					2		Po	d,v	AS	122863	472.10	473.53							

From (m)	To (m)	Rock Type	Legend	Description	Sulphides				Samples				Faults and Shears (1-10)			
					%	% Frags	Type	Mode	Type	Tag #	From (m)	To (m)	Brittle	Ductile	From (m)	To (m)
				- unit contains varying proportions of sulphides from trace to 8%	3		Po	d,n,b	AS	122864	473.53	474.85				
				- serpentine-carbonate veining	tr		Po	d	AS	122865	474.85	476.00				
				- gradational lower contact marked by a decrease in olivine content												
476.00	479.15	Komatitic Pyroxenite	Koc/Px	- black-green to dark grey, fine grained, massive	tr		Po	d	AS	122866	476.00	477.50				
				- weakly to non magnetic	tr		Po	d	AS	122867	477.50	479.00				
				- strong serpentine-chlorite-tremolite alteration												
				- serpentine-chlorite-carbonate veining												
				- some moderate shearing in veins												
				- trace disseminated pyrrhotite												
				- possible contaminated lower contact												
				- lower contact at 70CA												
479.15	483.52	Dacite	Da	- light to medium grey, aphanitic												
				- 2% chlorite filled amygdaloids (<1 to 3mm)												
				- upper contact possibly hornfelsed												
				- weak chlorite alteration												
				- quartz-chlorite veins												
				- some komatitic veining close to lower contact												
				- sharp lower contact												
483.52	486.40	Komatitic Pyroxenite	KPx/oc	- black to dark grey, fine grained, massive												
				- non magnetic												
				- olivine orthocumulate with pyroxenite												
				- sharp upper and lower contacts												
				- chlorite-tremolite and serpentine altered												
				- chlorite-carbonate veining												
486.40	527.00	Dacite	Da	- light grey, aphanitic, massive	tr-3		Po,Py	v,d,b								
				- some alteration, causes brecciation	3		Po,Py	b,d	AS	122868	512.00	513.50				
				- 2% chlorite filled amygdaloids (<1 to 3mm)	3		Po	b	AS	122869	513.50	515.00				
				- weak chlorite alteration	3		Py,Po	v,b	AS	122870	515.00	516.50				
				- quartz-chlorite veining												
				- some zones of epidote alteration												
				- trace to 3% disseminated, veined, and blebby pyrrhotite and pyrite												
527.00				END OF HOLE												

Area/Township	N.T.S.	Year	Project	Property	Claim Numbers
Bannockburn	41P/NE	1997	Exploration	Bannockburn	


Hole Number	Survey Type	Dip (Deg.)	Azim Grid (Deg.)	Azim Astro. (Deg.)	Hole Length (m)	Core Size
BN-18-97	Physical Properties	-55	235	215	458	NQ

Northing (Grid m)	Easting (Grid m)	Northing (UTM)	Easting (UTM)	Northing (Lat.)	Easting (Long.)	Elevation (m)
9775	7315					362

Logged By	Date Logged	Drilled By	Date Started	Date Finished	Core Storage
Paul Davis	30-Oct-97	Bradley Bros.	21-Oct-97	28-Oct-97	Hollinger Bldg.

Casing Depth (m)	Casing Pulled (Y/N)	Cemented (Y/N)	Geophysics (Y/N)	Down Hole Geophysics (Type and Contractor)
31	N	N	Y	Quantec

Assay Numbers	Assay Lab	Certificate #	Whole Rock Geochemistry
122871 to 122891	Bondar-Clegg		

<p>Comments:</p> 
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From (m)	To (m)	Rock Type	Legend	Description	Sulphides				Samples				Faults and Shears (1-10)						
					%	% Frags	Type	Mode	Type	Tag #	From (m)	To (m)	Brittle	Ductile	From (m)	To (m)			
0.00	31.00	Casing																	
31.00	116.64	Siltstone/ Sandstone	St/Sa	- dark grey, aphanitic to fine grained - massive to bedded - some beds contain sand size material - tops appear to be uphole - bedding at 30CA - very minor quartz veinlets and associated pyrite - lots of silica, unit exhibits conchoidal fracture - some flame structures and graded bedding - sharp lower contact at 50CA	tr		Py	d											
116.64	182.75	Siltstone/ Conglomerate	St/Sc	- brown-grey, fine grained to aphanitic matrix - well bedded, non magnetic - drop stones and clasts throughout, but concentrated near the upper and lower contacts - clasts are rounded to sub-angular - trace to 1% pyrite and pyrrhotite throughout - clasts are primarily granitic and syenitic in composition but range from chert to mafic volcanic and intrusive in composition - bedding at 30CA to 40CA - graded bedding and drop stone features - sharp undulating basal contact - some beds are very silica rich	tr-1		Po,Py	d											
182.75	188.00	Sediment Breccia	Sbx	- grey-green to light green, aphanitic - angular clasts composed primarily of intermediate volcanics to dacite - high silica content, possible silicification - lower portion of unit appears to be moderately epidote altered or sericitised - onion skin textures caused by alteration - upto 4% veined and disseminated pyrrhotite throughout matrix - moderate chlorite alteration at lower contact - lower contact is marked by a quartz vein	2 1 4 2		Po	v,d v,d v,d v,d	AS AS AS AS	122871 122872 122873 122874	182.75 184.00 185.38 187.00	184.00 185.38 187.00 188.00							
188.00	191.53	Dacite	Da	- grey-green, aphanitic, massive, well fractured - weak chlorite-epidote or sericite alteration - lots of quartz-chlorite veinlets with associated pyrrhotite - possible 1 to 2% pyrrhotite associated with veins and disseminated throughout - non magnetic - upper contact has strong chlorite and silica alteration	1 1		Po	d,v v,d	AS AS	122875 122876	188.00 189.44	189.44 191.53							

From (m)	To (m)	Rock Type	Legend	Description	Sulphides				Samples				Faults and Shears (1-10)					
					%	% Frags	Type	Mode	Type	Tag #	From (m)	To (m)	Brittle	Ductile	From (m)	To (m)		
				- sharp, undulating lower contact marked by an increase in grain size														
191.53	203.40	Komatitic Pyroxenite	Kpx/oc	- medium grey, fine grained, massive - non magnetic - felty pyroxene with minor olivine orthocumulate - chlorite-tremolite altered - chlorite-quartz veining - becomes more mafic downhole - minor pyrrhotite from upper contact - gradational lower contact	tr		Po	d	AS	122877	191.53	192.53						
203.40	223.86	Komatitic Pyroxenite/ Peridotite	Koc/Px	- medium grey-green, fine to medium grained, massive - olivine orthocumulate to olivine-phryic - platy and equant olivine grains - non magnetic - becomes more olivine rich downhole - sharp lower contact at 20CA														
223.86	226.70	Komatitic Pyroxenite	KPx/osx	- medium grey, translucent, massive - possible spinifex texture with platy and dendritic olivine - strong chlorite-tremolite and weak serpentine alteration - chlorite-quartz veining with associated pyrrhotite and chalcocopyrite - sulphides are confined mainly to the veins - becomes more olivine rich downhole - sharp lower contact at 60CA	2		Po,Cpy	d,v	AS	122878	223.86	226.70						
226.70	227.72	Komatitic Pyroxenite/ Peridotite	KPx/oc	- medium grey-green, fine grained to aphanitic - massive, non magnetic - olivine orthocumulate to olivine spinifex - chlorite-tremolite and weak serpentine alteration - serpentine-chlorite veining - weak carbonate development - increase in olivine content downhole - sharp lower contact at 25CA														
227.72	236.68	Komatitic pyroxene/ olivine spinifex	Kpsx/ osx	- light to medium grey-green, fine to medium grained - pyroxene to olivine spinifex - non magnetic - ophitic texture associated with pyroxene spinifex - dendritic and hopper olivine crystals associated with olivine spinifex - becomes more pyroxenitic downhole - variable olivine content														

From (m)	To (m)	Rock Type	Legend	Description	Sulphides				Samples				Faults and Shears (1-10)					
					%	% Frags	Type	Mode	Type	Tag #	From (m)	To (m)	Brittle	Ductile	From (m)	To (m)		
				- chlorite-tremolite and weakly serpentine altered - chlorite-serpentine-plagioclase veining - some possible plagioclase development - sharp lower contact at 30CA marked by change in olivine content														
236.68	280.60	Komatitic Peridotite/ Dunite	Kmc/ac	- black-green, fine grained, massive - olivine meso to adcumulate - moderately magnetic - strong serpentine alteration - serpentine-carbonate veining - gradational lower contact - trace very fine grained disseminated pyrrhotite and pyrite	tr		Po,Py	d										
280.60	295.50	Komatitic Peridotite	Kmc/oc	- dark grey-green, fine grained, massive - weakly to moderately magnetic - olivine meso to orthocumulate - serpentine-chlorite-tremolite alteration - serpentine-carbonate-chlorite veining - trace very fine grained disseminated pyrite and pyrrhotite - occasional stichtite grain - gradational lower contact	tr		Py,Po	d										
295.50	305.75	Komatitic Pyroxenite/ Peridotite	KPx/oc	- medium grey-green, fine grained, massive - non magnetic - becomes more pyroxenitic downhole - strong chlorite-tremolite-serpentine alteration - serpentine-chlorite-carbonate veining - weak carbonate development - some zones of aphanitic pyroxenite - probably a contamination zone - sharp lower contact at 30CA														
305.75	312.21	Dacite	Da	- dark to medium grey, aphanitic - hornfelsed upper contact - zones of quartz filled amygdalae, approximately 10% (<1 to 3mm) - moderate to weak chlorite alteration - quartz-chlorite veining with trace pyrite - sharp lower contact at 80CA	tr		Py	d										
312.21	312.59	Komatitic Pyroxenite Dyke	KPx	- dark green, fine grained, massive - non magnetic														

From (m)	To (m)	Rock Type	Legend	Description	Sulphides				Samples				Faults and Shears (1-10)						
					%	% Frags	Type	Mode	Type	Tag #	From (m)	To (m)	Brittle	Ductile	From (m)	To (m)			
				- strong chlorite alteration - sharp upper and lower contacts - serpentine-chlorite veining - lower contact at 85CA															
312.59	338.11	Dacite	Da	- medium to light grey, aphanitic - massive to possibly pilowed - non magnetic - <1 to 15% chlorite-quartz filled amygdalae ranging in size from <1mm to 20mm - weak chlorite alteration - quartz-chlorite veining - some spotted core associated with alteration - sharp lower contact at 40CA															
338.11	458.00	Dacite	Dabx	- medium grey to grey-green, aphanitic	tr		Po	d	AS	122879	395.00	396.00							
		Fragmental		- pillow fragmental with large and small clasts	tr		Po	d	AS	122880	396.00	397.00							
				- some clasts have onion skin texture	3		Sph	v	AS	122881	397.00	397.78							
				- trace to 5% chlorite-quartz filled amygdalae (<1 to 5mm)	tr		Sph	d	AS	122882	397.78	398.24							
				- angular clasts	tr		Sph	v	AS	122883	398.24	399.50							
				- weak chlorite alteration	1		Sph	v	AS	122884	399.50	401.00							
				- quartz-chlorite alteration	tr		Sph	d,v	AS	122885	401.00	402.50							
				- clast sizes are variable throughout unit	tr		Po	d	AS	122886	402.50	404.00							
				- from 397.0m to 401.0m - vein associated sphalerite	tr		Po	d	AS	122887	416.00	417.50							
				- sphalerite concentration varies from trace to 3%, little alteration associated with sulphides	tr		Po	d	AS	122888	417.50	419.00							
				- some veins may contain high proportions of barite with trace chalcocopyrite and 5% pyrrhotite	2		Po,ba	v	AS	122889	420.50	422.00							
				- some bleaching occurs in unit	tr		Po	v	AS	122891	422.00	423.50							
				- from 416.0m to 423.5m - unit is weakly epidote-chlorite altered and silicified, the lower part of this section contains 2 to 3% pyrrhotite veining															
				- possible hydrothermal system active within unit															
458.00				END OF HOLE															

Area/Township	N.T.S.	Year	Project	Property	Claim Numbers
Bannockburn	41P/NE	1998	Exploration	Bannockburn	1218728-1218720


Hole Number	Survey Type	Dip (Deg.)	Azim Grid (Deg.)	Azim Astro. (Deg.)	Hole Length (m)	Core Size
BN-19-98		-50	270	250	299	BQ

Northing (Grid m)	Easting (Grid m)	Northing (UTM)	Easting (UTM)	Northing (Lat.)	Easting (Long.)	Elevation (m)
12000	7000					362

Logged By	Date Logged	Drilled By	Date Started	Date Finished	Core Storage
PCD	2-Mar-98	Bradley Bros.	23-Feb-98	26-Feb-98	Hollinger Building

Casing Depth (m)	Casing Pulled (Y/N)	Cemented (Y/N)	Geophysics (Y/N)	Down Hole Geophysics (Type and Contractor)
53	N	N	N	

Assay Numbers	Assay Lab	Certificate #	Whole Rock Geochemistry
749601-749622	Bondar-Clegg		122892-122900

