ASSESSMENT WORK REPORT CLAIMS L 4282174 & L 4282708

Township of Lorrain Larder Lake Mining Division

Claim Holder - Brian Anthony (Tony) Bishop client #108621

Report prepared and submitted by Tony Bishop

November 27, 2017

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ASSESSMENT REPORT FOR CLAIMS 4282174 & 4282708, Township of Lorrain, LARDER LAKE MINING DIVISION

Prepared by Brian A. (Tony) Bishop, submitted November 27, 2017

INTRO:

Hereby submitted by Brian Anthony (Tony) Bishop [Client No. 108621, 100% holder on record], on November 27, 2017, a combined assessment report for Claim no. L 4282174 (recorded on November 27, 2015 and comprising four units) and Claim no. L 4282708 (recorded on November 14, 2016 and comprising two units). Claim 4282174 is situated in the NE ¼ of the N ½ of Lot 1 Con 8 and the NW ¼ of the N ½ of Lot 2 Con 8, and 4282708 is in the NE ¼ of the S½ of Lot 1 Con 6, and NW ¼ of the S½ of Lot 2 Con 6 in Lorrain Township, Larder Lake Mining Division [Appendix 2: Map 1, page 12].

Seven till samples were collected and subsequently processed, microphotographed etc. and examined. In Sample 4, kimberlite was found. A brilliant green Chrome Diopside was also found [see Results: Photos, page 7].

PURPOSE:

The purpose of staking claim L 4282174 and the goal of the assessment work done to date and included in this report is to look for evidence and test the hypothesis that the peanut shape of Longfellow Lake on claim 4282174 may contain the top of possibly two kimberlite pipes, which manifest in the post-glacial topography as small semi-circular features in the lake. Claim 4282708 was staked to enable sampling down ice of Longfellow Lake.

The purpose of combining the two claims in one report is to enable the findings of the target, as well as down-ice of the target, to be presented together.

ACCESS:

Access to Claim no. 4282174 and 4282708 (Longfellow Lake) can be made from the town of Cobalt.

Cobalt is reached from Highway 11 via Highway 11B. Claim no. 4282174 is situated approximately 8 km south-southeast of the town of Cobalt. From Cobalt, Coleman Road can be taken to the juncture of Silverfields Road (aka. Hound Chute Road) and Glenn Lake Road, situated between Cart Lake and Peterson Lake. Glenn Lake Road leads to Kerr Lake, where it becomes the Beaver Temisk Road (aka. the Cobalt-Brady Lake Road). This road passes Brady Lake and reaches the old Ophir Mine site, approximately 7 km south of Cobalt. The next kilometer of road access is on a very old, boulder strewn, and heavily overgrown road, suitable for an ATV or a carefully driven small 4-wheel drive truck. The road from the Ophir Mine site to Silver Lake is fairly open, but becomes more overgrown south of Silver Lake. Approximately 0.5km south of Silver Lake there is an intersection in the road [UTM GPS: 0603127E, 5243081N]; continue southward on the main road, until reaching a second fork approximately 1 km south of Silver Lake. Access to claim no. 4282174 can gained by taking the eastward leading road from the intersection [UTM GPS: 0603260E, 5242684N] for 2.5 km. The way from here to the claim is a well-preserved skid-way and would be passable with an ATV; the truck was parked at the intersection and 2.5 km of skid-way was traversed on foot, reaching the eastern side of claim no. 4282174.

PREVIOUS WORK and significance to Claim 4282174 for 4282708:

No previous work can be located for the Longfellow Lake claims. This is probably due to being underlain by the Lorrain Granite Batholith, not a traditional place to look for silver/cobalt, the main minerals prospected for in the Cobalt area.

GEOLOGY:

These claims, enclosing Long Fellow Lake, are in the Lorrain Granite Batholith, ~500m to the east and ~500m north is a contact with Nipissing diabase. Below the lake is a wet, boggy area. Approximately 2km to the east is the Cross Lake Fault, no other faults are recorded as crossing this claim.

