



41P15NW2005 2.18671 BANNOCKBURN

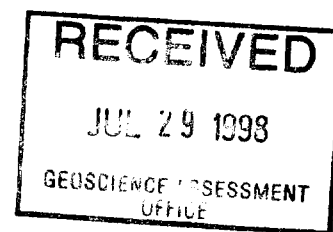
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Outokumpu Mines Ltd.

Diamond Drilling Report On the Bannockburn Twp. Property

By Paul Davis
June, 1998

2.18671



Paul



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1.0 Introduction

Bradley Bros. Limited was contracted by Outokumpu Mines Ltd to drill 13 diamond drill core 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 2804.5 metres of BQ and NQ diamond drilling was completed in 12 diamond drill holes between October 17, 1996 to March 22, 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 on the property. The diamond drilling was concentrated on the komatiitic succession in the area. Coincident high magnetic and electromagnetic conductors were targeted in this drill 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:

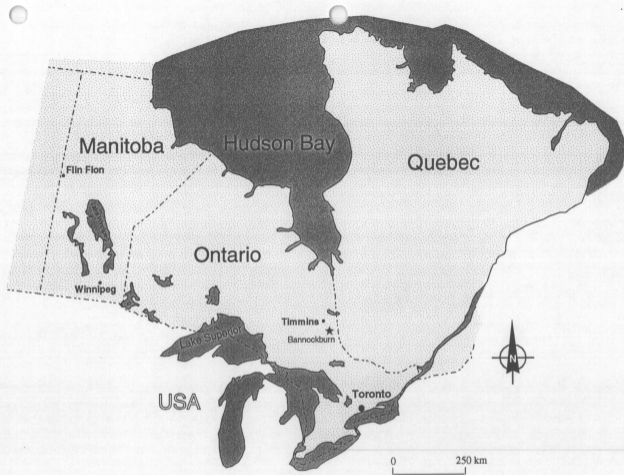


Figure 1: Location Map:

Exploration Properties: Matachewan Area

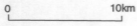
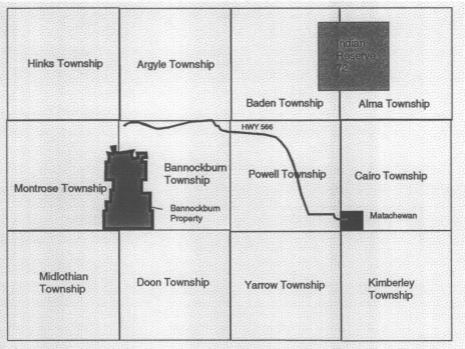


Figure 2: Property Location Map

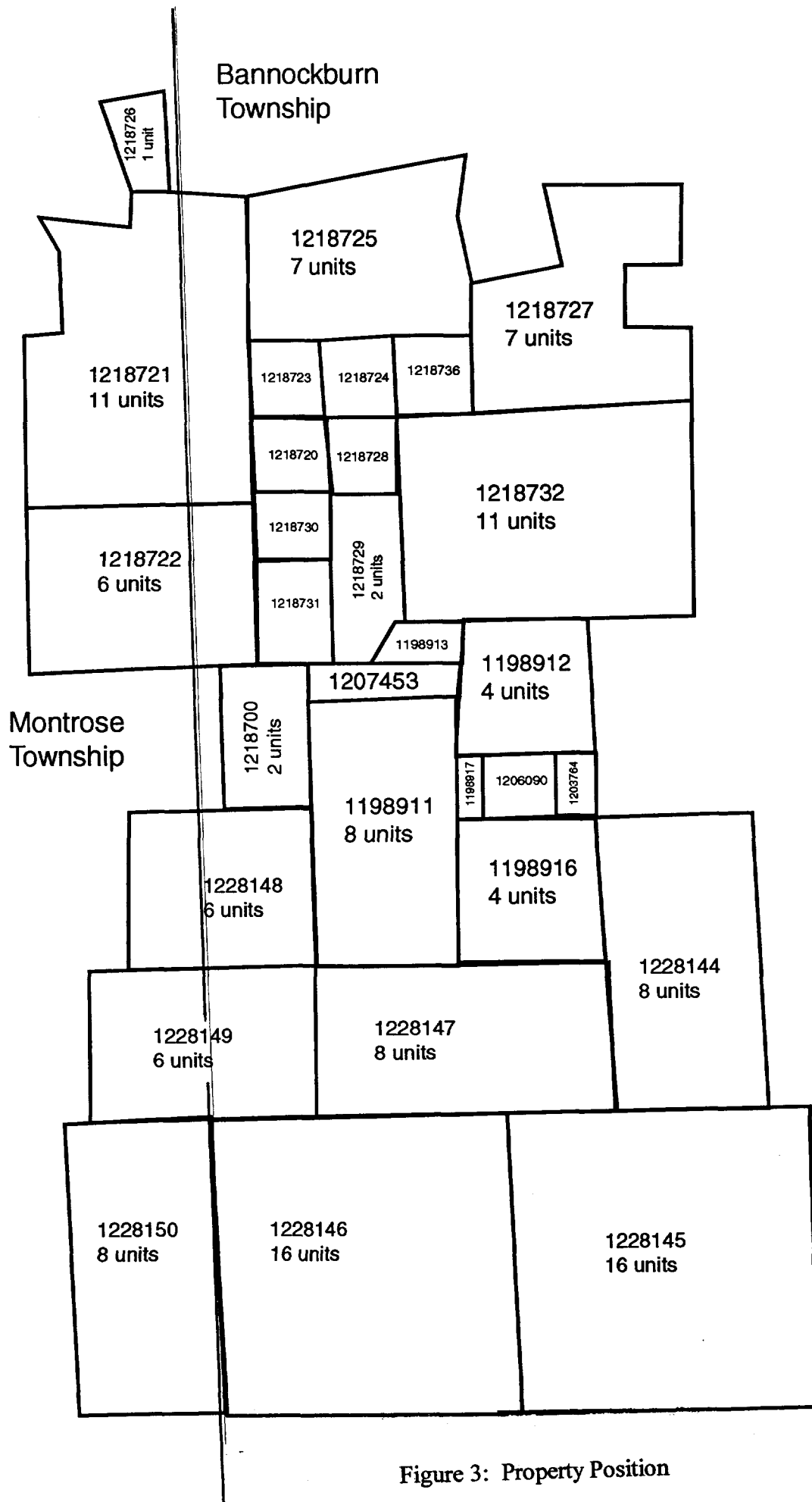


Figure 3: Property Position

<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
Total		143 units

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 overlie 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.

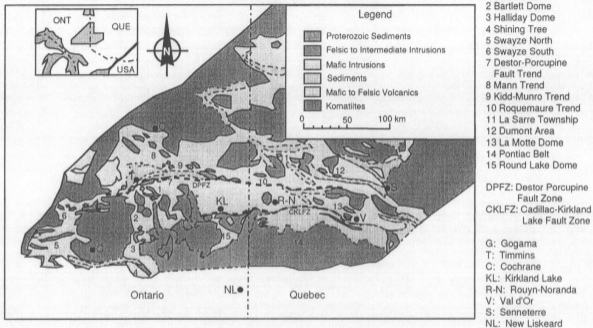


Figure 4: Regional geological map showing the distribution of komatiitic successions in the Abitibi greenstone belt (1-13) and the adjacent Pontiac metasedimentary belt (14) (modified from Goodwin and Ridler 1970; MERQ-OGS 1983; and Heather 1993).

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

Thirteen diamond drill holes for a total of 2804.50 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-1-96	507660	5311412	244	-50	358	363.50
BN-2-96	507705	5311341	250	-50	355	278.00
BN-4-96	507532	5311350	250	-90	358	90.00
BN-6-96	507485	5311570	250	-65	359	176.00
BN-7-96	507534	5311754	250	-55	357	104.00
BN-9-97	507343	5311457	70	-50	358	299.00
BN-11-97	507392	5311636	70	-50	357	183.00
BN-20-97	506655	5313370	250	-50	359	365.00
BN-21-97	506470	5313300	250	-50	360	215.00
BN-23-97	506795	5312880	250	-50	368	226.00
BN-24-97	506555	5314110	250	-50	366	410.00
BN-27-97	506415	5313285	70	-50	360	95.00

Table 1: Diamond Drill Hole Summary Table.

7.0 Results and Conclusions

No economic or sub-economic Fe-Ni-Cu sulphides were intersected within the komatiitic rocks of this diamond drill program. Several thick sections of komatiitic peridotites and dunites were drilled, but lacked the sulphide component which hosts the nickel mineralization.

Diamond drilling did intersect spinifex-textured flow tops indicating tops are the east within the komatiitic rocks. Based on this topping interpretation, the basal, more prospective contact is the western contact of the komatiitic rocks. Volcanic flow features were well preserved in many of the drill holes due to the low metamorphic grade of the area.

8.0 Recommendations

Additional diamond drilling is recommended for the Bannockburn Township property. This area has not been adequately explored in the past and the stratigraphic associations are not well described due to poor outcrop exposure. Further diamond drilling may follow a geochemical survey of the soils within the property boundaries.

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, 1198916


Hole Number	Survey Type	Dip (Deg.)	Azim Grid (Deg.)	Azim Astro. (Deg.)	Hole Length (m)	Core Size
BN-1-96	maxibor	-50		244	363.5	BQ

Northing (Grid m)	Easting (Grid m)	Northing (UTM)	Easting (UTM)	Northing (Lat.)	Easting (Long.)	Elevation (m)
6345	4200	5311481	507673			358

Logged By	Date Logged	Drilled By	Date Started	Date Finished	Core Storage
Paul Davis	22-Oct-96	Bradley Bros.	17-Oct-96	21-Oct-96	Hollinger Building

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

Assay Numbers	Assay Lab	Certificate #	Whole Rock Geochemistry
37801-37819	Bondar-Clegg		568401-568409

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	28.00	Casing	Casing														
28.00	37.85	Dacite	Da	-medium grey, f.g. to aphanitic, massive-possible pillowed -chl-Po-qtz filled amygdules, non-magnetic -chl-qtz veinlets with minor Po, Py -larger fractures are chl filled -5X10-5 SI Units (magnetic susceptibility)	tr-5		Po,Py	d,v									
37.85	41.10	Mafic Dyke	Md	-medium grey-green, f.g. to m.g., massive -m.g. centre, f.g. margins -plag, chl, pyrox, qtz, poss leucoxene -leucoxene looks porphyroblastic -qtz-chl veins up to 2 cm in width -possibly diabase? -40.60-41.0: core very blocky -3X10-5 SI units	0								6		40.60	41.00	
41.10	44.07	Heterolithic Conglomerate	Sc	-black aphanitic groundmass with clasts of granite, mafics, -plag porphyry, qtz, pyroxenite -clasts range from well rounded to angular -qtz veining up to 2 cm wide -trace Cpy associated with qtz vein -sharp upper and lower contacts -1X10-5 SI units	tr		Cpy	d						8		41.66	41.90
														7		43.63	43.90
44.07	49.60	Komatitic Flow Top or Pyroxenite	KPx	-dark grey to medium grey-green, f.g. to aphanitic -variable chl, serp, and light green alteration -some serp veins are up to 10 cm wide -non-magnetic -no spinifex textures observed -gradational increase in MgO downhole -15X10-5 SI units	0				WR	568401	45.00	48.00					
49.60	53.80	Komatitic Peridotite/ Pyroxenite	Koc/Px	-dark grey-black, f.g., weakly to non-magnetic -strong serp alteration, numerous serp veins -1-4% disseminated and vein associated Po, v.f.g. -gradational change to orthocumulate downhole -70X10-5 SI Units	1-4		Po	d	WR	568402	50.00	53.00	6		49.60	49.77	
									AS	37801	49.60	51.70					
									AS	37802	51.70	53.80					
53.80	80.80	Komatitic Peridotite	Koc/mc	-black to dark green, f.g. to m.g., olivine orthocumulate to mesocumulate, weakly to strongly magnetic -strong serp alteration -decreasing Po, Py content downhole, but cloud and disseminated sulphides throughout -sulphides also occur in serp-carb veins	tr.-3		Po,Py	d, cloud	WR	568403	70.00	73.00					
									AS	37803	53.80	56.80					
									AS	37804	56.80	59.80					
									AS	37805	59.80	62.80					
									AS	37806	62.80	65.80					
									AS	37807	65.80	68.80					

From (m)	To (m)	Rock Type	Legend	Description	Sulphides		Type	Mode	Samples		From (m)	To (m)	Faults and Shears (1-10)		From (m)	To (m)
					%	% Frags			Type	Tag #			Brittle	Ductile		
53.80	80.80	con't	Koc/mc	-weak to moderate serp-carb veining -gradational increase in intragranular pyroxene matrix over lower 2 m -unit is very porous -varies between 10 to 1000X10-5 SI units					AS	37808	68.80	71.80				
									AS	37809	71.80	74.80				
									AS	37810	74.80	77.80				
									AS	37811	77.80	80.80				
80.80	86.62	Basal Komatiitic Pyroxenite	KPx/oc	-dark grey, f.g. to aphanitic, non-magnetic to weakly magnetic -less magnesian downhole -gradational increase in pyroxene-rich matrix downhole -strong serp and chl alteration -variable carb alteration from weak to strong -carb-serp veining throughout -lower 40cm appears to be quench zone -1000 to 1500X10-5 SI units	0				WR	568404	82.00	85.00				
86.62	87.65	Komatiitic Flo Top Quench/ Olivine Spinifex	Kosx	-medium grey-green, aphanitic with f.g. to c.g. olivine spinifex blades, non-magnetic -tops appear to be up hole based on the fine to coarse grained texture of the spinifex -olivine blades are dendritic and altered to serp -groundmass altered to chl-trem -sharp lower contact with pyroxenite -might be possible to get initial flow composition -3X10-5 SI units	0				WR	568405	86.65	87.65				
87.65	105.35	Komatiitic Pyroxenite	KPx	-medium grey, f.g., massive -strongly altered to chl, trem, serp -contains trace to 2% chromite -traces of Po associated with serp-carb veins -increase in serp content over lower 5m -lower contact is gradational -some zones appear brecciated with chl veining -4X10-5 SI units	tr		Po	d	WR	568406	95.00	98.00				
105.35	120.00	Komatiitic Pyroxenite/ Peridotite	KPx/oc	-black to dark green with lighter green flecks, moderately magnetic -strong serp, chl alteration -intercumulous material is light green -trace cloud Po scattered variably throughout -gradational increase in olivine downhole -serp-carb veining -400X10-5 SI units	tr		Py	d	WR	568407	112.00	115.00				
									AS	37812	119.00	120.00				

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)
120.00	137.20	Komatiitic Peridotite	Koc/mc	-black to dark green, f.g. to m.g., massive, moderately magnetic, olivine orthocumulate to mesocumulate -strong serp alteration -occasional <1mm serp-carb veins -1-3% very fine grained, disseminated, cloud sulphides -core is somewhat blocky -gradational decrease in olivine content downhole -400X10-5 SI units	1-3		Py	d	WR	568408	128.00	131.00				
									AS	37813	120.00	122.00				
									AS	37814	122.00	125.00				
									AS	37815	125.00	128.00				
									AS	37816	128.00	131.00				
									AS	37817	131.00	134.00				
									AS	37818	134.00	137.20				
137.20	138.00	Basal Komatiitic Pyroxenite	KPx	-grey green, f.g. to aphanitic, non-magnetic -chl-trem rock with some serp alteration -banded alteration in some sections -no Po, Py mineralization -sharp lower contact -serp, chl, carb veins -contaminated basal pyroxenite -chl veins extend into footwall beyond the lower contact -5X10-5 SI units	0											
138.00	205.60	Dacite	Da	-medium grey, aphanitic, massive to fragmental -qtz-chl-Po filled amygdules -qtz-chl veining -weak pervasive chl alteration -upper contact appears bleached, possibly hornfelsed -139.45-140.00: - strong silicification with brecciation -similar zones occur throughout the unit and represent possible flow contacts -some zones appear to be variolitic -unit contains clots of Po and Py -some sections appear to be pillowed -5X10-5 SI units	1		Po,Py	clots								
205.60	209.06	Iron Formation	IF	-light grey, black and grey-green, aphanitic, banded, brecciated, and graphic textures -very hard, high silica content -cherty iron formation with chl alteration or graphite -Po associated with veining -cherty material extends as veins beyond upper and lower contacts -30X10-5 SI units	2		Po	v	AS	37819	205.60	209.06				
									WR	568409	206.00	209.00				
209.06	363.50	Dacite/ Andesite	Da/Ad	-medium grey-green to grey, massive, fragmented, and pillowed, aphanitic to f.g. -qtz and chl filled amygdules -weak chl and epid alteration	1-2		Po	d,v								

Area/Township	N.T.S.	Year	Project	Property	Claim Numbers
Bannockburn	41P/NE	1996	Exploration	Bannockburn	1198916


Hole Number	Survey Type	Dip (Deg.)	Azim Grid (Deg.)	Azim Astro. (Deg.)	Hole Length (m)	Core Size
BN-2-96	acid	-55	250	250	278	BQ

