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AIRBORNE GEOPHYSICS ASSESSMENT REPORT

VALENTINE PROPERTY

Otter Rapids, Northeastern Ontario, Canada
NTS: 42I04NE
Townships: Valentine and Pitt

NIOBAY METALS INC.
1100 ave des Canadiens-de-Montreal, Suite 300
Montreal, Quebec, H3B 2S2
Canada

Date: Jan. 3, 2022

Prepared By:
J-J Minerals
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1.0 SUMMARY

J-J Minerals of Sudbury, Ontario, Canada was contracted by NioBay Metals Inc. ("NioBay") of Montreal, Quebec, Canada to write an assessment report for Terraquest Ltd's airborne geophysics survey on Valentine Property (the "Property") which was conducted between Oct. 26-Nov. 7, 2020. This Report interprets the results of the airborne geophysics survey and makes recommendations for a future exploration program. The purpose of this Report is to file an airborne geophysics survey for assessment credit.

Valentine Property is located 3 km north of Otter Rapids, 140 km north of Cochrane and 200 km north of Timmins, northeastern Ontario. The center of the Property is located at 455569 m E, 5565778 m N, Zone 17, NAD 83.

Valentine Property consists of 190 single cell mining claims in Valentine and Pitt townships and NTS Sheet: 42I04NE. The claims are held 100% by Les Metaux NioBay Inc./NioBay Metals Inc. and are in good standing. The Property is approximately 8.4 km x 5.4 km.

The regional geology of the Coral Rapids area consists of Precambrian Superior Province which is represented by east-west striking Quetico and Opatica metasedimentary belts with the Fraserdale-Moosonee tectonic block forming a boundary between them. The Fraserdale-Moosonee tectonic block is associated with the north-south trending Kapuskasing Structural Zone. The Coral Rapids area west of the Kapuskasing Structural Zone consists of Devonian sandstone, limestone and shale. The Valentine Township Carbonatite Complex lies below the Devonian sedimentary rocks.

The Valentine Township Carbonatite Complex does not outcrop on surface and is beneath a minimum of 120 – 150 m of overburden and sedimentary Devonian Rocks. Limited drilling of the complex indicates that it is composed of magnetite-amphibole-biotite-phlogopite-apatite-olivine sovite, silicocarbonate and fenitized syenite.

In 1964, Ontario Department of Mines and Geological Survey of Canada published aeromagnetic M2306G for Coral Rapids. The map shows an oval magnetic high over the Valentine Township Carbonatite Complex and another smaller magnetic high on the west side of the Abitibi River in the southwest corner of Valentine township.

In April 1967, Barringer Research Limited, on behalf of Argor Explorations Ltd., carried out a low-level airborne magnetometer survey at 400 ft (=121 m) line spacing including parts of Valentine, Pitt, Hamlet and Kilmer townships in the Coral Rapids area. The result of this survey was that that the magnetic high in the southwest part of Valentine township is actually two magnetic highs.

In October 1967, Argor Explorations followed up on the aeromagnetic survey with drill hole V-2-1 which was a vertical hole 654 ft (=199.3 m) deep. The best Nb mineralized interval was 0.08 % Nb_2O_5 from 570 to 580 ft (=173.7 to 176.7 m), over 10 ft (=3.0 m) in dolomite carbonatite. In February 1969, Argor Explorations drilled V-2-2 with a dip of -50° and a length of 2362 ft (=719.9 m) on the center of the magnetic high anomaly in close approximately to drill hole V-2-1. In April 1969, Argor Explorations drilled V-2-3 with a dip of -50° and a length of 2000 ft (=609.6 m) on the center of the magnetic high anomaly. Drill hole V-2-3 intersected 0.22% Nb_2O_5 over 257 ft (=78.3 m), 1738-1995 ft in carbonatite.

In Feb. 1982, Selco Mining Corp. conducted a ground magnetic survey along grid lines with 100 m spacing Grid 42I5-114 was located on claim 608411 northeast of Coral Rapids and Grid 42I5-115 was located on claims 608399 and 608416 immediately east of Coral Rapids. Grid 42I5-114 identified an intense circular anomaly with a source depth of 75-80 m. Grid 42I5-115 also identified a large roughly circular anomaly with a smaller satellite on its northeast shoulder with a depth to source of 100 m. In Sept. 1982, Selco Mining drilled 42I5-114-1 with a vertical dip and a length of 118.5 m centered on a magnetic anomaly 42I5-114. Selco also drilled 42I5-115-1 with a vertical dip and a length of 152 m on magnetic anomaly 42I5-115. Both holes intersected kimberlitic breccia.

In February and March 2006, Baltic Resources Inc. drilled 11 holes totalling 951 m. The drill holes were located on both the east and west side of the Abitibi River in the Coral Rapids area. Drill holes CR06-1, 2, 3 and 6 were drilled on the east side of the Abitibi River on the northern part of the Valentine Property. All four holes intersected kimberlitic breccia. In September 2007, selected drill core samples from drill holes CR06-01 and 02 were studied under binocular microscope and thin sections were studied by petrographic microscope to identify the mineralogy and rock types. The selected samples were determined to be fragmental olivine melilitites and coherent alnoite.

The Valentine Township Carbonatite Complex has Niobium, Phosphorous and Rare-Earth Element mineralization. The niobium is hosted by pyrochlore and the phosphorus is hosted by apatite.

The Nb mineralized assay highlights in drill hole V-2-3 include:

- 1.18 % Nb_2O_5 and 5.49 % P_2O_5 over 5ft (=1.5 m), 1810-1815 ft in dolomite carbonatite. Individual stringers contain up to 10% pale pyrochlore.
- 0.48 % Nb_2O_5 over 10 ft (=3.0 m), 1920-1930 ft in dolomite carbonatite. Pyrochlore occurs as fine-grained pale honey octahedra in narrow stringers of up to 1-2%.
- 0.46 % Nb_2O_5 over 15 ft (4.6 m), 1980-1995 ft in calcite carbonatite. Brown pyrochlore occurs as 4 inch wide interval at 1%.

Drill hole V-2-3 also intersected phosphorous mineralization:

- 8.65 % P_2O_5 over 10 ft (=3.0 m), 1000-1010 ft in pyroxenite with 20% orange apatite
- 8.58 % P_2O_5 over 10 ft (=3.0 m), 1020-1030 ft in pyroxenite with 20% orange apatite
- 7.50 % P_2O_5 over 10 ft (=3.0 m), 1160-1170 ft in pyroxene lamprophyre with 20% orange apatite

Terraquest Ltd., Markham, Ontario conducted a high resolution magnetic and VLF helicopter survey over the Valentine Property in 2020 on behalf of NioBay Metals Inc. The purpose of the survey was to collect geophysical data that can be used to prospect for minerals characterized by anomalous magnetic and electromagnetic responses. Valentine Township Carbonatite Complex contains magnetite which typically has a high magnetic response. Also, the magnetic geophysical signature can be used to show the geology including rock types, faults, shear zones, folding, alteration zones and other structures.

Terraquest's survey covered all of the Valentine Property claims as listed in Appendix 2 in Valentine and Pitt townships. The Property was traversed by a helicopter along parallel flight lines over a regular block approximately 8.4 km x 5.4 km (Figure 8-1 and Figure 8-2). There was 182 traverse lines (E-W, 90°/270°) at 50 m spacing for a total of 1027.1 line km and 13 tie lines (N-S, 000°/180°) at 500 m spacing for a total of 106.6 line km. The total line km is 1133.7. The mean terrain clearance for the survey was 21.5 m.

Terraquest produced a total of 7 maps from their survey results at a scale of 1:15,000 on the survey block as listed in Table 8-4 and given in Appendix 4.

A comparison of the historical drill core lithology (V-2-1, 2 and 3) and the levelled total magnetic field intensity map indicates that the large magnetic high in the southwest part of Valentine township represents the Valentine Township Carbonatite Complex (Figure 8-4). The magnetics map indicates that the Carbonatite Complex is composed of two large pulses and two smaller pulses.

A comparison of the historic drill core from Selco's 1982 drill program (42I5-114-1 and 42I5-115-1) and the magnetic high anomalies indicates that the anomalies represent kimberlite pipes (MNDM assessment report 42I04NE0003) (Figure 8-4). Similarly, a comparison of the historic drill core from Baltic's 2006 drill program (CR06-1, 2, 3 and 6) and the magnetic high anomalies indicates that the anomalies represent kimberlite pipes (MNDM assessment report 2.31852). Ontario Geological Survey's 2000 study of heavy minerals in alluvial sediments in the Coral Rapids area found the occurrence of G9 garnets (samples KAP-2121 and 2181) and Mg-ilmenite overlaps with presence of melnoites which indicates the presence of kimberlites in the red magnetic anomaly northwest of the Carbonatite Complex and drill hole 42I5-115-1 (OGS OFR6068, 2001). Note that the kimberlite pipes have two parallel NW trends in the northern part of the Valentine Property and a NE trend north of the Carbonatite Complex (Figure 8-5).

The Matachewan diabase dykes are oriented N-S on the Valentine Property and overlapping the property geology with the first derivative total magnetic field map indicates that the N-S anomalies are diabase dykes (Figure 8-5).

The Qualified Person recommends that deep holes be drilled on the Valentine Township Carbonatite Complex, as historic drill hole V-2-3 was 2000 ft (=609.6 m) deep and ended in Nb mineralization. The depth of the Carbonatite Complex is not yet known. There is currently only 3 drill holes from 1967-1969 on the Carbonatite Complex which is not enough to fully characterize it. Drilling is recommended during the winter due to the swampy nature of the Property. Drill core should be assayed for Niobium, Phosphorus and Rare-Earth Elements, as the Carbonatite is likely to host all three commodities. It is recommended that a total of 6 drill holes at 800 m each be drilled on the centers of the magnetic anomalies for a total of 4,800 m. Two drill holes on each of the large anomalies (2 holes * 2 anomalies) and one drill hole on each of the small anomalies (1 hole * 2 anomalies). The recommended budget is $964,800.

2.0 INTRODUCTION

2.1 Introduction

J-J Minerals of Sudbury, Ontario, Canada was contracted by NioBay Metals Inc. ("NioBay") of Montreal, Quebec, Canada to write an assessment report for Terraquest Ltd's 2020 airborne geophysics survey on Valentine Property (the "Property"). This Report interprets the results of the airborne geophysics survey and make recommendations for a future exploration program. The purpose of this Report is to file the airborne geophysics survey for assessment credit.

Sources of information for this report include Ministry of Energy, Northern Development and Mines ("MNDM") assessment files listed in Appendix 3 and references listed in section 12.0. Tenure information was derived from MNDM's MLAS map viewer website (https://www.mndm.gov.on.ca/en/mines-and-minerals/applications/mlas-map-viewer).

2.2 Terminology

Alnoites is a rock with variable modal abundance of clinopyroxene, phlogopite, melilite and olivine (Mitchell, 1996).

Carbonatite: Carbonatites are defined by the International Union of Geological Sciences (IUGS) as igneous magmatic rocks containing more than 50% modal primary carbonates (Le Maitre, 2002). Depending on the predominant carbonate mineral, a carbonatite is referred to as a 'calcite carbonatite' (sövite), 'dolomite carbonatite' (beforsite) or 'ankerite carbonatite'.

G9 garnets are peridotite (Ca, Cr)-rich pyrope garnets with lherzolitic origin. They are used in exploration as kimberlite indicator minerals.

Lamprophyre: ultrapotassic mafic igneous rocks which have primary mineralogy consisting of amphibole or biotite, and with feldspar in the groundmass (https://en.wikipedia.org/wiki/Lamprophyre). They primarily occur as dikes, lopoliths, laccoliths, stocks, and small intrusions.

"**Lamprophyre facies**" rocks are characterized by the presence of phenocrysts of mica and/or amphibole together with lesser clinopyroxene and/or melilite set in a groundmass of plagioclase, alkali feldspar,

carbonate, monticellite, melilite, mica, amphibole, pyroxene, perovskite, Fe-Ti oxides and glass (Mitchell, 1994).

Lherzolite: an ultramafic igneous rock with 40-90% olivine and significant orthopyroxene and lesser amounts of Ca,Cr-rich clinopyroxene (https://en.wikipedia.org/wiki/Lherzolite).

Olivine melilitite a rock with > 10% melilite and > 10% olivine (Woolley et al., 1996)

Pyrochlore: $(Na,Ca)_2Nb_2O_6(OH,F)$ is a mineral group of the niobium end member of the pyrochlore supergroup (https://en.wikipedia.org/wiki/Pyrochlore). Pyrochlore is typically yellowish or brownish in colour with an octahedral shape. It is commonly found in nepheline syenites and carbonatites. Pyrochlore often contains radioactive uranium and thorium and is an ore mineral for niobium.

MLAS: Ontario's mining lands are registered and managed online with the Mining Lands Administration System.

MNDM: Ministry of Energy, Northern Development, Mines which is the provincial ministry responsible for managing mining claims (Mining Lands Section) and Ontario Geological Survey.

Melilite: a mineral group with a general formula of $(Ca,Na_2)(Mg,Fe,Al)(Si,Al)_2O_7$.

Melnoites: rocks belonging to the lamprophyre facies including but not restricted to ultramafic lamprophyres (OGS OFR6068, 2001). Melilite plus alnoite in ultramafic lamprophyres (Mitchell, 1994).

Silicocarbonatite: A carbonate-rich igneous rock composed of 50 % or more oxide and silicate minerals (Sage, 1988).

Sövite: carbonatite with calcite as the dominant carbonate mineral.

2.3 Units

The Metric System is the primary system of measure and length used in this Report and is generally expressed in kilometres (km), metres (m) and centimetres (cm); volume is expressed as cubic metres (m^3), mass expressed as metric tonnes (t), area as hectares (ha), and gold and silver concentrations as grams per tonne (g/t). Conversions from the Metric System to the Imperial System are quoted where practical. Many

of the geologic publications and more recent documents now use the Metric System but older documents almost exclusively refer to the Imperial System. Metals and minerals acronyms in this report conform to mineral industry accepted usage and the reader is directed to www.maden.hacettepe.edu.tr/dmmrt/index.html for a glossary.

The term gram/tonne or g/t is expressed as "gram per tonne" where 1 gram/tonne = 1 ppm (part per million) = 1000 ppb (part per billion). The mineral industry accepted terms Au g/t and g/t Au are substituted for "grams gold per metric tonne" or "g Au/t". Other abbreviations include ppb = parts per billion; ppm = parts per million; SG = specific gravity.

Dollars are expressed in Canadian currency (CAD$) unless otherwise noted. Where quoted, Universal Transverse Mercator (UTM) coordinates are provided in the datum of Canada, WGS 1984, Zone 17U North.

2.4 Qualified Person

The Qualified Person and author for this Report is Dr. Julie Selway, Ph.D., P.Geo., Principal Geologist for J-J Minerals and a geologist in good standing with the Association of Professional Geoscientists of Ontario (APGO # 0738). She supervised a geological mapping program on the Prairie Lake Carbonatite, Good Hope Niobium Property, Northwestern Ontario in 2017 for Plato Gold Corp. She co-authored a NI 43-101 Technical Report on the Upper Fir Carbonatite, Blue River Tantalum and Niobium Property, British Columbia in 2010 for Commerce Resources Corp. She completed a QA/QC review for Niobium drill core assays on the Upper Fir Carbonatite in 2009. Dr. Selway has co-authored over 20 NI 43-101 Technical Reports.

The Certificate of Qualifications for the Qualified Person is given in Appendix 1.

3.0 RELIANCE ON OTHER EXPERTS

This Report was prepared on behalf of the Company and is directed solely for the development and presentation of data with recommendations to allow the Company and current or potential partners to reach informed decisions.

The information, conclusions and recommendations contained herein are based on a review of digital and hard copy data and information supplied to J-J Minerals by the Company, as well as various published geological reports, and discussions with representatives from the Company who are familiar with the Property and the area in general. J-J Minerals has assumed that the reports and other data listed in the "References" section of this report are substantially accurate and complete.

The dates, titles and authors of all reports that were used as a source of information for this Technical Report are listed in the "References" section of this report and MNDM assessment reports used in this Report are given in Appendix 3, Table 13-2. The dates and authors of these reports also appear in the text of this Report where relevant, indicating the extent of the reliance on these reports.

The author of this Report relied on the Company's legal counsel and tenure information was derived from MNDM's MLAS map viewer website (https://www.mndm.gov.on.ca/en/mines-and-minerals/applications/mlas-map-viewer).

4.0 PROPERTY DESCRIPTION AND LOCATION

4.1 Location

Valentine Property is located 3 km north of Otter Rapids, 140 km north of Cochrane and 200 km north of Timmins, northeastern Ontario (Figure 4-1). The center of the Property is located at 455569 m E, 5565778 m N, Zone 17, NAD 83.

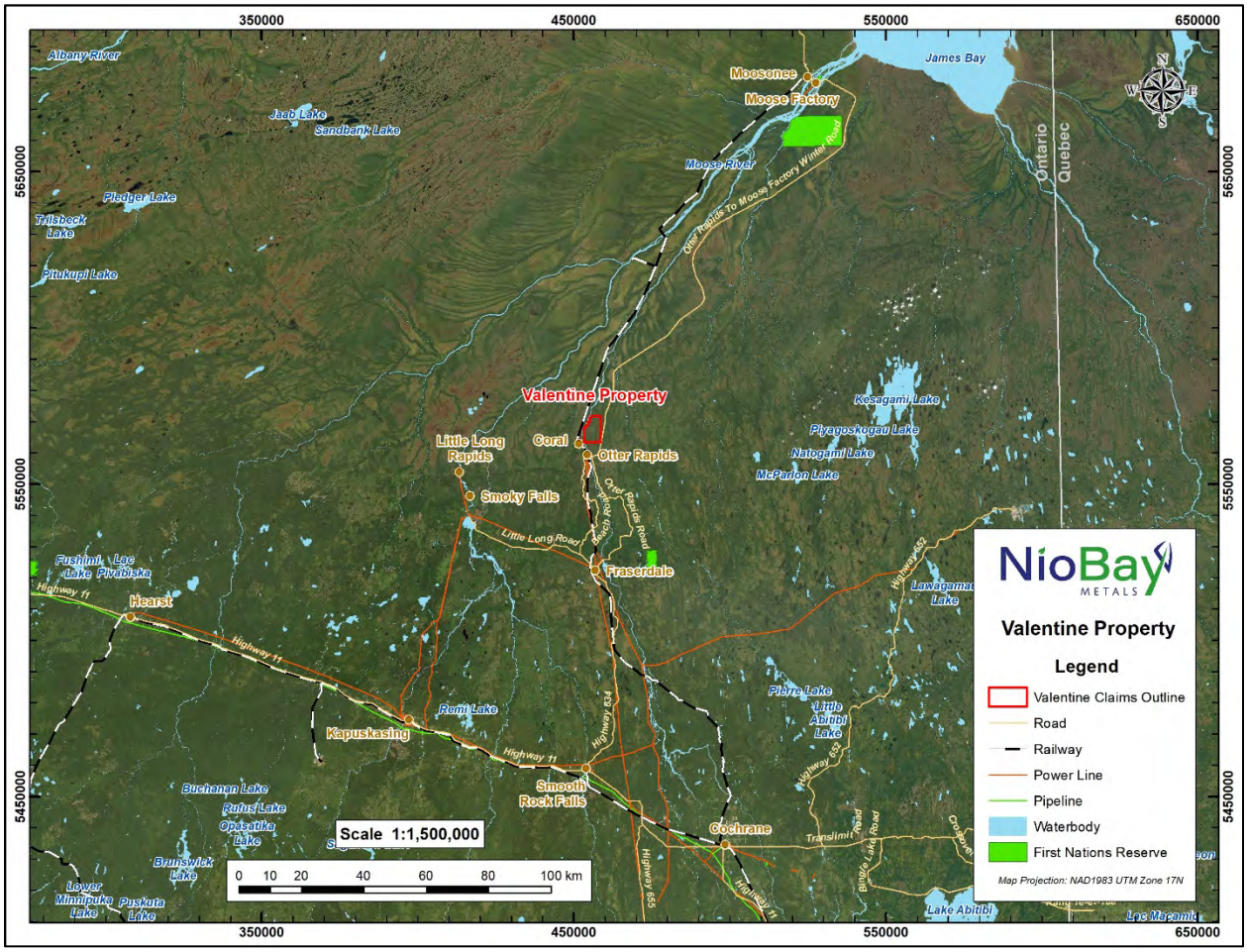

Figure 4-1 Valentine Property location, Otter Rapids, northeastern Ontario.

4.2 Description and Ownership

Valentine Property consists of 190 single cell mining claims in Valentine and Pitt townships and NTS Sheet: 42I04NE (Appendix 2 and Figure 4-2). The claims are held 100% by Les Metaux NioBay Inc./NioBay Metals Inc. and are in good standing. The Property is approximately 8.4 km x 5.4 km.

4.3 Requirements to Retain the Property and Exploration Plan and Permit

In Ontario, to retain a mining claim, companies must submit an assessment file to MNDM's Geoscience Assessment Office showing that they have spent $400/per single cell claim unit on exploration on each

claim. One claim unit is equal to 16 hectares. The initial mining claim is issued for a term of 2 years and then renewed every year afterwards.

The Valentine Property doesn't have an Exploration Plan or Exploration Permit.