FIELDWORK:

Traverse 1: fieldwork November 15, 2016

Brian A. (Tony) Bishop, Graeme Bishop

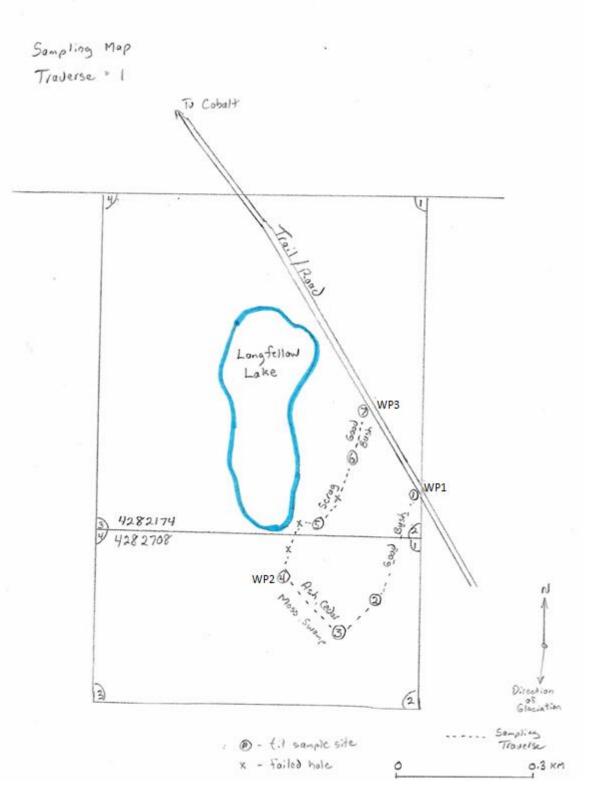
From the access road, Graeme and I proceeded on foot along an overgrown road, trending south-south-east from the truck park location. We passed east of Longfellow Lake to the claim line near #2 post, and took a sample and left it for later pick-up. We then travelled west-south-west from the skid-way for about 200 meters, through terrain that was dry and could be characterized as typical bush, with a few glacial erratics, and not too congested by undergrowth, during which time two samples were collected. Primarily, the holes contained a mixture of brownish soil, dark grey clay, and till.

Reaching WP2 (S4), we arrived in a mixed ash/cedar dominated area, with moss-covered ground, which might be a marsh during high water. This area is due south of Longfellow Lake. Three small good samples were collected near WP2, but we also dug three failed-holes from which no sample was obtained; the 'cedar-soil' extended two to four feet down in these holes, and were terminated by a layer of cobbles underneath. After several minutes, holes near WP2 refilled with ground water. In one of the successful sample holes, Graeme spotted clasts of deteriorating green-grey kimberlitic material in the matrix of dark grey clay, about a foot and a half deep in the hole [see Results: Photos 1-2, page 7].

At this point, I stayed in that area to do some prospecting, letting Graeme head north to finish collecting samples.

Information provided by Graeme, regarding his traverse: Graeme proceeded north toward Longfellow Lake, skirting the south-east shore where the trees, moss, deadfall, and small but deep depressions in the ground make travelling extremely slow. He collected a sample from beneath a raised root-wall, which exposed a depression about two feet below the general stereo of deadfall, moss, and organic detritus. In this hole, which was about two hundred feet from the lake, the first twelve inches were brownish soil/till, followed by a layer of brownish clay, which transitioned to a layer of dark grey clay (as found at WP2), and a thin layer of white clay beneath. Following the planned sample route, he moved towards WP3, through a densely crowded and thick growth which grew more passable the further north-east he travelled. He collected two more samples, of till and brown soil with grey clay beneath, on the way to WP3. Back at the skid-way, Graeme and Tony met and returned to the truck park area, carrying about 70 pounds of samples.

Traverse 1: map November 15, 2016



Traverse 1: field notes November 15, 2016

Brian A. (Tony) Bishop, Graeme Bishop

Claim #	Sample #	Coordinates 17T UTM	Activity/Description
4282174	S1	0604579_E 5241057_N	Sand, gravel, clay
4282708	S2	0604570_E 5240745_N	Brownish soil, clay, till
4282708	S3	0604420_E 5240666_N	Brown soil, clay, till
4282708	S4	0604283_E 5240798_N	Clay, very wet, kimberlitic material found
4282174	S5	0604365_E 5240930_N	Soil, till, clay
4282174	S6	0604434_E 5241100_N	Soil, till, clay
4282174	S7	0604474_E 5241218_N	Soil/till, grey clay

4282174			
Location #	Coordinates 17T UTM		
Corner post #1	0604598_E / 5241706_N		
Corner post #2	0600905_E / 5240905_N		
Corner post #3	0603845_E / 5240895_N		
Corner post #4	0603831_E / 5241694_N		

