NTS 082M/01W TRIM 082M 018
LAT. 51 07' 50" N
LONG. 118 27' 39 W

MT COPELAND PROJECT-
GEOCHEMICAL AND PETROLOGY REPORT

COPELAND CREEK, JORDAN RIVER, B.C.

REVELSTOKE MINING DIVISION

FOR
TORCH RIVER RESOURCES LTD.,
BANKERS HALL, WEST TOWER,
SUITE 1000, 888-3rd Street SW,
CALGARY, AB T2P 5C5

BY

ANDRIS KIKAUKA, P. GEO.
406 - 4901 EAST SOOKE RD.,
SOOKE, B.C.
V9Z 1B6

DEC 5, 2010

TABLE OF CONTENTS **Page Number**

LIST OF FIGURES

1.0 SUMMARY

Mineral tenure 501827 (and adjacent tenures 546342, 706490, 706491, 834169, 837784), 'Copeland REE & Mo' are within the Revelstoke Mining Division, located 30 km northwest of Revelstoke at the headwaters of Hiren Creek (Fig. 1 & 2). Access to the property is by helicopter (Selkirk Helicopters Ltd., Westside Road, Revelstoke) or by hiking 11 km up Hiren Creek valley (north side) on the abandon mine access road to the south portal (6,100 ft, 1,859.3 m elevation), built by King Resources in 1968.

Mount Copeland nepheline syenite complex geologically correlates with the west flank of the Frenchman's Cap gneiss dome, which includes REE enriched deposits located along the Perry River/Ratchford Creek and Mount Grace areas. Rare Earth Elements, Yttrium, Niobium & Zirconium bearing mineralization has been recently reported from Mt Copeland. Marble Breccia, West Basin, East Glacier and Glacier Zone East Extension Zones were the focus of 2010 fieldwork, consisting of 34 rock chip, and 72 soil samples (Fig 4 & 8). Soil and rock chip samples were analyzed by lithium borate fusion with ICP-MS finish, and Mo assay (Pioneer Labs, Richmond, BC certificate 2102718). A total of 8 select rock chip samples were re-analyzed by lithium borate fusion with ICP-MS finish ME-MS61 (ALS Chemex Labs, N Vancouver, BC certificate VA10144345). A compilation of geochemical analysis (and assays for Mo), is listed as follows:

rock no	% Mo	ppm Ce	ppm La	ppm Nd	ppm Pr	ppm Sm	ppm Y	ppm Dy	ppm Nb	% Ti	Ppm Zr
10AR-1	**0.63**	165.2	79.7	49	15.1	7.1	31.3	5.7	94.9	0.058	4
10AR-2	0.49	132.1	44.3	36.2	12	4.1	8.2	1.8	74.2	0.094	3
10AR-3	**0.95**	**1855**	**1105**	**531.2**	**165.5**	47.4	113	24.5	**3760**	**0.966**	**979**
10AR-4	**1.33**	297.8	187.3	80.3	26.6	10.4	39.1	7.5	**3450**	**2.587**	19
10AR-5	**0.56**	142.9	79.7	45.1	14.2	6.7	18.6	4	**18500**	**1.396**	11
10AR-9	**0.77**	103.3	51.8	36.2	10.7	6.2	32.3	5.4	**641.9**	**0.771**	5
10AR-10	**1.2**	116.3	66	33.5	11.2	4.7	11.7	2.2	43.9	0.037	16
10AR-11	0.1	396.1	170.1	128.8	39.8	23.1	**101.1**	18.5	84.2	0.287	5
10AR-12	0.01	**1110**	**638**	**241**	92.6	23.2	66.1	12.1	255	0.287	**638**
10AR-14	0.19	35.5	20.1	11.3	3.5	1.7	4.1	0.8	18.2	0.055	1
10AR-15	0.21	96.3	47.4	39.4	10.7	6.3	19.5	3.9	23.8	0.117	8
10AR-19	0.01	**754**	**742.5**	**175.5**	61.2	22	76.5	11.8	**236**	**1.466**	**1865**
10AR-20	0.01	**131000**	**102000**	**17650**	**7700**	**1200**	**623.8**	**284.1**	**527.4**	**2.928**	**6190**
10AR-22	0.01	**18450**	**18200**	**2550**	**1185**	**209.6**	**414.8**	**80.1**	31.4	0.277	136
10AR-23	0.01	**1270**	**1205**	**176.3**	87.1	23.1	**103.8**	16.7	73.5	0.361	484
10AR-24	0.21	183	164.1	37.4	13.3	4.6	23.2	3.7	22.1	0.171	6
10AR-25	0.01	593	**722.3**	99.9	43.3	13.7	**106.9**	17.2	147.1	0.566	219
10AR-26	0.22	**1440**	**1520**	**166.8**	89.2	24.6	**152.4**	20.6	35.3	0.254	95
10AR-27	**0.92**	23.5	15	7.5	2.3	1.3	3.4	0.7	32.1	0.227	6
10AR-28	0.43	191.4	129.7	45.8	15.8	6.7	25.3	4.4	89.6	0.486	12
10AR-30	**3.4**	175.1	99.4	70	20.6	12.6	38.5	8.5	126.8	0.06	7

rock no	width cm	elev m	strike dip	zone name	comments
10AR-1	100	2056	100 45 S	Glacier Mine	K-spar, kaol, chlorite, trace pyo
10AR-2	120	2053	105 48 S	Glacier Mine	K-spar, kaol, chlorite, trace pyo
10AR-3	60	2046	100 45 S	Glacier Mine	K-spar, kaol, chlorite, trace pyo
10AR-4	100	2076	103 47 S	Glacier Mine	450 cm wide peg-aplite zone
10AR-5	100	2079	100 39 S	East ext, Glacier	K-spar, chlorite
10AR-9	200	2059	114 52 S	East ext, Glacier	K-spar, kaol, chlorite, trace pyo
10AR-10	100	2055	112 50 S	East ext, Glacier	K-spar, kaol, chlorite, trace pyo
10AR-11	52	2032	115 51 S	East ext, Glacier	K-spar, kaol, chlorite, trace pyo
10AR-12	float	1980		Sub-portal	angular float, 1% magnetite
10AR-14	200	1939	140 62 SW	J-5	increased limonite-chlorite with Mos2
10AR-15	20	1977	135 20 S	Sub-portal	3 m north is open cut
10AR-20	18	2270	110 48 S	Glacier East	red-yellow-brown gossan in cliff
10AR-22	70	2170	101 30 S	West Marble Ridge	350 cm wide py-pyo-ank skarn band
10AR-23	180	2169	100 30 S	West Marble Ridge	275 cm wide py-pyo-ank skarn band
10AR-24	280	2181	100 50 S	West Marble Ridge	limonitic aplite-carbonate breccia contact
10AR-25	25	2204	100 34 S	West Marble Ridge	limonitic aplite-carbonate breccia contact
10AR-26	30	2218	100 34 S	West Marble Ridge	limonitic aplite-carbonate breccia contact
10AR-27	25	2212	115 62 S	West Marble Ridge	limonitic aplite-carbonate breccia contact
10AR-28	22	2203	105 63 S	West Basin	K-spar, kaol, chlorite, trace pyo
10AR-30	float	2171		West Basin	K-spar, kaol, chlorite, trace pyo

Petrographic descriptions were done by Vancouver Petrographics Ltd on 3 rock chip samples; COPE10AR-3, 20 & 22 (Appendix C). These 3 samples consist of leucocratic syenite, unknown and syeno-monzonite gneiss host rock (respectively). The REE bearing minerals include:

COPE10AR-3: monazite? (pyrite-green biotite-chlorite-carbonate-phlogopite-sphene-magnetite gangue).

COPE10AR-20: REE oxides? Columbite? Allanite? (iddingsite?-amphibole-carbonate-quartz-plagioclase-sphene gangue).

COPE10AR-22: REE oxides (K-feldspar-plagioclase-pyrrhotite-pyrite-marcasite-limonite-carbonate-sphene gangue).

Mean average values for elements listed, from 72 soil samples geochemically analyzed:

Ce	Dy	Er	La	Nd	Pr	Sm	U	Y	Nb	Ti
519.0 ppm	19.0 ppm	11.0 ppm	389.6 ppm	170.5 ppm	60.0 ppm	29.0 ppm	21.5 ppm	104.7 ppm	323.3 ppm	0.98 %

Anomalous REE, Y, Nb, Ti, Zr values in soil samples are widespread. The areas that have the highest concentrations of REE, Y, Nb, Ti, Zr values in soil include Glacier East extension (especially where the soil grid terminates to the east up against the steeper portions of the receding glacier, where COPE10AR-3, 4 & 5 are located), Sub-Portal (La and Ti in soil is elevated, and Ti anomaly extends uphill to Glacier Zone), West Basin/Marble Breccia Ridge (elevated Zr, Ce, La, Nd & Nb in soil where COPE10AR-22

is located) and the East Glacier Zones (the steep cliff area on the east side of the glacier is where COPE10AR-20 is located)

The Marble Breccia Ridge Zone contains 4 positive total field anomalies identified by a magnetometer survey carried out in 2008. These positive total field magnetic anomalies (moderate strength 200-500 nT increase, strong >500 nT increase) are listed as follows:

Easting	Northing	Elevation	Relative strength	Zone Name
397350	5665500	2320 m	Moderate	West Basin
397500	5665350	2340 m	Strong	Marble Bx Ridge
397550	5665350	2335 m	Moderate	Marble Bx Ridge
397650	5665300	2340 m	Strong	Marble Bx Ridge
397600	5665250	2410 m	Moderate	Marble Bx Ridge
397690	5665250	2395 m	Moderate	W Glacier

The magnetometer survey strong anomalies are located in an area of marble with extensive zones of pyrrhotite and/or magnetite/ilmenite replacement mineralization which coincides with elevated REE geochemical analysis of rock chips 10AR-22 to 28 from Marble Bx Ridge.

Anomalous REE (La, Ce, Pr, Nd, Pm, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb, Lu), yttrium (Y), zirconium (Zr), and niobium (Nb) values may be related to granitic intrusions that are associated with molybdenite-pyrite-pyrrhotite-ilmenite-magnetite-chalcopyrite mineralization. Mount Copeland nepheline syenite has high background values of rare earth elements such as Nb, Rb, Nd, Ce, La, and Y (with significant values of Zr, Sr, and Ti). REE bearing minerals monazite-columbite-tantalite (and other complex unidentified minerals) are hosted in marble, calc-silicate, and syenite (pegmatite and aplite phases). REE mineralization at Mt Copeland occurs in a tabular zone (as defined by highly anomalous REE samples COPE10AR-20 & 22) that occur roughly parallel to and approximately 100 meters uphill from the (110 trending, 25-50 degree south dipping), Copeland Glacier Zone Mo deposit (King Res underground workings, 1970-73). This mineral zone appears to be a stratabound (layercake metamorphic rocks), and is laterally extensive, however the distribution of REE minerals in this horizon is poorly understood. There does seem to be a correlation with REE's and magnetite/illmenite/pyrrhotite, and pegmatitic/aplitic phases of the nepheline syenite gneiss.

REE bearing mineralization occurs in the East Glacier Zone (e.g. rock chip sample COPE10AR-20). The East Glacier and Marble Bx Ridge Zones are about 500 meters apart, but they occur on the same stratigraphic horizon and may be part of an extensive REE bearing mineral zone that extends under the glacier. In addition to REE bearing mineralization, a zone of elevated molybdenum and coincident niobium occurs in the east extension of the Copeland underground workings. This area has been targeted for possible extensions of Mo bearing mineralization, but this zone appears to have elevated Mo-Nb-Ti (e.g. rock chip sample COPE10AR-4 & 5). Also, directly adjacent to the underground workings there is a rock chip sample that contains elevated Mo-REE-Nb-Ti (rock chip sample COPE10AR-3).

The geological setting for the Copeland molybdenite-REE occurrence is within concordant bodies of nepheline syenite gneiss that occur adjacent to the calc-silicate gneiss and marble unit. The syenite have locally developed an augen texture with large porphyryblasts of K-feldspar in a fine-grained groundmass. Calc-silicate assemblages contain diopside, garnet and actinolite. Carbonates and carbonatites are re-crystallized to medium and locally coarse-grained granoblastic marbles. Lithologies present are summarized as follows:

PROTEROZOIC (PRE-CAMBRIAN)
8- Syenite Aplite/Syenite Pegmatite: K-feldpsar, kaolinite, sericite, calcite, biotite, fluorite, garnet, sphene, specularite, pyrrhotite, pyrite, molybdenite, ilmenite, chalcopyrite, scheelite, tourmaline, apatite, riebeckite, poikilitic aegirine, zircon, zeolite, cancrinite, and analcite

7- Hangingwall Syenite Gneiss, Nepheline Syenite: K-feldspar, green/brown phlogopite, calcite, chlorite, accessory apatite, zircon, sphene, tourmaline, sphene, apatite, riebeckite, poikilitic aegirine, zircon, fluorite, zeolite, cancrinite and analcite

6- Biotite-Amphibole Marble: weathered and deeply pitted appearance, biotite, hornblende, chlorite, marble (granoblastic), actinolite, diopside

5- Black Biotite Amphibole Gneiss: biotite, hornblende, chlorite, oligoclase, magnetite

4- Quartzite Gneiss:feldspar, granular, interbedded marble bands, actinolite & diopside

Unit 6 (biotite-amphibole marble) has extremely high soda and potash content, and this is likely attributed to fenitization, caused by peralkaline fluids. These fluids are thought to complex and transport REE, associated with minerals such as apatite, zircon, pyrochlore, allanite, monazite and bastnaesite.

The East Glacier and Marble Breccia Ridge zones do not have Mo & Cu values associated with REE minerals, but the Glacier East Extension and J-5 6,300' zones that are elevated in Mo & Cu values are spatially related to above average REE, yttrium, niobium & titanium values.

In order to complete follow-up exploration work on REE, Y, Nb, Ti, Zr and molybdenum bearing mineral zones, and to a lesser extent tungsten bearing mineralization present on the subject property, a 2 phase fieldwork program is recommended. Phase 1 recommendations include 3,000 feet of core drilling (914.4 m), geological, geophysical and geochemical core and rock chip sampling with a proposed budget of $300,000.00. Contingent on the results of phase 1, a second phase of core drilling, rock sampling and geological/geochemical surveys is recommended. The estimated total budget for phase 2 is $500,000.00. The total recommended core drilling for phase 2 is 5,000 feet (1,524 m). The total recommended expenditures to complete proposed two phase program are about $800,000.00. This recommendation of expenditures is intended as a general guideline for further exploration and is not compliant to National Instrument 43-101.

2.0 INTRODUCTION AND TERMS OF REFERENCE

This report summarizes geological fieldwork carried out on the Copeland claim and evaluates economic mineral potential of REE, Y, Nb, Ti, Zr and molybdenum-tungsten bearing mineral zones as well as nepheline syenite (industrial mineral with numerous commercial applications) situated within the subject property. The purpose of the report is to qualify targets for future exploration/development on the subject property, and compliance with requirements of assessment reports.

This report is partly based on geological fieldwork carried out by the author, who was present on the subject property between August 18-23, 2010. This report is partly based on published and unpublished fieldwork reports carried out by various private sector mining company personnel and public sector government personnel as well as fieldwork carried out by the author on the Copeland claim. Geological and geochemical data compilation has identified numerous areas of interest. Potential exists for the discovery of economic concentrations of REE, Y, Nb, Ti, Zr and molybdenum-tungsten bearing mineralization.

3.0 DISCLAIMER

This report is comprised of a compilation of data based in part on documents and technical reports prepared by various authors. The portions of this report that give information gathered from various authors are referenced. The documents and technical reports from various authors were used to compile the Copeland Molybdenum property history.

4.0 PROPERTY DESCRIPTION AND LOCATION

The Copeland claim group is located about 30 km northwest of Revelstoke. Details of the claim are listed in the table as follows:

Claim Name	Mining Division	Area	Tenure Number	Issue Date	Expiry Date
No Name	Revelstoke	405.633 Ha	501827	Jan 12, 2005	Oct 16, 2018
Mt Copeland 4	Revelstoke	324.479 Ha	546342	Dec 2, 2006	Dec. 2, 2018
Copeland 2	Revelstoke	142.01 Ha	706490	Feb 17, 2010	Feb. 17, 2017
Copeland 3	Revelstoke	121.68 Ha	706491	Feb 17, 2010	Feb. 17, 2017
Copeland 4	Revelstoke	324.43 Ha	834169	Sept 23, 2010	Sept 23, 2011
Mt Copeland 20	Revelstoke	162.18 Ha	837784	Nov 6, 2010	Nov. 6, 2011
Mt Copeland 5	Revelstoke	223.23 Ha	546342	Nov 24, 2010	Nov 24, 2011

Note- extended expiry date based on filing a statement of qualified assessment work
Note- The last 3 tenures listed were acquired after the work was done and are not part of qualified work reported in this document.

The claims are registered to William E Pfaffenberger (president, Torch R Res). The total area of the mineral tenures is approximately 1,703.642 hectares. The claims are 100% owned by Torch R Res Ltd, with an underlying royalty to original title holders.

The abandon mine access road is in need of repair at approximately 12 creek crossings where washouts and snow-slides have taken out parts of the roadbed that was constructed in 1969 by King Res Co. To the knowledge of the writer, the pre-existing mining and related exploration activity (published work and unpublished activity) that has occurred on the Copeland property from 1966 to 2007 would not adversely affect exploration and development on the mineral tenures owned by Torch R Resources Ltd.

5.0 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE AND PHYSIOGRAPHY

Access to the property is by helicopter from Revelstoke or by hiking up the abandon road that follows Hiren Creek to the south facing slope of Copeland Ridge.

The Copeland property has cool/cold moderately wet winters and warm relatively dry summers. Total yearly rainfall on the property is estimated at between 35-55 inches (88.9-137.5 cm). At higher elevations of 1,900-2,400 meters (6,232-7,872 ft) above sea level, work could be carried out between June and October. Snowfall, avalanche hazard and cold weather would hamper activity in the winter months.

The primary vegetation is mixed fir-hemlock-cedar-spruce. The landforms are typical alpine terrain of the Selkirk Mountains which contain uplifted, foliated and folded intrusive, meta-sedimentary and meta-volcanic rocks.

6.0 COPELAND PROPERTY HISTORY

During 1964, several claims (Joan and Knox) were staked on the north side of Copeland Ridge in the vicinity of the existing claim. These claims were purchased by King Resources Company from Gulliver Mining and Exploration in January 1965. Additional staking in the area of the existing workings was accomplished during the summer of 1965. In 1966, the "Glacier Zone" was discovered, channel samples were taken, the zone was mapped, and a bulk sample was shipped to Colorado School of Mines Research Foundation for analysis and preliminary metallurgical testing. A short field season did not allow time for further work on the property until 1967 when 6 diamond drill holes were collared on the Glacier Zone. Encouraging drill results led King Resources to initiate an underground operation on the north side only. In 1967, approximately 700 feet of cross-cutting and drifting took place on the north side (Glacier Zone), and Interior Engineering Services Ltd provided a geodetic and astronomic survey of the Glacier Zone. In 1968, King Resources excavated a 6,000 ft (1,828.8 m) adit cross-cut and 600 ft (182.9 m) raise. Access to the site was via a 11 km long road along the north side of Hiren Creek valley and a camp was erected near the south portal.

The following consultants and contractors have prepared various reports and/or worked on certain aspects of the Copeland molybdenum mine: 1) George Wilson – geology, 2) M.C. Robinson – geology, 3) Interior Engineering Services Ltd. – Surveying, Road, Power, and Water, 4) Colorado School of Mines Research – Ore Beneficiation, 5) Versatile Engineering – General Contractors, 6) Rupert Drilling – Underground drilling contractors, 7) Chapman, Wood, & Griswold Ltd. – General Advisory, 8) E.H. Robinson – Mill Design.

Recorded production from 1970 to 1973 comprised 191,126 tonnes. A total of 169,729 tonnes of ore was milled produced 1,190,713 kilograms (2,622,715 pounds) of molybdenum (source: MINFILE).

In 1996, Discovery Consultants staked the Copeland claim and completed a program of whole rock sampling of the nepheline syenite body located south of the molybdenite occurrence. A total of 8 different sites were sampled and results indicated that sampling of nepheline syenite and nepheline syenite gneiss on the property shows that several samples fall within the range of commercial deposits exploited for the use as an industrial mineral and recommended detailed mapping and sampling on the property to define the grade and assess the extent of high-purity grade nepheline syenite on the Copeland claim.

In 2008, Torch R Res Ltd carried out diamond drilling (see section 11), and soil geochemical analysis and magnetometer geophysics. Soil geochemistry identified a 150 X 100 m area which averaged 673.4 Mo in soil located near the old workings. This Mo in soil anomaly extends east of the adit and suggests there are extensions of the old workings to the east. Also, a new Mo in soil zone was identified in the West Basin where 3 samples returned anomalous Mo (average value 190.1 ppm Mo). The West Basin Zone is located 450-550 m west of the adit. Additional anomalous Mo in soil (501 ppm Mo) was detected directly below the Sub-Portal Zone (located 100 m NE of adit), and can be considered an additional target for future exploration.

In 2008, Torch R Res magnetometer surveys were carried out on E-W surveyed tie lines. A well defined 1000-2000 nT (high intensity) positive total field anomaly (about 300 m in length) was identified. This magnetometer anomaly is associated with the marble bands located in the Marble Breccia Ridge Zone. This positive magnetometer anomaly suggests the presence of massive magnetite (and/or pyrrhotite) and related skarn type mineralization. There are some old trenches in this area, but a reconnaissance soil geochemical analysis of this area in 2005 resulted in little or no anomalous Mo values (Note-REE, Y, Nb, Th was not analyzed).

The Marble Breccia Ridge Zone contains 4 positive total field anomalies identified by a magnetometer survey carried out in 2008. These positive total field magnetic anomalies (moderate strength 200-500 nT increase, strong >500 nT increase) are listed as follows:

Easting	Northing	Elevation	Relative strength	Zone Name
397350	5665500	2320 m	Moderate	West Basin
397500	5665350	2340 m	Strong	Marble Bx Ridge
397550	5665350	2335 m	Moderate	Marble Bx Ridge
397650	5665300	2340 m	Strong	Marble Bx Ridge
397600	5665250	2410 m	Moderate	Marble Bx Ridge
397690	5665250	2395 m	Moderate	W Glacier

The magnetometer survey strong anomalies are located in an area of marble with extensive zones of pyrrhotite and/or magnetite/ilmenite replacement mineralization which coincides with elevated REE geochemical analysis of rock chips taken in 2010 for Torch R Resources (COPE10AR-22 to 26 are from Marble Bx Ridge). These geophysical anomalies represent potential for buried sulphide/oxide REE bearing mineralization and are high priority follow-up drill targets.

7.0 GEOLOGICAL SETTING

The Copeland claim lies within the Shuswap Metamorphic Complex, a narrow belt of high grade (amphibolite-granulite facies) metamorphic rocks flanked to the north and south by the Aphebian (i.e. Canadian, Proterozoic orogeny) 'Frenchman's Cap' gneiss dome. This 'migmatitic core gneiss' is considered to be the center of the Shuswap Metamorphic Complex with fringes containing meta-sedimentary and meta-volcanic rocks that are intruded by syenite (pegmatite/aplite phases present suggesting >10 km depth of burial), and subsequently folded and displaced by at least 3 different phases of deformation. The metasedimentary rocks comprise a series of rock units comprised of biotite schist, grey schist, white quartzite, calc-silicate gneiss, marble and grey gneiss. Concordant bodies of nepheline syenite gneiss occur within the calc-silicate gneiss and marble unit. The margins of the syenite bodies are nepheline-free, which may be the result of reaction with enclosing rocks. Amphibolite grade metamorphism occurring on a regional scale at the margins of the Frenchman's Cap gneiss dome has produced sillimanite-kyanite, sillimanite, and sillimanite-potassic feldspar bearing assemblages in pelitic rocks. Calc-silicate assemblages contain diopside, garnet & actinolite. Carbonates are re-crystallized to medium and locally coarse-grained granoblastic marbles.

The following lithologies (distinct rock units) are present on the Copeland claim:
PROTEROZOIC (PRE-CAMBRIAN)
8- Syenite Aplite/Syenite Pegmatite: K-feldpsar, kaolinite, sericite, calcite, biotite, pyrrhotite, pyrite, molybdenite, ilmenite, chalcopyrite, scheelite
7- Hangingwall Syenite Gneiss, Nepheline Syenite: microcline/oligoclase, green/brown mica, chlorite, accessory apatite, zircon, & sphene
6- Biotite-Amphibole Marble: weathered and deeply pitted appearance, biotite, hornblende, chlorite, marble, actinolite, diopside
5- Black Biotite Amphibole Gneiss: schistose, biotite, hornblende, chlorite, oligoclase, magnetite
4- Quartzite Gneiss: massive feldspar, granular texture, interbedded marble bands with actinolite and diopside
3- Footwall Schist: massive biotite, minor feldspar, chlorite
2- Footwall Syenite Gneiss: brown weathering, microcline/oligoclase, green/brown mica, chlorite
1- Green Diopside Gneiss: 50% feldspar, 10-35% biotite, 2-10% green diopside,

The 8 listed and physically distinct rock units have been subjected to 3 phases of deformation. The oldest folds are recumbent and isoclinal with deformed axial surfaces and shallow easterly or westerly plunging axes. Second phase of folds have overturned axial surfaces which dip steeply to the southwest and south. A broad curvature of foliation around the southwest portion of the Glacier Zone is referred to as a phase 3 fold. Lenses of syenite pegmatite or syenite aplite are common along the northern border of the nepheline syenite unit, and because of their concentrations of molybdenum, are the main focus of economic interest. Characteristically, the syenite aplite/pegmatite are parallel with foliation, but locally they cross it. Massive disseminated molybdenite occurs randomly in the aplite and pegmatite lenses, and to a lesser extent in calc-silcate gneisses

adjacent to the syenite-gneiss contact. During the life of the Copeland moly mine, almost all the production was from the aplite-pegmatite bodies within the syenite gneisses; more specifically the Glacier Zone, which is 1-10 meters thick and exposed for 121 meters along strike. The Glacier Zone occurs in a digitation of either a fold limb or a sill of syenite gneiss in the calc-silcate gneiss unit. In these digitations, the syenite gneiss appears to be free of nepheline.

8.0 DEPOSIT TYPES

The 6950 Glacier Zone (2030-2075 m elevation) consists of vein/replacement molybdenite mineralization that is hosted in metamorphosed soda syenite. Sulphide mineralization is associated with late-stage differentiates including sugary textured aplite and very coarse-grained microcline megacrysts (pegmatite). In addition to aplite/pegmatite veins, zones of pyrite-pyrrhotite-magnetite mineralization are associated with abundant calcite and inter-layered marble suggesting this deposit type can also be classified as a metamorphosed skarn.

In the 7000 Glacier West Zone (2120-2160 m elevation), calcite (marble) occurs as 1-5 cm wide lenses, streaks, granoblasts, and massive 5-15 m wide layers. The calcite is present in small amounts and locally prominent in the syenite gneiss. The distribution of calcite-diopside-epidote in the syenite/gneiss contact zone suggests a skarn fluid metasomatic process of mineral emplacement (i.e. calcic skarn mineralization), however the environment of formation i.e. replacement 'exoskarn' versus within intrusion 'endoskarn' or replacing earlier skarn alteration 'retrograde skarn' is still in question. The 7000 Glacier West Zone is the location of a 1000-2000 nT positive magnetometer anomaly, suggesting the presence of massive magnetite and/or pyrrhotite associated with this marble band.

Mount Copeland nepheline syenite complex geologically correlates with the west flank of the Frenchman's Cap gneiss dome, which includes REE enriched deposits located along the Perry River/Ratchford Creek and Mount Grace areas. The Glacier Zone geochemical survey indicates there is anomalous Nb and Ce near the adit and may be related to granitic intrusions that are associated with molybdenite-pyrite-ilmenite-magnetite-chalcopyrite mineralization Mount Copeland nepheline syenite has high background values of rare earth elements such as Nb, Rb, Nd, Ce, La, and Y (with significant values of Zr, Sr, and Ti). REE bearing minerals monazite-columbite-tantalite (and other complex unidentified minerals) are hosted in marble, calc-silicate, and syenite (pegmatite and aplite phases). REE mineralization occurs in a tabular zone roughly parallel to and approximately 100 meters uphill from the (110 trending, 25-50 degree south dipping), Copeland Glacier Zone Mo deposit (King Res underground workings, 1970-73)

9.0 MINERALIZATION

In the syenite gneisses, feldspars are clouded by kaolinite alteration or stained pink by sericite-calcite alteration. Biotite is locally chloritized. The pegmatite-aplite zones are similarly altered. Epidote and chlorite coat late-stage fractures in the rocks. Veinlets

commonly consist of calcite, potassium feldspar or rarely, quartz. Minor constituents of the syenite gneiss include zircon, sphene, apatite, magnetite and minor fluorite, pyrite, pyrrhotite, magnetite, ilmenite, molybdenite, & chalcopyrite. Lenses of molybdenite-bearing syenite aplite and syenite pegmatite have been folded into tightly compressed, overturned (phase 2) folds plunging 15 degrees southeast. The axial surfaces dip at moderate angles to the south. The contacts between aplite, pegmatite, and/or syenite gneiss may be either sharp or gradational. Pegmatite and aplite have similar mineralogies. Both are leucocratic relative to the enclosing gneisses but both have mafic-rich folia and lenses. Potassium feldspar is the dominant mineral. Locally, the pegmatite matrix consists of masses of calcite that contain clusters of biotite, pyrrhotite, pyrite, ilmenite. Minor amounts of zircon are present; quartz is rare but occurs interstitially or as vug fillings. The iron oxide minerals magnetite and ilmenite are common, locally forming equant grains and blebs to 2 cm across. Sulphide minerals present include pyrite, pyrrhotite, molybdenite, and rare chalcopyrite. The sulphide mineral trends (including the 6950 Glacier, 7000 Glacier West, 6420 Pegmatite, 6400 Quartz-Gneiss, 6,300 J-5, 6650 East Basin) are all roughly sub-parallel, and trend at 110 degrees, dipping 30-70 degrees to the south.

Molybdenite has a number of habits; it may be disseminated, form clumps and rosettes of crystals along hairline cracks, fill vugs, or occur as intergrowths in calcite, sericite, and/or potassium feldspar. Large crystals of molybdenite contain inclusions of potassium feldspar, calcite and zircon. Molybdenite also occurs in potassium feldspar crystals, and commonly concentrated around potassium megacrysts in the syenite pegmatites as well as aplitic texture syenite. Pyrite and pyrrhotite are distributed as disseminations, fracture fillings and vug infillings adjacent to molybdenite mineralization. Molybdenite mineralization in rock chip samples COPE10AR-3, 4 & 5 contains significant Nb values:

rock no	% Mo	ppm Ce	ppm La	ppm Nd	ppm Pr	ppm Sm	ppm Y	ppm Dy	ppm Nb	% Ti	Ppm Zr
10AR-3	**0.95**	**1855**	**1105**	**531.2**	**165.5**	47.4	113	24.5	**3760**	**0.966**	**079**
10AR-4	**1.33**	297.8	187.3	80.3	26.6	10.4	39.1	7.5	**3450**	**2.587**	19
10AR-5	**0.56**	142.9	79.7	45.1	14.2	6.7	18.6	4	**18500**	**1.396**	11

Elevated REE, Y, Nb, Ti and Zr geochemical values are associated with mineralized pegmatitic, aplitic, and breccia textured nepheline syenite gneiss. Petrographic descriptions were done by Vancouver Petrographics Ltd on 3 rock chip samples; COPE10AR-3, 20 & 22, that contained the highest REE values (Appendix C). These 3 rock chip samples consist of leucocratic syenite, unknown and syeno-monzonite gneiss host rock (respectively). The REE bearing minerals include: COPE10AR-3: monazite? (pyrite-green biotite-chlorite-carbonate-phlogopite-sphene-magnetite gangue). COPE10AR-20: REE oxides? Columbite? Allanite? (iddingsite?-amphibole-carbonate-quartz-plagioclase-sphene gangue). COPE10AR-22: REE oxides (K-feldspar-plagioclase-pyrrhotite-pyrite-marcasite-limonite-carbonate-sphene gangue).

10.0 DRILLING (HISTORIC AND RECENT)

Eight diamond drill holes were located in the area of the 6950 Glacier Zone by King Resources Company in 1970. These drill holes intersected significant Mo values as indicated below:

DDH No. (year drilled, s-surface	DIP	AZIMUTH	END OF HOLE m. (ft.)	FROM m. (ft.)	TO m. (ft.)	INTERVAL m. (ft.)	% Mo
S701 (s-1970)	-80	0	30.17 (99)	7.32 (24)	21.64 (71)	14.32 (47)	0.14
S702 (s-1970)	-80	75	36.88 (121)	23.16 (76)	27.13 (89)	3.96 (13)	0.095
S703 (s-1970)	-45	15	42.06 (138)	16.46 (54)	19.51 (64)	3.05 (10)	0.15
S704 (s-1970)	-80	315	38.71 (127)	21.34 (70)	35.05 (115)	13.72 (45)	0.218
S705 (s-1970)	-70	15	36.58 (120)	17.37 (57)	23.32 (76.5)	5.94 (19.5)	0.083
S706 (s-1970)	-80	15	57.61 (189)	26.82 (88)	36.88 (121)	10.06 (33)	0.235
S707 (s-1970)	-65	35	50.29 (165)	31.39 (103)	35.97 (118)	4.57 (15)	0.187
S708 (s-1970)	-45	320	63.40 (208)	58.52 (192)	61.11 (200.5)	2.59 (8.5)	0.454

Source- King Resources 1970 diamond drill core sampling data, BC Ministry of Energy & Mines, Property File

Torch River Resources Ltd completed a program of diamond drilling, geological, geochemical and geophysical fieldwork on mineral tenure 501827 during August and September, 2008. Fieldwork consisted of 2,212.8 m (7,258 ft) of NQTW core drilling, 2.8 km grid lines for magnetometer survey, and a total of 53 soil (talus fines) samples were collected. Diamond drilling carried out on 2008 identified several new molybdenite bearing mineral zones located in the East Basin and West Glacier Zones. Highlights of geochemical analysis from the East Basin and Glacier West Zones are summarized from diamond drill hole data in the following table:

DDH No.	Zone Name	FROM (m)	TO (m)	WIDTH (m)	Sample ID No.	% Mo
COP08-2	Glacier W	37.39	39.53	2.14	071	**0.068**
COP08-4	Glacier W	38.7	39.1	0.4	173	**0.061**
COP08-8	East Basin	116.8	117.2	0.4	414	**0.137**
COP08-8	East Basin	127.6	128	0.4	424	**0.086**
COP08-8	East Basin	161.55	161.85	0.3	446	**0.416**
COP08-9	East Basin	151.3	154	2.7	519, 520, 521	**0.214**
COP08-9	East Basin	152.4	153.1	0.7	520	**0.527**

Previous drilling has focused on the molybdenum bearing aplitic phases nepheline syenite complex. The new area of attention is the marble ridge (pyrrhotite-magnetite) breccia zone (rock chip samples COPE10AR-22 to 26), located approximately 100 meters uphill from the Glacier Mo zone. The area represents a significant REE, Y, Nb, Ti, Zr bearing mineral potential, and the east and west extension of this mineral trend are high priority diamond drill targets.

11.0 FIELDWORK RESULTS, AUGUST, 2010

11.1 ROCK GEOCHEMISTRY SURVEY (2010)

1) Rock chip sampling- A total of 34 rock chip samples were taken on the Glacier, East Glacier and West Basin mineral zones (Fig. 4-7). The samples were collected from outcrop exposures of 18-250 cm in length. .

Significant Mo, REE, Y, Nb, Ti & Zr (2010 Rock Chip Samples)

rock no	% Mo	ppm Ce	ppm La	ppm Nd	ppm Pr	ppm Sm	ppm Y	ppm Dy	ppm Nb	% Ti	Ppm Zr
10AR-1	**0.63**	165.2	79.7	49	15.1	7.1	31.3	5.7	94.9	0.058	4
10AR-2	0.49	132.1	44.3	36.2	12	4.1	8.2	1.8	74.2	0.094	3
10AR-3	**0.95**	**1855**	**1105**	**531.2**	**165.5**	47.4	113	24.5	**3760**	**0.966**	**979**
10AR-4	**1.33**	297.8	187.3	80.3	26.6	10.4	39.1	7.5	**3450**	**2.587**	19
10AR-5	**0.56**	142.9	79.7	45.1	14.2	6.7	18.6	4	**18500**	**1.396**	11
10AR-9	**0.77**	103.3	51.8	36.2	10.7	6.2	32.3	5.4	**641.9**	**0.771**	5
10AR-10	**1.2**	116.3	66	33.5	11.2	4.7	11.7	2.2	43.9	0.037	16
10AR-11	0.1	396.1	170.1	128.8	39.8	23.1	**101.1**	18.5	84.2	0.287	5
10AR-12	0.01	**1110**	**638**	**241**	92.6	23.2	66.1	12.1	255	0.287	**638**
10AR-14	0.19	35.5	20.1	11.3	3.5	1.7	4.1	0.8	18.2	0.055	1
10AR-15	0.21	96.3	47.4	39.4	10.7	6.3	19.5	3.9	23.8	0.117	8
10AR-19	0.01	**754**	**742.5**	**175.5**	61.2	22	76.5	11.8	**236**	**1.466**	**1865**
10AR-20	0.01	**131000**	**102000**	**17650**	**7700**	**1200**	**623.8**	**284.1**	**527.4**	**2.928**	**6190**
10AR-22	0.01	**18450**	**18200**	**2550**	**1185**	**209.6**	**414.8**	**80.1**	31.4	0.277	136
10AR-23	0.01	**1270**	**1205**	**176.3**	87.1	23.1	**103.8**	16.7	73.5	0.361	484
10AR-24	0.21	183	164.1	37.4	13.3	4.6	23.2	3.7	22.1	0.171	6
10AR-25	0.01	593	**722.3**	99.9	43.3	13.7	**106.9**	17.2	147.1	0.566	219
10AR-26	0.22	**1440**	**1520**	**166.8**	09.2	24.6	**152.4**	20.6	38.3	0.254	95
10AR-27	**0.92**	23.5	15	7.5	2.3	1.3	3.4	0.7	32.1	0.227	6
10AR-28	0.43	191.4	129.7	45.8	15.8	6.7	25.3	4.4	89.6	0.486	12
10AR-30	**3.4**	175.1	99.4	70	20.6	12.6	38.5	8.5	126.8	0.06	7

2010 Rock Chip Sample Descriptions

rock no	width cm	elev m	strike	dip	zone name	comments
10AR-1	100	2056	100	45 S	Glacier Mine	K-spar, kaol, chlorite, trace pyo
10AR-2	120	2053	105	48 S	Glacier Mine	K-spar, kaol, chlorite, trace pyo
10AR-3	60	2046	100	45 S	Glacier Mine	K-spar, kaol, chlorite, trace pyo
10AR-4	100	2076	103	47 S	Glacier Mine	450 cm wide peg-aplite zone
10AR-5	100	2079	100	39 S	East ext, Glacier	K-spar, chlorite
10AR-9	200	2059	114	52 S	East ext, Glacier	K-spar, kaol, chlorite, trace pyo
10AR-10	100	2055	112	50 S	East ext, Glacier	K-spar, kaol, chlorite, trace pyo
10AR-11	52	2032	115	51 S	East ext, Glacier	K-spar, kaol, chlorite, trace pyo
10AR-12	float	1980			Sub-portal	angular float, 1% magnetite
10AR-14	200	1939	140	62 SW	J-5	increased limonite-chlorite with Mos2
10AR-15	20	1977	135	20 S	Sub-portal	3 m north is open cut
10AR-20	18	2270	110	48 S	East Glacier	red-yellow-brown gossan in cliff
10AR-22	70	2170	101	39 S	West Marble Ridge	350 cm wide py-pyo-ank skarn band
10AR-23	180	2169	100	30 S	West Marble Ridge	275 cm wide py-pyo-ank skarn band
10AR-24	280	2181	100	50 S	West Marble Ridge	limonitic aplite-carbonate breccia contact
10AR-25	25	2204	100	34 S	West Marble Ridge	limonitic aplite-carbonate breccia contact
10AR-26	30	2218	100	34 S	West Marble Ridge	limonitic aplite-carbonate breccia contact
10AR-27	25	2212	115	62 S	West Marble Ridge	limonitic aplite-carbonate breccia contact
10AR-28	22	2203	105	63 S	West Basin	K-spar, kaol, chlorite, trace pyo
10AR-30	float	2171	float		West Basin	K-spar, kaol, chlorite, trace pyo

REE bearing mineralization occurs in the East Glacier Zone (e.g. rock chip sample COPE10AR-20). The East Glacier and Marble Bx Ridge Zones are about 500 meters apart, but they occur on the same stratigraphic horizon and may be part of an extensive REE bearing mineral zone trending east under the glacier and/or west (towards the west basin). In addition to REE bearing mineralization, a zone of elevated molybdenum and coincident niobium occurs in the east extension of the Copeland underground workings. This area has been targeted for possible extensions of Mo bearing mineralization, but this zone appears to have elevated Mo-Nb-Ti (e.g. rock chip sample COPE10AR-4 & 5). Also, directly adjacent to the underground workings there is a rock chip sample that contains elevated Mo-REE-Nb-Ti (rock chip sample COPE10AR-3).