<p>Comments:</p> 
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From (m)	To (m)	Rock Type	Legend	Description	Sulphides				Samples		Faults and Shears (1-10)						
					%	% Frags	Type	Mode	Type	Tag #	From (m)	To (m)	Brittle	Ductile	From (m)	To (m)	
0.00	53.00	casing															
53.00	106.25	Komatiitic Dunite	Kac/mc	-black green to medium green, f.g. to m.g., massive olivine adcumulate to mesocumulate					WR	122892	59.00	62.00	2		72.55	73.00	
				-weakly to strongly magnetic					WR	122893	101.00	104.00	9		73.00	73.35	
				-magnetite veining with magnetite rims around the olivines	tr		Po,Py	d	AS	749601	103.25	104.75	2		73.35	74.00	
				-asbestos veining, slip-fibre and lesser cross-fibre, veins up to 30 cm wide	tr		Po,Py	d	AS	749602	104.75	106.25	9		86.25	87.00	
				-carbonate or talc rims around olivine grains									3		87.00	87.90	
				-some faulted and rubby zones with well developed faults gauge									9		87.90	87.92	
				-barren of sulphides until last 10 metres where sulphide content increases down hole									9		88.42	88.44	
				-gradational lower contact marked by appearance of interstitial and blebby Po, Py										6	95.22	95.33	
				-strong serp alteration									9		96.20	96.22	
													8		96.36	96.50	
														7	96.50	96.80	
													5		100.40	100.65	
													6	5	101.85	102.00	
106.25	114.09	Komatiitic Dunite	Kac/mc	-dark green, massive, f.g. to m.g., moderately magnetic	1		Po,Pn,Py	b,d	AS	749603	106.25	107.75					
				-strong serpentine alteration	1		Po,Pn,Py	b,d	AS	749604	107.75	109.35					
				-asbestos veining, cross-fibre and slip-fibre up to 5mm wide	1		Po,Pn,Py	b,d	AS	749605	109.35	110.85					
				-magnetite rims around olivine	1		Po,Pn,Py	b,d	AS	749606	110.85	112.35					
				-trace to 2% intergranular and blebby Po, Pn, Py	1		Po,Pn,Py	b,d	AS	749607	112.35	114.09					
				-some blebs appear to be altered to magnetite					WR	122894	107.00	110.00					
				-sulphide content varies throughout													
				-lower contact marked by increase in sulphide content and blebs													
114.09	125.06	Komatiitic Dunite	Kac/mc	-dark green, f.g. to m.g., massive, olivine adcumulate to mesocumulate	3		Po,Pn	b,d	AS	749608	114.09	115.50					
				-moderately to strongly magnetic	2		Po,Pn	b,d	AS	749609	115.50	117.00					
				-strong serp alteration, magnetite veins	3		Po,Pn	b,d	AS	749610	117.00	118.50					
				-small asbestos veinlets	2		Po,Pn	b,d	AS	749611	118.50	120.00					
				-up to 10% blebby Po, Pn, mag	1		Po,Pn	b,d	AS	749612	120.00	121.50					
				-blebs appear to be altered to magnetite	2		Po,Pn	b,d	AS	749613	121.50	123.00					
				-blebs range from 1mm to 30mm	3		Po,Pn	b,d	AS	749614	123.00	124.50					
				-also intercumulus sulphides	2		Po,Pn	b,d	AS	749615	124.50	125.06					
				-lower contact marked by decrease of blebs					WR	122895	119.00	122.00					

From (m)	To (m)	Rock Type	Legend	Description	Sulphides				Samples		Faults and Shears (1-10)					
					%	% Frags	Type	Mode	Type	Tag #	From (m)	To (m)	Brittle	Ductile	From (m)	To (m)
125.06	126.95	Komatiitic Dunite	Kac/mc	-dark green, f.g. to m.g., massive, olivine mesocumulate to adcumulate, moderately magnetic	tr		Po,Pn	d	AS	749616	125.06	126.33				
				-white serp veinlets, strong serp alteration	1		Po,Pn	d	AS	749617	126.33	126.95				
				-trace to 2% intercumulus Po, Pn												
				-sulphides appear to be altered to magnetite												
				-minor magnetite veining												
				-sulphides decrease down hole												
				-gradational lower contact marked by decrease in sulphide content												
126.95	229.50	Komatiitic Dunite	Kac/mc	-dark green-black, f.g. to m.g., massive, olivine adcumulate to mesocumulate	tr		Po	d	AS	749608	126.95	128.50				
				-strong serp alteration, magnetite and serp veining	tr		Po	d	AS	749619	128.50	130.00				
				-some faulted zones with well developed fault gouge	tr		Py	d	AS	749620	226.50	228.00				
				-trace disseminated Po, Py occasionally throughout	tr		Py	d	AS	749621	228.00	229.00				
				-possibly more v.f.g. sulphides near basal contact					WR	122896	155.00	158.00				
				-weak carb and talc alteration					WR	122897	209.00	212.00				
				-gradational lower contact marked by increase in intragranular material and chl-trem alteration					WR	122898	226.00	229.00				
229.50	231.40	Komatiitic Peridotite/Pyroxenite	Kmc/oc	-black to dark grey, f.g. massive, olivine mesocumulate to adcumulate, weakly to moderately magnetic	tr-2		Py,Po	d	AS	749622	229.50	231.40	8		136.27	136.60
				-strong serp with lesser talc alteration									8		140.50	140.70
				-some chl-trem associated with intercumulus matrix									6		150.20	150.38
				-possibly 1-2% v.f.g. disseminated sulphides but difficult to distinguish with talc grains									6		175.95	176.00
				-olivine content decreases down hole									2		184.56	185.00
				-sharp basal contact at 90 degrees to core axis									9		185.00	185.80
				-contact looks intrusive									7		185.80	188.00
													7		188.00	191.00
													7		191.00	193.00
													3		194.00	195.00
													9		198.00	199.00
231.40	269.27	Gabbro	Gb	-black and light grey speckled, aphanitic to m.g., massive	tr		Py	d	WR	122899	263.00	266.00				
				-some alternating zones of f.g. material near upper and lower contacts												
				-contains coarse grained, plagioclase phenocrysts, approximately 1% of unit												
				-quenched upper and lower contacts												
				-weak to moderate chl alteration, chl veining												
				-weakly magnetic												
				-occasional epidote veinlet												
				-plag laths and rosetts with probable altered pyroxenes												
				-some leucoxene and magnetite												
				-sharp lower contact with stronger chl alteration												





Area/Township	N.T.S.	Year	Project	Property	Claim Numbers
Bannockburn	41P/NE	1998	Exploration	Bannockburn	1218728


Hole Number	Survey Type	Dip (Deg.)	Azim Grid (Deg.)	Azim Astro. (Deg.)	Hole Length (m)	Core Size
BN-22-98		-50	270	250	298	BQ

Northing (Grid m)	Easting (Grid m)	Northing (UTM)	Easting (UTM)	Northing (Lat.)	Easting (Long.)	Elevation (m)
12040	7330					362

Logged By	Date Logged	Drilled By	Date Started	Date Finished	Core Storage
PCD	11-Mar-98	Bradley Bros.	6-Mar-98	8-Mar-98	Hollinger Building

Casing Depth (m)	Casing Pulled (Y/N)	Cemented (Y/N)	Geophysics (Y/N)	Down Hole Geophysics (Type and Contractor)
43	N	N	N	

Assay Numbers	Assay Lab	Certificate #	Whole Rock Geochemistry
749641-749667	Bondar-Clegg		116974-116985

Comments:


From (m)	To (m)	Rock Type	Legend	Description	Sulphides				Samples				Faults and Shears (1-10)				
					%	% Frags	Type	Mode	Type	Tag #	From (m)	To (m)	Brittle	Ductile	From (m)	To (m)	
0.00	43.00	casing															
43.00	86.83	Komatitic Dunite	Kac/mc	-dark green to black, f.g., massive to faulted, olivine adcumulate to mesocumulate	tr		Py	d	AS	749641	74.83	76.33	2		43.90	44.15	
				-lots of fault gouge in upper portion of hole	tr		Py	d	AS	749642	76.33	77.83	3		46.70	50.80	
				-43.10-43.88m: rodingitized dacite xenolith with partially assimilated contacts	tr		Py	d	AS	749643	77.83	79.83	9		50.80	52.85	
				-moderately to strongly magnetic	1		Py	d	AS	749644	79.83	80.83	9		53.00	56.00	
				-intense serp alteration, serp veining	1		Py	d	AS	749645	80.83	82.33	7		56.80	58.60	
				-magnetite veins and disseminations throughout	1		Py	d	AS	749646	82.33	83.83	2		58.80	62.15	
				-trace to 1% v.f.g. sulphide needles throughout unit, possibly Py or Millerite	1		Py	d	AS	749647	83.83	85.33	6		64.30	65.00	
				-lower contact marked by increase in sulphide content	1		Py	d	AS	749648	85.33	86.83	4		65.30	66.50	
									WR	116974	49.00	52.00	4		69.90	70.00	
									WR	116975	83.00	86.00	8		70.70	72.00	
													3		72.00	72.35	
													9		72.35	74.00	
													7		75.04	75.14	
													1		75.14	86.83	
86.83	91.10	Komatitic Peridotite	Kmc\$\$	-black green, f.g., massive, moderately magnetic, olivine mesocumulate	5		Po,Pn, Py	d,n	AS	749649	86.83	88.00					
				-strong serp alteration, serp veining with zipper fractures	5		Po,Pn, Py	d,n	AS	749650	88.00	89.00					
				-some sulphides associated with serp veins	8		Po,Pn, Py	d,n	AS	749651	89.00	90.00					
				-5-15% disseminated to net-textured Po, Pn and magnetite, good magmatic textures	10		Po,Pn, Py	d,n	AS	749652	90.00	91.10					
				-sharp lower contact marked by decrease in sulphides													
91.10	93.99	Komatitic Peridotite/Pyroxenite	Koc/mc	-dark grey-green, f.g., massive, weakly magnetic, serp altered and chl-trem altered, serp-carb veining,	1		Po,Pn, Py	d	AS	749653	91.10	92.10					
				-discrete sulphide grains, some magnetite altered sulphs	1		Py,Pn	d	AS	749654	92.10	93.10					
				-olivine content decreases down hole	tr		Py,Pn	d	AS	749655	93.10	93.99					
				-sharp lower contact at 80 degrees to the core axis					WR	116976	91.10	93.99					
93.99	96.16	Dacite	Da	-light grey-green, aphanitic, massive, non-magnetic	2		Po,Py	v,b	AS	749656	93.99	95.00					
				-black alteration associated with sulphides	1		Po,Py	v,b	AS	749657	95.00	96.16					
				-possibly rodingite or weak chl alteration													
				-contains chl amygdules (<1mm)													
				-2% veined and blebby Py and Po													
				-chl-qtz veining													
				-gradational lower contact marked by decrease in sulphs													

From (m)	To (m)	Rock Type	Legend	Description	Sulphides				Samples				Faults and Shears (1-10)				
					%	% Frags	Type	Mode	Type	Tag #	From (m)	To (m)	Brittle	Ductile	From (m)	To (m)	
96.16	111.65	Dacite	Da	-medium grey, aphanitic, massive, non-magnetic	0				AS	749658	96.16	97.16					
				-5% chl filled amygdules					WR	116977	100.00	103.00					
				-weak chl alteration													
				-qtz filled amygdules towards lower contact													
				-sharp lower contact undulating at low angle to CA													
111.65	114.13	Komatiitic Pyroxenite/ Ol Spinifex	Kox/Px	-medium grey to black, aphanitic to c.g., olivine spinifex, non-magnetic to moderately magnetic, olivine blades and hopper grains with cpx groundmass and laths													
				-serp, chl-trem alteration, serp-trem veining													
				-quenched flow top at upper contact													
				-gradational lower contact marked by increase in olivine content													
114.13	119.57	Komatiitic Peridotite	Koc/mc	-black-green, massive, f.g., moderately magnetic, olivine ortho to mesocumulate, some minor adcumulate	tr		Py	d					2		117.00	119.67	
				-ol content increases down hole													
				-strong serp alteration, magnetite and serp veining													
				-trace disseminated sulphides possibly serp flashes													
				-occasional xenolith of komatiitic pyroxenite													
				-sharp lower contact at 55 degrees to the core axis													
119.57	123.75	Komatiitic Pyroxenite	KPx/pax	-light to medium grey, m.g. to f.g., massive, non-magnetic, development of pyroxene spinifex					WR	116978	120.00	123.00					
				-strong chl-trem alteration, lesser serp alteration													
				-undulatory basal contact													
123.75	124.75	Komatiitic Pyroxenite/ Peridotite	KPx/mc	-light grey and dark green, f.g., looks like bulbs of pyroxene spinifex in an olivine mesocumulate, possible mixing zone, weakly to moderately magnetic													
				-serp and chl-trem alteration													
				-serp-trem veining													
124.75	132.56	Komatiitic Peridotite/ Dunite	Kmc/ac	-black green, f.g., massive, olivine mesocumulate to adcumulate, weakly to moderately magnetic	tr		Po,Pn	d	AS	749659	124.75	126.50	2		127.60	132.56	
				-strong serp alteration, serp-trem veins	1		Po,Pn	d	AS	749660	126.50	128.00					
				-magnetite veins and disseminations	1		Po,Pn	d	AS	749661	128.00	129.50					
				-xenoliths or zones of pyroxenite within unit	tr		Po,Pn	d	AS	749662	129.50	131.00					
				-trace to 1% intragranular sulphides	tr		Po,Pn	d	AS	749663	131.00	132.56					
				-sulphides appear to be magnetite altered					WR	116979	128.00	131.00					
				-sharp undulatory lower contact													

From (m)	To (m)	Rock Type	Legend	Description	Sulphides			Samples		Faults and Shears (1-10)								
					%	% Frags	Type	Mode	Type	Tag #	From (m)	To (m)	Brittle	Ductile	From (m)	To (m)		
132.56	134.28	Komatitic Pyroxenite/ Ol Spinifex	KPx/oaX	-light grey and bright green, m.g. to c.g., olivine spinifex, green colour appears to pseudomorph pyroxene and olivine grains, non-magnetic -silicified with Qtz. Possibly fuchsite development -chl-trem altered -possibly fault zone with serp alteration -sharp undulatory lower contact														
134.28	138.40	Komatitic Peridotite/ Dunite	Kmc/ac	-black-green, f.g., massive, moderately to weakly magnetic, olivine adcumulate to mesocumulate -strong serp alteration, serp veins, minor asbestos -ameboid inclusions of komatiitic pyroxenite -xenoliths are partly assimilated -trace sulphide blebs -sharp undulatory lower contact	tr		Po	d										
138.40	139.54	Komatitic Pyroxenite/ Ol Spinifex	KPx/oaX	-light and medium grey, f.g. to c.g., massive, olivine spinifex with blades of olivine on olivine orthocumulate, non-magnetic -groundmass looks like cpx -chl-trem altered -upper portion looks like it has undergone melting -gradational lower contact with increase in ol content					WR	116960	138.40	139.54						
139.54	151.43	Komatitic Peridotite/ Dunite	Kmc/ac	-black green to dark grey-green cumulate with light grey green pyroxenite dykes or xenoliths, f.g., massive to foliated near faults, olivine mesocumulate to adcumulate -strong serp alteration, asbestos veining up to 1/4" -trace to 1% disseminated and blebby sulphides, possibly magnetite -pyroxene dyke are less than 5cm in width and appear to be partly assimilated -lower contact is gradational over a few tens of cm -black serp alteration around pyroxene veins	tr				AS	749664	146.00	147.50	8			145.80	146.00	
					tr				AS	749665	147.50	149.00	2	3	146.00	148.40		
					1				AS	749666	149.00	150.00	7		148.40	149.20		
					1				AS	749667	150.00	151.00						
									WR	116981	146.00	149.00						
151.43	152.46	Komatitic Pyroxenite	Koc	-light grey-green, f.g. to m.g., massive, olivine orthocumulate, non-magnetic -contains faulted black-green serp -possibly rodingitized unit -serp veining -sharp lower contact at 50 degrees to the core axis														