4282708				
Location #	Coordinates 17T UTM			
Corner post #1	0604609_E / 5240905_N			
Corner post #2	0604612_E / 5240490_N			
Corner post #3	0603852_E / 5240488_N			
Corner post #4	0603845_E / 5240895_N			

Location #	Coordinates 17T UTM		
WP1	0604579_E / 5241057_N		
WP2	0604283_E / 5240798_N		
WP3	0604474_E / 5241218_N		

RESULTS:

PHOTOS OF KIMBERLITE:



1. Kimberlite cobbles in clay

MICROSCOPE PHOTOS OF KIMs:



3. Pink stone in cons



6. Orange garnet



2. Close-up of cobble



4. Orange garnet, sculpted - 0.8mm



7. Pink garnet in cons - 0.5mm



5. Ilmenite in cons - 0.5mm



8. Dark green diopside - 0.7mm



9. Close up of cons



10. Cr diopside - 0.4mm

CONCLUSIONS & RECOMMENDATIONS FOR FUTURE WORK:

Longfellow results at first glance were disappointing, except for one sample (#4). While digging a sample in clay, Graeme spotted distinctive green coloured cobbles, which we determined were probably kimberlite. The sample was ~100m south of Longfellow Lake. This sample [see Results: Photos 1-2, page 7] was kept damp (as kimberlite will often change colour and crumble if allowed to dry out), and I consulted with Doug Robinson (PEng Geology) who agreed it to be a probable kimberlite, then to Mike Leahy had a good look and said it was almost definitely some type of mafic rock. Then to the Kirkland Lake Mines Office where, with good fortune, Gary Grabowski (retired District Geologist from the Mines Office) looked at it and took a kimberlite out of a drawer, and they appeared very similar. So, for the moment, I'm treating it as a kimberlite, and it's safely stored.

The other samples were not as good as I've typically been finding elsewhere, but in my last report (Bishop, B.A. (2017c)), I redrew local glacial directions from the New Liskeard/Haileybury area in the north to the Bishop Claims area to the south, utilising 89 recent glacial striae [see Appendix 2, Map 6, page 17]. However, at the time I sampled the claim(s), I utilised the Ice Flow Movement map [see Appendix 2, Map 5, page 16], which shows a generalised somewhat southeast ice flow direction, whereas the Local Glacial Flow Direction [see Appendix 2, Map 6, page 17] shows the last glacial flow to be slightly to the southwest. As a result, utilising my local glacial flow map, I plan on resampling this and a number of my other claims to obtain more meaningful/accurate results.

[See References & Resources, page 23, for more detailed information]

EXPENSES of Assessment Work Claims L 4282174 & L 4282708 (Nov 15, 2016 to Nov 27, 2017)

Work Type	Units of work	Cost per unit of work	Portion re 4282174	Portion re 4282708	Total Cost
Prospecting/sampling/field supervision – 1 traverse	Tony Bishop: 1 day	\$500 per day	\$250	\$250	\$500
Field assistant for 1 traverse	Graeme Bishop: 1 day	\$285 per day	\$142	\$143	\$285
Till sample processing, HMC, separating into multiple size fractions, sorting, microscope picking, interpretation of KIMs and logging results, microphotography of select grains & KIMs picked, computer storage of micro- photos, storage of picked grains & concentrates picked	Tony Bishop: 7 samples	\$500 per sample	\$2,000	\$1,500	\$3,500
Sampling plan, report preparation, map compilations, interpretations, consultation re kimberlite	Tony Bishop: 1 ½ days	\$500 per day	\$250	\$500	\$750
Consultation with 3 geologists re kimberlite found	¹ ⁄ ₂ day with 3 PEng combined	\$850 per day		\$425	\$425
Clerical support for reports & technical computer support	Chloë Bishop	\$200	\$100	\$100	\$200
Transportation based on OPA OEC rate	1 return trips to claim 240 km; 54 km re kimberlite consult	\$0.50 per km x 294 km	\$73	\$74	\$147
Food re 1 traverse	2 people x 1 day	\$35 each	\$35	\$35	\$70
	\$2,850	\$3,027	\$5,877		

History of Development in the Cobalt Area

Before 1900, when the surveyors for the right-of-way of the Temiskaming and North Ontario (T.&N.O.) Railway worked north from North Bay past Long Lake Station [Cobalt, ON] up to Cochrane, there was limited activity in what is now Lorrain Township. Logging expeditions entered Lake Temiskaming after coming up the Ottawa River from Montreal as early as the late 1700s and some mid-to-late 1800s colonization of Lake Temiskaming on the Quebec shore. A farming community was settled in the 1880s on a bay a bit south and east of the Bishop claims in Lorrain Township, in addition to a mission of oblate Fathers, and the posts of the Northwest Company and Hudson Bay Trading Companies not far away on Lake Temiskaming. Charles Farr founded Haileybury in the late 1880s and petitioned the government for railway access to facilitate colonization of the area. A colonization road did exist which reached the southernmost part of Lake Temiskaming on the Ontario side, but was never widely used.