Northing (Grid m)	Easting (Grid m)	Northing (UTM)	Easting (UTM)	Northing (Lat.)	Easting (Long.)	Elevation (m)
6275	4245	531400.2	507718			355

Logged By	Date Logged	Drilled By	Date Started	Date Finished	Core Storage
Paul Davis	24-Oct-96	Bradley Bros.	21-Oct-96	23-Oct-96	Hollinger Building

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

Assay Numbers	Assay Lab	Certificate #	Whole Rock Geochemistry
37820-37835	Bondar-Clegg		568410-568415

Comments: 

From (m)	To (m)	Rock Type	Legend	Description	Sulphides				Samples		From (m)		Faults and Shears (1-10)				
					%	% Frags	Type	Mode	Type	Tag #	Brittle	Ductile	From (m)	To (m)			
0.00	32.00	Casing	casing														
32.00	85.78	Mudstone	St	-medium to dark grey, aphanitic to m.g., massive to bedded at 60 degrees to core axis -thin beds of more m.g. material representing <0.5% -f.g. clasts of qtz, granite, plag -minor Py, looks like replacement features -lower portion of unit becomes more clast rich, but still matrix supported -possibly weak chl alteration -sharp contacts with more clastic beds -20X10-5 SI units	tr.-1		Py	d									
85.78	76.25	Conglomerate	Sc	-light grey to medium grey, aphanitic groundmass -clasts range in size from <2mm to >30cm -generally clasts supported -granite, qtz, mafic volcanic, possibly ultramafic -heterolithic composition -sharp lower contact at 90 degrees to the core axis -clasts are angular to rounded -7X10-5 SI units	0												
76.25	79.82	Mudstone	St	-medium to dark grey, aphanitic to f.g., massive to weakly bedded at 85 degrees to the core axis -very few well rounded clasts of granitic material -looks like a diamicite -cut by qtz-plag vein 3mm wide -lower contact is sharp -10X10-5 SI units	0												
79.82	80.76	Komatiitic Pyroxenite/ Peridotite	Koc	-black to dark green, f.g. to aphanitic, non-magnetic -looks like olivine orthocumulate -strong serp and talc alteration -serp veining -weakly foliated at 40 degrees to the core axis -lower contact is sharp and is recognised by a change in the alteration colour -20X10-5 SI units	0				WR	568410	79.82	80.76					
80.76	87.00	Komatiitic Peridotite	Koc	-medium to dark grey-green with light brown flecks, f.g., weakly magnetic to non-magnetic, olivine orthocumulate -serp-chl-carb alteration -serp-chl-carb veining up to 10cm wide -fault gauge along with serp veining -trace to 5% disseminated Po, Py	tr.-2 2-5 tr.-1		Po,Py Po,Py	d,v d,v	AS AS AS WR	37820 37821 37823 568411	80.76 83.00 84.65 82.00	83.00 84.65 87.00 85.00	2		84.43	84.57	

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)		
80.76	87.00	cont	Koc	-some sulphides are associated with serp veining -becomes a darker black-green downhole -gradational lower contact -125X10-5 SI units														
87.00	115.60	Komatiitic Peridotite	Kmc/oc	-black to dark green with minor light grey sections, f.g., massive with zones of spinifex-textured veins gradational from upper and lower contacts -olivine orthocumulate to mesocumulate -serp, trem, chl alteration -serp veins up to 5cm wide -Po associated with some serp veins -disseminated Po, Py with veins and replacing olivine -gradational decrease in olivine, sharp lower contact	1-3 1-3 1-2 1-2 tr. tr. 1-3 tr		Po,Py Po,Py Po,Py Po,Py Po,Py Po,Py Po,Py Po,Py	d,v d d d d d d d	AS AS AS AS AS AS AS WR	37823 37824 37825 37826 37827 37828 37829 37830 568412	87.00 89.00 92.00 95.00 98.00 110.00 112.00 113.00 115.60 107.00	89.00 92.00 95.00 98.00 101.00 112.00 113.00 115.60 110.00						
115.60	116.50	Komatiitic Flow Top/ Pyroxene Spinifex	KPx/psx	-light to medium green-grey, f.g. to aphanitic, brecciated by serp veining, non-magnetic, possible randomly oriented pyroxene spinifex -sharp lower contact -possibly development of olivine blades near contact -5X10-5 SI units	0													
116.50	119.30	Komatiitic Pyroxenite/ Peridotite	Koc	-dark grey-green, f.g., massive, weakly to moderately magnetic, olivine orthocumulate -serp, chl, trem alteration -serp, chl, carb veining -gradational lower contact -trace very fine grained Py, Po -1500X10-5 SI units	tr		Py,Po	d	WR	568413	116.50	119.30						
119.30	124.40	Basal Komatiitic Pyroxenite	KPx	-medium to light grey, f.g., massive, non-magnetic -chl, trem alteration -serp, carb, chl veining -contaminated basal contact -trace disseminated Po, Py scattered in zones -sharp lower contact with 1cm thick quench zone -30X10-5 SI units	tr		Po,Py	d	WR	568414	120.00	123.00						
124.40	127.60	Dacite	Da	-light grey-green, aphanitic, non-magnetic -qtz, plag veining causes brecciated appearance -chl filled amygdules -sharp upper and lower contacts -10X10-5 SI units	0													

From (m)	To (m)	Rock Type	Legend	Description	Sulphides			Mode	Samples		From (m)	To (m)	Faults and Shears (1-10)		From (m)	To (m)
					%	% Frags	Type		Type	Tag #			Brittle	Ductile		
127.60	127.85	Komatitic Dyke	KPx	-medium grey-green, f.g., sharp upper and lower contacts -quenched contacts -serp, chl alteration -carb veins -50X10-5 SI units	0											
127.85	128.10	Dacite	Da	-light grey, aphanitic, chl filled amygdules -qtz veins -15X10-5 SI units	0											
128.10	128.61	Komatite Dyke	KPx	-dark green, f.g., massive with clasts of dacite -sharp contacts -serp-carb veining extends from upper and lower contacts -50X10-5 SI units	0											
128.61	140.90	Dacite	Da	-light to medium grey, aphanitic to f.g., massive and hyaloclastic, possibly pillowed -chl-qtz filled amygdules -angular fragments -qtz-chl veining -15X10-5 SI units	tr		Py, Po	d								
140.90	140.97	Komatite Dyke	KPx	-dark green, sharp upper and lower contacts -serp-carb veinlets extend from contacts -serp-chl alteration -35X10-5 SI units	1		Po	d								
140.97	143.01	Dacite	Da	-light grey, aphanitic, massive -qtz-plag-chl veining -qtz-chl filled amygdules -stretched foliation at 30 degrees to the CA -15X10-5 SI units	0											
143.01	144.05	Komatite Dyke/Dacite	Kos/ Da	-brecciated dacite with quenched olivine spinifex and serp altered komatitic dyke -approximately 50% komatite/50% Dacite -sharp contacts -serp-chl, qtz veining -30X10-5 SI units	0											
144.05	151.13	Dacite	Da	-medium to light grey, aphanitic to f.g., massive with hyaloclastite zones, probably pillowed -qtz-chl filled amygdules -qtz and chl veins	tr		Py	d,v								

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)		
144.05	151.13	con't	Da	-large amygdules up to 2cm in diameters -20X10-5 SI units														
151.13	152.10	Komatiite Dyke	KPx	-medium to dark green, f.g., non-magnetic -serp-chl alteration -serp-carb veining -quenched upper contact appears to be highly contaminated -qtz veining at lower contact -lower contact at 25 degrees to the core axis -serp-chl veins extend into footwall dacites -40X10-5 SI units	1-2		Po,Py	d	WR	568415	151.13	152.10						
152.10	278.00	Dacite	Da	-light to medium grey with a tinge of green, aphanitic to f.g., massive, hyaloclastic, fragmented, probably pillowed -angular shards with devitrification features -qtz filled amygdules with lesser amounts of chl filled amygdules -some amygdules are filled with Py -trace to 10% Py -Py is concentrated in hyaloclastic zones as veins -weak epidote sporadically through unit -epidote is associated with qtz-chl veins -between 30 and 150X10-5 SI units	2 5 5 5 5		Py,Po	d v v v d	AS AS AS AS AS	37831 37832 37833 37834 37835	197.60 201.92 211.30 213.00 269.30	198.20 202.40 211.80 213.40 270.70						
278.00		End of Hole																

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


Hole Number	Survey Type	Dip (Deg.)	Azim Grid (Deg.)	Azim Astro. (Deg.)	Hole Length (m)	Core Size
BN-4-96	acid	-90	270	270	90	BQ

Northing (Grid m)	Easting (Grid m)	Northing (UTM)	Easting (UTM)	Northing (Lat.)	Easting (Long.)	Elevation (m)
6275	4055	5311416.1	507519.9			358

Logged By	Date Logged	Drilled By	Date Started	Date Finished	Core Storage
Paul Davis	30-Oct-96	Bradley Bros.	24-Oct-96	25-Oct-96	Hollinger Building

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

Assay Numbers	Assay Lab	Certificate #	Whole Rock Geochemistry
37848-37850	Bondar-Clegg		568423

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	7.00	Casing	casing														
7.00	38.27	Dacite	Da	-medium grey and green, aphanitic to f.g., massive, possibly pillowed, non-magnetic -possible pillow selvages have high chl content -qtz-chl filled amygdules -some selvages may be komatiitic dykelets -21.38-21.70m: 2% disseminated Po -trace to 1% disseminated Po throughout, but strong association with stronger chl alteration zones -lots of qtz-chl veining at all orientations to the core axis -35X10-5 SI units	tr		Po	d	AS	37848	21.38	21.70					
38.27	39.10	Komatiitic Dyke	KPx	-dark green, aphanitic, foliated at 30 degrees to the core axis, non-magnetic -clasts of dacite -possibly randomly oriented olivine spinifex -fine grained olivine blades -serp, chl altered -qtz, chl, serp veining with minor carb veining -15X10-5 SI units	0				WR	568423	38.27	39.10					
39.10	61.43	Dacite	Da	-medium grey-green, f.g. to aphanitic, non-magnetic, massive and possibly pillowed -less chl filled amygdules -qtz-chl veining -numerous carb-rich veining with epid alteration -carb veining possibly related to komatiite volcanicsm -some amygdules are qtz filled -strong chl alteration around some carb veins -sharp lower contact -50X10-5 SI units	tr		Po,Py	d									
61.43	61.75	Komatiite Dyke	KPx	-dark green, aphanitic, non-magnetic -chl-serp altered -1% Py cubes in blebs -sharp contacts, lower contact at 35 degrees to core axis -30X10-5 SI units	1		Py	b	AS	37849	61.43	61.75					
61.75	90.00	Dacite	Da	-medium grey-green, aphanitic to f.g., massive or possibly pillowed, non-magnetic -weak to moderate chl alteration -chl and qtz filled amygdules -qtz veining -numerous carb-chl-serp veinlets, possibly komatiite	tr-1		Po,Py	d	AS	37850	61.75	62.20					

Area/Township	N.T.S.	Year	Project	Property	Claim Numbers
Bannockburn	41P/NE	1996	Exploration	Bannockburn	1198912, 1198917


Hole Number	Survey Type	Dip (Deg.)	Azim Grid (Deg.)	Azim Astro. (Deg.)	Hole Length (m)	Core Size
BN-6-96	acid	-65	250	250	176	BQ

Northing (Grid m)	Easting (Grid m)	Northing (UTM)	Easting (UTM)	Northing (Lat.)	Easting (Long.)	Elevation (m)
6500	4000	5311651	507493			359

Logged By	Date Logged	Drilled By	Date Started	Date Finished	Core Storage
Paul Davis	5-Nov-96	Bradley Bros.	29-Oct-96	31-Oct-96	Hollinger Building

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

Assay Numbers	Assay Lab	Certificate #	Whole Rock Geochemistry
			568436-568442

Comments: 

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)		
0.00	3.00	Casing	casing															
3.00	57.00	Dacite	Da	-medium grey-green, pink-grey, aphanitic to f.g., massive to fragmented, possibly pillowed, non-magnetic -weak chl alteration -chl and qtz filled amygdules -39.50-48.40m: weak hematite alteration -qtz-chl-plag veining -fragmental zones might be flow contacts or selvages -weak epidote alteration -chl filled faults -sharp lower contact at 45 degrees to the core axis	0													
57.00	57.18	Mafic Dyke/ Komatiitic Pyroxenite	Md/KPx	-dark grey, f.g., massive, non-magnetic -chl altered, possibly tremolite alteration -qtz vein near lower contact -sharp contacts but no quench zones	0													
57.18	60.98	Dacite	Da	-medium grey-green, aphanitic to f.g., massive to pillowed -non-magnetic -qtz-chl-plag veining -last 30cm could be a quenched zone of the mafic dyke -sharp lower contact at 85 degrees to core axis	0													
60.98	63.93	Komatiitic Pyroxenite	KPx/oc	-dark green-grey, f.g., massive, non-magnetic, olivine orthocumulate -chl-trem-serp altered -olivine grains are bladed and equant -olivine content increases downhole -chl-serp veining -sharp lower contact at 60 degrees to core axis	0													
63.93	64.67	Dacite	Da	-dark grey, aphanitic, massive, non-magnetic -possibly a xenolith -plag and chl veining -lower contact is fuzzy -upper contact is sharp	0													
64.67	68.33	Komatiitic Pyroxenite	KPx/oc	-dark green-grey, f.g., massive, non-magnetic, olivine orthocumulate -serp-chl-trem alteration -serp-chl veining -sharp lower contact against quenched rubble possible flow top	0				WR	568436	65.00	68.00						

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)
68.33	71.40	Komatiitic Pyroxenite	KPx/ osx?	-medium grey-green, f.g. to aphanitic, non-magnetic -possibly olivine spinifex -texture destroyed by chl-trem alteration -some areas look bladed and/or acicular -top of unit quenched, possibly rubbly flow top -gradational lower contact	0			WR	568437	68.33	71.40				
71.40	74.20	Komatiitic Peridotite/ Pyroxenite	Koc	-dark green, f.g., massive, non-magnetic, olivine orthocumulate, pyroxene rich matrix is light green -gradational increase in olivine content downhole -serp-chl-trem alteration -serp-chl-carb veining	0										
74.20	126.50	Komatiitic Peridotite	Kmc/oc	-dark grey-green, black-green, f.g., massive, weakly to strongly magnetic, olivine mesocumulate to orthocumulate -pyroxene rich matrix is a light green -strong serp alteration -chl-trem alteration -serp-chl-carb veining -gradational lower contact	0			WR	568439	80.00	83.00				
								WR	568440	103.00	106.00				
								WR	568441	123.00	126.00				
126.50	128.30	Basal Komatiitic Pyroxenite	KPx/oc	-dark grey-green, f.g., massive, non-magnetic -strong serp-chl-trem alteration -basal pyroxenite zone -serp-chl-carb veining -sharp lower contact marked by 0.5cm fault gauge -lower contact at 50 degrees to core axis	0			WR	568442	126.50	128.30	9		128.29	128.30
128.30	147.10	Dacite	Da	-medium grey, light green, salmon pink, aphanitic to f.g., massive, possibly pillowed, non-magnetic -chl altered -qtz-epid-chl veining -chl filled amygdules -130.00-131.40m: weak hematite alteration -shrap lower contact at 80 to the core axis	0										
147.10	147.33	Mafic Dyke/ Komatiitic Pyroxenite	Md/KPx	-black-green, aphanitic, massive, very weakly magnetic -strong serp-chl alteration -possibly f.g. plag phenocrysts -sharp quenched contacts with wisps of dacite melt -serp-chl-carb veining	0										

Area/Township	N.T.S.	Year	Project	Property	Claim Numbers
Bannockburn	41P/NE	1996	Exploration	Bannockburn	1198912

Hole Number	Survey Type	Dip (Deg.)	Azim Grid (Deg.)	Azim Astro. (Deg.)	Hole Length (m)	Core Size
BN-7-96	acid	-55	250	250	104	BQ

Northing (Grid m)	Easting (Grid m)	Northing (UTM)	Easting (UTM)	Northing (Lat.)	Easting (Long.)	Elevation (m)
6720	4040	5311832.1	507543			359

Logged By	Date Logged	Drilled By	Date Started	Date Finished	Core Storage
Paul Davis	5-Nov-96	Bradley Bros.	31-Oct-96	1-Nov-96	Hollinger Building

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

Assay Numbers	Assay Lab	Certificate #	Whole Rock Geochemistry
37864-37873	Bondar-Clegg		568443-568448