From (m)	To (m)	Rock Type	Legend	Description	Sulphides			Samples		Faults and Shears (1-10)							
					%	% Frags	Type	Mode	Type	Tag #	From (m)	To (m)	Brittle	Ductile	From (m)	To (m)	
152.48	158.30	Komatitic Peridotite/ Dunite	Kmc/ac	-black-green, f.g., massive, moderately magnetic, olivine mesocumulate to adcumulate, strong serp alteration, serp veining -trace v.f.g. needle like Py or sulphides -gradational lower contact with decrease in ol content -upper contact has spinifex texture from unit above	tr		Py	d									
158.30	162.05	Komatitic Peridotite/ Pyroxenite	Koc/mc	-dark grey-green, f.g., massive, olivine orthocumulate with interstitial cpx, weakly magnetic, serp and chl-trem alteration, serp-trem veins -gradational lower contact with increased ol content -trace disseminated Py or magnetite	tr		Py	d									
162.05	169.51	Komatitic Peridotite/ Dunite	Kmc/ac	-black-green, f.g., massive, moderately magnetic, olivine mesocumulate to adcumulate, strong serp alteration, serp veining -trace disseminated v.f.g. Py or possibly magnetite -gradational lower contact with decreasing ol content	tr		Py	d									
169.51	170.19	Komatitic Pyroxenite	Koc	-light green-grey, f.g. to aphanitic, non-magnetic, possibly rodingitized olivine orthocumulate with spinifex contacts -serp veins -gradational contacts with increasing ol content													
170.19	172.80	Komatitic Peridotite/ Dunite	Kmc/ac	-black-green, f.g., massive, moderately magnetic, olivine mesocumulate to adcumulate, strong serp alteration, serp veining, magnetite disseminated throughout -sharp lower contact marked by skeletal ol grains													
172.80	174.59	Komatitic Peridotite	Kmc/cc	-black-green to grey-green, f.g. to c.g., olivine crecumulate with hopper olivine grains, ol mesocumulate -strong serp alteration, chl-trem alteration -moderately magnetic -minor talc development -trace f.g. disseminated Po and Py associated with serp veining -cumulate zones fade in and out -serp-trem veining -gradational lower contact marked by increase in ol content	tr		Po,Py	d	WR	116982	172.80	174.59					
174.59	298.00	Komatitic Dunite	Kac/mc	-black-green to green, f.g. to m.g., massive, olivine adcumulate to mesocumulate -moderately to strongly magnetic					WR	116983	176.00	179.00	8		182.30	185.10	
									WR	116984	220.00	223.00	9		186.90	187.00	



Area/Township	N.T.S.	Year	Project	Property	Claim Numbers
Bannockburn	41P/NE	1998	Exploration	Bannockburn	1218720-1218728


Hole Number	Survey Type	Dip (Deg.)	Azim Grid (Deg.)	Azim Astro. (Deg.)	Hole Length (m)	Core Size
BN-25-98		-50	90	70	251	BQ

Northing (Grid m)	Easting (Grid m)	Northing (UTM)	Easting (UTM)	Northing (Lat.)	Easting (Long.)	Elevation (m)
12000	6835					359

Logged By	Date Logged	Drilled By	Date Started	Date Finished	Core Storage
PCD	17-Mar-98	Bradley Bros.	14-Mar-98	16-Mar-98	Hollinger Building

Casing Depth (m)	Casing Pulled (Y/N)	Cemented (Y/N)	Geophysics (Y/N)	Down Hole Geophysics (Type and Contractor)
31	N	N	N	

Assay Numbers	Assay Lab	Certificate #	Whole Rock Geochemistry
749687-749708	Bondar-Clegg		

<p>Comments:</p> 
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From (m)	To (m)	Rock Type	Legend	Description	Sulphides				Samples		Faults and Shears (1-10)						
					%	% Frags	Type	Mode	Type	Tag #	From (m)	To (m)	Brittle	Ductile	From (m)	To (m)	
0.00	31.00	casing															
31.00	64.42	Gabbro	Gb	-salt and pepper colour and texture, m.g. to f.g., massive, sub ophitic texture with fans of plagioclase, weakly magnetic -50% plagioclase, 50% mafics -mafic minerals have altered to chl -possibly magnetite and/or ilmenite -grain size decreases towards lower contact -chl alteration increases towards lower contact -sharp lower contact at 45 degrees to core axis													
64.42	66.45	Dacite	Da	-medium grey, aphanitic, brecciated by veining -appears to be altered by both the overlying gabbro and the underlying komatiite -weak chl and possibly weak epidote alteration -lower contact is hazy and partly assimilated -no visible sulphides									8		64.97	65.00	
66.45	71.40	Komatiitic Peridotite/Dunite	Koc/ac	-dark grey to black, f.g., massive, strongly magnetic, olivine orthocumulate to adcumulate with a majority of mesocumulate -strong serp alteration, minor chl-trrem alteration -sulphides occur as intragranular and replacement of olivine grains -serp veining, some asbestos development -of content increases down hole -basal contaminated zone -some clasts of dacite off of upper contact -trace to 1% v.f.g. disseminated Py -gradational lower contact -some rubbly core, no fault gauge	tr		Po	d	AS	749687	66.45	67.00	9		69.00	71.40	
					3		Po,Pn	d	AS	749688	67.00	68.00					
					tr-1		Py	d	AS	749689	68.00	71.40					
71.40	180.30	Komatiitic Dunite	Kac	-black-green, f.g. to m.g., massive, moderately to strongly magnetic, olivine adcumulate -strong serp alteration, serp veining, some asbestos -rubbly core and fault gauge -some foliated and sheared zones associated with faults -magnetite veins -trace v.f.g. sulphides, occasional zone of trace f.g. Pn without continuity within the core -gradational lower contact marked by intragranular sulphides	tr		Py	d	AS	749690	71.40	72.90	2		80.00	83.00	
					tr		Py	d	AS	749691	72.90	74.40	9		85.00	86.00	
									AS	749692	179.00	180.30	8		103.40	104.00	
													9		106.65	107.00	
													3		110.00	116.00	
													9		119.30	119.90	
													7		129.50	130.70	
180.30	200.29	Komatiitic Dunite	Kac	-dark green, f.g. to m.g., massive, weakly to strongly magnetic, olivine adcumulate	tr		Pn	d,b	AS	749693	180.30	181.80					



From (m)	To (m)	Rock Type	Legend	Description	Sulphides			Samples				Faults and Shears (1-10)				
					%	% Frags	Type	Mode	Type	Tag #	From (m)	To (m)	Brittle	Ductile	From (m)	To (m)
				-strong serp alteration, serp-mag veining	tr		Pn	d,b	AS	749694	181.80	183.05				
				-some asbestos development	1		Pn	b,d	AS	749695	183.05	184.55				
				-trace to 2% disseminated and blebby Pn and Po, intragranular	2		Pn	b,d	AS	749696	184.55	185.55				
				-sulphides appear to be magnetite altered	tr		Pn	d,b	AS	749697	185.55	187.00				
				-sulphides tend to occur sporadically throughout unit	tr		Pn	d,b	AS	749698	187.00	188.00				
				-gradational lower contact marked by end of sulphides	tr		Pn	d,b	AS	749699	188.00	189.50				
					tr		Pn	d,b	AS	749700	189.50	191.00				
					tr		Pn	d,b	AS	749701	191.00	192.50				
					tr		Pn	d,b	AS	749702	192.50	194.00				
					tr		Pn	d,b	AS	749703	194.00	195.50				
					tr		Pn	d,b	AS	749704	195.50	197.00				
					tr		Pn	d,b	AS	749705	197.00	198.50				
					tr		Pn	d,b	AS	749706	198.50	200.29				
200.29	251.00	Komatiitic Dunite	Kac	-black-green, f.g. to m.g., massive, some faulted and sheared areas, weakly to strongly magnetic	tr		Po	d	AS	749707	200.29	201.79	7		230.90	232.00
				-olivine adcumulate with some minor mesocumulate	tr		Po	d	AS	749708	201.79	203.29				
				-strong serp alteration, serp-mag veining												
				-well developed slip fibre, and asbestos tends to rim olivine grains												
				-trace disseminated sulphides as intercumulus material spotty												
				-some magnetite veins appear to have a sulphide component												
				-may have to sample depending on assay results from above												
				-sulphides are not throughout unit												
251.00		End of Hole														

Area/Township	N.T.S.	Year	Project	Property	Claim Numbers
Bannockburn	41P/NE	1998	Exploration	Bannockburn	1218720-1218728

Hole Number	Survey Type	Dip (Deg.)	Azim Grid (Deg.)	Azim Astro. (Deg.)	Hole Length (m)	Core Size
BN-26-98		-50	270	250	299	BQ

Northing (Grid m)	Easting (Grid m)	Northing (UTM)	Easting (UTM)	Northing (Lat.)	Easting (Long.)	Elevation (m)
12000	6835					359

Logged By	Date Logged	Drilled By	Date Started	Date Finished	Core Storage
PCD	24-Mar-98	Bradley Bros.	18-Mar-98	20-Mar-98	Hollinger Building

Casing Depth (m)	Casing Pulled (Y/N)	Cemented (Y/N)	Geophysics (Y/N)	Down Hole Geophysics (Type and Contractor)
62	N	N	N	

Assay Numbers	Assay Lab	Certificate #	Whole Rock Geochemistry
749718-749747	Bondar-Clegg		

Comments: 

From (m)	To (m)	Rock Type	Legend	Description	Sulphides				Samples		Faults and Shears (1-10)							
					%	% Frags	Type	Mode	Type	Tag #	From (m)	To (m)	Brittle	Ductile	From (m)	To (m)		
0.00	62.00	casing																
62.00	299.00	Komatiitic Dunitite	Kac/mc	-dark green-black, f.g. to m.g., massive, moderately to strongly magnetic, olivine adcumulate to mesocumulate					AS	749718	80.00	81.50	9			61.30	61.85	
				-intense serp alteration, serp veining					AS	749719	81.50	83.00	6			62.00	68.00	
				-lots of asbestos development both cross and slip fibres up to 15cm wide					AS	749720	83.00	84.50	5			70.80	71.35	
				-magnetite veining and replacement around grain boundaries					AS	749721	84.50	86.00	9			191.50	191.60	
				-possibly component of sulphides associated with magnetite					AS	749722	92.00	93.50	6			192.35	193.50	
				-looks mostly like magnetite as it is associated with veins and fractures					AS	749723	93.50	95.00	7			216.05	217.60	
				-some faulting with rubbly core and fault gouge					AS	749724	95.00	96.50		6		236.10	236.45	
				-samples were focussed on areas with the greatest amount of magnetite					AS	749725	96.50	98.00	9			241.80	242.00	
				-hole bottomed in adcumulate					AS	749726	107.00	108.50						
				-no real variations in unit throughout the entire hole					AS	749727	108.50	110.00						
									AS	749728	110.00	111.50						
									AS	749729	111.50	113.00						
									AS	749730	119.00	120.50						
									AS	749731	120.50	122.00						
									AS	749732	122.00	123.50						
									AS	749733	123.50	125.00						
									AS	749734	149.00	150.50						
									AS	749735	150.50	152.00						
									AS	749736	152.00	153.50						
									AS	749737	153.50	155.00						
									AS	749738	176.00	177.50						
									AS	749739	177.50	179.00						
									AS	749740	221.00	222.50						
									AS	749741	222.50	224.00						
									AS	749742	224.00	225.50						
									AS	749743	225.50	227.00						
									AS	749744	272.00	273.50						
									AS	749745	273.50	275.00						
									AS	749746	287.00	288.50						
									AS	749747	288.50	290.00						
299.00		End of Hole																