To the best of the QP's knowledge, there is no significant factors and risks that may affect access, title or the right or ability to preform work on the Property.

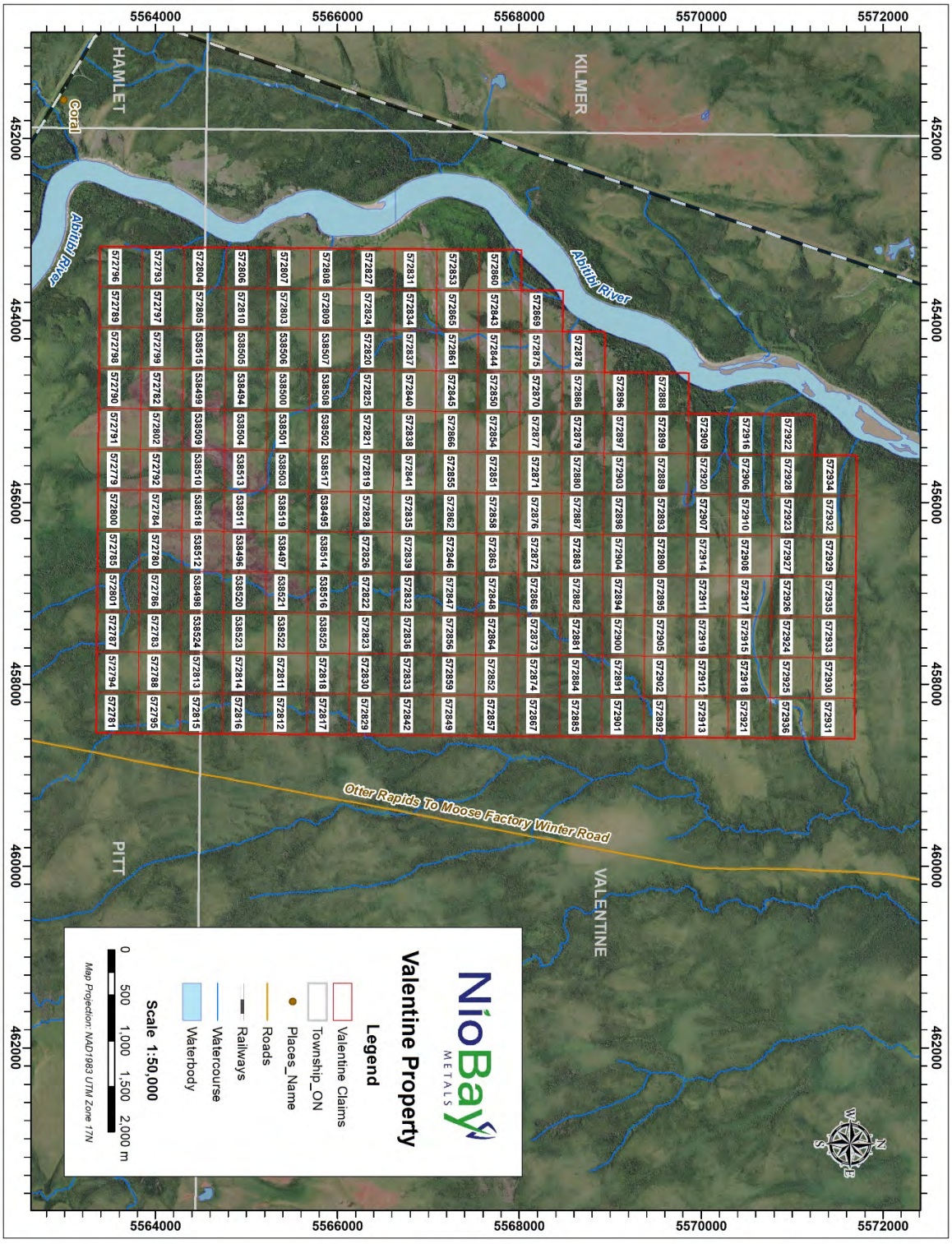

Figure 4-2 Valentine Property claim map.

5.0 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE, AND PHYSIOGRAPHY

5.1 Access

The Valentine Property can be accessed by taking Highway 634 north of Smooth Rock Falls to Fraserdale (Figure 4-1). At Fraserdale, there is a gravel road that continues north to Otter Rapids (https://en.wikipedia.org/wiki/Otter_Rapids,_Ontario). In the winter, there is a winter road called the Wetum Road that connects Otter Rapids to Moose Factory on the south shore of James Bay and passes along the east side of the Property.

The Ontario Northland Railway connects Cochrane and Moosonee on the south shore of James Bay and passes through Otter Rapids on the west side of the Property. The train can stop in Otter Rapids upon request. Ontario Northland operates a bus from Cochrane to Fraserdale three times a week.

The Property is in the southern part of the James Bay Lowlands. The Abitibi River is along the western boundary of the Valentine Property and flows north to James Bay.

For the airborne geophysics survey, Terraquest was based in Kapuskasing and flew their helicopter to Valentine Property.

5.2 Climate and Vegetation

For Kapuskasing, the maximum daily temperature is 23.5°C in July and minimum daily temperature is -24.8°C in January (Canadian Climate Normals website: https://climate.weather.gc.ca/climate_normals/results_1981_2010_e.html?searchType=stnProv&lstProvince=ON&txtCentralLatMin=0&txtCentralLatSec=0&txtCentralLongMin=0&txtCentralLongSec=0&stnID=4156&dispBack=0). The average rainfall is 102.8 mm in July and average snowfall is 36.9 mm in February.

In the southern section of the James Bay Lowlands and along rivers, the forests are composed of balsam fir, white and black spruce, trembling aspen, and paper birch (Ecoregions of Canada: http://ecozones.ca/english/region/217.html). Most of the ecoregion is poorly drained, and the dominant vegetation consists of sedge, mosses, and lichens with or without stunted black spruce

and tamarack. The ecoregion is underlain by flat-lying, Palaeozoic limestone bedrock of the Hudson Bay Lowland. These lowlands slope gently towards James Bay. Characteristic wildlife includes barren-ground caribou, black bear, wolf, moose, lynx, and snowshoe hare. Bird species include the Canada goose, ruffed grouse, and American black duck.

Drilling can be conducted year-round except for spring thaw in April when it is too muddy in the bush. Geological mapping and outcrop sampling can be conducted mid-May to end of September when there is no snow on the ground. Lakes are free of ice from mid-May to mid-October.

5.3 Physiography

The Valentine Property is located in the southern part of the James Bay Lowlands and is generally swampy with low relief (Sage, 1988).

5.4 Infrastructure and Local Resources

Otter Rapids (also known as White Otter Rapids) has a population of over 1,000 people and is well equipped with a bank, post office, grocery store, fire hall, 10-bed hospital and auditorium (Otter Rapids Generating Station website: https://en.wikipedia.org/wiki/Otter_Rapids_Generating_Station). Otter Rapids has a hydroelectric generating station and dam on the Abitibi River (Figure 5-1).

The closest airport to the Property is the Timmins airport which has service by Air Canada and Porter Airlines to Toronto.

Sources of water on the Property includes Abitibi River and numerous swamps.

The Property's surface rights are owned by the crown and they are sufficient for future mining operations.

Valentine project is in the exploration stage and does not yet have NI 43-101 compliant resource/reserve or a prefeasibility study; therefore, discussion on potential tailings storage areas, potential waste disposal areas, heap pad leach pad areas and potential processing tailings storage area for mining operations is not relevant.

Figure 5-1 Otter Rapids hydroelectric generating station and dam on the Abitibi River.
(Otter Rapids Generating Station website:
https://en.wikipedia.org/wiki/Otter_Rapids_Generating_Station)

6.0 HISTORY

6.1 1964, Ontario Department of Mines – Geological Survey of Canada

In 1964, Ontario Department of Mines and Geological Survey of Canada published aeromagnetic M2306G for Coral Rapids area (Figure 6-1). The airborne magnetic survey was flown May 1963 to April 1964. The map shows an oval magnetic high over the Valentine Township Carbonatite Complex and another smaller magnetic high on the west side of the Abitibi River.

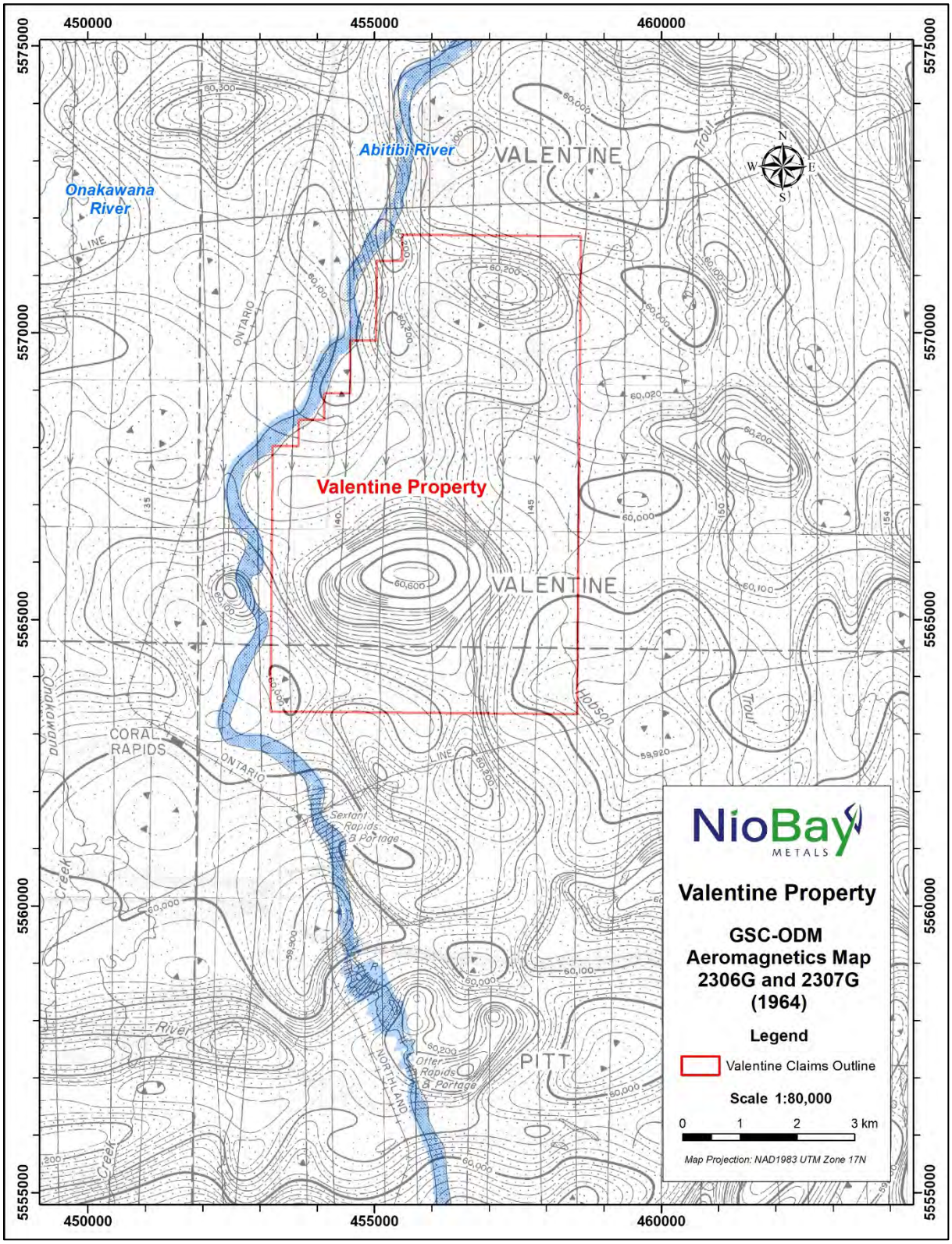

Figure 6-1 ODM-GSC Aeromagnetic Map 2306G and 2307G, Coral Rapids (1964).

6.2 1966-1967, Ontario Department of Mines

Bennett et al., (1966) produced P0370 map of the Otter Rapids area and noted the presence of kimberlite and lamprophyre dykes along Abitibi River west of the Valentine Property (Figure 6-2). This map was later accompanied by Operation Kapuskasing report (MP010, Bennett et al., 1967). Ontario Hydro Electric Commission drilled numerous holes between Otter Rapids and Coral Rapids which intersected lamprophyric and kimberlitic intrusive rocks (Figure 6-2).

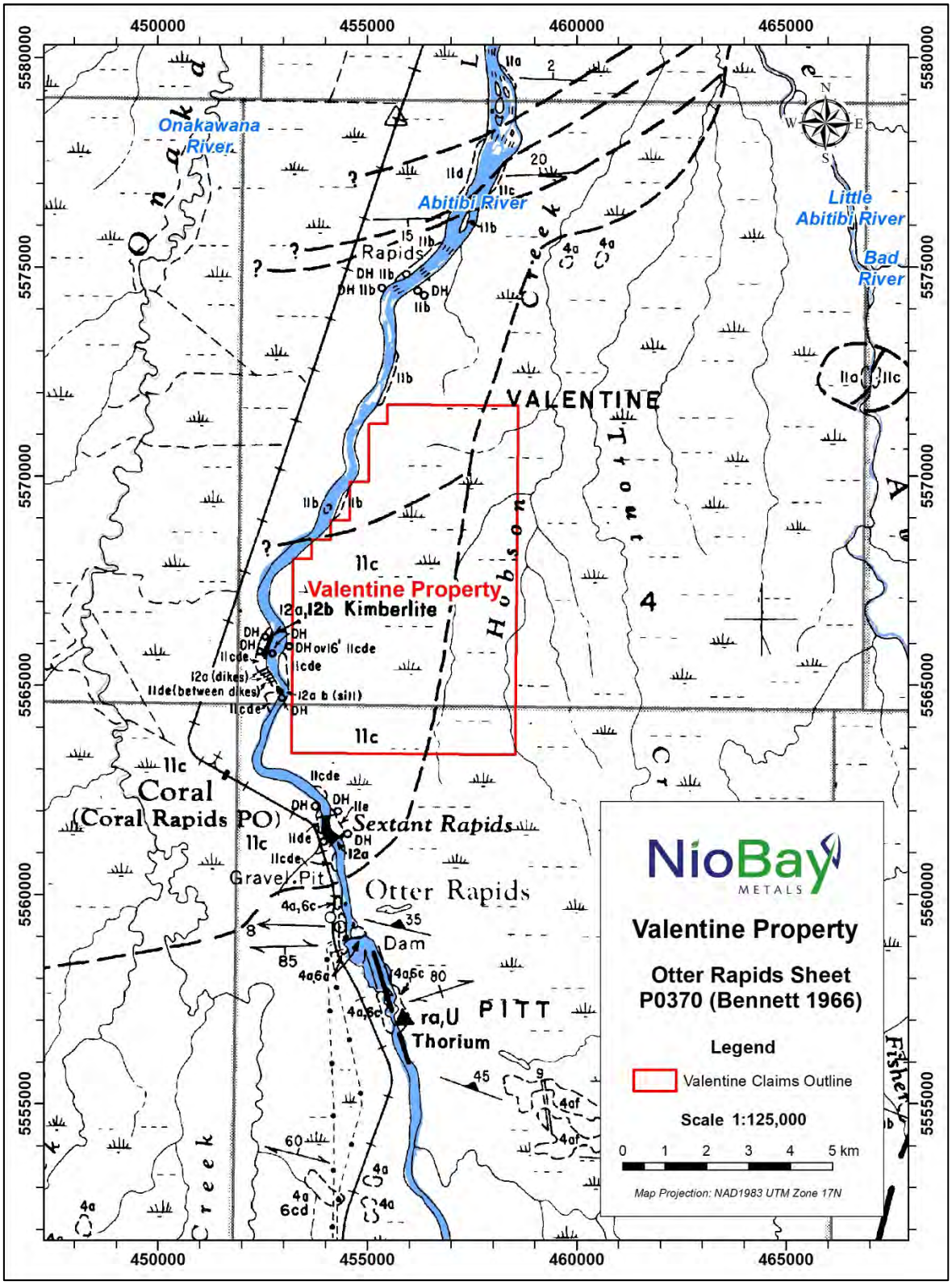

Figure 6-2 Local geology of the Valentine and Pitt townships (Bennett et al., 1966, P0370). DH – drill hole.

Rock units: 4- gneiss, 11-Lower to Upper Devonian sediments, 12 – post middle Devonian (12a) lamprophyre and (12b) kimberlite

6.3 1967-1969, Argor Explorations Limited

In April 1967, Barringer Research Limited, on behalf of Argor Explorations Ltd., carried out a low-level airborne magnetometer survey at 400 ft (=121 m) line spacing including parts of Valentine, Pitt, Hamlet and Kilmer townships in the Coral Rapids area (MNDM assessment report 42I04NE0007). The survey included a smaller area within Valentine township east of the Abitibi River on claims P91422 to P91436 inclusive. The purpose of the survey was to detail the large magnetic high from ODM-GSC Map 2306G and to locate possible alkaline intrusive complexes. The result of this survey was that that the magnetic high in the southwest part of Valentine township is actually two magnetic highs.

In October 1967, Argor Explorations followed up on the aeromagnetic survey with drill hole V-2-1 (MNDM assessment report 42I04NE0013). Drill hole V-2-1 was a vertical hole 654 ft (=199.3 m) deep (Figure 6-3). The hole intersected Middle Devonian Abitibi Formation limestone followed by Lower Devonian Sextant Formation sandstone, siltstone and mudstone followed by an unconformity around 445 ft (=135.6 m). Drill hole V-2-1 intersected (445-517 ft) altered ultrabasic or basic rock with chlorite, serpentine, magnetite, hematite and altered carbonatite. The drill hole then intersected carbonatite (517-591 ft) with dolomite, chalcopyrite, pyrite, secondary calcite, chlorite after biotite and hematite after magnetite. The accessory minerals are zircon, apatite, possible columbite and possible pyrochlore. The best Nb mineralized interval was 0.08 % Nb_2O_5 from 570 to 580 ft (=173.7 to 176.7 m), over 10 ft (=3.0 m) in dolomite carbonatite. The drill hole then intersected pyroxenite/hornblendite interlayered with carbonatite. The pyroxenite contains 10-40% magnetite which has been altered to hematite, 5-8% calcite and trace chalcopyrite, titanite and zircon.

In February 1969, Argor Explorations drilled V-2-2 with a dip of -50° and a length of 2362 ft (=719.9 m) on the center of the magnetic high anomaly in close approximately to drill hole V-2-1 (Figure 6-3) (MNDM assessment report 42I04NE0012). Drill hole V-2-2 intersected Middle Devonian Abitibi Formation limestone and Lower Devonian Sextant Formation sandstone, siltstone and shale. The unconformity occurs at 634 ft (=193.2 m). Weathered granite and hybrid biotite syenite was intersected from 634-741 ft. Carbonatite and hybrid biotite syenite form alternating layers to the end of hole at 2362 ft which was the limit of the drill.

The best intersections for pyrochlore in drill hole V-2-2 was 2278-2282.8 ft and 2288.5-2289.5 ft in dolomite carbonatite with 10% mica, 5% pale green amphibole needles, 3% magnetite and trace orange apatite. The 0.5-0.8% fine-grained pale cream pyrochlore occurs in bands within the carbonatite. Drill hole V-2-2 had phosphorus mineralization with assays varying from 3.62-7.67 % P_2O5 (Sage, 1988).

In April 1969, Argor Explorations drilled V-2-3 with a dip of -50° and a length of 2000 ft (=609.6 m) on the center of the magnetic high anomaly (Figure 6-3) (MNDM assessment report 42I04NE0013). Drill hole V-2-3 intersected Middle Devonian Abitibi Formation limestone and Lower Devonian Sextant Formation sandstone, siltstone and shale. The unconformity occurs at 547.5 ft (=166.9 m). Carbonatite interlayered with syenite and hybrid syenite was intersected 547.5 ft to end of hole at 2000 ft. Drill hole V-2-3 intersected 0.22% Nb_2O_5 over 257 ft (=78.3 m), 1738-1995 ft (Figure 6-3) in carbonatite. The Nb mineralized assay highlights include:

- 1.18 % Nb_2O_5 and 5.49 % P_2O_5 over 5ft (=1.5 m), 1810-1815 ft in dolomite carbonatite with 20% magnetite, 40-50% fibrous amphibole serpentine, 3-4% pyrochlore, 1% zircon. Highly radioactive. High grade pyrochlore/apatite stringers up to 1 inch wide occur in pink dolomite rock. Individual stringers contain up to 10% pale pyrochlore.

- 0.48 % Nb_2O_5 over 10 ft (=3.0 m), 1920-1930 ft in dolomite carbonatite with biotite-rich bands/inclusions of hybrid rocks. Overall, this interval contains 15% biotite, 10% apatite, 8-10% fibrous amphibole, trace magnetite, pyrrhotite. Pyrochlore occurs as fine-grained pale honey octahedra in narrow stringers of up to 1-2%.

- 0.46 % Nb_2O_5 over 15 ft (=4.6 m), 1980-1995 ft in calcite carbonatite with 8-10% biotite, 8-10% apatite, 5-8% fibrous amphibole, 2-4% magnetite. Brown pyrochlore occurs as 4 inch wide interval at 1%.