The first government infrastructure nearest the claim was the building of the T. & N.O. railway which passed to the west, reaching Cobalt, Ontario in 1903-1904, where a silver and cobalt-nickel arsenide deposit was discovered. The mining boom which followed the discovery of silver at Cobalt often dominated the geological interest in the area for many decades, and although prospectors and geologists closely explored the terrain all around Cobalt (leading to the settling of Silver Centre south of these claims in 1907-08), most of the exploration was guided by the search for more silver and cobalt-nickel arsenide deposits.

In the 1980s, there was renewed interest in the geology of the area, this time in search of diamond-bearing kimberlite pipes, stimulated in part by the discovery of an 800-carat yellow diamond by a settler "somewhere in the Cobalt area" in 1904 (which was sent out and cut into a number of stones by Tiffany's of New York, and some are still to this day retained and treasured by great-granddaughters), but became overshadowed by the vastly rich silver discoveries of the day. Soil sampling and geophysics by companies like Cabo, Tres-Or Resources Ltd., and others in addition to exploration by the Ontario Geological Survey, uncovered many kimberlite pipes/dykes, some diamondiferous, which helped to outline the existence of a Lake Temiskaming Kimberlite Field on the Lake Temiskaming structural zone, which appears to have intruded the Canadian Shield in this region approximately 148 million years before present. Deep sonar has also revealed circular features beneath the water of Lake Temiskaming itself which are inferred to be kimberlite pipes.

As well, a number of diamondiferous lamprophyres have been discovered near Cobalt, including one just NW of Latour Lake in the south part of Lorrain Twp, and another on the "Nip" Hill in Cobalt, as well as others.

Map Appendix Overview

MAP 1: Claim Location

MAP 2: Road Access

MAP 3: Geological Compilation (portion of OGS P.3581)

MAP 4: Mag Map (portion of OGS Map 82 067)

MAP 5: Ice Flow Movement (from OGS OFR 6088)