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	18.00	Casing	casing															
18.00	19.28	Mudstone	St	-dark grey, aphanitic to f.g., clasts of granite and qtz -strong chl alteration near lower contact -clasts are subrounded to subangular -sharp lower contact at 70 degrees to core axis	0													
19.28	21.43	Komatiitic Pyroxenite	KPx/ osx	-light grey-green, massive, non-magnetic -possibly randomly oriente olvine spinifex -could be alteration zone of mesocumulate with minor clasts of mesocumulate preserved near lower contact -chl-trem altered -chl-serp veins -lower contact marked by serp vein 2cm wide -sharp lower contact	0				WR	568443	19.28	21.43						
21.43	60.83	Komatiitic Peridotite	Kmc/oc	-dark black-green, light green flecks, weakly to moderately magnetic, f.g., massive, olvine mesocumulate to orthocumulate -strong serp alteration -serp-carb veins up to 10cm wide -matrix is altered to chl-trem -weak talc alteration -basal contact at point where sulphides appear	0				WR	568444	23.00	26.00						
					0				WR	568445	53.00	56.00						
					0				AS	37864	59.83	60.83						
60.83	68.93	Komatiitic Peridotite	Kmc	-black-green, f.g., massive, weakly to non-magnetic, olvine mesocumulate to orthocumulate -very f.g., to f.g. disseminated Py and Po throughout -trace to 3% Py and Po -strong serp alteration -chl-trem alteration -serp-carb veins up to 10cm wide sharp lower contact at 30 degrees to the core axis	tr-3		Po,Py	d	AS	37865	60.83	61.83						
									AS	37866	61.83	62.83						
									AS	37867	62.83	63.83						
									AS	37868	63.83	64.83						
									AS	37869	64.83	65.83						
									AS	37870	65.83	66.83						
									AS	37871	66.83	67.83						
									AS	37872	67.83	68.93						
									WR	568446	65.00	68.00						
68.93	70.62	Basal Komatiitic Pyroxenite	KPx/oc	-dark grey, f.g. to aphanitic, massive, quenched lower contact, non-magnetic -contaminated basal pyroxenite -sharp lower contact at 60 degrees to the core axis -contact has hornfelsed appearance where the dacite appears to have been assimilated	0				AS	37873	68.93	70.62						
									WR	568447	68.93	70.62						
70.62	75.46	Dacite	Da	-medium grey-green, aphanitic to f.g., massive, non-magnetic, some fragmental zones, possibly pillowed -chl filled amygdules	0													

From (m)	To (m)	Rock Type	Legend	Description	Sulphides		Type	Mode	Samples		From (m)	To (m)	Faults and Shears (1-10)		From (m)	To (m)
					%	% Frags			Type	Tag #			Brittle	Ductile		
70.82	75.48	con't	Da	-qtz-chl veining -sharp lower contact at 55 degrees to the core axis												
75.48	82.32	Komatiitic Pyroxenite	KPx/oc	-dark grey, f.g. to aphanitic, massive, non-magnetic -serp-chl-trem alteration -serp-chl-carb veining -trace disseminated Po and Py -quenched upper and lower contacts	tr		Po,Py	d	WR	568448	77.00	80.00				
82.32	83.78	Dacite	Da	-medium grey-green, aphanitic to f.g., massive with crackle brecciation associated with chl veining -qtz-chl adn epid alteration -qtz-chl adn epid veining -lower contact marked by qtz	0											
82.32	83.94	Komatiitic Pyroxenite	KPx	-black-green, aphanitic, massive, non-magnetic -serp-chl alteration -upper contact marked by qtz-chl-carb veining -lower contact is quenched	0											
83.94	99.42	Dacite	Da	-medium grey-green, aphanitic to f.g., massive to hyaloclastic, non-magnetic -chl-epid alteration -qtz-chl-epid veining -onion skin textures within hyaloclastite -1% disseminated Py cubes -Po associated with hyaloclastite zones -numerous chl-serp-plag veins near lower contact -lower contact sharp at 60 degrees to core axis	1		Py,Po	d								
99.42	104.00	Komatiitic Pyroxenite	KPx/oc	-dark grey-green, f.g. to aphanitic, massive, non-magnetic -possibly grades into an olivine orthocumate -upper 40cm are quenched against the dacites -strong chl-serp-trem alteration -chl-serp-carb veining -trace to 2% disseminated Py and Po -olivine content increases downhole -sulphide content increases downhole	tr-2		Py,Po	d	WR	568449	101.00	104.00				
104.00		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-9-97	maxibor	-50	70	70	299	BQ


Northing (Grid m)	Easting (Grid m)	Northing (UTM)	Easting (UTM)	Northing (Lat.)	Easting (Long.)	Elevation (m)
10050	6857					359

Logged By	Date Logged	Drilled By	Date Started	Date Finished	Core Storage
Paul Davis	11-Jun-97	Bradley Bros.	8-Jun-97	10-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
122620-122647	Bondar-Clegg		37407

Comments: hole lengthened to 299 metres from 200 metres by drilling from September 18 to September 19, 1997.



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	20.32	Dacite	Da	-light to medium grey-green, fine grained to aphanitic, -massive with qtz veining at 45 degrees to the core axis -chl-qtz filled amygdules -thin, <2cm thick black siliceous iron formation bands with associated Po -weak to moderate chl alteration, qtz veining -lower 2.5m has strong chl alteration -qtz veining gives striped appearance to core -lower contact marked by change in hardness of core	tr		Po	v										
20.32	24.49	Mafic Dyke/ Komatiitic Pyroxenite	Md/KPx	-medium grey-green, aphanitic to fine grained -non-magnetic, chl veining -moderate chl alteration with poss serp alteration -composed primarily of chl and trem -possible qtz veining near lower contact -trace disseminated Po associated with veining -increased Po at lower contact -poss relict pyroxene spinifex close to lower contact -lower contact looks definitely like an intrusive contact	tr		Po	d	WR	37407	21.00	24.00						
24.49	46.50	Dacite/ Iron Formation	Da/IF	-medium to light grey-green with dark grey and black -aphanitic to fine grained, non-magnetic except for Po -iron formation hosts Po in chert -some of the dacite has bleached appearance -weak chl alteration, qtz filled amygdules, qtz-chl veining -traces of Py content and increase in chl-trem	2		Po	v,d	AS	122620	24.49	26.00						
					4		Po	v,d	AS	122621	26.00	29.00						
					3		Po	v,d	AS	122622	29.00	32.00						
					1		Po	v,d	AS	122623	32.00	35.00						
					1		Po	v,d	AS	122624	35.00	38.00						
					4		PoPy	v,d	AS	122625	38.00	41.00						
					5		Po	v,d	AS	122626	41.00	44.00						
					2		Po	v,d	AS	122627	44.00	46.50						
46.50	47.45	Iron Formation/ Dacite	IF/Da	-medium grey to black with dark green clasts of dacite -aphanitic to fine grained, non-magnetic except for Po -30% clasts of dacite -appears to be banded in sections and brecciated -sharp lower contact at 30 degrees to the core axis with chert stringers extending into the dacite	3		PoPy	d,b	AS	122628	46.50	47.45						
47.45	49.47	Dacite	Da	-medium grey-green, aphanitic with black chert veining -non-magnetic, massive -qtz veining, somewhat brecciated by chert veins -sharp lower contact	tr		Po	d	AS	122629	47.45	49.47						

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)		
49.47	49.70	Iron Formation/ Dacite	IF/Da	-black to light green, combination of aphanitic chert and brecciated dacite, non-magnetic -no visible sulphides -sharp contacts														
49.70	91.51	Dacite	Da	-medium grey-green, aphanitic to fine grained, massive possibly pillowed with intra-pillow breccia, non-magnetic -qtz-chl amygdules, qtz veining up to 20cm wide -no iron formation -increase in chl alteration towards lower contact -sharp lower contact at 70 degrees to the core axis														
91.51	95.96	Komatitic Pyroxenite	KPx/oc	-dark grey, fine grained, non-magnetic -mainly chl-trem with minor serp alteration -serp veining -possibly dacite clasts caught up near upper contact -gradational lower contact														
95.96	103.26	Komatitic Pyroxenite/ Peridotite Andesite	Koc	-dark green-black with grey, fine grained, non-magnetic -serp, chl-trem alteration, olivine orthocumulate -serp-carb veining -olivine content varies throughout the unit -gradational lower contact marked by increase in olivine content														
103.26	110.00	Komatitic Peridotite	Kmc	-dark green to black, fine grained, weakly to moderately magnetic -contains lighter green aphanitic veins with hopper olivine -large serp-carb veining -strong serp alteration -olivine mesocumulate -contains variable amounts of very fine grained to fine grained dusty Po and Pn -gradational lower contact	tr		Po,Pn	d	AS	122630	103.26	105.33						
					tr		Po,Pn	d	AS	122631	105.33	106.33						
					2		Po,Pn	d	AS	122632	106.33	107.83						
					2		Po,Pn	d	AS	122633	107.83	109.00						
					1		Po,Pn	d	AS	122634	109.00	110.00						
110.00	114.40	Komatitic Pyroxenite/ Peridotite	Koc	-dark green with grey flecks, fine grained, moderately magnetic, olivine orthocumulate -serp-carb veining -gradational contacts marked by increasing or decreasing olivine content	tr		Po	d	AS	122635	110.00	113.00						
					tr		Po	d	AS	122636	113.00	114.40						
114.40	118.70	Komatitic Peridotite	Kmc	-dark green-black, fine grained, weakly to moderately magnetic, olivine mesocumulate, serp-carb veining -serp alteration with magnetite, very fine grained to fine grained dusty sulphides, gradational lower contact	1		Po,Pn	d	AS	122637	114.40	115.40						
					2		Po,Pn	d	AS	122638	115.40	116.40						
					2		Po,Pn	d	AS	122639	116.40	117.40						
					1		Po,Pn	d	AS	122640	117.40	118.70						

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)	
118.70	120.80	Komatiitic Pyroxenite/ Peridotite	Koc	-dark green with grey, fine grained, weakly to moderately magnetic, olivine orthocumulate -serp, chl-trem alteration, serp-carb veining -gradational contacts	tr		Po	d	AS	122641	118.70	120.80					
120.80	224.06	Komatiitic Peridotite/ Dunite	Kmc/ac	-dark green-black, fine grained, weakly to moderately magnetic, olivine meso to adcumulate -serp alteration with minor magnetite development -very fine grained sulphides disseminated throughout the unit -serp-carb-mag veins -gradational lower contact													
224.06	227.64	Komatiitic Peridotite/ Dunite	Kmc/ac	-dark green, fine grained, mottled texture -moderately to strongly magnetic -strong serp alteration, serp-carb-mag veining -weak talc alteration possibly related to shearing -gradational lower contact	tr		Po	d									
227.64	299.00	Komatiitic Peridotite	Kmc/oc	-black-green, fine grained, massive, moderately magnetic -ol mesocumulate to orthocumulate -strong serp alteration, serp-carb-mag veining -olivines altered dark green, matrix is light green -trace disseminated sulphides, some form small intercumulus blebs -minor talc alteration -ol content varies throughout the unit -some chrysotile veining	tr		Po	d						2		227.64	228.20
														8		228.20	228.45
														4		228.45	229.92
299.00		END OF HOLE															

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


Hole Number	Survey Type	Dip (Deg.)	Azim Grid (Deg.)	Azim Astro. (Deg.)	Hole Length (m)	Core Size
BN-11-97	maxibor	-50	70	70	183	BQ

Northing (Grid m)	Easting (Grid m)	Northing (UTM)	Easting (UTM)	Northing (Lat.)	Easting (Long.)	Elevation (m)
10200	6965					358

Logged By	Date Logged	Drilled By	Date Started	Date Finished	Core Storage
Paul Davis	26-Jun-97	Bradley Bros.	18-Jun-97	20-Jun-97	Hollinger Building

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

Assay Numbers	Assay Lab	Certificate #	Whole Rock Geochemistry
122677-122691	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	7.00	Casing	casing															
7.00	72.37	Dacite	Da	-light to medium grey-green, fine grained to aphanitic -massive to fragmental, possibly pillowed, -chl and epidote altered, qtz-chl veining -25.91-27.30m: weak surface weathering due to interaction with water seeping in from surface -qtz-chl filled amygdules -lower contact marked by sulphide veining	tr		Py	d						2		25.91	27.30	
72.37	75.10	Dacite	Da	-light grey-green, aphanitic, non-magnetic -massive and brecciated by veinlets -qtz-chl-Py veinlets -weak epidote alteration -upper and lower contacts marked by sulphide veining	3		Py	v										
75.10	129.90	Dacite	Da	-light to medium grey, aphanitic to fine grained -non-magnetic -weak chl and epid alteration, qtz-chl veining -qtz-chl and occasional Po filled amygdules -Po associated with some chl veins -possibly pillowed, massive to fragmental units -sharp lower contact at 50 degrees to the core axis	tr		Po	d,v										
129.90	131.23	Komatiitic Pyroxenite	KPx/oc	-dark grey to light green, aphanitic to fine grained -non-magnetic -chl-trem unit with minor serp -more mafic section uphole, possibly pyroxene spinifex downhole indicating tops are downhole -sharp lower contact at 20 degrees to core axis -qtz-carb-chl veining -contact appears to be quenched														
131.23	133.53	Dacite	Da	-light to medium grey, aphanitic, non-magnetic, massive -3% chl amygdules smaller than other dacite units -qtz veinlets -sharp lower contact at 30 degrees to the core axis														
133.53	135.38	Komatiitic Pyroxenite	KPx	-dark grey, aphanitic to fine grained, non-magnetic -serp-chl veining -composed primarily of chl-trem -gradational lower contact -possibly basal pyroxenite														

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)
135.38	151.60	Komatiitic	Koc	-dark grey, speckled, fine grained	1		Po,Py	d	AS	122678	135.38	137.48				
		Pyroxenite/		-weakly to non-magnetic	3		Po,Py	d	AS	122679	137.48	140.48				
		Peridotite		-ol orthocumulate	5		Po,Py	d	AS	122680	140.48	142.10				
				-olivine serpentinized, intercumulus chl-trem	3		Po,Py	d	AS	122681	142.10	142.90				
				-serp-chl veins	1		Po,Py	d	AS	122682	142.90	144.36				
				-variable sulphide content	4		Po,Py	d,v	AS	122683	144.36	146.17				
				-sulphide appears as very fine grains dusted throughout	6		Po,Py	d,v	AS	122684	146.17	147.80				
				the unit around the olivine grains	2		Po,Py	d,v	AS	122685	147.80	149.20				
				-gradational lower contact	1		Po,Py	d,v	AS	122686	149.20	150.58				
					3		Po,Py	d,v	AS	122687	150.58	151.60				
151.60	159.28	Komatiitic	Kmc/oc	-black to dark green, fine grained	4		Po,Py	d,v	AS	122688	151.60	153.48				
		Peridotite		-weakly to moderately magnetic	3		Po,Py	d,v	AS	122689	153.48	154.98				
				-strong serp alteration, serp-carb veins	3		Po,Py	d,v	AS	122690	154.98	156.30				
				-ol mesocumulate to orthocumulate	tr		Po,Py	d,v	AS	122691	156.30	157.30				
				-sulphide occur as very fine grained disseminations and veins												
				-sulphides disappear downhole												
				-gradational lower contact												
159.28	171.38	Komatiitic	Koc	-dark grey-green, fine grained, moderately magnetic												
		Peridotite/		-serp, chl-trem altered, magnetite development												
		Pyroxenite		-serp-carb-chl veining up to 20cm wide												
				-no visible sulphides												
				-gradational upper and lower contacts with changes in olivine content												
171.38	173.18	Komatiitic	Kmc/oc	-black to dark green, fine grained, moderately magnetic												
		Peridotite		-strong serp alteration, serp-carb veining												
				-gradational upper and lower contacts												
173.18	185.00	Komatiitic	Koc	-dark grey-green, fine grained, moderately magnetic												
		Pyroxenite/		-approximately 50-60% olivine grains												
		Peridotite		-serp and chl-trem altered												
				-serp-carb veining												
				-no visible sulphides												
185.00		END OF HOLE														

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)
135.38	151.60	Komatiitic	Koc	-dark grey, speckled, fine grained	1		Po,Py	d	AS	122678	135.38	137.48				
		Pyroxenite/		-weakly to non-magnetic	3		Po,Py	d	AS	122679	137.48	140.48				
		Peridotite		-ol orthocumulate	5		Po,Py	d	AS	122680	140.48	142.10				
				-olivine serpentinized, intercumulus chl-trem	3		Po,Py	d	AS	122681	142.10	142.90				
				-serp-chl veins	1		Po,Py	d	AS	122682	142.90	144.36				
				-variable sulphide content	4		Po,Py	d,v	AS	122683	144.36	146.17				
				-sulphide appears as very fine grains dusted throughout the unit around the olivine grains	6		Po,Py	d,v	AS	122684	146.17	147.80				
				-gradational lower contact	2		Po,Py	d,v	AS	122685	147.80	149.20				
					1		Po,Py	d,v	AS	122686	149.20	150.58				
					3		Po,Py	d,v	AS	122687	150.58	151.60				
151.60	159.28	Komatiitic	Kmc/oc	-black to dark green, fine grained	4		Po,Py	d,v	AS	122688	151.60	153.48				
		Peridotite		-weakly to moderately magnetic	3		Po,Py	d,v	AS	122689	153.48	154.98				
				-strong serp alteration, serp-carb veins	3		Po,Py	d,v	AS	122690	154.98	156.30				
				-ol mesocumulate to orthocumulate	tr		Po,Py	d,v	AS	122691	156.30	157.30				
				-sulphide occur as very fine grained disseminations and veins												
				-sulphides disappear downhole												
				-gradational lower contact												
159.28	171.38	Komatiitic	Koc	-dark grey-green, fine grained, moderately magnetic												
		Peridotite/		-serp, chl-trem altered, magnetite development												
		Pyroxenite		-serp-carb-chl veining up to 20cm wide												
				-no visible sulphides												
				-gradational upper and lower contacts with changes in olivine content												
171.38	173.18	Komatiitic	Kmc/oc	-black to dark green, fine grained, moderately magnetic												
		Peridotite		-strong serp alteration, serp-carb veining												
				-gradational upper and lower contacts												
173.18	185.00	Komatiitic	Koc	-dark grey-green, fine grained, moderately magnetic												
		Pyroxenite/		-approximately 50-60% olivine grains												
		Peridotite		-serp and chl-trem altered												
				-serp-carb veining												
				-no visible sulphides												
185.00		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-20-98		-50	270	250	365	BQ

Northing (Grid m)	Easting (Grid m)	Northing (UTM)	Easting (UTM)	Northing (Lat.)	Easting (Long.)	Elevation (m)
12000	6840					359

Logged By	Date Logged	Drilled By	Date Started	Date Finished	Core Storage
PCD	2-Mar-98	Bradley Bros.	26-Feb-98	18-Mar-98	Hollinger Building

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

Assay Numbers	Assay Lab	Certificate #	Whole Rock Geochemistry
749709-749717	Bondar-Clegg		116951-116961

Comments: Hole lengthened from March 16 to March 18 from 296m to 365m.