Drill hole V-2-3 also intersected phosphorous mineralization:

- 8.65 % P_2O_5 over 10 ft (=3.0 m), 1000-1010 ft in pyroxenite with 20% orange apatite

- 8.58 % P_2O_5 over 10 ft (=3.0 m), 1020-1030 ft in pyroxenite with 20% orange apatite

- 7.50 % P_2O_5 over 10 ft (=3.0 m), 1160-1170 ft in pyroxene lamprophyre with 20% orange apatite

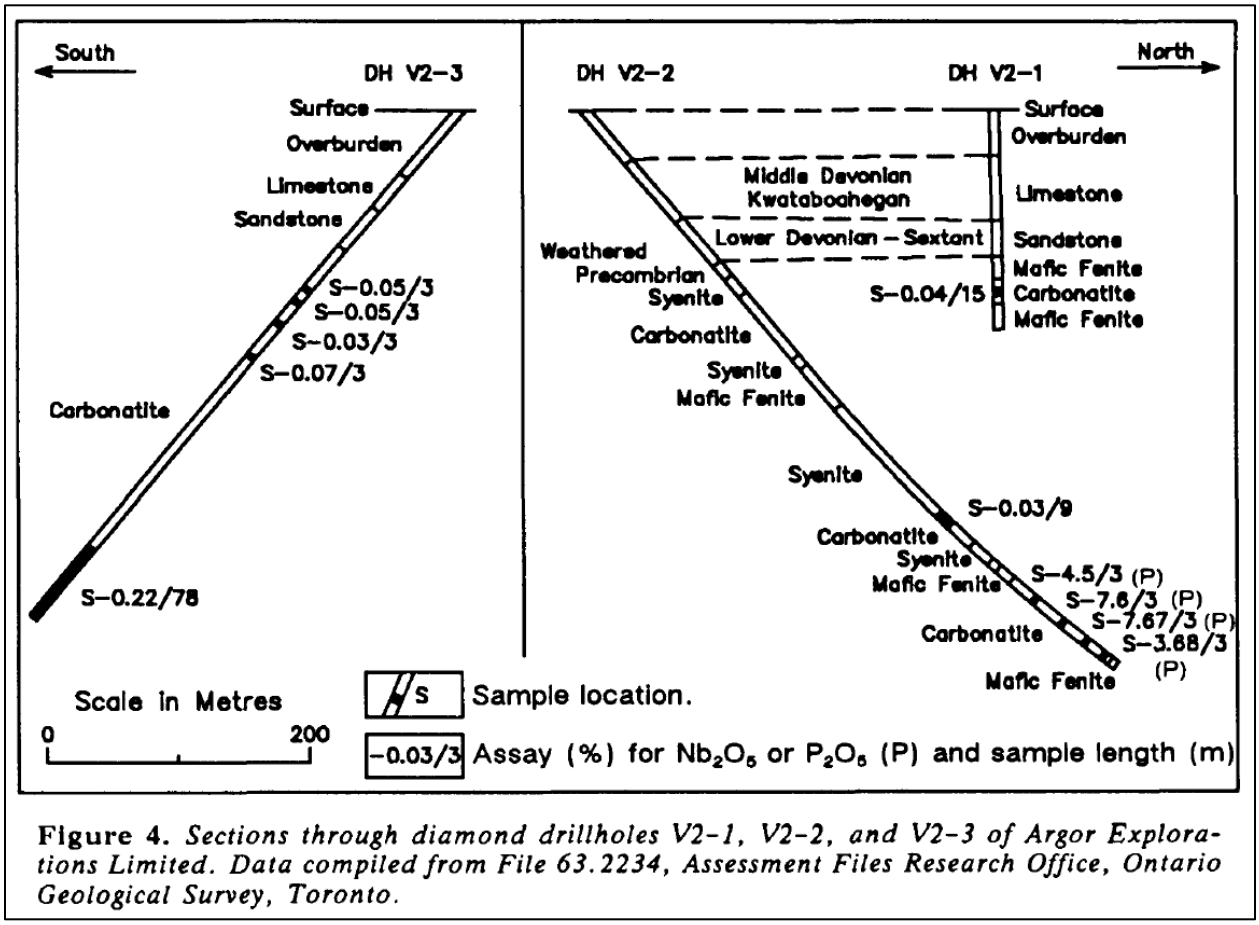

Figure 4. *Sections through diamond drillholes V2-1, V2-2, and V2-3 of Argor Explorations Limited. Data compiled from File 63.2234, Assessment Files Research Office, Ontario Geological Survey, Toronto.*

Figure 6-3 Cross sections of Argor Explorations' drill holes V-2-1, 2 and 3 (Sage, 1988).

6.4 1982, Selco Mining Corp Limited

In Feb. 1982, Selco Mining Corp. conducted a ground magnetic survey along grid lines with 100 m spacing (MNDM assessment report 42I04NE0002). Grid 42I5-114 was located on claim 608411 northeast of Coral Rapids and Grid 42I5-115 was located on claims 608399 and 608416 immediately east of Coral Rapids. Grid 42I5-114 identified an intense circular anomaly with a source depth of 75-80 m. Grid 42I5-115 also identifies a large roughly circular anomaly with a smaller satellite on its northeast shoulder with a depth to source of 100 m.

In Sept. 1982, Selco Mining drilled 42I5-114-1 with a vertical dip and a length of 118.5 m centered on a magnetic anomaly 42I5-114 (MNDM assessment report 42I04NE0003). The drill hole intersected gravel

with abundant boulders to 39.7 m and altered bedrock from 39.7-35.7 m. The drill hole intersected kimberlitic breccia from 65.7 to end of hole at 118.5 m. The kimberlitic breccia is magnetic and contains carbonates. The foreign fragments range in size from 40 cm to < 2mm, comprise of 15-20% of the rock and are mudstone, gneissic and limestone. The autoliths vary in size from 1.5 cm to < 5 mm, comprise 65% of the rock and are porphyritic. The groundmass comprises 15-20% of the rock is very fine-grained carbonate, serpentine, magnetite and pale orange garnet.

Selco also drilled 42I5-115-1 with a vertical dip and a length of 152 m on magnetic anomaly 42I5-115 (MNDM assessment report 42I04NE0003). The drill hole intersected 100 m of overburden (clay and boulders) and 5 m of possibly tuff facies of a diatreme. The drill hole then intersected kimberlitic breccia from 105 m to end of hole at 152 m. The kimberlitic breccia is magnetic with foreign fragments varying in size from 5 cm to < 3 mm, comprise 10-15% of the rock and are dominantly gneissic and mudstone. The autoliths vary in size from 2.5 cm to < 5 mm, comprise about 5-60% of the rock and are porphyritic. The autoliths contain carbonate, serpentine, magnetite, fine-grained biotite, pale orange mineral and garnet.

6.5 2003, Big Red Diamond Corporation

In 2003, Terraquest Ltd. conducted a tri-sensor high sensitivity magnetic and VLF-EM airborne survey on the Valentine property on behalf of Big Red Diamond Company (MNDM assessment report 42I05SE2005). The survey consisted of 67 survey lines at 50 m spacing and tie lines at 1000 m spacing covering 3.2 km x 3.2 km block in the southwest corner of Valentine township. The base of operations for the survey was Kapuskasing airport and the survey was flown Dec. 13 and 14, 2003. The total field magnetic survey indicated that there is two large magnetic anomalies and one smaller magnetic anomaly to the north of the eastern most large anomaly. These anomalies represent the Valentine Township Carbonatite Complex.

In December 2003, Big Red Diamond conducted ground total magnetics survey along E-W grid lines with 50 m spacing (MNDM assessment report 42I05SE2004). The survey identified two circular anomalies which were interpreted as shallow pipe-like features. The anomalies located at 454855E, 5566500N at a source depth of 50 m and at 454940E, 5566750N at a source depth of > 90 m (NAD 27). These anomalies are in close proximity to Selco's drill hole 42I5-115-1 which intersected kimberlite breccia.

As a follow up to the 2003 airborne mag survey, in January to April 2005, Big Red Diamond conducted overburden sampling and mineralogy study of heavy minerals on the Valentine Property (MNDM assessment report 2.30132). A helicopter was used to collect a sample in November 2003. The samples were checked for the presence of kimberlite indicator minerals and selected samples were sent for SEM/microprobe analysis. Sample #28E575N located south of the Valentine Township Carbonatite contains eclogitic garnets likely from kimberlite.

6.6 2006, Baltic Resources Inc.

In February and March 2006, Baltic Resources Inc. drilled 11 holes totalling 951 m. The drill holes were located on both the east and west side of the Abitibi River in the Coral Rapids area (MNDM assessment report 2.31852). Drill holes CR06-1, 2, 3 and 6 were drilled on the east side of the Abitibi River on the northern part of the Valentine Property.

Drill hole CR06-1 has a vertical dip and intersected kimberlitic autolithic breccia from 37.0-94.5 m.
Drill hole CR06-2 has a vertical dip and intersected kimberlitic heterolithic breccia from 46.0-71.8 m.
Drill hole CR06-3 has a vertical dip and intersected autolithic breccia from 28.0-79.0 m.
Drill hole CR06-6 has a vertical dip and intersected porphyritic ultramafic intrusive from 20.0-62.0 m.

In September 2007, selected drill core samples were studied under binocular microscope and thin sections were studied by petrographic microscope to identify the mineralogy and rock types (MNDM assessment report 2.36059).

Drill hole CR06-1 has two rock types: fragmental rock type (39.0-87.0 m) which was classified as very fine-grained massive fragmental olivine melilitites and very fine to fine-grained massive fragmental olivine melilitite breccias. The second rock type is coherent rock type at 94.0 m which was classified as very fine to fine-grained massive coherent alnoite.

Drill hole CR06-2 samples have massive structure and fragmental texture and has been classified as very fine to fine-grained massive fragmental olivine melilitites and very fine to fine-grained massive fragmental olivine melilitites breccias.

The diamond carrying capacity for the samples examined are rated as very low because olivine melilitites and olivine alnoites belonging to the melilitite clan have no economic diamond deposits associated with them (MNDM assessment report 2.36059).

7.0 GEOLOGICAL SETTING AND MINERALIZATION

7.1 Regional Geology

The regional geology of the Coral Rapids area consists of Precambrian Superior Province which is represented by east-west striking Quetico and Opatica metasedimentary belts with the Fraserdale-Moosonee tectonic block forming a boundary between them (OGS OFR6068, 2001) (Figure 7-1 and Figure 7-2). The Fraserdale-Moosonee tectonic block is associated with the north-south trending Kapuskasing Structural Zone. Kapuskasing Structural Zone is a region of uplifted Archean crust. The Coral Rapids area west of the Kapuskasing Structural Zone consists of Devonian sandstone, limestone and shale. The Valentine Township Carbonatite Complex lies below the Devonian sedimentary rocks.

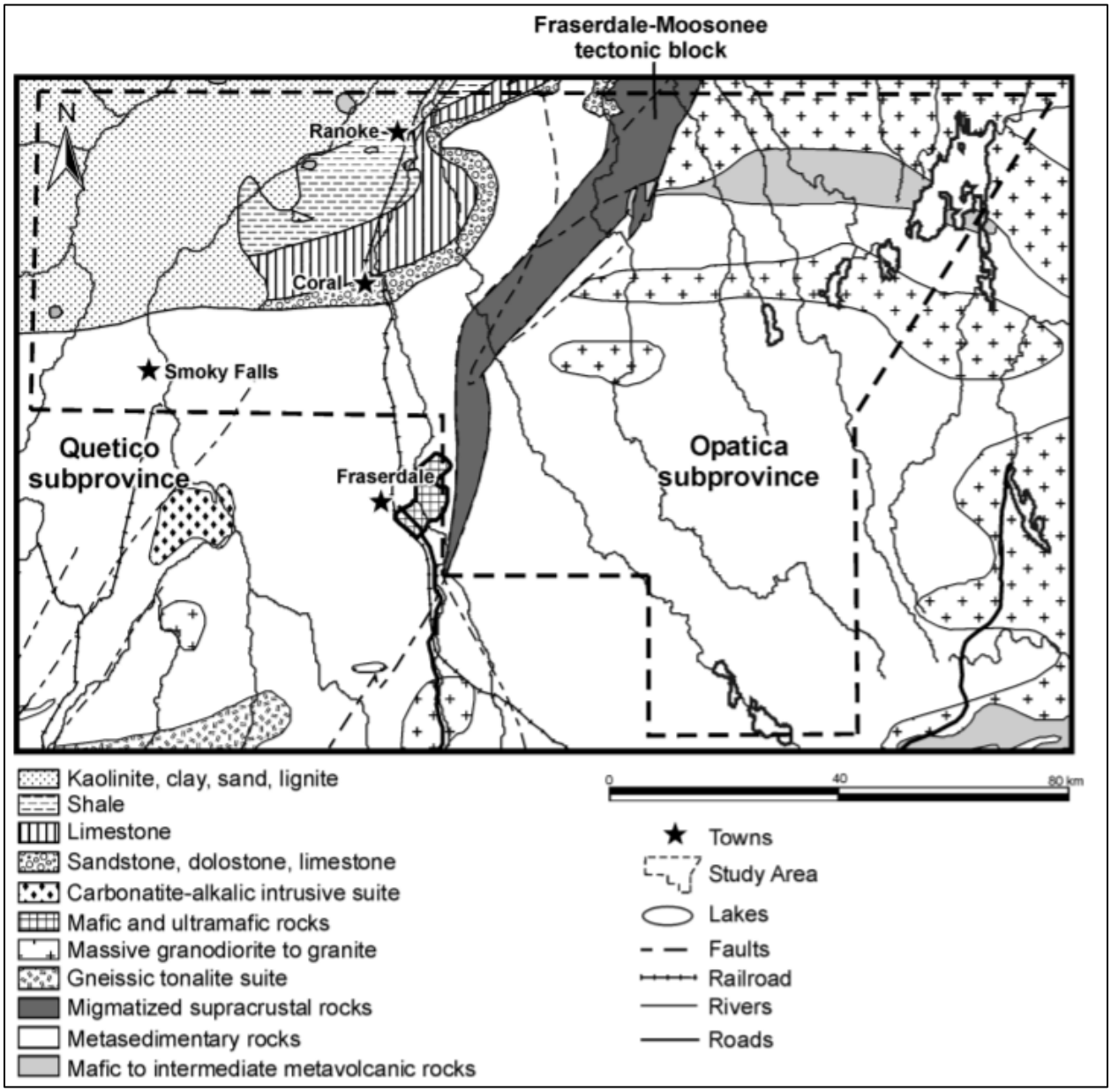

Figure 7-1 Regional geology of the Coral Rapids Area (OGS OFR6068, 2001)

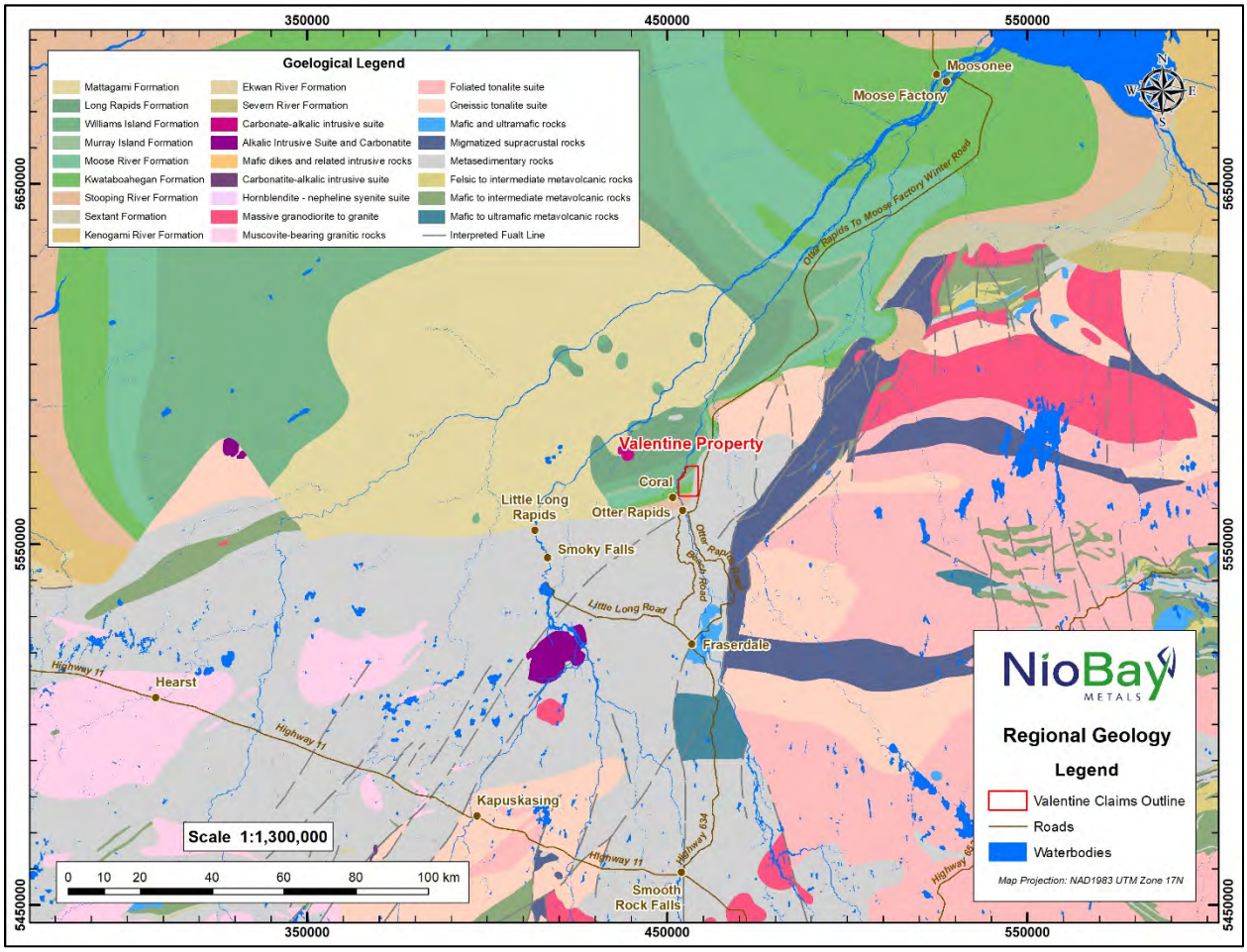

Figure 7-2 Regional geology of Valentine Property.

7.2 Local Geology of Coral Rapids Area

Multiple **melnoite** rocks have been identified in the Coral Rapids area (OGS OFR6068, 2001) (Figure 7-3). Melnoites refers to rocks belonging to the lamprophyre facies including but not restricted to ultramafic lamprophyres. In OFR6068, melnoites has no petrographic connotation and is used to include tuffissitic breccias, alnoites and any other lamprophyre facies rocks. The presence of melnoites in the Coral Rapids area indicates that the area is structurally favourable for the emplacement of deep-seated alkaline volcanic systems.

Post-Middle Devonian ultramafic **lamprophyric and kimberlitic** sills and dykes intrude the Sextant and Abitibi River Formations at Coral Rapids (Bennett et al., 1967). The lamprophyres and kimberlitic rock were intersected by Ontario Hydro Electric Commission drill holes (Figure 6-2). At the head of Coral

Rapids, a lamprophyre sill about 60 ft thick (=18.3 m) is exposed on the west bank of the Abitibi River and extends along the contact between the Sextant Formation and the middle member of the Abitibi River Formation. In hand sample the lamprophyre is fine-grained with phlogopite. In thin section, it consists of phenocrysts of olivine (Fo_{90}), radiating fibrous zeolite in a very fine-grained felted groundmass of melilite and magnetite.

At the foot of the Coral Rapids, a composite dyke of lamprophyre and kimberlitic rock is exposed on the west bank of the Abitibi River and has been intersected in several Ontario Hydro drill holes (Bennett et al., 1967). The dyke is 80-100 ft wide (=24.4-30.5 m) and is at least 1400 ft long (426.7m), strikes N30°E and has a vertical dip. In thin section, the lampyrophyre consists of 25% serpentinized olivine phenocrysts and rare clinopyroxene in a very fine-grained groundmass of clinopyroxene, chlorite, carbonate and magnetite. The kimberlitic rock is fragmental with 10% fragments of basalt and xenoliths of altered granite. In thin section, the matrix is composed of 12% serpentinized clinopyroxene, 3% phlogopite, 10% calcite, 8% magnetite, 2% ilmenite and 65% very fine-grained clay minerals. X-ray diffraction shows that the clay minerals are mainly montmorillonite. The kimberlitic rock lacks pyrope and Cr-diopside.

Note these lamprophyres and kimberlitic rocks on the west bank of Abitibi River haven't been identified on the Valentine Property, but they are in close proximity to it and similar rock units may occur on the east side of the Abitibi River.

Ontario Geological Survey's 2000 study of heavy minerals in alluvial sediments in the Coral Rapids area in search for Kimberlite Indicator Minerals (KIM's) found 6 G9 garnets at Coral Rapids on Abitibi River, just north of the Valentine Carbonatite Complex (samples KAP-2121 and 2181) (OGS OFR6068, 2001). G9 garnets are peridotite (Ca, Cr)-rich pyrope garnets with lherzolitic origin. Anomalous amounts of Mg-ilmenite KIM's were also found on the Abitibi River north of the Valentine Property (sample KAP-2122). The presence of G9 garnets and Mg-ilmenite in the Coral Rapids area overlaps with presence of melnoites confirming the deep-seated source of the igneous rocks in the area.