In 2008, Torch R Res carried out magnetometer surveys on the Marble Breccia Ridge Zone where 4 positive total field anomalies were identified. These positive total field magnetic anomalies (moderate strength 200-500 nT increase, strong >500 nT increase) are listed as follows:

Easting	Northing	Elevation	Relative strength	Zone Name
397350	5665500	2320 m	Moderate	West Basin
397500	5665350	2340 m	Strong	Marble Bx Ridge
397550	5665350	2335 m	Moderate	Marble Bx Ridge
397650	5665300	2340 m	Strong	Marble Bx Ridge
397600	5665250	2410 m	Moderate	Marble Bx Ridge
397690	5665250	2395 m	Moderate	W Glacier

The magnetometer survey strong anomalies are located in an area of marble with extensive zones of pyrrhotite and/or magnetite/ilmenite replacement mineralization which coincides with elevated REE geochemical analysis of rock chips 10AR-22 to 28 from Marble Bx Ridge.

The geological setting for the Copeland molybdenite-REE occurrence is within concordant bodies of nepheline syenite gneiss that occur adjacent to the calc-silicate gneiss and marble unit. The syenite have locally developed an augen texture with large porphyryblasts of K-feldspar in a fine-grained groundmass. Calc-silicate assemblages contain diopside, garnet and actinolite. Carbonates and carbonatites are re-crystallized to medium and locally coarse-grained granoblastic marbles. Lithologies present are summarized as follows:

PROTEROZOIC (PRE-CAMBRIAN)
8- Syenite Aplite/Syenite Pegmatite: K-feldpsar, kaolinite, sericite, calcite, biotite, fluorite, garnet, sphene, specularite, pyrrhotite, pyrite, molybdenite, ilmenite, chalcopyrite, scheelite, tourmaline, apatite, riebeckite, poikilitic aegirine, zircon, zeolite, cancrinite, and analcite
7- Hangingwall Syenite Gneiss, Nepheline Syenite: K-feldspar, green/brown phlogopite, calcite, chlorite, accessory apatite, zircon, sphene, tourmaline, sphene, apatite, riebeckite, poikilitic aegirine, zircon, fluorite, zeolite, cancrinite and analcite
6- Biotite-Amphibole Marble: weathered and deeply pitted appearance, biotite, hornblende, chlorite, marble (granoblastic), actinolite, diopside
5- Black Biotite Amphibole Gneiss: biotite, hornblende, chlorite, oligoclase, magnetite
4- Quartzite Gneiss:feldspar, granular, interbedded marble bands, actinolite & diopside

Unit 6 (biotite-amphibole marble) has extremely high soda and potash content, and this is likely attributed to fenitization, caused by peralkaline fluids. These fluids are thought to complex and transport REE, associated with minerals such as apatite, zircon, pyrochlore, allanite, monazite and bastnaesite.

11.2 SOIL GEOCHEMISTRY SURVEY (2010)

Soil sampling- A total of 72 soil (talus fines) samples were collected. All 72 soils were taken at 25 m spacing along E-W survey lines. The lines were surveyed with a Garmin 60Cx GPS. A total of 41 soil samples were obtained in a 400 X 200 m area north, east and south of the adit (at 2,031 m., 6,664 ft elevation). In addition, 10 soil samples were gathered from a 100 X 200 m area adjacent to the East Glacier showings (400-500 meters SE of Glacier Zone adit), and 21 soil samples (covering a 350 X 150 m area) were collected from the West Basin, a new mineral zone (located 450-550 m west of Glacier Zone adit, and is the extension of the Marble Breccia Ridge Zone).

The soil geochemical survey consisted of a total of 72 samples taken at 25 m grid spacing. Each sample consisted of 300-500 gms of talus fine material that was collected using a hoe and placed in marked kraft envelopes and dried. The soil samples were shipped to Pioneer Labs, Richmond, BC for lithium borate fusion preparation REE suite ICP-MS. Soil geochemical analysis identified what can be considered an additional target for future exploration.

Mean average values for elements listed, from 72 soil samples geochemically analyzed:

Ce	Dy	Er	La	Nd	Pr	Sm	U	Y	Nb	Ti
519.0 ppm	19.0 ppm	11.0 ppm	389.6 ppm	170.5 ppm	60.0 ppm	29.0 ppm	21.5 ppm	104.7 ppm	323.3 ppm	0.98 %

A new zone of rare earth, yttrium, niobium and titanium has been outlined from August, 2010 rock chip and soil sampling. Elevated rare earth values occur notably on Marble Breccia Ridge, a distinct 5-50 m wide band of marble (breccia texture near contacts), and gossan (rusty coloured iron oxides) caused by pyrite-pyrrhotite. Marble Breccia Ridge contains zones of disseminated and fracture filling pyrrhotite-magnetite resulting in a strong (>2,000 nT), positive total field magnetometer survey anomaly zone. Significant rare earth (cerium, lanthanum, neodymium,, thorium, yttrium, niobium and titanium values (certificate number 2102718A), from Aug, 2010 soil samples are summarized in the following table:

Northing	Easting	Zone Name	Ce ppm	La ppm	Nd ppm	Th ppm	Y ppm	Nb ppm	Ti %
5665500	397000	Marble Bx R	**>1,000**	756.1	264.1	87.0	126.1	460.3	0.509
5665500	397025	Marble Bx R	785.1	442.2	220.9	43.2	140.9	523.7	0.611
5665500	397975	J-5 6,300'	802.6	475.4	190.1	86.8	115.0	530.2	0.918
5665500	397275	Marble Bx R	644.9	409.3	183.3	58.2	139.1	242.0	1.051
5665550	397300	Marble Bx R	661.3	430.5	173.0	88.3	120.7	288.4	1.057
5665550	397125	Marble Bx R	636.3	346.9	164.8	57.9	95.4	595.9	1.055
5665550	397250	Marble Bx R	733.8	463.5	195.1	114.9	127.9	338.1	1.922
5665550	397275	Marble Bx R	881.5	441.2	213.8	71.0	161.5	232.1	1.559
5665550	397925	J-5 6,300'	535.3	256.7	146.4	48.5	95.1	297.5	1.003
5665550	397975	J-5 6,300'	652.7	385.9	149.3	68.8	88.8	468.1	1.041
5665050	398100	East Glacier	**>1,000**	643.2	237.8	102.9	143.2	454.7	2.101
5665100	398100	East Glacier	**>1,000**	813.7	241.9	113.7	139.9	558.1	1.674
5665300	397650	Marble Bx R	624.6	335.2	210.2	53.7	88.4	146.7	1.868
5665300	397675	Marble Bx R	806.4	522.8	160.6	104.5	88.8	554.5	0.570
5665400	397650	Marble Bx R	784.8	553.8	153.3	115.2	100.9	277.8	0.454
5665400	397675	Marble Bx R	**>1,000**	747.0	225.8	184.6	143.6	292.1	1.333
5665400	397725	Glacier E Ext	589.2	372.5	153.8	82.0	86.7	234.5	1.126
5665400	397750	Glacier E Ext	756.7	421.4	231.1	71.2	158.0	245.2	1.884
5665400	397775	Glacier E Ext	786.2	436.8	240.8	93.1	151.8	199.1	2.433
5665400	397775	Glacier E Ext	**>1,000**	658.9	275.4	88.3	173.6	561.4	1.033
5665450	397800	Glacier E Ext	646.0	399.5	183.6	67.1	115.3	235.4	1.479
5665450	397875	Glacier E Ext	764.1	445.5	191.3	97.7	131.3	465.3	0.917
5665450	397900	Glacier E Ext	994.0	535.9	228.2	74.1	152.0	610.5	1.017
5665000	398050	East Glacier	**>1,000**	776.5	258.2	187.6	156.0	438.0	1.446
5665000	398075	East Glacier	**>1,000**	875.8	229.8	189.0	148.5	432.8	0.986
5665000	398100	East Glacier	**>1,000**	841.0	263.3	129.4	146.2	469.3	0.977
5665000	398125	East Glacier	**>1,000**	**>1,000**	476.2	163.8	193.4	435.2	1.023
5665000	398150	East Glacier	**>1,000**	723.3	303.4	96.9	181.4	254.6	3.082

Note- Uranium values range from 7.9-67.3 ppm, and average <25 ppm

The East Glacier and Marble Breccia Ridge zones do not have any ore grade Mo & Cu values associated with REE minerals, but the Glacier East Extension and J-5 6,300' zones that are elevated in Mo & Cu values are spatially related to above average REE, yttrium, niobium & titanium geochemical analysis values. Soil geochemical analysis identified what can be considered an additional target for future exploration, the East Glacier Zone has the highest overall Ce-La-Nd-Th-Y in soil anomalous values, especially near where sample COPE10AR-20 is located. This area is a high priority follow-up exploration target (and it is situated near a cliff and a glacier).

12.0 SAMPLING METHOD AND APPROACH

Rock chip samples were collected from outcrop exposures of 18-250 cm in length. The rock samples were collected using hammer and moil perpendicular to strike of mineral trend. Rock chip samples consist of 1-3 kilograms of acorn sized rock fragments from hammering outerop (or float). Sample material collected was placed in marked poly ore bags and shipped to Pioneer Labs, Richmond, BC for 30 element ICP, and REE suite elements, and over detection limit Mo, Cu assays. The rock chips that were over detection limit for REE suite (8 out of 34, including COPE10AR-3, 12, 19, 20, 22, 23, 25 & 26), were sent to ALS Chemex, N Vancouver BC, for ME-MS81 REE and trace element ICP-MS analysis. One sample (COPE10AR-20) was sent to SGS Canada, Lakefield ON, for La, Ce and Pr assays. Of the 34 total rock chip samples, 11 were float in overburden, not outcrop samples (i.e. not in-situ, but angular in shape and not originating from great distances). Rock and soil samples were shipped to Pioneer Labs for lithium borate fusion, acid dissolution and ICPMS analysis for rare earth elements (14 of 15 analyzed, Promethium, Pm not analyzed), trace elements, and assays for Mo and Cu for select elevated rock chip samples (geochemical analysis certificate numbers 2102718, 2102718A, & 2102718B).

The soil (talus fine) samples consist were taken from a thin veneer of 'C' horizon (weathered parent material), because essentially there is no developed soil horizon at the elevation of the survey (2,000-2,200 m above sea level). Talus fine material was collected with a hoe and 72 samples were collected, placed in marked kraft bags, dried and shipped to Pioneer Labs, Richmond, BC

13.0 SAMPLE PREPARATION, ANALYSES AND SECURITY

A total of 34 rock chip, and 72 soil samples were shipped to Pioneer Labs, Richmond BC. A total of 8 of the rock chip samples (with significant REE values) were shipped by the writer to ALS Chemex Labs, N Vancouver BC, where ME-MS81 analysis was done which involves lithium borate fusion and multi-element ICP-MS for REE mineral suite. Over detection La, Ce and Pr limits were exceeded in sample COPE10AR-20, and this sample pulp was shipped to SGS Canada Inc, Lakefield, ON. Sampling and geochemical analysis from 2010 rock chip and soil sampling were carried out using relevant and reliable methods. The samples were prepared using standard analytical procedures by Pioneer Labs, Richmond, B.C. This includes crushing the rock chip samples, and passing through -10 mesh, and splitting 250 grams and pulverizing and passing -150 mesh. Multi-element ICP analysis was done on all samples which involves taking 0.5 grams sample and digesting with 3 ml of aqua regia, diluted with 10 ml water. Mo analysis uses 1 gram sample digested with 50 ml aqua regia, diluted to 100 ml with water and is finished by ICP/ES. The soil samples shipped to Pioneer Labs were dried and screened to -180um. There are no reasons to suspect that samples were unsecure and tampered with.

14.0 DATA VERIFICATION

Repeat sampling and/or check/blank/standard sample inserts were not carried out on rock chip or soil samples. Future trenching and drilling samples require inserts of blanks and standard mineral samples for data verification.

15.0 ADJACENT PROPERTIES

River Jordan (MINFILE 082M 001) is located approximately 2 km east of mineral tenure 501827. River Jordan is a developed prospect and a 1961 resource estimate from CIM Bull 57, page 48 states River Jordan contains a total of 2,605,826 tons grading 37.7 g/t Ag, 5.1% Pb and 5.6% Zn. River Jordan is classified as a stratabound Broken Hill type Ag-Pb-Zn-(Cu). Other nearby mineral deposits (10-20 km radius) include Cottonbelt Ag-Pb-Zn, J & L Au-Ag-As-Pb-Zn, and Goldstream Cu-Zn-Ag, all of which are stratabound base and precious metal bearing mineral occurrences.

16.0 MINERAL PROCESSING AND METALLURGICAL TESTING

In 1967-68, Colorado School of Mines Research Foundation Inc conducted two series of metallurgical bench tests on samples submitted to them by King Resources Company (Wood, 1969). The first series, completed in March, 1967, was on a 500 pound (226.8 kilogram) sample taken from the surface exposure of the 6950 Glacier Zone. The second series, completed in June, 1968, was on one sample from the 6950 Glacier Zone and one sample from the peripheral zone. Test were conducted to determine optimum size grind, necessity for regrinding the rougher concentrate, dispersants or depressants required, impurities in the concentrate, optimum pH modifiers, tailings effluent composition and tailings settling requirements. Metallurgical test results indicate:

1) Finer grind does increase recovery, but 65 mesh size is sufficient to give desired concentrate grade if reagents are used in flotation circuit for control of iron sulphides and other gangue minerals.

2) The ore is amenable to production of high grade, high recovery concentrate using regrinding and dispersants, but other tests produce similar results without regrinding.

3) The use of dispersants and depressants are necessary to provide and acceptable concentrate grade.

4) Impurities are present, as indicated below, but are low enough to satisfy market requirements:

Zone	% Cu	% Pb	% P	% Sn + As	% Insoluble	% Fe
Glacier	0.04	0.014	0.003	<0.01	1.59	0.86
Peripheral	0.026	0.050	0.004	<0.04	1.91	1.91

A spectrographic analysis reveals the presence of silver in quantities too small to be significant. Arsenic, bismuth and lead impurities are either absent or insignificant.

5) The use of soda ash as a pH modifier was shown to be superior to lime insofar as a higher concentrate grade is concerned.

6) A tailing water effluent test was conducted using the equivalent reagent quantities. The conclusions drawn were that the pine oil, sodium silicate and sodium carbonate are not added in sufficient quantities to be considered pollutants. The cyanide exists mostly mostly as the radical $M(CN)_x$ and not as the iron (CN)-, it resists decomposition, and is considered stable.

7) Utilizing a tailings thickener has been recommended to minimize groundwater pollution.

8) Metallurgy of the Glacier Zone appears to be relatively uncomplicated:
-Apparent optimum grind is 75-80% at -65 mesh
-Concentrate ratio is 25-30 to 1
-Moisture content of concentrate is 10-12%
-Concentrate production from a 200 tons/day mill is approximately 8 tons/day
-Percentage recovery is 93%
-Concentrate grade is 90-92% MoS_2
Reagents used: Fuel oil (standard petroleum product), Syntex L (sulphated monoglyceride of coconut oil, a detergent), pine oil (terpineal derivative from pine trees), Separan MGL (high molecular weight synthetic polymer), sodium cyanide (depressant), sodium silicate (dispersant), sodium carbonate (pH control and flotation agent).

These metallurgical tests are dated (1967-68), and do not conform with present day industry standards and sampling protocol, the data generated by Colorado School of Mines Research Foundation can not be relied upon.

17.0 MINERAL RESOURCE AND MINERAL RESERVE ESTIMATES

There are no categorized mineral resources and mineral reserve estimates on the subject property.

18.0 OTHER RELEVANT DATA AND INFORMATION

Three rock chip samples taken by Discovery Consultants in 1995 on Copeland Ridge (2.378-2,432 m elevation) were tested for suitability for high-purity nepheline syenite (nepheline, potash and soda feldspar with minor biotite, hornblende and magnetite accessory minerals), used in glassmaking, ceramics, glazes, cleaning compounds, insulators, dental spar, and flux coatings. A typical chemical analysis for high-purity nepheline syenite is 60% SiO_2, 23.6% Al_2O_3, 0.07% Fe_2O_3, 0.3% CaO, 0.1% MgO, 5.3% K_2O, 10.2% Na_2O, 0.5% LOI (source: Canadian Minerals Yearbook, Energy, Mines and Resources, Canada). The Copeland Ridge samples fall in the range of nepheline syenite given the relatively comparative silicon, aluminium, potassium and sodium oxide values obtained from geochemical analysis. Effort should be directed to finding samples similar

to MC95-3 (taken by T.H.Carpenter, 1995 for Discovery Consultants on Copeland Ridge, A.R. 24,328) which returned values of 0.66% Fe_2O_3 as well as being very low in other impurities.

19.0 INTERPRETATION AND CONCLUSIONS

REE bearing mineralization occurs in the East Glacier Zone (e.g. rock chip sample COPE10AR-20). The East Glacier and Marble Breccia Ridge Zones are about 500 meters apart, but they occur on the same stratigraphic horizon and may be part of an extensive REE bearing mineral zone trending east under the glacier and/or west (towards the west basin). In addition to REE bearing mineralization, a zone of elevated molybdenum and coincident niobium occurs in the east extension of the Copeland underground workings. This area has been targeted for possible extensions of Mo bearing mineralization, and this zone contains elevated Mo-Nb-Ti (e.g. rock chip sample COPE10AR-4 & 5).

The magnetometer survey strong anomalies are located in an area of marble with extensive zones of pyrrhotite and/or magnetite/ilmenite replacement mineralization which coincides with elevated REE geochemical analysis of rock chips taken in 2010 for Torch R Resources (COPE10AR-22 to 26 are from Marble Breccia Ridge). These geophysical anomalies represent potential for buried sulphide/oxide REE bearing mineralization and are high priority follow-up drill targets. The results warrant exploration in the area of the Marble Breccia Ridge Zone, In order to drill test the east extension of surface mineralization in COPE10AR-22. Previous drilling has focused on the molybdenum bearing aplitic phases nepheline syenite complex of the Glacier Zone. The new area of attention is the marble ridge (pyrrhotite-magnetite) breccia zone. The area represents a significant REE, Y, Nb, Ti, Zr bearing mineral potential, and the east and west extension of this mineral trend are high priority diamond drill targets.

Additional targets for REE bearing mineralization include the East Glacier where sample COPE10AR-20 returned the highest REE values of all samples taken. The strong REE, soil geochemical anomaly in the East Glacier

The other type of mineral occurrence present on the property is high-purity nepheline syenite. Copeland Ridge area is reported to contain nepheline, potash and soda feldspar minerals suitable for industrial applications.

20.0 RECOMMENDATIONS

Based on the results of previous exploration and mining activity, there is potential to outline further economic concentrations of molybdenite-(scheelite) and REE, Y, Nb, Ti, Zr bearing mineralization on the subject property. A two phase program consisting of preliminary geological mapping, trenching, and magnetometer geophysics, litho-geochemical sampling as well as fence pattern diamond drill holes and further detailed geological mapping are proposed to test the depth extension of surface mineral occurrences on Marble Breccia Ridge, East Glacier, Glacier Zone (upper and lower, surface mineralization trends), and West Basin. Concurrent with drilling, a program of

hand trenching, geological mapping and rock chip sampling is required to outline further extensions of known mineral trends.

A detailed budget of this 2 phase exploration program is described as follows:

PHASE 1: PROPOSED BUDGET FOR COPELAND Mo-(W):

FIELD CREW-	Geologist, 1 geotechnician, 21 days	$ 12,500.00
FIELD COSTS-	Assays 250	5,400.00
	Rock chip geological/geochemical survey	15,000.00
	Core drilling 3,000 feet (914.4 m)	200,000.00
	Geophysics (magnetometer)	23,000.00
	Soil Grid	2,500.00
	Equipment and Supplies	2,000.00
	Communication	900.00
	Food	2,400.00
	Transportation	17,100.00
	Emergency camp construction	7,350.00
REPORT		1,850.00
	Contingency	10,000.00
	Total =	$ 300,000.00

PHASE 2: PROPOSED BUDGET FOR COPELAND Mo-(W) TARGETS:

FIELD CREW-	Geologist, 1 geotechnician, 1 cook 120 days	$ 46,000.00
FIELD COSTS-	Core drilling, 5,000 feet (1,524 m) .	325,000.00
	Assays 1,400	28,000.00
	Equipment and Supplies	4,000.00
	Communication	3,000.00
	Food	6,500.00
	Transportation	58,000.00
REPORT		1,200.00
	Contingency	18,300.00
	Total =	$ 500,000.00

TOTAL PHASE 1 + 2 = $ 800,000.00

The total recommended core drilling for phase 1 + 2 is 8,000 feet (2.438.4 m).

21.0 REFERENCES

Canadian Minerals Handbook 1978, Energy, Mines and Resources Canada

Carpenter, T.H., (1996) Geological Report for Discovery Consultants, Assessment Report 24,328, BC Ministry of Energy & Mines

CIM Special Volume 15, 1976, page 418-420 Characteristics of Canadian Cordillera Molybdenum Deposits (Soregaroli, A.R., Sutherland Brown, A., 1976)

Clark, K.J., 1972, Stockwork Molybdenum Deposits in the Western Cordillera of North America, Econ. Geol. Volume 67, pp. 731-758

EMPR Assessment Report # 679, 776, 1788, 8752, and 24328

EMPR Bulletin 57 pp. 22, 40, 58-61

EMPR EXPL 1978 pp. 100, 101; 1980 pp. 137,138

EMPR PF (Fyles, J.T., McCammon, J.W., 1969) Mineral Resources Revelstoke Area.

EMPR MP CORPFILE (King Resources Company, 1969, 1970)

GAC Special Paper No. 6, pp. 87-98 (Fyles, J.T., 1970)

Guillet, G. Robert, 1994, "Nepheline Syenite" in Industrial Minerals and Rocks, Donald G. Carr, Ed., Society for Mining, Metallurgy, and Exploration, Inc.

Kikauka, Andris A., (2005), Geological and Geochemical Report on Mount Copeland Molybdenum Project, Assessment Report for BC Ministry of Energy & Mines, Mineral Titles, available online www.em.gov.bc.ca

Kirkham, R.V., 1972, Intermineral Intrusions and their Bearing on Porphyry Copper and Molybdenum Deposits, Econ Geol., Volume 66, 1244-1249

Wood, John A., (1969) Preliminary Feasibility Study, Copeland Mountain Molybdenum Project, Revelstoke Mining Division, King Resources Company

22.0 DATE AND CERTIFICATE

I, Andris Kikauka, of 4901 East Sooke Rd., Sooke B.C. V0S 1NO am a self employed professional geoscientist. I hereby certify that:

1. I am a graduate of Brock University, St. Catharines, Ont., with an Honours Bachelor of Science Degree in Geological Sciences, 1980.
2. I am a Fellow in good standing with the Geological Association of Canada.
3. I am registered in the Province of British Columbia as a Professional Geoscientist.
4. I have practiced my profession for twenty years in precious and base metal exploration in the Cordillera of Western Canada, U.S.A., Mexico, Central America, and South America, as well as for three years in uranium exploration in the Canadian Shield..
5. The information, opinions, and recommendations in the Technical Report are based on fieldwork carried out in my presence on the subject properties during Aug 18-23, 2010 during which time a technical evaluation consisting of geological mapping, geochemical sampling of mineral zones located on the subject property was carried out by the writer.
6. As at the date hereof, to the best of my knowledge, information and belief, the Technical Report contains all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.
7. This report summarizes technieal data for the purpose of reporting fieldwork for geological, geochemical and geophysical assessment work.
8. Recommendations and proposed budgets listed in this report are guidelines, and are not intended for the purpose of public financing or NI 43-101.

Andris Kikauka, P. Geo.,

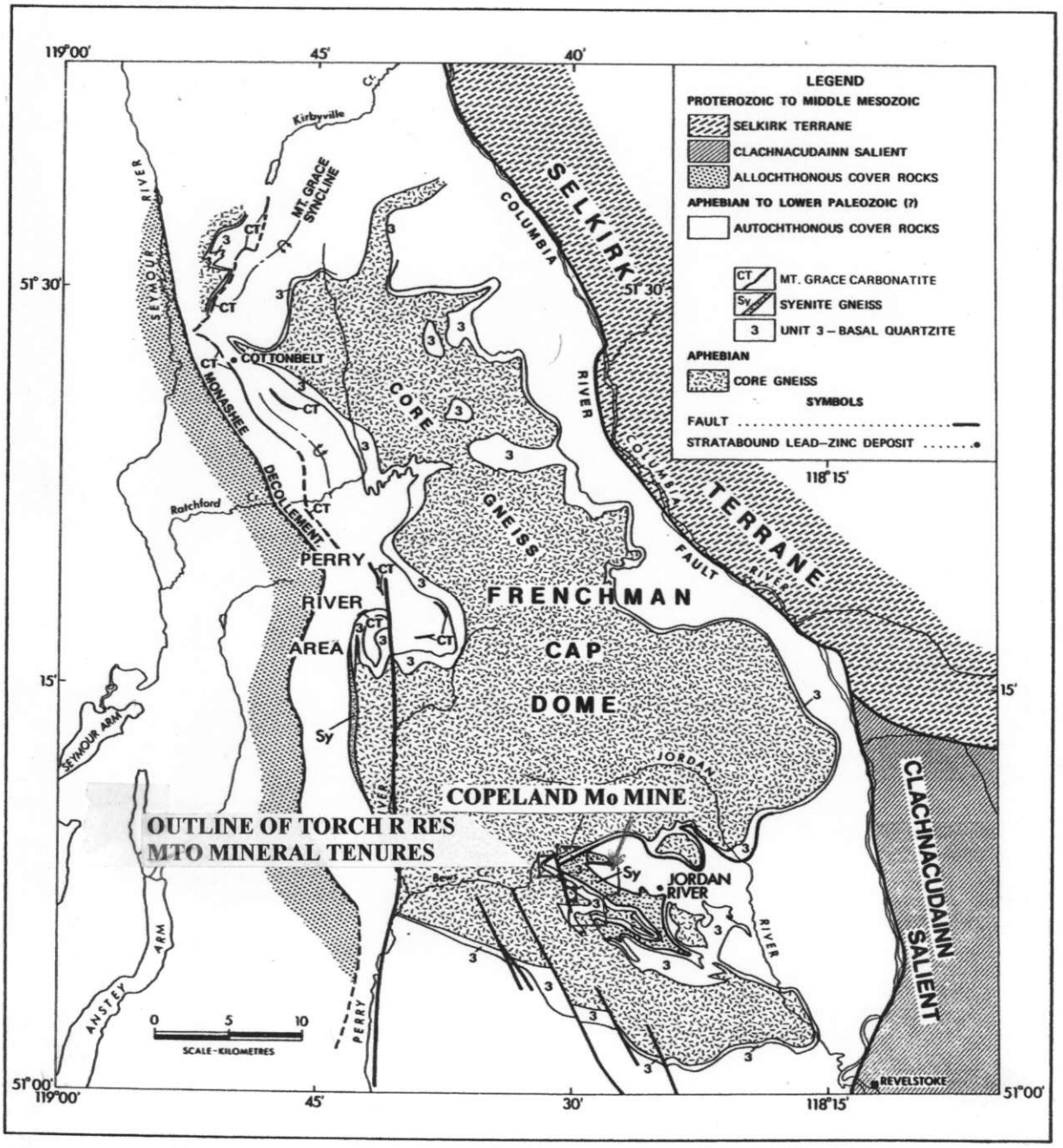
Andris Kikauka

December 5, 2010

ITEMIZED COST STATEMENT-

COPELAND FIELDWORK, GEOLOGICAL MAPPING, GEOCHEMICAL ANALYSIS, AUGUST 18-23, 2010 ON MINERAL TENURE 501827
TRIM 082M.018, REVELSTOKE MINING DIVISION

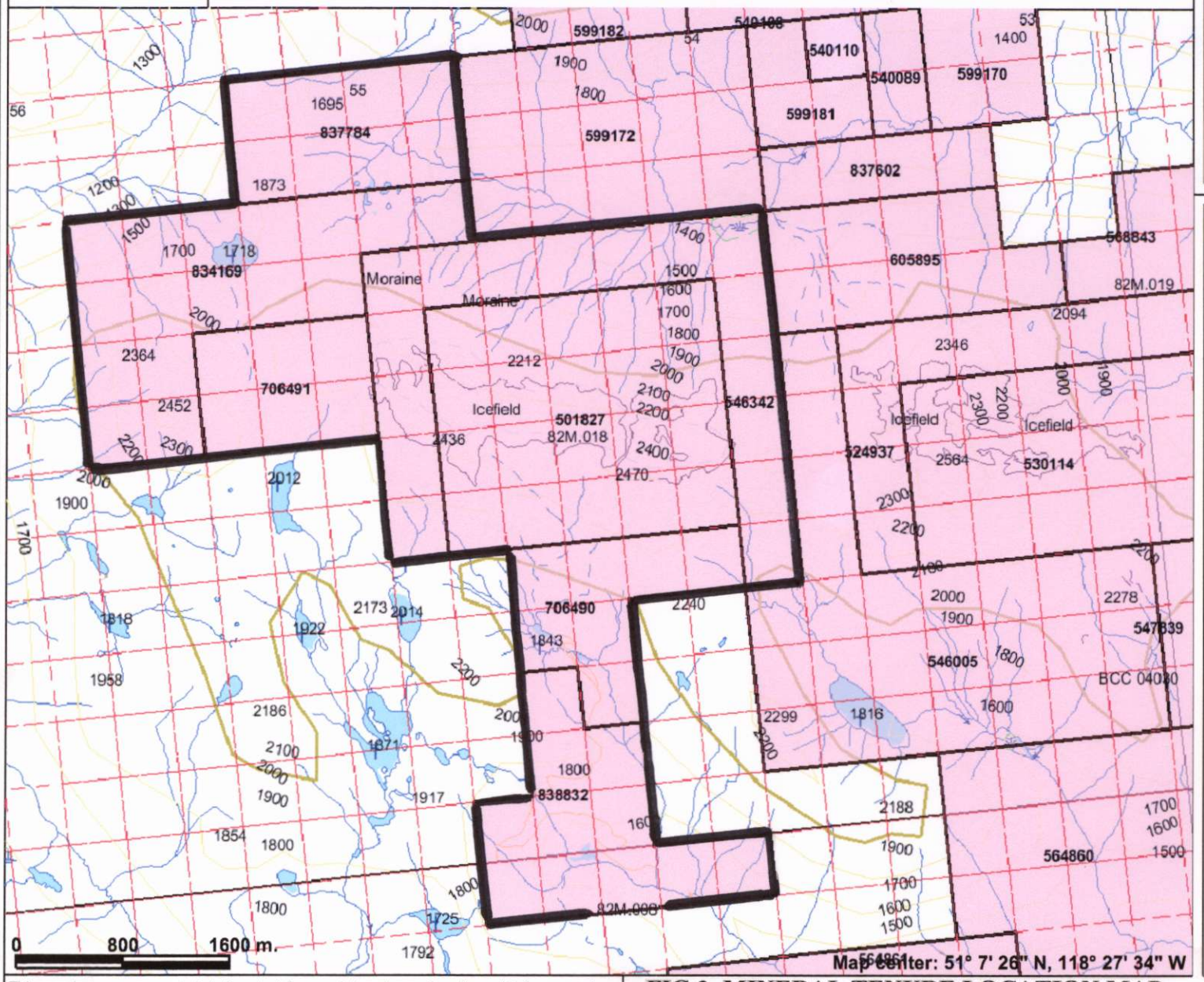
FIELD CREW:	
Andris Kikauka (Geologist) 5 Days	$ 1,875.00
Ryan Kikauka (Geotechnician) 5 days	1,000.00
FIELD COST:	
Mob and Demob	$ 210.00
Equipment and Supplies	30.00
Geochemical analysis 72 soil 34 rock chip samples REE elements,	
34 rock chip samples ICP, 16 Mo assays, 1 Cu assay	1,213.25
Helicopter charter (1.1 hours)	1,645.00
Food	249.00
Report	450.00
Total amount=	$ 6,672.25



Regional geological map showing the distribution and tectonic setting of alkalic rocks in Frenchman Cap dome, Shuswap Metamorphic Complex (from Höy and Brown, 1980).

FIG. 1 GENERAL LOCATION MAP
COPELAND MOLYBDENUM PROPERTY WITH RESPECT TO FRENCHMAN CAP DOME

Copeland MTO Mineral Tenures, Dec 5, 2010



Legend

- Indian Reserves
- National Parks
- Conservancy Areas
- Parks

MTO Grid (MTO)

- Blocked by MEM
- Other

Mineral Tenure (current)

- Mineral Claim
- Mineral Lease

Mineral Reserves (current)

- Placer Claim Designation
- Placer Lease Designation
- No Staking Reserve
- Conditional Reserve
- Release Required Reserve
- Surface Restriction
- Recreation Area
- Others

Survey Parcels

- BCGS Grid

Contours (1:250K)

- Contour - Index
- Contour - Intermediate
- Areaof Exclusion
- Areaof Indefinite Contours

Transportation - Points (TRIM)

- Helipad

Transportation - Lines (TRIM)

- Airfield
- Airport
- Airstrip

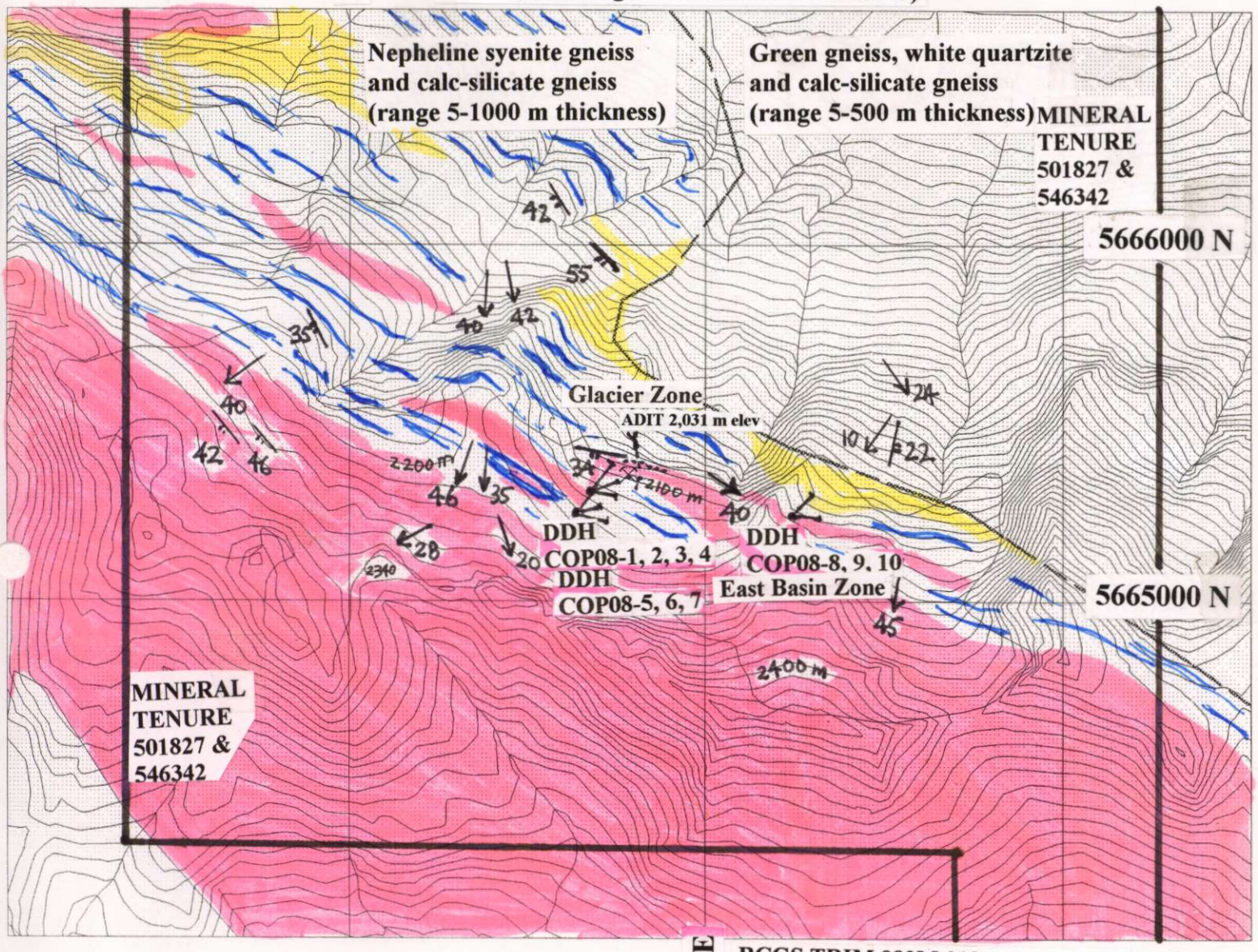
Scale: 1:44,593

Map center: 51° 7' 26" N, 118° 27' 34" W

FIG 2 MINERAL TENURE LOCATION MAP
501827, 546342, 706490, 706491, 834169, 837784
BCGS 082M.018, REVELSTOKE MINING DIVISION

397000 E

FIG 3 GEOLOGY of MINERAL TENURE 501827, 546342 (including 2008 DDH LOCATIONS)



398000 E

BCGS TRIM 082M.018
REVELSTOKE MINING DIVISION

N

UTM NAD 83 ZONE 11

SCALE 1 : 17,232

200 0 200 400 600

METERS

Axial plane of fold

Shallow to moderately dipping plunge of minor fold axis (Fyles, 1969)

Syenite gneiss, nepheline syenite, aplite/pegmatite, apatite, zircon, sphene

Quartzite gneiss, interbedded marble, minor actinolite, diopside

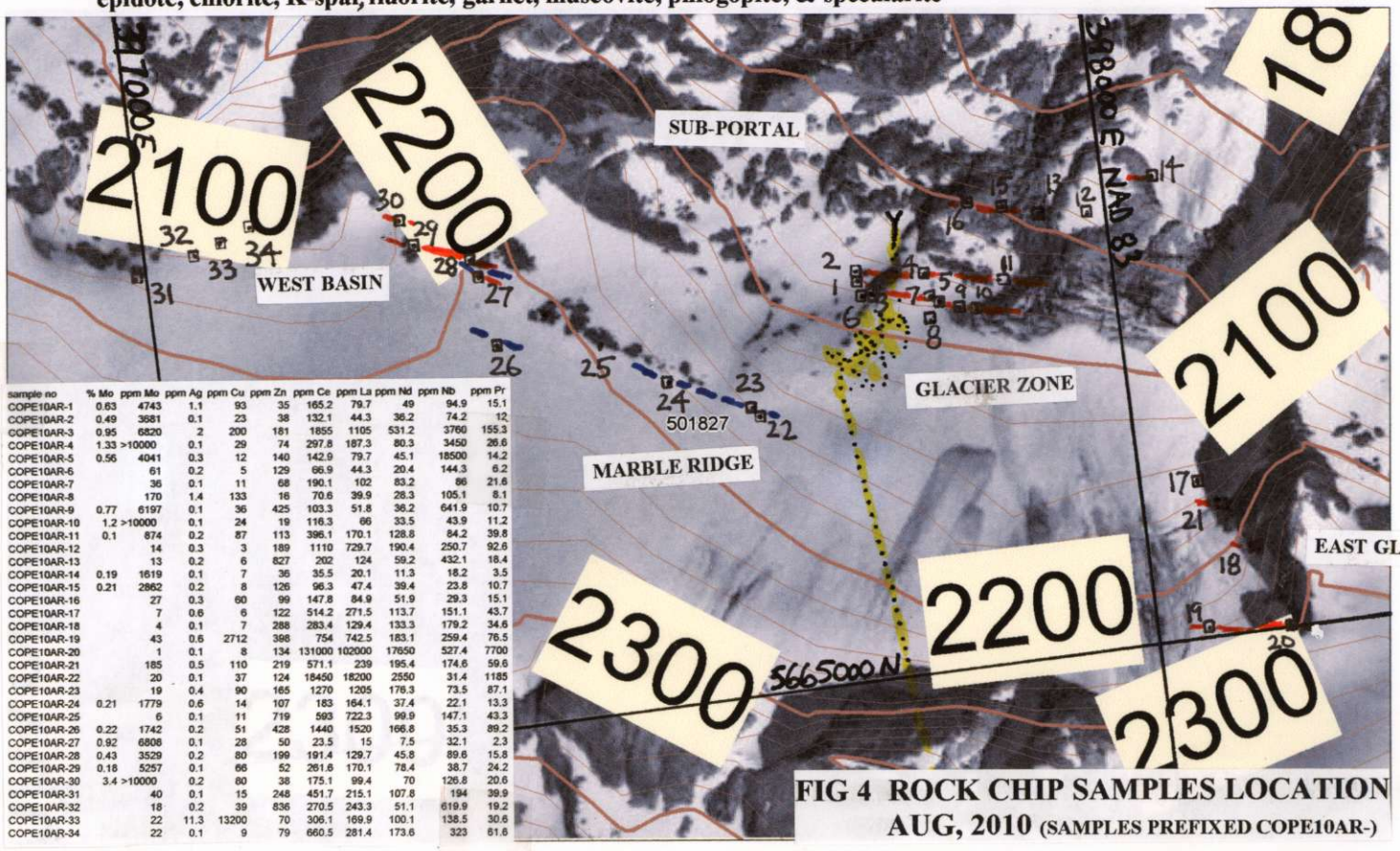
Biotite-amphibole marble, biotite, hornblende, chlorite, actinolite, diopside