Paul

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	26.00	casing																
26.00	45.36	Dacite	Da	-light to dark grey, aphanitic to f.g., massive to fragmental, ch qtz filled amygdules (<1-5mm)					WR	116951	26.00	29.00						
				-chl amygdules concentrated in more massive flows					WR	116952	56.00	59.00						
				-weak chl alteration, some zones of silicification					WR	116953	68.00	71.00						
				-qtz-chl veining														
				-non-magnetic														
				-sharp lower contact marked by 30cm qtz vein, no sulphides														
45.36	86.28	Komatitic Gabbro/ Pyroxenite	KGb/Px	-light grey-green, f.g. to m.g., massive, non-magnetic, chl- trem veining					WR	116954	80.00	83.00	3		80.80	82.50		
				-primarily a chl-trem rock with possible plag near upper contact and of phyric near basal contact														
				-some olivine appears to form spinifex														
				-upper portion appears to be silicified														
				-strong chl alteration														
				-more pyroxenitic down hole														
				-has felty appearance														
				-sharp lower contact at 50 degrees to the core axis														
86.28	277.00	Komatitic Dunite	Kac/mc	-black green to apple green, f.g. to m.g., massive, moderately to strongly magnetic					WR	116955	89.00	92.00	8		88.90	89.00		
				-olivine accumulate to mesocumulate					WR	116956	110.00	113.00	7		94.20	94.50		
				-intense serp alteration					WR	116957	143.00	146.00	9		99.25	99.34		
				-magnetite veins and ghosts around old olivine grains					WR	116958	182.00	185.00	8		131.00	134.60		
				-possible chromite grains					WR	116959	212.00	215.00	4		138.90	139.15		
				-occasional faults with gouge					WR	116960	257.00	260.00	7		168.00	170.00		
				-close packed olivines									9		201.80	202.00		
				-hard top say if all magnetite or minor sulphides									8		236.77	236.41		
				-blue serp veining, little asbestos development									7		253.40	254.00		
				-gradational lower contact with decreasing of content														
				-xenolith of dacite from 87.66 to 87.90m														
277.00	298.15	Komatitic Peridotite/ Dunite	Kmc/ac	-black-green to black, f.g., massive, moderately magnetic, olivine mesocumulate to accumulative, intense serp alteration with serp veining					WR	116961	280.00	283.00	6		281.66	282.00		
				-magnetite veins and disseminations									5		283.40	283.75		
				-olivine content may increase down hole														
				-lower 12 metres are very homogenous														
				-development of carbonate near lower contact														
				-sharp lower contact, undulatory and partly assimilated														

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)	
298.15	332.16	Gabbro	Gb	-medium grey to grey-green, aphanitic to m.g., massive	tr		Po	d									
				-ophitic textures	10		Po	v	AS	749709	299.68	299.78					
				-aphanitic quenched contacts leads into m.g. core													
				-large plag phenocrysts up to 4 cm in size													
				-1-2% limonite, magnetite and Po													
				-Chi mafics with fanned out plagioclase													
				-299.68-299.78m: serp vein with sulphide vein													
				-clasts of mesocumulate caught up at lower contact													
				-chi slips													
				-sharp lower contact at 50 degrees to core axis													
332.16	342.04	Komatiitic Peridotite	Kmc	-black, f.g., massive, weakly magnetic, olivine mesocumulate	tr-1		Py,Pn	d	AS	749710	332.16	333.50					
				-strong serp alteration, serp veining	tr-1		Py,Pn	d	AS	749711	333.50	335.00					
				-carbonate vein off of upper contact	1		Py,Pn	d	AS	749712	335.00	336.50					
				-trace to 1% f.g and v.f.g. sulphides associated with serp veins and intragranular material	tr-1		Py,Pn	d	AS	749713	336.50	338.00					
				-gradational lower contact marked by decrease in olivine content	tr-1		Py,Pn	d	AS	749714	338.00	339.50					
					tr-1		Py,Pn	d	AS	749715	339.50	341.00					
					tr		Py,Pn	d	AS	749716	341.00	342.04					
342.04	343.23	Komatiitic Pyroxenite	KPx/oc	-dark grey, f.g. to aphanitic, massive, weakly magnetic, basal contaminated komatiitic pyroxenite	tr		Py,Pn	d	AS	749717	342.04	343.23					
				-grain size and olivine content decrease towards lower contact													
				-strong serp, chl-trem alteration													
				-serp veining, trem veins													
				-trace f.g. disseminated sulphides associated with veins													
				-sharp lower contact quenched at 65 degrees to CA													
343.23	365.00	Dacite	Da	-medium grey, aphanitic with f.g. qtz eyes, massive flow													
				-chl-qtz filled amygdules													
				-occasional flow contacts marked by lack of qtz eyes													
				-non-magnetic													
				-weak chl, possibly silicified													
				-some carb development													
				-qtz veining, some chl veins													
365.00		End of Hole															

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

Hole Number	Survey Type	Dip (Deg.)	Azim Grid (Deg.)	Azim Astro. (Deg.)	Hole Length (m)	Core Size
BN-21-98		-50	270	250	365	BQ

Northing (Grid m)	Easting (Grid m)	Northing (UTM)	Easting (UTM)	Northing (Lat.)	Easting (Long.)	Elevation (m)
12000	6840					360

Logged By	Date Logged	Drilled By	Date Started	Date Finished	Core Storage
PCD	2-Mar-98	Bradley Bros.	26-Feb-98	18-Mar-98	Hollinger Building

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

Assay Numbers	Assay Lab	Certificate #	Whole Rock Geochemistry
749623-749625	Bondar-Clegg		166962

Comments: Hole lengthened from March 16 to March 18 from 296m to 365m

Paul

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	22.00	casing																
22.00	29.55	Dacite	Da	-medium grey to grey-green, aphanitic to f.g., fragmental to massive, 5% white porphyroblasts or phenocrysts -non-magnetic -weak to moderate chl alteration -qtz veining, lesser chl veining -possibly silicified unit -sharp lower contact														
29.55	76.71	Gabbro/ Pyroxenite	Gb/Px	-medium to dark grey, f.g. to m.g., non-magnetic -weak to moderate chl alteration -plag and pyroxene cumulate -quenched contacts -qtz veining -chl slips -48.0-48.35m: 1-3% Po disseminated throughout -some zones appear to be more pyroxene-rich -sharp lower contact at 85 degrees to the core axis	0				AS	749623	44.00	46.00						
					2		Po	d	AS	749624	46.00	48.35						
					0				AS	749625	48.35	50.00						
									WR	116962	53.00	56.00						
76.71	215.00	Dacite	Da	-moderate grey-green, aphanitic to f.g., fragmented to massive, chl and qtz filled amygdules, non-magnetic -weak chl alteration, very weak epidote alteration -qtz-chl veins -possibly pillowed -zones of silicification -no sulphides -112.25-112.48m: mafic dyke, chl altered pyroxenite, some qtz veins -113.54-115.10m; 116.75-116.80m; 117.25-117.31; 118.80-119.05; 119.98-120.08m: mafic dykes, same as above														
215.00		End of Hole																

Area/Township	N.T.S.	Year	Project	Property	Claim Numbers
Bannockburn	41P/NE	1998	Exploration	Bannockburn	1218729-1218731


Hole Number	Survey Type	Dip (Deg.)	Azim Grid (Deg.)	Azim Astro. (Deg.)	Hole Length (m)	Core Size
BN-23-98		-50	270	250	226	BQ

Northing (Grid m)	Easting (Grid m)	Northing (UTM)	Easting (UTM)	Northing (Lat.)	Easting (Long.)	Elevation (m)
11500	6800					368

Logged By	Date Logged	Drilled By	Date Started	Date Finished	Core Storage
PCD	11-Mar-98	Bradley Bros.	8-Mar-98	10-Mar-98	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
	Bondar-Clegg		116986-116999

Comments: 

From (m)	To (m)	Rock Type	Legend	Description	Sulphides		Type	Mode	Samples		Faults and Shears (1-10)						
					%	% Frags			Type	Tag #	From (m)	To (m)	Brittle	Ductile	From (m)	To (m)	
0.00	4.00	casing															
4.00	109.18	Dacite	Da	-medium to light grey, aphanitic to f.g., pillowed to massive flows -weak chl alteration, some silicification -trace to 1% diss Py -4.0-68.0m: amygduloidal chl-qtz filled, leached out near upper contact, some pillows and fragmentals -68.0-85.30m: up to 30% qtz phenocrysts in a more chl altered unit -85.30-89.15m: pillowed and amygduloidal -89.15-91.14m: qtz phenocrysts -91.14-96.70m: chl amygdules -96.70-109.18m: qtz phenocrysts more chl alteration -qtz-chl-carb veining -sharp lower contact at 55 degrees to the core axis	tr		Py	d	WR	116986	29.00	32.00					
									WR	116987	77.00	80.00					
									WR	116988	104.00	107.00					
109.18	110.10	Komatiitic Pyroxenite	Koc	-black-green, f.g., massive, weakly magnetic, serp-chl-trem alteration, magnetite development -serp-trem veining -trace Py, Pn disseminated throughout -minor qtz veining -sharp lower contact at 50 degrees to core axis -minor alteration zone at lower contact	tr		Py,Pn	d	WR	116989	109.18	110.10					
110.10	111.52	Dacite	Da	-light grey, aphanitic, massive, non-magnetic -looks silicified, weak chl alteration, qtz veining -looks to be partly assimilated -sharp undulatory lower contact													
111.52	112.08	Komatiitic Pyroxenite	KPx	-light to dark grey, aphanitic to f.g., massive, weakly magnetic, olivine phyric pyroxenite unit -quenched upper contact -serp-chl-trem alteration -chl-trem veining -gradational lower contact													
112.08	119.95	Komatiitic Pyroxenite/ Peridotite	Koc	-dark grey-green and black, f.g. to m.g., massive, weakly to moderately magnetic, olivine orthocumulate with some mesocumulate -serp altered with lesser chl-trem alteration -serp-trem veining -trace disseminated sulphides associated with serp and olivine grains -gradational lower contact with increased ol content	tr		Po,Pn	d	WR	166990	113.00	116.00					

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)
119.95	132.15	Komatiitic Peridotite	Kmc/oc	-black green with white interstitial material matrix, f.g. to m.g., massive, moderately magnetic -olivine mesocumulate to orthocumulate -olivine content varies throughout unit -serp altered olivine, chl-trem altered matrix -lower 4m are foliated and contorted -serp veining, trem veining -some more pyroxenitic veins up to 15cm wide -gradational lower contact					WR	116991	122.00	125.00				
132.15	150.91	Komatiitic Peridotite/ Dunite	Kmc/ac	-black-green, f.g., massive, moderately magnetic, olivine mesocumulate to adcumulate, some rubby and fault gauge zones -strong serp alteration -serp veining, minor asbestos development -disseminated magnetite throughout -sharp undulatory lower contact with assimilation of material from lower unit					WR	116992	143.00	146.00	8		134.15	139.70
150.91	151.96	Dacite Xenolith or Komatiitic Pyroxenite	Da/KPx	-light grey, aphanitic to f.g., massive, non-magnetic, weak chl alteration, possibly komatiitic pyroxenite, quenched or hornfelsed upper and lower contacts, sharp lower contact but appears to be contaminated					WR	116993	150.91	151.96				
151.96	166.00	Komatiitic Dunite/ Peridotite	Kac/mc	-black-green, f.g., massive, moderately magnetic, olivine adcumulate to mesocumulate, strong serp alteration, serp-mag veining, some asbestos development -gradational lower contact with decrease in olivine content over 3m					WR	116994	158.00	161.00				
166.00	198.37	Komatiitic Peridotite/ Pyroxenite	Kmc/oc	-dark green and medium green, f.g., massive, weakly magnetic, olivine mesocumulate to orthocumulate, serp altered olivine and chl-trem altered matrix -serp and trem veining					WR	116995	170.00	173.00	6		169.40	169.85
				-olivine content decreases down hole to mainly orthocumulate -gradational lower contact					WR	116996	191.00	194.00	5		172.90	174.00
													8		175.90	176.05
													5		184.20	184.45
198.37	202.30	Komatiitic Pyroxenite	KPx/oc	-medium grey to grey-green, f.g., massive, non-magnetic, chl-trem altered with lesser serp alteration -chl-trem and serp veining -gradational lower contact					WR	116997	200.00	202.00				

Area/Township	N.T.S.	Year	Project	Property	Claim Numbers
Bannockburn	41P/NE	1998	Exploration	Bannockburn	1218725-1218723

Hole Number	Survey Type	Dip (Deg.)	Azim Grid (Deg.)	Azim Astro. (Deg.)	Hole Length (m)	Core Size
BN-24-98		-50	270	250	410	BQ

Northing (Grid m)	Easting (Grid m)	Northing (UTM)	Easting (UTM)	Northing (Lat.)	Easting (Long.)	Elevation (m)
12700	7000					366

Logged By	Date Logged	Drilled By	Date Started	Date Finished	Core Storage
PCD	17-Mar-98	Bradley Bros.	10-Mar-98	14-Mar-98	Hollinger Building

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

Assay Numbers	Assay Lab	Certificate #	Whole Rock Geochemistry
749668-749686	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	7.00	casing															
7.00	15.00	Komatiitic Pyroxenite/Pyroxene Spinifex	KPx/pax	-dark to medium grey, f.g. to m.g., massive, pyroxene spinifex with long needles and randomly oriented felly grains, non-magnetic, chl-trem alteration, trem-qtz veins, possibly some leucoxene -grain size decreases down hole -upper portion has stringer chl alteration -gradational lower contact													
15.00	43.70	Komatiitic Pyroxenite/Gabbro	KPx/Gb	-medium grey, f.g., massive, non-magnetic, ophitic textures, white grains could be plag or pyroxene, becomes olivine phyric towards lower contact -last metre is aphanitic chl-trem with trace Py -qtz-trem-chl veining -gradational lower contact	tr		Py	d	AS	749668	42.70	43.70					
43.70	45.25	Komatiitic Peridotite	Koc/mc	-black-green, f.g., massive, non-magnetic, olivine orthocumulate to mesocumulate -strong serp alteration -serp carb veining -olivine content increases down hole -gradational contact to sharp boundary at 60 degrees to core axis -trace to 1% disseminated and v.f.g. Py or MI	tr-1		Py,MI	d	AS	749669	43.70	45.25					
45.25	66.01	Komatiitic Pyroxenite/Gabbro	KPx/Gb	-medium to light grey, f.g. to aphanitic, massive, non-magnetic, possibly pyroxene spinifex, chl-trem altered, trem-chl veining -becomes olivine phyric towards lower contact -ol grains are serpentized -becomes aphanitic chl-trem over last 2m -sharp lower contact with pyroxene spinifex at 40 degrees to the core axis					AS	749670	45.25	46.25					
66.01	151.90	Komatiitic Dunite	Kac/mc	-black-green, f.g. to m.g., massive, rubbly and faulted core in zones, olivine adcumulate to mesocumulate -moderately to strongly magnetic -magnetite disseminated and veined -trace to 1% disseminated Py, Po with occasional speck of Pn -serp-carb veining -some asbestos development -occasional pyroxene dyke or xenolith -lower contact marked by fault zone	tr		Py	d					7		69.00	69.50	
													4		90.50	90.60	
													9		118.80	119.05	
													3		119.05	124.10	
													7		126.50	126.80	
													7		129.50	129.60	
													2		142.26	146.10	
													5	5	146.10	148.40	
													7	7	148.40	150.00	