Ontario Geological Survey's 2000 study of heavy minerals in alluvial sediments in the Coral Rapids area also searched for magmatic massive sulphide indicator minerals (OGS OFR6068, 2001). The most significant find of this study was an intense chalcopyrite anomaly at sample site KAP-2181 at Coral Rapids with 900 chalcopyrite grains and 3500 pyrite grains. This sample was collected approximately 1

km downstream of the Valentine Township Carbonatite Complex. As chalcopyrite is only nominally stable in secondary environments, this anomaly suggests a local source. Chalcopyrite a minor mineral in the carbonatite and pyroxenite in drill hole V-2-1 on the Valentine Township Carbonatite Complex.

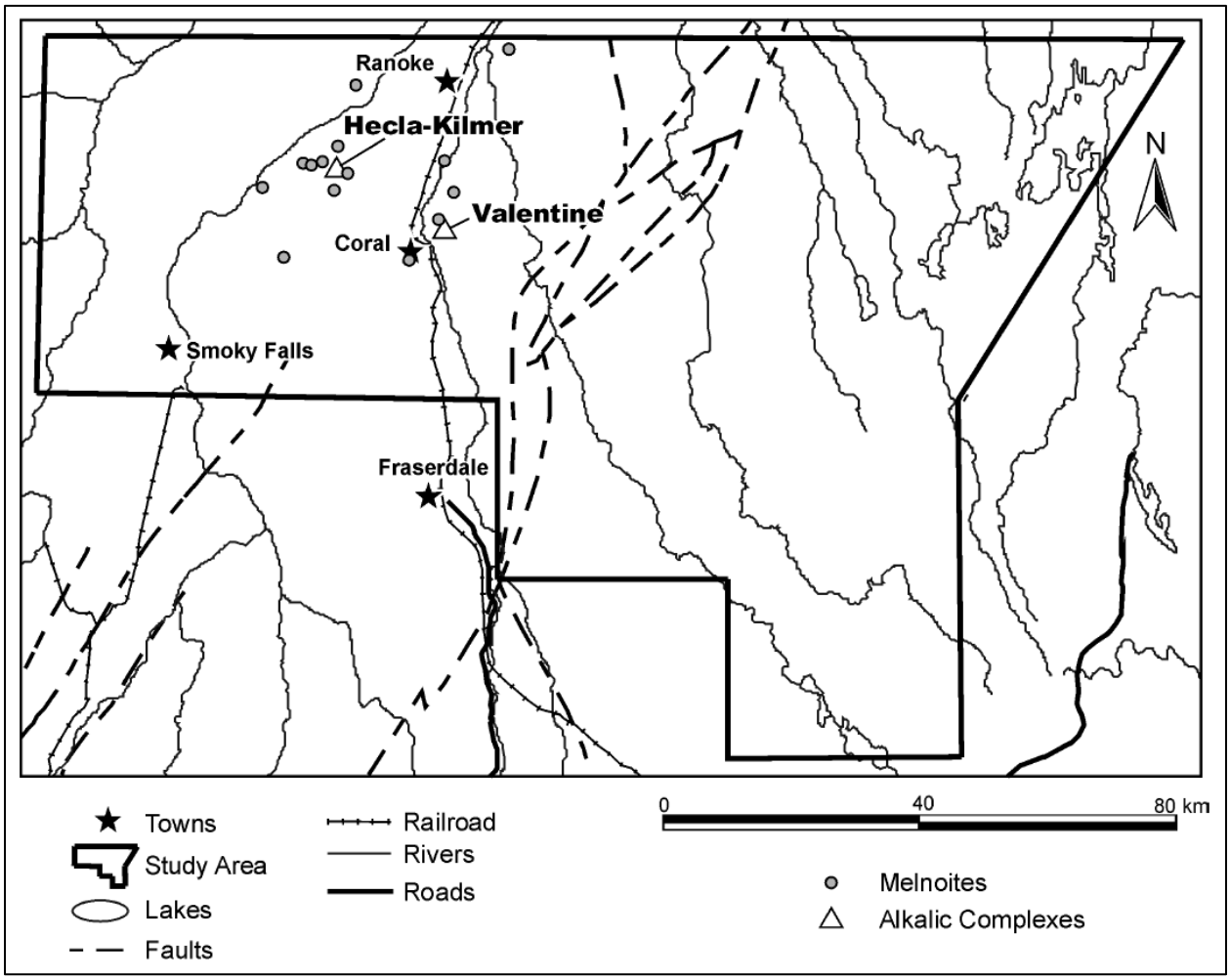

Figure 7-3 Melnoite rocks in the Coral Rapids area (OGS OFR6068, 2001).

7.3 Property Geology

The east side of the Valentine Property consists of early Precambrian biotite-hornblende-quartz-feldspar **gneissic metasedimentary rocks** and migmatite with granulite metamorphic facies (Figure 7-4) (Bennett et al., 1967).

The Property is intersected by at least five N-S trending Matachewan mafic **diabase dykes** with an age of 2.4 Ga (Figure 7-4).

The **Valentine Township Carbonatite Complex** does not outcrop on surface and is beneath a minimum of 120 – 150 m of overburden and sedimentary Paleozoic Rocks (Sage, 1988) (Figure 7-4). Limited drilling of the complex indicates that it is composed of magnetite-amphibole-biotite-phlogopite-apatite-olivine sovite, silicocarbonate and fenitized syenite.

Sage (1988) sampled Argor's drill core and examined selected samples under a petrographic microscope. His summary of the rock types of the Valentine Township Complex is as follows:

Fenite appears to be highly altered granitic gneiss which consists of 20-40% clinopyroxene, 0-30% plagioclase (An 6-8), 10-25% biotite and 10-25% carbonate. The minor minerals are magnetite, amphibole and apatite.

Silicocarbonate consists of 0-60% biotite-phlogopite, 0-30% amphibole, 0-20% olivine, 0-20% apatite, 0-20% magnetite and 20-50% carbonatite. Trace amounts of monazite and titanite also occur. The amphibole forms fine-grained mats of acicular crystals which may be replacement of olivine. Olivine is locally extensively altered to serpentine, chlorite, carbonatite and magnetite.

Sovite consists of 1-20% amphibole, 0-20% biotite-phlogopite, 0-30% olivine, 0-20% magnetite, 0-20% apatite and 50-100% carbonate. Trace to minor amounts of red-brown euhedral pyrochlore are present and trace amounts of titanite. Amphibole is acicular and occurs are radiating aggregates and is preferentially associated with olivine. Fine-grained amphibole clots appear to replace olivine. Microprobe analysis of the amphibole indicates that it is Na, Fe, Mg-rich. Olivine is altered to chondrodite, magnetite, serpentine, carbonatite, chlorite and iddingsite.

The Carbonatite Complex is below **Devonian sediments** which consists of (Bennett et al., 1967 and McGregor and Camfield, 1976) (Figure 7-4):

- Williams Island Formation composed of shale and non-fossiliferous limestone (youngest)
- Upper member of Abitibi River Formation (Murray Island Formation) composed on fossiliferous limestone

- Middle member of Abitibi River Formation (Moose River Formation) composed of non-fossiliferous limestone with thick interbeds of gypsum
- Lower member of Abitibi River Formation (Kwataboahegan Formation) composed of massive to thick bedded coral limestone
- Lower Devonian Stooping River Formation composed of shallow marine limestone, dolomitic limestone and dolomite
- Lower Devonian Sextant Formation composed of non-marine shale, siltstone, sandstone, arkosic sandstone and conglomerate (oldest).

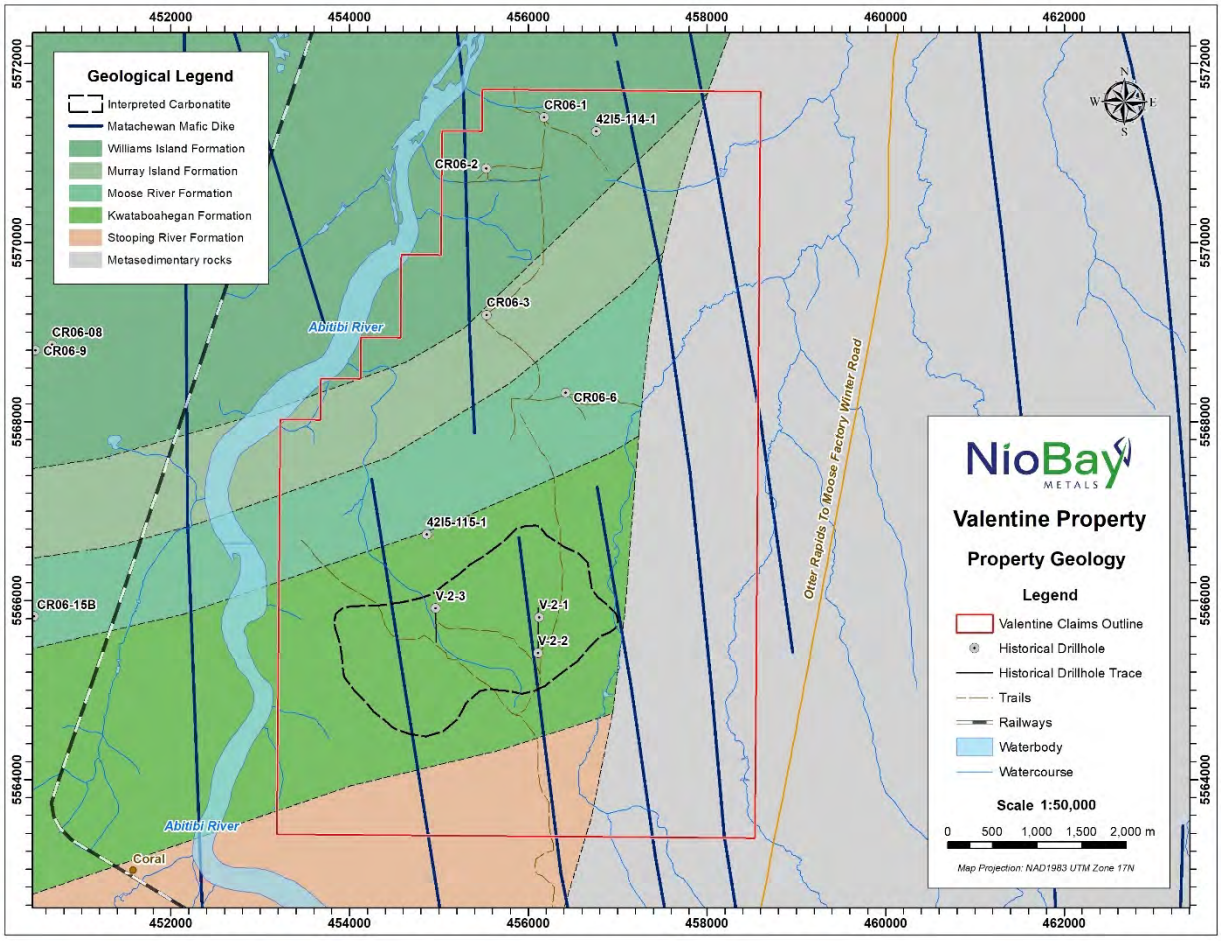

Figure 7-4 Property geology of Valentine Property.

7.4 Mineralization

The Valentine Township Carbonatite Complex has Niobium, Phosphorous and Rare-Earth Element mineralization. The niobium is hosted by pyrochlore and the phosphorus is hosted by apatite.

Drill hole V-2-3 intersected 0.22% Nb_2O_5 over 257 ft (=78.3 m) 1738-1995 ft (Figure 6-3) in carbonatite (MNDM assessment report 42I04NE0013).
Sage (1988) whole rock analysis of drill core identified phosphorous mineralization:

- 13.0 % P_2O_5 over 0.4 ft (=0.12 m), 868.2-868.6 ft, V-2-3 in sovite with apatite, magnetite, biotite-phlogopite (sample 1537)
- 11.20 % P_2O_5 over 0.5 ft (=0.15 m), 1112.7-1113.2 ft, V-2-3 in silicocarbonatite with amphibole, magnetite, apatite, olivine, biotite-phlogopite (sample 1540)
- 9.89 % P_2O_5 over 0.2 ft (=0.06 m), 1776.0-1776.2 ft, V-2-3 in sovite with amphibole, magnetite, biotite-phlogopite and apatite (sample 1545)

Sage (1988) also analyzed trace elements for the whole-rock samples of the drill core:

- 7000 ppm Nb and 1220 ppm (La+Nd+Ce) over 0.3 ft (=0.09 m), 1985.2-1985.5 ft, V-2-2 in sovite with magnetite, amphibole, biotite-phlogopite, apatite (sample 1524)
- 6000 ppm Nb and 820 ppm (La+Nd+Ce) over 0.3 ft (=0.09 m), 1792.3-1792.6 ft, V-2-3 in sovite with magnetite and apatite (sample 1546)
- 1500 ppm Nb and 1200 ppm (La+Nd+Ce) over 0.2 ft (=0.06 m), 1776.0-1776.2 ft, V-2-3 in sovite with amphibole, magnetite, biotite-phlogopite and apatite (sample 1545)

7.5 Geological Deposit Type

The Valentine Property covers the Valentine Township Carbonatite Complex which consists of sovite, silicocarbonate and fenitized country rocks (Sage, 1988).

Carbonatites may contain economic quantities of niobium, tantalum, phosphorus and rare-earth elements. Carbonatites are typically vertical plugs/dykes that are zoned with fenites in the outer zone and carbonate-rich carbonatites in the inner core.

Kimberlite breccias have also been intersected in historic drill holes on the Valentine Property. Kimberlites are the rock type for diamond deposits.

8.0 EXPLORATION

8.1 Airborne Geophysics Survey

Terraquest Ltd., Markham, Ontario conducted a high resolution magnetic and VLF helicopter survey over the Valentine Property in 2020 on behalf of NioBay Metals Inc. (Figure 8-1). The purpose of the survey was to collect geophysical data that can be used to prospect for minerals characterized by anomalous magnetic and electromagnetic responses. Valentine Township Carbonatite Complex contains magnetite which typically has a high magnetic response. Also, the magnetic geophysical signature can be used to show the geology including rock types, faults, shear zones, folding, alteration zones and other structures.

The base of flight operations was Kapuskasing airport. The pilot and helicopter arrived in Kapuskasing on Oct. 26, 2020. Three days (Oct. 27-29) were spent on magnetic calibration. The survey was preformed over 9 days from Oct. 30th to Nov. 7th, 2020. There were 7 flights and 6 survey production days of which 2 days has single flights per day due to weather in the afternoon. Two flights were aborted due to weather and there were 3 days lost totally to weather. The survey was completed on Nov. 7, 2020.

8.1.1 Survey Parameters

Terraquest's survey covered all of the Valentine claims as listed in Appendix 2 in Valentine and Pitt townships (Figure 8-2, Table 8-1 and Table 8-2). The airborne survey extended beyond the property boundaries into the surrounding open ground (Table 8-3). The Property was traversed by a helicopter along parallel flight lines over a regular block approximately 8.4 km x 5.4 km (Figure 8-1 and Figure 8-2). There was 182 traverse lines (E-W, 90°/270°) at 50 m spacing for a total of 1027.1 line km and 13 tie lines (N-S, 000°/180°) at 500 m spacing for a total of 106.6 line km. The total line km is 1133.7. The mean terrain clearance for the survey was 21.5 m.

The full report from Terraquest with the details of the survey including descriptions of the survey specifications, geophysical equipment, base station equipment, tests and calibrations and data processing is given in Appendix 4.

Table 8-1 UTM corner coordinates for Terraquest's airborne geophysics survey, Z 17, NAD 83.

Corner	Easting (m)	Northing (m)
1	455225	5572055
2	459011	5572055
3	459011	5562958
4	452816	5562958
5	455225	5567880
6	455225	5572055

Table 8-2 Number of line km flown per cell claim, Valentine Property.

Cell claim number	line km (m)	line km (km)
538494	4469	4.47
538495	4005	4.01
538496	4914	4.91
538497	4469	4.47
538498	4469	4.47
538499	4914	4.91
538500	4469	4.47
538501	4469	4.47
538502	4469	4.47
538503	4469	4.47
538504	4469	4.47
538505	4469	4.47
538506	4469	4.47
538507	4914	4.91
538508	4914	4.91
538509	4914	4.91
538510	4450	4.45
538511	4005	4.01
538512	4469	4.47
538513	4469	4.47
538514	4469	4.47

Cell claim number	line km (m)	line km (km)
538515	4469	4.47
538516	4469	4.47
538517	4469	4.47
538518	4914	4.91
538519	4469	4.47
538520	4914	4.91
538521	4469	4.47
538522	4469	4.47
538523	4914	4.91
538524	4469	4.47
538525	4469	4.47
572779	4005	4.01
572780	4469	4.47
572781	4914	4.91
572782	4469	4.47
572783	4469	4.47
572784	4469	4.47
572785	4469	4.47
572786	4469	4.47
572787	4914	4.91
572788	4469	4.47
572789	4469	4.47
572790	4469	4.47
572791	4469	4.47
572792	4005	4.01
572793	4914	4.91
572794	4914	4.91
572795	4469	4.47
572796	4469	4.47
572797	4914	4.91
572798	4469	4.47
572799	4914	4.91
572800	4469	4.47
572801	4469	4.47
572802	4469	4.47
572803	4469	4.47
572804	4469	4.47
572805	4469	4.47
572806	4469	4.47
572807	4914	4.91

Cell claim number	line km (m)	line km (km)
572808	4469	4.47
572809	4914	4.91
572810	4469	4.47
572811	4469	4.47
572812	4914	4.91
572813	4469	4.47
572814	4914	4.91
572815	4469	4.47
572816	4469	4.47
572817	4469	4.47
572818	4469	4.47
572819	4914	4.91
572820	4469	4.47
572821	4914	4.91
572822	4469	4.47
572823	4469	4.47
572824	4469	4.47
572825	4469	4.47
572826	4914	4.91
572827	4469	4.47
572828	4450	4.45
572829	4469	4.47
572830	4469	4.47
572831	4469	4.47
572832	4914	4.91
572833	4914	4.91
572834	4469	4.47
572835	4005	4.01
572836	4914	4.91
572837	4469	4.47
572838	4469	4.47
572839	4469	4.47
572840	4469	4.47
572841	4469	4.47
572842	4914	4.91
572843	4914	4.91
572844	4914	4.91
572845	4469	4.47
572846	4469	4.47
572847	4469	4.47

Cell claim number	line km (m)	line km (km)
572848	4469	4.47
572849	4469	4.47
572850	4914	4.91
572851	4469	4.47
572852	4469	4.47
572853	4914	4.91
572854	4469	4.47
572855	4469	4.47
572856	4469	4.47
572857	4469	4.47
572858	4005	4.01
572859	4469	4.47
572860	4469	4.47
572861	4469	4.47
572862	4005	4.01
572863	4469	4.47
572864	4469	4.47
572865	4469	4.47
572866	4469	4.47
572867	4469	4.47
572868	4469	4.47
572869	4469	4.47
572870	4469	4.47
572871	4914	4.91
572872	4914	4.91
572873	4469	4.47
572874	4469	4.47
572875	4469	4.47
572876	4450	4.45
572877	4914	4.91
572878	4469	4.47
572879	4469	4.47
572880	4469	4.47
572881	4914	4.91
572882	4914	4.91
572883	4469	4.47
572884	4914	4.91
572885	4914	4.91
572886	4469	4.47
572887	4005	4.01

Cell claim number	line km (m)	line km (km)
572888	4914	4.91
572889	4469	4.47
572890	4469	4.47
572891	4469	4.47
572892	4469	4.47
572893	4005	4.01
572894	4469	4.47
572895	4469	4.47
572896	4469	4.47
572897	4469	4.47
572898	4005	4.01
572899	4914	4.91
572900	4469	4.47
572901	4469	4.47
572902	4469	4.47
572903	4469	4.47
572904	4469	4.47
572905	4469	4.47
572906	4469	4.47
572907	4450	4.45
572908	4469	4.47
572909	4469	4.47
572910	4005	4.01
572911	4914	4.91
572912	4469	4.47
572913	4469	4.47
572914	4914	4.91
572915	4914	4.91
572916	4469	4.47
572917	4469	4.47
572918	4914	4.91
572919	4469	4.47
572920	4914	4.91
572921	4914	4.91
572922	4469	4.47
572923	4005	4.01
572924	4469	4.47
572925	4469	4.47
572926	4469	4.47
572927	4469	4.47

Cell claim number	line km (m)	line km (km)
572928	4469	4.47
572929	4450	4.45
572930	4469	4.47
572931	4469	4.47
572932	4914	4.91
572933	4469	4.47
572934	4914	4.91
572935	4469	4.47
572936	4469	4.47
total	**863,917**	**863.92**
	% of survey on property	76.2%
	% of survey outside property	23.8%

Table 8-3 Property area and survey area comparison

property area	39.129405	km^2
survey area	51.147962	km^2
	% of survey on property	76.5%
	% of survey outside property	23.5%