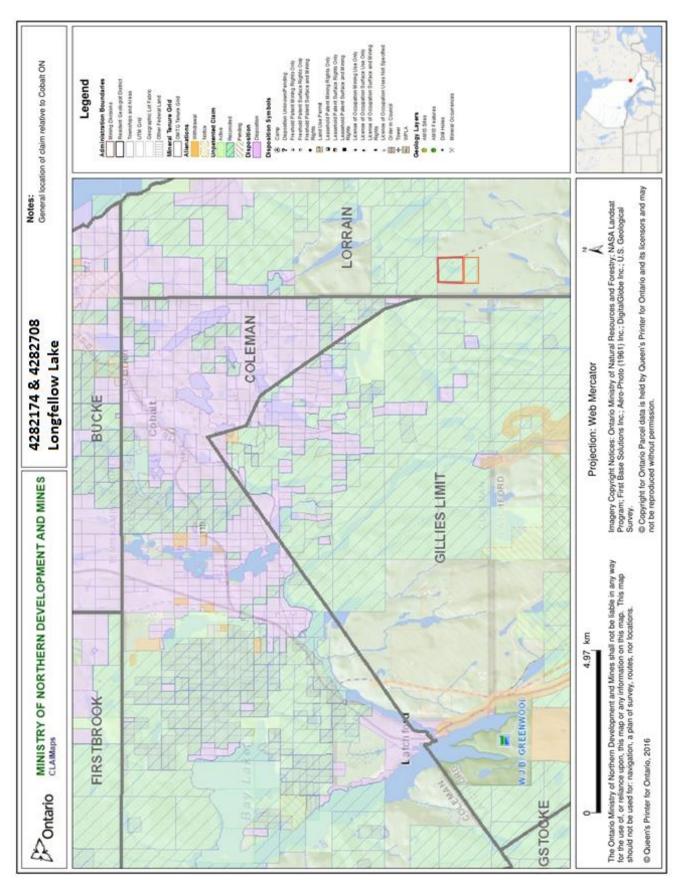
MAP 6: Local Glacial Flow Direction

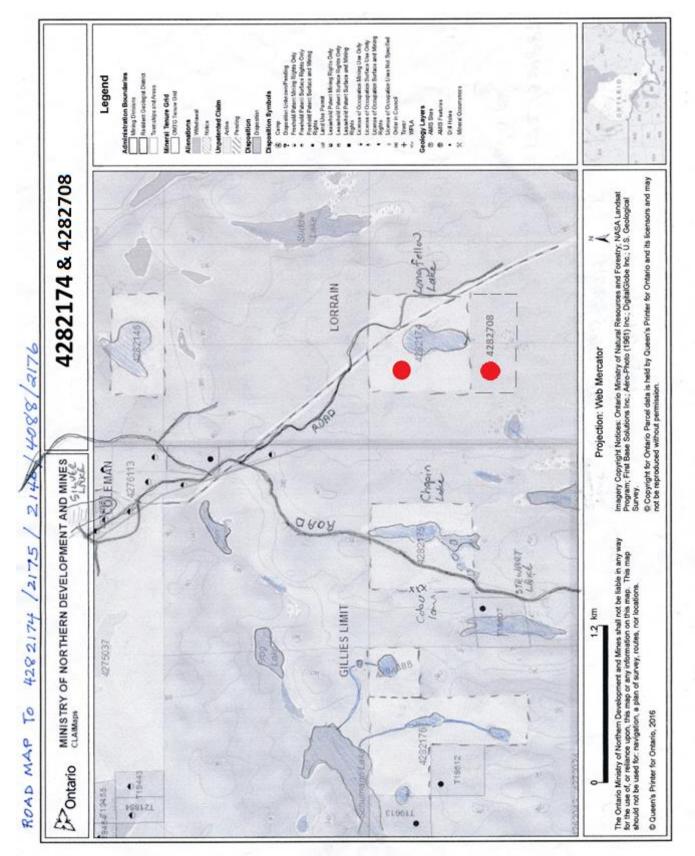
MAP 7: Lake Temiskaming Structural Zone (from OGS OFR 6088)

Map 8: Detailed Local Faults

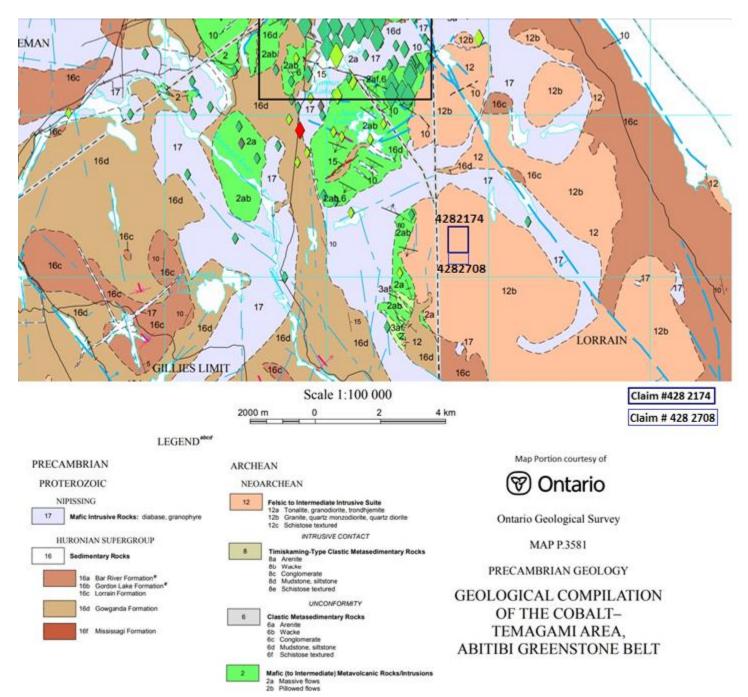
Map 9: Down-ice glacial direction – tilted view (Google Earth)

Map 10: Straight-down view of Longfellow Lake (Google Earth)