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)
													9		150.00	151.90
151.90	170.00	Komatiitic Dunite/ Peridotite	Kac/mc	-black to green, f.g., massive, strongly magnetic, olivine adcumulate to mesocumulate, strong serp alteration, serp-mag veins, some asbestos development	tr		Po,Pn	d	AS	749671	151.90	153.50	6		153.85	153.95
				-up to 1/4" cross fibre in some asbestos veins	tr		Po,Pn	d	AS	749672	153.50	155.00	7		154.90	155.00
				-trace to 5% disseminated and intragranular Po, Pn	tr		Po,Pn	d	AS	749673	155.00	156.50				
				-sulphides appear to be altered to magnetite and maybe replacing olivine grains	tr		Po,Pn	d	AS	749674	156.50	158.00				
				-gradational lower contact with decreasing sulphide content	tr		Po,Pn	d	AS	749675	158.00	159.50				
					tr		Po,Pn	d,b	AS	749676	159.50	161.00				
					1		Po,Pn	d,n	AS	749677	161.00	162.50				
					2		Po,Pn	d,n	AS	749678	162.50	164.00				
					2		Po,Pn	d,n	AS	749679	164.00	165.50				
					2		Po,Pn	d,n	AS	749680	165.50	167.00				
					1		Po,Pn	d,n	AS	749681	167.00	168.50				
					tr		Po,Pn	d	AS	749682	168.50	170.00				
170.00	260.00	Komatiitic Dunite/ Peridotite	Kac/mc	-black green, f.g. to m.g., massive, moderately to strongly magnetic, olivine adcumulate to mesocumulate, strong serp alteration, some rubble and fault gauge	tr		Py	d	AS	749683	170.00	171.50	3		187.00	188.40
				-serp-carb veining	tr		Py	d	AS	749684	171.50	173.00	9		188.70	189.80
				-some asbestos development both cross and slip fibre	tr		Py	d	AS	749685	173.00	174.50	4		191.00	196.20
				-trace sulphides associated with some magnetite veins									6		221.20	224.00
				-mag veining									6		232.00	235.70
				-lower contact marked by change in grain size									5		242.10	244.70
													7		250.70	259.00
													5		259.60	260.00
260.00	374.20	Komatiitic Dunite	Kac	-black-green, m.g., massive, olivine adcumulate, strong serp alteration, serp veining around of grains									6		372.00	373.00
				-some faulting and fault gauge												
				-serp veining, some asbestos veining												
				-no visible sulphides												
				-fault gauge is usually less than 5cm wide and associated with serp veins												
				-core makes popping sound while logging												
374.20	410.00	Komatiitic Dunite	Kac	-black to green, f.g., massive, olivine adcumulate, strong serp alteration, serp-mag veins	2		Mag		AS	749686	401.00	404.00	9		374.20	374.55
				-some asbestos development									9		391.80	392.00
				-some fault gauge and rubbly core												
				-some magnetite veins look as though they may have a sulphide component												

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


Hole Number	Survey Type	Dip (Deg.)	Azim Grid (Deg.)	Azim Astro. (Deg.)	Hole Length (m)	Core Size
BN-27-98		-50	90	70	95	BQ

Northing (Grid m)	Easting (Grid m)	Northing (UTM)	Easting (UTM)	Northing (Lat.)	Easting (Long.)	Elevation (m)
12000	6590					361

Logged By	Date Logged	Drilled By	Date Started	Date Finished	Core Storage
PCD	24-Mar-98	Bradley Bros.	20-Mar-98	22-Mar-98	Hollinger Building

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

Assay Numbers	Assay Lab	Certificate #	Whole Rock Geochemistry
749748-749750	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	7.00	casing																
7.00	29.35	Gabbro	Gb	-medium grey, f.g. to m.g., massive, large plag phenos -quenched lower contact -grain size decreases down hole -composed of plag laths and chl altered mafics -weak chl alt -chl-qtz veining -non-magnetic -sharp lower contact at 70 degrees to core axis														
29.35	67.20	Dacite	Da	-medium grey, aphanitic to f.g., massive to fragmental -non-magnetic -5-10% qtz phenocrysts -weak chl alteration -qtz-chl veining -54.72-54.79m: mafic or komatiitic dyke -sharp lower contact at 20 degrees to the core axis														
67.20	67.75	Komatiitic Pyroxenite Dyke	KPx	-dark grey, f.g., massive, non-magnetic, flame assimilation textures on upper and lower contacts -chl veining -trace disseminated Py associated with veining -sharp lower contact at 20 degrees to core axis	tr		Py	d										
67.75	84.27	Dacite	Da	-medium grey, aphanitic, massive, possibly qtz phenos -weak chl alteration, possibly silicified -qtz-chl veining -lower 4m appears to be hornfelsed -sharp lower contact at 60 degrees to the core axis														
84.27	95.00	Komatiitic Pyroxenite/ Peridotite	Koc/mc	-light green and black, f.g., massive, moderately magnetic, olivine orthocumulate to mesocumulate, strong serp alteration with chl-trem altered matrix -serp veining -trace sulphides restricted to short intervals -olivine content appears to be increasing down hole	tr		Po	d	AS	749748	84.27	86.00						
									AS	749749	86.00	89.00						
									AS	749750	89.00	92.00						
95.00		End of Hole																

Paul

Hole #	Sample #	From	To	Width	Ni (%)	Cu (%)	Co (%)	Zn (%)	Fe (%)
BN-1-96	37801	49.60	51.70	2.10	0.16	<0.01	0.010	0.03	5.78
BN-1-96	37802	51.70	53.80	2.10	0.18	<0.01	0.010	<0.01	7.04
BN-1-96	37803	53.80	56.80	3.00	0.20	<0.01	<0.01	<0.01	7.08
BN-1-96	37804	56.80	59.80	3.00	0.20	<0.01	0.040	<0.01	6.52
BN-1-96	37805	59.80	62.80	3.00	0.21	<0.01	0.020	<0.01	6.91
BN-1-96	37806	62.80	65.80	3.00	0.20	<0.01	<0.01	<0.01	6.70
BN-1-96	37807	65.80	68.80	3.00	0.21	<0.01	0.010	<0.01	6.34
BN-1-96	37808	68.80	71.80	3.00	0.20	<0.01	<0.01	<0.01	6.32
BN-1-96	37809	71.80	74.80	3.00	0.19	<0.01	<0.01	<0.01	6.33
BN-1-96	37810	74.80	77.80	3.00	0.21	<0.01	<0.01	<0.01	6.74
BN-1-96	37811	77.80	80.80	3.00	0.19	<0.01	<0.01	<0.01	6.69
BN-1-96	37812	119.00	120.00	1.00	0.19	<0.01	<0.01	<0.01	7.50
BN-1-96	37813	120.00	122.00	2.00	0.19	<0.01	<0.01	<0.01	7.16
BN-1-96	37814	122.00	125.00	3.00	0.20	<0.01	0.010	<0.01	7.29
BN-1-96	37815	125.00	128.00	3.00	0.20	<0.01	<0.01	<0.01	7.20
BN-1-96	37816	128.00	131.00	3.00	0.20	<0.01	<0.01	<0.01	7.39
BN-1-96	37817	131.00	134.00	3.00	0.20	<0.01	<0.01	<0.01	7.39
BN-1-96	37818	134.00	137.20	3.20	0.20	<0.01	<0.01	<0.01	7.17
BN-1-96	37819	205.60	209.06	3.46	0.01	<0.01	<0.01	0.09	4.75
BN-2-96	37820	80.76	83.00	2.24	0.17	<0.01	<0.01	0.01	6.46
BN-2-96	37821	83.00	84.65	1.65	0.15	<0.01	<0.01	0.17	6.69
BN-2-96	37822	84.65	87.00	2.35	0.15	<0.01	0.010	0.36	6.82
BN-2-96	37823	87.00	89.00	2.00	0.14	<0.01	<0.01	<0.01	7.30
BN-2-96	37824	89.00	92.00	3.00	0.14	<0.01	<0.01	<0.01	7.77
BN-2-96	37825	92.00	95.00	3.00	0.15	<0.01	<0.01	<0.01	7.89
BN-2-96	37826	95.00	98.00	3.00	0.16	<0.01	<0.01	<0.01	7.60
BN-2-96	37827	98.00	101.00	3.00	0.17	<0.01	<0.01	<0.01	6.77
BN-2-96	37828	110.00	112.00	2.00	0.15	<0.01	<0.01	<0.01	7.70
BN-2-96	37829	112.00	113.00	1.00	0.17	<0.01	<0.01	<0.01	7.23
BN-2-96	37830	113.00	115.60	2.60	0.18	<0.01	<0.01	<0.01	5.03
BN-2-96	37831	197.60	198.20	0.60	<0.01	<0.01	<0.01	<0.01	6.52
BN-2-96	37832	201.92	202.40	0.48	0.01	0.01	<0.01	<0.01	7.00
BN-2-96	37833	211.30	211.80	0.50	0.19	<0.01	<0.01	<0.01	9.17
BN-2-96	37834	213.00	213.40	0.40	0.02	<0.01	<0.01	<0.01	5.06
BN-2-96	37835	269.30	270.70	1.40	<0.01	<0.01	<0.01	<0.01	6.45
BN-4-96	37848	21.38	24.70	3.32	0.01	<0.01	<0.01	<0.01	6.69
BN-4-96	37849	61.43	61.75	0.32	0.02	<0.01	<0.01	<0.01	5.91
BN-4-96	37850	61.75	62.20	0.45	0.02	<0.01	<0.01	<0.01	6.88
BN-7-96	37864	59.83	60.83	1.00	0.15	<0.01	<0.01	0.02	6.40
BN-7-96	37865	60.83	61.83	1.00	0.14	<0.01	<0.01	0.01	6.54
BN-7-96	37866	61.83	62.83	1.00	0.15	<0.01	<0.01	0.01	6.43
BN-7-96	37867	62.83	63.83	1.00	0.14	<0.01	<0.01	0.01	7.41
BN-7-96	37868	63.83	64.83	1.00	0.16	<0.01	<0.01	0.02	7.55
BN-7-96	37869	64.83	65.83	1.00	0.14	<0.01	<0.01	0.02	6.93
BN-7-96	37870	65.83	66.83	1.00	0.15	<0.01	<0.01	0.01	6.75
BN-7-96	37871	66.83	67.83	1.00	0.14	0.01	<0.01	0.02	6.75
BN-7-96	37872	67.83	68.83	1.00	0.12	<0.01	<0.01	0.01	7.09
BN-7-96	37873	68.93	70.62	1.69	0.09	<0.01	<0.01	0.02	5.68
BN-9-97	122619	30.83	31.83	1.00	0.02	<0.01	0.000	<0.01	9.39
BN-9-97	122620	24.49	26.00	1.51	<0.01	<0.01	<0.05	<0.01	

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Hole #	Sample #	From	To	Width	Ni (%)	Cu (%)	Co (%)	Zn (%)	Fe (%)
BN-9-97	122621	26.00	29.00	3.00	<0.01	<0.01	<0.05	<0.01	10.10
BN-9-97	122622	29.00	32.00	3.00	<0.01	<0.01	<0.05	<0.01	9.29
BN-9-97	122623	32.00	35.00	3.00	<0.01	<0.01	<0.05	<0.01	6.10
BN-9-97	122624	35.00	38.00	3.00	<0.01	<0.01	<0.05	<0.01	5.32
BN-9-97	122625	38.00	41.00	3.00	<0.01	<0.01	<0.05	<0.01	9.12
BN-9-97	122626	41.00	44.00	3.00	<0.01	<0.01	<0.05	<0.01	11.43
BN-9-97	122627	44.00	46.50	2.50	<0.01	<0.01	<0.05	<0.01	6.19
BN-9-97	122628	46.50	47.45	0.95	<0.01	<0.01	<0.05	0.02	6.65
BN-9-97	122629	47.45	49.47	2.02	<0.01	<0.01	<0.05	0.02	5.55
BN-9-97	122630	103.26	105.33	2.07	0.17	<0.01	0.010	<0.01	6.30
BN-9-97	122631	105.33	106.33	1.00	0.19	<0.01	0.010	<0.01	6.16
BN-9-97	122632	106.33	107.83	1.50	0.12	<0.01	0.007	<0.01	4.94
BN-9-97	122633	107.83	109.00	1.17	0.17	<0.01	0.009	<0.01	6.10
BN-9-97	122634	109.00	110.00	1.00	0.17	<0.01	0.010	<0.01	5.69
BN-9-97	122635	110.00	113.00	3.00	0.16	<0.01	0.009	<0.01	6.54
BN-9-97	122636	113.00	114.40	1.40	0.16	<0.01	0.009	<0.01	6.36
BN-9-97	122637	114.40	115.40	1.00	0.18	<0.01	0.011	<0.01	7.14
BN-9-97	122638	115.40	116.40	1.00	0.20	<0.01	0.011	<0.01	6.82
BN-9-97	122639	116.40	117.40	1.00	0.20	<0.01	0.011	<0.01	6.00
BN-9-97	122640	117.40	118.70	1.30	0.21	<0.01	0.011	<0.01	6.29
BN-9-97	122641	118.70	120.80	2.10	0.19	<0.01	0.010	<0.01	6.10
BN-9-97	122642	120.80	122.00	1.20	0.24	<0.01	0.013	<0.01	6.49
BN-9-97	122643	122.00	125.00	3.00	0.26	<0.01	0.013	<0.01	6.74
BN-9-97	122644	125.00	128.00	3.00	0.25	<0.01	0.012	<0.01	6.56
BN-9-97	122645	128.00	131.00	3.00	0.24	<0.01	0.012	<0.01	5.79
BN-9-97	122646	131.00	134.00	3.00	0.24	<0.01	0.012	<0.01	6.34
BN-9-97	122647	134.00	137.00	3.00	0.25	<0.01	0.012	<0.01	5.98
BN-11-97	122677	133.53	135.38	1.85	0.07	<0.01	0.007	<0.01	6.70
BN-11-97	122678	135.38	137.48	2.10	0.12	<0.01	0.010	<0.01	6.35
BN-11-97	122679	137.48	140.48	3.00	0.13	<0.01	0.010	<0.01	6.25
BN-11-97	122680	140.48	142.10	1.62	0.16	<0.01	0.011	<0.01	7.39
BN-11-97	122681	142.10	142.90	0.80	0.13	<0.01	0.011	<0.01	6.53
BN-11-97	122682	142.90	144.36	1.46	0.12	<0.01	0.008	<0.01	6.05
BN-11-97	122683	144.36	146.17	1.81	0.15	<0.01	0.010	0.02	6.80
BN-11-97	122684	146.17	147.80	1.63	0.13	<0.01	0.011	<0.01	6.74
BN-11-97	122685	147.80	149.20	1.40	0.12	<0.01	0.010	<0.01	6.62
BN-11-97	122686	149.20	150.58	1.38	0.12	<0.01	0.010	<0.01	6.53
BN-11-97	122687	150.58	151.60	1.02	0.13	<0.01	0.010	0.01	6.87
BN-11-97	122688	151.60	153.48	1.88	0.13	<0.01	0.010	<0.01	6.98
BN-11-97	122689	153.48	154.98	1.50	0.13	<0.01	0.011	0.01	7.18
BN-11-97	122690	154.98	156.30	1.32	0.15	<0.01	0.011	<0.01	7.42
BN-11-97	122691	156.30	157.30	1.00	0.15	<0.01	0.012	<0.01	7.70
BN-20-98	749709	299.68	299.78	0.10	0.01	0.32	0.009	0.03	11.26
BN-20-98	749710	332.16	333.50	1.34	0.21	<0.01	0.013	0.01	6.11
BN-20-98	749711	333.50	335.00	1.50	0.22	<0.01	0.011	0.01	6.26
BN-20-98	749712	335.00	336.50	1.50	0.20	<0.01	0.011	<0.01	6.03
BN-20-98	749713	336.50	338.00	1.50	0.23	<0.01	0.013	0.01	6.21
BN-20-98	749714	338.00	339.50	1.50	0.22	<0.01	0.012	<0.01	6.60
BN-20-98	749715	339.50	341.00	1.50	0.16	<0.01	0.011	<0.01	6.89
BN-20-98	749716	341.00	342.04	1.04	0.14	<0.01	0.010	<0.01	7.34