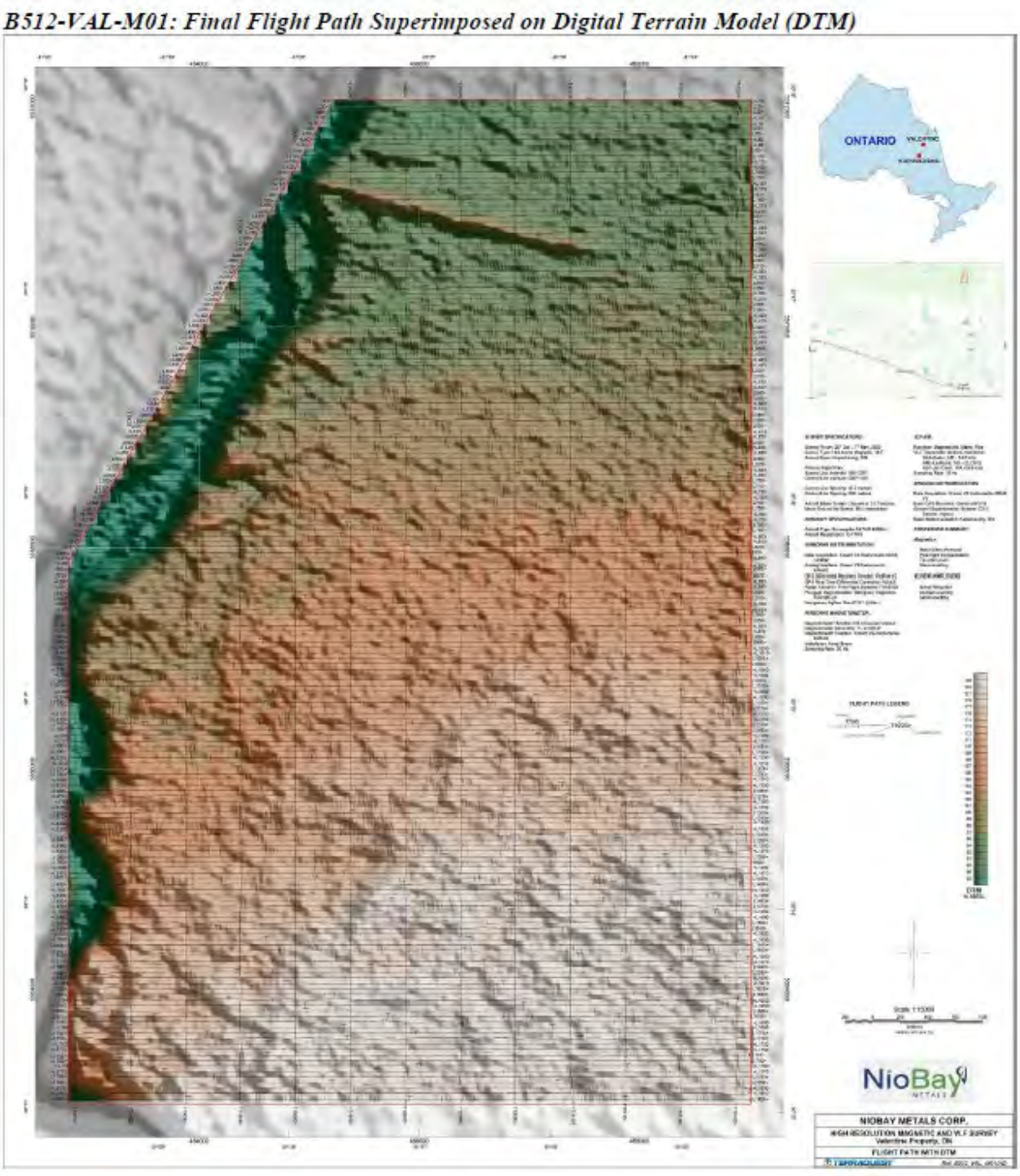

Figure 8-1 Map of flight lines on satellite digital terrain model for Terraquest's geophysical survey Valentine Property, UTM Z17, NAD 83.

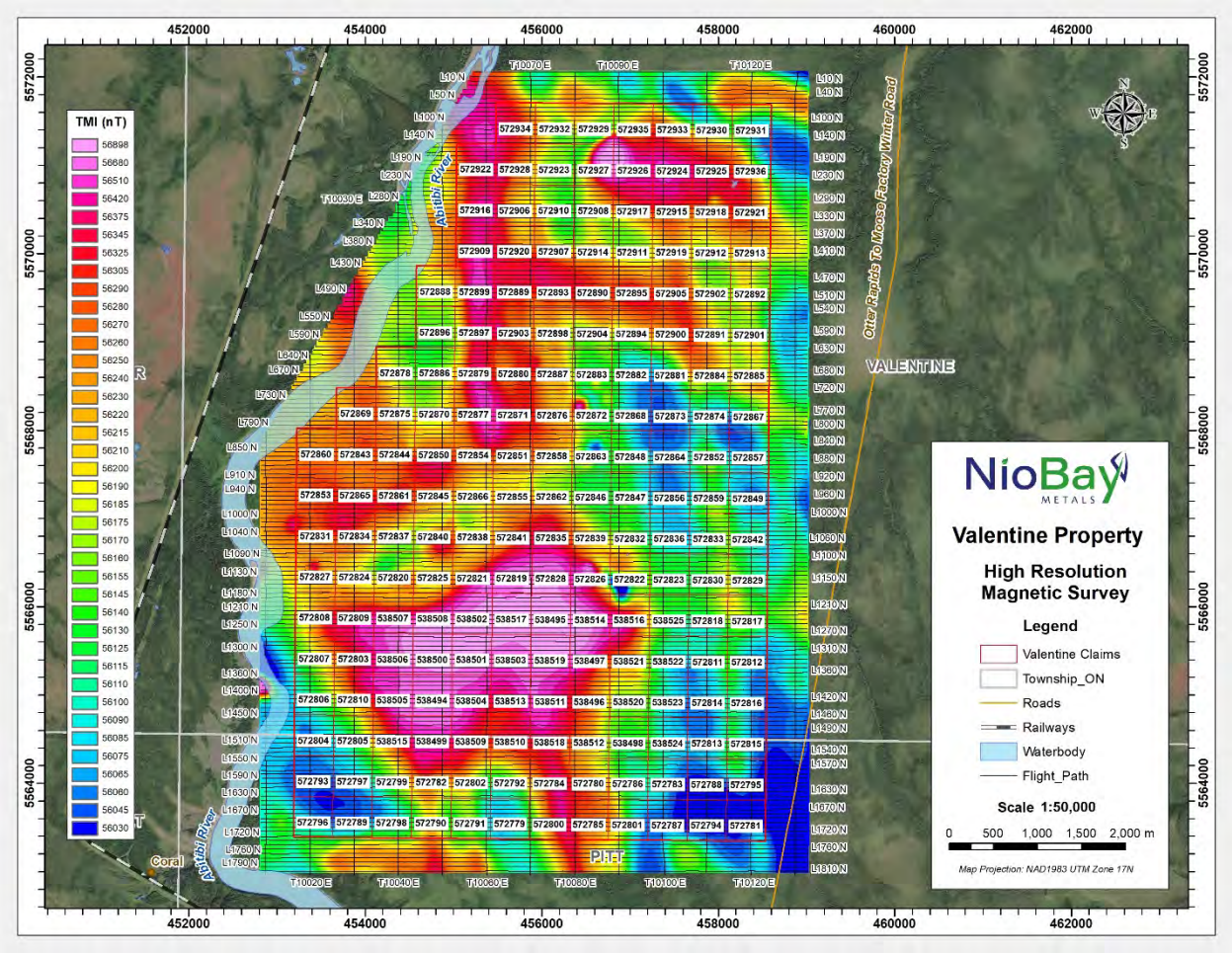

Figure 8-2 Flight path and total magnetics overlapped with cell claims, Valentine Property.

8.1.1 Survey Results

Terraquest produced a total of 7 maps from their survey results at a scale of 1:15,000 on the survey block as listed in Table 8-4 and given in Appendix 4.

Table 8-4 List of Terraquest's maps produced from this survey.

Map number	Map Name
1	Flight path with DTM grid
2	Total magnetic intensity
3	Anomalous (IGRF corrected) total field with contours
4	Calculated vertical magnetic derivative

5 Calculated analytical signal
6 VLF amplitude (total field) - Station NAA (Cutler, Maine)
7 VLF amplitude (total field) - Station NML (LaMoure, North Dakota)

The Digital Terrain Model (DTM) shows that the Property is relatively flat with a gentle slope from the southeast corner to the northwest corner as the rivers flow northward into the Abitibi River (Figure 8-1 and Figure 8-3). There is one ridge trending southeast in the northern part of the Valentine Property.

A comparison of the historical drill core lithology (V-2-1, 2 and 3) and the levelled total magnetic field intensity map indicates that the large magnetic high in the southwest part of Valentine township represents the Valentine Township Carbonatite Complex (Figure 8-4). The magnetics map indicates that the Carbonatite Complex is composed of two large pulses and two smaller pulses.

A comparison of the historic drill core from Selco's 1982 drill program (42I5-114-1 and 42I5-115-1) and the magnetic high anomalies indicates that the anomalies represent kimberlite pipes (MNDM assessment report 42I04NE0003) (Figure 8-4). Similarly, a comparison of the historic drill core from Baltic's 2006 drill program (CR06-1, 2, 3 and 6) and the magnetic high anomalies indicates that the anomalies represent kimberlite pipes (MNDM assessment report 2.31852). Ontario Geological Survey's 2000 study of heavy minerals in alluvial sediments in the Coral Rapids area found the occurrence of G9 garnets (samples KAP-2121 and 2181) and Mg-ilmenite overlaps with presence of melnoites which indicates the presence of kimberlites in the red magnetic anomaly northwest of the Carbonatite Complex and drill hole 42I5-115-1 (OGS OFR6068, 2001). Note that the kimberlite pipes have two parallel NW trends in the northern part of the Valentine Property and a NE trend north of the Carbonatite Complex (Figure 8-5).

The Matachewan diabase dykes are oriented N-S on the Valentine Property and overlapping the property geology with the first derivative total magnetic field map indicates that the N-S anomalies are diabase dykes (Figure 8-5).

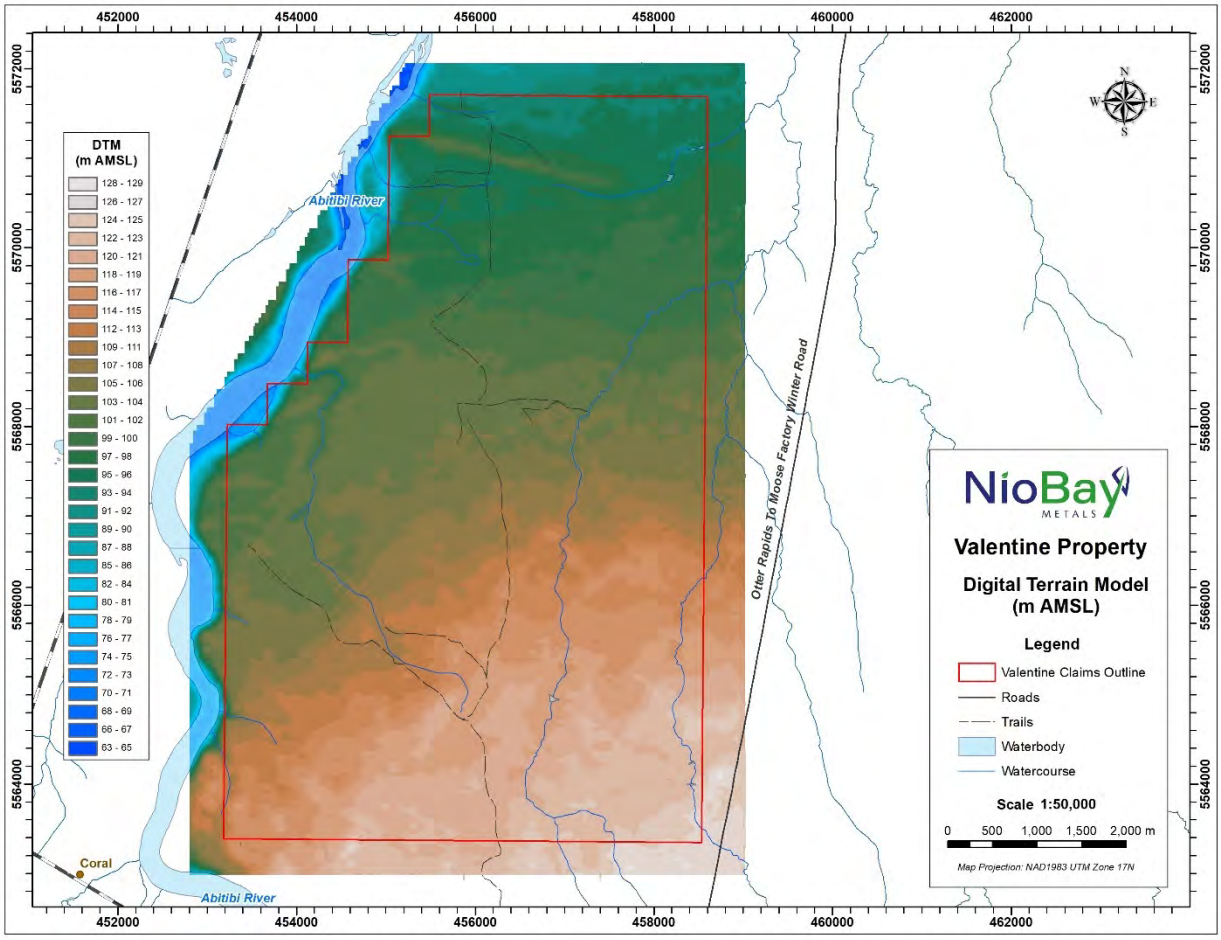

Figure 8-3 Digital Terrain Model for Valentine Property.

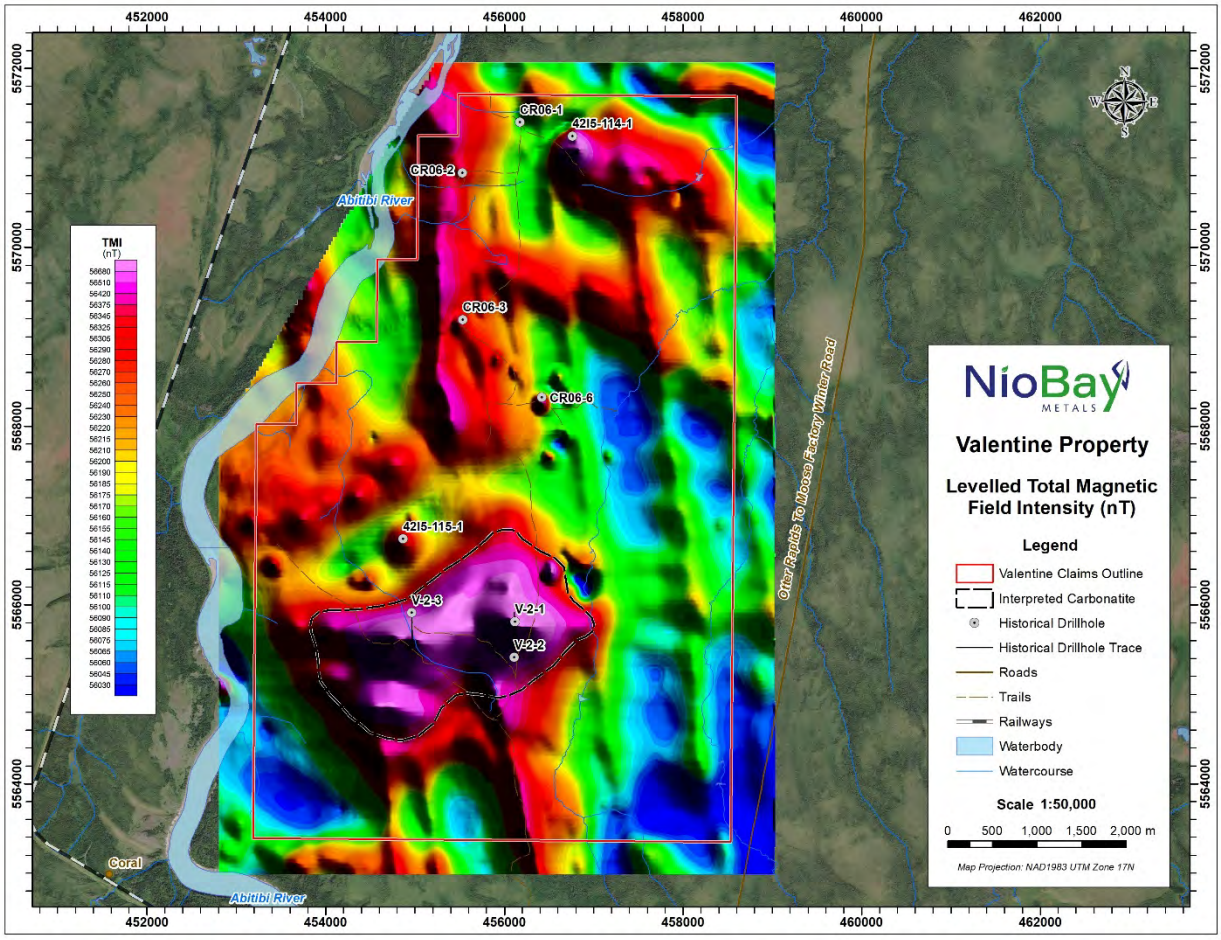

Figure 8-4 Levelled total magnetic field intensity with interpreted Valentine Township Carbonatite Complex outline.

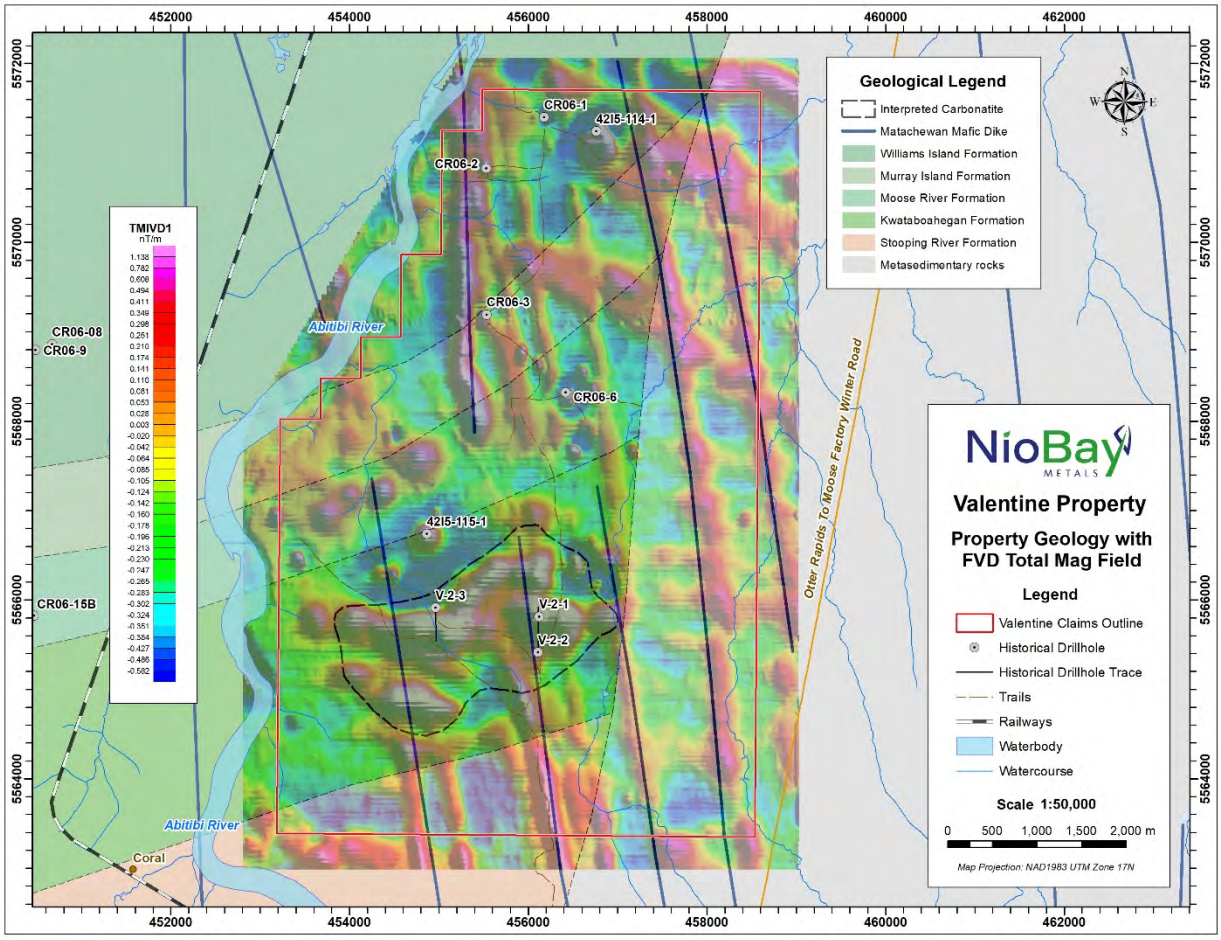

Figure 8-5 Overlapping property geology with first derivative total magnetic field.

9.0 DATA VERIFICATION

9.1 Quality Control for Airborne Geophysics Survey

Reflight tolerances, tests and calibrations and data quality control for Terraquest survey are given in Appendix 4.