Hole No	Sample No	From	To	Width	Ni (%)	Cu (%)	Co (%)	Zn (%)	Fe (%)	S (%)	Au (ppb)
BN-3-96	37837	68	71	3	<0.01	<0.01	<0.01	<0.01	6.86	2.98	
BN-3-96	37838	98	101	3	0.22	<0.01	0.01	<0.01	8.08	0.05	
BN-3-96	37839	128	131	3	0.2	<0.01	<0.01	<0.01	7.04	0.05	
BN-3-96	37840	156.79	157.79	1	0.18	<0.01	<0.01	<0.01	7.38	0.15	
BN-3-96	37841	157.79	158.79	1	0.17	<0.01	0.01	<0.01	7.14	0.15	
BN-3-96	37842	158.79	159.34	0.55	0.4	0.05	0.02	0.5	9.93	2.64	
BN-3-96	37843	159.34	160.13	0.79	0.16	<0.01	0.01	<0.01	7.93	0.15	
BN-3-96	37844	160.13	161.8	1.67	0.14	0.01	<0.01	<0.01	8.05	1.35	
BN-3-96	37836	161.8	163	1.2	3.22	0.3	0.17	0.08	53.6	34.1	
BN-3-96	37845	163	163.2	0.2	0.24	0.09	0.02	0.01	13.28	2.27	
BN-3-96	37846	163.2	164.2	1	0.02	<0.01	<0.01	<0.01	2.71	<0.02	
BN-3-96	37847	164.2	165.2	1	0.02	<0.01	<0.01	<0.01	3.08	<0.02	
BN-5-96	37851	44.05	46.61	2.56	0.19	0.01	0.02	<0.01	6.85	0.11	
BN-5-96	37852	261.07	262.07	1	0.18	<0.01	<0.01	<0.01	7.86	0.1	
BN-5-96	37853	262.07	263.07	1	0.15	<0.01	0.03	<0.01	6.97	0.07	
BN-5-96	37854	263.07	263.74	0.67	0.36	<0.01	0.02	<0.01	11.28	0.24	
BN-5-96	37855	263.74	265.96	2.22	1.2	0.07	0.07	<0.01	15.42	3.9	
BN-5-96	37856	265.96	267	1.04	0.14	<0.01	0.04	<0.01	7.67	0.06	
BN-5-96	37857	267	268.3	1.3	0.14	<0.01	0.03	<0.01	8.14	0.09	
BN-5-96	37858	268.3	270.73	2.43	0.14	0.01	0.04	0.02	7.6	0.3	
BN-5-96	37859	270.73	271.73	1	0.07	0.01	0.03	<0.01	8.05	<0.02	
BN-5-96	37860	285.78	287.9	2.12	0.52	0.05	0.05	0.05	10.53	2.78	
BN-5-96	37861	287.9	289.95	2.05	0.15	0.01	0.03	<0.01	7.19	0.57	
BN-5-96	37862	289.95	292.3	2.35	0.08	0.01	<0.01	<0.01	6.65	<0.02	
BN-5-96	37863	299.55	299.67	0.12	0.04	2.01	0.05	0.02	8.34	2.14	
BN-8-97	122601	30.83	31.83	1	0.19	<0.01	0.01	<0.01	5.9	0.08	
BN-8-97	122602	31.83	34.83	3	0.2	<0.01	0.011	<0.01	6.71	0.12	
BN-8-97	122603	34.83	37.83	3	0.21	<0.01	0.013	<0.01	6.8	0.13	
BN-8-97	122604	37.83	40.83	3	0.18	<0.01	0	<0.01	6.09	0.13	
BN-8-97	122605	40.83	42.76	1.93	0.19	<0.01	0.011	<0.01	6.18	0.26	
BN-8-97	122606	42.76	44.34	1.58	0.17	<0.01	0.013	0.01	5.85	0.48	
BN-8-97	122607	44.34	46.33	2	0.17	<0.01	0.011	<0.01	5.97	0.08	
BN-8-97	122608	78.56	79.53	0.97	<0.01	<0.01	0	<0.01	8.96	8.7	
BN-8-97	122609	79.53	81.9	2.37	<0.01	<0.01	0	0.01	5.6	1.95	
BN-8-97	122610	279.95	281.8	1.85	0.1	<0.01	0.008	0.01	6.82	0.09	
BN-8-97	122611	281.8	284.15	2.35	0.14	<0.01	0.01	0.01	7.51	0.62	
BN-8-97	122612	284.15	286.15	2	0.16	<0.01	0.009	0.01	7.39	0.72	
BN-8-97	122613	286.15	288.15	2	0.19	<0.01	0.011	0.01	7.62	1.09	
BN-8-97	122614	288.15	288.95	0.8	0.57	0.12	0.025	0.01	17.3	4.58	
BN-8-97	122615	288.95	289.48	0.53	2.16	0.24	0.089	0.01	34.15	15.72	
BN-8-97	122616	289.48	290.94	1.46	0.33	0.25	0.016	0.01	15.79	2.68	
BN-8-97	122617	290.94	291.19	0.25	4.54	0.2	0.204	0.02	51.99	32.63	
BN-8-97	122618	291.19	291.82	0.63	0.35	0.38	0.016	<0.01	14.46	2.67	
BN-10-97	122648	13.44	15.54	2.1	0.19	<0.01	0.011	<0.01	6.47	0.48	
BN-10-97	122649	15.54	17.54	2	0.17	<0.01	0.009	<0.01	6.49	0.1	
BN-10-97	122650	17.54	19.54	2	0.15	<0.01	0.011	<0.01	6.81	0.08	
BN-10-97	122651	19.54	22.4	2.86	0.15	<0.01	0.011	<0.01	7.01	0.07	
BN-10-97	122652	70.3	72.12	1.82	0.12	<0.01	0.013	<0.01	9.08	0.28	
BN-10-97	122653	72.12	73.12	1	0.14	<0.01	0.013	<0.01	9.05	0.21	
BN-10-97	122654	73.12	74.12	1	0.13	<0.01	0.012	<0.01	9.53	0.13	

Hole No	Sample No	From	To	Width	Ni (%)	Cu (%)	Co (%)	Zn (%)	Fe (%)	S (%)	Au (ppb)
BN-10-97	122655	74.12	75.12	1	0.17	<0.01	0.014	<0.01	9.71	0.16	
BN-10-97	122656	75.12	76.56	1.44	0.04	<0.01	0.015	<0.01	9.71	0.34	
BN-10-97	122657	76.56	77.91	1.35	0.05	<0.01	0.021	<0.01	10.31	1.09	
BN-10-97	122658	77.91	79.12	1.21	0.05	0.02	0.014	<0.01	8.43	0.14	
BN-10-97	122659	79.12	79.9	0.78	0.09	0.03	0.013	<0.01	8.49	0.26	
BN-10-97	122660	79.9	81	1.1	0.11	<0.01	0.012	<0.01	7.68	0.11	
BN-10-97	122661	81	82.1	1.1	0.12	0.02	0.014	<0.01	8.53	0.12	
BN-10-97	122662	82.1	83.41	1.31	0.11	0.02	0.014	0.01	7.9	0.12	
BN-10-97	122663	83.41	84.41	1	0.13	0.01	0.013	<0.01	7.87	0.13	
BN-10-97	122664	104.3	105.3	1	0.21	<0.01	0.012	<0.01	7.15	0.13	
BN-10-97	122665	105.3	107	1.7	0.17	<0.01	0.011	<0.01	6.29	0.1	
BN-10-97	122666	107	107.6	0.6	0.18	<0.01	0.011	0.01	6.04	0.1	
BN-10-97	122667	107.6	109.3	1.7	0.2	<0.01	0.012	<0.01	6.88	0.1	
BN-10-97	122668	109.3	111.3	2	0.2	<0.01	0.012	<0.01	6.64	0.09	
BN-10-97	122669	111.3	112.3	1	0.2	<0.01	0.012	<0.01	6.28	0.1	
BN-10-97	122670	164.52	165.52	1	0.18	<0.01	0.011	<0.01	7.23	0.12	
BN-10-97	122671	165.52	166.2	0.68	0.38	0.03	0.02	0.02	9.72	0.42	
BN-10-97	122672	166.2	167.92	1.72	0.17	<0.01	0.011	<0.01	7.62	0.12	
BN-10-97	122673	167.92	169.11	1.19	0.43	0.03	0.021	0.01	11.51	2.03	
BN-10-97	122674	169.11	169.89	0.78	0.24	<0.01	0.013	<0.01	7.96	0.65	
BN-10-97	122675	169.89	170.9	1.01	0.12	<0.01	0.009	<0.01	6.61	0.15	
BN-10-97	122676	170.9	171.9	1	0.01	<0.01	0.001	<0.01	3.66	0.03	
BN-12-97	122692	97.11	98.11	1	0.17	<0.01	0.012	<0.01	6.38	0.44	
BN-12-97	122693	98.11	99.11	1	0.18	<0.01	0.012	<0.01	6.62	0.57	
BN-12-97	122694	99.11	100.11	1	0.19	<0.01	0.011	<0.01	6.77	0.16	
BN-12-97	122695	100.11	103.11	3	0.21	<0.01	0.011	<0.01	6.19	0.21	
BN-12-97	122696	103.11	106.11	3	0.22	<0.01	0.012	<0.01	6.68	0.38	
BN-12-97	122697	106.11	109.11	3	0.17	<0.01	0.01	<0.01	5.6	0.3	
BN-12-97	122698	109.11	110.85	1.74	0.19	<0.01	0.011	<0.01	6.88	0.58	
BN-12-97	122699	110.85	113.85	3	0.18	<0.01	0.011	<0.01	6.41	0.34	
BN-12-97	122700	113.85	116.62	2.77	0.17	<0.01	0.01	<0.01	5.74	0.16	
BN-12-97	122701	216.8	220.1	3.3	0.06	<0.01	0.007	<0.01	6.96	0.03	
BN-12-97	122702	220.1	223.1	3	0.1	<0.01	0.01	<0.01	7.96	0.86	
BN-12-97	122703	223.1	225.57	2.47	0.13	<0.01	0.013	<0.01	7.47	0.9	
BN-12-97	122704	225.57	226.92	1.35	0.24	0.02	0.016	0.05	7.8	0.5	
BN-12-97	122705	226.92	227.92	1	0.21	0.01	0.014	0.08	7.53	0.19	
BN-12-97	122706	271	272	1	0.15	0.01	0.018	0.04	9.13	0.1	
BN-12-97	122707	272	274.55	2.55	0.4	0.03	0.021	0.17	7.94	0.21	
BN-12-97	122708	274.55	275.55	1	0.31	<0.01	0.011	0.2	7.68	0.16	
BN-12-97	122709	405.4	408.4	3	0.24	<0.01	0.012	0.13	6.7	0.2	
BN-12-97	122710	408.4	411.4	3	0.21	<0.01	0.011	0.1	6.16	0.18	
BN-12-97	122711	411.4	412.09	0.69	0.41	0.02	0.02	0.05	10.31	0.41	
BN-12-97	122712	412.09	414.62	2.53	0.38	0.02	0.017	0.02	9.44	1.42	
BN-12-97	122713	414.62	415.69	1.07	1.12	0.13	0.04	0.02	18.8	4.86	
BN-12-97	122714	415.69	417.2	1.51	1.11	0.11	0.044	0.02	19.05	7.44	
BN-12-97	122715	417.2	418.2	1	1.12	0.16	0.047	0.02	19.95	8.19	
BN-12-97	122716	418.2	419.2	1	1.03	0.07	0.043	0.02	20.35	6.72	
BN-12-97	122717	419.2	420.2	1	1.21	0.13	0.051	0.02	20.48	7.97	
BN-12-97	122718	420.2	421.2	1	1.04	0.07	0.042	<0.01	19.15	7.37	
BN-12-97	122719	421.2	422.2	1	0.99	0.09	0.042	0.02	18.05	6.99	

Hole No	Sample No	From	To	Width	Ni (%)	Cu (%)	Co (%)	Zn (%)	Fe (%)	S (%)	Au (ppb)
BN-12-97	122720	422.2	423.2	1	1.05	0.07	0.046	<0.01	19.86	7.8	
BN-12-97	122721	423.2	424.2	1	1.1	0.06	0.047	<0.01	19.6	8.1	
BN-12-97	122722	424.2	425.2	1	0.87	0.04	0.037	<0.01	15.36	5.95	
BN-12-97	122723	425.2	427.39	2.19	0.18	<0.01	0.011	0.02	7.05	0.22	
BN-12-97	122724	427.39	429.06	1.67	0.78	0.05	0.032	0.03	13.48	4.2	
BN-12-97	122725	429.06	430.06	1	0.16	<0.01	0.009	<0.01	6.65	0.56	
BN-12-97	122726	430.06	431.06	1	0.15	<0.01	0.01	<0.01	7.12	0.19	
BN-13-97	122801	143.6	144.5	0.9	<0.01	<0.01	<0.005	<0.01	4.05	0.48	<5
BN-13-97	122802	144.5	146	1.5	0.01	<0.01	<0.005	<0.01	6.17	0.13	<5
BN-13-97	122803	146	147.5	1.5	<0.01	<0.01	<0.005	0.01	6.02	0.38	<5
BN-13-97	122804	147.5	149	1.5	<0.01	0.01	<0.005	0.03	4.67	0.21	<5
BN-13-97	122805	149	150.5	1.5	<0.01	<0.01	<0.005	0.02	5.12	0.06	34
BN-13-97	122806	150.5	152	1.5	<0.01	<0.01	<0.005	0.02	5.22	0.06	<5
BN-13-97	122807	152	153.5	1.5	<0.01	<0.01	<0.005	0.02	4.77	0.2	8
BN-13-97	122808	153.5	155.1	1.6	<0.01	<0.01	<0.005	<0.01	3.37	0.6	<5
BN-13-97	122809	335.28	336.28	1	0.23	<0.01	0.011	0.02	7.86	0.15	7
BN-13-97	122810	336.28	337.27	0.99	0.85	0.02	0.024	0.02	8.82	0.61	45
BN-13-97	122811	337.27	339.13	1.86	0.25	<0.01	0.013	0.01	8.15	0.15	<5
BN-13-97	122812	339.13	339.95	0.82	1.06	0.04	0.04	0.02	10.83	0.77	9
BN-13-97	122813	339.95	341.25	1.3	0.4	0.01	0.018	0.01	7.95	0.25	6
BN-13-97	122814	341.25	342.6	1.35	0.22	<0.01	0.011	<0.01	7.39	0.12	<5
BN-13-97	122815	342.6	343.6	1	0.24	<0.01	0.014	<0.01	7.46	0.12	<5
BN-13-97	122816	349	350	1	0.24	<0.01	0.015	<0.01	6.82	0.1	<5
BN-13-97	122817	350	350.26	0.26	0.26	<0.01	0.016	<0.01	5.48	0.11	<5
BN-13-97	122818	350.26	351.26	1	0.26	0.01	0.014	0.03	6.73	0.09	<5
BN-13-97	122819	422.35	423.35	1	0.21	<0.01	0.013	0.01	7.44	0.14	<5
BN-13-97	122820	423.35	424.35	1	0.24	<0.01	0.013	<0.01	7.94	0.62	<5
BN-13-97	122821	424.35	425.09	0.74	0.53	0.03	0.026	0.01	13.97	4.65	<5
BN-13-97	122822	425.09	425.68	0.59	0.27	0.01	0.016	<0.01	8.67	1.85	<5
BN-13-97	122823	425.68	427	1.32	0.16	<0.01	0.01	<0.01	7.3	0.5	<5
BN-13-97	122824	427	428.5	1.5	<0.01	0.01	<0.005	0.02	5.94	0.22	<5
BN-13-97	122825	428.5	430	1.5	<0.01	0.01	0.006	<0.01	9.17	2.25	<5
BN-13-97	122826	432.92	434.5	1.58	<0.01	0.01	0.006	<0.01	11.07	3.59	<5
BN-13-97	122827	434.5	436	1.5	0.01	0.01	0.007	<0.01	11.49	3.87	<5
BN-13-97	122828	436	437.5	1.5	0.01	0.03	0.009	<0.01	14.12	5.24	<5
BN-13-97	122829	437.5	439	1.5	<0.01	0.01	0.007	<0.01	10.5	2.76	<5
BN-13-97	122830	439	440.8	1.8	<0.01	<0.01	0.008	<0.01	10.73	2.01	<5
BN-14-97	122831	35	35.4	0.4	0.01	<0.01	0.009	<0.01	18.03	19.2	8
BN-14-97	122832	259.3	261	1.7	<0.01	<0.01	<0.005	0.02	3.69	1.77	<5
BN-14-97	122833	261	263.07	2.07	<0.01	<0.01	<0.005	<0.01	2.86	0.56	<5
BN-14-97	122834	263.07	263.92	0.85	<0.01	<0.01	<0.005	<0.01	4.27	0.43	<5
BN-14-97	122835	476	477.5	1.5	0.24	<0.01	0.013	<0.01	6.32	0.12	<5
BN-14-97	122836	477.5	479	1.5	0.23	<0.01	0.013	<0.01	6.51	0.12	<5
BN-14-97	122837	479	480.5	1.5	0.23	<0.01	0.013	<0.01	6.22	0.13	<5
BN-14-97	122838	480.5	482	1.5	0.23	<0.01	0.013	<0.01	6.19	0.13	<5
BN-14-97	122839	482	483.5	1.5	0.23	<0.01	0.011	<0.01	6.52	0.14	<5
BN-14-97	122840	483.5	485	1.5	0.23	<0.01	0.013	<0.01	6.03	0.16	<5
BN-14-97	122841	485	486.5	1.5	0.22	<0.01	0.013	0.01	6.84	0.16	<5
BN-14-97	122842	486.5	488	1.5	0.23	<0.01	0.013	<0.01	6.88	0.35	<5
BN-14-97	122843	488	488.99	0.99	0.2	<0.01	0.011	<0.01	6.16	0.63	<5