2981 1867

Hole #	Sample #	From	To	Width	Ni (%)	Cu (%)	Co (%)	Zn (%)	Fe (%)
BN-20-98	749717	342.04	343.23	1.19	0.10	<0.01	0.011	<0.01	6.82
BN-21-98	749623	44.00	46.00	2.00	<0.01	0.01	<0.005	0.02	10.58
BN-21-98	749624	46.00	48.35	2.35	<0.01	<0.01	<0.005	0.02	13.31
BN-21-98	749625	48.35	50.00	1.65	<0.01	0.01	<0.005	0.02	10.93
BN-24-98	749668	42.70	43.70	1.00	0.07	<0.01	<0.005	0.01	4.24
BN-24-98	749669	43.70	45.25	1.55	0.20	<0.01	0.014	0.01	5.34
BN-24-98	749670	45.25	46.25	1.00	<0.01	<0.01	0.010	0.01	9.24
BN-24-98	749671	151.90	153.50	1.60	0.21	<0.01	0.015	<0.01	6.03
BN-24-98	749672	153.50	155.00	1.50	0.24	<0.01	0.015	<0.01	6.26
BN-24-98	749673	155.00	156.50	1.50	0.23	<0.01	0.017	<0.01	6.06
BN-24-98	749674	156.50	158.00	1.50	0.21	<0.01	0.015	<0.01	6.35
BN-24-98	749675	158.00	159.50	1.50	0.21	<0.01	0.015	0.01	5.90
BN-24-98	749676	159.50	161.00	1.50	0.24	<0.01	0.018	<0.01	6.85
BN-24-98	749677	161.00	162.50	1.50	0.26	<0.01	0.017	<0.01	6.59
BN-24-98	749678	162.50	164.00	1.50	0.12	<0.01	0.016	<0.01	7.43
BN-24-98	749679	164.00	165.50	1.50	0.08	<0.01	0.015	0.01	9.12
BN-24-98	749680	165.50	167.00	1.50	0.10	<0.01	0.021	0.01	9.78
BN-24-98	749681	167.00	168.50	1.50	0.12	<0.01	0.018	<0.01	8.47
BN-24-98	749682	168.50	170.00	1.50	0.16	<0.01	0.017	<0.01	6.75
BN-24-98	749683	170.00	171.50	1.50	0.23	<0.01	0.014	<0.01	5.67
BN-24-98	749684	171.50	173.00	1.50	0.33	<0.01	0.015	<0.01	5.38
BN-24-98	749685	173.00	174.50	1.50	0.24	<0.01	0.014	<0.01	5.77
BN-24-98	749686	401.00	404.00	3.00	0.25	<0.01	0.013	<0.01	5.36
BN-27-98	749748	84.27	86.00	1.73	0.19	<0.01	0.013	0.01	7.35
BN-27-98	749749	86.00	89.00	3.00	0.19	<0.01	0.015	0.01	6.84
BN-27-98	749750	89.00	92.00	3.00	0.19	0.01	0.015	0.01	6.58

749680



Declaration of Assessment Work Performed on Mining Land

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

Transaction Number (office use) W9880.00454 Assessment Files Research Imaging



41P15NW2005 2.18671 BANNOCKBURN 900

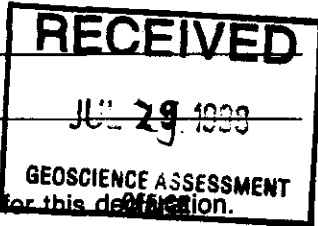
y of subsections 65(2) and 66(3) of the Mining Act. Under section 8 of the to review the assessment work and correspond with the mining land holder. ig Recorder, Ministry of Northern Development and Mines, 6th Floor,

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

2.18671

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

Name: Outokumpu Mines Inc, Client Number: 304049, Address: P.O. Box 1123, Timmins, ON P4N 7H9, Telephone Number: (705) 264-5024, Fax Number: (705) 264-5067



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

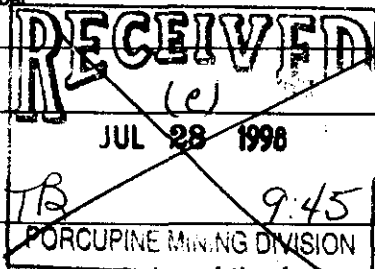
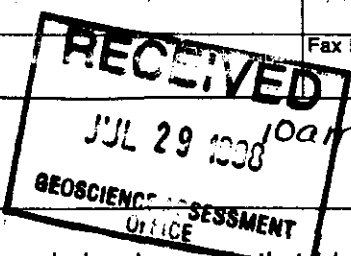
- Geotechnical: prospecting, surveys, assays and work under section 18 (regs) []
Physical: drilling, stripping, trenching and associated assays [X]
Rehabilitation []

Work Type: Diamond Drilling, Office Use, Commodity, Total \$ Value of Work Claimed: 168,270, Dates Work Performed: From 17/10/96 To 22/03/98, Township/Area: Bannockburn/Munroise, Mining Division: Harder Lake, 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)

Name: Paul Davis, Telephone Number: (705) 264-5024, Address: P.O. Box 1123, Timmins, ON, P4N 7H9, Fax Number: (705) 264-5067



4. Certification by Recorded Holder or Agent

I, Paul Davis (Print Name), 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.

Signature of Recorded Holder or Agent: [Signature], Date: July 28/98, Agent's Address: P.O. Box 1123, Timmins, ON, P4N 7H9, Telephone Number: (705) 264-5024, Fax Number: (705) 264-5067

W9880.00454

Amendment #2

2, 1, 3, 0, 0, 1

Mining Claim Number	Number of Claim Units	Value of Work Performed	Value of Work Applied	Value of Work Assigned	Bank
1198911	8	0	12800	0	0
1198912	4	0	6400	0	0
1198913	1	0	1600	0	0
1198916	4	43890	6400	35600	1890
1198917	1	15270	1600	2630	11040
1203764	1	0	1600	0	0
1206090	1	30450	1600	14690	14180
1207453	1	0	1600	0	0
1218700	2	0	1600	0	0
1218720	1	40500	0	24000	16500
1218721	11	0	8800	0	0
1218722	6	0	4800	0	0
1218723	1	17040	800	16240	0
1218724	1	0	800	0	0
1218725	7	7560	5600	1960	0
1218727	7	0	5600	0	0
1218728	1	0	800	0	0
1218729	2	13560	1600	9680	2280
1218730	1	0	800	0	0
1218731	1	0	800	0	0
1218732	11	0	8800	0	0
1218736	1	0	800	0	0
1228144	8	0	6400	0	0
1228145	16	0	12800	0	0
1228146	16	0	12800	0	0
1228147	8	0	6400	0	0
1228148	6	0	2400	0	0
1228149	6	0	2400	0	0
1218726	1	0	800	0	0
1228150	8	0	3200	0	0
Column Totals		168270	122400	104800	45870

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MS

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

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

October 7, 1998

OUTOKUMPU MINES LTD.
P.O. BOX 360
4650 - 1 FIRST CANADIAN PLACE
TORONTO, Ontario
M5X-1E1

Visit our website at:
www.gov.on.ca/MNDM/MINES/LANDS/mlsmnpge.htm

Dear Sir or Madam:

Submission Number: 2.18671

Status

Subject: Transaction Number(s): W9880.00454 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 Lucille Jerome by e-mail at jeromel2@epo.gov.on.ca or by telephone at (705) 670-5858.

Yours sincerely,



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

Work Report Assessment Results

Submission Number: 2.18671

Date Correspondence Sent: October 07, 1998

Assessor: Lucille Jerome

General Comment:

In all future assessment work submissions, please provide a detailed breakdown of the costs of performing the work.

Transaction Number	First Claim Number	Township(s) / Area(s)	Status	Approval Date
W9880.00454	1198916	BANNOCKBURN	Deemed Approval	September 29, 1998

Section:

16 Drilling PDRILL

Correspondence to:

Resident Geologist
Kirkland Lake, ON

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

Paul Davis
TIMMINS, ONTARIO, CANADA

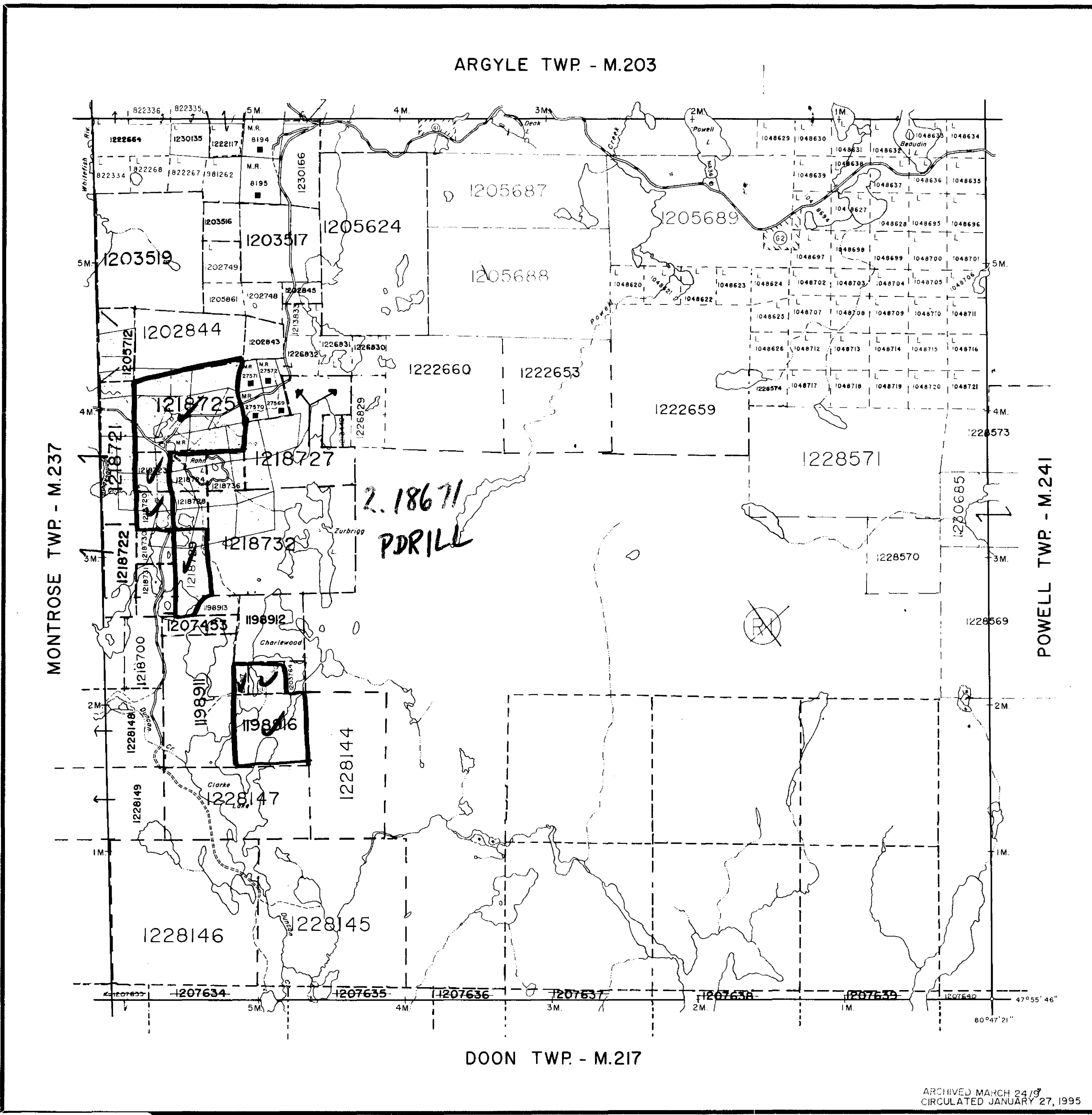
Assessment Files Library
Sudbury, ON

OUTOKUMPU MINES LTD.
TORONTO, Ontario

TOS.M

BAHIOCKBURN

W.S.O.M



THE TOWNSHIP OF
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.

SAND AND GRAVEL

Ⓞ N.T.C. GRAVEL PIT 3F-25
Ⓞ M.T.C. GRAVEL PIT 1374
Ⓞ SURFACE AND MINING RIGHTS WITHDRAWN FROM STAKING SECTION 36/80 ORDER NO. W-65/83
Ⓞ Mining & Surface Rights Reopened to prospecting, sale or lease. Order O-L-10/95, previously withdrawn under Order W-65/83

DATE OF ISSUE
OCT 01 1998

NOTICE OF FORESTRY OFFICE SUDBURY
THIS TOWNSHIP / AREA FALLS WITHIN THE ELK LAKE MANAGEMENT UNIT

AND MAY BE SUBJECT TO FORESTRY OPERATIONS
THE MNR UNIT FORESTER FOR THIS AREA CAN BE CONTACTED AT P.O. BOX 129 SWASTIKA, ONT.
POK 110
705-642-3222

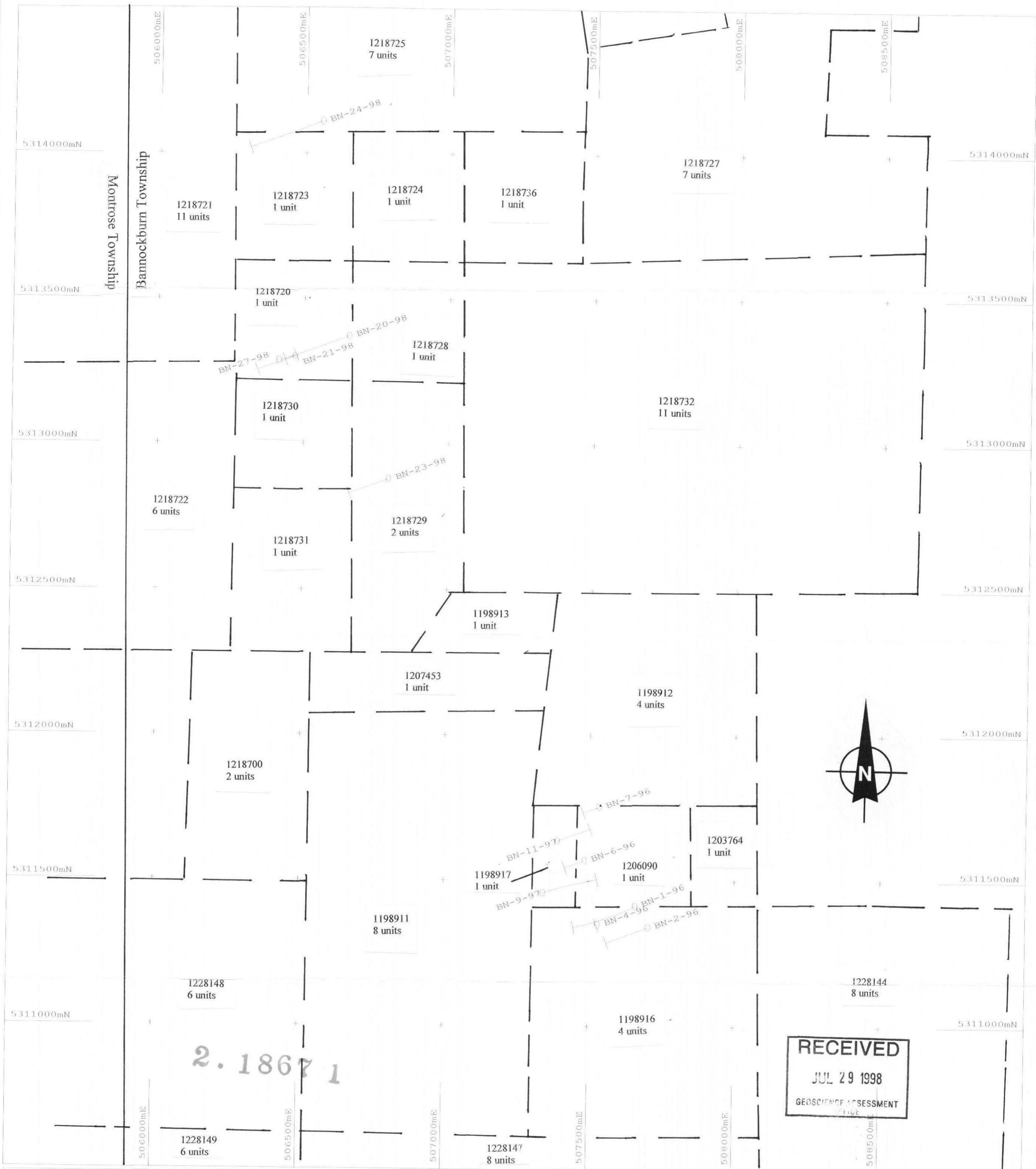
PLAN NO. **M.207**

ONTARIO
MINISTRY OF NATURAL RESOURCES
SURVEYS AND MAPPING BRANCH

THE INFORMATION THAT APPEARS ON THIS MAP HAS BEEN COMPILED FROM VARIOUS SOURCES, AND ACCURACY IS NOT GUARANTEED. THOSE WISHING TO STAKE MINING CLAIMS SHOULD CONSULT WITH THE MINING RECORDER, MINISTRY OF NORTHERN DEVELOPMENT AND MINES, FOR ADDITIONAL INFORMATION ON THE STATUS OF THE LANDS SHOWN HEREON.