10.0 INTERPRETATION AND CONCLUSIONS

Valentine Property is located 3 km north of Otter Rapids, 140 km north of Cochrane and 200 km north of Timmins, northeastern Ontario. The center of the Property is located at 455569 m E, 5565778 m N, Zone 17, NAD 83.

Valentine Property consists of 190 single cell mining claims in Valentine and Pitt townships and NTS Sheet: 42I04NE. The claims are held 100% by Les Metaux NioBay Inc./NioBay Metals Inc. and are in good standing. The Property is approximately 8.4 km x 5.4 km.

The regional geology of the Coral Rapids area consists of Precambrian Superior Province which is represented by east-west striking Quetico and Opatica metasedimentary belts with the Fraserdale-Moosonee tectonic block forming a boundary between them. The Fraserdale-Moosonee tectonic block is associated with the north-south trending Kapuskasing Structural Zone. The Coral Rapids area west of the Kapuskasing Structural Zone consists of Devonian sandstone, limestone and shale. The Valentine Township Carbonatite Complex lies below the Devonian sedimentary rocks.

The Valentine Township Carbonatite Complex does not outcrop on surface and is beneath a minimum of 120 – 150 m of overburden and sedimentary Devonian Rocks. Limited drilling of the complex indicates that it is composed of magnetite-amphibole-biotite-phlogopite-apatite-olivine sovite, silicocarbonate and fenitized syenite.

In 1964, Ontario Department of Mines and Geological Survey of Canada published aeromagnetic M2306G for Coral Rapids. The map shows an oval magnetic high over the Valentine Township Carbonatite Complex and another smaller magnetic high on the west side of the Abitibi River in the southwest corner of Valentine township.

In April 1967, Barringer Research Limited, on behalf of Argor Explorations Ltd., carried out a low-level airborne magnetometer survey at 400 ft (=121 m) line spacing including parts of Valentine, Pitt, Hamlet and Kilmer townships in the Coral Rapids area. The result of this survey was that that the magnetic high in the southwest part of Valentine township is actually two magnetic highs.

In October 1967, Argor Explorations followed up on the aeromagnetic survey with drill hole V-2-1 which was a vertical hole 654 ft (=199.3 m) deep. The best Nb mineralized interval was 0.08 % Nb_2O_5 from 570 to 580 ft (=173.7 to 176.7 m), over 10 ft (=3.0 m) in dolomite carbonatite. In February 1969, Argor Explorations drilled V-2-2 with a dip of -50° and a length of 2362 ft (=719.9 m) on the center of the magnetic high anomaly in close approximately to drill hole V-2-1. In April 1969, Argor Explorations drilled V-2-3 with a dip of -50° and a length of 2000 ft (=609.6 m) on the center of the magnetic high anomaly. Drill hole V-2-3 intersected 0.22% Nb_2O_5 over 257 ft (=78.3 m) 1738-1995 ft in carbonatite.

In Feb. 1982, Selco Mining Corp. conducted a ground magnetic survey along grid lines with 100 m spacing Grid 42I5-114 was located on claim 608411 northeast of Coral Rapids and Grid 42I5-115 was located on claims 608399 and 608416 immediately east of Coral Rapids. Grid 42I5-114 identified an intense circular anomaly with a source depth of 75-80 m. Grid 42I5-115 also identified a large roughly circular anomaly with a smaller satellite on its northeast shoulder with a depth to source of 100 m. In Sept. 1982, Selco Mining drilled 42I5-114-1 with a vertical dip and a length of 118.5 m centered on a magnetic anomaly 42I5-114. Selco also drilled 42I5-115-1 with a vertical dip and a length of 152 m on magnetic anomaly 42I5-115. Both holes intersected kimberlitic breccia.

In February and March 2006, Baltic Resources Inc. drilled 11 holes totalling 951 m. The drill holes were located on both the east and west side of the Abitibi River in the Coral Rapids area. Drill holes CR06-1, 2, 3 and 6 were drilled on the east side of the Abitibi River on the northern part of the Valentine Property. All four holes intersected kimberlitic breccia. In September 2007, selected drill core samples from drill holes CR06-01 and 02 were studied under binocular microscope and thin sections were studied by petrographic microscope to identify the mineralogy and rock types. The selected samples were determined to be fragmental olivine melilitites and coherent alnoite.

The Valentine Township Carbonatite Complex has Niobium, Phosphorous and Rare-Earth Element mineralization. The niobium is hosted by pyrochlore and the phosphorus is hosted by apatite.

The Nb mineralized assay highlights in drill hole V-2-3 include:

- 1.18 % Nb_2O_5 and 5.49 % P_2O_5 over 5ft (=1.5 m), 1810-1815 ft in dolomite carbonatite. Individual stringers contain up to 10% pale pyrochlore.
- 0.48 % Nb_2O_5 over 10 ft (=3.0 m), 1920-1930 ft in dolomite carbonatite. Pyrochlore occurs as fine-grained pale honey octahedra in narrow stringers of up to 1-2%.
- 0.46 % Nb_2O_5 over 15 ft (=4.6 m), 1980-1995 ft in calcite carbonatite. Brown pyrochlore occurs as 4 inch wide interval at 1%.

Drill hole V-2-3 also intersected phosphorous mineralization:

- 8.65 % P_2O_5 over 10 ft (=3.0 m), 1000-1010 ft in pyroxenite with 20% orange apatite

- 8.58 % P_2O_5 over 10 ft (=3.0 m), 1020-1030 ft in pyroxenite with 20% orange apatite
- 7.50 % P_2O_5 over 10 ft (=3.0 m), 1160-1170 ft in pyroxene lamprophyre with 20% orange apatite

Terraquest Ltd., Markham, Ontario conducted a high resolution magnetic and VLF helicopter survey over the Valentine Property in 2020 on behalf of NioBay Metals Inc. The purpose of the survey was to collect geophysical data that can be used to prospect for minerals characterized by anomalous magnetic and electromagnetic responses. Valentine Township Carbonatite Complex contains magnetite which typically has a high magnetic response. Also, the magnetic geophysical signature can be used to show the geology including rock types, faults, shear zones, folding, alteration zones and other structures.

The base of flight operations was Kapuskasing airport. The pilot and helicopter arrived in Kapuskasing on Oct. 26, 2020. Three days (Oct. 27-29) were spent magnetic calibration. The survey was preformed over 9 days from Oct. 30th to Nov. 7th, 2020. There were 7 flights and 6 survey production days of which 2 days has single flights per day due to weather in the afternoon. Two flights were aborted due to weather and there were 3 days lost totally to weather. The survey was completed on Nov. 7, 2020.

Terraquest's survey covered all of the Valentine Property claims as listed in Appendix 2 in Valentine and Pitt townships. The Property was traversed by a helicopter along parallel flight lines over a regular block approximately 8.4 km x 5.4 km. There was 182 traverse lines (E-W, 90°/270°) at 50 m spacing for a total of 1027.1 line km and 13 tie lines (N-S, 000°/180°) at 500 m spacing for a total of 106.6 line km. The total line km is 1133.7. The mean terrain clearance for the survey was 21.5 m. Terraquest produced a total of 7 maps from their survey results at a scale of 1:15,000 on the survey block.

A comparison of the historical drill core lithology (V-2-1, 2 and 3) and the levelled total magnetic field intensity map indicates that the large magnetic high in the southwest part of Valentine township represents the Valentine Township Carbonatite Complex (Figure 8-4). The magnetics map indicates that the Carbonatite Complex is composed of two large pulses and two smaller pulses.

A comparison of the historic drill core from Selco's 1982 drill program (42I5-114-1 and 42I5-115-1) and the magnetic high anomalies indicates that the anomalies represent kimberlite pipes (MNDM assessment report 42I04NE0003) (Figure 8-4). Similarly, a comparison of the historic drill core from Baltic's 2006 drill program (CR06-1, 2, 3 and 6) and the magnetic high anomalies indicates that the anomalies represent kimberlite pipes (MNDM assessment report 2.31852). Ontario Geological Survey's 2000 study of heavy

minerals in alluvial sediments in the Coral Rapids area found the occurrence of G9 garnets (samples KAP-2121 and 2181) and Mg-ilmenite overlaps with presence of melnoites which indicates the presence of kimberlites in the red magnetic anomaly northwest of the Carbonatite Complex and drill hole 42I5-115-1 (OGS OFR6068, 2001). Note that the kimberlite pipes have two parallel NW trends in the northern part of the Valentine Property and a NE trend north of the Carbonatite Complex (Figure 8-5).

The Matachewan diabase dykes are oriented N-S on the Valentine Property and overlapping the property geology with the first derivative total magnetic field map indicates that the N-S anomalies are diabase dykes (Figure 8-5).

The Qualified Person recommends that deep holes be drilled on the Valentine Township Carbonatite Complex, as historic drill hole V-2-3 was 2000 ft (=609.6 m) deep and ended in Nb mineralization. The depth of the Carbonatite Complex is not yet known. There is currently only 3 drill holes from 1967-1969 on the Carbonatite Complex which is not enough to fully characterize it. Drilling is recommended during the winter due to the swampy nature of the Property. Drill core should be assayed for Niobium, Phosphorus and Rare-Earth Elements, as the Carbonatite is likely to host all three commodities. It is recommended that a total of 6 drill holes at 800 m each be drilled on the centers of the magnetic anomalies for a total of 4,800 m. Two drill holes on each of the large anomalies (2 holes * 2 anomalies) and one drill hole on each of the small anomalies (1 hole * 2 anomalies). The recommended budget is $964,800.

To the best of the Qualified Person's knowledge, there are no significant risks and uncertainties that could reasonably be expected to affect the reliability or confidence in the exploration information or projected economic outcomes. There are no historic or current mineral resource or mineral reserve estimates on the Property.

The purpose of the report was to file the Terraquest 2020 survey for assessment credit. The objectives of the report were to interpret the maps produced by Terraquest and make recommendations for future exploration. These objectives were met.

11.0 RECOMMENDATIONS

The Qualified Person recommends that deep holes be drilled on the Valentine Township Carbonatite Complex, as historic drill hole V-2-3 was 2000 ft (=609.6 m) deep and ended in Nb mineralization. The depth of the Carbonatite Complex is not yet known. There is currently only 3 drill holes from 1967-1969 on the Carbonatite Complex which is not enough to fully characterize it. Drilling is recommended during the winter due to the swampy nature of the Property. Drill core should be assayed for Niobium, Phosphorus and Rare-Earth Elements, as the Carbonatite is likely to host all three commodities. It is recommended that a total of 6 drill holes at 800 m each be drilled on the centers of the magnetic anomalies for a total of 4,800 m (Figure 8-4). Two drill holes on each of the large anomalies (2 holes * 2 anomalies) and one drill hole on each of the small anomalies (1 hole * 2 anomalies).

11.1 Proposed Budget

It is recommended that 6 drill holes at 800 m each be drilled on the centers of the magnetic anomalies for a total of 4,800 m. The recommended budget is $964,800 (Table 11-1).

Table 11-1 Budget for recommended drill program on Valentine Township Carbonatite Complex.

Item	Unit	No of units	Rate	Total
drilling	m	4800	$ 150.00	$ 720,000.00
mode/demobe drill	mobe	2	$ 5,000.00	$ 10,000.00
senior geologist - core logger	day	30	$ 800.00	$ 24,000.00
core cutter	day	30	$ 500.00	$ 15,000.00
assays	sample	1920	$ 70.00	$ 134,400.00
truck rental	month	1	$ 4,000.00	$ 4,000.00
meals	day	60	$ 50.00	$ 3,000.00
accommodations	day	60	$ 120.00	$ 7,200.00
project management	day	30	$ 800.00	$ 24,000.00
QA/QC of assays	day	15	$ 800.00	$ 12,000.00
write assessment report	day	14	$ 800.00	$ 11,200.00
			total	**$ 964,800.00**

12.0 REFERENCES

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13.0 STATEMENT OF AUTHORSHIP

This Report, titled "Airborne Geophysics Assessment Report, Valentine Property, Otter Rapids, Northeastern Ontario, Canada, NTS: 42I04NE, Townships: Valentine and Pitt", and dated Jan. 3, 2022, was prepared and signed by the following author and Qualified Person:

Julie Selway

Julie Selway
Principal Geologist, Ph.D., P.Geo.
Jan. 3, 2022
Sudbury, Ontario

Appendix 1 – Certificate of Qualified Person

Julie Selway
40 Mission Hill
Sudbury, Ontario, Canada, P3E 6M1
Telephone: 705-690-7996
Email: jselway@eastlink.ca

CERTIFICATE OF QUALIFIED PERSON

I, Julie Selway, do hereby certify that:

1. I am employed as a Principal Geologist for geological consulting firm J-J Minerals, Sudbury, Ontario.
2. I am the Qualified Person for this Report entitled "Airborne Geophysics Assessment Report, Valentine Property, Otter Rapids, Northeastern Ontario, Canada, NTS: 42I04NE, Townships: Valentine and Pitt", and dated Jan. 3, 2022, and prepared for NioBay Metals Inc.
3. I hold the following academic qualifications: B.Sc. (Hons) Geology (1991) Saint Mary's University; M.Sc. Geology (1993) Lakehead University; Ph.D. Mineralogy (1999) University of Manitoba.
4. I am a member of the Association of Professional Geoscientists of Ontario (Member #0738). I am a member in good standing of the Mineralogical Association of Canada, Geological Association of Canada and Mineralogical Society of America.
5. I am the co-author of one NI 43-101 Independent Technical Reports on a carbonatite property in British Columbia and two assessment reports on carbonatite properties in Ontario.
6. I have not visited the Valentine Property.
7. As of the date of this certificate, to the best of my knowledge, information and belief, the report contains all scientific and technical information that is required to be disclosed to make this report not misleading.

Dated this 3rd Day January 2022.

Julie Selway, Ph.D., P.Geo
Principal Geologist, J-J Minerals

PROFESSIONAL GEOSCIENTIST
JULIE B. SELWAY
PRACTISING MEMBER
0738
ONTARIO

Appendix 2 – NioBay Metals Inc.'s cell claims for Valentine Property

Table 13-1 Valentine claim table.

Township / Area	Tenure ID	Tenure Type	Anniversary Date	Work Required
VALENTINE	538494	Single Cell Mining Claim	2022-01-08	$ 400.00
VALENTINE	538495	Single Cell Mining Claim	2022-01-08	$ 400.00
VALENTINE	538496	Single Cell Mining Claim	2022-01-08	$ 400.00
VALENTINE	538497	Single Cell Mining Claim	2022-01-08	$ 400.00
PITT,VALENTINE	538498	Single Cell Mining Claim	2022-01-08	$ 400.00
PITT,VALENTINE	538499	Single Cell Mining Claim	2022-01-08	$ 400.00
VALENTINE	538500	Single Cell Mining Claim	2022-01-08	$ 400.00
VALENTINE	538501	Single Cell Mining Claim	2022-01-08	$ 400.00
VALENTINE	538502	Single Cell Mining Claim	2022-01-08	$ 400.00
VALENTINE	538503	Single Cell Mining Claim	2022-01-08	$ 400.00
VALENTINE	538504	Single Cell Mining Claim	2022-01-08	$ 400.00
VALENTINE	538505	Single Cell Mining Claim	2022-01-08	$ 400.00
VALENTINE	538506	Single Cell Mining Claim	2022-01-08	$ 400.00
VALENTINE	538507	Single Cell Mining Claim	2022-01-08	$ 400.00
VALENTINE	538508	Single Cell Mining Claim	2022-01-08	$ 400.00
PITT,VALENTINE	538509	Single Cell Mining Claim	2022-01-08	$ 400.00
PITT,VALENTINE	538510	Single Cell Mining Claim	2022-01-08	$ 400.00
VALENTINE	538511	Single Cell Mining Claim	2022-01-08	$ 400.00
PITT,VALENTINE	538512	Single Cell Mining Claim	2022-01-08	$ 400.00
VALENTINE	538513	Single Cell Mining Claim	2022-01-08	$ 400.00
VALENTINE	538514	Single Cell Mining Claim	2022-01-08	$ 400.00
PITT,VALENTINE	538515	Single Cell Mining Claim	2022-01-08	$ 400.00
VALENTINE	538516	Single Cell Mining Claim	2022-01-08	$ 400.00
VALENTINE	538517	Single Cell Mining Claim	2022-01-08	$ 400.00
PITT,VALENTINE	538518	Single Cell Mining Claim	2022-01-08	$ 400.00
VALENTINE	538519	Single Cell Mining Claim	2022-01-08	$ 400.00
VALENTINE	538520	Single Cell Mining Claim	2022-01-08	$ 400.00
VALENTINE	538521	Single Cell Mining Claim	2022-01-08	$ 400.00
VALENTINE	538522	Single Cell Mining Claim	2022-01-08	$ 400.00
VALENTINE	538523	Single Cell Mining Claim	2022-01-08	$ 400.00
PITT,VALENTINE	538524	Single Cell Mining Claim	2022-01-08	$ 400.00
VALENTINE	538525	Single Cell Mining Claim	2022-01-08	$ 400.00
PITT	572779	Single Cell Mining Claim	2022-01-30	$ 400.00
PITT	572780	Single Cell Mining Claim	2022-01-30	$ 400.00
PITT	572781	Single Cell Mining Claim	2022-01-30	$ 400.00
PITT	572782	Single Cell Mining Claim	2022-01-30	$ 400.00
PITT	572783	Single Cell Mining Claim	2022-01-30	$ 400.00

Township / Area	Tenure ID	Tenure Type	Anniversary Date	Work Required
PITT	572784	Single Cell Mining Claim	2022-01-30	$ 400.00
PITT	572785	Single Cell Mining Claim	2022-01-30	$ 400.00
PITT	572786	Single Cell Mining Claim	2022-01-30	$ 400.00
PITT	572787	Single Cell Mining Claim	2022-01-30	$ 400.00
PITT	572788	Single Cell Mining Claim	2022-01-30	$ 400.00
PITT	572789	Single Cell Mining Claim	2022-01-30	$ 400.00
PITT	572790	Single Cell Mining Claim	2022-01-30	$ 400.00
PITT	572791	Single Cell Mining Claim	2022-01-30	$ 400.00
PITT	572792	Single Cell Mining Claim	2022-01-30	$ 400.00
PITT	572793	Single Cell Mining Claim	2022-01-30	$ 400.00
PITT	572794	Single Cell Mining Claim	2022-01-30	$ 400.00
PITT	572795	Single Cell Mining Claim	2022-01-30	$ 400.00
PITT	572796	Single Cell Mining Claim	2022-01-30	$ 400.00
PITT	572797	Single Cell Mining Claim	2022-01-30	$ 400.00
PITT	572798	Single Cell Mining Claim	2022-01-30	$ 400.00
PITT	572799	Single Cell Mining Claim	2022-01-30	$ 400.00
PITT	572800	Single Cell Mining Claim	2022-01-30	$ 400.00
PITT	572801	Single Cell Mining Claim	2022-01-30	$ 400.00
PITT	572802	Single Cell Mining Claim	2022-01-30	$ 400.00
VALENTINE	572803	Single Cell Mining Claim	2022-01-30	$ 400.00
PITT,VALENTINE	572804	Single Cell Mining Claim	2022-01-30	$ 400.00
PITT,VALENTINE	572805	Single Cell Mining Claim	2022-01-30	$ 400.00
VALENTINE	572806	Single Cell Mining Claim	2022-01-30	$ 400.00
VALENTINE	572807	Single Cell Mining Claim	2022-01-30	$ 400.00
VALENTINE	572808	Single Cell Mining Claim	2022-01-30	$ 400.00
VALENTINE	572809	Single Cell Mining Claim	2022-01-30	$ 400.00
VALENTINE	572810	Single Cell Mining Claim	2022-01-30	$ 400.00
VALENTINE	572811	Single Cell Mining Claim	2022-01-30	$ 400.00
VALENTINE	572812	Single Cell Mining Claim	2022-01-30	$ 400.00
PITT,VALENTINE	572813	Single Cell Mining Claim	2022-01-30	$ 400.00
VALENTINE	572814	Single Cell Mining Claim	2022-01-30	$ 400.00
PITT,VALENTINE	572815	Single Cell Mining Claim	2022-01-30	$ 400.00
VALENTINE	572816	Single Cell Mining Claim	2022-01-30	$ 400.00
VALENTINE	572817	Single Cell Mining Claim	2022-01-30	$ 400.00
VALENTINE	572818	Single Cell Mining Claim	2022-01-30	$ 400.00
VALENTINE	572819	Single Cell Mining Claim	2022-01-30	$ 400.00
VALENTINE	572820	Single Cell Mining Claim	2022-01-30	$ 400.00
VALENTINE	572821	Single Cell Mining Claim	2022-01-30	$ 400.00
VALENTINE	572822	Single Cell Mining Claim	2022-01-30	$ 400.00
VALENTINE	572823	Single Cell Mining Claim	2022-01-30	$ 400.00