Copeland August, 2010 Rock Chip Samples

Syenite pegmatite-aplite sulphide-oxide **Marble breccia skarn sulphide-oxide** **1970's King Resources Underground Workings**

Y Adit

Associated minerals: zircon, sphene, apatite, tourmaline, riebeckite, aegirine, ilmenite, magnetite, pyrrhotite, pyrite, molybdenite, chalcopyrite & rare quartz, scheelite, malachite, azurite, sodalite, chalcocite, analcite (zeolite), thompsonite (agate) Alteration minerals: kaolinite, sericite, calcite, epidote, chlorite, K-spar, fluorite, garnet, muscovite, phlogopite, & specularite



sample no	% Mo	ppm Mo	ppm Ag	ppm Cu	ppm Zn	ppm Ce	ppm La	ppm Nd	ppm Nb	ppm Pr
COPE10AR-1	0.63	4743	1.1	93	35	165.2	79.7	49	94.9	15.1
COPE10AR-2	0.49	3681	0.1	23	38	132.1	44.3	36.2	74.2	12
COPE10AR-3	0.95	6820	2	200	181	1855	1105	531.2	3760	155.3
COPE10AR-4	1.33	>10000	0.1	29	74	297.8	187.3	80.3	3450	26.6
COPE10AR-5	0.56	4041	0.3	12	140	142.9	79.7	45.1	18500	14.2
COPE10AR-6		61	0.2	5	129	66.9	44.3	20.4	144.3	6.2
COPE10AR-7		36	0.1	11	68	190.1	102	83.2	86	21.6
COPE10AR-8		170	1.4	133	16	70.6	39.9	28.3	105.1	8.1
COPE10AR-9	0.77	6197	0.1	36	425	103.3	51.8	36.2	641.9	10.7
COPE10AR-10	1.2	>10000	0.1	24	19	116.3	66	33.5	43.9	11.2
COPE10AR-11	0.1	874	0.2	87	113	396.1	170.1	128.8	84.2	39.8
COPE10AR-12		14	0.3	3	189	1110	729.7	190.4	250.7	92.6
COPE10AR-13		13	0.2	6	827	202	124	59.2	432.1	18.4
COPE10AR-14	0.19	1619	0.1	7	36	35.5	20.1	11.3	18.2	3.5
COPE10AR-15	0.21	2862	0.2	8	126	96.3	47.4	39.4	23.8	10.7
COPE10AR-16		27	0.3	60	99	147.8	84.9	51.9	29.3	15.1
COPE10AR-17		7	0.6	6	122	514.2	271.5	113.7	151.1	43.7
COPE10AR-18		4	0.1	7	288	283.4	129.4	133.3	179.2	34.6
COPE10AR-19		43	0.6	2712	398	754	742.5	183.1	259.4	76.5
COPE10AR-20		1	0.1	8	134	131000	102000	17650	527.4	7700
COPE10AR-21		185	0.5	110	219	571.1	239	195.4	174.6	59.6
COPE10AR-22		20	0.1	37	124	18450	18200	2550	31.4	1185
COPE10AR-23		19	0.4	90	165	1270	1205	176.3	73.5	87.1
COPE10AR-24	0.21	1779	0.6	14	107	183	164.1	37.4	22.1	13.3
COPE10AR-25		6	0.1	11	719	593	722.3	98.9	147.1	43.3
COPE10AR-26	0.22	1742	0.2	51	428	1440	1520	166.8	35.3	89.2
COPE10AR-27	0.92	6808	0.1	28	50	23.5	15	7.5	32.1	2.3
COPE10AR-28	0.43	3529	0.2	80	199	191.4	129.7	45.8	89.6	15.8
COPE10AR-29	0.18	5257	0.1	66	52	261.6	170.1	78.4	38.7	24.2
COPE10AR-30	3.4	>10000	0.2	60	38	175.1	99.4	70	126.8	20.6
COPE10AR-31		40	0.1	15	248	451.7	215.1	107.8	194	39.9
COPE10AR-32		18	0.2	39	836	270.5	243.3	51.1	619.9	19.2
COPE10AR-33		22	11.3	13200	70	306.1	169.9	100.1	138.5	30.6
COPE10AR-34		22	0.1	9	79	660.5	281.4	173.6	323	61.6

FIG 4 ROCK CHIP SAMPLES LOCATION AUG, 2010 (SAMPLES PREFIXED COPE10AR-)

501827 MTO Tenure #
BCGS Topo Sheet 082M.018
Revelstoke Mining Division

SCALE 1 : 7,500

500 0 500 1,000 1,500
FEET

0 250 m

N

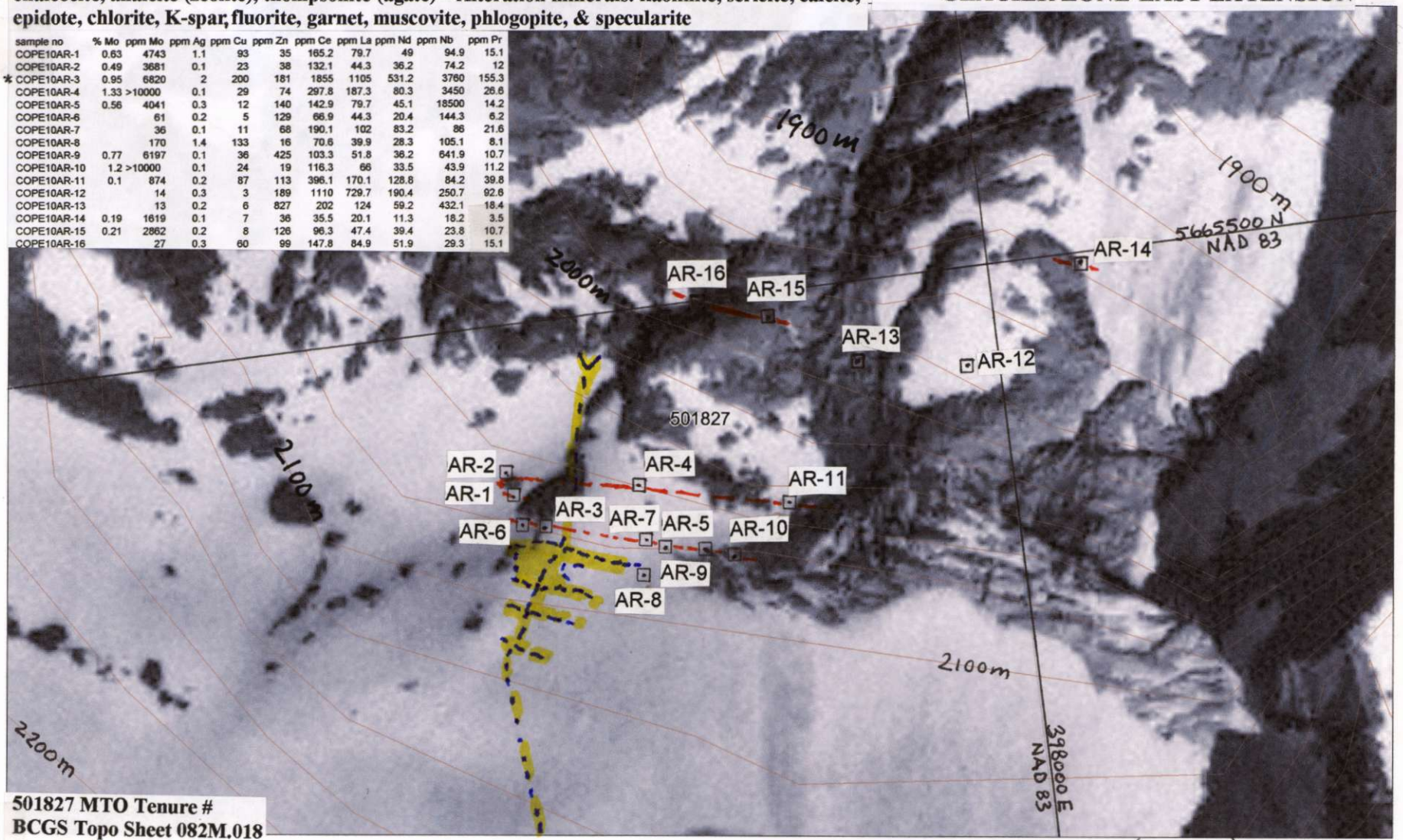
Note- marble breccia coincides with 1000-2000 nT positive magnetic survey anomaly

Copeland Rock Chip Samples Glacier Zone-East Extension

Associated minerals: zircon, sphene, apatite, tourmaline, riebeckite, aegirine, ilmenite, magnetite, pyrrhotite, pyrite, molybdenite, chalcopyrite & rare quartz, scheelite, malachite, azurite, sodalite, chalcocite, analcite (zeolite), thompsonite (agate) Alteration minerals: kaolinite, sericite, calcite, epidote, chlorite, K-spar, fluorite, garnet, muscovite, phlogopite, & specularite

FIG 5 ROCK CHIP SAMPLES AUG, 2010
GLACIER ZONE-EAST EXTENSION

sample no	% Mo	ppm Mo	ppm Ag	ppm Cu	ppm Zn	ppm Ce	ppm La	ppm Nd	ppm Nb	ppm Pr
COPE10AR-1	0.63	4743	1.1	93	35	165.2	79.7	49	94.9	15.1
COPE10AR-2	0.49	3681	0.1	23	38	132.1	44.3	36.2	74.2	12
* COPE10AR-3	0.95	6820	2	200	181	1855	1105	531.2	3760	155.3
COPE10AR-4	1.33	>10000	0.1	29	74	297.8	187.3	80.3	3450	26.6
COPE10AR-5	0.56	4041	0.3	12	140	142.9	79.7	45.1	18500	14.2
COPE10AR-6		61	0.2	5	129	66.9	44.3	20.4	144.3	6.2
COPE10AR-7		36	0.1	11	68	190.1	102	83.2	86	21.6
COPE10AR-8		170	1.4	133	16	70.6	39.9	28.3	105.1	8.1
COPE10AR-9	0.77	6197	0.1	36	425	103.3	51.8	36.2	641.9	10.7
COPE10AR-10	1.2	>10000	0.1	24	19	116.3	66	33.5	43.9	11.2
COPE10AR-11	0.1	874	0.2	87	113	396.1	170.1	128.8	84.2	39.8
COPE10AR-12		14	0.3	3	189	1110	729.7	190.4	250.7	92.6
COPE10AR-13		13	0.2	6	827	202	124	59.2	432.1	18.4
COPE10AR-14	0.19	1619	0.1	7	36	35.5	20.1	11.3	18.2	3.5
COPE10AR-15	0.21	2862	0.2	8	126	96.3	47.4	39.4	23.8	10.7
COPE10AR-16		27	0.3	60	99	147.8	84.9	51.9	29.3	15.1



501827 MTO Tenure #
BCGS Topo Sheet 082M.018
Revelstoke Mining Division

SCALE 1 : 3,000

200 0 200 400 600
FEET
0 200 m

* Vancouver Petrographics Ltd. description (Appendix C)

Syenite pegmatite-aplite sulphide-oxide

Rock Chip Sample With Identifier # (prefix COPE10)

1970's King Res Underground Workings

N

Copeland Rock Chip Samples East Glacier Zone

Associated minerals: zircon, sphene, apatite, tourmaline, riebeckite, aegirine, ilmenite, magnetite, pyrrhotite, pyrite, molybdenite, chalcopyrite & rare quartz, scheelite, malachite, azurite, sodalite, chalcocite, analcite (zeolite), thompsonite (agate) Alteration minerals: kaolinite, sericite, calcite, epidote, chlorite, K-spar, fluorite, garnet, muscovite, phlogopite, & specularite

Syenite pegmatite-aplite sulphide-oxide

sample no	% Mo	ppm Mo	ppm Ag	ppm Cu	ppm Zn	ppm Ce	ppm La	ppm Nd	ppm Nb	ppm Pr
COPE10AR-17		7	0.6	6	122	514.2	271.5	113.7	151.1	43.7
COPE10AR-18		4	0.1	7	288	283.4	129.4	133.3	179.2	34.6
COPE10AR-19		43	0.6	2712	398	754	742.5	183.1	259.4	76.5
*COPE10AR-20		1	0.1	8	134	131000	102000	17650	527.4	7700
COPE10AR-21		185	0.5	110	219	571.1	239	195.4	174.6	59.6

FIG 6 ROCK CHIP SAMPLES AUG, 2010
EAST GLACIER ZONE

2100 m

398000E NAD 83

AR-17

AR-21

501827

2200 m

AR-18

AR-19

AR-20

5665000 N NAD 83

501827 MTO Tenure #
BCGS Topo Sheet 082M.018
Revelstoke Mining Division

SCALE 1 : 3,000

200 0 200 400 600
FEET

Rock Chip Sample
With Identifier # (prefix COPE10AR-)

0 100 200m

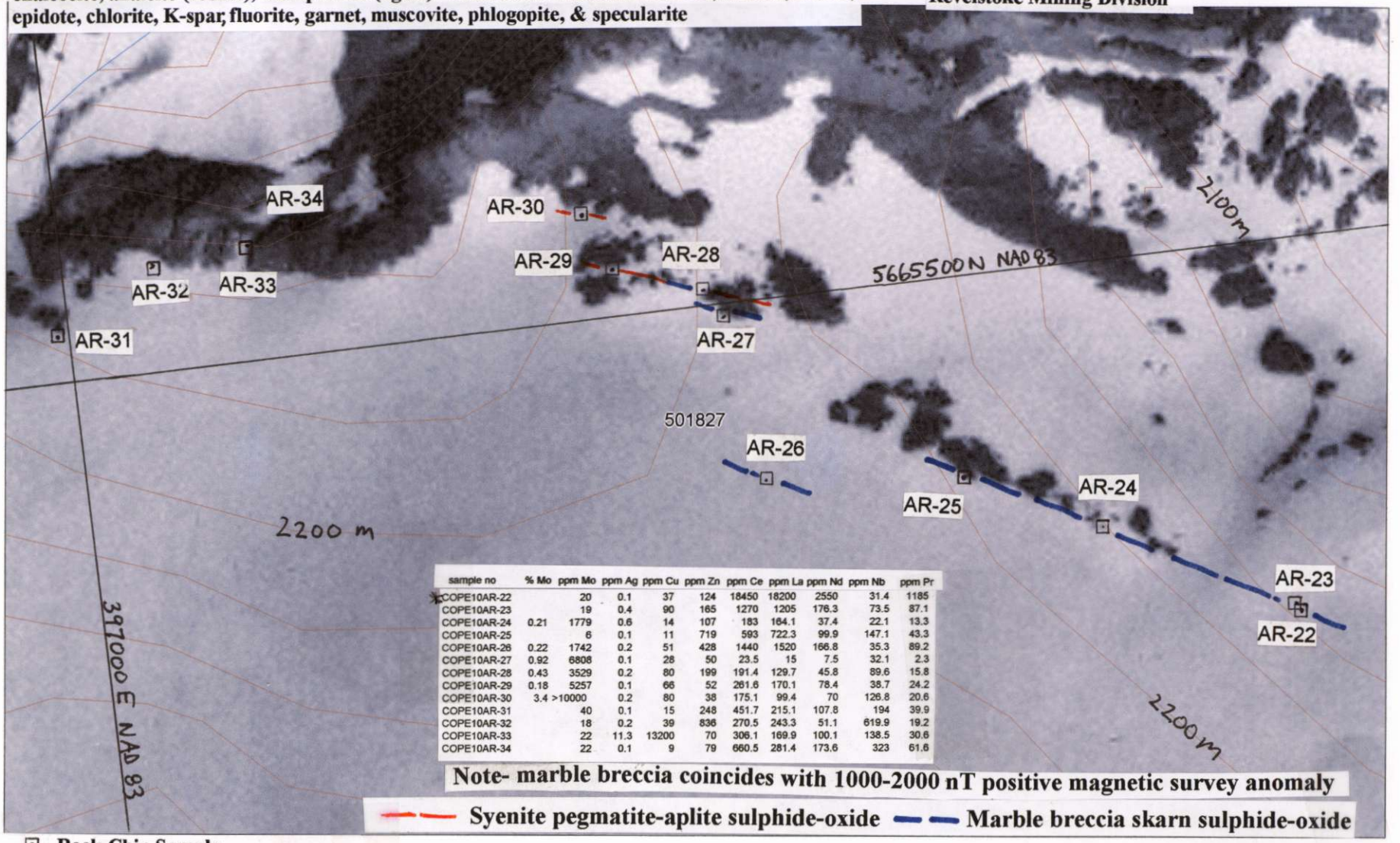
N

* Vancouver Petrographics Ltd Description (Appendix C)

Copeland Rock Chip Samples West Basin & Ridge

Associated minerals: zircon, sphene, apatite, tourmaline, riebeckite, aegirine, ilmenite, magnetite, pyrrhotite, pyrite, molybdenite, chalcopyrite & rare quartz, scheelite, malachite, azurite, sodalite, chalcocite, analcite (zeolite), thompsonite (agate) Alteration minerals: kaolinite, sericite, calcite, epidote, chlorite, K-spar, fluorite, garnet, muscovite, phlogopite, & specularite

501827 MTO Tenure #
BCGS Topo Sheet 082M.018
Revelstoke Mining Division



sample no	% Mo	ppm Mo	ppm Ag	ppm Cu	ppm Zn	ppm Ce	ppm La	ppm Nd	ppm Nb	ppm Pr
*COPE10AR-22		20	0.1	37	124	18450	18200	2550	31.4	1185
COPE10AR-23		19	0.4	90	165	1270	1205	176.3	73.5	87.1
COPE10AR-24	0.21	1779	0.6	14	107	183	164.1	37.4	22.1	13.3
COPE10AR-25		6	0.1	11	719	593	722.3	99.9	147.1	43.3
COPE10AR-26	0.22	1742	0.2	51	428	1440	1520	166.8	35.3	89.2
COPE10AR-27	0.92	6808	0.1	28	50	23.5	15	7.5	32.1	2.3
COPE10AR-28	0.43	3529	0.2	80	199	191.4	129.7	45.8	89.6	15.8
COPE10AR-29	0.18	5257	0.1	66	52	261.6	170.1	78.4	38.7	24.2
COPE10AR-30	3.4	>10000	0.2	80	38	175.1	99.4	70	126.8	20.6
COPE10AR-31		40	0.1	15	248	451.7	215.1	107.8	194	39.9
COPE10AR-32		18	0.2	39	836	270.5	243.3	51.1	619.9	19.2
COPE10AR-33		22	11.3	13200	70	306.1	169.9	100.1	138.5	30.6
COPE10AR-34		22	0.1	9	79	660.5	281.4	173.6	323	61.6

Note- marble breccia coincides with 1000-2000 nT positive magnetic survey anomaly

Syenite pegmatite-aplite sulphide-oxide **Marble breccia skarn sulphide-oxide**

Rock Chip Sample
With Identifier # (prefix COPE10) SCALE 1 : 3,000

200 0 200 400 600
FEET
0 100 200m

FIG 7 ROCK CHIP SAMPLES AUG, 2010
WEST BASIN & RIDGE ZONES

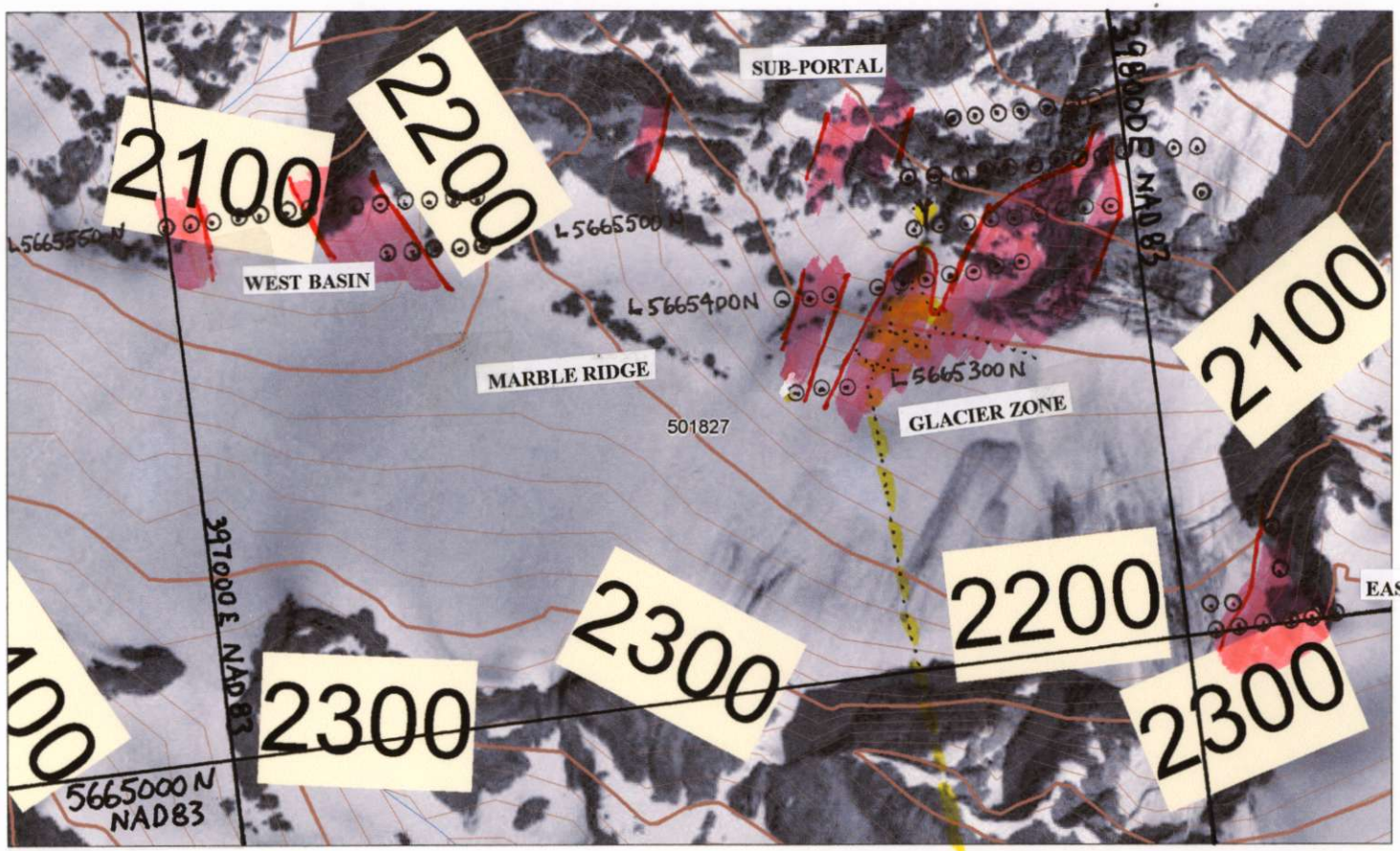
N

* Vancouver Petrographics Ltd Description (Appendix C)

Copeland August, 2010 Soil Samples

FIG 8 SOIL SAMPLES AUG, 2010
HIGHLIGHTING >400 ppm La

Y Adit (2,031 m elev.)



501827 MTO Tenure #
BCGS Topo Sheet 082M.018
Revelstoke Mining Division

SCALE 1 : 7,500

500 0 500 1,000 1,500
FEET

N

0 250m

1970's King Resources Underground Workings

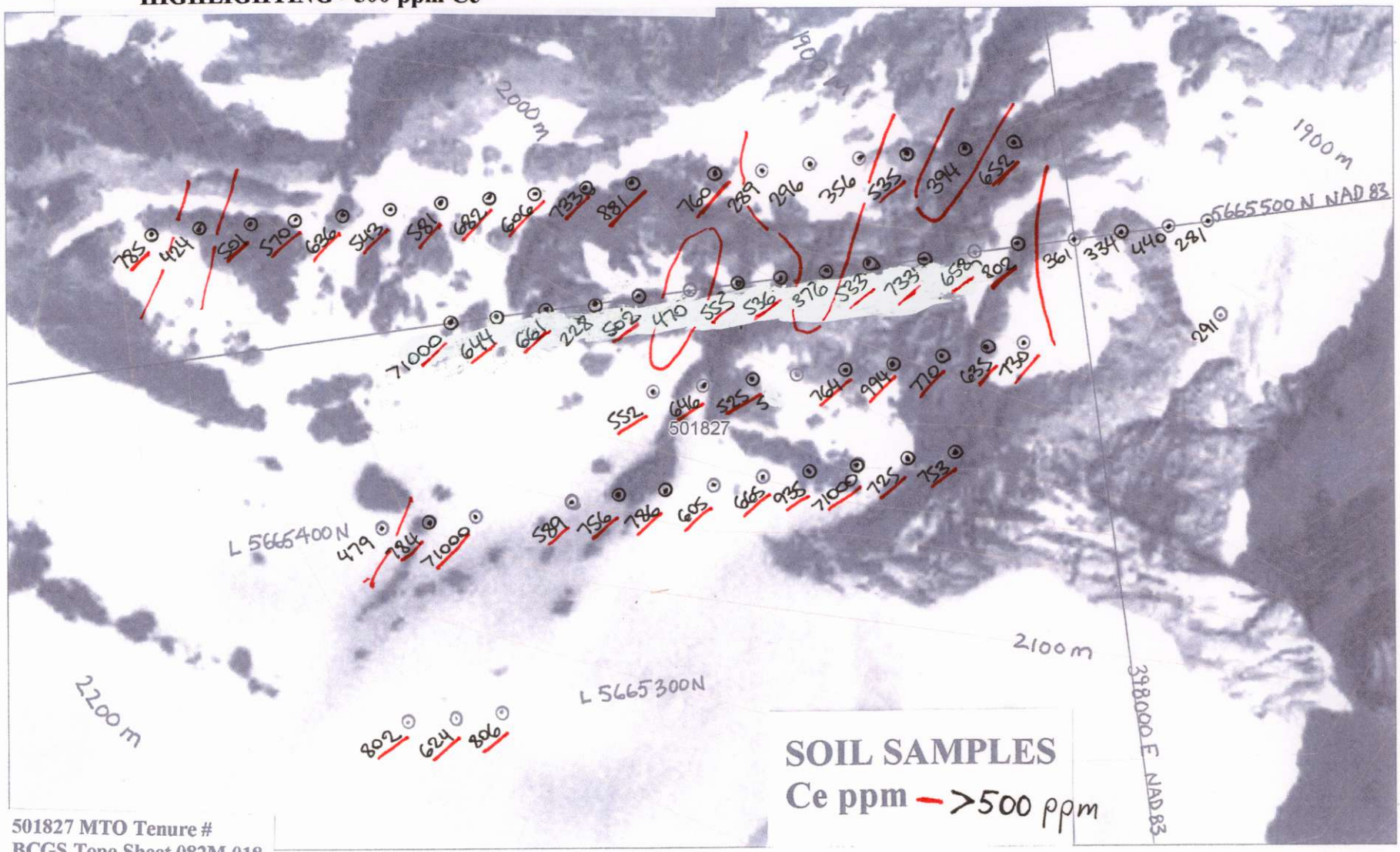
Soil Sample (along E-W grid lines, 25 m spacing)

>400 ppm La in soil

Copeland Soil Samples Glacier Zone-East Extension

FIG 9 GLACIER ZONE EAST SOIL SAMPLES AUG, 2010
HIGHLIGHTING >500 ppm Ce

⊙ Soil Sample (along E-W grid lines, 25 m spacing)



501827 MTO Tenure #
BCGS Topo Sheet 082M.018
Revelstoke Mining Division

SCALE 1 : 3,000

200 0 200 400 600
FEET

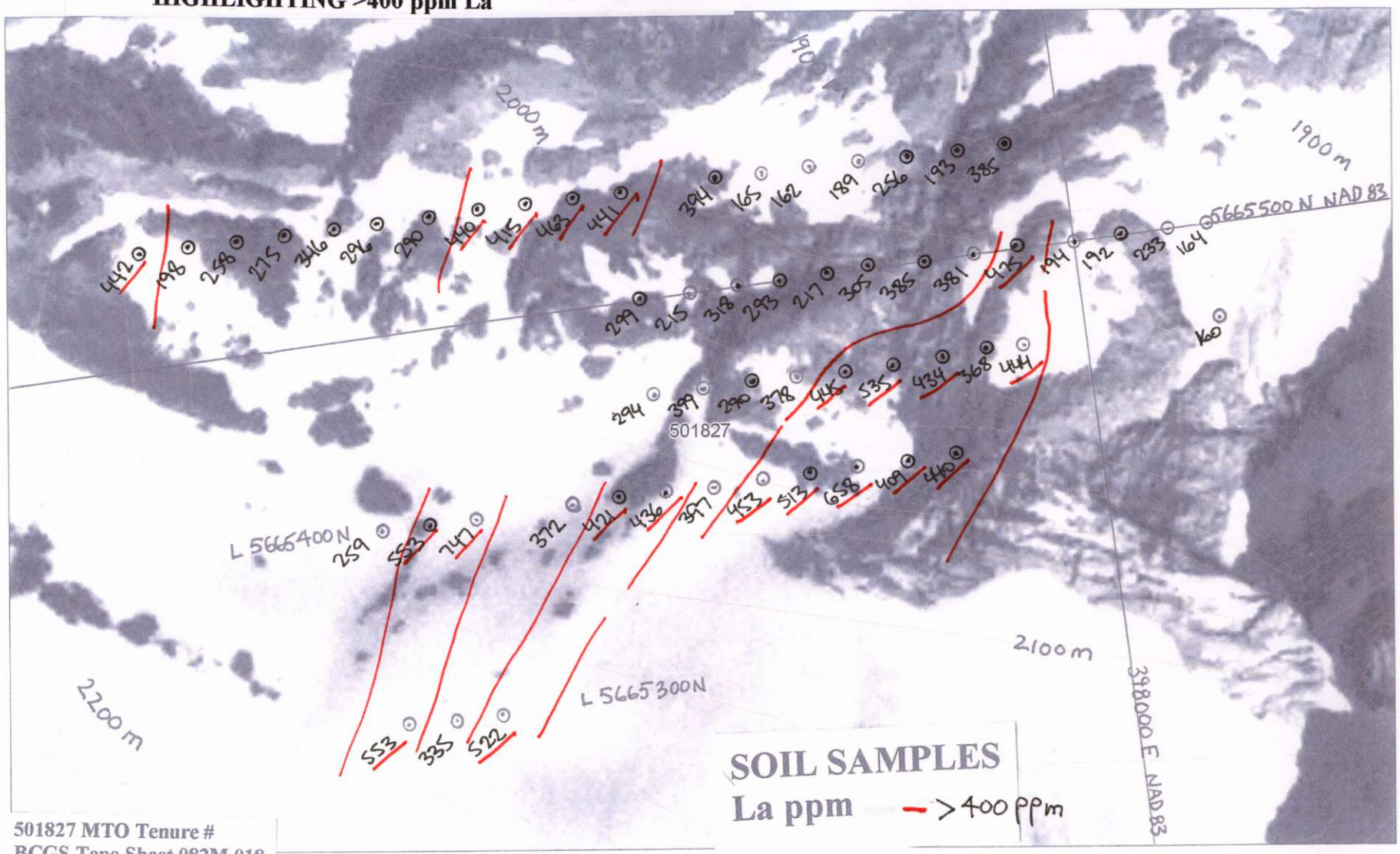
0 200 m

N

Copeland Soil Samples Glacier Zone-East Extension

FIG 10 GLACIER ZONE EAST SOIL SAMPLES AUG, 2010
HIGHLIGHTING >400 ppm La

⊙ Soil Sample (along E-W grid lines, 25 m spacing)



SOIL SAMPLES
La ppm — **>400 ppm**

501827 MTO Tenure #
BCGS Topo Sheet 082M.018
Revelstoke Mining Division

SCALE 1 : 3,000

200 0 200 400 600
FEET

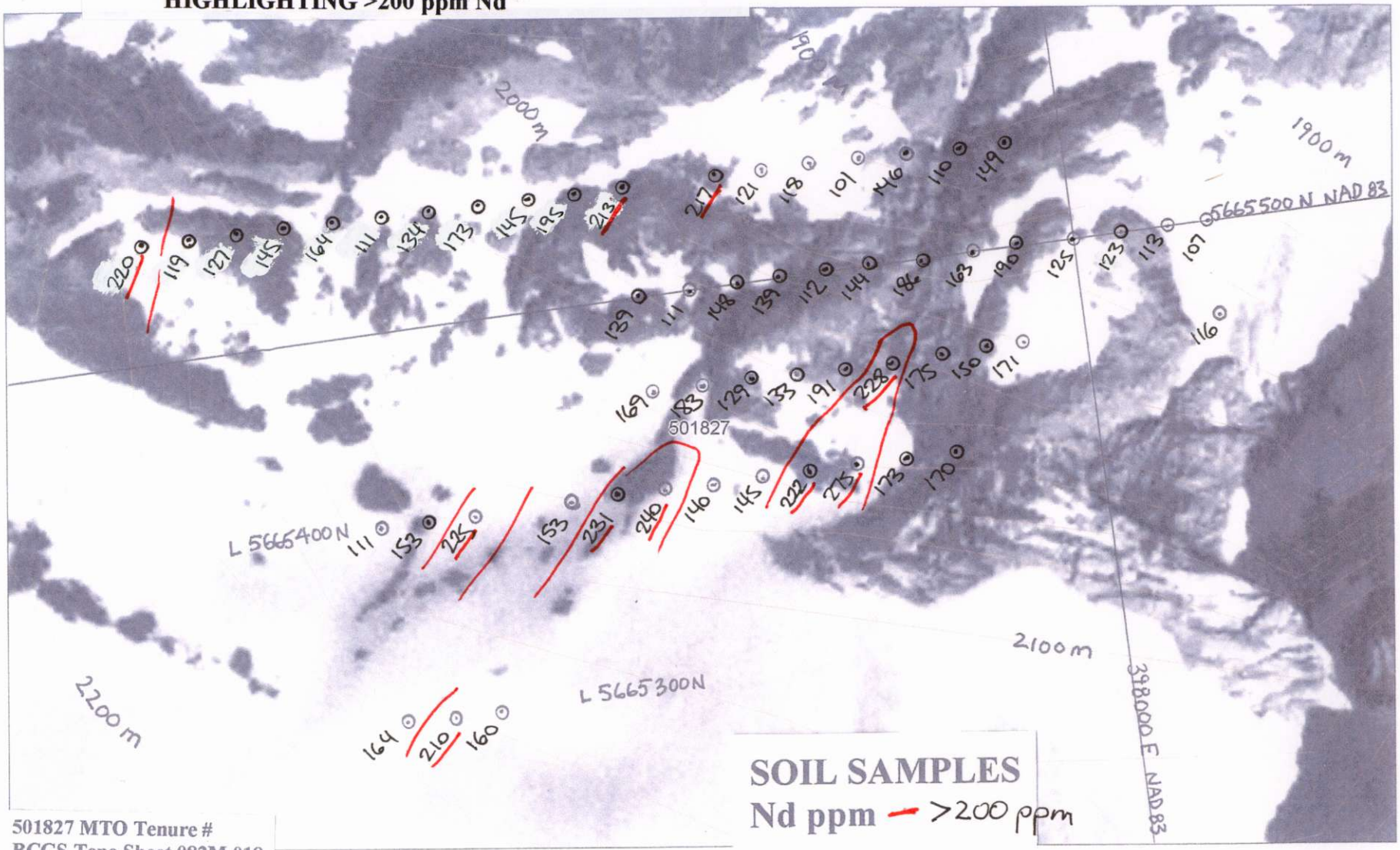
0 200m

N

Copeland Soil Samples Glacier Zone-East Extension

FIG 11 GLACIER ZONE EAST SOIL SAMPLES AUG, 2010
HIGHLIGHTING >200 ppm Nd

⊙ Soil Sample (along E-W grid lines, 25 m spacing)



SOIL SAMPLES
Nd ppm — >200 ppm

501827 MTO Tenure #
BCGS Topo Sheet 082M.018
Revelstoke Mining Division

SCALE 1 : 3,000

200 0 200 400 600
FEET

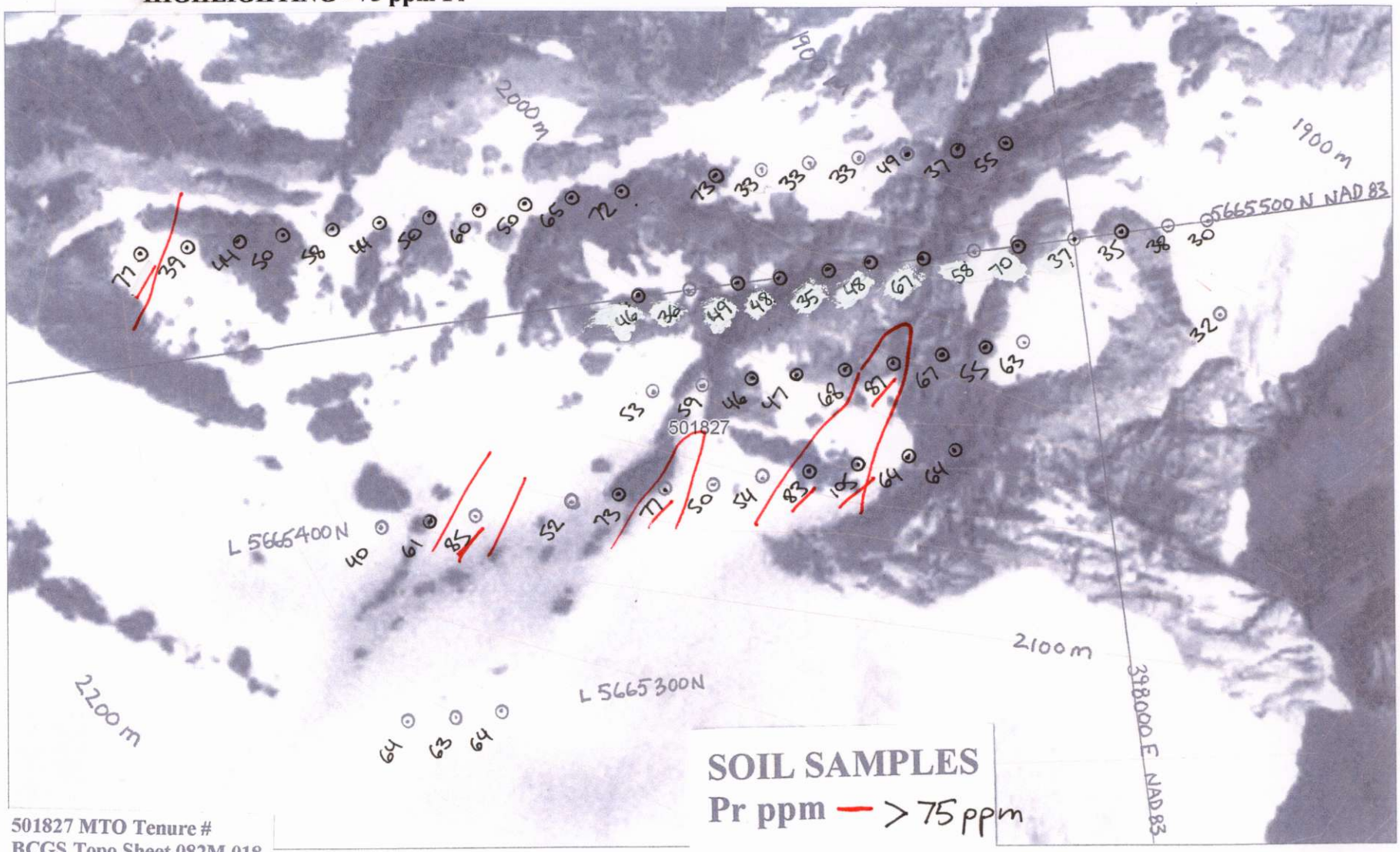
0 200 m

N

Copeland Soil Samples Glacier Zone-East Extension

FIG 12 GLACIER ZONE EAST SOIL SAMPLES AUG, 2010
HIGHLIGHTING >75 ppm Pr

⊙ Soil Sample (along E-W grid lines, 25 m spacing)