ARCHIVED MARCH 24 1998
CIRCULATED JANUARY 27, 1995





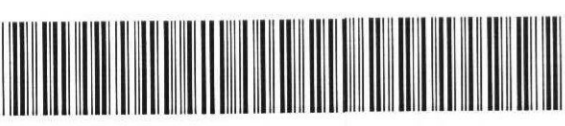
Geology Legend

<input type="checkbox"/> Sandstone	<input type="checkbox"/> Shale	<input type="checkbox"/> Red Sandstone	<input type="checkbox"/> Limestone
<input type="checkbox"/> Sandstone	<input type="checkbox"/> Shale	<input type="checkbox"/> Red Sandstone	<input type="checkbox"/> Limestone
<input type="checkbox"/> Sandstone	<input type="checkbox"/> Shale	<input type="checkbox"/> Red Sandstone	<input type="checkbox"/> Limestone
<input type="checkbox"/> Sandstone	<input type="checkbox"/> Shale	<input type="checkbox"/> Red Sandstone	<input type="checkbox"/> Limestone

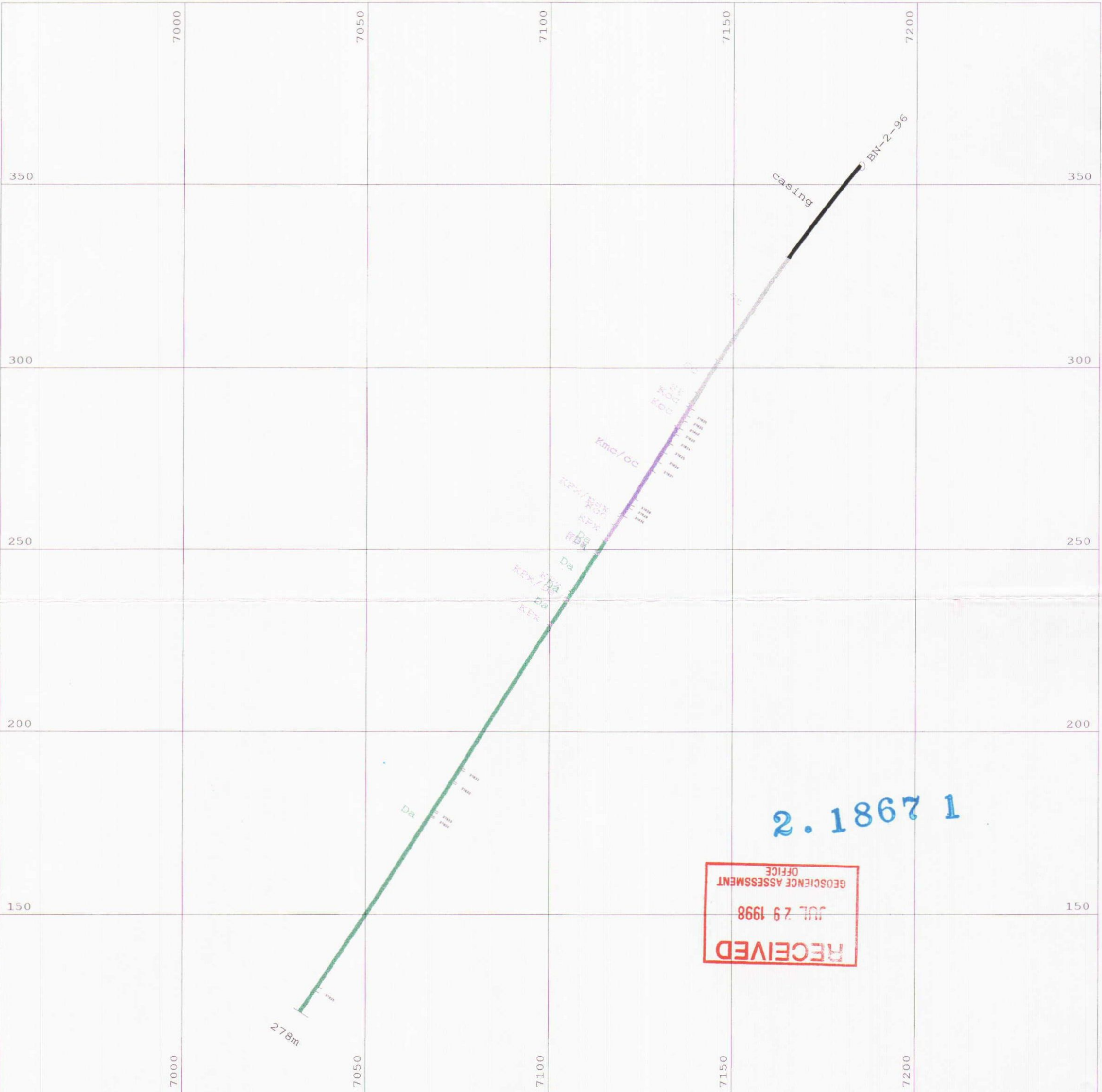
DATE SHEET
Scale 01/04/97 of 1
1:1000 REF No. FILE
1 ASPLAN.PJ

Diamond Drill Hole
Plan Map

Outokumpu Mines Ltd
Bannockburn Property



Paul



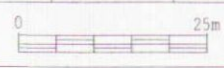
2.1867 1

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Geology Legend

<input type="checkbox"/> Soil	<input type="checkbox"/> Alluvium	<input type="checkbox"/> Fine sandstone	<input type="checkbox"/> Sandstone
<input type="checkbox"/> Sandstone	<input type="checkbox"/> Shale	<input type="checkbox"/> Sandstone	<input type="checkbox"/> Shale
<input type="checkbox"/> Sandstone	<input type="checkbox"/> Shale	<input type="checkbox"/> Sandstone	<input type="checkbox"/> Shale
<input type="checkbox"/> Sandstone	<input type="checkbox"/> Shale	<input type="checkbox"/> Sandstone	<input type="checkbox"/> Shale

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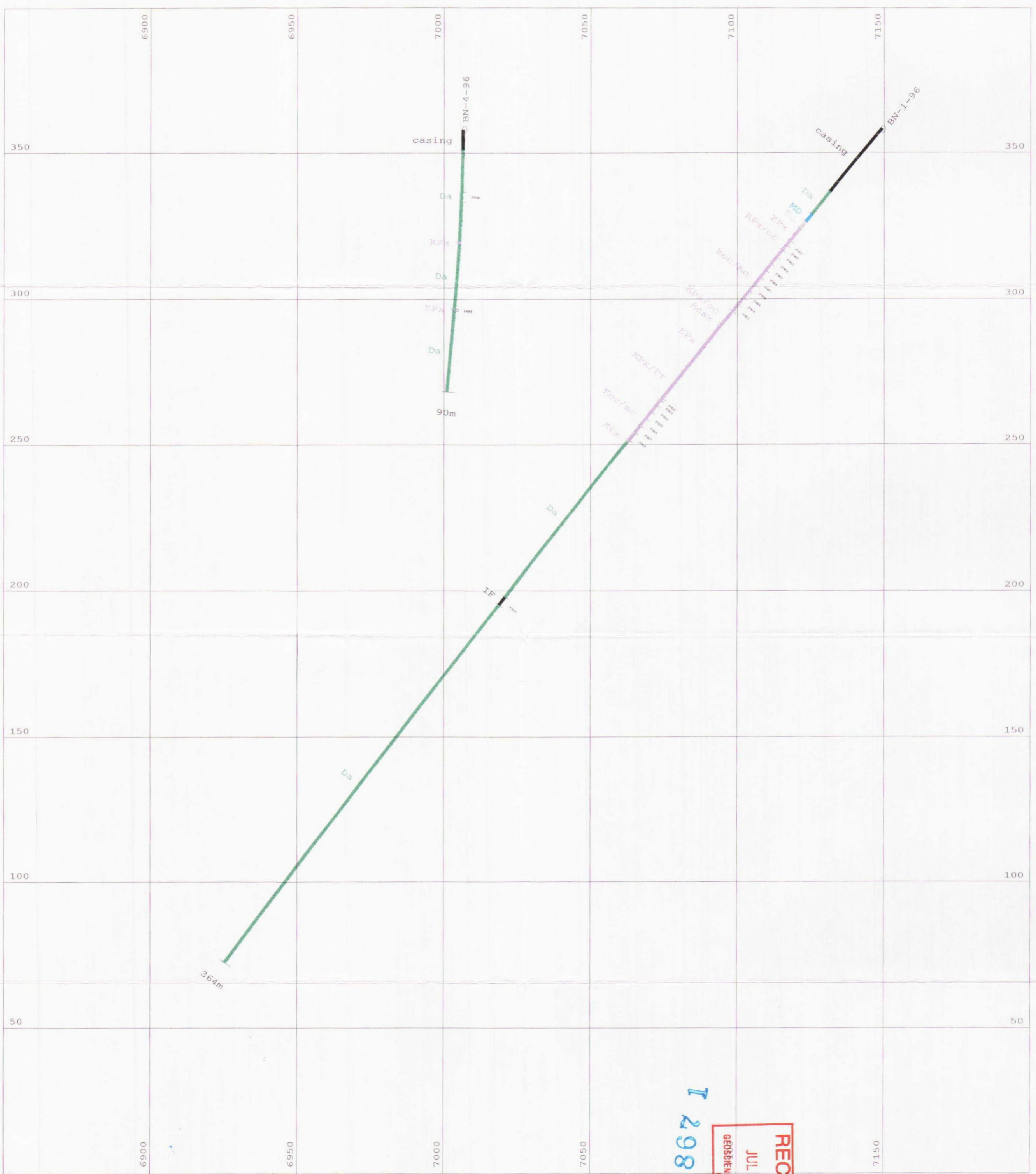


Diamond Drill Hole
Section 9800N

Outokumpu Mines Ltd
Bannockburn Property

Paul





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Geology Legend			

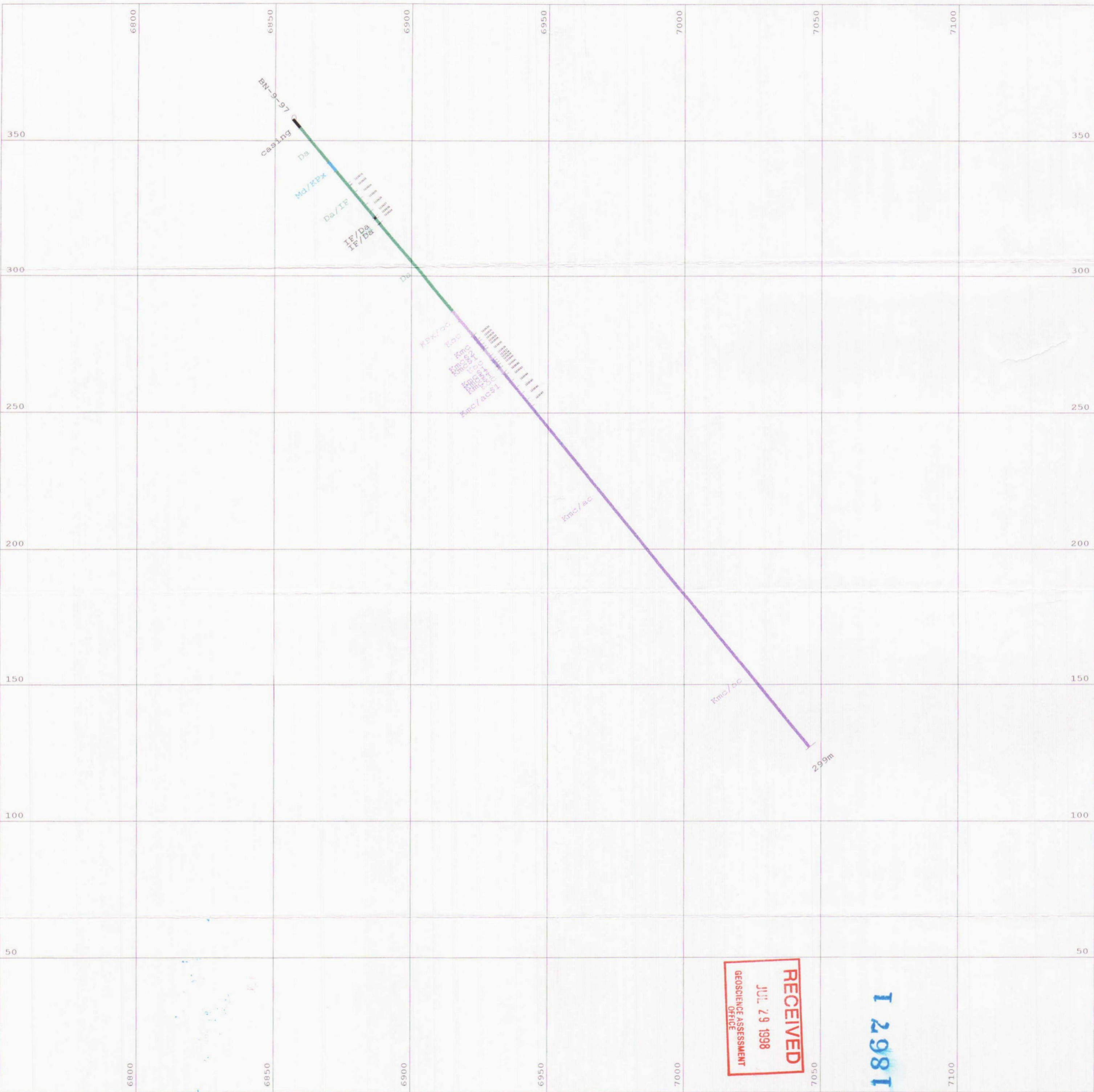
DATE SHEET
Scale 01/04/97 of 1
1:1000 REF No. FILE
1 9900A.PI

Diamond Drill Hole
Section 9900N

Outokumpu Mines Ltd
Bannockburn Property



Paul



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12.2981

Geology Legend			
<input type="checkbox"/> casing	<input type="checkbox"/> Da	<input type="checkbox"/> Koc	<input type="checkbox"/> IF Intermediate Bed
<input type="checkbox"/> IF Thin Partings	<input type="checkbox"/> Da/IF	<input type="checkbox"/> Kmc/oa	<input type="checkbox"/> Kmc/oa
<input type="checkbox"/> K	<input type="checkbox"/> Kmc/acs1	<input type="checkbox"/> Kmc/ac	<input type="checkbox"/> Kmc/ac
<input type="checkbox"/> Kmc/acs1	<input type="checkbox"/> Kmc/ac	<input type="checkbox"/> Kmc/ac	<input type="checkbox"/> Kmc/ac

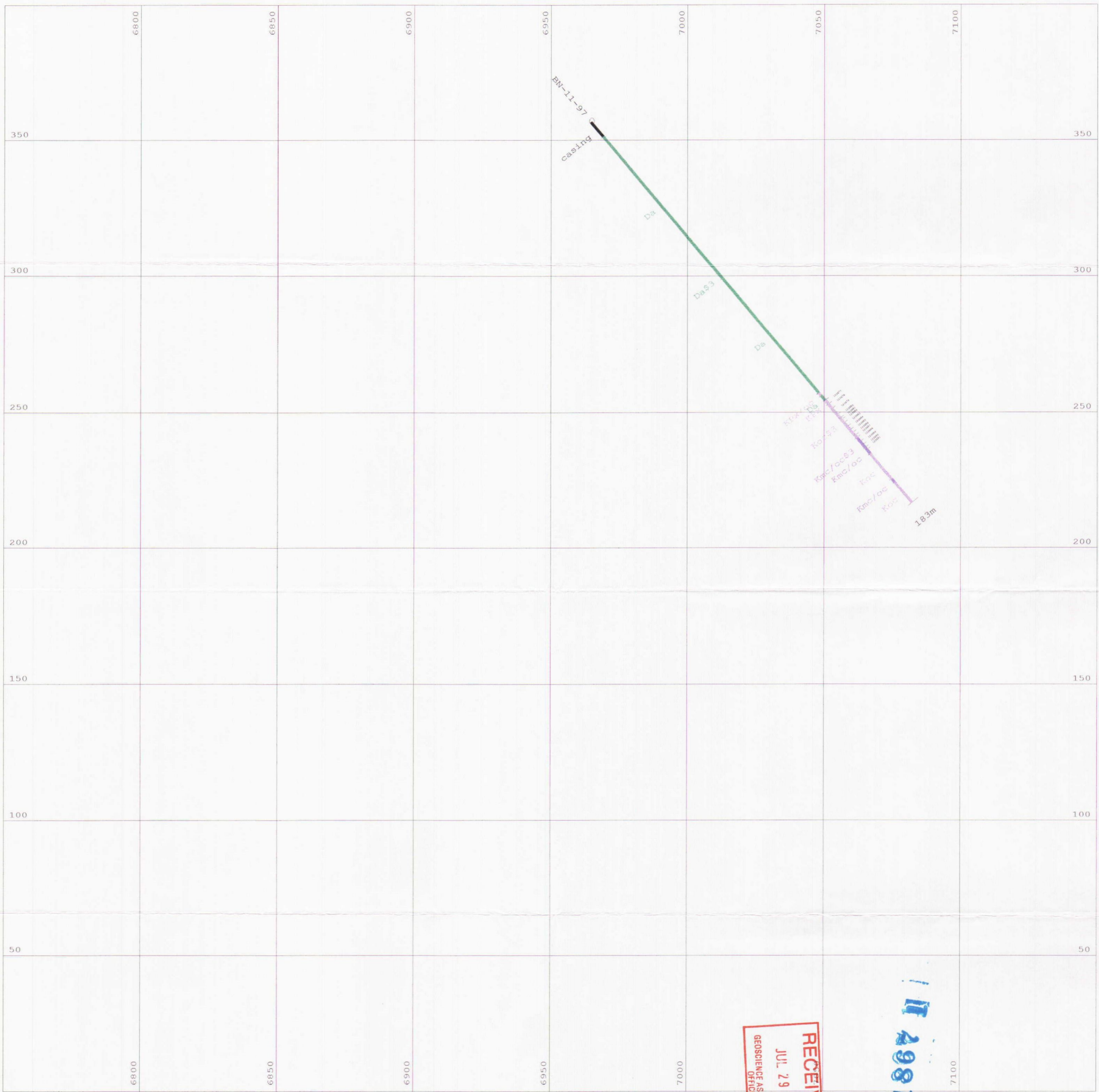
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REF No.	FILE	
1	10050A.PI	