Township / Area	Tenure ID	Tenure Type	Anniversary Date	Work Required
VALENTINE	572824	Single Cell Mining Claim	2022-01-30	$ 400.00
VALENTINE	572825	Single Cell Mining Claim	2022-01-30	$ 400.00
VALENTINE	572826	Single Cell Mining Claim	2022-01-30	$ 400.00
VALENTINE	572827	Single Cell Mining Claim	2022-01-30	$ 400.00
VALENTINE	572828	Single Cell Mining Claim	2022-01-30	$ 400.00
VALENTINE	572829	Single Cell Mining Claim	2022-01-30	$ 400.00
VALENTINE	572830	Single Cell Mining Claim	2022-01-30	$ 400.00
VALENTINE	572831	Single Cell Mining Claim	2022-01-30	$ 400.00
VALENTINE	572832	Single Cell Mining Claim	2022-01-30	$ 400.00
VALENTINE	572833	Single Cell Mining Claim	2022-01-30	$ 400.00
VALENTINE	572834	Single Cell Mining Claim	2022-01-30	$ 400.00
VALENTINE	572835	Single Cell Mining Claim	2022-01-30	$ 400.00
VALENTINE	572836	Single Cell Mining Claim	2022-01-30	$ 400.00
VALENTINE	572837	Single Cell Mining Claim	2022-01-30	$ 400.00
VALENTINE	572838	Single Cell Mining Claim	2022-01-30	$ 400.00
VALENTINE	572839	Single Cell Mining Claim	2022-01-30	$ 400.00
VALENTINE	572840	Single Cell Mining Claim	2022-01-30	$ 400.00
VALENTINE	572841	Single Cell Mining Claim	2022-01-30	$ 400.00
VALENTINE	572842	Single Cell Mining Claim	2022-01-30	$ 400.00
VALENTINE	572843	Single Cell Mining Claim	2022-01-30	$ 400.00
VALENTINE	572844	Single Cell Mining Claim	2022-01-30	$ 400.00
VALENTINE	572845	Single Cell Mining Claim	2022-01-30	$ 400.00
VALENTINE	572846	Single Cell Mining Claim	2022-01-30	$ 400.00
VALENTINE	572847	Single Cell Mining Claim	2022-01-30	$ 400.00
VALENTINE	572848	Single Cell Mining Claim	2022-01-30	$ 400.00
VALENTINE	572849	Single Cell Mining Claim	2022-01-30	$ 400.00
VALENTINE	572850	Single Cell Mining Claim	2022-01-30	$ 400.00
VALENTINE	572851	Single Cell Mining Claim	2022-01-30	$ 400.00
VALENTINE	572852	Single Cell Mining Claim	2022-01-30	$ 400.00
VALENTINE	572853	Single Cell Mining Claim	2022-01-30	$ 400.00
VALENTINE	572854	Single Cell Mining Claim	2022-01-30	$ 400.00
VALENTINE	572855	Single Cell Mining Claim	2022-01-30	$ 400.00
VALENTINE	572856	Single Cell Mining Claim	2022-01-30	$ 400.00
VALENTINE	572857	Single Cell Mining Claim	2022-01-30	$ 400.00
VALENTINE	572858	Single Cell Mining Claim	2022-01-30	$ 400.00
VALENTINE	572859	Single Cell Mining Claim	2022-01-30	$ 400.00
VALENTINE	572860	Single Cell Mining Claim	2022-01-30	$ 400.00
VALENTINE	572861	Single Cell Mining Claim	2022-01-30	$ 400.00
VALENTINE	572862	Single Cell Mining Claim	2022-01-30	$ 400.00
VALENTINE	572863	Single Cell Mining Claim	2022-01-30	$ 400.00

Township / Area	Tenure ID	Tenure Type	Anniversary Date	Work Required
VALENTINE	572864	Single Cell Mining Claim	2022-01-30	$ 400.00
VALENTINE	572865	Single Cell Mining Claim	2022-01-30	$ 400.00
VALENTINE	572866	Single Cell Mining Claim	2022-01-30	$ 400.00
VALENTINE	572867	Single Cell Mining Claim	2022-01-30	$ 400.00
VALENTINE	572868	Single Cell Mining Claim	2022-01-30	$ 400.00
VALENTINE	572869	Single Cell Mining Claim	2022-01-30	$ 400.00
VALENTINE	572870	Single Cell Mining Claim	2022-01-30	$ 400.00
VALENTINE	572871	Single Cell Mining Claim	2022-01-30	$ 400.00
VALENTINE	572872	Single Cell Mining Claim	2022-01-30	$ 400.00
VALENTINE	572873	Single Cell Mining Claim	2022-01-30	$ 400.00
VALENTINE	572874	Single Cell Mining Claim	2022-01-30	$ 400.00
VALENTINE	572875	Single Cell Mining Claim	2022-01-30	$ 400.00
VALENTINE	572876	Single Cell Mining Claim	2022-01-30	$ 400.00
VALENTINE	572877	Single Cell Mining Claim	2022-01-30	$ 400.00
VALENTINE	572878	Single Cell Mining Claim	2022-01-30	$ 400.00
VALENTINE	572879	Single Cell Mining Claim	2022-01-30	$ 400.00
VALENTINE	572880	Single Cell Mining Claim	2022-01-30	$ 400.00
VALENTINE	572881	Single Cell Mining Claim	2022-01-30	$ 400.00
VALENTINE	572882	Single Cell Mining Claim	2022-01-30	$ 400.00
VALENTINE	572883	Single Cell Mining Claim	2022-01-30	$ 400.00
VALENTINE	572884	Single Cell Mining Claim	2022-01-30	$ 400.00
VALENTINE	572885	Single Cell Mining Claim	2022-01-30	$ 400.00
VALENTINE	572886	Single Cell Mining Claim	2022-01-30	$ 400.00
VALENTINE	572887	Single Cell Mining Claim	2022-01-30	$ 400.00
VALENTINE	572888	Single Cell Mining Claim	2022-01-30	$ 400.00
VALENTINE	572889	Single Cell Mining Claim	2022-01-30	$ 400.00
VALENTINE	572890	Single Cell Mining Claim	2022-01-30	$ 400.00
VALENTINE	572891	Single Cell Mining Claim	2022-01-30	$ 400.00
VALENTINE	572892	Single Cell Mining Claim	2022-01-30	$ 400.00
VALENTINE	572893	Single Cell Mining Claim	2022-01-30	$ 400.00
VALENTINE	572894	Single Cell Mining Claim	2022-01-30	$ 400.00
VALENTINE	572895	Single Cell Mining Claim	2022-01-30	$ 400.00
VALENTINE	572896	Single Cell Mining Claim	2022-01-30	$ 400.00
VALENTINE	572897	Single Cell Mining Claim	2022-01-30	$ 400.00
VALENTINE	572898	Single Cell Mining Claim	2022-01-30	$ 400.00
VALENTINE	572899	Single Cell Mining Claim	2022-01-30	$ 400.00
VALENTINE	572900	Single Cell Mining Claim	2022-01-30	$ 400.00
VALENTINE	572901	Single Cell Mining Claim	2022-01-30	$ 400.00
VALENTINE	572902	Single Cell Mining Claim	2022-01-30	$ 400.00
VALENTINE	572903	Single Cell Mining Claim	2022-01-30	$ 400.00

Township / Area	Tenure ID	Tenure Type	Anniversary Date	Work Required
VALENTINE	572904	Single Cell Mining Claim	2022-01-30	$ 400.00
VALENTINE	572905	Single Cell Mining Claim	2022-01-30	$ 400.00
VALENTINE	572906	Single Cell Mining Claim	2022-01-30	$ 400.00
VALENTINE	572907	Single Cell Mining Claim	2022-01-30	$ 400.00
VALENTINE	572908	Single Cell Mining Claim	2022-01-30	$ 400.00
VALENTINE	572909	Single Cell Mining Claim	2022-01-30	$ 400.00
VALENTINE	572910	Single Cell Mining Claim	2022-01-30	$ 400.00
VALENTINE	572911	Single Cell Mining Claim	2022-01-30	$ 400.00
VALENTINE	572912	Single Cell Mining Claim	2022-01-30	$ 400.00
VALENTINE	572913	Single Cell Mining Claim	2022-01-30	$ 400.00
VALENTINE	572914	Single Cell Mining Claim	2022-01-30	$ 400.00
VALENTINE	572915	Single Cell Mining Claim	2022-01-30	$ 400.00
VALENTINE	572916	Single Cell Mining Claim	2022-01-30	$ 400.00
VALENTINE	572917	Single Cell Mining Claim	2022-01-30	$ 400.00
VALENTINE	572918	Single Cell Mining Claim	2022-01-30	$ 400.00
VALENTINE	572919	Single Cell Mining Claim	2022-01-30	$ 400.00
VALENTINE	572920	Single Cell Mining Claim	2022-01-30	$ 400.00
VALENTINE	572921	Single Cell Mining Claim	2022-01-30	$ 400.00
VALENTINE	572922	Single Cell Mining Claim	2022-01-30	$ 400.00
VALENTINE	572923	Single Cell Mining Claim	2022-01-30	$ 400.00
VALENTINE	572924	Single Cell Mining Claim	2022-01-30	$ 400.00
VALENTINE	572925	Single Cell Mining Claim	2022-01-30	$ 400.00
VALENTINE	572926	Single Cell Mining Claim	2022-01-30	$ 400.00
VALENTINE	572927	Single Cell Mining Claim	2022-01-30	$ 400.00
VALENTINE	572928	Single Cell Mining Claim	2022-01-30	$ 400.00
VALENTINE	572929	Single Cell Mining Claim	2022-01-30	$ 400.00
VALENTINE	572930	Single Cell Mining Claim	2022-01-30	$ 400.00
VALENTINE	572931	Single Cell Mining Claim	2022-01-30	$ 400.00
VALENTINE	572932	Single Cell Mining Claim	2022-01-30	$ 400.00
VALENTINE	572933	Single Cell Mining Claim	2022-01-30	$ 400.00
VALENTINE	572934	Single Cell Mining Claim	2022-01-30	$ 400.00
VALENTINE	572935	Single Cell Mining Claim	2022-01-30	$ 400.00
VALENTINE	572936	Single Cell Mining Claim	2022-01-30	$ 400.00

Appendix 3 – Assessment files used in this report

Table 13-2 Assessment files used in this report on Valentine Property.

Assessment Report Number	Year of Report	Year of Work	Company	Type of Work
42I04NE0007	1967	1967	Argor Explorations Ltd.	airborne mag survey, 400 ft spacing
42I04NE0013	1969	1967, 1969	Argor Explorations Ltd.	drill hole V-2-1, 654 ft; hole V-2-3, 2000 ft
42I04NE0012	1669	1969	Argor Explorations Ltd.	drill hole V-2-2, 2362 ft
42I04NE0002	1982	1982	Selco Mining Corp. Ltd	ground mag survey, 100 m spacing
42I04NE0003	1984	1982	Selco Mining Corp. Ltd	drill hole 42I5-114-1, 118.5 m; drill hole 42I5-115-1, 152 m
42I05SE2005	2003	2003	Big Red Diamond Corp.	airborne mag and VLF-EM survey, 50 m spacing
42I05SE2004	2003	2003	Big Red Diamond Corp.	ground mag survey, 50 m spacing
2.30132	2005	2003 and 2005	Big Red Diamond Corp.	overburden sampling, mineralogy study, 12 samples
2.31852	2006	2006	Baltic Resources Inc.	11 drill holes totalling 951 m of which 4 drill holes are on the Property
2.36059	2007	2007	Baltic Resources Inc.	petrographic study of drill core; 12 samples CR06-01, 3 samples CR06-02

Appendix 4 – Terraquest Report

Preliminary Operations Report for

High Resolution Magnetic and VLF-EM + Resistivity Helicopter Survey

Valentine Property
Kapuskasing Area
Ontario

June 13, 2021

Contract & Report: #B512val

Requested by:
Jacquelin Gauthier, P.Geo
Niobay Metals Inc.

Prepared by:
Charles Barrie, Managing Partner
Terraquest Ltd.

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1 Introduction

1.1 Executive Summary

This report describes the specifications and parameters of a helicopter geophysical survey carried out on behalf of:

NIOBAY METALS INC.
Suite 101, 1111 St. Charles West
Longueil, PQ
Canada J4K 5G4

Attention: Claude Dufresne, President
Tel: 514-866-6500 Email: cdufresne@niobaymetals.com

The survey was performed by:

TERRAQUEST LTD.,
301-2900 John Street, Markham
ON, Canada
L3R 5G3

Charles Barrie, P.Geo, M.Sc.
Phone: 905-477-2800 ext. 31 Email: cb@terraquest.ca

The purpose of a survey of this type is to collect geophysical data that can be used to prospect directly for economic minerals that are characterized by anomalous magnetic or electromagnetic responses. Secondly, the geophysical patterns can be used indirectly for exploration by mapping the geology in detail, including rock types, faults, shear zones, folding, alteration zones and other structures.

To obtain this data, the area was systematically traversed by helicopter carrying geophysical equipment along parallel flight lines. The lines are oriented to intersect the geology and structure so as to provide optimum resolution of the geophysical data.

At the time of writing this report the resistivity products have not been fully processed, and as such this is a *Preliminary Report,* but does include the resistivity theory, acquisition and processing methodologies. The *Final Report* will also include the final images of the resistivity products.

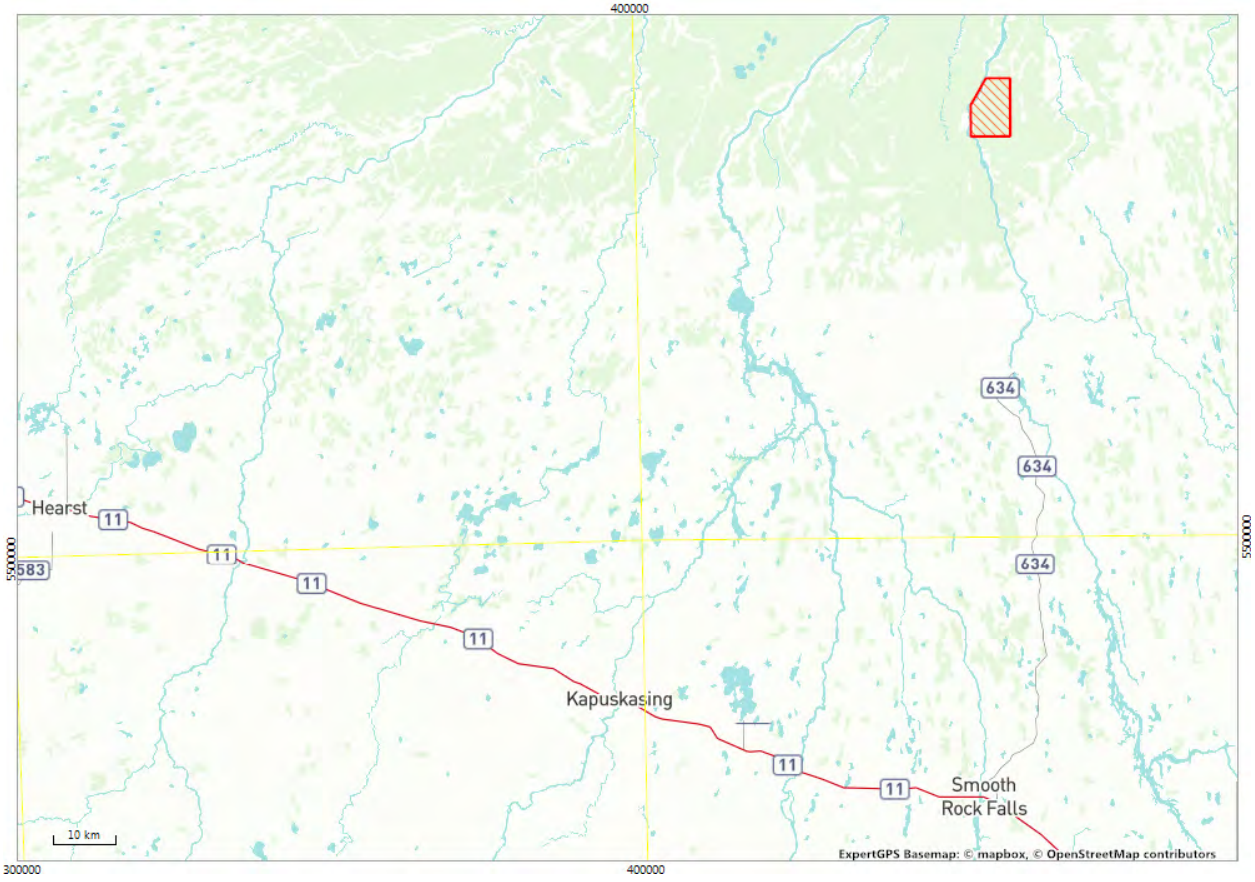
1.2 Location

The **Valentine Property** is located in the Timmins Mining District of Ontario, along the southern edge of the James Bay Lowlands, approximately 193 kilometres north of Timmins, 104 kilometres northeast of Kapuskasing and 3 kilometres north of Otter Rapids which is accessible by route 634 from Smooth Rock Falls located on the TransCanada Highway.

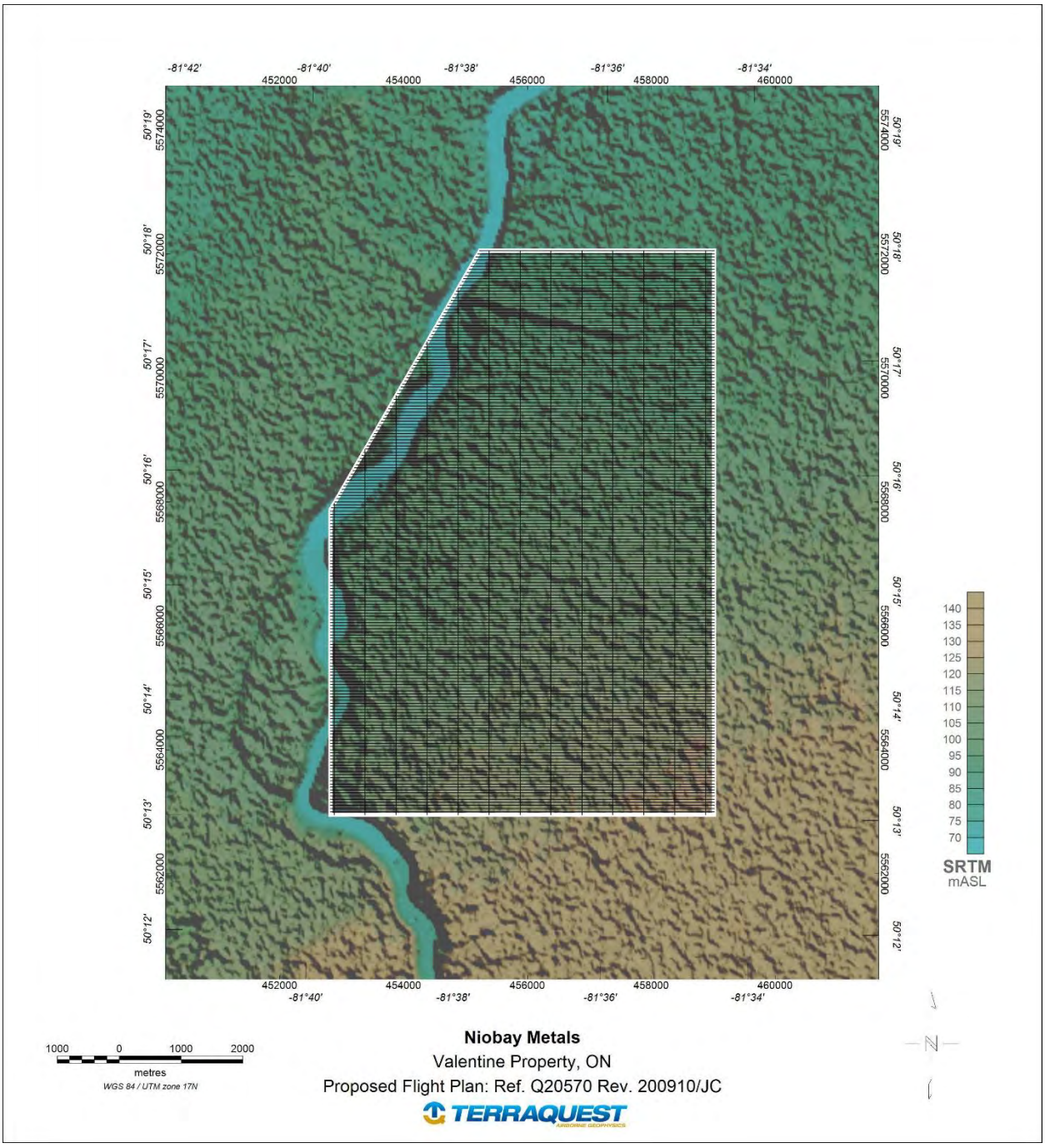
The Valentine Property is rectangular in shape with a slice that removes the northwest corner. The block has 5 corners and measures 6.2 kilometres east-west and 9.4 kilometres north-south. The centre of the block is approximately 50 degrees 13 minutes 44.45 seconds north and 81 degrees 31 minutes 58.90 seconds west.