501827 MTO Tenure #
BCGS Topo Sheet 082M.018
Revelstoke Mining Division

SCALE 1 : 3,000

200 0 200 400 600
FEET

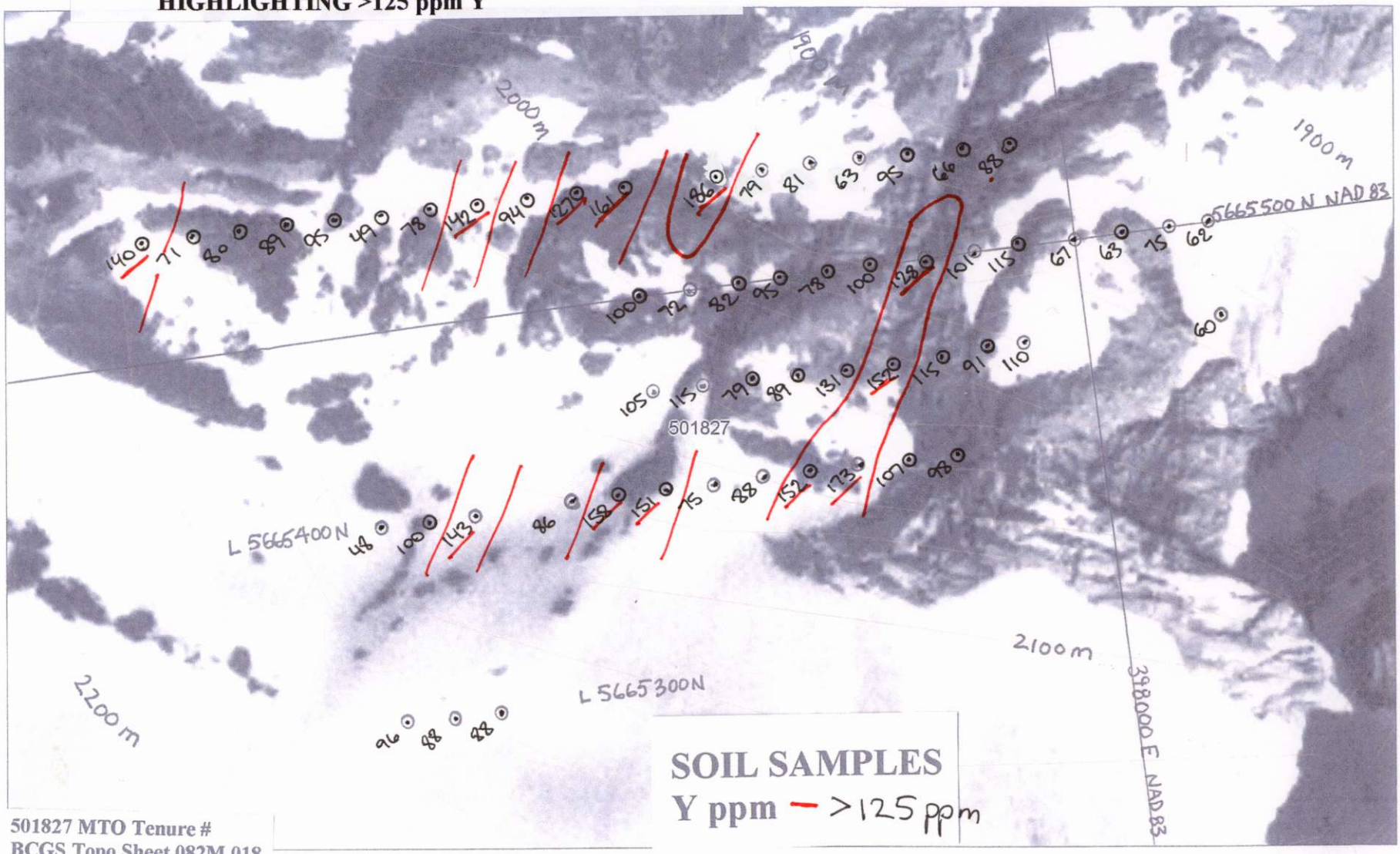
0 200m

N

Copeland Soil Samples Glacier Zone-East Extension

FIG 13 GLACIER ZONE EAST SOIL SAMPLES AUG, 2010
HIGHLIGHTING >125 ppm Y

⊙ Soil Sample (along E-W grid lines, 25 m spacing)



501827 MTO Tenure #
BCGS Topo Sheet 082M.018
Revelstoke Mining Division

SCALE 1 : 3,000

200 0 200 400 600
FEET

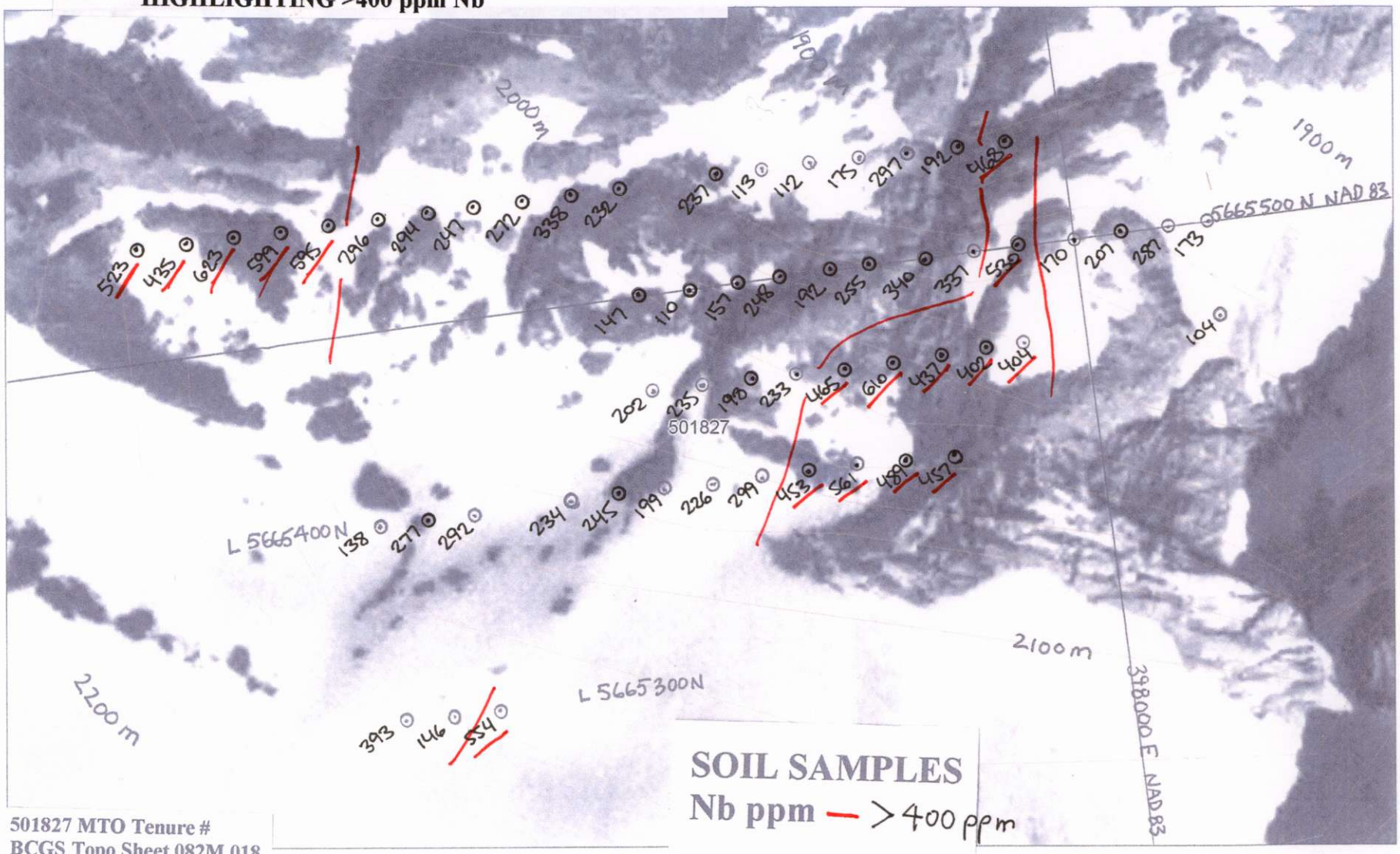
0 200 m

N

Copeland Soil Samples Glacier Zone-East Extension

FIG 14 GLACIER ZONE EAST SOIL SAMPLES AUG, 2010
HIGHLIGHTING >400 ppm Nb

⊙ Soil Sample (along E-W grid lines, 25 m spacing)



SOIL SAMPLES
Nb ppm — > 400 ppm

501827 MTO Tenure #
BCGS Topo Sheet 082M.018
Revelstoke Mining Division

SCALE 1 : 3,000

200 0 200 400 600
FEET

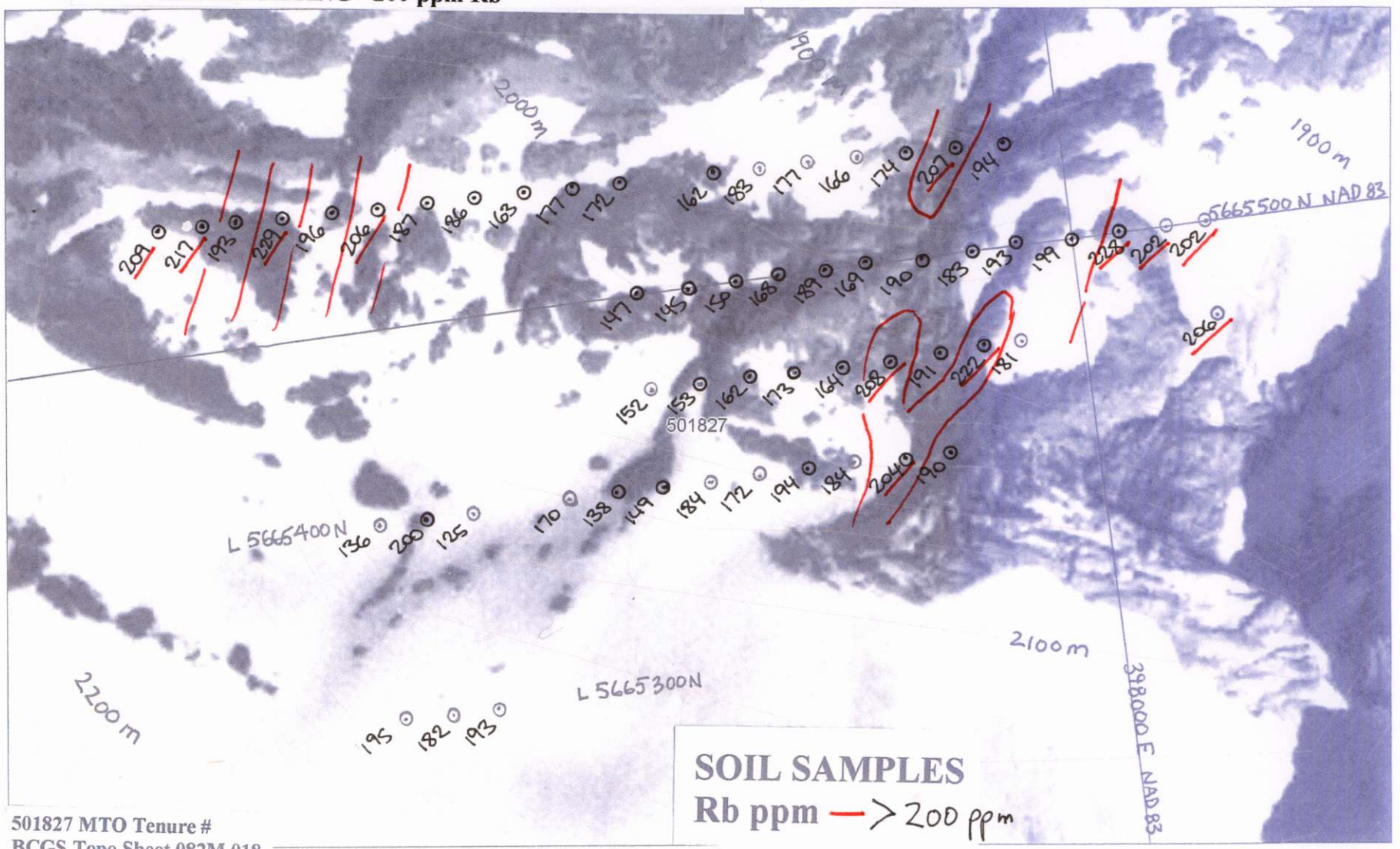
0 200 m

N

Copeland Soil Samples Glacier Zone-East Extension

FIG 15 GLACIER ZONE EAST SOIL SAMPLES AUG, 2010
HIGHLIGHTING >200 ppm Rb

⊙ Soil Sample (along E-W grid lines, 25 m spacing)



501827 MTO Tenure #
BCGS Topo Sheet 082M.018
Revelstoke Mining Division

SCALE 1 : 3,000

200 0 200 400 600
FEET

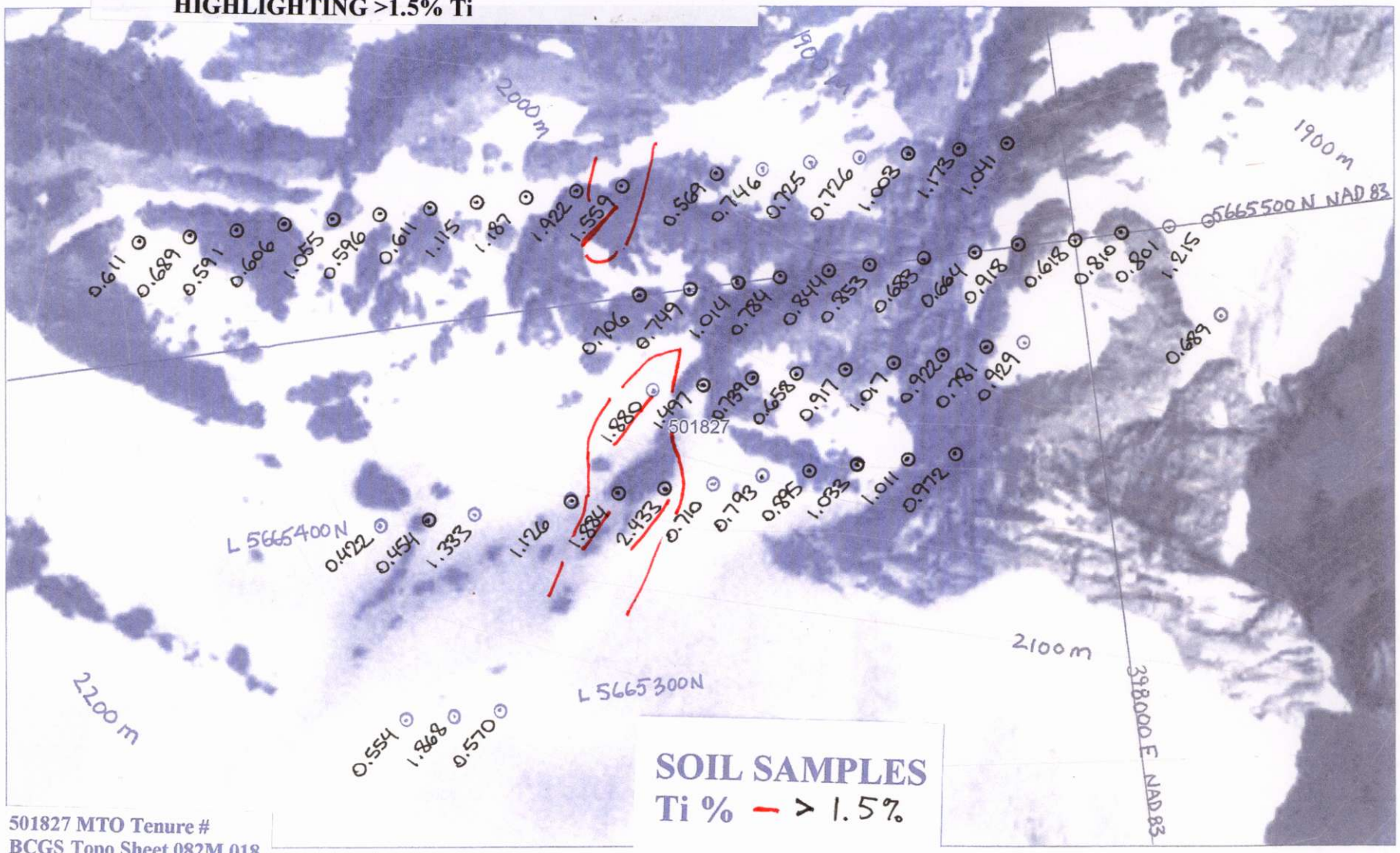
0 200 m

N

Copeland Soil Samples Glacier Zone-East Extension

FIG 16 GLACIER ZONE EAST SOIL SAMPLES AUG, 2010
HIGHLIGHTING >1.5% Ti

⊙ Soil Sample (along E-W grid lines, 25 m spacing)



SOIL SAMPLES
Ti % — > 1.5%

501827 MTO Tenure #
BCGS Topo Sheet 082M.018
Revelstoke Mining Division

SCALE 1 : 3,000

200 0 200 400 600
FEET

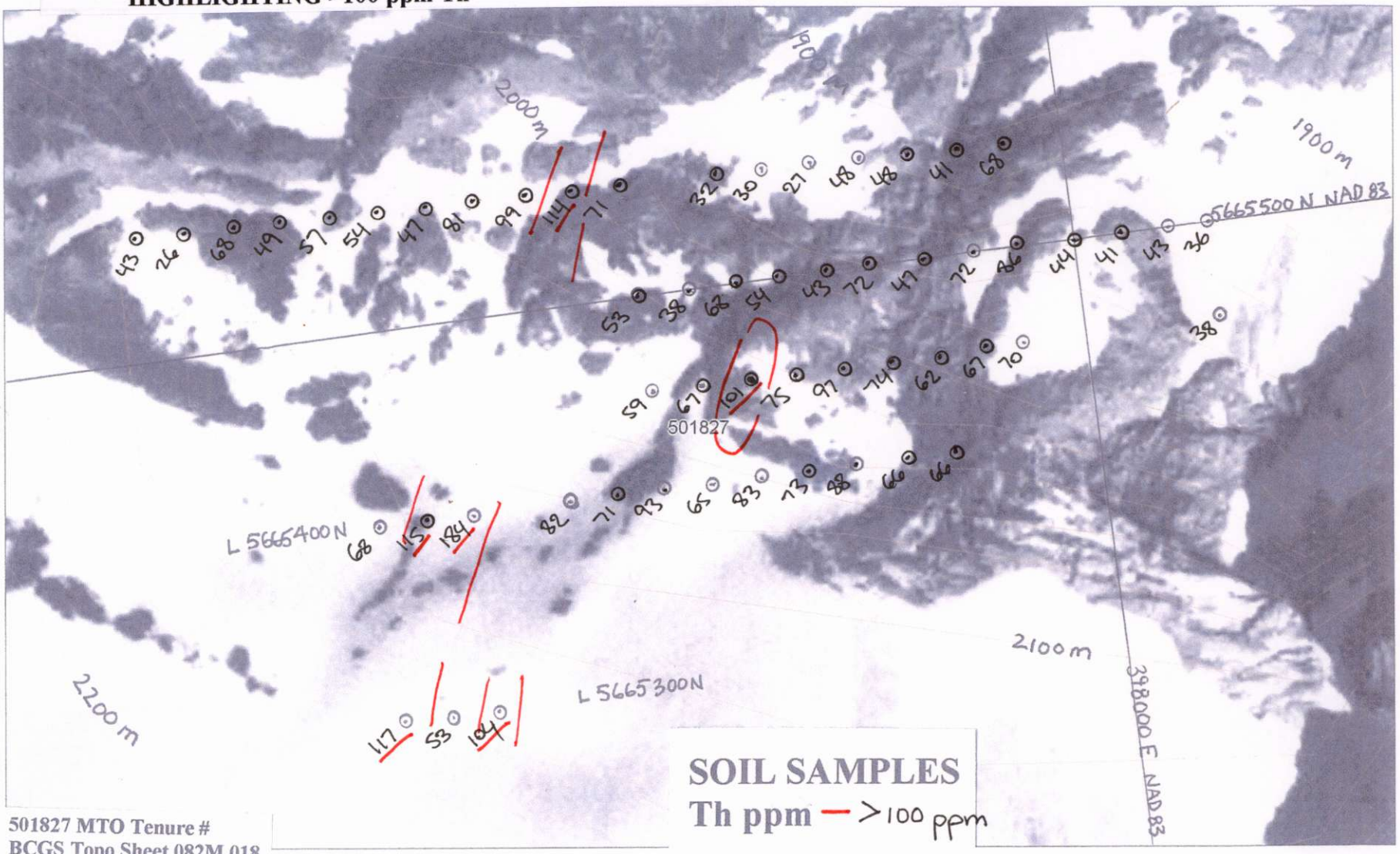
0 200 m

N

Copeland Soil Samples Glacier Zone-East Extension

FIG 17 GLACIER ZONE EAST SOIL SAMPLES AUG, 2010
HIGHLIGHTING >100 ppm Th

⊙ Soil Sample (along E-W grid lines, 25 m spacing)



SOIL SAMPLES
Th ppm — >100 ppm

501827 MTO Tenure #
BCGS Topo Sheet 082M.018
Revelstoke Mining Division

SCALE 1 : 3,000

200 0 200 400 600
FEET

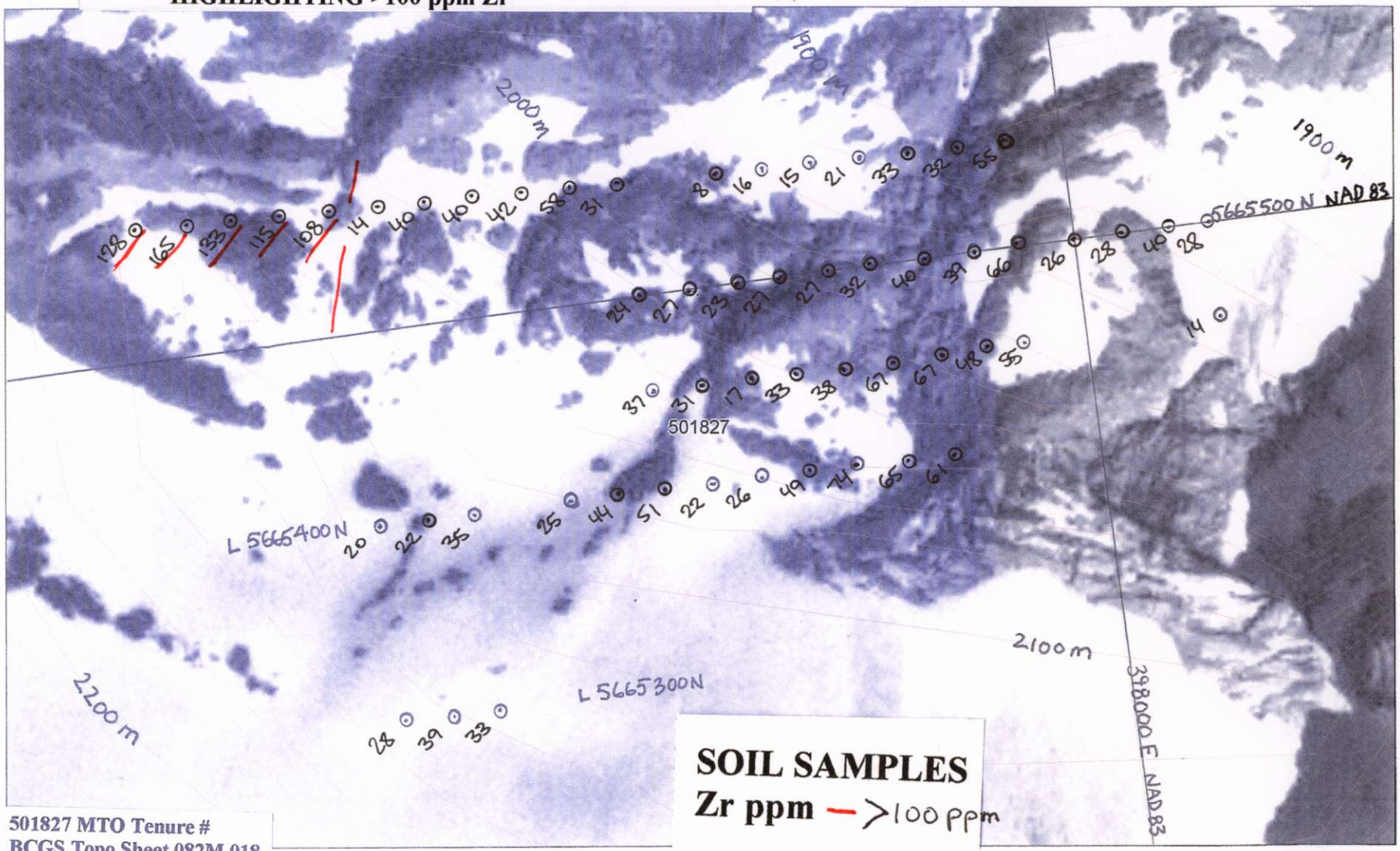
0 200 m

N

Copeland Soil Samples Glacier Zone-East Extension

FIG 18 GLACIER ZONE EAST SOIL SAMPLES AUG, 2010
HIGHLIGHTING >100 ppm Zr

⊙ **Soil Sample (along E-W grid lines, 25 m spacing)**



SOIL SAMPLES
Zr ppm — >100 ppm

501827 MTO Tenure #
BCGS Topo Sheet 082M.018
Revelstoke Mining Division

SCALE 1 : 3,000

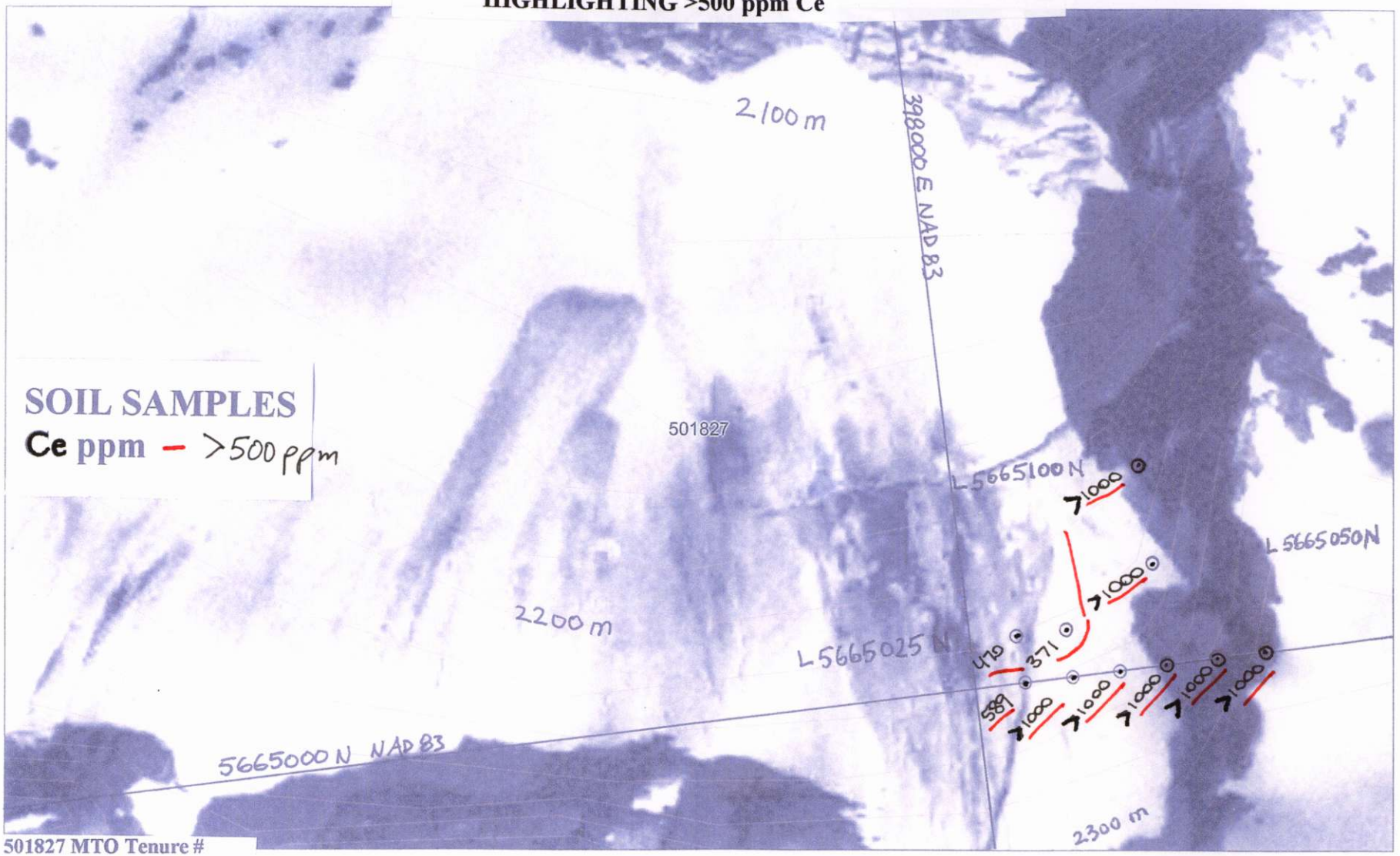
200 0 200 400 600
FEET

0 200m

N

Copeland Soil Samples East Glacier Zone

FIG 19 EAST GLACIER ZONE SOIL SAMPLES AUG, 2010
HIGHLIGHTING >500 ppm Ce



501827 MTO Tenure #
BCGS Topo Sheet 082M.018
Revelstoke Mining Division

SCALE 1 : 3,000

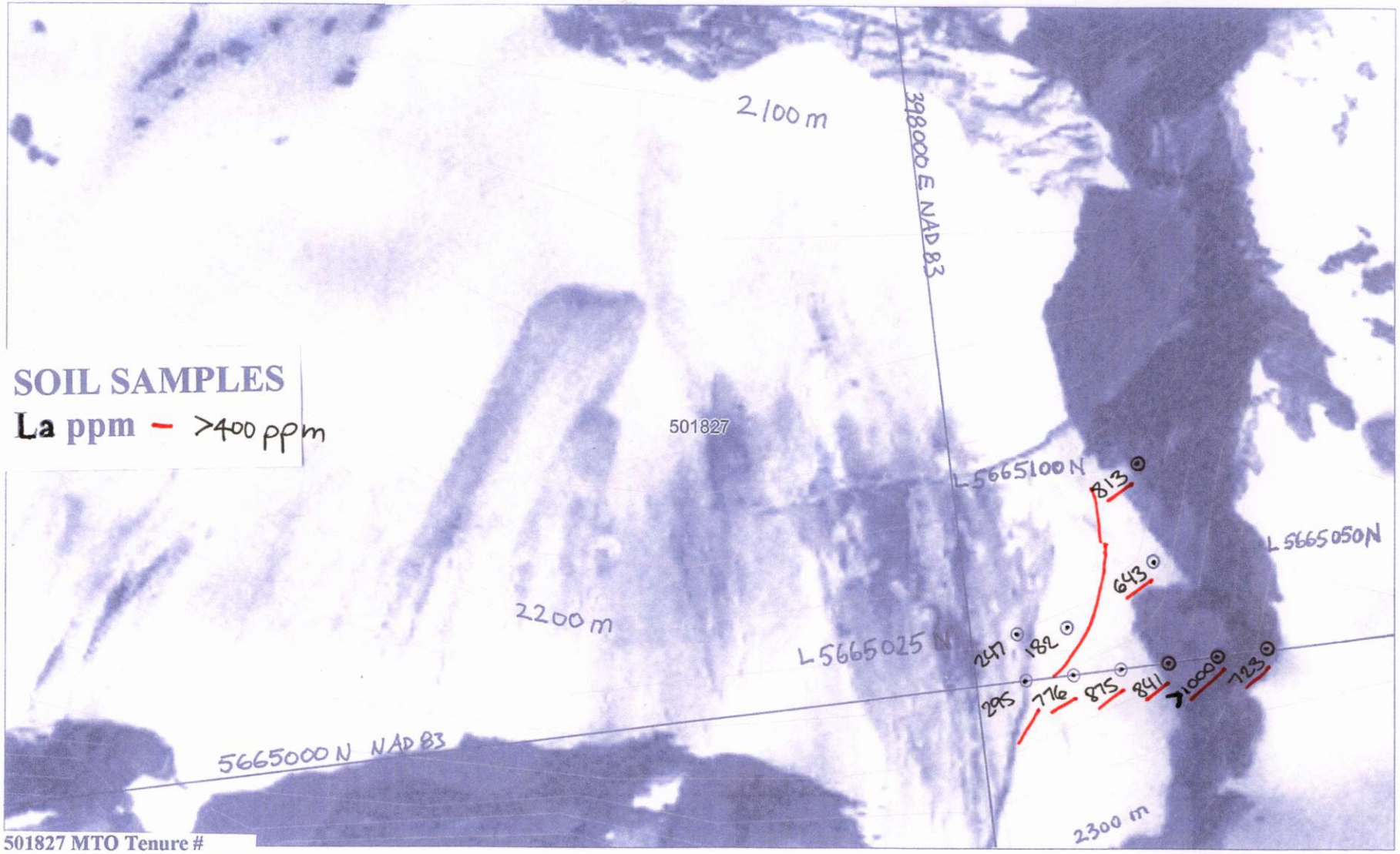
200 0 200 400 600
FEET
0 100 200 m

⊙ Soil Sample (along E-W grid lines, 25 m spacing)

N

Copeland Soil Samples East Glacier Zone

FIG 20 EAST GLACIER ZONE SOIL SAMPLES AUG, 2010
HIGHLIGHTING >400 ppm La



501827 MTO Tenure #
BCGS Topo Sheet 082M.018
Revelstoke Mining Division

SCALE 1 : 3,000

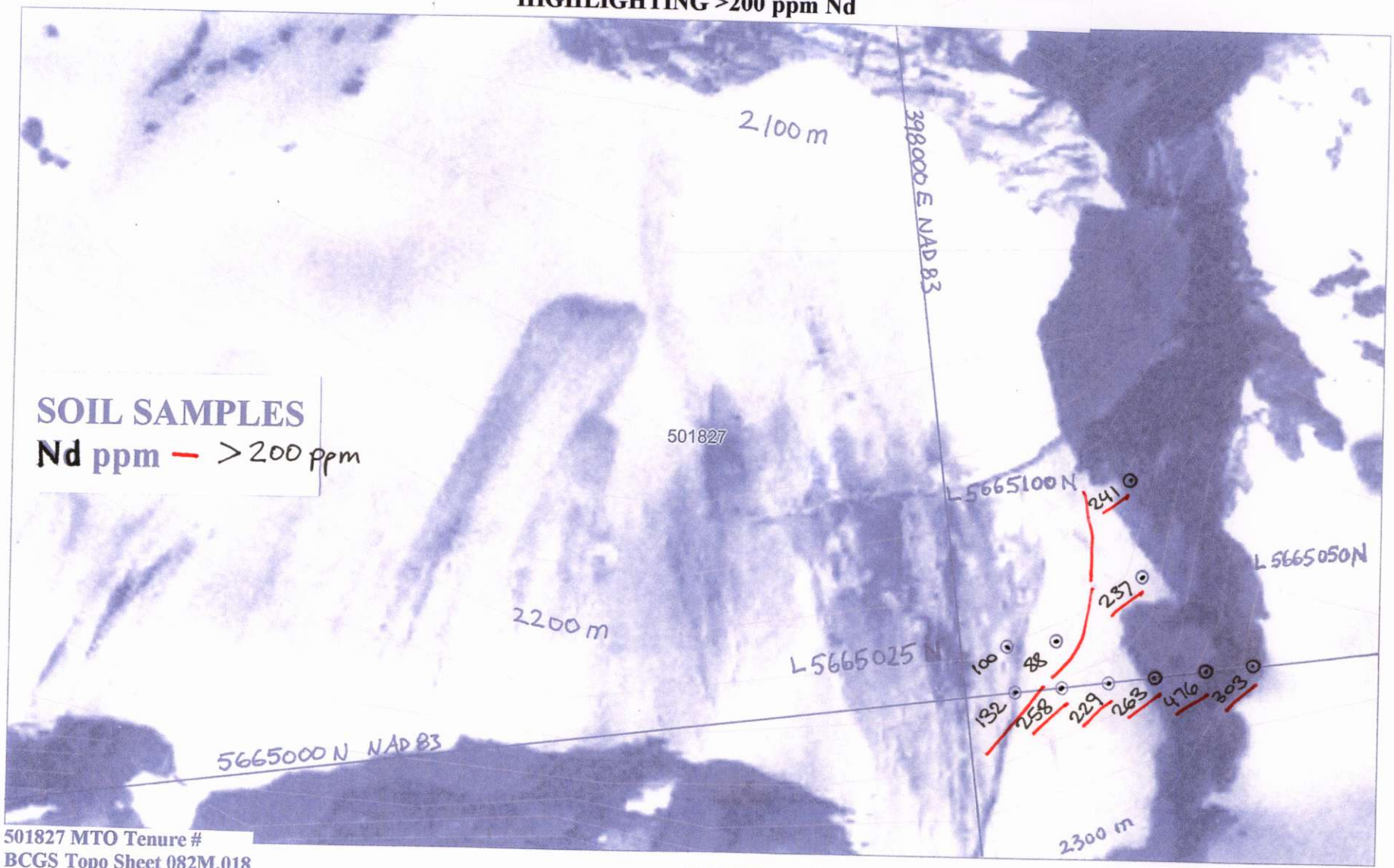
200 0 200 400 600
FEET
0 100 200 m

⊙ Soil Sample (along E-W grid lines, 25 m spacing)

N

Copeland Soil Samples East Glacier Zone

FIG 21 EAST GLACIER ZONE SOIL SAMPLES AUG, 2010
HIGHLIGHTING >200 ppm Nd



501827 MTO Tenure #
BCGS Topo Sheet 082M.018
Revelstoke Mining Division

SCALE 1 : 3,000

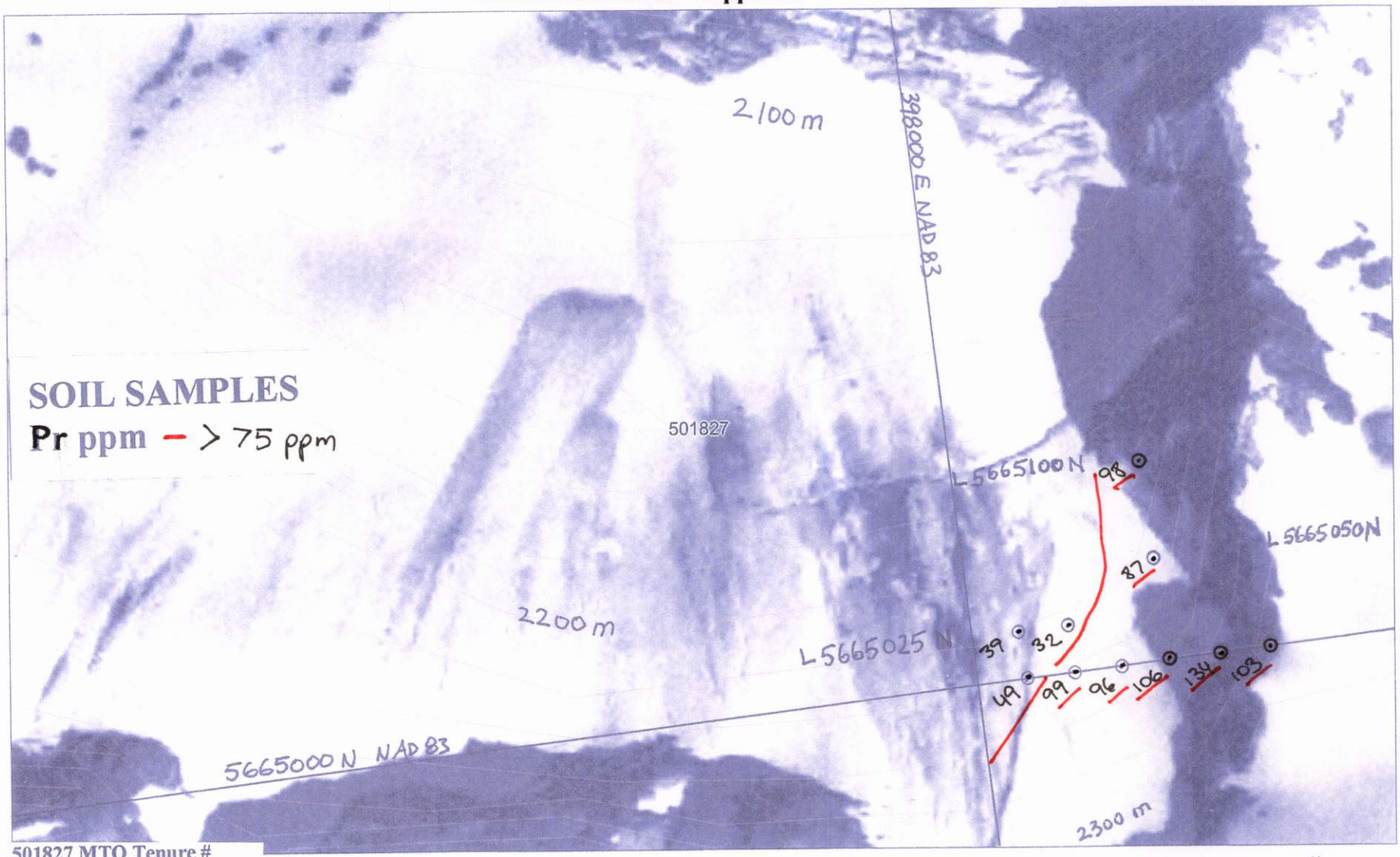
200 0 200 400 600
FEET
0 100 200 m

⊙ Soil Sample (along E-W grid lines, 25 m spacing)