Hole No	Sample No	From	To	Width	Ni (%)	Cu (%)	Co (%)	Zn (%)	Fe (%)	S (%)	Au (ppb)
BN-14-97	122844	488.99	490.13	1.14	0.17	<0.01	0.009	<0.01	4.61	0.66	<5
BN-14-97	122845	490.13	491.84	1.71	0.12	<0.01	0.007	<0.01	4.91	0.09	<5
BN-14-97	122846	514.31	515.05	0.74	<0.01	<0.01	<0.005	0.02	8.38	1.72	<5
BN-14-97	122847	515.05	516.5	1.45	<0.01	<0.01	<0.005	0.01	7.23	0.44	<5
BN-14-97	122848	516.5	518	1.5	<0.01	<0.01	<0.005	<0.01	7.71	0.98	<5
BN-14-97	122849	518	519.5	1.5	<0.01	<0.01	<0.005	0.01	7.96	1.13	<5
BN-14-97	122850	519.5	521	1.5	<0.01	<0.01	<0.005	0.01	7.85	0.27	<5
BN-14-97	122851	521	522.33	1.33	<0.01	<0.01	<0.005	<0.01	7.97	1.12	<5
BN-15-97	122852	13	14.27	1.27	0.13	<0.01	0.01	0.01	6.73	0.07	<5
BN-15-97	122853	14.27	15.24	0.97	0.11	<0.01	0.008	<0.01	4.77	0.2	<5
BN-15-97	122854	15.24	16.6	1.36	0.03	<0.01	<0.005	<0.01	4.17	0.03	<5
BN-16-97	122855	215.15	216.65	1.5	0.1	<0.01	<0.005	<0.01	4.72	0.05	<5
BN-16-97	122856	216.65	218	1.35	0.27	<0.01	0.018	<0.01	6.49	0.17	<5
BN-16-97	122857	218	219.5	1.5	0.19	<0.01	0.013	<0.01	6.17	0.12	<5
BN-16-97	122858	219.5	221	1.5	0.19	0.01	0.011	<0.01	6.07	0.13	<5
BN-16-97	122859	221	221.82	0.82	0.21	<0.01	0.015	0.01	6.59	0.13	<5
BN-16-97	122860	221.82	223.4	1.58	0.13	<0.01	0.008	<0.01	5.8	0.07	<5
BN-17-97	122861	295.67	297.9	2.23	<0.01	<0.01	<0.005	<0.01	4.01	0.39	<5
BN-17-97	122862	470	472.1	2.1	0.19	<0.01	0.01	0.01	6.56	0.16	<5
BN-17-97	122863	472.1	473.53	1.43	0.36	0.02	0.016	0.01	8.33	0.35	<5
BN-17-97	122864	473.53	474.85	1.32	0.56	0.04	0.026	0.01	11.73	2.34	<5
BN-17-97	122865	474.85	476	1.15	0.16	<0.01	0.009	<0.01	7.75	0.18	<5
BN-17-97	122866	476	477.5	1.5	0.12	<0.01	0.008	0.01	6.49	0.19	<5
BN-17-97	122867	477.5	479	1.5	0.08	<0.01	0.007	<0.01	5.48	0.11	<5
BN-17-97	122868	512	513.5	1.5	<0.01	<0.01	<0.005	<0.01	5.44	0.68	<5
BN-17-97	122869	513.5	515	1.5	<0.01	<0.01	0.007	0.02	5.76	1.23	<5
BN-17-97	122870	515	516.5	1.5	0.01	0.17	0.083	0.01	6.78	1.81	<5
BN-18-97	122871	182.75	184	1.25	0.01	<0.01	<0.005	<0.01	3.85	0.74	7
BN-18-97	122872	184	185.38	1.38	<0.01	<0.01	<0.005	<0.01	4.18	0.78	<5
BN-18-97	122873	185.38	187	1.62	<0.01	<0.01	<0.005	<0.01	4.99	2.23	6
BN-18-97	122874	187	188	1	0.01	<0.01	<0.005	0.01	5.33	1.46	<5
BN-18-97	122875	188	189.44	1.44	<0.01	<0.01	<0.005	<0.01	2.76	0.15	<5
BN-18-97	122876	189.44	191.53	2.09	<0.01	<0.01	<0.005	0.03	3.16	0.53	<5
BN-18-97	122877	191.53	192.53	1	0.02	<0.01	<0.005	<0.01	6.47	0.31	<5
BN-18-97	122878	223.86	226.7	2.84	0.43	0.06	0.017	<0.01	6.47	0.4	<5
BN-18-97	122879	395	396	1	<0.01	<0.01	<0.005	<0.01	4.7	0.04	<5
BN-18-97	122880	396	397	1	<0.01	<0.01	<0.005	<0.01	4.79	0.04	8
BN-18-97	122881	397	397.78	0.78	0.01	<0.01	<0.005	0.37	4.59	0.25	<5
BN-18-97	122882	397.78	398.24	0.46	0.02	<0.01	<0.005	0.02	4.93	0.05	<5
BN-18-97	122883	398.24	399.5	1.26	<0.01	<0.01	<0.005	0.01	4.4	0.06	<5
BN-18-97	122884	399.5	401	1.5	<0.01	<0.01	<0.005	0.06	4.66	0.11	<5
BN-18-97	122885	401	402.5	1.5	0.01	<0.01	<0.005	0.02	4.09	0.34	<5
BN-18-97	122886	402.5	404	1.5	<0.01	<0.01	<0.005	<0.01	3.72	0.17	<5
BN-18-97	122887	416	417.5	1.5	<0.01	0.01	<0.005	0.02	4.62	0.08	<5
BN-18-97	122888	417.5	419	1.5	<0.01	<0.01	<0.005	0.02	4.6	0.08	<5
BN-18-97	122889	419	420.5	1.5	<0.01	<0.01	<0.005	0.01	5.12	0.32	<5
BN-18-97	122890	420.5	422	1.5	<0.01	0.01	<0.005	<0.01	5.13	0.49	8
BN-18-97	122891	422	423.5	1.5	<0.01	0.02	<0.005	<0.01	4.19	0.06	8
BN-19-98	749601	103.25	104.75	1.5	0.31	<0.01	0.012	<0.01	4.8	0.08	
BN-19-98	749602	104.75	106.25	1.5	0.37	<0.01	0.009	<0.01	4.03	0.11	

Hole No	Sample No	From	To	Width	Ni (%)	Cu (%)	Co (%)	Zn (%)	Fe (%)	S (%)	Au (ppb)
BN-19-98	749603	106.25	107.75	1.5	0.51	<0.01	0.009	<0.01	4.43	0.19	
BN-19-98	749604	107.75	109.35	1.6	0.48	<0.01	0.01	<0.01	4.36	0.18	
BN-19-98	749605	109.35	110.85	1.5	0.3	<0.01	0.01	<0.01	3.75	0.1	
BN-19-98	749606	110.85	112.35	1.5	0.34	<0.01	0.01	<0.01	4.43	0.1	
BN-19-98	749607	112.35	114.09	1.74	0.36	<0.01	0.011	<0.01	4.25	0.11	
BN-19-98	749608	114.09	115.5	1.41	0.87	<0.01	0.012	<0.01	5.09	0.31	
BN-19-98	749609	115.5	117	1.5	0.71	<0.01	0.014	<0.01	4.86	0.24	
BN-19-98	749610	117	118.5	1.5	0.87	0.02	0.016	<0.01	6.19	0.28	
BN-19-98	749611	118.5	120	1.5	0.5	<0.01	0.011	<0.01	4.28	0.16	
BN-19-98	749612	120	121.5	1.5	0.51	<0.01	0.011	<0.01	4.16	0.17	
BN-19-98	749613	121.5	123	1.5	0.31	<0.01	0.012	<0.01	4.41	0.09	
BN-19-98	749614	123	124.5	1.5	0.46	<0.01	0.007	<0.01	4.51	0.16	
BN-19-98	749615	124.5	125.06	0.56	0.94	<0.01	0.014	<0.01	5.81	0.32	
BN-19-98	749616	125.06	126.33	1.27	0.36	<0.01	0.01	<0.01	3.63	0.11	
BN-19-98	749617	126.33	126.95	0.62	0.36	<0.01	0.012	<0.01	4.18	0.12	
BN-19-98	749618	126.95	128.5	1.55	0.31	<0.01	0.011	<0.01	3.52	0.09	
BN-19-98	749619	128.5	130	1.5	0.28	<0.01	0.01	0.01	3.98	0.08	
BN-19-98	749620	226.5	228	1.5	0.25	<0.01	0.01	0.01	6.34	0.05	
BN-19-98	749621	228	229.5	1.5	0.24	<0.01	0.007	<0.01	5.04	0.05	
BN-19-98	749622	229.5	231.4	1.9	0.2	<0.01	0.007	<0.01	4.16	0.05	
BN-22-98	749641	74.83	76.33	1.5	0.24	<0.01	0.009	<0.01	5.65	0.11	
BN-22-98	749642	76.33	77.83	1.5	0.24	<0.01	0.01	<0.01	6.07	0.14	
BN-22-98	749643	77.83	79.33	1.5	0.24	<0.01	0.009	<0.01	5.59	0.15	
BN-22-98	749644	79.33	80.83	1.5	0.24	<0.01	0.013	<0.01	5.38	0.17	
BN-22-98	749645	80.83	82.33	1.5	0.24	<0.01	0.009	<0.01	5.14	0.18	
BN-22-98	749646	82.33	83.83	1.5	0.23	<0.01	0.008	<0.01	5.34	0.16	
BN-22-98	749647	83.83	85.33	1.5	0.23	<0.01	0.007	<0.01	5.51	0.18	
BN-22-98	749648	85.33	86.83	1.5	0.25	0.02	0.008	<0.01	5.85	0.21	
BN-22-98	749649	86.83	88	1.17	1.23	0.1	0.033	0.02	11.06	1.05	
BN-22-98	749650	88	89	1	0.84	0.18	0.023	0.1	8.98	1.03	
BN-22-98	749651	89	90	1	0.7	0.2	0.021	0.07	9.75	1.12	
BN-22-98	749652	90	91.1	1.1	0.61	0.07	0.025	0.01	11.02	2.15	
BN-22-98	749653	91.1	92.1	1	0.17	<0.01	0.008	0.01	6.81	0.17	
BN-22-98	749654	92.1	93.1	1	0.14	<0.01	<0.005	<0.01	7.25	0.14	
BN-22-98	749655	93.1	93.99	0.89	0.11	<0.01	0.01	<0.01	7.24	0.25	
BN-22-98	749656	93.99	95	1.01	0.01	<0.01	<0.005	<0.01	7.5	1.98	
BN-22-98	749657	95	96.16	1.16	<0.01	<0.01	<0.005	<0.01	6.68	1.61	
BN-22-98	749658	96.16	97.16	1	0.01	<0.01	<0.005	<0.01	7.95	1.09	
BN-22-98	749659	124.75	126.5	1.75	0.16	<0.01	0.007	0.01	5.4	0.02	
BN-22-98	749660	126.5	128	1.5	0.21	<0.01	0.007	0.01	3.73	0.03	
BN-22-98	749661	128	129.5	1.5	0.23	<0.01	0.008	<0.01	3.41	0.03	
BN-22-98	749662	129.5	131	1.5	0.23	<0.01	0.006	0.01	3.84	0.02	
BN-22-98	749663	131	132.56	1.56	0.19	<0.01	0.008	<0.01	4.27	0.02	
BN-22-98	749664	146	147.5	1.5	0.25	<0.01	0.01	0.02	4.25	0.04	
BN-22-98	749665	147.5	149	1.5	0.25	<0.01	0.007	0.01	5.71	0.04	
BN-22-98	749666	149	150	1	0.19	<0.01	0.009	0.01	6.46	0.02	
BN-22-98	749667	150	151	1	0.14	<0.01	0.01	0.01	6.29	<0.02	
BN-25-98	749687	66.45	67	0.55	0.18	<0.01	0.009	0.01	6.52		
BN-25-98	749688	67	68	1	0.21	<0.01	0.014	0.01	6.69		
BN-25-98	749689	68	71.4	3.4	0.24	<0.01	0.012	0.01	5.61		