Diamond Drill Hole
 Section 10050N

Outokumpu Mines Ltd
 Bannockburn Property



Handwritten signature



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11 2981-5

Geology Legend

<input type="checkbox"/> 17 Iron Formation	<input type="checkbox"/> 20 Sandstone	<input type="checkbox"/> 21 Sandstone (Siltstone)	<input type="checkbox"/> 22 Sandstone (Siltstone)
<input type="checkbox"/> 18 Sandstone	<input type="checkbox"/> 23 Sandstone	<input type="checkbox"/> 24 Sandstone (Siltstone)	<input type="checkbox"/> 25 Sandstone (Siltstone)
<input type="checkbox"/> 19 Sandstone	<input type="checkbox"/> 26 Sandstone	<input type="checkbox"/> 27 Sandstone (Siltstone)	<input type="checkbox"/> 28 Sandstone (Siltstone)
<input type="checkbox"/> 20 Sandstone	<input type="checkbox"/> 29 Sandstone	<input type="checkbox"/> 30 Sandstone (Siltstone)	<input type="checkbox"/> 31 Sandstone (Siltstone)

DATE	SHEET
01/04/97	1 of 1
Scale	REF No.
1:1000	FILE
	1 10200A.PI

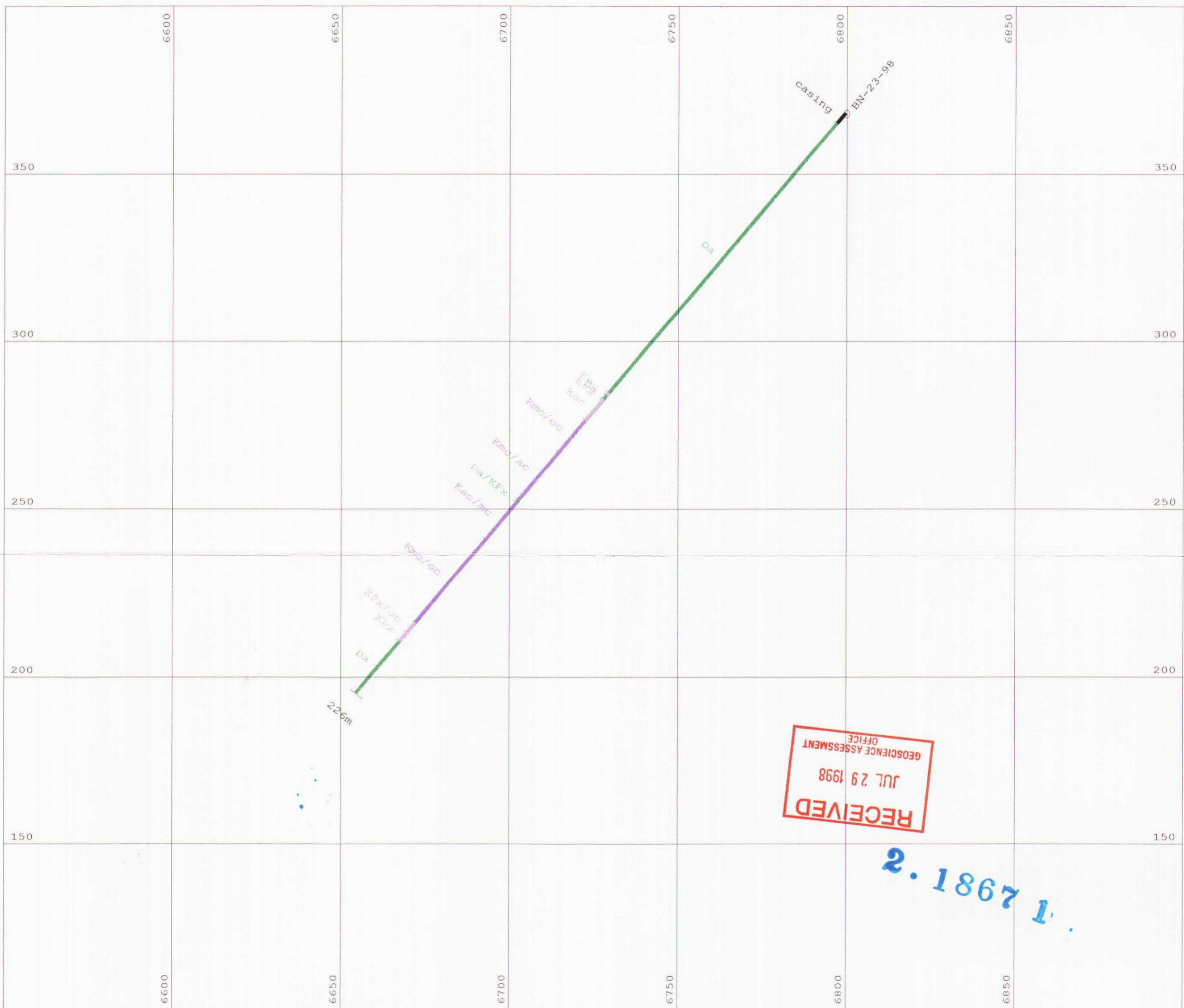
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Diamond Drill Hole
 Section 10200N

Outokumpu Mines Ltd
 Bannockburn Property

Paul





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2.18671

Geology Legend			
casing	A4 Andesite	Kac Keweenaw Subvolcanic	I4 Intermediate Dior
IP Iron Formation	D4 Gabbro	Kmc Keweenaw Metasedimentary	M4 Mafic Dior
F Felsite	W4 Wapitig	Kac Keweenaw Metasedimentary	D4 Gabbro
I Polyphased Intrusion	R4 Rhyolite	KEx Keweenaw Extrusive-Felsite	D4 Gabbro
		Kmc Keweenaw Metasedimentary	
		Kac Keweenaw Subvolcanic	

Scale 1:1000	DATE 01/04/97	SHEET 1 of 1
	REF No. 1	FILE 11500A.PLT

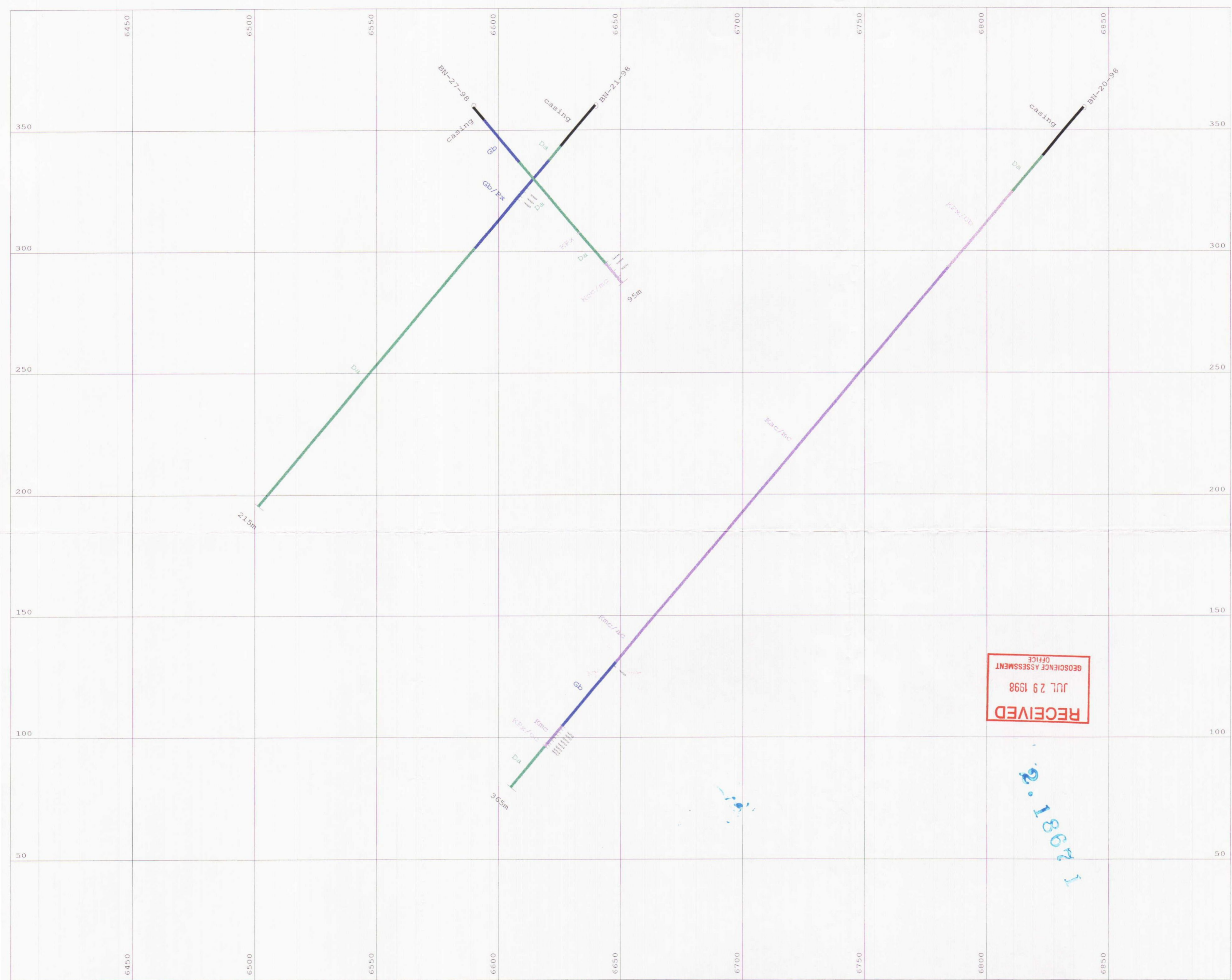
0 50m

Diamond Drill Hole
Section 11500N

Outokumpu Mines Ltd
Bannockburn Property

Paul





Geology Legend			
Casing	Ad Andesite	Kpx Kiviterite Schist	Dc Intermediate Dike
Tf Tuff Formation	Da Dacite	Kmc Kiviterite Mesochist	Mf Mafic Dike
F Sulfide	Mn Mylonite	Kpx Kiviterite Schist	Dc Dacite
Kpx Kiviterite Schist	Da Dacite	Kpx Kiviterite Schist	Gb Gabbro
Kpx Kiviterite Schist	Da Dacite	Kpx Kiviterite Schist	Kpx Kiviterite Schist
Kpx Kiviterite Schist	Da Dacite	Kpx Kiviterite Schist	Kpx Kiviterite Schist

Scale 1:1000

DATE 01/04/97

REF No. 1

SHEET 1 of 1

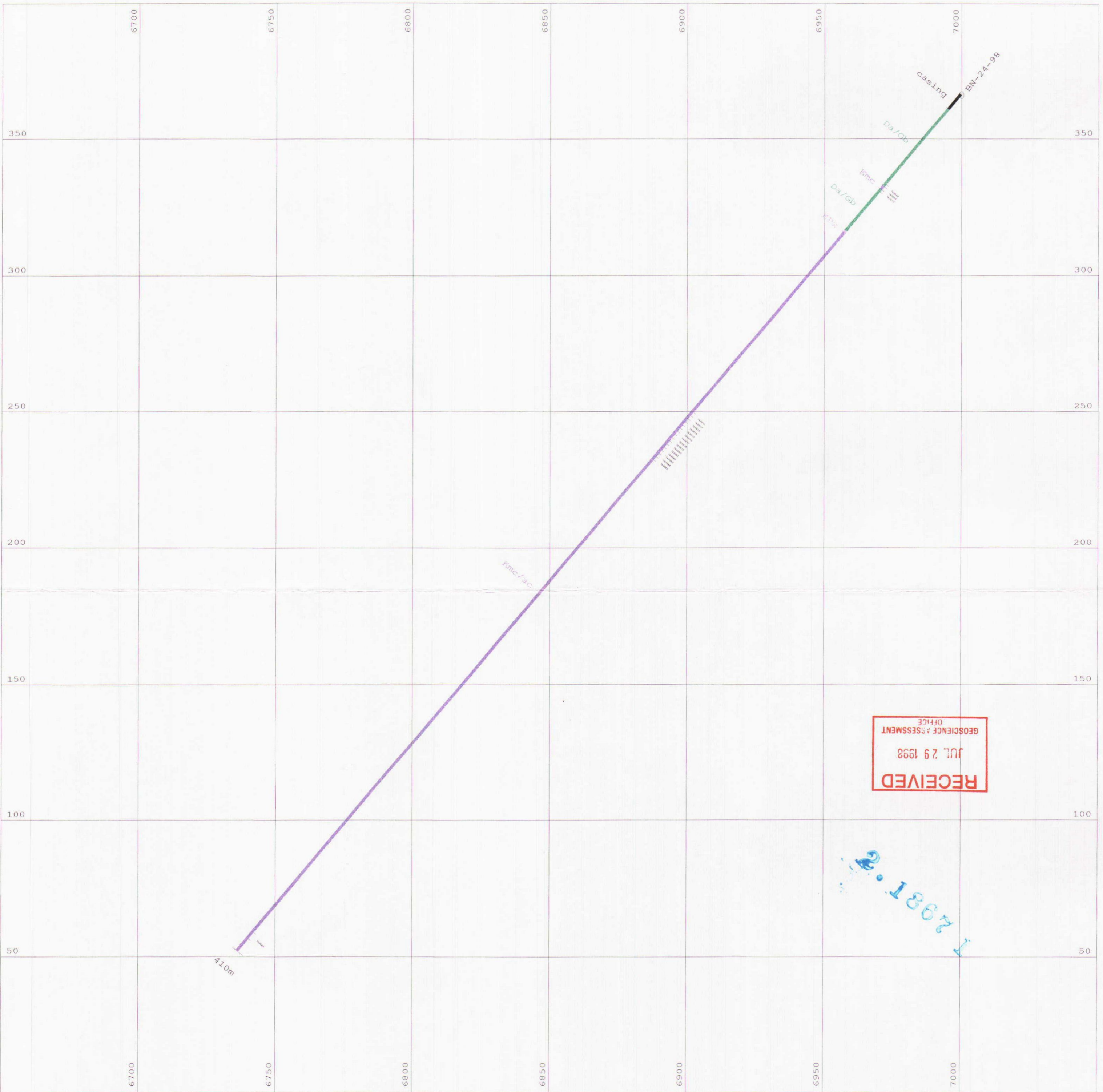
FILE 12000A.PLT

Diamond Drill Hole
Section 12000N

Outokumpu Mines Ltd
Bannockburn Property



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 GEOSCIENCE ASSESSMENT
 OFFICE

2.18671

Geology Legend			
<input type="checkbox"/> Casing	<input type="checkbox"/> M. Sandstone	<input type="checkbox"/> M. Sandstone (unconsolidated)	<input type="checkbox"/> M. Sandstone (consolidated)
<input type="checkbox"/> M. Sandstone (unconsolidated)	<input type="checkbox"/> M. Sandstone (consolidated)	<input type="checkbox"/> M. Sandstone (unconsolidated)	<input type="checkbox"/> M. Sandstone (consolidated)
<input type="checkbox"/> M. Sandstone (unconsolidated)	<input type="checkbox"/> M. Sandstone (consolidated)	<input type="checkbox"/> M. Sandstone (unconsolidated)	<input type="checkbox"/> M. Sandstone (consolidated)
<input type="checkbox"/> M. Sandstone (unconsolidated)	<input type="checkbox"/> M. Sandstone (consolidated)	<input type="checkbox"/> M. Sandstone (unconsolidated)	<input type="checkbox"/> M. Sandstone (consolidated)

DATE 01/04/97 SHEET 1 of 1
 Scale 1:1000 REF No. FILE
 1 12700A.PI
 0 50m

Diamond Drill Hole
 Section 12700N

Outokumpu Mines Ltd
 Bannockburn Property

Paul