N

Copeland Soil Samples East Glacier Zone

FIG 22 EAST GLACIER ZONE SOIL SAMPLES AUG, 2010
HIGHLIGHTING >75 ppm Pr



501827 MTO Tenure #
BCGS Topo Sheet 082M.018
Revelstoke Mining Division

SCALE 1 : 3,000

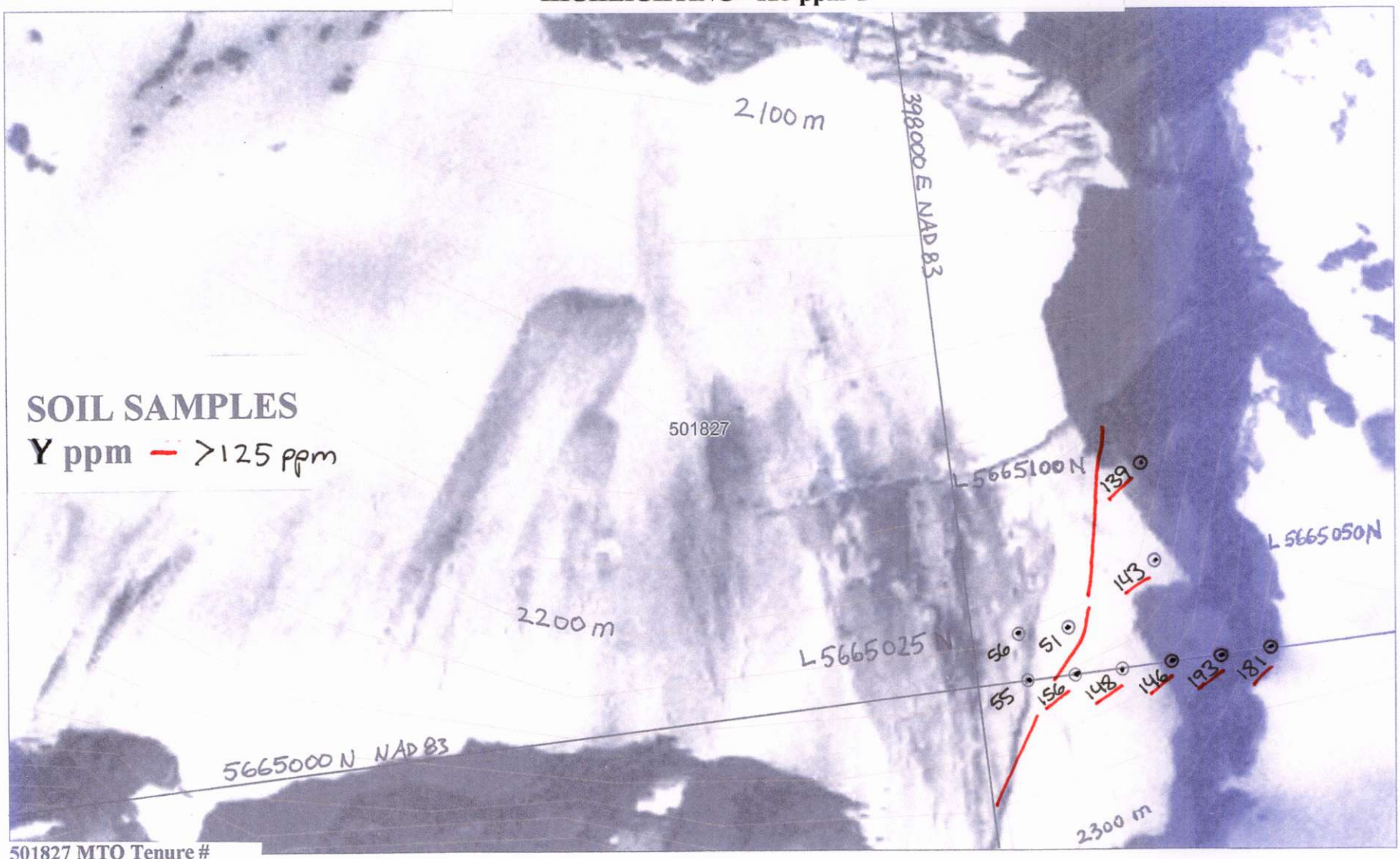
200 0 200 400 600
FEET
0 100 200 m

⊙ **Soil Sample (along E-W grid lines, 25 m spacing)**

N

Copeland Soil Samples East Glacier Zone

FIG 23 EAST GLACIER ZONE SOIL SAMPLES AUG, 2010
HIGHLIGHTING >125 ppm Y



501827 MTO Tenure #
BCGS Topo Sheet 082M.018
Revelstoke Mining Division

SCALE 1 : 3,000

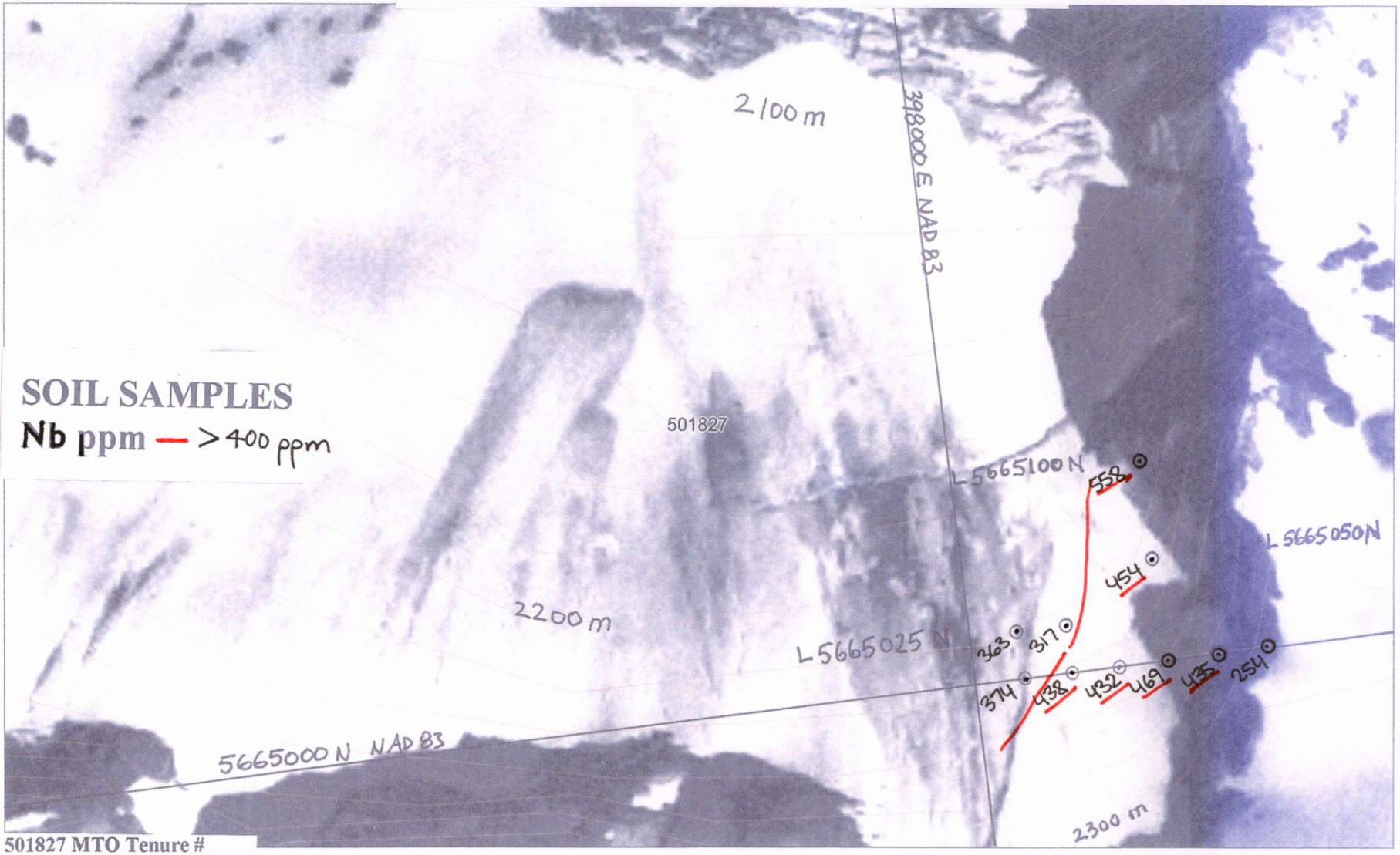
200 0 200 400 600
FEET
0 100 200 m

⊙ Soil Sample (along E-W grid lines, 25 m spacing)

N

Copeland Soil Samples East Glacier Zone

FIG 24 EAST GLACIER ZONE SOIL SAMPLES AUG, 2010
HIGHLIGHTING >400 ppm Nb



SOIL SAMPLES
Nb ppm — >400 ppm

501827 MTO Tenure #
BCGS Topo Sheet 082M.018
Revelstoke Mining Division

SCALE 1 : 3,000

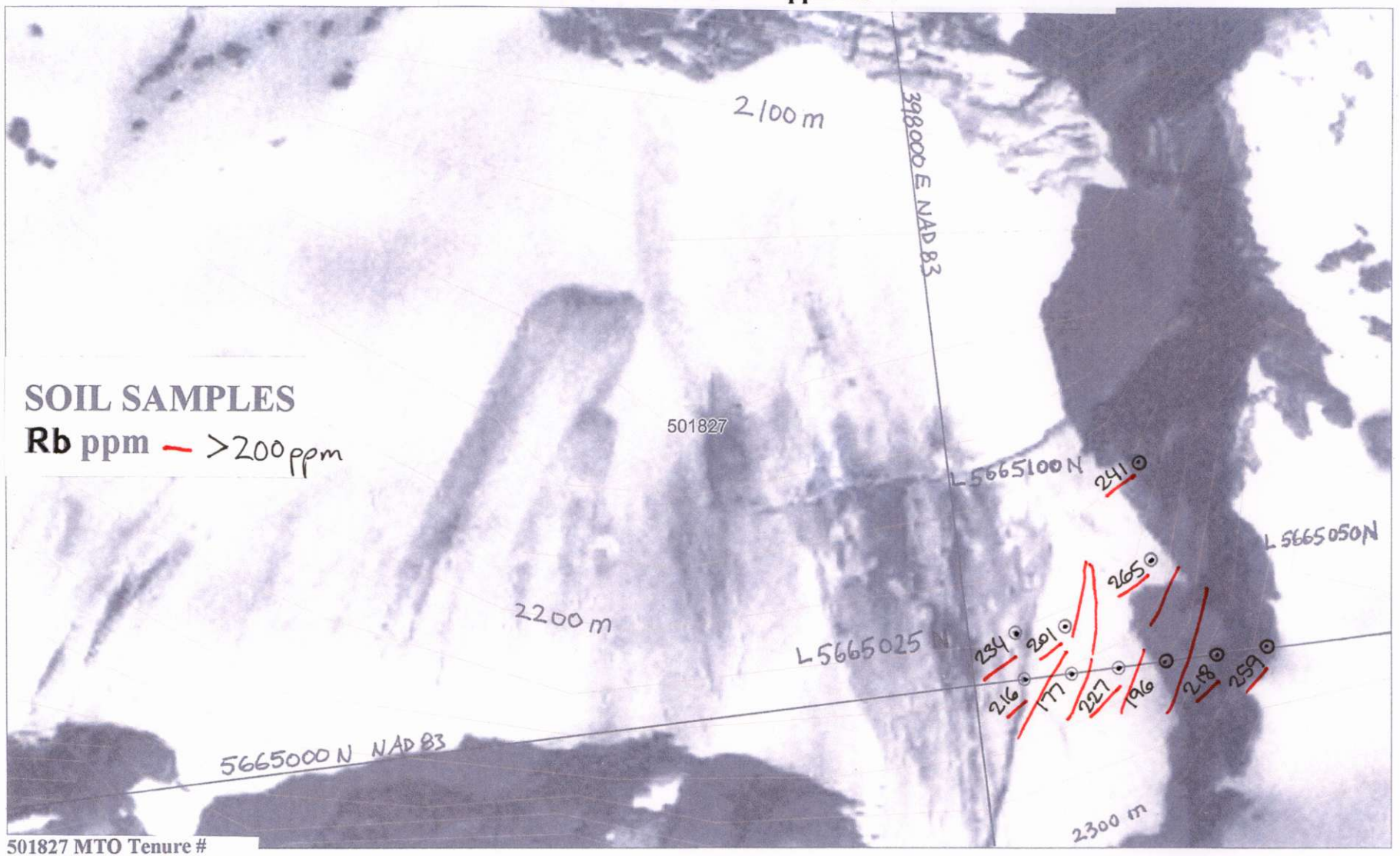
200 0 200 400 600
FEET
0 100 200 m

⊙ **Soil Sample (along E-W grid lines, 25 m spacing)**

N

Copeland Soil Samples East Glacier Zone

FIG 25 EAST GLACIER ZONE SOIL SAMPLES AUG, 2010
HIGHLIGHTING >200 ppm Rb



501827 MTO Tenure #
BCGS Topo Sheet 082M.018
Revelstoke Mining Division

SCALE 1 : 3,000

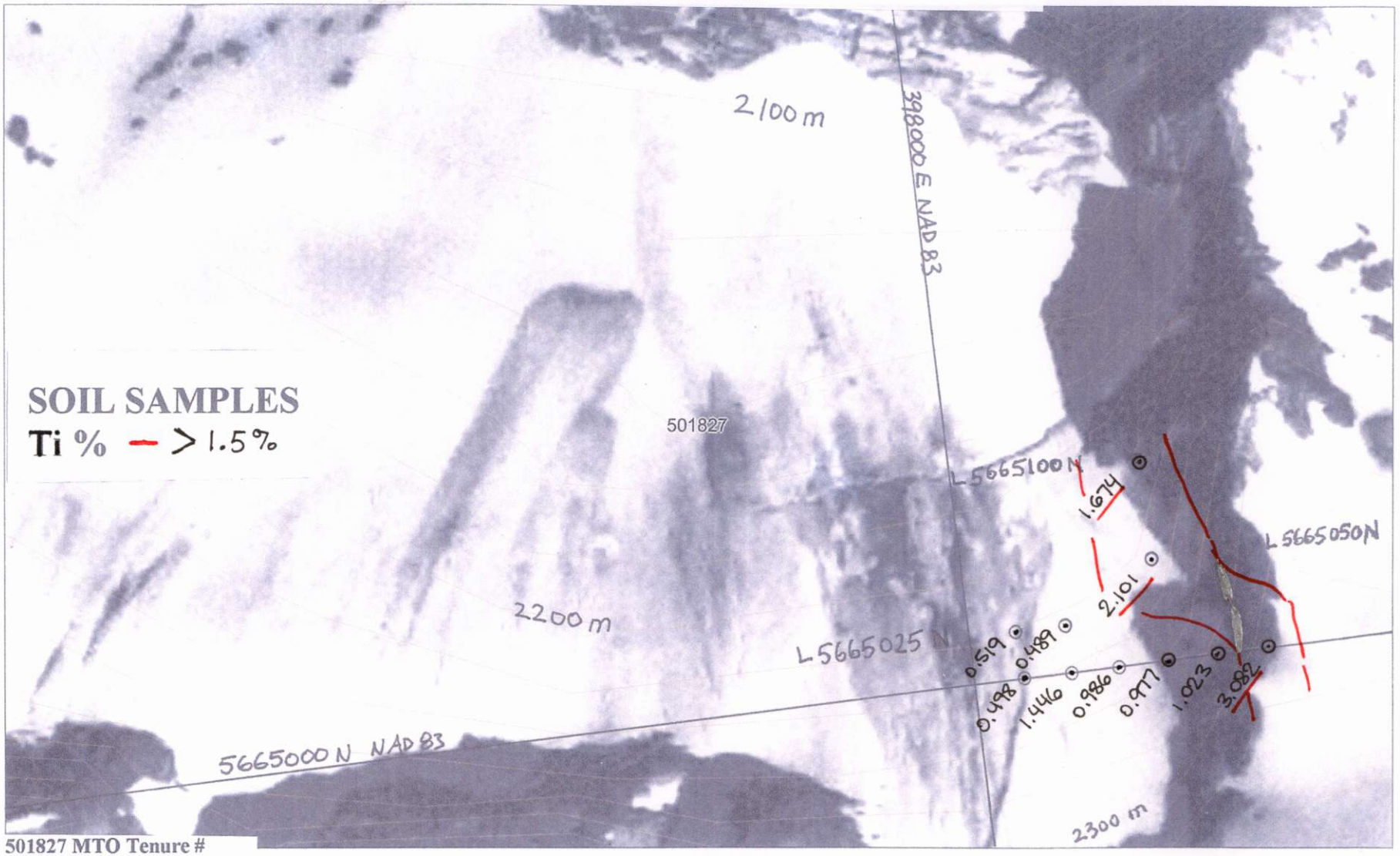
200 0 200 400 600
FEET
0 100 200 m

⊙ Soil Sample (along E-W grid lines, 25 m spacing)

N

Copeland Soil Samples East Glacier Zone

FIG 26 EAST GLACIER ZONE SOIL SAMPLES AUG, 2010
HIGHLIGHTING >1.5% Ti



501827 MTO Tenure #
BCGS Topo Sheet 082M.018
Revelstoke Mining Division

SCALE 1 : 3,000

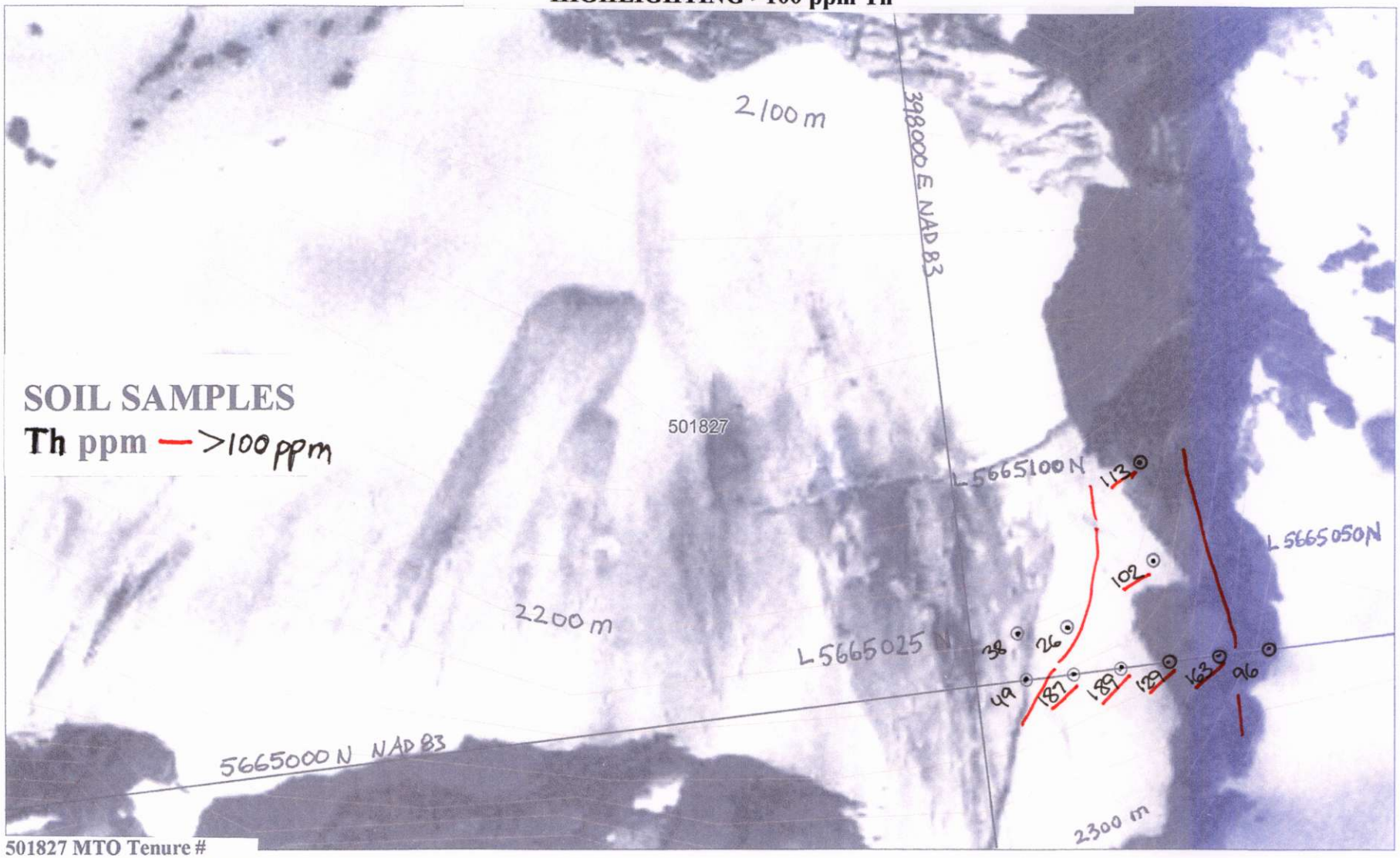
200 0 200 400 600
FEET
0 100 200 m

⊙ **Soil Sample (along E-W grid lines, 25 m spacing)**

N

Copeland Soil Samples East Glacier Zone

FIG 27 EAST GLACIER ZONE SOIL SAMPLES AUG, 2010
HIGHLIGHTING >100 ppm Th



501827 MTO Tenure #
BCGS Topo Sheet 082M.018
Revelstoke Mining Division

SCALE 1 : 3,000

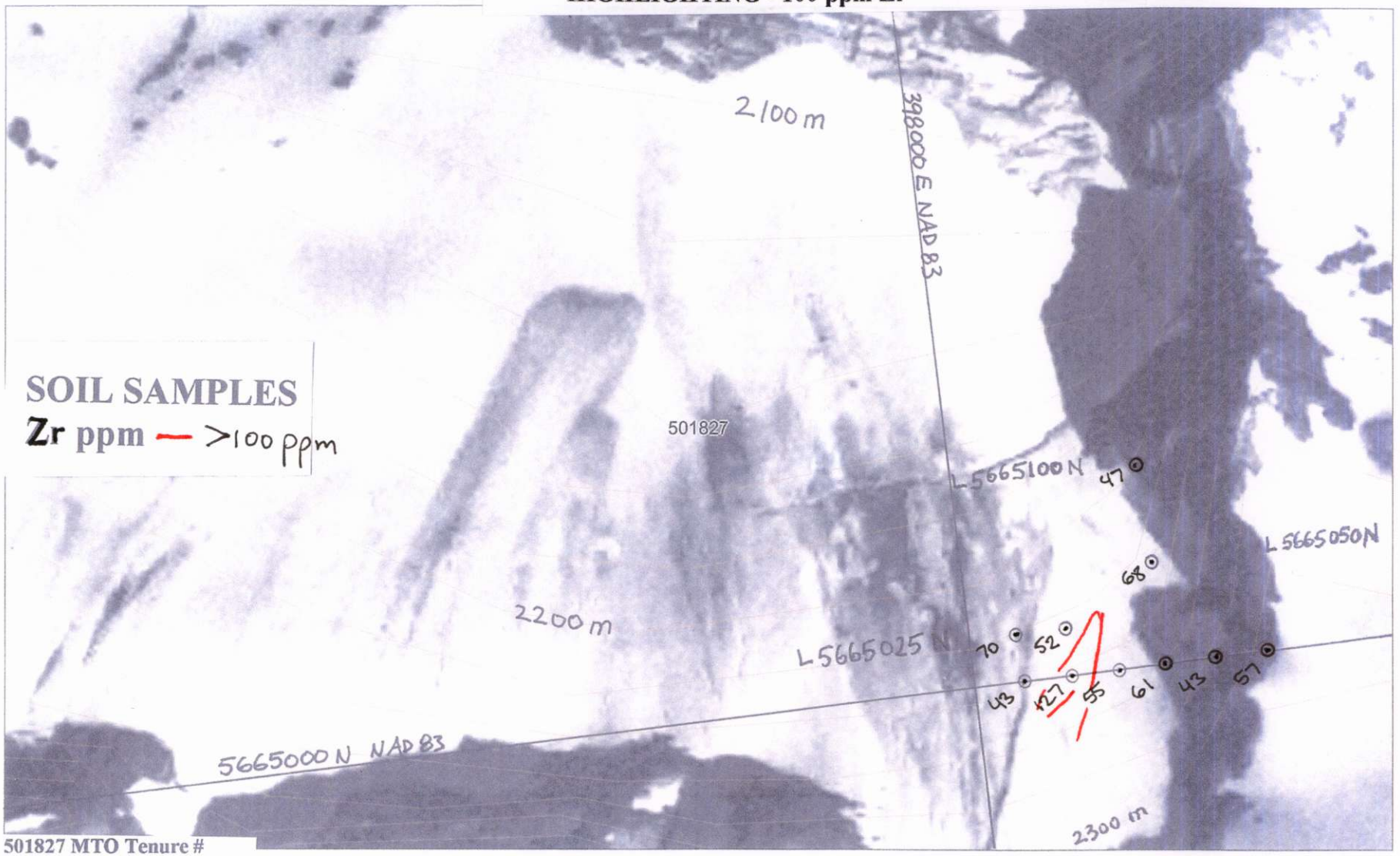
200 0 200 400 600
FEET
0 100 200 m

● Soil Sample (along E-W grid lines, 25 m spacing)

N

Copeland Soil Samples East Glacier Zone

FIG 28 EAST GLACIER ZONE SOIL SAMPLES AUG, 2010
HIGHLIGHTING >100 ppm Zr



501827 MTO Tenure #
BCGS Topo Sheet 082M.018
Revelstoke Mining Division

SCALE 1 : 3,000

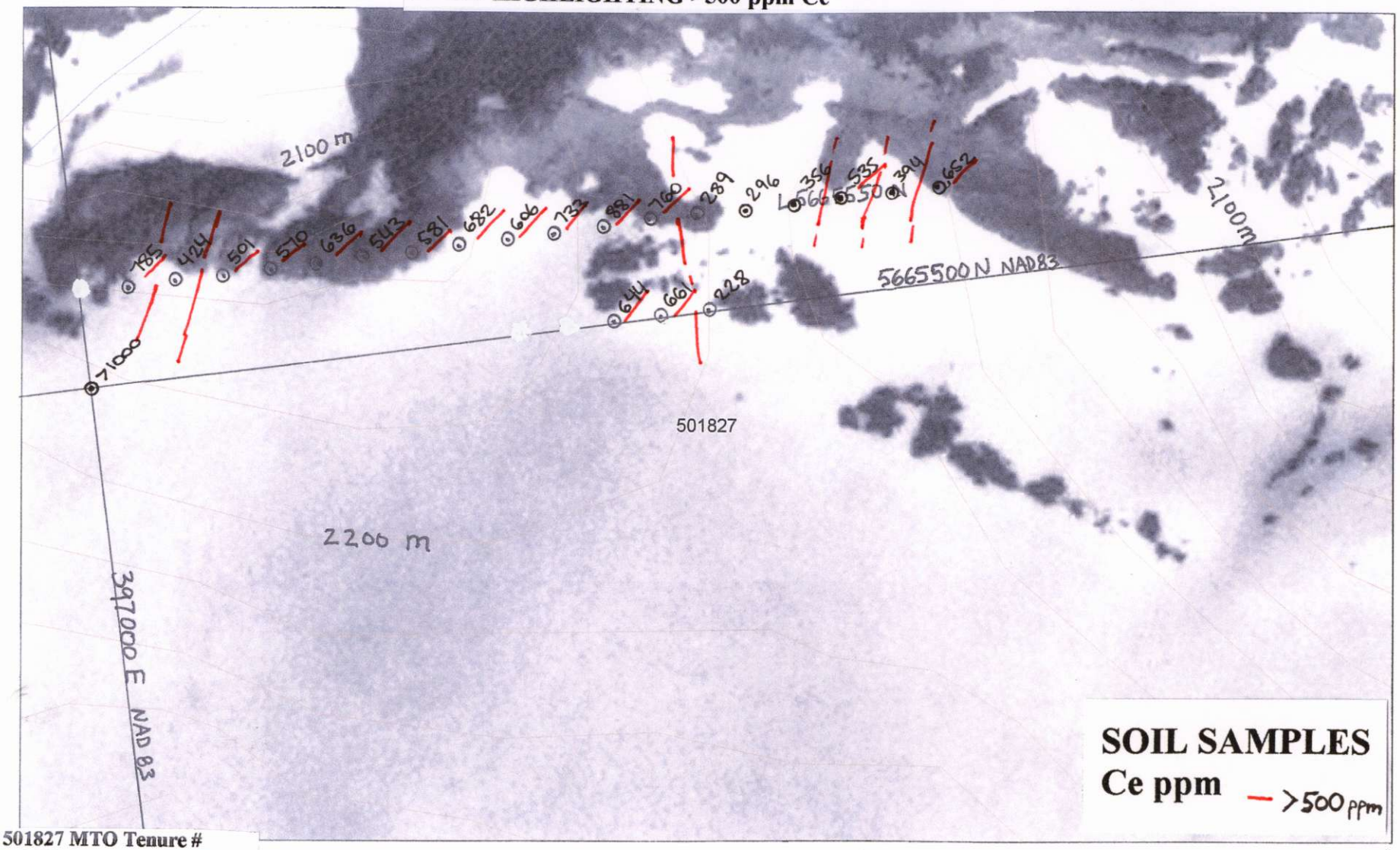
200 0 200 400 600
FEET
0 100 200 m

⊙ Soil Sample (along E-W grid lines, 25 m spacing)

N

Copeland Soil Samples West Basin & Ridge

FIG 29 WEST BASIN ZONE SOIL SAMPLES AUG, 2010
HIGHLIGHTING >500 ppm Ce



501827 MTO Tenure #
BCGS Topo Sheet 082M.018
Revelstoke Mining Division

SCALE 1 : 3,000

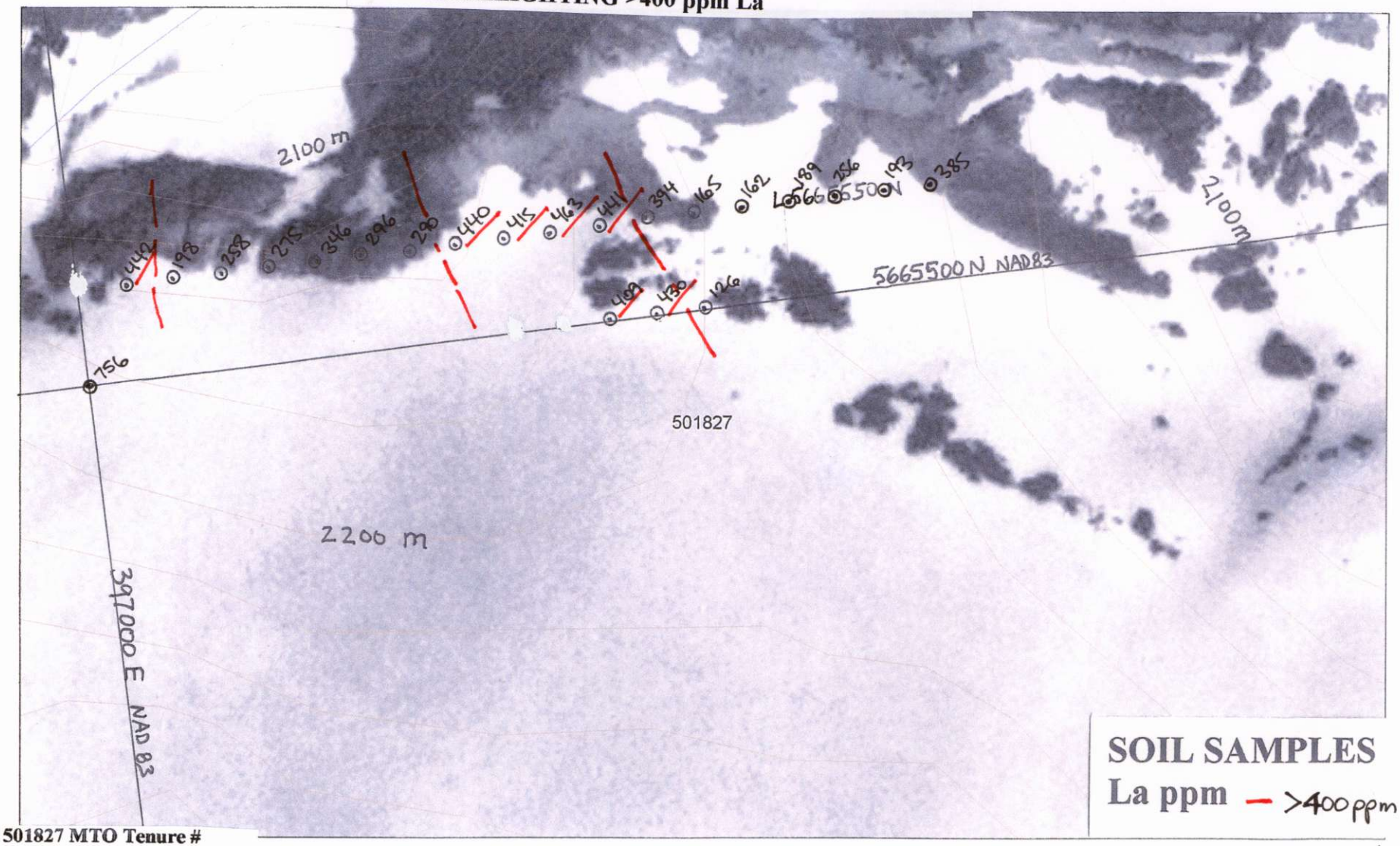
200 0 200 400 600
FEET
0 100 200 m

⊙ **Soil Sample (along E-W grid lines, 25 m spacing)**

N

Copeland Soil Samples West Basin & Ridge

FIG 30 WEST BASIN ZONE SOIL SAMPLES AUG, 2010
HIGHLIGHTING >400 ppm La



501827 MTO Tenure #
BCGS Topo Sheet 082M.018
Revelstoke Mining Division

SCALE 1 : 3,000

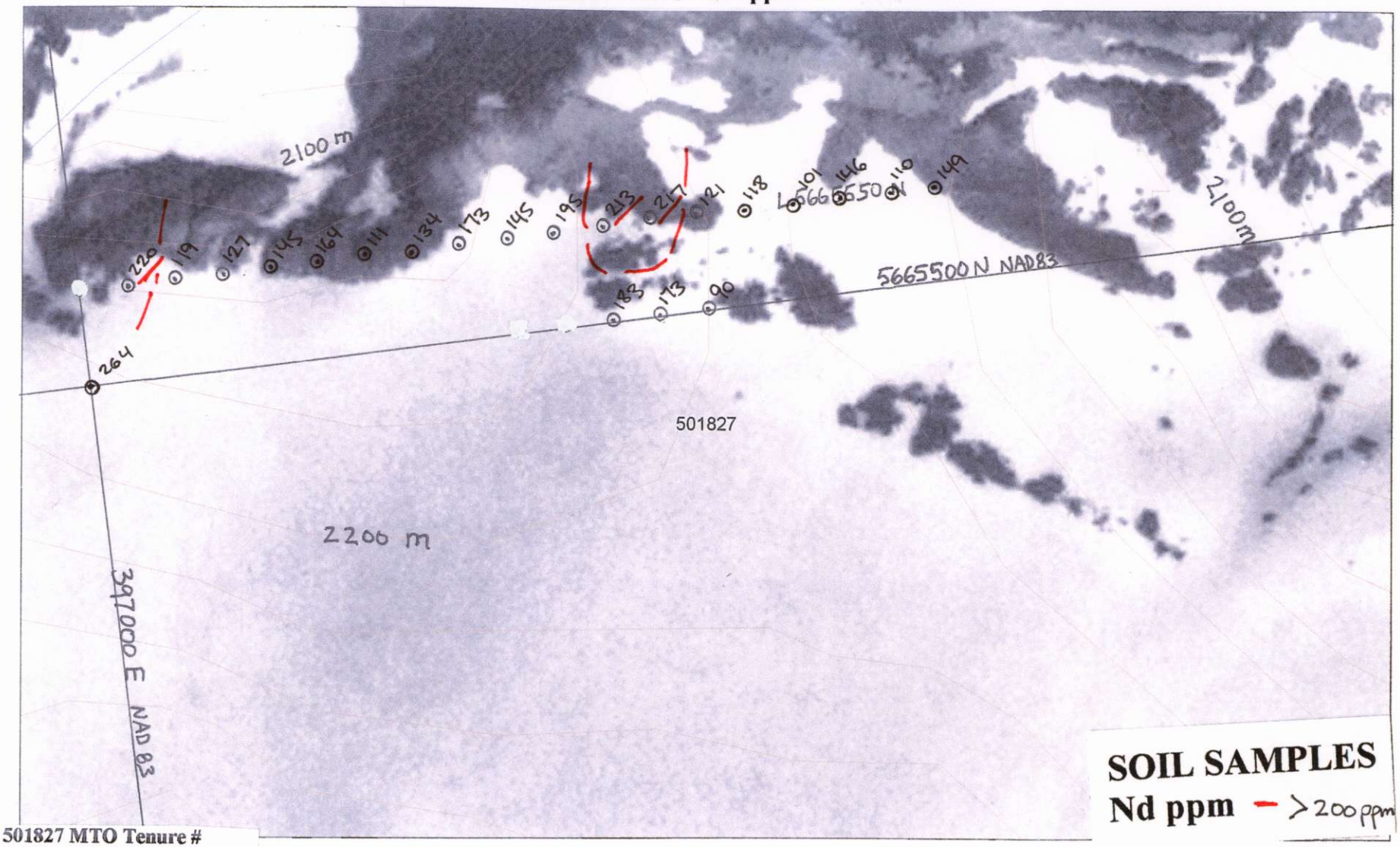
200 0 200 400 600
FEET
0 100 200 m

⊙ **Soil Sample (along E-W grid lines, 25 m spacing)**

N

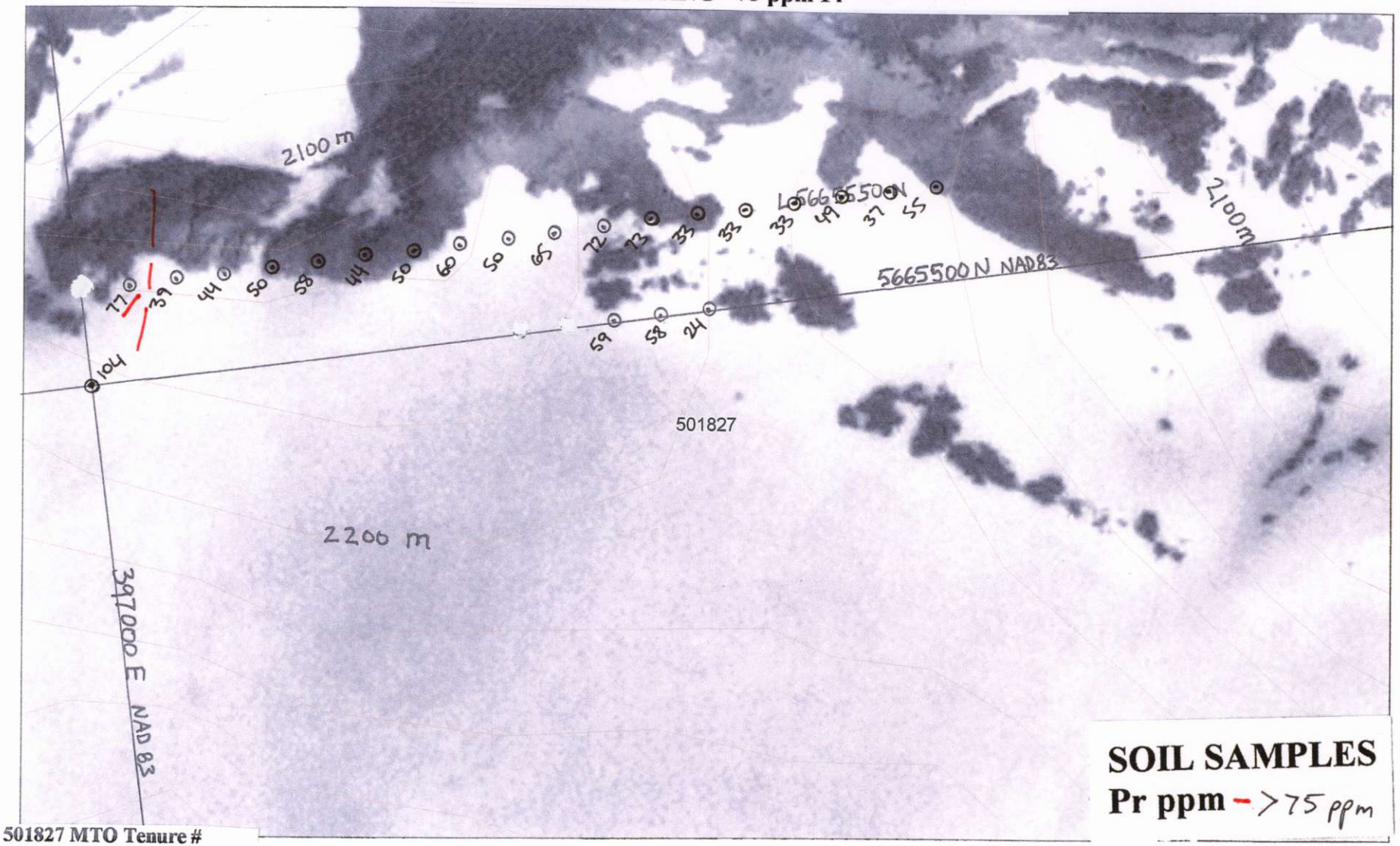
Copeland Soil Samples West Basin & Ridge