Hole No	Sample No	From	To	Width	Ni (%)	Cu (%)	Co (%)	Zn (%)	Fe (%)	S (%)	Au (ppb)
BN-25-98	749690	71.4	72.9	1.5	0.23	<0.01	0.011	0.01	5.76		
BN-25-98	749691	72.9	74.4	1.5	0.24	<0.01	0.013	<0.01	5.33		
BN-25-98	749692	179	180.3	1.3	0.29	<0.01	0.012	<0.01	2.95		
BN-25-98	749693	180.3	181.8	1.5	0.44	<0.01	0.012	<0.01	4.61		
BN-25-98	749694	181.8	183.05	1.25	0.28	<0.01	0.011	<0.01	3.76		
BN-25-98	749695	183.05	184.55	1.5	0.47	<0.01	0.011	<0.01	3.39		
BN-25-98	749696	184.55	185.55	1	0.49	<0.01	0.012	<0.01	4.02		
BN-25-98	749697	185.55	187	1.45	0.31	<0.01	0.012	<0.01	3.98		
BN-25-98	749698	187	188	1	0.37	<0.01	0.014	<0.01	4.74		
BN-25-98	749699	188	189.5	1.5	0.28	<0.01	0.013	<0.01	4.42		
BN-25-98	749700	189.5	191	1.5	0.4	<0.01	0.016	<0.01	4.37		
BN-25-98	749701	191	192.5	1.5	0.31	<0.01	0.012	0.01	5.08		
BN-25-98	749702	192.5	194	1.5	0.38	<0.01	0.015	<0.01	5.21		
BN-25-98	749703	194	195.5	1.5	0.37	<0.01	0.012	<0.01	4.7		
BN-25-98	749704	195.5	197	1.5	0.42	<0.01	0.013	<0.01	4.31		
BN-25-98	749705	197	198.5	1.5	0.41	<0.01	0.012	<0.01	4.44		
BN-25-98	749706	198.5	200.29	1.79	0.37	<0.01	0.01	<0.01	4.21		
BN-25-98	749707	200.29	201.79	1.5	0.36	<0.01	0.011	<0.01	4.14		
BN-25-98	749708	201.79	203.29	1.5	0.36	<0.01	0.013	0.01	4.1		
BN-26-98	749718	80	81.5	1.5	0.26	<0.01	0.015	<0.01	3.3		
BN-26-98	749719	81.5	83	1.5	0.26	<0.01	0.01	<0.01	3.75		
BN-26-98	749720	83	84.5	1.5	0.26	<0.01	0.01	<0.01	3.69		
BN-26-98	749721	84.5	86	1.5	0.27	<0.01	0.013	<0.01	3.99		
BN-26-98	749722	92	93.5	1.5	0.26	<0.01	0.011	<0.01	3.51		
BN-26-98	749723	93.5	95	1.5	0.25	<0.01	0.009	<0.01	3.84		
BN-26-98	749724	95	96.5	1.5	0.23	<0.01	0.01	<0.01	3.57		
BN-26-98	749725	96.5	98	1.5	0.26	<0.01	0.011	<0.01	3.41		
BN-26-98	749726	107	108.5	1.5	0.27	<0.01	0.013	<0.01	3.55		
BN-26-98	749727	108.5	110	1.5	0.26	<0.01	0.01	<0.01	3.72		
BN-26-98	749728	110	111.5	1.5	0.27	<0.01	0.014	<0.01	4.1		
BN-26-98	749729	111.5	113	1.5	0.26	<0.01	0.011	<0.01	3.22		
BN-26-98	749730	119	120.5	1.5	0.25	<0.01	0.009	<0.01	3.86		
BN-26-98	749731	120.5	122	1.5	0.27	<0.01	0.01	<0.01	4.38		
BN-26-98	749732	122	123.5	1.5	0.27	<0.01	0.013	<0.01	4.01		
BN-26-98	749733	123.5	125	1.5	0.27	0.01	0.01	0.01	3.64		
BN-26-98	749734	149	150.5	1.5	0.27	<0.01	0.012	<0.01	3.99		
BN-26-98	749735	150.5	152	1.5	0.27	<0.01	0.01	<0.01	3.42		
BN-26-98	749736	152	153.5	1.5	0.2	<0.01	0.014	<0.01	4		
BN-26-98	749737	153.5	155	1.5	0.27	<0.01	0.013	<0.01	3.63		
BN-26-98	749738	176	177.5	1.5	0.27	<0.01	0.011	<0.01	3.41		
BN-26-98	749739	177.5	179	1.5	0.27	<0.01	0.009	<0.01	3.86		
BN-26-98	749740	221	222.5	1.5	0.21	<0.01	0.009	<0.01	2.9		
BN-26-98	749741	222.5	224	1.5	0.3	<0.01	0.012	<0.01	4.26		
BN-26-98	749742	224	225.5	1.5	0.31	<0.01	0.012	<0.01	3.92		
BN-26-98	749743	225.5	227	1.5	0.32	<0.01	0.012	<0.01	4.19		
BN-26-98	749744	272	273.5	1.5	0.28	<0.01	0.014	<0.01	3.02		
BN-26-98	749745	273.5	275	1.5	0.28	<0.01	0.009	<0.01	2.99		
BN-26-98	749746	287	288.5	1.5	0.27	<0.01	0.008	<0.01	3.36		
BN-26-98	749747	288.5	290	1.5	0.26	<0.01	0.013	<0.01	3.17		



Declaration of Assessment Work Performed on Mining Land

Mining Act, Subsection 65(2) and 66(3), R.S.O. 1990

Transaction Number (office use) W9880.00770 Assessment Files Research Imaging



41P15NW2008 2.19053 BANNOCKBURN 900

subsections 65(2) and 66(3) of the Mining Act. Under section 8 of the view the assessment work and correspond with the mining land holder. Recorder, Ministry of Northern Development and Mines, 6th Floor,

Instructions: - For work performed on Crown Lands before recording a claim, use form 0240. - Please type or print in ink.

2.19053

1. Recorded holder(s) (Attach a list if necessary)

Form with fields for Name, Address, Client Number, Telephone Number, and Fax Number for Octokumpu Mines Inc.

2. Type of work performed: Check (✓) and report on only ONE of the following groups for this declaration.

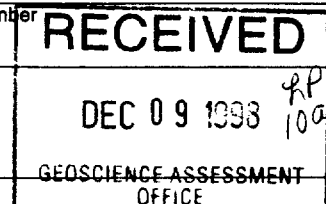
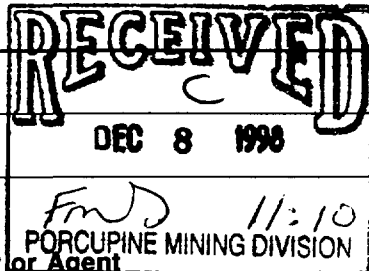
Geotechnical: prospecting, surveys, assays and work under section 18 (regs) Physical: drilling, stripping, trenching and associated assays Rehabilitation

Form with fields for Work Type (Diamond Drilling), Office Use, Commodity, Total \$ Value of Work Claimed (312,103), Dates Work Performed, NTS Reference, Mining Division (Larder Lake), and Resident Geologist District (Kirkland Lake).

Please remember to: - obtain a work permit from the Ministry of Natural Resources as required; - provide proper notice to surface rights holders before starting work; - complete and attach a Statement of Costs, form 0212; - provide a map showing contiguous mining lands that are linked for assigning work; - include two copies of your technical report.

3. Person or companies who prepared the technical report (Attach a list if necessary)

Form with fields for Name, Address, Telephone Number, and Fax Number for Paul Davis.



4. Certification by Recorded Holder or Agent

I, Paul Davis, do hereby certify that I have personal knowledge of the facts set forth in this Declaration of Assessment Work having caused the work to be performed or witnessed the same during or after its completion and, to the best of my knowledge, the annexed report is true.

Form with fields for Signature of Recorded Holder or Agent, Date (Dec 2, 1998), Agent's Address, Telephone Number, and Fax Number.

Dec 2 11:10 AM 1998

**5. Work to be recorded and distributed.** Work can only be assigned to claims that are contiguous (adjoining) to the mining land where work was performed, at the time work was performed. A map showing the contiguous link must accompany this form.

Mining Claim Number. Or if work was done on other eligible mining land, show in this column the location number indicated on the claim map.	Number of Claim Units. For other mining land, list hectares.	Value of work performed on this claim or other mining land.	Value of work applied to this claim.	Value of work assigned to other mining claims.	Bank. Value of work to be distributed at a future date.
eg TB 7827	16 ha	\$26, 825	N/A	\$24,000	\$2,825
eg 1234567	12	0	\$24,000	0	0
eg 1234568	2	\$ 8, 892	\$ 4,000	0	\$4,892
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
<b>Column Totals</b>					

2.19053

I, Paul David, do hereby certify that the above work credits are eligible under subsection 7 (1) of the Assessment Work Regulation 6/96 for assignment to contiguous claims or for application to the claim where the work was done.

Signature of Recorded Holder or Agent Authorized in Writing Paul Date Dec 2/98

**6. Instructions for cutting back credits that are not approved.**

Some of the credits claimed in this declaration may be cut back. Please check ( ✓ ) in the boxes below to show how you wish to prioritize the deletion of credits:

- 1. Credits are to be cut back from the Bank first, followed by option 2 or 3 or 4 as indicated.
- 2. Credits are to be cut back starting with the claims listed last, working backwards; or
- 3. Credits are to be cut back equally over all claims listed in this declaration; or
- 4. Credits are to be cut back as prioritized on the attached appendix or as follows (describe):

Note: If you have not indicated how your credits are to be deleted, credits will be cut back from the Bank first, followed by option number 2 if necessary.

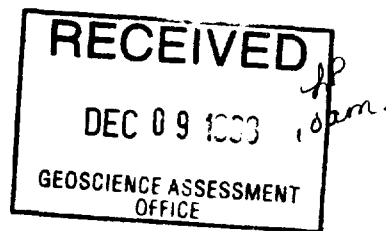
**For Office Use Only**

Received Stamp	Deemed Approved Date	Date Notification Sent
	Date Approved	Total Value of Credit Approved
Approved for Recording by Mining Recorder (Signature)		

W9880.00770

Mining Claim Number	Number of Claim Units	Value of Work Performed	Value of Work Applied	Value of Work Assigned	Bank
1198911	8	6838	3200	2330	1308
1198912	4	0	1600	0	0
1198913	1	0	400	0	0
1198916	4	25634	1600	24034	0
1198917	1	66106	400	21370	44336
1203764	1	0	400	0	0
1206090	1	141734	400	9310	132024
1207453	1	0	400	0	0
1218700	2	0	2400	0	0
1218720	1	18315	400	0	17915
1218723	1	0	800	0	0
1218725	7	0	8400	0	0
1218727	7	0	8400	0	0
1218728	1	53476	0	23356	30120
1218730	1	0	1200	0	0
1218731	1	0	1200	0	0
1218732	11	0	13200	0	0
1218736	1	0	1200	0	0
1228144	8	0	3200	0	0
1228147	8	0	3200	0	0
1228148	6	0	4800	0	0
1228149	6	0	4800	0	0
1218721	11	0	13200	0	0
1218722	6	0	7200	0	0
1218726	1	0	1200	0	0
1228150	8	0	3200	0	0
<b>Column Totals</b>		<b>312103</b>	<b>86400</b>	<b>80400</b>	<b>225703</b>

2.19053





Personal information collected on this form is obtained under the authority of subsection 6(1) of the Assessment Work Regulation 6/96. Under section 8 of the Mining Act, the information is a public record. This information will be used to review the assessment work and correspond with the mining land holder. Questions about this collection should be directed to the Chief Mining Recorder, Ministry of Northern Development and Mines, 6th Floor, 933 Ramsey Lake Road, Sudbury, Ontario, P3E 6B5.

Work Type	Units of Work <small>Depending on the type of work, list the number of hours/days worked, metres of drilling, kilometres of grid line, number of samples, etc.</small>	Cost Per Unit of work	Total Cost
Diamond Drilling	5,161m	\$57 <sup>70</sup>	297,681
<b>2,19053</b>			
<b>Associated Costs (e.g. supplies, mobilization and demobilization).</b>			
<b>Transportation Costs</b>			
<b>Food and Lodging Costs</b>			
<b>Total Value of Assessment Work</b>			297,681

**RECEIVED**  
DEC 09 1998  
GEOSCIENCE ASSESSMENT OFFICE

**RECEIVED**  
DEC 8 1998  
FMD 11:10  
PORCUPINE MINING DIVISION

**Calculations of Filing Discounts:**

1. Work filed within two years of performance is claimed at 100% of the above Total Value of Assessment Work.
  2. If work is filed after two years and up to five years after performance, it can only be claimed at 50% of the Total Value of Assessment Work. If this situation applies to your claims, use the calculation below:
- TOTAL VALUE OF ASSESSMENT WORK                      × 0.50 =                      Total \$ value of worked claimed.

**Note:**  
- Work older than 5 years is not eligible for credit.  
- A recorded holder may be required to verify expenditures claimed in this statement of costs within 45 days of a request for verification and/or correction/clarification. If verification and/or correction/clarification is not made, the Minister may reject all or part of the assessment work submitted.