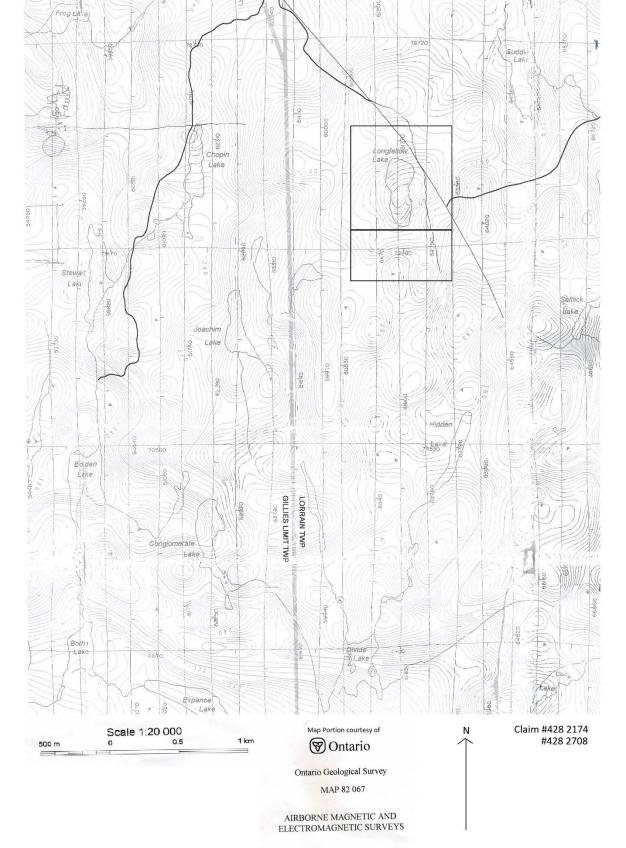




Appendix 2

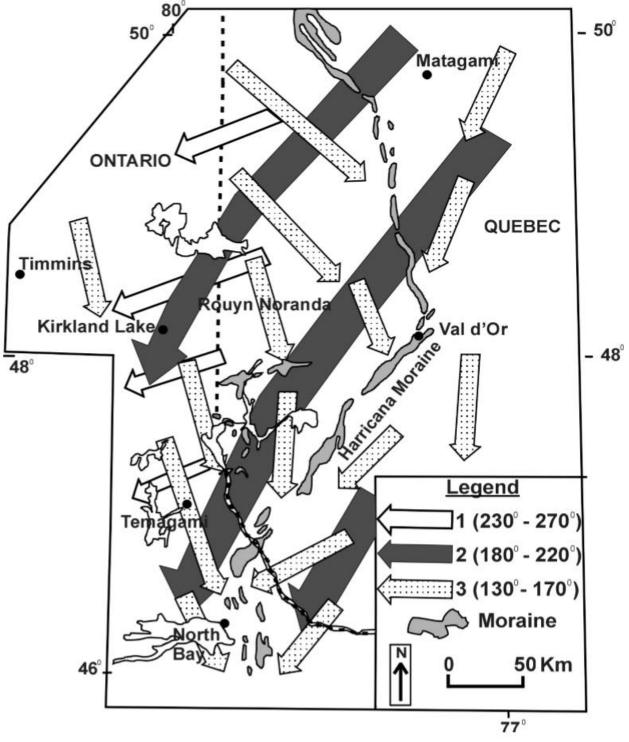


Map 3



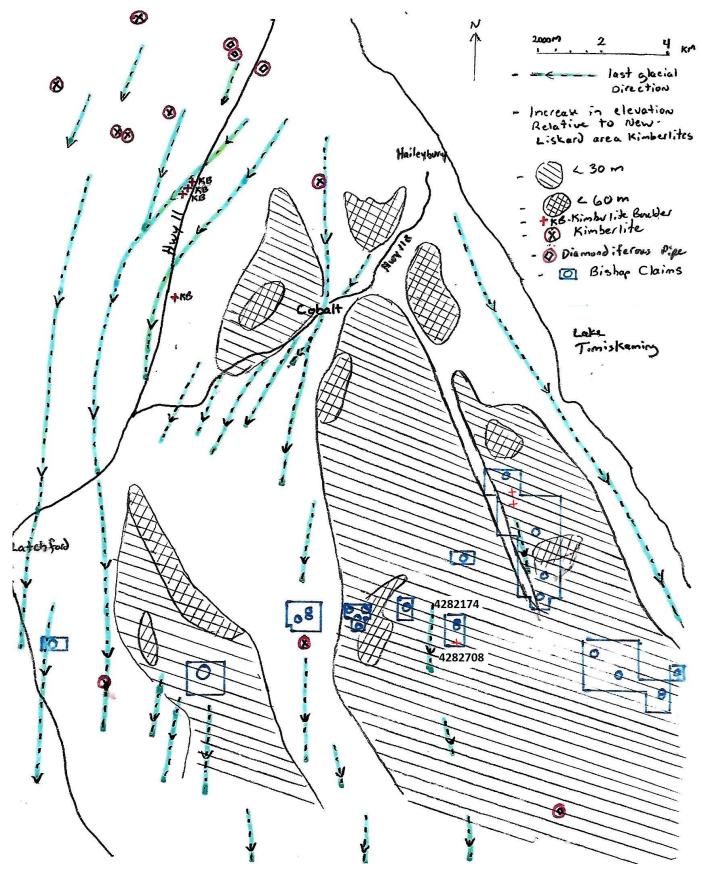
Appendix 2

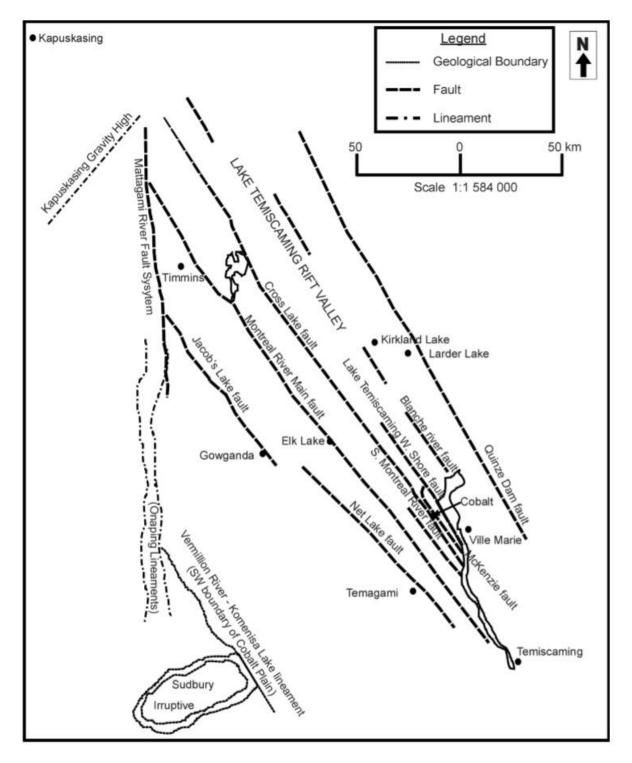
TEMAGAMI AREA



Ice flow movement in the Abitibi-Temiskaming area. The oldest ice flow event is the