FIG 31 WEST BASIN ZONE SOIL SAMPLES AUG, 2010
HIGHLIGHTING >200 ppm Nd



Copeland Soil Samples West Basin & Ridge

FIG 32 WEST BASIN ZONE SOIL SAMPLES AUG, 2010
HIGHLIGHTING >75 ppm Pr



501827 MTO Tenure #
BCGS Topo Sheet 082M.018
Revelstoke Mining Division

SCALE 1 : 3,000

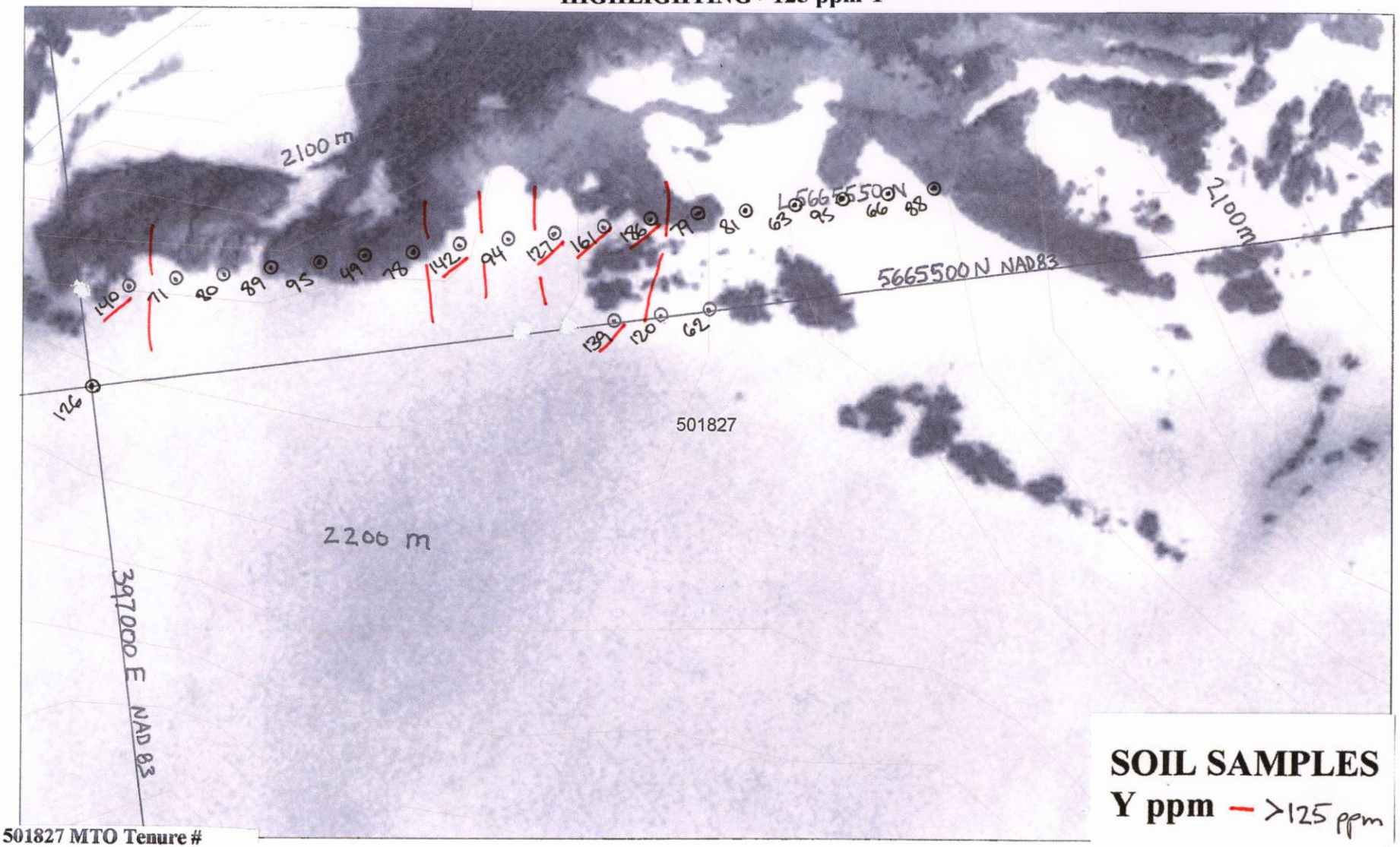
200 0 200 400 600
FEET
0 100 200 m

⊙ **Soil Sample (along E-W grid lines, 25 m spacing)**

N

Copeland Soil Samples West Basin & Ridge

FIG 33 WEST BASIN ZONE SOIL SAMPLES AUG, 2010
HIGHLIGHTING >125 ppm Y



SOIL SAMPLES
Y ppm — >125 ppm

501827 MTO Tenure #
BCGS Topo Sheet 082M.018
Revelstoke Mining Division

SCALE 1 : 3,000

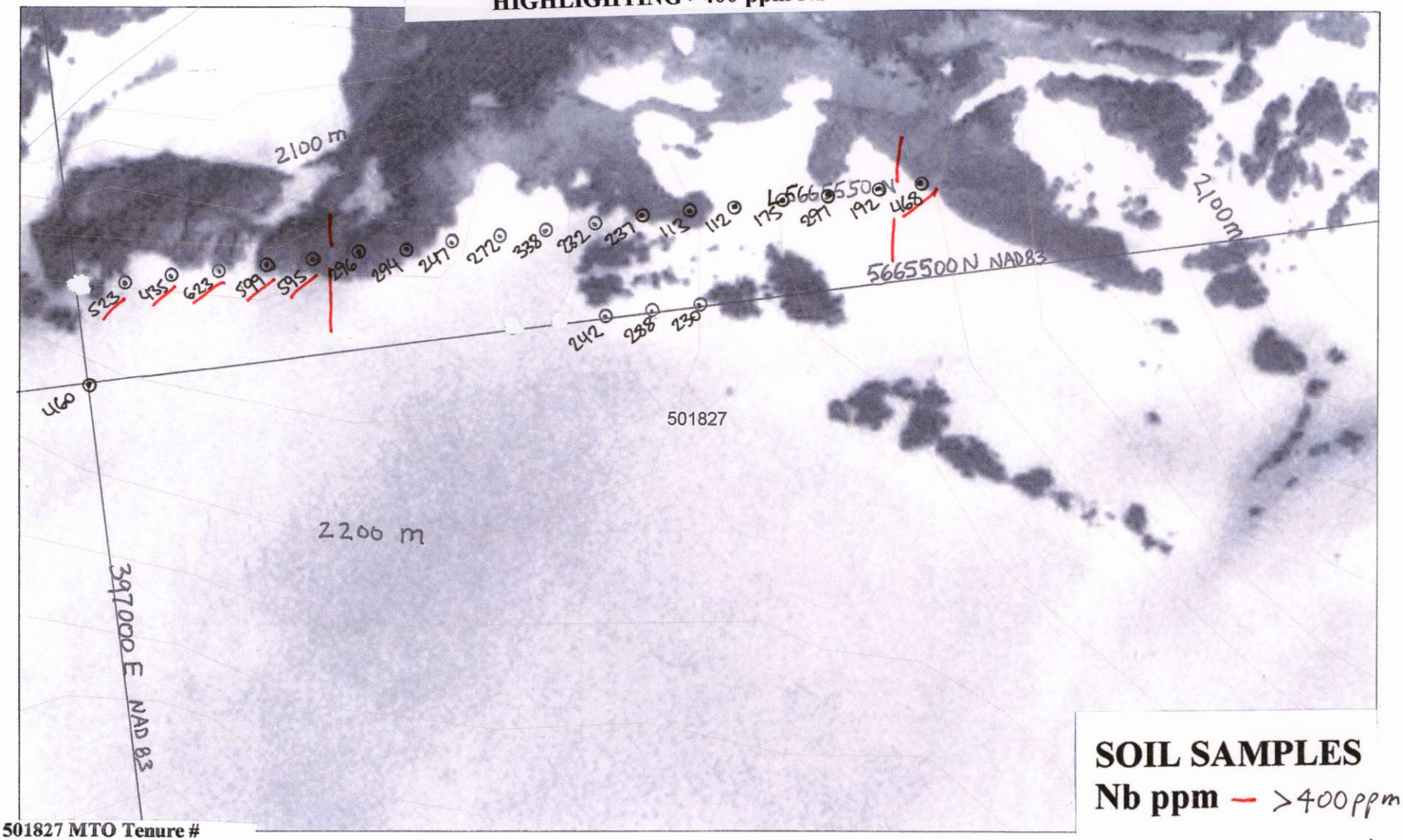
200 0 200 400 600
FEET
0 100 200 m

⊙ **Soil Sample (along E-W grid lines, 25 m spacing)**

N

Copeland Soil Samples West Basin & Ridge

FIG 34 WEST BASIN ZONE SOIL SAMPLES AUG, 2010
HIGHLIGHTING >400 ppm Nb



SOIL SAMPLES
Nb ppm — >400ppm

501827 MTO Tenure #
BCGS Topo Sheet 082M.018
Revelstoke Mining Division

SCALE 1 : 3,000

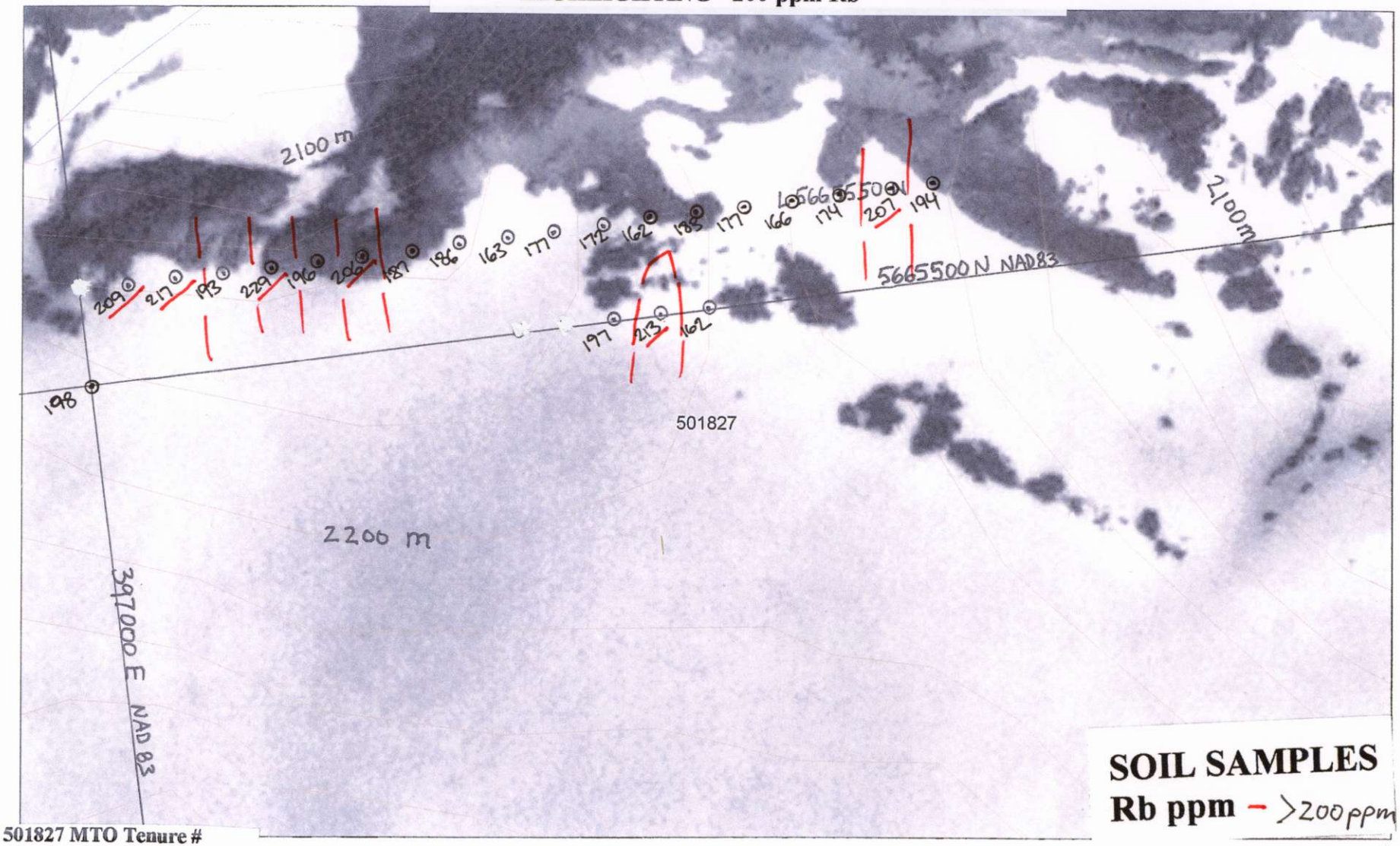
200 0 200 400 600
FEET
0 100 200 m

⊙ **Soil Sample (along E-W grid lines, 25 m spacing)**

N

Copeland Soil Samples West Basin & Ridge

FIG 35 WEST BASIN ZONE SOIL SAMPLES AUG, 2010
HIGHLIGHTING >200 ppm Rb



501827 MTO Tenure #
BCGS Topo Sheet 082M.018
Revelstoke Mining Division

SCALE 1 : 3,000

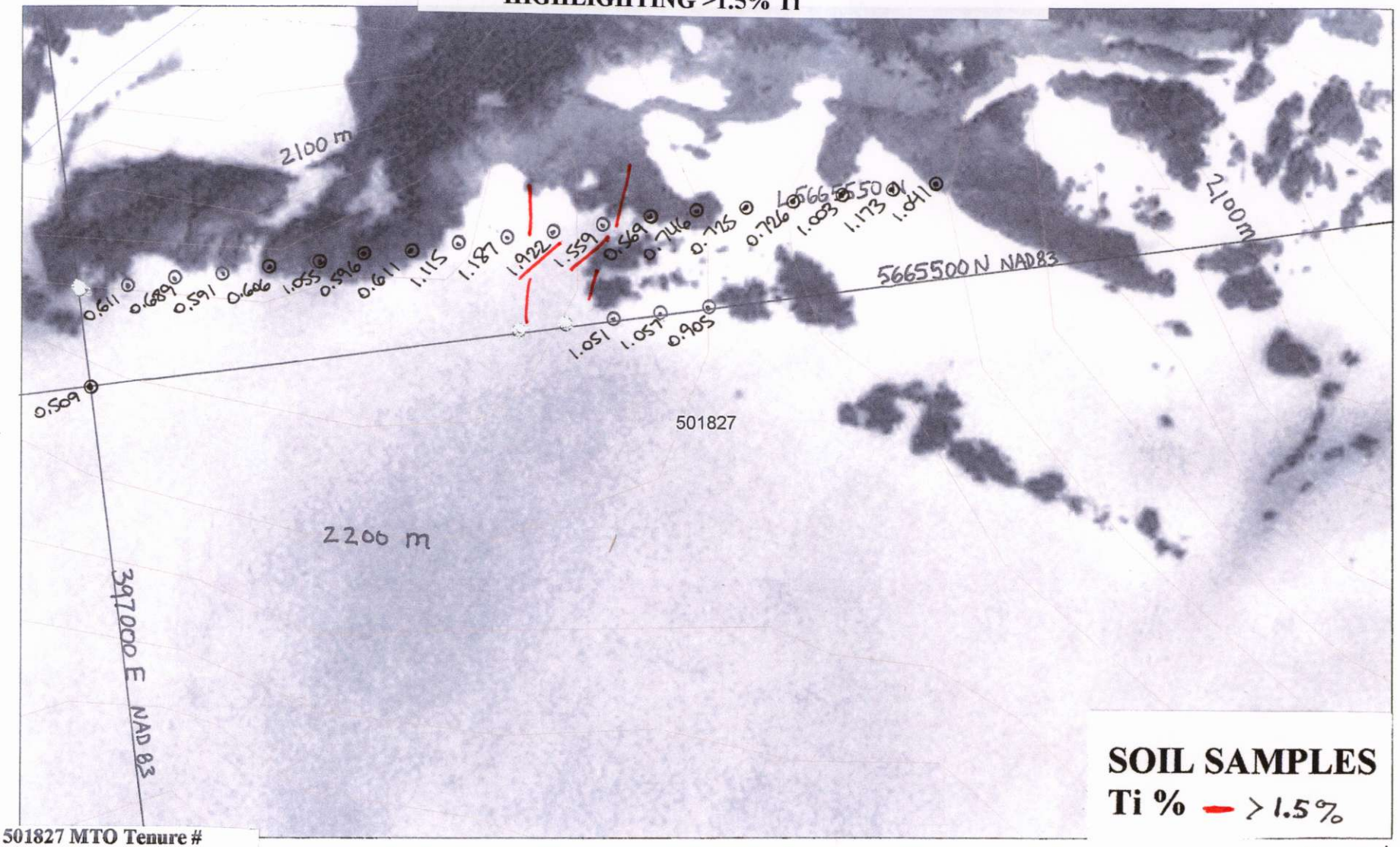
200 0 200 400 600
FEET
0 100 200 m

⊙ **Soil Sample (along E-W grid lines, 25 m spacing)**

N

Copeland Soil Samples West Basin & Ridge

FIG 36 WEST BASIN ZONE SOIL SAMPLES AUG, 2010
HIGHLIGHTING >1.5% Ti



501827 MTO Tenure #
BCGS Topo Sheet 082M.018
Revelstoke Mining Division

SCALE 1 : 3,000

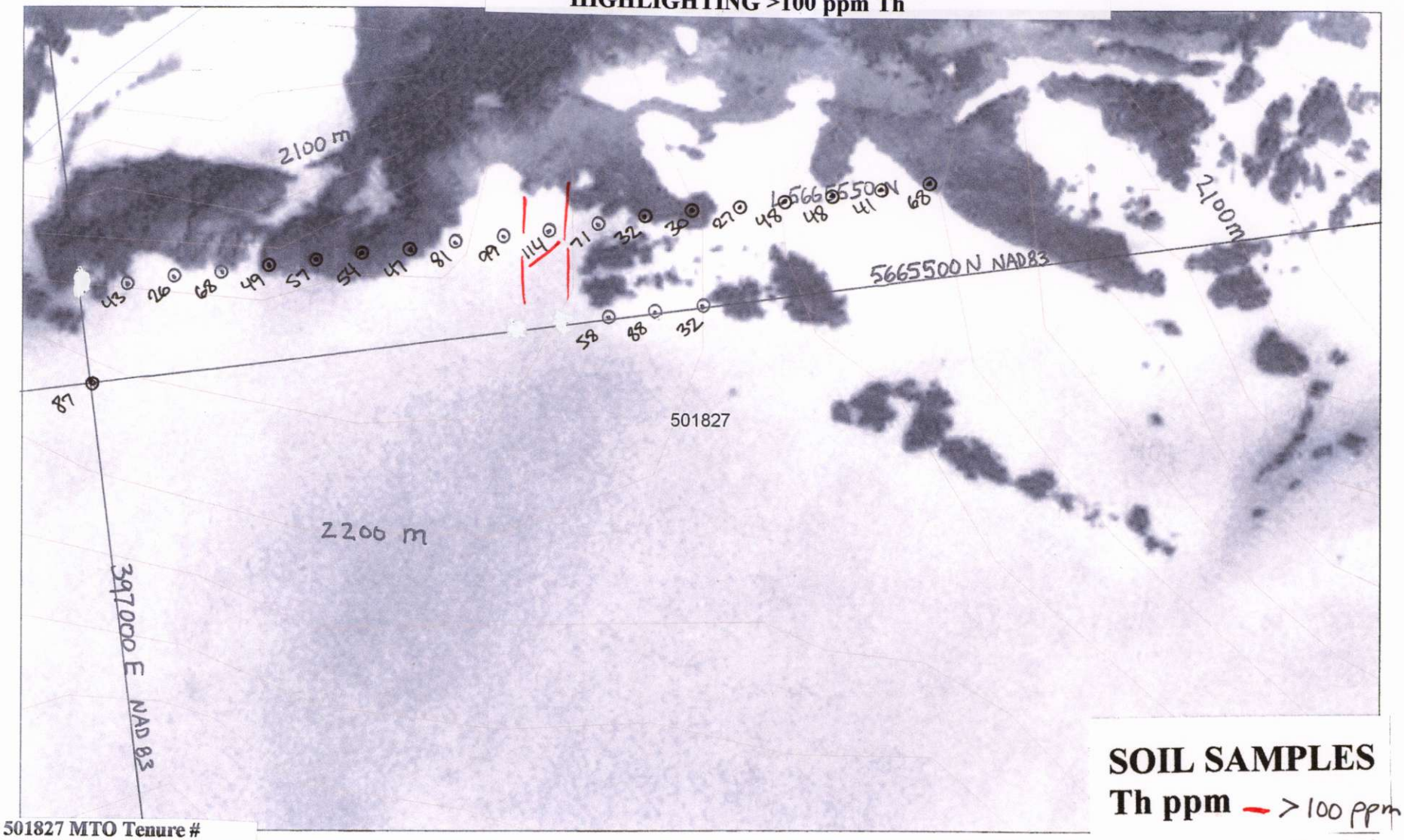
200 0 200 400 600
FEET
0 100 200 m

⊙ **Soil Sample (along E-W grid lines, 25 m spacing)**

N

Copeland Soil Samples West Basin & Ridge

FIG 37 WEST BASIN ZONE SOIL SAMPLES AUG, 2010
HIGHLIGHTING >100 ppm Th



SOIL SAMPLES
Th ppm — > 100 ppm

501827 MTO Tenure #
BCGS Topo Sheet 082M.018
Revelstoke Mining Division

SCALE 1 : 3,000

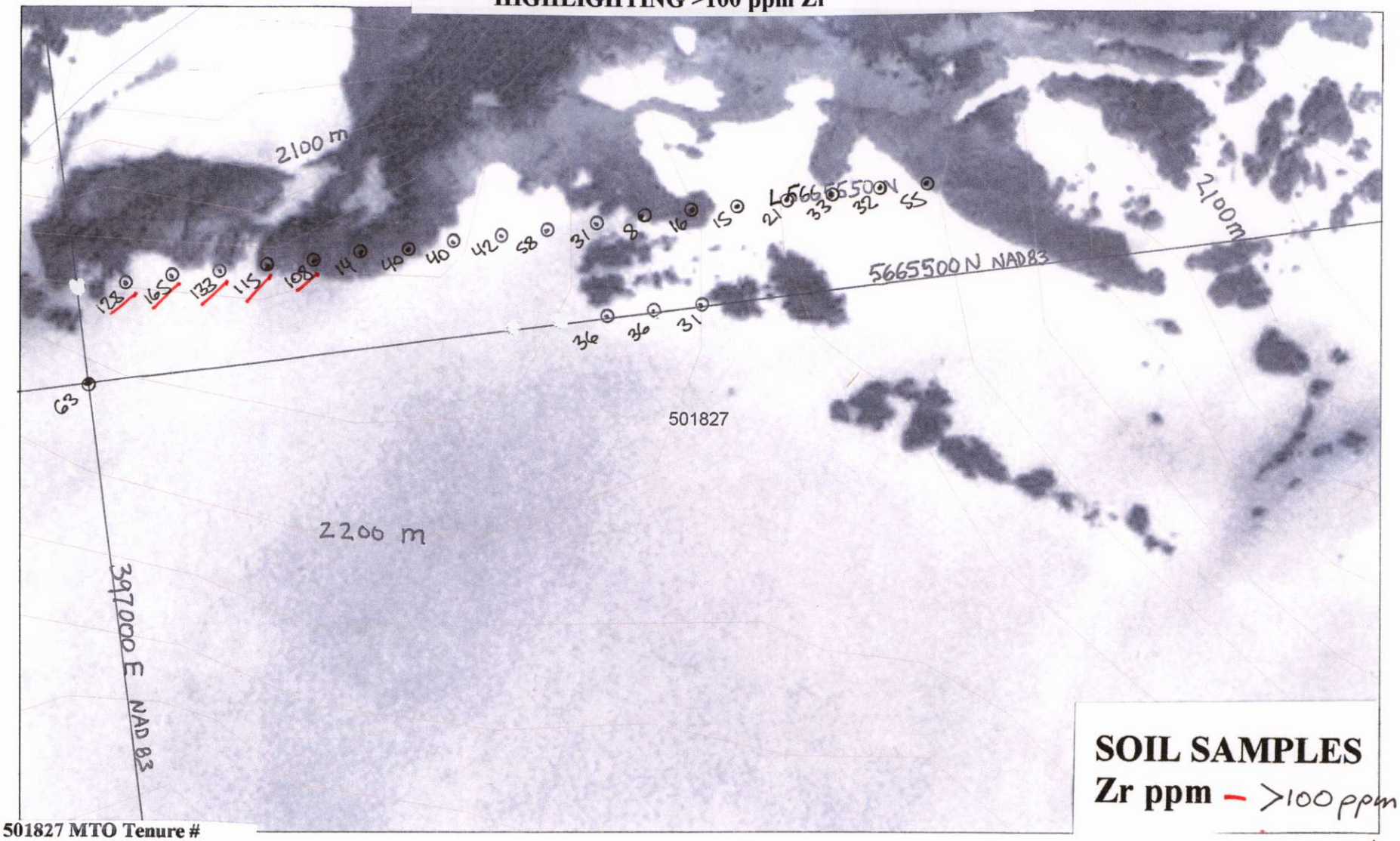
200 0 200 400 600
FEET
0 100 200 m

⊙ **Soil Sample (along E-W grid lines, 25 m spacing)**

N

Copeland Soil Samples West Basin & Ridge

FIG 38 WEST BASIN ZONE SOIL SAMPLES AUG, 2010
HIGHLIGHTING >100 ppm Zr



PIONEER LABORATORIES INC. #103-2691 VISCOUNT WAY, RICHMOND, BC CANADA V6V 2R5 TELEPHONE (604) 231-8165

GEOCHEMICAL ANALYSIS CERTIFICATE

TORCH RIVER RESOURCES LTD.
Project: Mt. Copeland
Sample Type: Soils/Rocks

HNO_3-$HClO_4$-HF-HCl digestion, ICP/MS finish.

Analyst RSam
Report No. 2102718A
Date: September 22, 2010

Appendix A

ELEMENT / SAMPLE	Ce ppm	Dy ppm	Er ppm	Eu ppm	Gd ppm	Ho ppm	La ppm	Lu ppm	Nd ppm	Pr ppm	Sc ppm	Sm ppm	Tb ppm	Th ppm	Tm ppm	U ppm	Y ppm	Yb ppm	Ba ppm	Nb ppm	Rb ppm	Sr ppm	Ta ppm	Ti %	Zr ppm
L5665500N-397000E	>1000	22.8	13.2	13.0	48.7	4.3	756.1	1.7	264.1	104.6	4.8	38.7	4.8	87.0	1.8	32.1	126.1	11.4	720	460.3	198.3	1033	4.8	.509	63
L5665500N-397275E	644.9	24.8	14.1	10.7	38.9	4.9	409.3	1.8	183.3	59.3	13.3	34.5	4.7	58.2	2.0	12.9	139.9	12.4	592	242.0	197.9	717	2.3	1.051	36
L5665500N-397300E	661.3	22.0	12.2	9.9	35.5	4.2	430.5	1.4	173.0	58.5	14.7	31.0	4.2	88.3	1.6	18.9	120.7	10.1	625	288.4	213.3	666	2.9	1.057	36
L5665500N-397325E	228.5	11.7	6.5	5.3	17.3	2.3	126.8	.8	90.6	24.8	9.4	16.1	2.2	32.7	.9	5.9	62.5	5.8	562	230.8	162.6	385	2.0	.905	31
L5665500N-397775E	502.1	17.6	10.1	7.2	27.6	3.4	299.1	1.3	139.5	46.6	12.7	24.1	3.3	53.8	1.4	9.3	100.6	8.8	681	147.6	147.1	524	1.5	.706	24
L5665500N-397800E	470.7	13.9	7.7	7.7	23.1	2.7	215.5	.9	111.9	36.1	11.0	20.5	2.6	38.0	1.0	9.9	72.2	6.5	826	110.7	145.8	422	1.0	.749	27
L5665500N-397825E	555.1	16.5	8.6	7.6	28.2	3.0	318.3	1.0	148.8	49.9	12.5	26.0	3.2	68.4	1.1	11.2	82.7	7.2	719	157.6	150.1	771	1.6	1.014	23
L5665500N-397850E	536.6	17.3	10.3	7.1	27.9	3.5	293.8	1.4	139.8	48.3	9.3	24.3	3.3	54.8	1.4	15.5	95.9	9.5	651	248.0	168.2	721	2.2	.784	27
L5665500N-397875E	376.7	13.8	7.9	7.2	21.6	2.7	217.3	1.0	112.7	35.6	11.2	19.2	2.6	43.3	1.1	15.5	78.1	7.1	619	192.8	189.6	552	1.8	.844	27
L5665500N-397900E	533.6	17.7	10.1	8.0	28.5	3.4	305.0	1.3	144.1	48.8	11.2	25.3	3.4	72.0	1.4	22.2	100.6	8.9	566	255.8	169.6	592	2.7	.853	32
L5665500N-397925E	733.8	22.1	13.7	9.8	34.7	4.5	385.1	1.8	186.1	67.5	7.6	30.5	4.2	47.9	2.0	20.6	128.8	12.6	725	340.0	190.9	1251	4.0	.683	40
L5665500N-397960E	658.1	18.4	10.8	9.6	29.5	3.6	381.7	1.4	163.5	58.1	7.2	26.0	3.4	72.8	1.5	31.0	101.1	9.6	582	337.8	183.7	1100	3.6	.664	39
L5665500N-397975E	802.6	21.1	12.0	9.2	35.5	4.1	475.4	1.5	190.1	70.3	5.6	30.4	4.0	86.1	1.7	27.8	115.0	10.5	754	530.2	193.9	1471	5.2	.918	66
L5665500N-398000E	361.8	13.2	6.9	6.8	22.1	2.4	194.7	.8	125.9	37.4	14.1	21.0	2.6	44.6	1.0	13.1	67.1	5.7	461	170.0	199.8	610	2.0	.618	26
L5665500N-398025E	334.4	12.1	6.6	8.6	20.9	2.3	192.0	.8	123.3	35.0	14.5	19.6	2.4	41.6	.9	15.7	63.6	5.5	536	207.4	228.3	632	2.6	.810	28
L5665500N-398050E	440.8	13.5	7.8	6.8	21.6	2.7	233.5	1.0	113.3	38.9	8.5	19.2	2.6	43.5	1.1	16.0	75.9	6.8	805	287.5	202.6	1294	2.9	.801	40
L5665500N-398075E	281.2	12.5	6.5	6.0	19.9	2.3	164.2	.8	107.5	30.1	18.5	18.6	2.4	36.6	.9	17.3	62.8	5.4	551	173.8	202.1	557	2.5	1.215	28
L5665550N-397025E	785.1	24.1	14.6	10.6	39.5	4.7	442.2	2.0	220.9	77.4	4.7	35.8	4.7	43.2	2.1	36.7	140.9	13.6	886	523.7	209.5	1159	5.9	.611	128
L5665550N-397050E	424.4	12.9	7.7	17.6	21.2	2.5	198.5	1.0	119.7	39.4	4.7	20.3	2.5	26.1	1.1	23.0	71.5	6.9	1109	435.8	217.1	1406	4.0	.689	165
L5665550N-397075E	501.9	14.2	8.6	6.3	23.3	2.8	258.0	1.2	127.0	44.5	2.7	20.9	2.6	68.3	1.2	39.1	80.1	7.9	998	623.6	193.7	1119	5.2	.591	133
L5665500N-397100E	670.5	15.4	9.4	7.1	26.5	3.0	275.4	1.3	145.3	50.3	3.0	23.5	3.9	49.1	1.4	40.7	89.7	9.1	981	899.2	229.4	1298	5.3	.606	115
L5665550N-397125E	636.3	17.3	9.9	8.7	30.5	3.3	346.9	1.3	164.8	58.3	6.5	27.6	3.4	57.9	1.4	28.6	95.4	8.8	868	595.9	196.6	1303	5.6	1.055	108
L5665550N-397150E	543.0	10.2	5.7	5.9	19.6	1.9	296.1	.7	111.7	44.3	3.4	17.0	2.1	54.4	.8	10.7	49.9	5.0	504	296.7	206.5	1282	3.8	.596	14
L5665550N-397175E	581.1	14.6	8.3	8.5	25.8	2.8	290.0	1.1	134.0	50.4	4.6	22.1	2.9	47.5	1.1	12.8	78.4	7.3	736	294.1	187.0	1379	3.8	.611	40
L5665550N-397200E	682.1	24.4	13.4	10.3	38.4	4.7	440.4	1.5	173.6	60.2	15.0	33.5	4.7	81.8	1.8	11.2	142.4	11.1	452	247.6	186.4	956	3.3	1.115	40
L5665550N-397225E	606.0	18.0	9.6	9.6	30.5	3.3	415.3	1.1	145.9	50.9	12.6	26.7	3.6	99.1	1.3	27.2	94.9	7.8	513	272.2	163.6	575	2.9	1.187	42
L5665550N-397250E	733.8	24.9	12.7	11.1	42.4	4.6	463.5	1.4	195.1	65.9	15.1	37.6	4.9	114.9	1.6	21.8	127.9	10.0	608	338.1	177.9	800	4.3	1.922	58
L5665550N-397275E	861.5	31.7	18.1	15.3	51.5	6.1	441.2	2.4	213.8	72.2	12.9	44.7	6.2	71.0	2.5	12.0	161.5	16.5	579	232.1	172.4	923	3.0	1.559	31
L5665550N-397825E	760.4	33.0	21.7	16.9	46.7	6.8	394.4	3.2	217.8	73.5	7.8	40.9	6.9	32.4	3.3	8.8	186.9	21.2	761	237.5	162.7	1249	3.0	.569	8
L5665550N-397850E	289.0	14.7	8.5	6.6	22.4	2.9	165.0	1.1	121.6	33.7	11.3	20.7	2.8	30.0	1.2	7.7	79.6	7.8	504	113.8	183.4	493	1.3	.746	16
L5665550N-397875E	296.3	15.3	8.9	6.2	22.9	3.0	162.7	1.2	118.6	33.9	11.7	21.2	2.9	27.0	1.2	8.2	81.1	7.8	504	112.1	177.7	499	1.4	.725	15
L5665550N-397900E	356.7	12.3	6.7	7.1	20.6	2.3	189.8	.8	101.5	33.2	13.4	18.6	2.5	48.7	.9	21.3	63.0	5.5	498	175.8	166.8	550	1.9	.726	21
L5665550N-397925E	535.3	17.1	9.6	7.5	28.5	3.2	256.7	1.1	146.4	49.9	8.2	25.4	3.3	48.5	1.3	12.4	95.1	8.2	477	297.5	174.9	836	3.8	1.003	33
L5665560N-397950E	394.8	12.9	7.2	6.8	22.0	2.4	193.1	.9	110.2	37.0	14.5	20.3	2.6	41.6	1.0	11.4	66.1	6.1	596	192.5	207.8	726	3.6	1.173	32
L5665550N-397975E	652.7	16.7	9.5	7.4	28.9	3.2	385.9	1.2	149.3	55.5	7.0	24.4	3.3	68.8	1.3	26.2	88.8	8.3	699	468.1	194.2	1335	5.4	1.041	55
L5665025N-398000E	470.7	10.8	6.2	7.4	19.3	2.0	247.3	.8	100.9	39.6	4.6	16.4	2.2	38.8	.8	25.2	56.3	5.3	587	363.0	234.3	1132	3.5	.519	70
L5665025N-398025E	371.9	9.0	5.2	11.3	15.9	1.7	182.8	.6	88.4	32.7	2.6	13.7	1.8	26.1	.7	15.2	51.6	4.7	610	317.5	201.6	1275	3.5	.489	52
L5665050N-398100E	>1000	27.5	14.9	17.2	48.5	5.1	643.2	1.6	237.8	87.3	11.0	42.0	5.5	102.9	1.9	13.3	143.2	11.7	660	454.7	265.0	819	7.0	2.101	68
L5665100N-398100E	>1000	26.3	14.9	14.5	49.8	5.0	813.7	1.8	241.9	98.2	8.8	40.4	5.3	113.7	2.0	26.5	139.9	12.4	840	558.1	241.5	843	6.5	1.674	47
L5665300N-397625E	802.3	17.6	9.9	11.5	31.7	3.4	553.8	1.2	164.9	64.1	9.3	25.2	3.5	117.2	1.3	26.3	96.2	8.4	747	393.6	195.3	884	3.7	.554	28
L5665300N-397650E	624.6	20.6	9.4	14.9	42.8	3.5	335.2	.9	210.2	63.4	22.8	40.9	4.7	53.7	1.1	16.0	88.4	6.8	484	146.7	182.7	780	1.9	1.868	39
L5665300N-397675E	806.4	16.6	9.5	10.7	31.0	3.1	522.8	1.2	160.6	64.7	4.7	24.8	3.4	104.5	1.3	32.5	88.8	8.0	765	554.5	193.8	1086	4.8	.570	33
L5665400N-397625E	479.4	9.7	5.2	7.5	21.1	1.8	259.0	.7	111.4	40.6	7.6	19.3	2.2	68.0	.7	12.6	48.7	4.4	584	138.4	136.2	771	1.6	.422	20
L5665400N-397650E	784.8	18.0	10.1	8.5	31.3	3.4	553.8	1.2	153.3	61.0	11.5	25.3	3.5	115.2	1.4	18.4	100.9	8.6	692	277.8	200.1	844	2.3	.454	22
L5665400N-397675E	>1000	27.1	14.9	13.5	47.1	5.2	747.0	1.7	225.8	85.6	15.5	39.3	5.3	184.6	2.0	22.8	143.6	12.1	653	292.1	125.4	710	3.6	1.333	35