**Certification verifying costs:**

I, Paul Davis (please print full name), do hereby certify, that the amounts shown are as accurate as may reasonably be determined and the costs were incurred while conducting assessment work on the lands indicated on the accompanying Declaration of Work form as Project Geologist I am authorized (recorded holder, agent, or state company position with signing authority) to make this certification.

Signature: Paul Davis Date: Dec 2, 1998

Geoscience Assessment Office  
933 Ramsey Lake Road  
6th Floor  
Sudbury, Ontario  
P3E 6B5

Telephone: (888) 415-9846  
Fax: (877) 670-1555

January 20, 1999

Paul Davis  
OUTOKUMPU MINES INC.  
P.O. Box 1123  
Timmins, ONTARIO  
P4N 7H9

Visit our website at:  
[www.gov.on.ca/MNDM/MINES/LANDS/mlsmnpge.htm](http://www.gov.on.ca/MNDM/MINES/LANDS/mlsmnpge.htm)

Dear Sir or Madam:

**Submission Number:** 2.19053

**Status**

**Subject: Transaction Number(s):** W9880.00770 Deemed Approval

---

We have reviewed your Assessment Work submission with the above noted Transaction Number(s). The attached summary page(s) indicate the results of the review. **WE RECOMMEND YOU READ THIS SUMMARY FOR THE DETAILS PERTAINING TO YOUR ASSESSMENT WORK.**

If the status for a transaction is a 45 Day Notice, the summary will outline the reasons for the notice, and any steps you can take to remedy deficiencies. The 90-day deemed approval provision, subsection 6(7) of the Assessment Work Regulation, will no longer be in effect for assessment work which has received a 45 Day Notice. Allowable changes to your credit distribution can be made by contacting the Geoscience Assessment Office within this 45 Day period, otherwise assessment credit will be cut back and distributed as outlined in Section #6 of the Declaration of Assessment work form.

Please note any revisions must be submitted in **DUPLICATE** to the Geoscience Assessment Office, by the response date on the summary.

If you have any questions regarding this correspondence, please contact Steve Beneteau by e-mail at [steven.beneteau@ndm.gov.on.ca](mailto:steven.beneteau@ndm.gov.on.ca) or by telephone at (705) 670-5855.

Yours sincerely,



ORIGINAL SIGNED BY  
Blair Kite  
Supervisor, Geoscience Assessment Office  
Mining Lands Section

# Work Report Assessment Results

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**Submission Number:** 2.19053

**Date Correspondence Sent:** January 20, 1999

**Assessor:** Steve Beneteau

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<b>Transaction Number</b>	<b>First Claim Number</b>	<b>Township(s) / Area(s)</b>	<b>Status</b>	<b>Approval Date</b>
W9880.00770	1198911	BANNOCKBURN, MONTROSE	Deemed Approval	January 19, 1999

**Section:**  
16 Drilling PDRILL

**Correspondence to:**

Resident Geologist  
Kirkland Lake, ON

Assessment Files Library  
Sudbury, ON

**Recorded Holder(s) and/or Agent(s):**

Paul Davis  
OUTOKUMPU MINES INC.  
Timmins, ONTARIO

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TOS.M

BAИOCKBURY

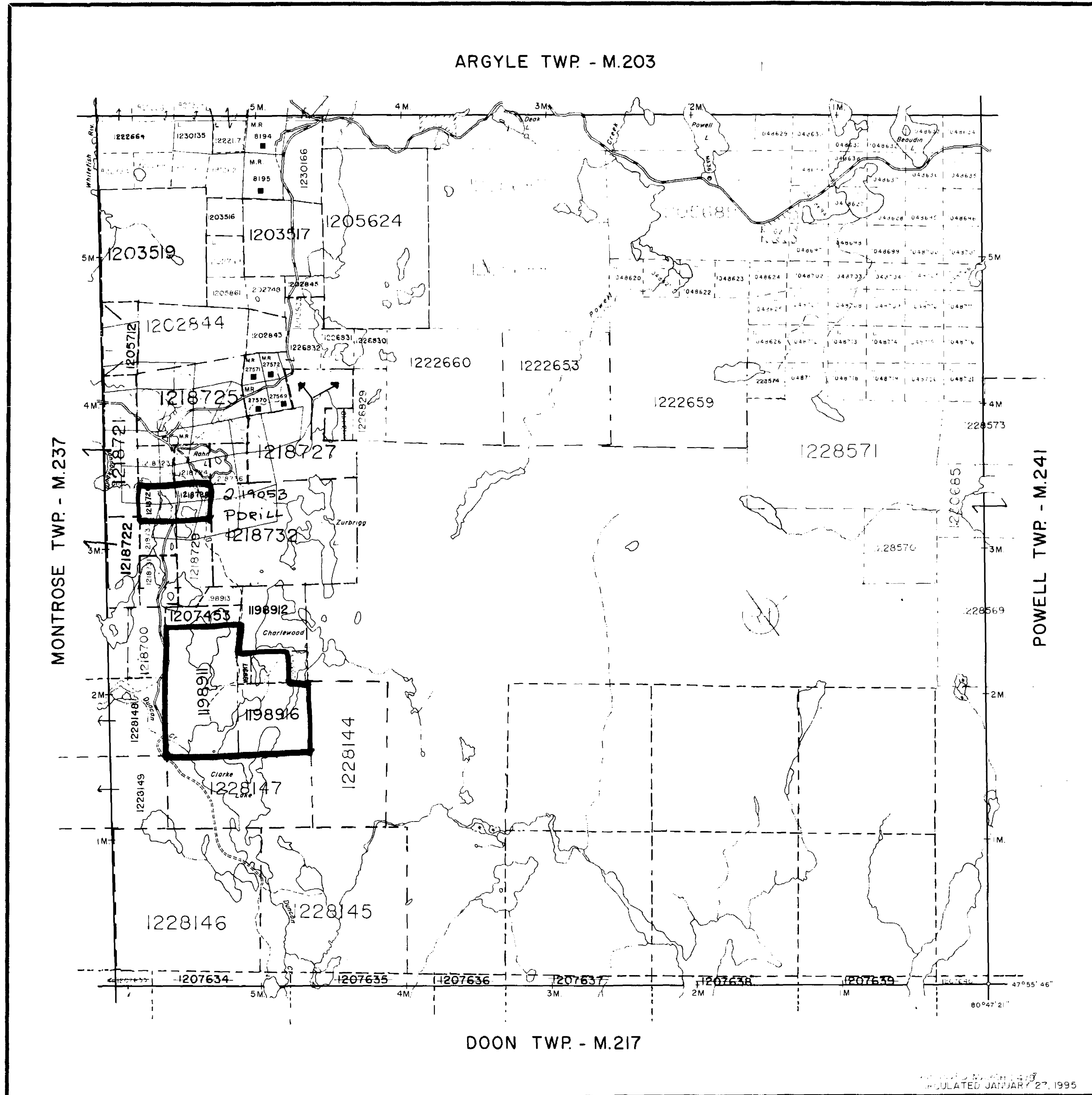
W.S.O.M

TOS.M

BAИOCKBURY

W.S.O.M

TRIM LINE



THE TOWNSHIP OF  
**BANNOCKBURN**

DISTRICT OF  
TIMISKAMING

LARDER LAKE  
MINING DIVISION

SCALE: 1-INCH = 40 CHAINS

**DISPOSITION OF CROWN LANDS**

PATENT, SURFACE AND MINING RIGHTS	●
" SURFACE RIGHTS ONLY	○
" MINING RIGHTS ONLY	◐
LEASE, SURFACE AND MINING RIGHTS	■
" SURFACE RIGHTS ONLY	◼
" MINING RIGHTS ONLY	◻
LICENCE OF OCCUPATION	▼

**ROADS**

IMPROVED ROADS	
KING'S HIGHWAYS	
RAILWAYS	
POWER LINES	
MARSH OR MUSKEG	
MINES	
CANCELLED	

**NOTES**

400' surface rights reservation along the shores of all lakes and rivers.

1. M.T.C. GRAVEL PIT 3725

2. M.T.C. GRAVEL PIT 1374

3. SURFACE AND MINING RIGHTS WITHDRAWN FROM STAKING, SECTION 36/80 ORDER NO. 4784-12/83. (Surface rights reserved for prospecting purposes only under Order No. 4783)

**DATE OF ISSUE**  
APR 0 1999

PROVINCIAL RECORDING  
OFFICE - SADBURY

NOTICE OF FORESTRY ACTIVITY  
THIS TOWNSHIP AREA FALLS WITHIN THE  
LAKES WATERSHED UNIT

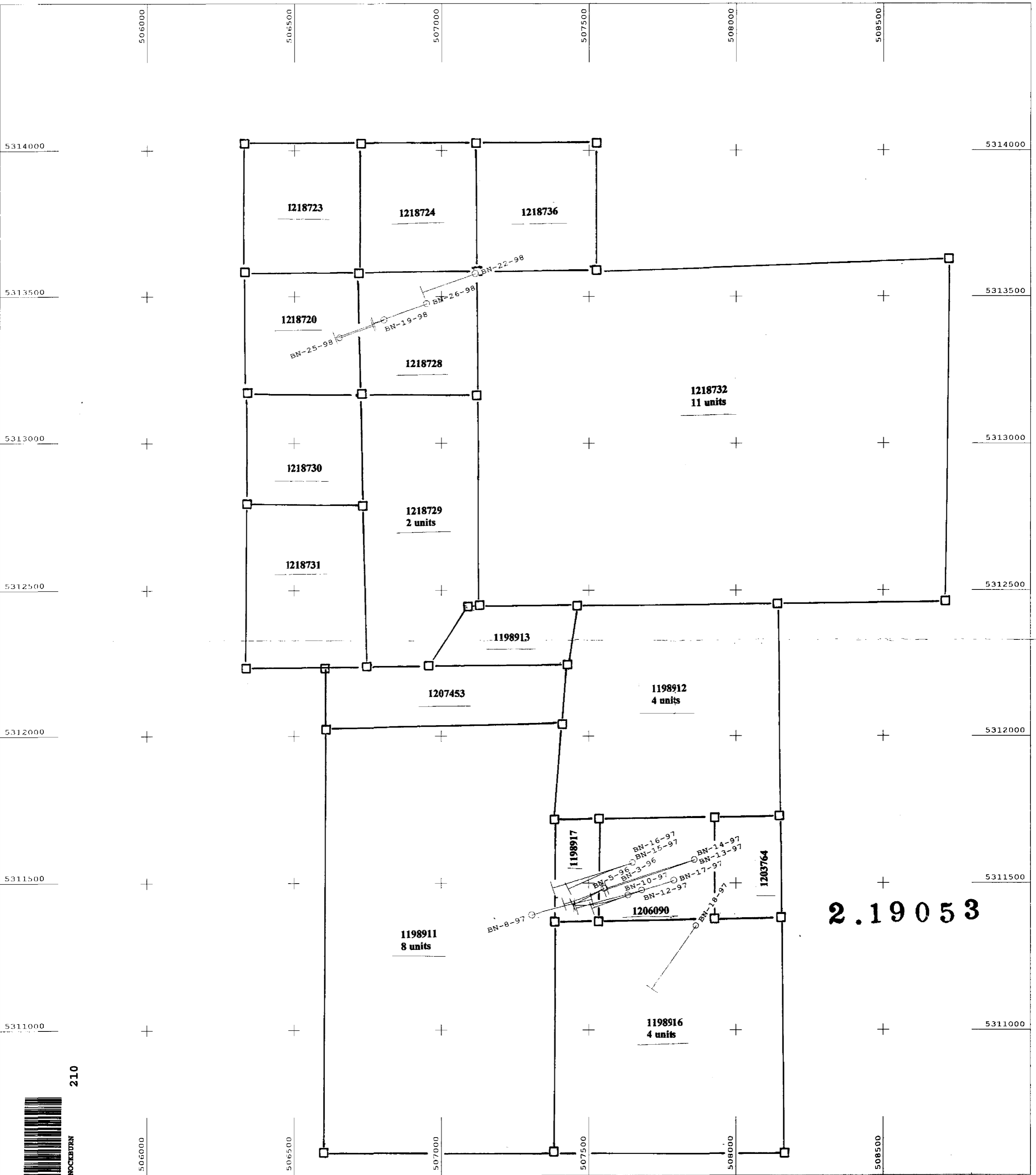
AND MAY BE SUBJECT TO FORESTRY OPERATIONS  
THE MNR UNIT FORESTER FOR THE AREA CAN BE  
CONTACTED AT 416-274-1234  
WATERLOO, ONT.  
L2Y 4Z1-22