number 1 movement, the youngest the number 3 movement (after Veillette 1986).

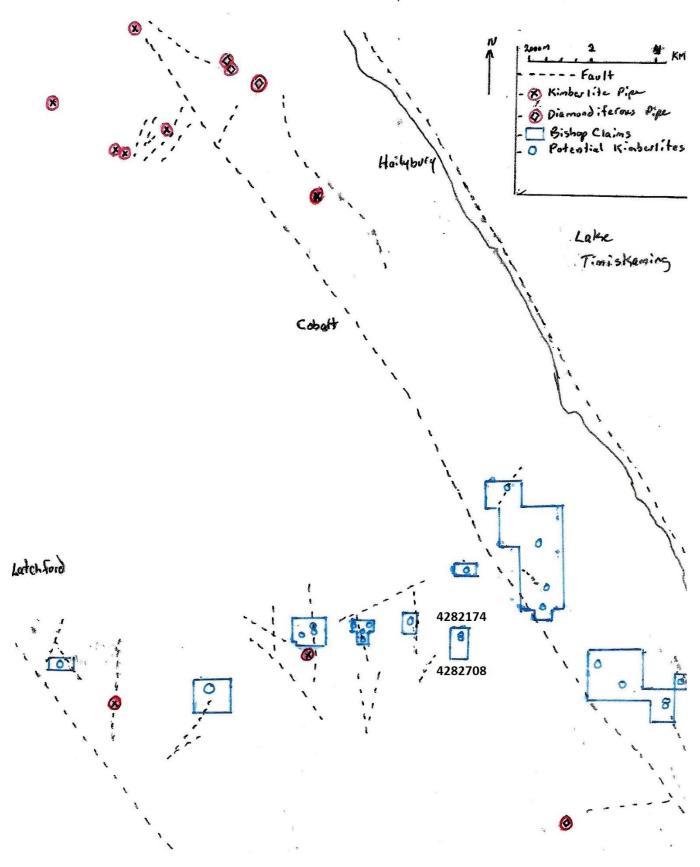
Used courtesy of Ontario Geological Survey Open File Report 6088





The Lake Temiskaming Rift Valley (also known as the Lake Temiskaming Structural Zone) (after Lovell and Caine 1970).