ELEMENT / SAMPLE	Ce ppm	Dy ppm	Er ppm	Eu ppm	Gd ppm	Ho ppm	La ppm	Lu ppm	Nd ppm	Pr ppm	Sc ppm	Sm ppm	Tb ppm	Th ppm	Tm ppm	U ppm	Y ppm	Yb ppm	Ba ppm	Nb ppm	Rb ppm	Sr ppm	Ta ppm	Ti %	Zr ppm
L5665400N-397725E	589.2	17.5	9.0	12.2	29.8	3.2	372.5	1.0	153.8	52.9	11.4	27.4	3.4	82.0	1.2	12.3	86.7	7.1	551	234.5	170.4	856	3.5	1.126	25
L5665400N-397750E	756.7	31.7	16.7	18.9	49.4	5.9	421.4	2.0	231.1	73.0	16.1	46.1	6.1	71.2	2.2	16.7	158.0	13.7	532	245.2	138.2	796	4.7	1.884	44
L5665400N-397775E	786.2	30.7	15.7	14.6	51.4	5.7	436.8	1.7	240.8	77.2	16.2	48.3	6.1	93.1	2.0	13.2	151.8	12.1	642	199.1	149.2	1192	2.7	2.433	51
L5665400N-397800E	605.4	14.9	7.9	10.0	26.5	2.8	397.3	.9	140.6	50.5	10.7	23.1	2.9	65.0	1.0	15.4	75.6	11.0	563	226.4	184.7	875	2.2	.710	22
L5665400N-397825E	665.0	16.2	9.0	7.9	28.9	3.1	453.5	1.1	145.8	54.9	8.1	24.4	3.2	83.1	1.2	17.3	88.7	7.3	609	299.8	172.6	959	3.3	.793	26
L5665400N-397850E	935.9	27.1	16.2	12.0	43.6	5.4	513.3	2.2	222.5	83.3	6.2	37.6	5.1	73.8	2.3	27.0	152.9	14.8	602	453.2	194.4	1286	5.7	.895	49
L5665400N-397875E	>1000	32.0	19.0	13.1	52.0	6.3	658.9	2.4	275.4	105.8	6.2	45.2	6.1	88.3	2.6	31.1	173.6	17.1	581	581.4	184.5	1438	6.3	1.033	74
L5665400N-397900E	725.0	20.0	11.7	8.4	32.6	3.9	409.0	1.5	173.0	64.1	4.9	28.4	3.8	66.1	1.6	24.7	107.3	10.5	715	489.9	204.3	1867	5.7	1.011	65
L5665400N-397925E	753.8	18.8	10.7	18.4	32.0	3.6	440.0	1.3	170.1	64.8	5.0	27.7	3.6	66.9	1.5	24.3	98.0	9.4	649	457.3	190.4	1490	5.0	.972	61
L5665450N-397775E	552.4	21.7	11.0	55.3	35.4	4.0	294.6	1.3	169.0	53.3	14.3	32.6	4.2	59.6	1.5	11.3	105.9	8.9	611	202.1	152.8	747	3.5	1.880	37
L5665450N-397800E	646.0	22.5	12.2	11.8	37.0	4.3	399.5	1.5	183.6	59.6	13.8	33.5	4.4	67.1	1.7	14.9	115.3	10.3	589	235.4	153.6	805	3.4	1.497	31
L5665450N-397825E	525.1	15.6	8.5	6.5	26.7	3.0	290.9	1.0	129.6	46.6	9.7	23.4	3.0	101.4	1.1	15.3	79.7	7.3	1010	198.5	162.0	767	2.1	.739	17
L5665450N-397850E	548.3	15.2	8.5	10.5	26.1	2.9	378.2	1.0	133.1	47.4	10.4	22.1	3.0	75.8	1.1	15.4	89.8	7.1	615	233.9	173.6	871	2.5	.658	33
L5665450N-397875E	764.1	23.4	13.6	9.3	37.7	4.6	445.5	1.7	191.3	68.5	7.1	32.2	4.4	97.7	1.9	26.8	131.3	12.1	620	465.3	164.0	1011	5.9	.917	38
L5665450N-397900E	994.0	27.1	16.5	11.0	44.2	5.4	535.9	2.1	228.2	87.3	5.1	38.0	5.1	74.1	2.3	35.4	152.0	14.8	641	610.5	208.7	1556	6.9	1.017	67
L5665450N-397925E	770.7	20.6	12.2	20.1	33.9	4.1	434.9	1.5	175.0	67.0	5.6	28.8	3.9	62.3	1.7	24.4	115.1	10.7	686	437.9	191.2	1464	4.6	.922	67
L5665450N-397950E	635.7	17.1	9.9	8.3	28.2	3.3	368.0	1.3	150.4	55.0	5.3	24.2	3.2	67.2	1.4	23.9	91.9	8.7	758	402.9	222.9	1321	4.1	.781	48
L5665450N-397975E	730.2	20.3	12.0	10.5	33.0	4.0	444.0	1.5	171.7	63.9	6.8	28.8	3.9	70.1	1.6	25.9	110.4	10.3	716	484.2	181.1	1210	4.5	.929	56
L5665450N-398075E	291.0	12.1	6.2	9.7	20.2	2.2	160.7	.7	116.1	32.5	16.3	18.8	2.4	38.4	.8	10.1	60.7	5.2	313	104.0	206.1	311	1.6	.689	14
L5665500N-397225E	575.8	18.6	10.7	7.6	29.8	3.7	398.5	1.4	146.9	51.6	11.2	25.6	3.5	63.3	1.5	12.1	107.8	9.4	609	250.6	215.1	714	2.5	.784	32
L5665500N-397250E	654.9	11.8	6.8	6.3	23.6	2.2	414.3	.8	134.3	53.1	4.8	19.3	2.4	60.2	.9	7.9	59.2	5.7	449	227.3	195.4	807	2.7	.445	7
L5665000N-398025E	589.9	11.5	6.3	5.6	24.0	2.2	295.9	.8	132.5	49.5	3.1	19.5	2.4	49.7	.8	19.2	55.0	5.2	589	374.4	216.8	1223	4.1	.498	43
L5665000N-398050E	>1000	30.0	16.3	12.1	55.5	5.7	776.5	1.9	258.2	99.8	11.7	46.0	6.1	187.6	2.1	67.3	156.0	13.2	459	438.0	177.0	1190	6.2	1.446	127
L5665000N-398075E	>1000	28.3	15.8	9.7	50.3	5.6	875.8	1.6	229.8	96.1	7.2	36.9	5.8	189.0	2.0	47.7	148.5	11.5	524	432.8	227.3	1321	4.4	.986	55
L5665000N-398100E	>1000	27.7	15.7	11.3	54.6	5.3	841.0	1.8	263.3	106.3	8.2	44.1	5.7	129.4	2.1	64.6	146.2	12.8	490	469.3	196.2	1278	4.4	.977	61
L5665000N-398125E	>1000	37.3	21.0	15.0	72.5	7.1	>1000	2.3	476.2	134.0	8.3	56.8	7.6	163.8	2.7	60.4	193.4	16.6	583	435.2	218.7	1219	3.2	1.023	43
L5665000N-398150E	>1000	34.0	18.5	14.7	62.8	6.4	723.3	2.2	303.4	103.8	20.2	55.4	6.9	96.9	2.5	23.0	181.4	15.1	389	254.6	259.4	363	6.2	3.082	57
COPE10-AR-01	165.2	5.7	4.1	2.4	8.4	1.2	94.8	.7	49.0	15.1	0.7	7.1	1.0	6.2	.6	3.9	31.3	4.4	841	94.9	144.8	2161	.6	.058	4
COPE10-AR-02	132.1	1.8	1.1	1.4	4.8	0.3	78.4	.2	36.2	12.0	0.6	4.1	.4	9.3	.1	1.4	8.2	0.9	1154	74.2	147.9	1452	<0.1	.094	3
COPE10-AR-03	>1000	24.5	16.2	10.6	62.6	4.8	>1000	2.4	531.2	155.3	1.4	47.8	5.3	68.5	2.3	2.1	113.0	15.3	92	>1000	56.6	1338	7.2	.966	10
COPE10-AR-04	297.8	7.5	4.9	2.9	13.0	1.5	187.3	.7	80.3	26.6	2.3	10.4	1.4	43.9	.7	1.7	39.1	4.8	624	>1000	90.1	1353	29.2	2.587	19
COPE10-AR-05	142.5	4.0	2.3	1.7	7.4	0.7	79.7	.3	45.1	14.2	1.6	6.7	.8	57.6	.3	15.2	18.6	1.9	1298	>1000	181.1	1328	32.8	1.396	11
COPE10-AR-06	66.9	2.2	1.2	1.0	3.7	0.4	44.3	.2	20.4	6.2	2.6	3.1	.4	4.6	.2	4.3	11.6	1.1	122	144.3	89.6	1477	1.5	.309	4
COPE10-AR-07	190.1	12.7	6.5	4.3	18.2	2.4	102.0	.8	83.2	21.6	7.0	16.7	2.4	106.6	.9	4.9	63.9	5.3	852	86.0	127.1	399	1.7	.540	11
COPE10-AR-08	70.6	8.2	6.6	1.9	7.4	2.0	39.9	1.2	28.3	8.1	0.4	5.6	1.2	4.8	1.1	4.0	52.3	7.6	58	105.1	20.3	1065	.4	.032	11
COPE10-AR-09	103.3	5.4	3.9	2.0	7.1	1.2	51.8	.6	36.2	10.7	2.3	6.2	.9	3.5	.6	0.8	32.3	4.0	1019	641.9	241.4	1255	5.3	.771	5
COPE10-AR-10	116.3	2.2	1.2	2.0	4.9	0.4	66.0	.2	33.5	11.2	0.8	4.7	.5	10.3	.2	1.7	11.7	1.0	1459	46.9	153.1	2252	<0.1	.037	16
COPE10-AR-11	396.1	18.5	12.1	6.4	26.8	3.9	170.1	1.7	128.8	39.8	2.4	23.1	3.4	1.9	1.8	2.5	101.1	11.5	387	84.2	94.8	1664	<0.1	.287	5
COPE10-AR-12	>1000	12.1	7.0	5.5	35.2	2.2	729.7	1.0	190.4	92.6	3.8	23.2	2.8	47.7	.9	19.3	66.1	5.8	276	250.7	147.2	2159	1.9	.287	97
COPE10-AR-13	202.0	5.8	3.1	2.4	10.3	1.1	124.0	.4	59.2	18.4	2.3	8.6	1.2	38.6	.4	27.0	29.3	2.6	509	432.1	233.7	1693	3.7	.571	49
COPE10-AR-14	35.5	.8	0.4	0.3	1.8	0.2	20.1	.1	11.3	3.5	2.5	1.7	.2	8.8	.1	0.7	4.1	0.4	132	18.2	52.2	38	<0.1	.055	1
COPE10-AR-15	96.3	3.9	2.2	1.5	7.1	0.8	47.4	.3	39.4	10.7	0.8	6.3	.8	2.6	.3	1.0	19.5	1.7	192	23.8	89.7	327	<0.1	.117	8
COPE10-AR-16	147.8	7.0	4.0	2.0	10.6	1.4	84.9	.5	51.9	15.1	15.2	9.5	1.3	18.3	.6	5.0	34.5	3.5	488	29.3	150.0	512	<0.1	.262	5
COPE10-AR-17	514.2	8.5	5.0	4.0	18.5	1.6	271.5	.7	113.7	43.7	0.7	15.1	1.8	22.7	.7	10.2	51.2	4.5	528	151.1	161.9	1610	1.4	.277	18
COPE10-AR-18	283.4	22.0	13.4	7.7	28.6	4.4	129.4	1.3	133.3	34.6	19.1	26.1	3.8	41.6	1.8	11.7	135.4	11.3	348	179.2	166.4	1015	3.1	1.437	36
COPE10-AR-19	>1000	14.0	7.9	6.9	34.1	2.6	742.5	.8	183.1	76.5	9.2	27.3	3.1	81.8	1.0	16.0	78.7	6.1	338	259.4	182.3	920	3.1	1.466	36
COPE10-AR-20	>1000	284.1	146.7	234.4	>1000	32.5	>1000	30.1	>1000	>1000	646.6	>1000	109.6	>1000	11.9	73.9	623.8	129.3	105	527.4	18.1	2184	6.3	2.928	497
COPE10-AR-21	571.1	18.0	9.2	9.3	33.6	3.2	239.0	.9	195.4	59.6	12.6	31.7	3.7	91.0	1.1	18.7	87.9	6.7	298	174.6	78.5	287	4.4	1.795	38
COPE10-AR-22	>1000	80.1	43.2	42.1	374.4	12.7	>1000	5.6	>1000	>1000	26.2	209.6	22.0	>1000	4.8	3.4	414.8	34.9	291	31.4	154.9	1633	<0.1	.277	11
COPE10-AR-23	>1000	16.7	10.6	6.4	35.8	3.4	>1000	2.0	176.3	87.1	21.5	23.1	3.2	211.4	1.6	3.5	103.8	11.8	706	73.5	216.6	1308	.1	.361	22
COPE10-AR-24	183.0	3.7	2.4	2.3	6.5	0.7	164.1	.4	37.4	13.3	3.9	4.6	.7	28.7	.4	0.6	23.2	2.5	110	22.1	142.3	590	<0.1	.171	6
COPE10-AR-25	666.9	17.2	10.8	4.4	21.3	3.6	722.3	1.6	99.9	43.3	15.3	13.7	2.7	43.9	1.5	0.6	106.9	10.2	244	147.1	92.9	2313	<0.1	.566	154
COPE10-AR-26	>1000	20.6	12.1	6.6	39.6	4.1	>1000	1.5	166.8	89.2	10.8	24.6	3.8	259.0	1.6	2.8	152.4	10.5	596	35.3	131.7	745	<0.1	.254	12
COPE10-AR-27	23.5	.7	0.5	26.7	1.1	0.1	15.0	.1	7.5	2.3	8.3	1.3	.1	3.0	.1	0.3	3.4	0.5	811	32.1	254.8	1150	<0.1	.227	6
COPE10-AR-28	191.4	4.4	2.8	2.6	8.3	0.9	129.7	.4	45.8	15.8	4.3	6.7	.9	28.4	.4	2.5	25.3	2.7	1332	89.6	161.5	1201	.6	.486	12

ELEMENT / SAMPLE	Ce ppm	Dy ppm	Er ppm	Eu ppm	Gd ppm	Ho ppm	La ppm	Lu ppm	Nd ppm	Pr ppm	Sc ppm	Sm ppm	Tb ppm	Th ppm	Tm ppm	U ppm	Y ppm	Yb ppm	Ba ppm	Nb ppm	Rb ppm	Sr ppm	T- p	Ti %	Zr ppm
COPE10-AR-29	261.6	9.8	6.3	4.7	14.9	2.0	170.1	.9	78.4	24.2	0.9	12.7	1.7	14.8	.9	2.8	55.6	6.1	1252	38.7	151.1	1851	<0.1	.043	10
COPE10-AR-30	175.1	8.5	4.6	5.9	12.7	1.6	99.4	.6	70.0	20.6	2.1	12.6	1.6	251.4	.6	6.5	38.5	4.0	1232	126.8	145.4	1595	2.1	.060	7
COPE10-AR-31	451.7	12.2	8.4	4.7	19.1	2.6	215.1	1.3	107.8	39.9	0.8	15.7	2.2	21.0	1.3	19.4	82.0	8.4	499	194.0	123.7	1553	1.5	.357	31
COPE10-AR-32	270.5	4.9	3.0	3.7	8.6	1.0	243.3	.4	51.1	19.2	1.7	6.0	.9	90.6	.4	28.8	33.2	2.6	723	619.9	222.6	1422	4.2	.445	23
COPE10-AR-33	306.1	14.4	9.4	5.9	18.2	3.0	169.9	1.5	100.1	30.6	0.9	15.6	2.5	15.2	1.4	4.9	96.0	9.7	1832	138.5	166.1	2323	3.2	.377	19
COPE10-AR-34	660.5	24.1	17.2	8.7	33.0	5.3	281.4	2.6	173.6	61.6	1.2	28.2	4.2	38.3	2.7	15.1	159.0	17.7	708	323.0	139.3	3961	3.1	.307	13
No Sample number	73.3	4.9	3	6.4	7.0	0.9	31.5	.3	34.2	9.2	3.7	6.8	.9	3.5	.3	1.2	24.6	2.0	54	98.6	50.2	975	<0.1	.448	6

PIONEER LABORATORIES INC. #103-2691 VISCOUNT WAY RICHMOND, BC CANADA V6V 2R5 TELEPHONE (604) 231-8165

GEOCHEMICAL ANALYSIS CERTIFICATE

TORCH RIVER RESOURCES LTD.
Project: Mt. Copeland
Sample Type: Rocks

Multi-element ICP Analysis - 0.500 gram sample is digested with 3 ml of aqua regia, diluted to 10 ml with water. This leach is partial for B, Ba, Cr, Fe, Mg, Mn, Na, P, S, Sn, Ti and limited for Na, K and Al.

Analyst RSaun
Report No. 2102718
Date: September 07, 2010

ELEMENT / SAMPLE	Ag ppm	Al %	As ppm	B ppm	Ba ppm	Bi ppm	Ca %	Cd ppm	Co ppm	Cr ppm	Cu ppm	Fe %	K %	Mg %	Mn ppm	Mo ppm	Na %	Ni ppm	P %	Pb ppm	S %	Sb ppm	Sn ppm	Sr ppm	Te ppm	Ti %	Tl ppm	V ppm	Zn ppm
COPE10-AR-1	1.1	.41	5	<5	31	<10	.07	<1	12	123	93	7.18	.20	.05	906	4743	.05	11	.09	11	.01	23	<2	69	14	.02	<5	27	35
COPE10-AR-2	.1	.33	6	<5	38	<10	.08	<1	2	59	23	3.34	.27	.08	397	3681	.05	7	.03	14	.01	14	<2	40	7	.04	<5	38	38
COPE10-AR-3	2.0	.62	23	<5	44	<10	2.72	<1	11	33	200	9.88	.49	.26	2095	6820	.06	15	.30	37	.01	26	<2	286	33	.13	<5	41	181
COPE10-AR-4	.1	.29	5	<5	34	<10	.69	<1	5	41	29	2.88	.27	.09	1190	>10000	.05	7	.01	7	.01	40	<2	195	23	.16	<5	35	74
COPE10-AR-5	.3	.80	5	<5	110	<10	.13	2	2	42	12	1.95	.81	.36	658	4041	.07	3	.12	14	.01	20	<2	74	7	.24	12	41	140
COPE10-AR-6	.2	.78	6	<5	54	<10	2.03	<1	2	26	5	2.78	.57	.17	1583	61	.07	2	.04	51	.01	3	<2	134	<5	.06	<5	87	129
COPE10-AR-7	.1	.25	5	<5	51	<10	.55	<1	4	49	11	1.35	.30	.28	474	36	.09	8	.32	9	.01	3	<2	67	<5	.14	<5	23	68
COPE10-AR-8	1.4	.26	6	<5	5	<10	.05	<1	11	41	133	8.00	.04	.01	2042	170	.07	4	.04	2	.01	<2	<2	26	7	.01	<5	8	16
COPE10-AR-9	.1	2.20	11	<5	238	<10	.62	<1	2	56	36	6.41	2.37	.87	2831	6197	.08	5	.05	35	.01	29	<2	79	21	.64	<5	32	425
COPE10-AR-10	.1	.24	5	5	59	<10	.18	<1	4	43	24	.82	.27	.05	150	>10000	.07	3	.14	7	.01	40	<2	98	26	.02	33	10	19
COPE10-AR-11	.2	.66	27	<5	100	<10	4.22	<1	5	59	87	2.14	.78	.73	2474	874	.14	32	.30	29	.01	7	<2	784	<5	.14	<5	34	113
COPE10-AR-12	.3	3.83	6	<5	9	<10	2.68	<1	4	32	3	6.08	1.45	.15	2437	14	2.91	6	.01	41	.61	3	<2	678	<5	.10	<5	223	189
COPE10-AR-13	.2	1.87	7	<5	70	<10	2.33	<1	5	31	6	4.61	1.64	1.06	5505	13	.76	5	.10	32	.01	5	<2	898	<5	.33	<5	82	827
COPE10-AR-14	.1	.38	<5	<5	23	<10	.29	<1	3	136	7	.71	.39	.32	256	1619	.04	6	.03	3	.01	11	<2	12	<5	.03	<5	43	36
COPE10-AR-15	.2	.74	5	<5	86	<10	.68	<1	4	70	8	1.08	.96	1.18	673	2862	.20	13	.61	13	.01	9	<2	90	8	.09	<5	10	126
COPE10-AR-16	.3	1.38	6	<5	72	<10	3.03	<1	16	69	60	3.81	.90	1.77	1202	27	.07	32	.15	26	.01	4	<2	166	<5	.11	<5	64	99
COPE10-AR-17	.6	.44	13	<5	15	<10	1.21	<1	3	39	6	9.30	.31	.03	1824	7	.05	2	.18	2	.01	<2	<2	336	7	.03	<5	447	122
COPE10-AR-18	.1	.72	5	<5	37	<10	7.30	<1	31	145	7	5.58	.75	2.43	2570	4	.03	99	.54	23	.01	6	<2	768	<5	.05	<5	97	288
COPE10-AR-19	.6	1.37	37	<5	89	<10	2.42	<1	58	70	2712	7.40	1.42	.74	1484	43	.35	273	.56	34	.01	5	<2	332	11	.41	<5	141	398
COPE10-AR-20	.1	.13	6	<5	5	22	.34	<1	2	75	8	.78	.04	.12	481	1	.04	5	.04	2	.01	15	<2	216	184	.48	43	104	134
COPE10-AR-21	.5	1.31	9	<5	131	<10	1.23	<1	27	125	110	6.66	1.97	2.58	2461	185	.21	67	.86	36	.01	14	<2	67	9	.43	<5	58	219
COPE10-AR-22	.1	1.76	5	7	106	<10	3.72	<1	14	105	37	3.30	1.70	2.84	2208	20	.09	34	.30	55	.01	14	<2	519	25	.13	<5	83	124
COPE10-AR-23	.4	1.54	5	<5	56	<10	1.02	<1	13	81	90	6.35	1.51	2.44	1436	19	.05	24	.32	53	.01	16	<2	93	4	.14	<5	84	165
COPE10-AR-24	.6	1.14	47	<5	66	<10	.76	<1	32	100	14	10.78	1.75	2.76	897	1779	.09	39	.20	33	.01	12	<2	114	5	.12	<5	23	107
COPE10-AR-25	.1	.23	18	<5	41	<10	7.20	1	5	18	11	2.28	.28	.29	7900	6	.07	2	.01	111	.01	<2	<2	2119	<5	.11	<5	15	719
COPE10-AR-26	.2	1.50	6	<5	110	<10	2.23	<1	14	52	51	3.13	.87	1.66	2044	1742	.18	29	.30	70	.01	15	<2	184	<5	.09	<5	16	428
COPE10-AR-27	.1	.89	18	<5	32	<10	.03	<1	2	84	28	.94	1.22	1.69	268	6808	.05	3	.06	29	.01	24	<2	18	13	.13	21	10	50
COPE10-AR-28	.2	1.36	22	<5	117	<10	1.32	<1	61	138	80	5.15	1.83	1.72	1456	3529	.07	92	.34	28	.01	29	<2	321	9	.43	<5	40	199
COPE10-AR-29	.1	.23	30	<5	32	<10	2.62	<1	40	31	66	5.66	.16	.09	1251	5257	.05	26	.14	23	.01	20	<2	434	18	.01	<5	8	52
COPE10-AR-30	.2	.22	10	<5	25	<10	.26	<1	12	28	80	2.98	.16	.06	634	>10000	.05	8	.15	48	.01	116	<2	54	59	.01	118	10	38
COPE10-AR-31	.1	4.21	5	<5	29	<10	3.66	<1	3	40	15	7.70	1.75	.44	2204	40	2.82	2	.03	51	.01	<2	<2	478	<5	.18	<5	293	248
COPE10-AR-32	.2	1.68	9	<5	87	<10	.61	<1	5	23	39	4.65	1.29	.51	2876	18	.52	3	.04	145	.01	<2	<2	130	<5	.22	<5	91	836
COPE10-AR-33	11.3	.68	17	<5	119	12	2.26	<1	6	40	>10000	1.81	.77	.50	1135	22	.05	13	.07	5	.01	<2	<2	246	10	.15	<5	29	70
COPE10-AR-34	.1	2.76	5	<5	24	<10	3.63	<1	2	35	9	1.22	.64	.08	1060	22	.40	4	.01	43	.01	<2	<2	630	<5	.11	<5	36	79
No Sample Number	.6	.38	343	<5	36	<10	15.89	1	5	34	35	3.11	.52	5.31	2714	154	.05	14	.22	194	.01	13	<2	865	<5	.10	<5	18	355

PIONEER LABORATORIES INC #103-2691 VISCOUNT WAY RICHMOND, BC CANADA V6V 2R5 TEL.(604)231-8165

A S S A Y C E R T I F I C A T E

Mo,Cu Analysis - 1.000 gm sample is digested with 50 ml of aqua regia, diluted to 100 ml with water and is finished by ICP/ES.

TORCH RIVER RESOURCES LTD.
Project: Mt. Copeland
Sample Type: Cores

Analyst RSam
Report No. 2102718B
Date: September 22, 2010

SAMPLE	Mo %	Cu %
COPE10-AR-1	0.63	-
COPE10-AR-2	0.49	-
COPE10-AR-3	0.95	-
COPE10-AR-4	1.33	-
COPE10-AR-5	0.56	-
COPE10-AR-9	0.77	-
COPE10-AR-10	1.20	-
COPE10-AR-11	0.10	-
COPE10-AR-14	0.19	-
COPE10-AR-15	0.34	-
COPE10-AR-24	0.21	-
COPE10-AR-26	0.22	-
COPE10-AR-27	0.92	-
COPE10-AR-28	0.43	-
COPE10-AR-29	0.18	-
COPE10-AR-30	3.40	-
COPE10-AR-33	-	1.32

VA10144345 - Finalized
CLIENT : "KIKAI Andris"
# of SAMPLES : 8
DATE RECEIVED : 2010-10-01 DATE FINALIZED : 2010-10-17
PROJECT : " "
CERTIFICATE COMMENTS : ""
PO NUMBER : " "

	ME-MS81	ME-MS81	ME-MS81	ME-MS81	ME-MS81	ME-MS81	ME-MS81	ME-MS81
SAMPLE	Ag	Ba	Ce	Co	Cr	Cs	Cu	Dy
DESCRIPTION	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
COPE10-AR-3	<1	105	1855	13	70	2.42	221	23
COPE10-AR-12	<1	317	1110	6.9	60	2.07	<5	11.15
COPE10-AR-19	<1	361	754	57.5	110	5.29	2300	11.75
COPE10-AR-20	<1	116.5	>10000	2	570	1.32	89	172
COPE10-AR-22	<1	332	>10000	13.9	140	12.5	63	66.3
COPE10-AR-23	<1	820	1270	14.8	100	23.7	86	16.2
COPE10-AR-25	<1	272	593	5.2	30	1.5	13	16.25
COPE10-AR-26	<1	678	1440	17.6	80	5.04	52	20.4

	Er	Eu	Ga	Gd	Hf	Ho	La	Lu
	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
COPE10-AR-3	14.85	10.95	46.1	25.5	24.2	4.26	1105	1.73
COPE10-AR-12	5.67	5.28	60.2	10.3	16	1.5	638	0.16
COPE10-AR-19	6.12	5.48	44.5	12.45	48.8	1.64	564	0.06
COPE10-AR-20	61.1	231	184	289	166	22.9	>10000	13.1
COPE10-AR-22	31.8	45.9	58.7	75	4	11.45	>10000	3.26
COPE10-AR-23	10.9	5.92	34.1	26.4	12	3.37	1205	1.95
COPE10-AR-25	10.3	3.8	72.2	16	7.5	3.46	644	1.47
COPE10-AR-26	12.2	6.27	22.5	30.5	2.6	4.06	1520	1.45

	Mo	Nb	Nd	Ni	Pb	Pr	Rb	Sm
	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
COPE10-AR-3	9500	3760	487	20	26	165.5	66.5	47.4
COPE10-AR-12	19	255	241	15	<5	91.9	167.5	21.6
COPE10-AR-19	15	236	175.5	309	27	61.2	196	22
COPE10-AR-26	11	2190	>10000	14	279	>1000	20.1	>1000
COPE10-AR-22	21	34.9	2550	35	68	>1000	171.5	195
COPE10-AR-23	21	88.4	204	26	66	83.7	244	22.8
COPE10-AR-25	7	159	101	<5	129	39.4	103	12.45
COPE10-AR-26	2510	43	219	31	77	91.1	150	24.8

	Sn ppm	Sr ppm	Ta ppm	Tb ppm	Th ppm	Tl ppm	Tm ppm	U ppm
COPE10-AR-3	18	1395	17.4	3.28	60.6	<0.5	1.65	0.47
COPE10-AR-12	5	2230	2.5	1.19	26.7	<0.5	0.16	18.45
COPE10-AR-19	5	881	3.8	1.39	54.5	0.6	0.22	16
COPE10-AR-26	27	2170	23.6	33.7	>1000	<0.5	6.72	68
COPE10-AR-22	4	1635	0.3	11.65	>1000	0.6	3.82	2.59
COPE10-AR-23	4	1375	1.4	2.96	167.5	0.8	1.68	4.37
COPE10-AR-25	16	2400	0.8	2.4	41.4	<0.5	1.48	0.75
COPE10-AR-26	3	790	0.7	3.57	262	<0.5	1.66	2.93

	V ppm	W ppm	Y ppm	Yb ppm	Zn ppm	Zr ppm
COPE10-AR-3	280	2	135.5	15.8	183	979
COPE10-AR-12	415	1	75.4	5.32	453	638
COPE10-AR-19	236	9	76.5	5.6	427	1865
COPE10-AR-20	1140	42	546	80.8	150	6190
COPE10-AR-22	162	17	392	28.2	257	136
COPE10-AR-23	133	59	113	12.05	171	484
COPE10-AR-25	279	2	103.5	9.88	931	219
COPE10-AR-26	116	7	162.5	10.35	529	95

ALS Canada Ltd.
2103 Dollarton Hwy
North Vancouver BC V7H 0A7
Phone: 604 984 0221 Fax: 604 984 0218 www.alsglobal.com

To: KIKAUKA, ANDRIS
406 - 4901 E. SOOKE RD.
SOOKE BC V9Z 1B6

Finalized Date: 1-NOV-2010
Account: KIKAND

CERTIFICATE VA10159165

Project:

P.O. No.:

This report is for 2 Pulp samples submitted to our lab in Vancouver, BC, Canada on 28-OCT-2010.

The following have access to data associated with this certificate:

ANDRIS KIKAUKA		

SAMPLE PREPARATION

ALS CODE	DESCRIPTION
FND-02	Find Sample for Addn Analysis

ANALYTICAL PROCEDURES

ALS CODE	DESCRIPTION	INSTRUMENT
ME-MS81h	High grade REE by fusion/ICPMS	ICP-MS

To: KIKAUKA, ANDRIS
406 - 4901 E. SOOKE RD.
SOOKE BC V9Z 1B6

This is the Final Report and supersedes any preliminary report with this certificate number. Results apply to samples as submitted. All pages of this report have been checked and approved for release.

Signature:
Colin Ramshaw, Vancouver Laboratory Manager

ALS Canada Ltd.
2103 Dollarton Hwy
North Vancouver BC V7H 0A7
Phone: 604 984 0221 Fax: 604 984 0218 www.alsglobal.com

To: KIKAUKA, ANDRIS
406 - 4901 E. SOOKE RD.
SOOKE BC V9Z 1B6

Finalized Date: 1-NOV-2010
Account: KIKAND

CERTIFICATE OF ANALYSIS VA10159165

Sample Description	Method	ME-MS81h	ME-MS81h	ME-MS81h	ME-MS81h	ME-MS81h	ME-MS81h	ME-MS81h	ME-MS81h	ME-MS81h	ME-MS81h	ME-MS81h	ME-MS81h	ME-MS81h	ME-MS81h
	Analyte	Ce	Dy	Er	Eu	Gd	Hf	Ho	La	Lu	Nb	Nd	Pr	Rb	Sm	Sn
	Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
	LOR	3	0.3	0.2	0.2	0.3	1	0.05	3	0.05	1	0.5	0.2	1	0.2	5
COPE10-AR-20		>50000	185.0	67.4	242	421	152	28.5	>50000	18.30	3140	17650	>5000	21	1200	32
COPE10-AR-22		18450	67.6	31.4	44.4	89.9	4	12.30	18200	4.10	56	2540	1185	161	196.0	5

ALS Canada Ltd.
2103 Dollarton Hwy
North Vancouver BC V7H 0A7
Phone: 604 984 0221 Fax: 604 984 0218 www.alsglobal.com

To: KIKAUKA, ANDRIS
406 - 4901 E. SOOKE RD.
SOOKE BC V9Z 1B6

Finalized Date: 1-NOV-2010
Account: KIKAND

CERTIFICATE OF ANALYSIS VA10159165

Sample Description	Method Analyte Units LOR	ME-MS81h Ta ppm 0.5	ME-MS81h Tb ppm 0.05	ME-MS81h Th ppm 0.3	ME-MS81h Tm ppm 0.05	ME-MS81h U ppm 0.3	ME-MS81h W ppm 5	ME-MS81h Y ppm 3	ME-MS81h Yb ppm 0.2	ME-MS81h Zr ppm 10
COPE10-AR-20		37.5	43.7	>5000	10.85	76.7	51	599	93.8	7000
COPE10-AR-22		1.0	12.55	1495	4.53	4.0	17	386	29.0	150

SGS Canada Inc.
P.O. Box 4300 - 185 Concession St.
Lakefield - Ontario - KOL 2HO
Phone: 705-652-2000 FAX: 705-652-6365

CDN Walk-in (Minerals)
Attn : Anderus Kikauka

Torch River Resources Ltd
888-3rd St W Suite 1000
Calgart AB
T2P 5C5
403-444-6888
bapear@telus.net

Friday, November 19, 2010

Date Rec. : 08 November 2010
LR Report : **CA02322-NOV10**
Client Ref : VA10144345M004

CERTIFICATE OF ANALYSIS

Final Report

Sample ID	La %	Pr %	Ce %
1: 10-AR-20	10.2	0.77	13.1

Control Quality Analysis

Debbie Waldon
Project Coordinator,
Minerals Services, Analytical

OnLine LIT

PIONEER L ORATORIES INC. #103-2691 VISCOUNT WAY, R HMOND, BC CANADA V6V 2R5 TEL. 604 231 165

A S S A Y C E R T I F I C A T E

Nb by Fusion/ICP

TORCH RIVER RESOURCES LTD.

Project: Mt.Copeland
Sample Type: Rock

Analyst _____
Report No.2102718C
Date: November 25, 2010

ELEMENT	Nb
SAMPLE	%
COPE10-AR-03	0.345
COPE10-AR-04	1.850
COPE10-AR-05	0.643

Appendix B Rock chip sample descriptions

sample no	% Mo	ppm Mo	ppm Ag	ppm Cu	ppm Zn	ppm Ce	ppm La	ppm Nd	ppm Nb	ppm Pr
COPE10AR-1	0.63	4743	1.1	93	35	165.2	79.7	49	94.9	15.1
COPE10AR-2	0.49	3681	0.1	23	38	132.1	44.3	36.2	74.2	12
COPE10AR-3	0.95	6820	2	200	181	1855	1105	531.2	3760	155.3
COPE10AR-4	1.33	>10000	0.1	29	74	297.8	187.3	80.3	3450	26.6
COPE10AR-5	0.56	4041	0.3	12	140	142.9	79.7	45.1	18500	14.2
COPE10AR-6		61	0.2	5	129	66.9	44.3	20.4	144.3	6.2
COPE10AR-7		36	0.1	11	68	190.1	102	83.2	86	21.6
COPE10AR-8		170	1.4	133	16	70.6	39.9	28.3	105.1	8.1
COPE10AR-9	0.77	6197	0.1	36	425	103.3	51.8	36.2	641.9	10.7
COPE10AR-10	1.2	>10000	0.1	24	19	116.3	66	33.5	43.9	11.2
COPE10AR-11	0.1	874	0.2	87	113	396.1	170.1	128.8	84.2	39.8
COPE10AR-12		14	0.3	3	189	1110	729.7	190.4	250.7	92.6
COPE10AR-13		13	0.2	6	827	202	124	59.2	432.1	18.4
COPE10AR-14	0.19	1619	0.1	7	36	35.5	20.1	11.3	18.2	3.5
COPE10AR-15	0.21	2862	0.2	8	126	96.3	47.4	39.4	23.8	10.7
COPE10AR-16		27	0.3	60	99	147.8	84.9	51.9	29.3	15.1
COPE10AR-17		7	0.6	6	122	514.2	271.5	113.7	151.1	43.7
COPE10AR-18		4	0.1	7	288	283.4	129.4	133.3	179.2	34.6
COPE10AR-19		43	0.6	2712	398	754	742.5	183.1	259.4	76.5
COPE10AR-20		1	0.1	8	134	131000	102000	17650	527.4	7700
COPE10AR-21		185	0.5	110	219	571.1	239	195.4	174.6	59.6
COPE10AR-22		20	0.1	37	124	18450	18200	2550	31.4	1185
COPE10AR-23		19	0.4	90	165	1270	1205	176.3	73.5	87.1
COPE10AR-24	0.21	1779	0.6	14	107	183	164.1	37.4	22.1	13.3
COPE10AR-25		6	0.1	11	719	593	722.3	99.9	147.1	43.3
COPE10AR-26	0.22	1742	0.2	51	428	1440	1520	166.8	35.3	89.2
COPE10AR-27	0.92	6808	0.1	28	50	23.5	15	7.5	32.1	2.3
COPE10AR-28	0.43	3529	0.2	80	199	191.4	129.7	45.8	89.6	15.8
COPE10AR-29	0.18	5257	0.1	66	52	261.6	170.1	78.4	38.7	24.2
COPE10AR-30	3.4	>10000	0.2	80	38	175.1	99.4	70	126.8	20.6
COPE10AR-31		40	0.1	15	248	451.7	215.1	107.8	194	39.9
COPE10AR-32		18	0.2	39	836	270.5	243.3	51.1	619.9	19.2
COPE10AR-33		22	11.3	13200	70	306.1	169.9	100.1	138.5	30.6
COPE10AR-34		22	0.1	9	79	660.5	281.4	173.6	323	61.6

sample no	width cm	host rock	alteration
COPE10AR-1	100	sy gneiss, nepheline sy	cal, K-spar, chlorite, sericite
COPE10AR-2	120	sy gneiss, nepheline sy	cal, K-spar, chlorite, sericite
COPE10AR-3	60	sy gneiss, nepheline sy	cal, K-spar, chlorite, sericite
COPE10AR-4	100	sy gneiss, nepheline sy	cal, K-spar, chlorite, sericite
COPE10AR-5	100	sy gneiss, nepheline sy	cal, K-spar, chlorite, sericite
COPE10AR-6	float	sy gneiss, nepheline sy	cal, K-spar, chlorite, sericite
COPE10AR-7	float	sy gneiss, nepheline sy	cal, K-spar, chlorite, sericite
COPE10AR-8	250	sy gneiss, nepheline sy	cal, K-spar, chlorite, sericite
COPE10AR-9	200	sy gneiss, nepheline sy	cal, K-spar, chlorite, sericite
COPE10AR-10	100	sy gneiss, nepheline sy	cal, K-spar, chlorite, sericite
COPE10AR-11	52	sy gneiss, nepheline sy	cal, K-spar, chlorite, sericite
COPE10AR-12	float	diopside & quartzite gneiss	cal, K-spar, chlorite, sericite
COPE10AR-13	float	diopside & quartzite gneiss	cal, K-spar, chlorite, zircon
COPE10AR-14	200	quartzite, gneiss	cal, K-spar, chlorite, sericite
COPE10AR-15	20	sy gneiss, nepheline sy	cal, K-spar, chlorite, sericite
COPE10AR-16	40	sy gneiss, nepheline sy	cal, K-spar, chlorite, sericite
COPE10AR-17	float	sy gneiss, nepheline sy	cal, K-spar, chlorite, zircon, apatite
COPE10AR-18	45	sy gneiss, nepheline sy	cal, K-spar, chlorite, zircon, apatite
COPE10AR-19	45	sy gneiss, nepheline sy	cal, K-spar, chlorite, biotite
COPE10AR-20	18	sy gneiss, nepheline sy	cal, K-spar, chlorite, sericite
COPE10AR-21	85	sy gneiss, nepheline sy	cal, K-spar, chlorite, biotite, kaolinite
COPE10AR-22	70	sy gneiss, nepheline sy, marble bx	cal, K-spar, chlorite, sericite
COPE10AR-23	180	sy gneiss, nepheline sy, marble bx	cal, K-spar, chlorite, sericite
COPE10AR-24	280	sy gneiss, nepheline sy, marble bx	cal, K-spar, chlorite, sericite
COPE10AR-25	25	sy gneiss, nepheline sy, marble bx	cal, K-spar, chlorite, sericite
COPE10AR-26	30	sy gneiss, nepheline sy, marble bx	cal, K-spar, chlorite, sericite
COPE10AR-27	25	sy gneiss, nepheline sy, marble bx	cal, K-spar, chlorite, sericite
COPE10AR-28	22	sy gneiss, nepheline sy, marble bx	cal, K-spar, chlorite, sericite
COPE10AR-29	35	sy gneiss, nepheline sy, marble bx	cal, K-spar, chlorite, sericite
COPE10AR-30	float	sy gneiss, nepheline sy, marble bx	cal, K-spar, chlorite, sericite
COPE10AR-31	float	sy gneiss, nepheline sy, marble bx	cal, K-spar, chlorite, sericite, biotite
COPE10AR-32	float	sy gneiss, nepheline sy, marble bx	cal, K-spar, chlorite, sericite, apatite
COPE10AR-33	float	sy gneiss, nepheline sy, marble bx	cal, K-spar, chlorite, sericite
COPE10AR-34	float	sy gneiss, nepheline sy, marble bx	cal, K-spar, chlorite, sericite, sodalite

sample no	minerals	easting	northing	elevation m	elevation ft	strike	dip
COPE10AR-1	pyrite, molybdenite	397732	5665418	2056	6743.68	100	45 S
COPE10AR-2	pyrite, molybdenite	397732	5665421	2053	6733.84	105	48 S
COPE10AR-3	pyrite, molybdenite	397748	5665392	2046	6710.88	100	45 S
COPE10AR-4	pyrite, molybdenite	397805	5665408	2076	6809.28	103	47 S
COPE10AR-5	pyrite, molybdenite	397815	5665371	2079	6819.12	100	39 S
COPE10AR-6	pyrite, magnetite, ilmenite, zircon	397812	5665377	2073	6799.44	float	
COPE10AR-7	pyrite, magnetite, ilmenite, zircon	397742	5665392	2060	6756.8	float	
COPE10AR-8	pyrite, molybdenite	397801	5665370	2063	6766.64	100	42 S
COPE10AR-9	pyrite, molybdenite	397828	5665384	2059	6753.52	114	52 S
COPE10AR-10	pyrite, molybdenite	397845	5665374	2055	6740.4	112	50 S
COPE10AR-11	pyrite, molybdenite	397868	5665398	2032	6684.96	115	51 S
COPE10AR-12	pyrite, molybdenite	397981	5665451	1980	6494.4	float	
COPE10AR-13	pyrite	397930	5665451	1990	6527.2	float	
COPE10AR-14	pyrite, molybdenite	398053	5665494	1939	6359.92	140	62 SW
COPE10AR-15	pyrite, molybdenite	397894	5665472	1977	6484.56	135	20 S
COPE10AR-16	pyrrhotite, limonite, zircon	397852	5665476	2026	6645.28	96	55 S
COPE10AR-17	pyrite, magnetite, ilmenite	398057	5665161	2134	6999.52	float	
COPE10AR-18	specularite, zircon	398118	5665081	2249	7376.72	73	58 S
COPE10AR-19	malachite, azurite, chalcocite	398108	5665007	2264	7425.92	85	42 S
COPE10AR-20	hematite, specularite, jarosite	398140	5665000	2270	7445.6	110	48 S
COPE10AR-21	pyrite, limonite	398086	5665128	2173	7127.44	80	50 S
COPE10AR-22	pyrite, molybdenite	397608	5665285	2170	7117.6	101	30 S
COPE10AR-23	pyrite, molybdenite	397604	5665288	2169	7114.92	100	30 S
COPE10AR-24	pyrite, molybdenite	397525	5665342	2181	7153.68	100	50 S
COPE10AR-25	pyrite, molybdenite	397409	5665425	2204	7229.12	100	34 S
COPE10AR-26	pyrite, molybdenite	397359	5665395	2218	7276.04	100	34 S
COPE10AR-27	pyrite, molybdenite	397344	5665471	2212	7256.36	115	62 S
COPE10AR-28	pyrite, molybdenite	397341	5665488	2203	7225.84	105	63 S
COPE10AR-29	pyrite, molybdenite	397279	5665506	2185	7166.8	110	56 S
COPE10AR-30	pyrite, molybdenite	397268	5665542	2171	7120.88	float	
COPE10AR-31	magnetite, fluorite	396980	5665513	2182	7156.96	float	
COPE10AR-32	magnetite, fluorite	397056	5665509	2166	7104.48	float	
COPE10AR-33	malachite, chalcocite	397074	5665507	2162	7091.36	float	
COPE10AR-34	fluorite	397157	5665519	2161	7088.08	float	

sample no	zone name	comments
COPE10AR-1	Glacier Mine	K-spar, kaol, chlorite, trace pyo
COPE10AR-2	Glacier Mine	K-spar, kaol, chlorite, trace pyo
COPE10AR-3	Glacier Mine	K-spar, kaol, chlorite, trace pyo
COPE10AR-4	Glacier Mine	450 cm wide peg-aplite zone
COPE10AR-5	East ext, Glacier	K-spar, chlorite
COPE10AR-6	East ext, Glacier	K-spar, chlorite
COPE10AR-7	East ext, Glacier	K-spar, chlorite
COPE10AR-8	East ext, Glacier	K-spar, kaol, chlorite, trace pyo
COPE10AR-9	East ext, Glacier	K-spar, kaol, chlorite, trace pyo
COPE10AR-10	East ext, Glacier	K-spar, kaol, chlorite, trace pyo
COPE10AR-11	East ext, Glacier	K-spar, kaol, chlorite, trace pyo
COPE10AR-12	Sub-portal	angular float, 1% magnetite
COPE10AR-13	Sub-portal	4% magnetite, K-spar
COPE10AR-14	J-5	increased limonite-chlorite with Mos2
COPE10AR-15	Sub-portal	3 m nerth is open cut
COPE10AR-16	Portal	limonitic shear zone
COPE10AR-17	Glacier East	angular float, 5% magnetite
COPE10AR-18	Glacier East	limonite, zircon, coarse grain mag
COPE10AR-19	Glacier East	1% diss chalcocite, oxides fract filling
COPE10AR-20	Glacier East	red-yellow-brown gossan in cliff
COPE10AR-21	Glacier East	vuggy biotite schist, shear zone
COPE10AR-22	West Marble Ridge	350 cm wide py-pyo-ank skarn band
COPE10AR-23	West Marble Ridge	275 cm wide py-pyo-ank skarn band
COPE10AR-24	West Marble Ridge	limonitic aplite-carbonate breccia contact
COPE10AR-25	West Marble Ridge	limonitic aplite-carbonate breccia contact
COPE10AR-26	West Marble Ridge	limonitic aplite-carbonate breccia contact
COPE10AR-27	West Marble Ridge	limonitic aplite-carbonate breccia contact
COPE10AR-28	West Basin	K-spar, kaol, chlorite, trace pyo
COPE10AR-29	West Basin	K-spar, kaol, chlorite, trace pyo
COPE10AR-30	West Basin	K-spar, kaol, chlorite, trace pyo
COPE10AR-31	West Basin	purple fluorite as late-stage fracture filling
COPE10AR-32	West Basin	granny smith green apatite pegmatite
COPE10AR-33	West Basin	angular float, edge of glacier
COPE10AR-34	West Basin	5% sodalite as disseminations and bands

Appendix C

PETROGRAPHIC REPORT ON 3 SAMPLES FROM MOUNT COPELAND

Report for: Andris Kikauka, P. Geo.
Geofacts Consulting
406-4901 East Sooke Road.
Sooke, B.C. V0S 1N0 (250) 474-0424

Invoice 101039

Nov. 29, 2010.