**PLAN NO. M.207**

ONTARIO  
MINISTRY OF NATURAL RESOURCES  
SURVEYS AND MAPPING BRANCH

1:50,000 Scale  
REVISED JANUARY 27, 1995





2.19053



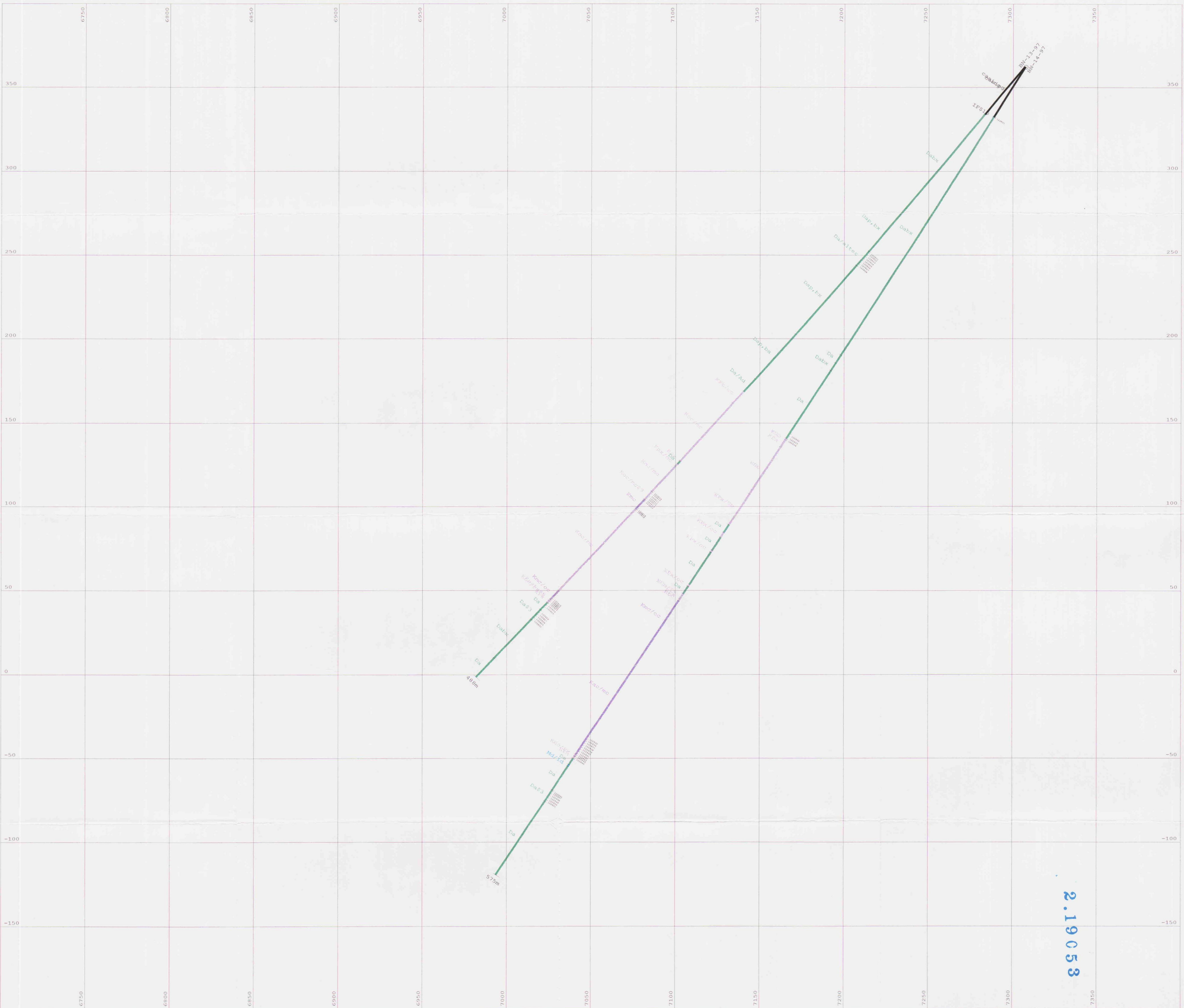
210

Geological Legend			
<input type="checkbox"/> Sandstone	<input type="checkbox"/> Shale	<input type="checkbox"/> Basalt	<input type="checkbox"/> Unconsolidated
<input type="checkbox"/> Sandstone	<input type="checkbox"/> Shale	<input type="checkbox"/> Basalt	<input type="checkbox"/> Unconsolidated
<input type="checkbox"/> Sandstone	<input type="checkbox"/> Shale	<input type="checkbox"/> Basalt	<input type="checkbox"/> Unconsolidated
<input type="checkbox"/> Sandstone	<input type="checkbox"/> Shale	<input type="checkbox"/> Basalt	<input type="checkbox"/> Unconsolidated

DATE 1/04/97 SHEET 1 of 1  
 Scaled 1:1000 REF No. FILE 1 PLANAS.P  
 0 500m

Diamond Drill Holes  
 Plan Map

Outokumpu Mines Ltd  
 Bannockburn Property



2.19053

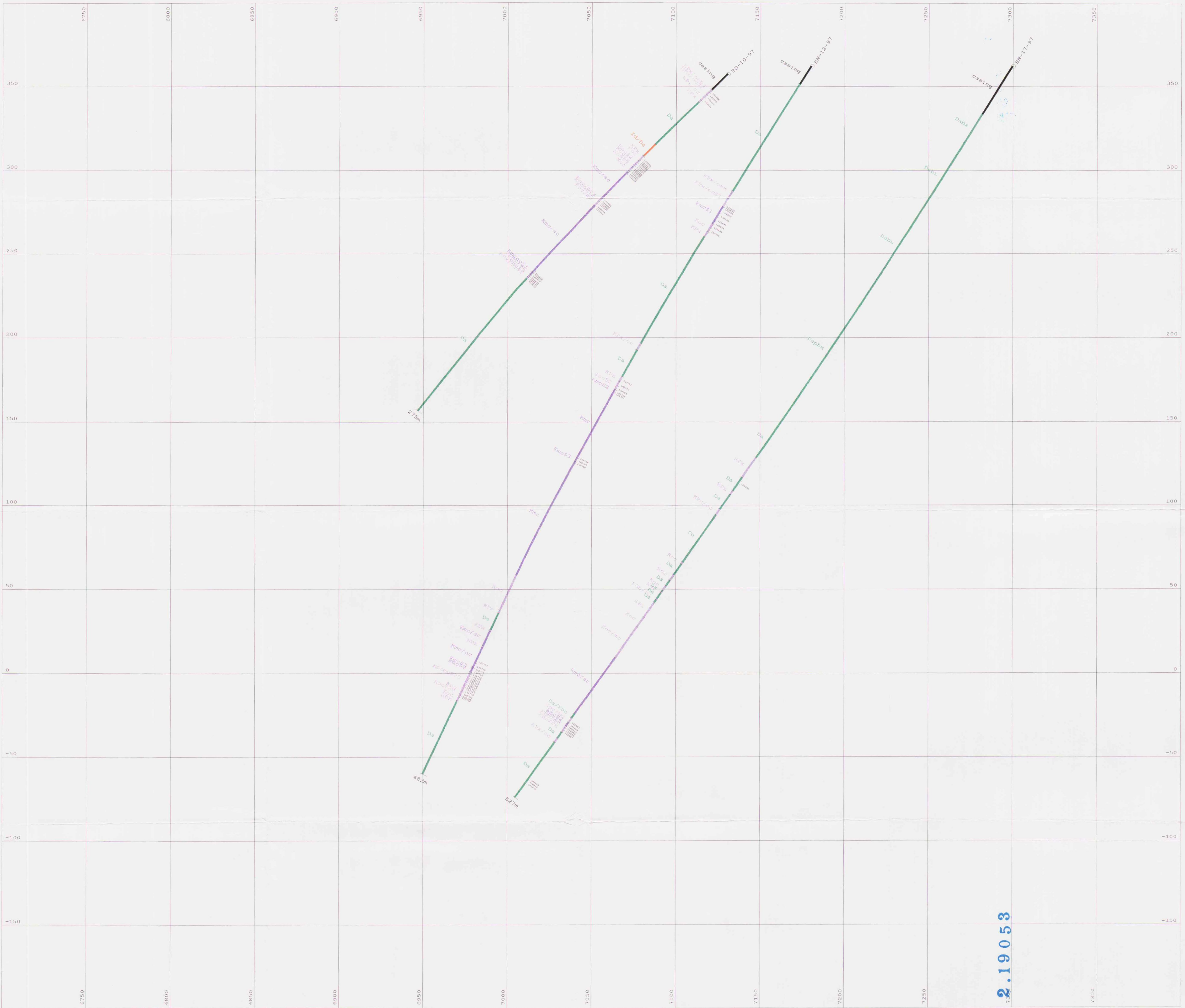
41P15HW2008 2.19053 BANNOCKBURN 220

Geological Legend			
	Da Andesite	Xa Kinetitic Amphibolite	Da Intermediate Dike
	Da Diabase	Xa Kinetitic Metachert	Da Metic Dike
	Xa Mylonite	Xa Kinetitic orthogneiss	Da Diabase
	Da Basalt	Xa Kinetitic spinifex-texture	Da Gabbro
		Xa Kinetitic pyroxenite	
		Xa Kinetitic gabbro	

Scale 1:1000	DATE 01/04/97	SHEET 1 of 1
	REF No. 1	FILE 9900AS.PLT

Diamond Drill Holes  
Section 9900N

Outokumpu Mines Ltd  
Bannockburn Property



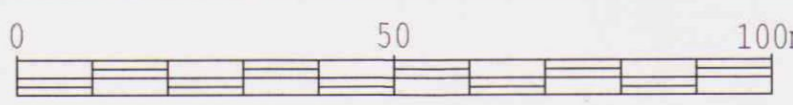
2.19053



41P15NW2008 2.19053 BANNOCKBURN 230


Geological Legend			
■ Basins	■ An Anorthite	■ Kac Komatiitic Aluminite	■ Dc Intermediate Dike
■ Fx Iron Formation	■ Dv Dolomite	■ Kmc Komatiitic Monomictite	■ Mf Mafic Dike
■ S Sediments	■ Ah Anorthite	■ Koc Komatiitic orthomictite	■ Dd Diabase
■ S Sulphide Mineralization	■ Gv Garnet	■ Ksk Komatiitic spinifex texture	■ Gb Gabbro
		■ Kps Komatiitic Pyroxenite	
		■ Kpb Komatiitic Sphero	

Scale 1:1000	DATE 01/04/97	SHEET 1 of 1
	REF No. 1	FILE 9950AS.PLT



Diamond Drill Holes  
Section 9950N

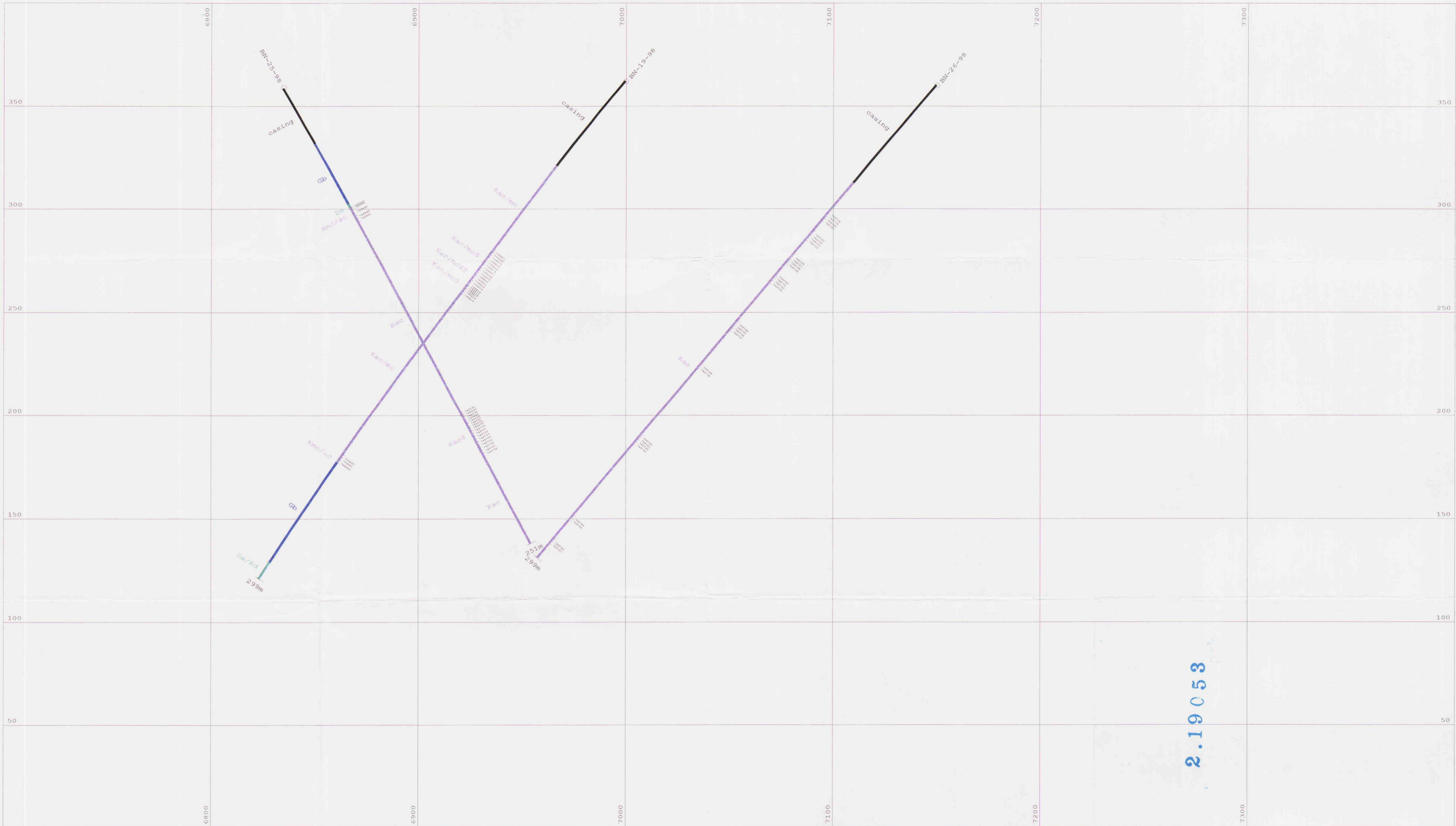
Outokumpu Mines Ltd  
Bannockburn Property











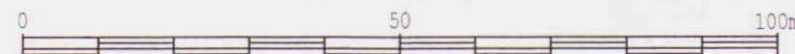
2.19053



41P15NW2008 2.19053 BANNOCKBURN 270

Geological Legend			
■ casing	■ Ad Andesite	■ Kac Komatiitic Accumulate	■ Id Intermediate Dike
■ IF Iron Formation	■ Da Dacite	■ Kmc Komatiitic Mesocumulate	■ M3 Mafic Dike
■ S Sediments	■ Ab Ahyolite	■ Kcc Komatiitic Orthocumulate	■ Gb Gabbro
■ S Sulphide Mineralization	■ BA Basalt	■ Fvx Komatiitic Spinifex-Texture	
		■ Kpx Komatiitic Pyroxenite	
		■ KGB Komatiitic Gabbro	

Scale 1:1000	DATE 01/04/97	SHEET 1 of 1
	REF No. 1	FILE 12000AS.PLT



Diamond Drill Holes  
Section 12000N

Outokumpu Mines Ltd  
Bannockburn Property