Used courtesy of Ontario Geological Survey Open File Report 6088



Map 8





Map 9



In the interest of brevity, this report does not include the following. Please refer to Bishop, B.A. (2016), Bishop B.A. (2017a), Bishop B.A. (2017b), and Bishop, B.A. (2017c) for more detailed information pertaining to these appendices.

- Appendix 3, Advances in Diamond Exploration in Canada: Understanding the Importance of Non-Magnetic Signatures and Geo-Chemical and Structural Geology
- Appendix 4, Methodologies for Field Work and Till Sample Processing
- Appendix 5, Sluice Efficiency Test Results
- Appendix 6, Flow Sheet for Concentrating and Retrieving KIMs from Till & Stream Samples
- Appendix 7, Equipment List
- Appendix 8, Equipment Photos
- Appendix 9, Reference Photos to Arctic Star and North Arrow Announce Drilling at Redemption Diamond Project

Statement of Qualifications:

I, Brian Anthony (Tony) Bishop p/I #A44063 of Kenogami (RR#2 Swastika, ON), hereby certify as follows concerning my report on Claims L 4282174 and L 4282708 in the Township of Lorrain, Larder Lake Mining Division:

I have been prospecting and placer mining part-time for 43+ years in Ontario, British Columbia, and Nova Scotia (which led to writing a book *The Gold Hunter's Guide to Nova Scotia* (Nimbus Publishing, 1988, ISBN 0-920852-93-9) which was used in prospecting courses in Nova Scotia). I have held an Ontario Prospector's License for 36 years, and was issued a Permanent Prospector's License in 2005. I have completed a number of prospecting courses given by the Ministry, and have my Prospector's Blasting Permit. I was one of the directors on the Northern Prospectors Association (NPA) in the early years when Mike Leahy revitalized/resurrected the NPA in Kirkland Lake, and with Mike, initiated the annual gold panning event as part of Kirkland Lake Gold Days.

As well, I sold and used small scale mining and concentrating/processing equipment for over 20 years. This included instructing others in their use.

On short term contracts I have performed specialized work for Cobatec, Macassa, Castle Silver Mines Inc., Gold Bullion Development Corp, as well as short stints in Ecuador and Montana.

The last three years I have devoted to full-time diamond exploration. This has included 1,000+ hours of research from many diverse sources on exploration and processing techniques.

Drawing on this research and my many years of practical experience I have assembled a complete till processing lab I feel rivals many commercial ones. Importantly, I sometimes exceed their results by testing a wider range of samples' fraction sizes and as a result have found a number of kimberlite indicator minerals, notably a number of indicators in the 2.0 - 3.0 mm size that are larger than the usual upper cutoff for commercial labs' mesh sizes. Additionally, I pick far more potential KIMs than any lab can reasonably do, given time/cost constraints. Redundancy tests are routinely performed to monitor potential losses of the KIMs and I feel my equipment and techniques closely match that of the industry.

Signed:

B-A-Bislo

Brian Anthony (Tony) Bishop November 27, 2017

References & Resources:

Please refer to the following reports by Brian Anthony Bishop for full reference & resource list:

Bishop, B.A. (2016) Work Assessment Report, Claim L4273040, Lorrain Township, Larder Lake Mining Division, MNDM, Oct 3, 2016

Bishop, B.A. (2017a) Work Assessment Report, Claim L4284088, Gillies Limit, Larder Lake Mining Division, MNDM, Jan 26, 2017

Bishop, B.A. (2017b) Work Assessment Report, Claims L4282189 and L4282187, Lorrain Township, Larder Lake Mining Division, MNDM, Nov 2, 2017

Bishop, B.A. (2017c) Work Assessment Report, Claim L4282172, Gillies Limit, Larder Lake Mining Division, MNDM, Nov 27, 2017

Acknowledgements

To the following individuals (alphabetically listed) who provided geological, technical, historical, and other important help relating to Claims L 4282174 & L 4282708: Chloë Bishop, Graeme Bishop, Jesse Bishop, Shelley Bishop, David Crouch, Gary Grabowski, Mike Leahy, Doug Robinson, and the staff of the K.L. MNDM.

Appreciation is expressed also to staff at MNDM Sudbury for their assistance with completing MNDM forms and procedures.

Thank you.