SUMMARY:

All three samples (leucocratic syenite, unknown, and syeno-monzonite gneiss) appear to contain minor to significant amounts of possible REE-bearing minerals (possibly mostly monazite in COPE10-AR-3, perhaps allanite-REE oxides (?) in 10-AR-20, and minor REE oxides (?) in 10-AR-22). The mineralogy of COPE10-AR-20 is largely unresolved; it appears to consist largely of uncommon minerals and should be subjected to SEM (scanning electron microscope) analysis.

Capsule descriptions are as follows:

COPE10AR-3: appears to represent leucocratic syenite (if albitic plagioclase is included as alkali feldspar) cut by vein sets of pyrite-green biotite/chlorite-carbonate-trace phlogopite-sphene, or discontinuous magnetite, both with minor monazite?-REE minerals?

COPE10AR-20: the mineralogy of this sample is so poorly understood from optical microscopy that it needs to be subjected to further analysis by SEM to identify many of the relatively uncommon minerals present in it. Speculatively it could consist largely of iddingsite surrounded by amphibole, with interstitial carbonate-quartz-plagioclase and accessory sphene-columbite-allanite-REE mineral.

COPE10AR-22: somewhat foliated/layered syenite or monzonite gneiss (plagioclase, lesser Kspar, somewhat aligned/layered phlogopite) with accessory pyrrhotite partly oxidized to pyrite/marcasite and limonite, carbonate (possibly dolomite and ankerite?), (in part after relict clinopyroxene), sphene, and possible REE mineral oxides (?).

Detailed petrographic descriptions and photomicrographs are appended (on CD). If you have any questions regarding the petrography, please do not hesitate to contact me.

Craig H.B. Leitch, Ph.D., P. Eng. (250) 653-9158 craig.leitch@gmail.com
492 Isabella Point Road, Salt Spring Island, B.C. Canada V8K 1V4

COPE10AR-3: LEUCOCRATIC SYENITE CUT BY VEINS OF PYRITE-GREEN BIOTITE-CHLORITE±CARBONATE OR MAGNETITE, BOTH WITH MONAZITE?-REE MINERALS?

Assay results for this sample show significant molybdenum (~1%) and minor REE (not as much as in the other two samples submitted; see below). The hand specimen shows a creamy buff-white, fine-grained rock of uncertain derivation cut by a closely spaced set of sheeted black veins and sub-perpendicular, discontinuous magnetite (?) veinlet. The rock is locally magnetic, shows no reaction to cold dilute HCl, and moderate stain for K-feldspar in the etched offcut. Modal mineralogy in polished thin section is approximately:

Plagioclase (albite-oligoclase?)	50%
K-feldspar (primary, orthoclase/minor microcline?)	30%
Pyrite (partly oxidized to limonite), trace chalcopyrite	10%
Green biotite (veins)	2-3%
Chlorite (mostly in veins, after biotite?)	2-3%
Clay?/sericite (after feldspars)	1-2%
Carbonate (ankerite?)	1-2%
Magnetite (veins)	1%
Monazite, trace zircon (?)	<1%
Possible REE oxides	<1%
Phlogopite	<<1%
Sphene	<<1%

This sample consists essentially of alkali feldspars (plagioclase and Kspar) with only minor biotite (partly chloritized), cut by veins of pyrite-green biotite/chlorite-minor carbonate and discontinuous sub-perpendicular veinlets of magnetite-possible monazite-REE minerals (?)

Plagioclase forms interlocking, randomly oriented subhedral laths mostly <2 mm in diameter, generally <10% replaeed by fine-grained sericite (subhedral flakes <20 um) and carbonate (ragged anhedra of similar size). Composition appears likely to be in the albite-oligoclase range based on extinction Y^010 in the 10-15° range (however, no quartz is present to compare refractive indices with to make sure it is not calcic oligoclase).

K-feldspar tends to be interstitial to plagioclase, forming mostly smaller, subhedral crystals rarely up to 1 mm in diameter. It may be mostly orthoclase (but grid twinning typical of microcline is seen in some cores). Most crystals are <10% clouded by minute particles of clay?/sericite.

Mafic minorals include chloritized biotite as ragged, irregular subhedra up to ~0.5 mm with bright red-brown pleochroism except where replaced by chlorite of similar size with distinct green pleochroism and length-slow, anomalous blue-green birefringence suggestive of Fe:Fe+Mg, or F:M, around 0.5-0.6 (?). Rare zircon (?) forms stubby euhedral prisms <0.1 mm long.

In the pyritie veins, which are mostly <1-2 mm thick, pyrite forms sub/euhedra rarely to 1 mm (generally strongly fractured, partly oxidized to limonite along margins and fractures, associated with rare trace chalcopyrite <20 um), intergrown and surrounded by biotite as ragged subhedral flakes to 0.5 mm with intense green pleochroism (likely highly ferriferous), partly altered at margins/cores to chlorite as described above or in places to carbonate as subhedra to 0.2 mm (likely ankerite?). Some pyrite may be after magnetite with a bladed textures suggestive of former hematite (?). In the magnetite veinlet (<1 mm thick), discontinuous blebs of magnetite are up to 3 mm long composed of euhedra to 1 mm. Both types of vein, and locally relict mafic sites between them, also contain minor amounts of what may be monazite (rounded euhedra mostly <0.25 mm) and local opaque to dark red-brown or yellow-brown unidentified phases (could in part be REE oxide or fluorocarbonate minerals; SEM analysis would be required to identify them). Rare sphene (euhedra to 0.2 mm) and phlogopite (palest brown, sub/euhedral flakes <0.15 mm) are also locally associated with the veins.

In summary, this appears to represent leucocratic syenite (if albitic plagioclase is included as alkali feldspar) cut by vein sets of pyrite-green biotite/chlorite-carbonate-trace phlogopite-sphene, or discontinuous magnetite, both with minor monazite?-REE minerals?

COPE10AR-20: COMPLEX ROCK OF UNIDENTIFIED PHASES (PARTLY REE-BEARING?) IN MATRIX OF CALCITE-QUARTZ-PLAGIOCLASE-ACCESSORY SPHENE

Assay results for this sample show significant REE (Ce, La, Nd, Pr, Sm, Y, Yb) as well as Nb, Th, V and Zr. The hand specimen shows fine-grained, dark brownish black rock of uncertain derivation with local clots of carbonate, and cut by local limonitic fractures. The rock is locally slightly magnetic, shows minor reaction to cold dilute HCl in the clots, and no stain for K-feldspar in the etched offcut. Modal mineralogy in polished thin section is approximately:

Unidentified #1 (iddingsite?)	50%
Unidentified #2 (amphibole?)	20%
Carbonate (calcite?)	15%
Quartz (secondary)	5%
Plagioclase (oligoclase?)	2-3%
Unidentified#3 (allanite?)	2-3%
Sphene	1-2%
Columbite-tantalite (?)	1-2%
REE mineral (?)	1-2%

This is an unusual rock in which the minerals are not common and remain largely unidentified. It is composed mainly of large masses of a dark-red brown mineral (Unidentified #1) commonly mantled by acicular crystals of a paler but strongly pleochroic brown mineral (Unidentified #2), with lesser carbonate, quartz, plagioclase, a dark green mineral Unidentified #3) plus accessory sphene, possible columbite-tantalite, and possible REE minerals (?).

Unidentified #1 forms coarse, deep red-brown to orange-brown, strongly pleochroic rounded sub/euhedral crystals up to ~5 mm across with strong positive relief and possibly moderate to high birefringence (mostly masked by the colour of the mineral). There appear to be several cleavages, possibly at about right angles, and extinction is mostly more or less parallel to them. Interference figures are difficult to interpret due to the strong colour but suggest biaxial negative with moderate to small 2V. All these optical characteristics fit a mineral called iddingsite, which is usually an alteration product of olivine, but this is tentative until SEM or XRD analysis can be undertaken.

Unidentified #2 forms slender lath-like euhedra (perfect terminations) up to about 1.5 mm long with random orientations that seem to mantle the margins of #1. The crystals are strongly zoned and show strong pleochroism varying from pale brown to medium/deep reddish brown not quite as intense as in #1. Relief is slightly less positive than #1 and birefringence is moderate; extinction appears to range from near-parallel to significant (35°+) and interference figure may be biaxial negative with moderate to large 2V. These characteristics more or less fit amphibole but in no case can the typical amphibole cleavage be seen, so this must be regarded as tentative.

Interstitial to these minerals and poikilitically enclosing them are intergrowths of carbonate and quartz or locally plagioclase, all forming subhedra <2 mm in diameter. The carbonate (tested where it is most abundant, in a clot) reacts to HCl and is clear, so is likely mostly calcite; it also occurs in late veinlets. Quartz displays undulose extinction rather like twinning but also has uniaxial positive character. Plagioclase shows polysynthetic twinning with small extinction angle suggestive of oligoclase but does not occur adjacent to quartz so refractive indices cannot be compared.

Accessory sphene forms somewhat rounded euhedra <0.5 mm with pale colour/pleochroism. A bladed opaque forming sheafs of euhedra to 1 mm with distinct anisotropism could be columbite-tantalite (?), slightly altered to hematite. A semi-transparent greenish mineral forming sub/euhedra to 0.6 mm (unidentified #3) has high relief and birefringence similar to allanite (REE-bearing epidote) but reflectance appears to be rather high. An opaque with lower R forming euhedra to 0.5 mm with cubic outlines may be a REE-bearing oxide mineral.

In summary, the mineralogy of this sample is so poorly understood from optical microscopy that it needs to be subjected to further analysis by SEM to identify many of the relatively uncommon minerals present in it. Speculatively it could consist largely of iddingsite surrounded by amphibole, with interstitial carbonate-quartz-plagioclase and accessory sphene-columbite-allanite-REE mineral.

COPE10AR-22: FOLIATED/LAYERED SYENITE/MONZONITE GNEISS (PLAGIOCLASE-KSPAR-PHLOGOPITE-PYRRHOTITE/LIMONITE-CARBONATE-RELICT CLINOPYROXENE-SPHENE±REE OXIDES?

Assays for this sample are mainly similar to or slightly less elevated for REE, Nb, and Th; hand specimen shows grey-brown, fine-grained rock of uncertain derivation cut by fractures of and partly oxidized to limonite. The rock is distinctly magnetic, shows minor (but slow) reaction to cold dilute HCl, and minor yellow stain for K-feldspar in the etched offcut. Modal mineralogy in polished thin section is approximately:

Plagioclase (oligoclase?)	45%
K-feldspar	20%
Phlogopite	20%
Pyrrhotite (partly oxidized to pyrite/marcasite, limonite)	5%
Carbonate (dolomite, ankerite?)	3%
Relict clinopyroxene (carbonate altered)	2%
Limonite (after pyrrhotite)	2%
Clay?/sericite (after feldspars)	1%
Sphene	1%
REE minerals (?)	1%

This sample consists of somewhat foliated/layered, fine- to medium-grained plagioclase-phlogopite-Kspar, with accessory pyrrhotite (partly oxidized to limonite), carbonate, relict clinopyroxene (partly altered to carbonate), sphene, and possible REE minerals.

Plagioclase forms either relatively fine-grained (interlocking, randomly oriented, rounded subhedra mostly <0.5 mm in diameter) aggregates or coarse-grained euhedra up to ~5 mm with extinction Y^010 small (2-5°), suggestive of a composition near oligoclase (?). It is slightly clouded by minute flakes of clay?/sericite.

Phlogopite occurs mainly as sub/euhedral flakes either up to ~1 mm in diameter, commonly aligned along or and concentrated in the foliation/layering, or as fine shreddy flakes mostly <0.15 mm with more random orientations, intergrown with or interstitial to the finer-grained plagioclase. The mica has very pale brown pleochroism.

K-feldspar forms mostly fine-grained, interlocking sub/anhedra <0.5 mm, but in patches up to almost 1 cm across, commonly partly clouded by minute particles of clay (?).

Pyrrhotite occurs as scattered bleb-like aggregates 2.5 mm across composed of subhedra mostly <1 mm in size (partly oxidized around the margins and along cleavage to FeSx phases including pyrite and marcasite with lamellar or "birds-eye" textures, and then limonite), or as small subhedra mostly <0.25 mm, both associated with phlogopite as relatively coarse or fine flakes respectively. In places the pyrrhotite has a discontinuous vein-like form and/or is associated with carbonate forming either rounded subhedra to 1.5 mm (dolomite?) or strongly limonite-stained aggregates to 1.5 mm of subhedra <0.1 mm (ankerite?). Locally some of the latter carbonate can be seen to be pseudomorphous after clinopyroxene forming ragged, irregular subhedra up to 1.2 mm long, associated with accessory sphene as rounded sub/euhedra mostly <0.5 mm long and with relict (oxidized) pyrrhotite. Pyrrhotite and sphene are also locally strongly associated/intergrown.

In places an oxide phase (low R value) forming aggregates to 0.2 mm long composed of dark red-brown, possibly isotropic subhedra to 50 um long, associated with or containing inclusions of pyrrhotite, may represent REE-bearing oxides since they do not appear to be anisotropic as for limonite. However, this would require SEM confirmation.

In summary, this appears to represent somewhat foliated/layered syenite or monzonite gneiss (plagioclase, lesser Kspar, somewhat layered phlogopite) with accessory pyrrhotite partly oxidized to pyrite/marcasite and limonite, carbonate (possibly dolomite and ankerite?) (in part after relict clinopyroxene), minor sphene, and possible REE mineral oxides (?).

PHOTOMICROGRAPH CAPTIONS

COPE10AR-3: Leucocratic syenite composed of alkali feldspar (af; both albitic plagioclase and K-feldspar), minor brown biotite (bi) partly altered to chlorite (ch), cut by veins of green biotite (grbi) and pyrite, or magnetite (mt) and minor monazite? (mz?). Transmitted plane light, field of view 3.0 mm wide.

COPE10AR-3R: Veinlet of magnetite (mt) with minor possible monazite (mz?) and REE minerals or limonite (REE/lm?) cut by vein of pyrite (py) that may be in part after magnetite that has replaced lamellar hematite (?), green biotite (grbi) and minor carbonate (cb). Reflected light, uncrossed polars, field of view 2.75 mm wide.

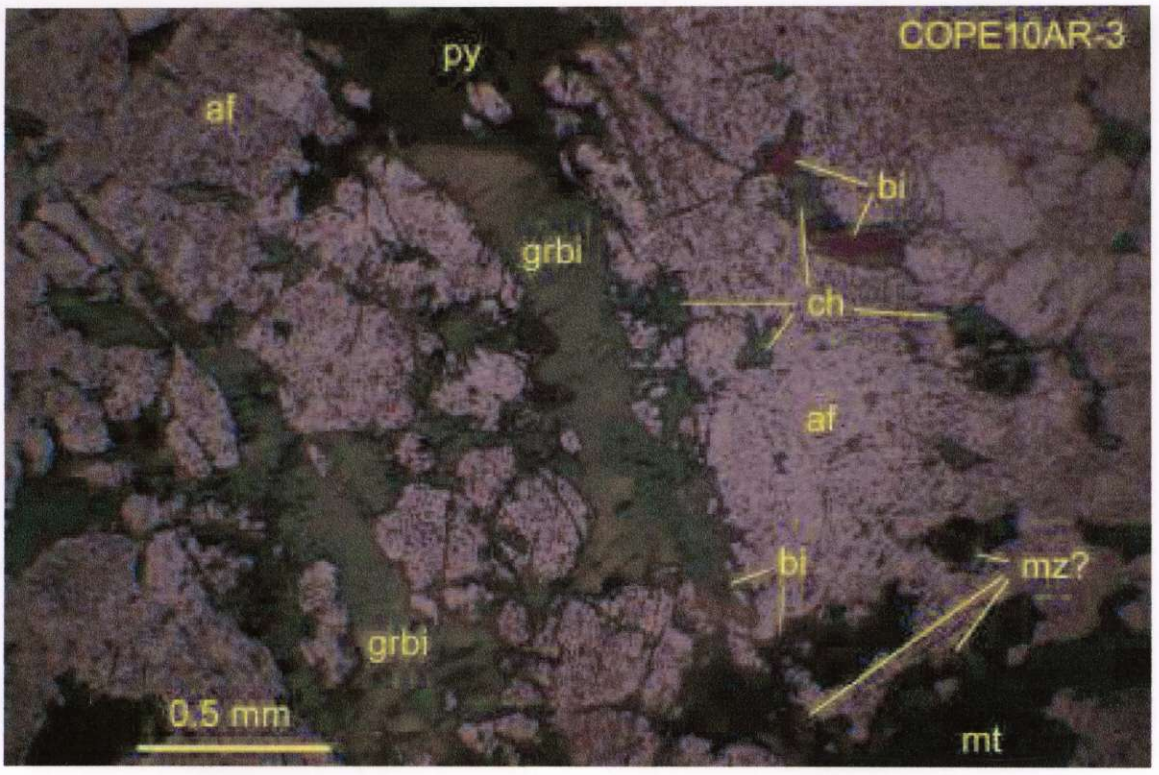
COPE10AR-20: Unidentified #1 (massive, coarse, red-brown pleochroic) surrounded by lath-shaped, pale brown pleochroic unidentified #2 and deep green #3, poikilitically enclosed in matrix of quartz (qz) and carbonate (ca). Transmitted plane light, field of view 3.0 mm wide.

COPE10AR-20R: Unidentified opaque minerals that could be columbite-tantalite or ilmenite (cm/il?) as euhedral laths partly altered to hematite (hm), cubic possible REE minerals, in matrix of carbonate (ca) containing lath-like unidentified #2 (amphibole?) and minor plagioclase (pl), cut by carbonate (cb) vein swarms. Reflected light, uncrossed polars, field of view 2.75 mm wide.

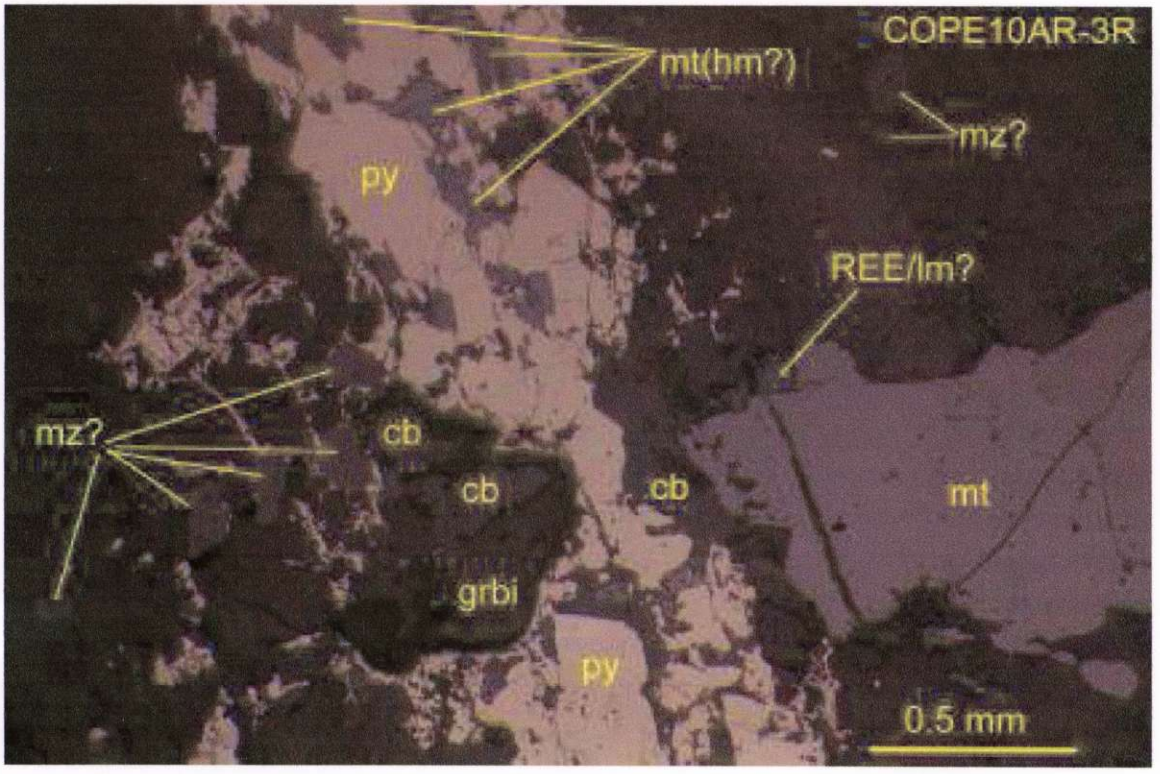
COPE10AR-22: Syenite/monzonite composed of coarse plagioclase (twinned, pl, likely around oligoclase, with inclusions of Kspar , Kf), finer-grained Kspar, phlogopite (ph), accessory pyrrhotite (po, opaque) and sphene (sp). Transmitted light, crossed polars, field of view 3.0 mm wide.

COPE10AR-22R: Pyrrhotite (po) partly oxidized around margins to pyrite/marcasite (py/mc), minor possible REE-bearing oxides, and sphene (sp) associated with phlogopite (ph) set in matrix of alkali feldspar (af). Reflected light, uncrossed polars, field of view 2.75 mm wide.

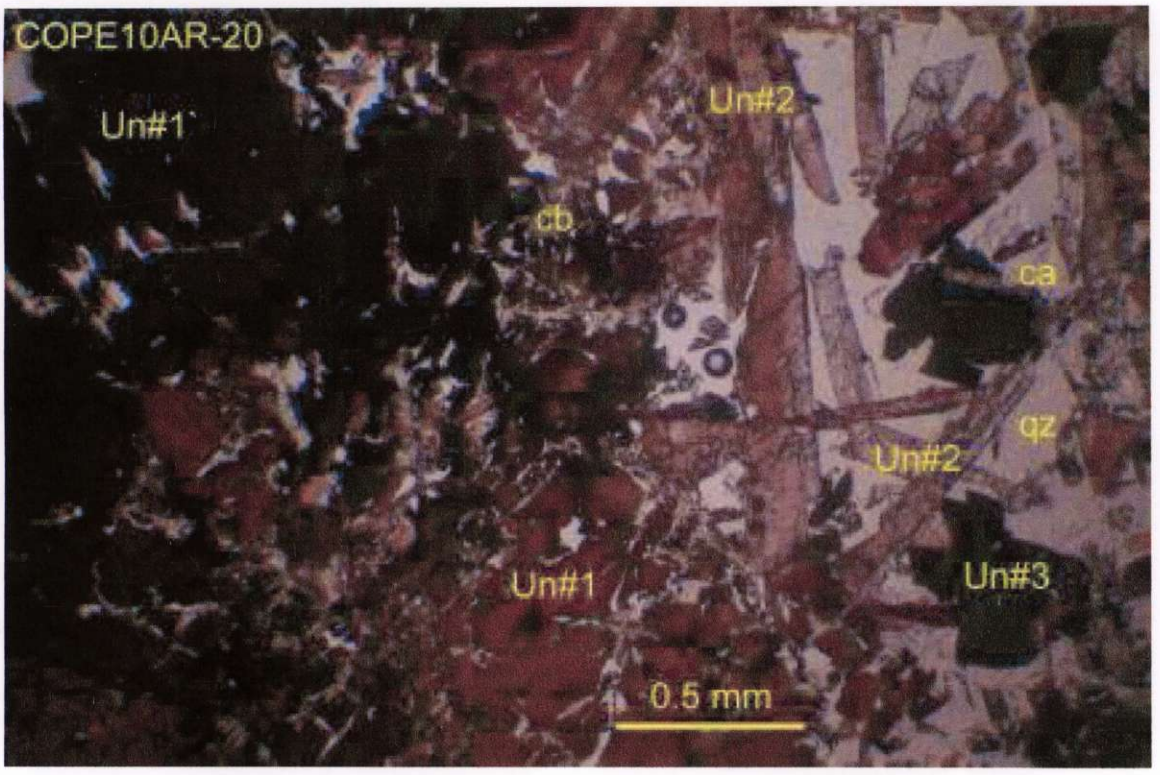
Overview of thin sections and offcuts (blue semi-circles mark photomicrograph locations).



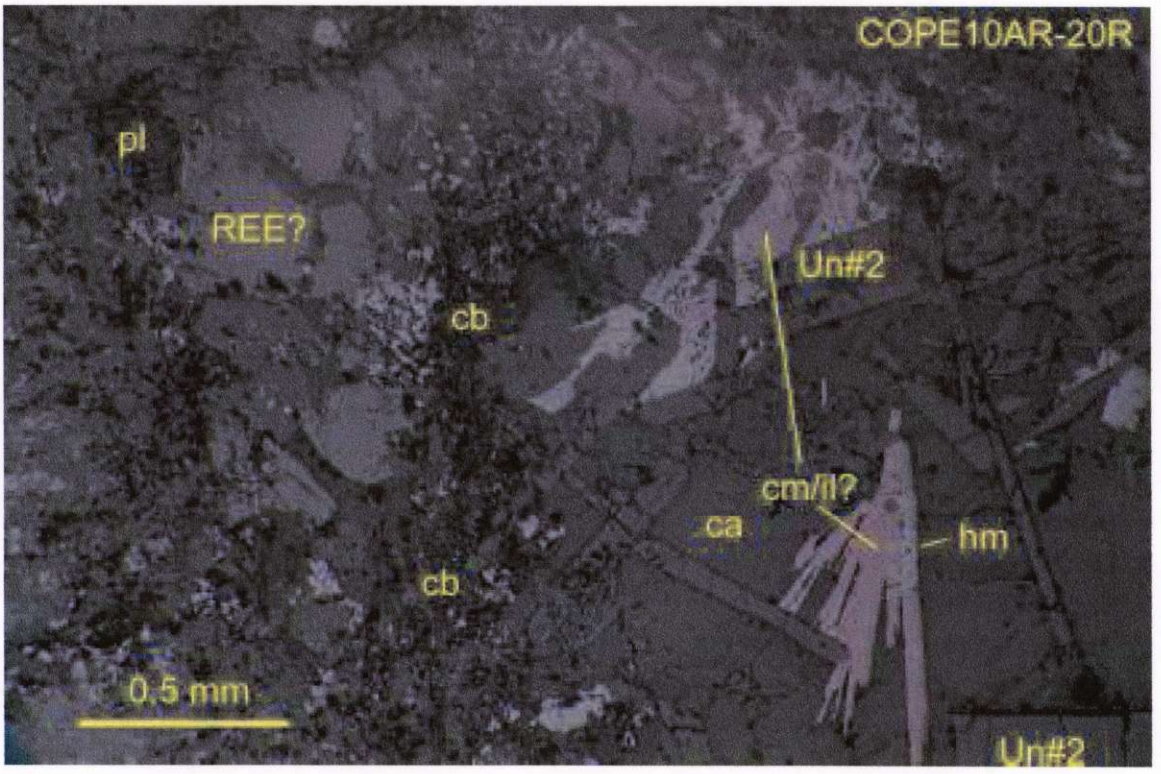
COPE10AR-3: Leucocratic syenite composed of alkali feldspar (af; both albitic plagioclase and K-feldspar), minor brown biotite (bi) partly altered to chlorite (ch), cut by veins of green biotite (grbi) and pyrite, or magnetite (mt) and minor monazite? (mz?). Transmitted plane light, field of view 3.0 mm wide.



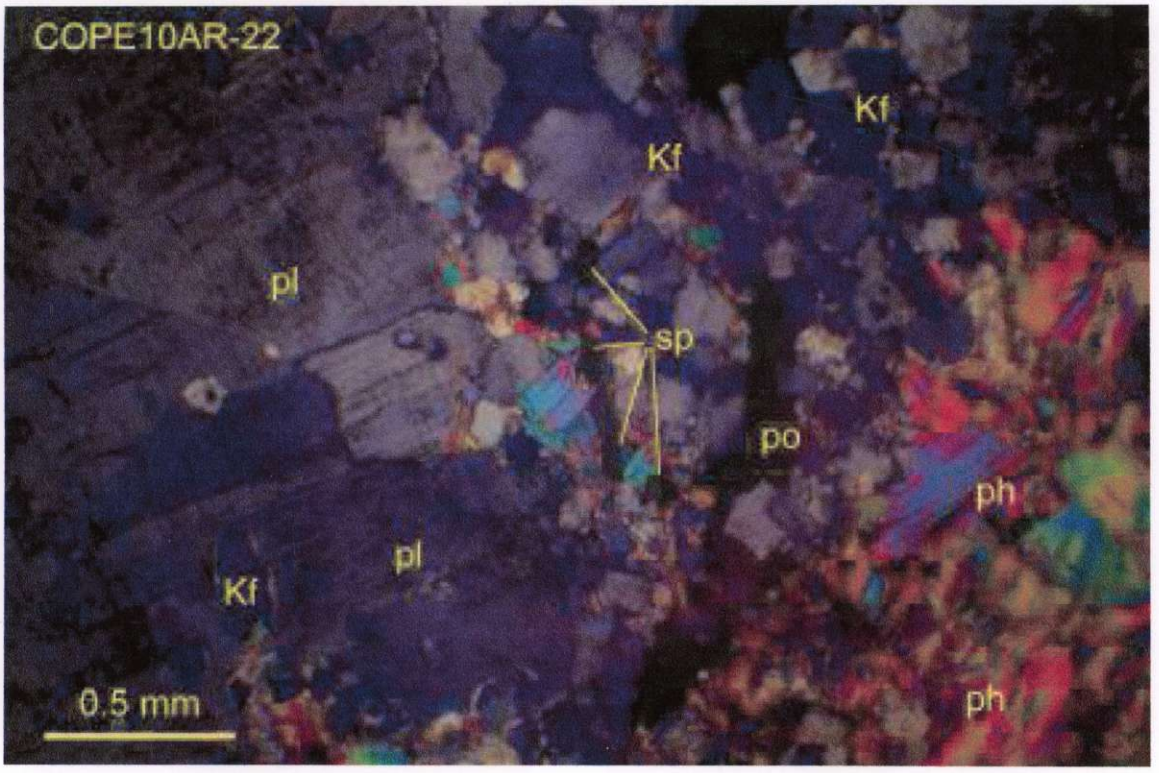
COPE10AR-3R: Veinlet of magnetite (mt) with minor possible monazite (mz?) and REE minerals or limonite (REE/lm?) cut by vein of pyrite (py) that may be in part after magnetite that has replaced lamellar hematite (?), green biotite (grbi) and minor carbonate (cb). Reflected light, uncrossed polars, field of view 2.75 mm wide.



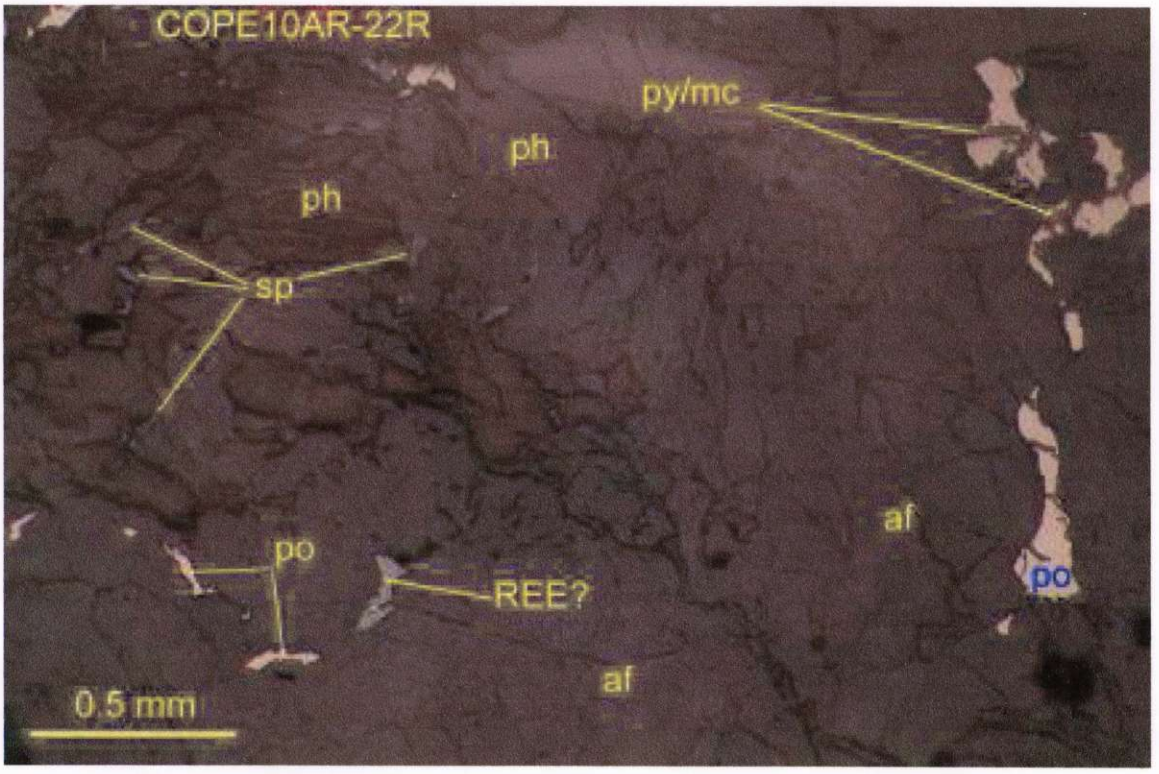
COPE10AR-20: Unidentified #1 (massive, coarse, red-brown pleochroic) surrounded by lath-shaped, pale brown pleochroic unidentified #2 and deep green #3, poikilitically enclosed in matrix of quartz (qz) and carbonate (ca). Transmitted plane light, field of view 3.0 mm wide.



COPE10AR-20R: Unidentified opaque minerals that could be columbite-tantalite or ilmenite (cm/il?) as euhedral laths partly altered to hematite (hm), cubic possible REE minerals, in matrix of carbonate (ca) containing lath-like unidentified #2 (amphibole?) and minor plagioclase (pl), cut by carbonate (cb) vein swarms. Reflected light, uncrossed polars, field of view 2.75 mm wide.



COPE10AR-22: Syenite/monzonite composed of coarse plagioclase (twinned, pl, likely around oligoclase, with inclusions of Kspar , Kf), finer-grained Kspar, phlogopite (ph), accessory pyrrhotite (po, opaque) and sphene (sp). Transmitted light, crossed polars, field of view 3.0 mm wide.

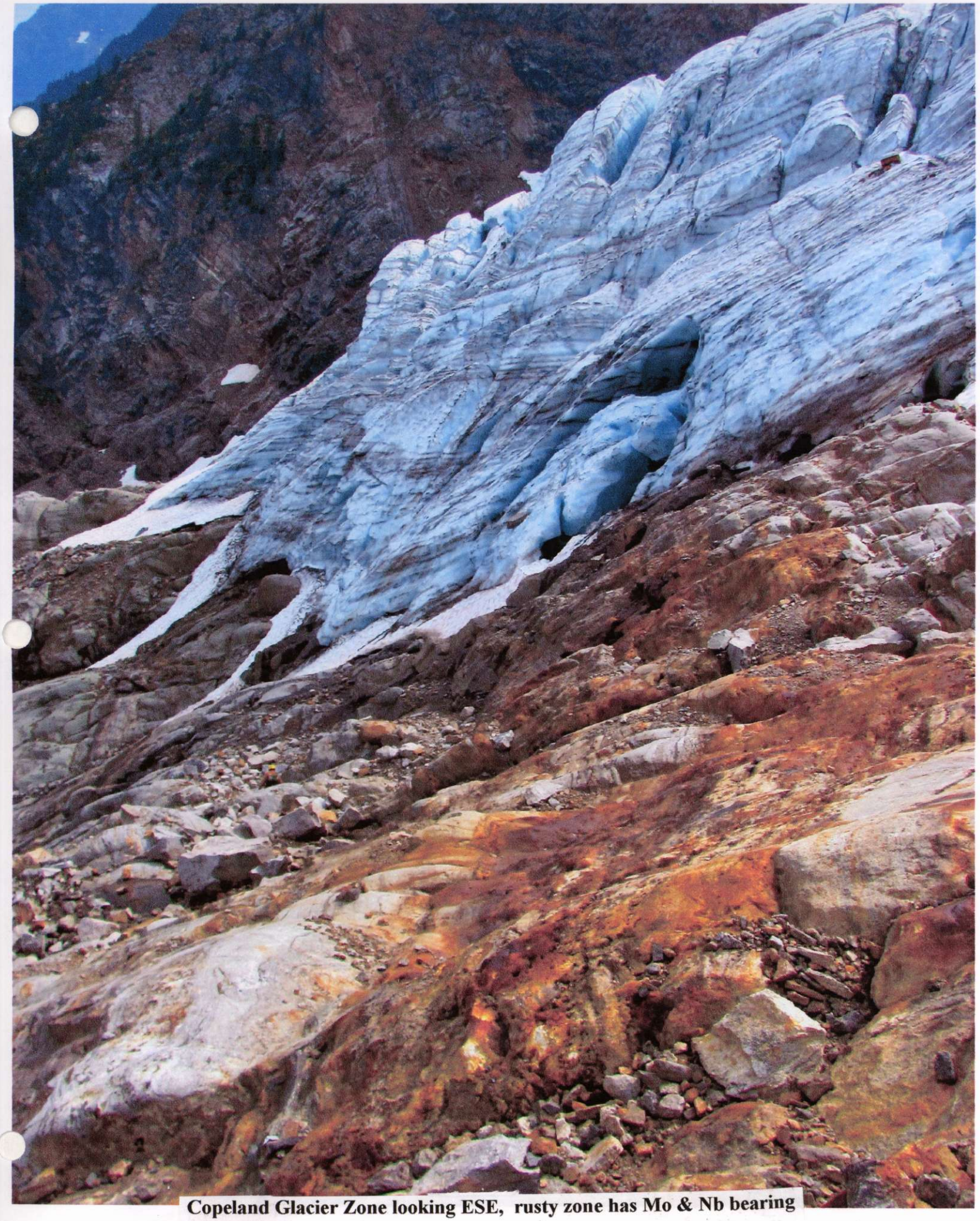


COPE10AR-22R: Pyrrhotite (po) partly oxidized around margins to pyrite/marcasite (py/mc), minor possible REE-bearing oxides, and sphene (sp) associated with phlogopite (ph) set in matrix of alkali feldspar (af). Reflected light, uncrossed polars, field of view 2.75 mm wide.

Overview of thin sections and offcuts (blue semi-circles mark photomicrograph locations).

Copeland West Basin yellow-green pegmatite, 110 trend, moderate S dip

Appendix D



Copeland Glacier Zone looking ESE, rusty zone has Mo & Nb bearing mineralization

Copeland West Basin looking west

Copeland Glacier Zone, rock chip sample COPE10AR-5

Copeland Glacier Zone, looking SE, East Glacier Zone (COPE10AR-20) in background

Copeland Marble breccia ridge looking W, (rock chip samples COPE10AR-22 & 23)