General Location

Regional Location



Detail Location of Valentine Block with proposed navigation flight lines



2 SURVEY SPECIFICATIONS

2.1 SURVEY PARAMETERS

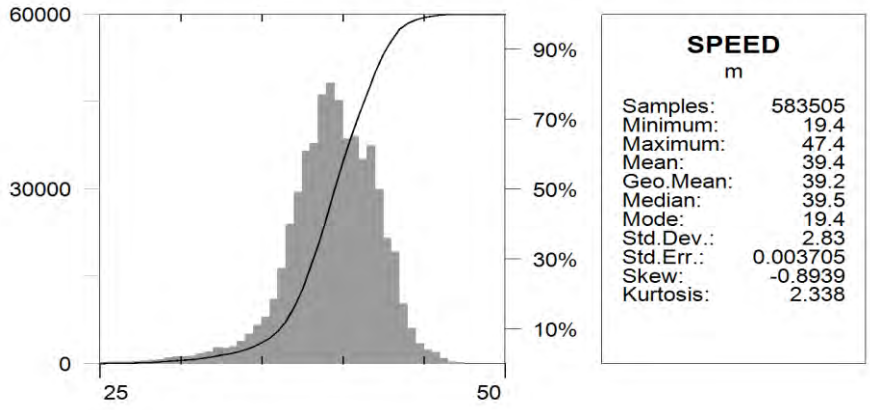
Project Name	**Valentine Property**
Acquisition	**Magnetic and VLF-EM + Resistivity**
Aircraft - Helicopter	**ASTAR 350B2 registration C-FFKK**
Base of Operations	**Kapuskasing**
Ferry	**104 km**

2.2 SURVEY KILOMETRAGE

PARAMETERS	**SPECIFICATIONS**	
Valentine Property		
Traverse # of Lines, Interval, Km	182 lines @ 50 metres =	1,027.1 Lkm
Traverse Line Direction	090/270 degrees	
Control # of Lines, Interval, Km	13 tie lines @ 500 m	106.6 Lkm
Control Line Direction	000/180 degrees	
Total Line Kilometers	195 lines	**1,133.7 Lkm**

2.3 SPEED AND TERRAIN CLEARANCE

Parameter	**Valentine Property**	
Helicopter Mean Speed	39.4 m/sec 77.4 km/hr	
Data Sample Interval (20 Hz)	1.97 metres	
Mean Terrain Clearance	21.5 metres	



2.4 NAVIGATION SPECIFICATIONS

The satellite navigation system was used to ferry to the survey site and to survey along each line. The survey coordinates were supplied by the client and were used to establish the survey boundaries and the flight lines. Generally, standard GPS provides accuracy for the most part better than 10 metres. Real-time GPS correction using the Hemisphere differential receiver and corrected by Atlas broadcast services for North America improves the navigational accuracy to about 3 metres or less in the horizontal plane and 4-5 metres in the vertical direction. The tie line navigation file follows:

```
0  VAL_Tie Lines
1  Z 17
2      455225     5572055       AREA CORNER 1
2      459011     5572055       AREA CORNER 2
2      459011     5562958       AREA CORNER 3
2      452816     5562958       AREA CORNER 4
2      452816     5567880       AREA CORNER 5
2      455225     5572055       AREA CORNER 6
3      455225     5572055  COR1 WAYPOINT 1
4           13                  NUMBER OF LINES
5        500.0                  SPACING, m
8           75                  MAX CROSS TRACK, m
9    0  0  0                   DELTA X/Y/Z
10           1                  LOG FPR EVERY 1 SECS
11 0.9996000000       0.0       0.0 K0, X/Y SHIFT
14           0                  LINES EXTENDED BEYOND AREA
16       10010                  FIRST LINE NUMBER
17   455375.0   5572055.0   0.0 MASTER POINT, HEADING
20 WGS-84      6378137.0   298.257223563 22       ELLIPSOID
21           1                  UTM VALUES RELATIVE TO N HEMISPHERE
30          20    9600  N  1  8  RS-232 PORT 2 INCOMING FORMAT
31          20    9600  N  1  8  RS-232 PORT OUTGOING FORMAT
38           0                  METRIC SYSTEM
41        0.00                  SYSTEM LAG, Secs.
80         0.00                 PLANNED ALTITUDE, m
83           0                  GPS ALTITUDE FOR VERTICAL BAR
84        1.00        0.00      ALTITUDE COEFFICIENT, OFFSET
85          100                 MAX VERTICAL BAR SCALE
102  UTM                        UTM X/Y SCALE
```

2.5 FLIGHT PLAN NAVIGATION MAP

The flight plan navigation map for the Valentine Property provided above in section 1 shows the pre-survey plan of east-west 50 metre interval survey lines and the north-south 500 metre interval tie lines, plotted on the satellite digital terrain model. The actual flown flight path maps are shown in section 7 of this report.

2.6 TOLERANCES - REFLIGHT

2.6.1 Traverse Line Interval

Re-flights would take place if the flight line separation of the final differentially corrected flight path is greater than 1.25 of the intended line separation over a distance greater than 1 kilometre along the line.

2.6.2 Terrain Clearance:

The contract specifications were designed for 25-35 metres mean terrain clearance at pilot discretion. The helicopter survey mean terrain clearance over the Valentine Property averaged 21.5 metres.

2.6.3 Diurnal Variation:

Diurnal activity in the survey was limited to +/-3.0 nT peak to peak deviation from a 1-minute chord.

2.6.4 GPS Data:

GPS data included at least 4 satellites for navigation and flight path recovery. There were no significant gaps in any of the digital data.

2.6.5 Radio Transmission:

The aircraft pilot makes no radio transmission that interferes with magnetic response unless mandated by safety concerns.

2.6.6 Sample Density:

A reflight is required if the sample density along one or more of the survey lines exceeds 10 metres over a cumulative total of 1000 metres for the magnetic survey.

3 AIRBORNE GEOPHYSICAL EQUIPMENT

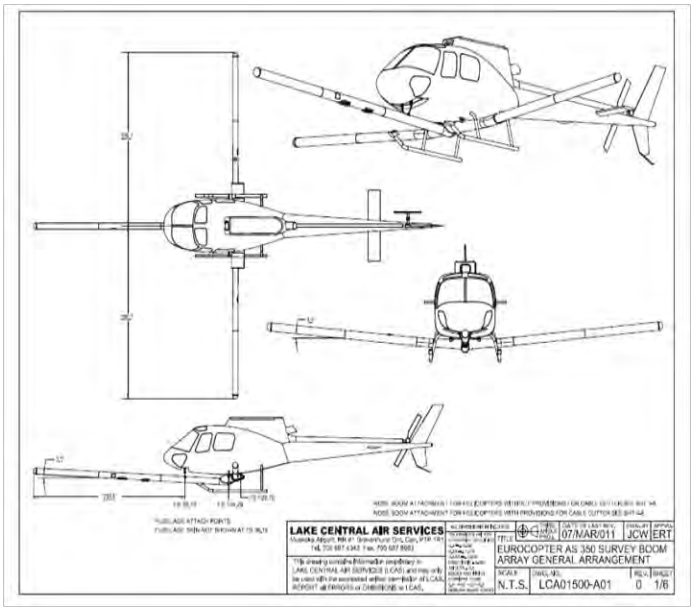
The primary airborne geophysical equipment includes one high sensitivity cesium vapour magnetometer and a digital Matrix VLF-EM, both located in a nose boom. Ancillary support equipment includes a tri-axial fluxgate magnetometer, data acquisition system, radar altimeter, barometric altimeter, GPS receiver with a real-time broadcast correction service, and a navigation system. The navigation system comprises a left/right indicator for the pilot and a screen and displays the survey area, planned flight lines, and the real time flight path. All data were collected and stored by the data acquisition system. The following provides detailed equipment specifications:

3.1 EQUIPMENT SUMMARY

Helicopter	Eurocopter ASTAR 350 B2 registration C-FFKK
Equipment:	
Magnetometer	Scintrex : CS-3 Cesium Vapour
Magnetic Counter	Kroum VS : KMAG4
Analog processer	Kroum VS : KANA8
3-axis Magnetometer	Billingsley: TFM100-LN
VLF-EM	Magenta: Matrix digital VLF-EM system
GPS Receiver	Hemisphere: R130 DGPS with Atlas or WAAS
Radar Altimeter	Free Flight Systems TRA3000
Barometric Altimeter	Honeywell: transducer
Data Acquisition	Archer: handheld computer using Kroum VS: SDAS software
Navigation	AgNav: Guia/LiNav P151
Magnetic Specifications:	
Nose Boom total length	7.69 metres (from centre of cabin)
Nose Boom length from skids	5.96 metres (from front of skids)
Output Sample Rate	10 Hz interpolated in database to 20Hz
4th difference noise envelope	0.10 nT
FOM index	<3.0 nT
Sensor Sensitivity	0.005 nT

3.2 SURVEY AIRCRAFT

The survey aircraft for this project was a Eurocopter ASTAR 350 B2, registration C-FFKK sub-contracted services from Heli Explore based in La Sarre, Quebec. The helicopter has been specifically modified with a 7.69 metre long and 21.6 cm (8.5”) diameter nose stinger that extends approximately 6 metres forward of the skids. Pictures below show helicopter with side booms which were removed prior to this survey.



3.3 SURVEY EQUIPMENT AND SPECIFICATIONS:

3.3.1 High Sensitivity Magnetometer

One high-resolution cesium vapour magnetometer, manufactured by Scintrex was mounted in a nose stinger that extends approximately 6 metres forward from the skids. A Fluxgate tri-axial magnetometer, model TFM100-LN by Billingsley Magnetics Ltd., is mounted in front of the mid-section of the boom to monitor aircraft manoeuvre and magnetic interference. The magnetic data is post-flight compensated for aircraft manoeuvre noise.

Magnetometer Sensor Type	Split-Beam Cesium Vapour
Model	CS-3
Manufacturer	Scintrex Ltd.
Resolution	0.001 nT counting at 0.1 per second
Sensitivity	+/- 0.005 nT
Dynamic Range	15,000 to 100,000 nT
Fourth Difference	0.02 nT
Recorded Sample Rate	0.05 seconds
Noise Envelope	0.10nT

3.3.2 Tri-Axial Fluxgate Magnetic Sensor

Tri-Axial Fluxgate	(for compensation, mounted in nose stinger)
Model	TFM100-LN
Manufacturer	Billingsley Magnetics
Description	Low noise miniature triaxial fluxgate magnetometer
Axial Alignment	> Orthogonality > +/- 0.5 degree
Accuracy	< +/- 0.75% of full scale (0.5% typical)
Field Measurement	+/- 100,000 nanotesla
Linearity	< +/- 0.0035% of full scale

Sensitivity	100 microvolt/nanotesla
Noise	< 14 picotesla RMS/–Hz @ 1 Hz
Recorded Sample Rate	0.05 seconds

3.3.3 Radar Altimeter

Altimeter	Radar
Model	TRA3000
Manufacturer	Free Flight Systems
Type	Single horn
Range	0 – 2500 ft
Accuracy	+ 5ft for 0-100 ft; 5% 100-500ft
Calibrate Accuracy	1%
Output	Digital for pilot, converted to analog for data acquisition
Recorded Sample Rate	0.05 seconds

3.3.4 Barometric Altimeter

Altimeter	Barometric pressure transducer
Model	PPT0020AWN2VA-C s/n 41189
Manufacturer	Honeywell
Sensitivity	1 foot
Source	coupled to aircraft barometric system
Recorded Sample Rate	0.05 seconds

3.3.5 Data Acquisition System

Data Acquisition System	Handheld computer
Software	SDAS
Manufacturer	Kroum VS
Operating System	iPAQ Pocket PC
Microprocessor	Archer handheld computer
Ports	RS232 COM ports data input
Recorded Sample Rate	0.05 seconds

3.3.6 Analog Processor

Analog Processor	KANA8 standalone module
Manufacturer	Kroum VS
Channels / Input	8 independent analog channels
Processing	Separate 24-bit delta sigma ADC and signal conditioning circuitry for each channel
Time Synchronization	GPS UTC each sample, and PPS signal
Overlay	Video text overlay

3.3.7 Magnetometer Processor

Magnetometer Counter	4 inputs, stand-alone module
Model	KMAG4
Manufacturer	KROUM VS
Input Range	10,000 – 100,000 nT
Relative Resolution	3.85 ppb
Sampling Rates	Selectable 1 to 1,000 per second: 0.05 seconds

Reference Frequency	260 MHz
Bandwidth	Selectable 0.7, 1.0 or 2.0 Hz
Modes	SyncIn, SyncOut, RS232 Ports, PPS

3.3.8 Navigation System

Navigation System	Stand-alone module
Model	Guia P151
Manufacturer	AgNav Inc.
Software	LiNav software
Microprocessor	CPU Board Pentium: 166Mhz, 16MB
Ports	USB Memory stick, 4 RS232 I/O ports
Graphic Display	Full colour sunlight readable LED array 28x30 lines
Pilot Display	position, left/right/vertical, navigational info
Recording Media	standard hard drive, USB memory stick
Sampling	Navigation 0.2 seconds (magnetometers at 0.05 seconds)

3.3.9 GPS Differential Receiver

GPS Receiver	Differential GPS
Model	R130
Manufacturer	Hemisphere
Antenna	Dome AT1665
Channels	12 L1L2
Position Update	0.5 second for navigation
Correction Service	Real time correction subscription – Atlas
Sample Rate	0.05 seconds
Accuracy	~ 3 meters

3.3.10 Proprietary Matrix VLF-EM System

The Matrix frequency specific, digital VLF-EM System was recently developed for Terraquest Ltd. and was deployed on this survey. It employs 3 orthogonal, air-core coils mounted near the front of the nose boom, and coupled with a receiver-console, tuned to receive independently up to four frequencies. On this survey the frequencies were Cutler Maine NAA frequency 24 kHz, La Moure North Dakota NML frequency 25.2 kHz and Seattle WA NLK frequency 24.8 kHz.

VLF - EM	Stand-alone module
Model	Matrix
Manufacturer	Magenta Ltd.
Primary Source	Magnetic field component radiated from government VLF radio transmitters
Parameters Measured	Total Field Conductivity Amplitude, Vertical and Planar Ellipticities, Azimuth to transmitter, Tipper coefficients and Field Tilt Angles
Frequency Range	Up to four independent frequencies
Gain	Constant gain setting
Filtering	No filtering
Recorded Sample Rate	0.01 seconds interpolated to 0.05 seconds
Recording	Internally with USB access, externally to DAS for redundancy

4 Base Station Equipment

4.1 BASE STATION MAGNETOMETER & GPS

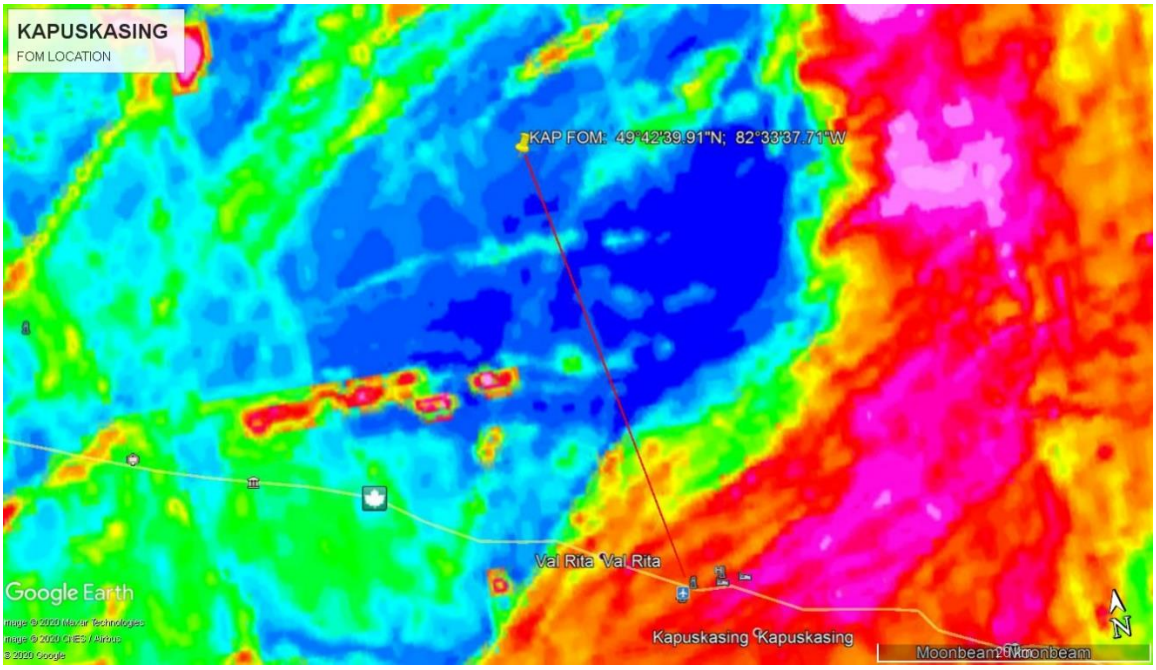
High sensitivity magnetic base station data uses a split beam cesium vapour magnetometer logging onto a computer and with time synchronization from a GPS base station receiver. The magnetometer was similar to the type used in the aircraft, a cesium magnetometer manufactured by Scintrex. The magnetometer processor/counter was a KMAG manufactured by Kroum VS Instruments and the data logger was a PDA by Archer. The counter was powered by a 10VAC 50/60hz to 30VDC 3.0 amp power supply with an internal 12VDC fan. The logging software SDAS-1 was written by Kroum VS Instrument Ltd. specifically for handheld pc hardware. It supports real time graphics with selectable windows (uses two user selectable scales, coarse and fine). Time recorded was taken from the base GPS receiver. Magnetic data was logged at 1Hz. Data collection was by RS232 recording ASCII string and stored on flash card.

Magnetometer Type	Cesium Vapour (high sensitivity)
Model	CS-3
Manufacturer	Scintrex Ltd.
Sensitivity	0.005 nT
Resolution	0.001 nT
Dynamic Range	15,000 – 120,000 nT
GPS model	Universal 12 channel
GPS manufacturer	Garmin GPS18
Sample rate	1 second

5 TESTS AND CALIBRATIONS

5.1 MAGNETIC FIGURE OF MERIT

Magnetic compensation calibration tests were performed to determine the magnetic influence of aircraft maneuvers and the effectiveness of the aircraft compensation method. The aircraft flew a square pattern in the four survey directions at a high altitude over a magnetically quiet area and perform pitches (± 5°), rolls (± 10°) and yaws (± 5°). The sum of the maximum peak-to-peak residual noise amplitudes in the total compensated signal resulting from the twelve maneuvers is referred to as the FOM index. The FOM calibration was performed prior to the survey in a quiet magnetic area northwest of Kapuskasing on October 30, 2020 resulting in an index of 0.82 nT for the nose magnetometer (see Appendix 9.3).



5.2 RADAR ALTIMETER CALIBRATION

The radar altimeter was calibrated prior to the survey on August 29, 2020 at Pickle Lake. Raw radar altimeter data (in mV) was collected from a vertical ascent over a fixed ground reference location and correlated with corrected GPS altimetry to calculate calibration factors. See appendix 9.4.

5.3 MAGNETIC LAG CALIBRATION

Evaluation of the magnetic lag factor was accomplished by comparing survey data flown over distinct anomalies in opposing directions. The measured lag was 0.0 second for the nose magnetometer (GPS antenna is located at the front of nose stinger close to the cesium magnetometer).

6 LOGISTICS

6.1 PERSONNEL

The contractor and subcontractor supplied the following properly qualified and experienced personnel to carry out the survey and to reduce, compile and report on the data:

Field:	Pilot	Jean-Michel Dumont
		Didier Strobach
	Operator/Field Manager	David Salvatori
	QC processor (office)	Allen Duffy
Office:	Final Data Processor	Allen Duffy
	Manager	Charles Barrie

6.2 FIELD REPORTING

The pilot and helicopter arrived in Kapuskasing (base of operations) on Oct 26, 2020. Base station set up, failed sensor replacement, and 3 attempts at magnetic calibration required 3 days.

The survey was performed over 9 days from October 30th to November 7th. There were 7 flights and 6 survey production days of which 2 days had single flights per day due to weather in the afternoon. Two flights were aborted due to weather; there were 3 days lost totally to weather. The survey was completed on Nov 7th and the crew were released promptly the following day.

All VLF transmitters were active and functional during actual survey production. A short flight was made on Monday Nov 2nd late in the afternoon after VLF maintenance was completed.

The Terraquest survey operator provided flight survey reports and the geophysicist provided preliminary data and images for Quality Control and client examination (see following). All members of the field crew worked together to achieve a flexible and efficient operation that could meet the client's objectives. The details of the operations are shown in the Operational Summary below and in Appendix 9.2.

6.3 BASE OF OPERATIONS

The field crew were quartered in the Travelodge by Wyndham, 2 Kolb Avenue, Kapuskasing, ON, P5N 1A7. The base station was set up at a quiet location at the airport as shown in the following picture.

Magnetic Base Station

OPERATIONAL SUMMARY – Valentine Property

TERRAQUEST

PROJECT REF B512 /NIOBAY METALS RESOURCES CORP. /Niobium/Valentine Properties: AUTUMN, 2020

CURRENT STATUS:	7-Nov-20	C-FFKK					
TOTAL DAYS	INSTALL/ SET-UP	HIATUS	OPS DAYS	LKM/DAY	COMPL (%)	TOTAL FLT TIME	TOTAL PRD TIME
13	4		9	125.8	30.57%	20:50:00	7:58:02

OVERALL PRODUCTION SUMMARY:

	PLAN		FLOWN			
	NLIN	LKMS	NLIN	LKMS	REMAIN	COMPL (%)
TOTAL	514	3704.5	195	1132.6	2571.9	30.57%
LINE	483	3359.4	182	1026.1	2333.3	30.54%
TIE	31	345.1	13	106.6	238.5	30.88%
BORDER						

SURVEY STATS		
	DAY	PROJECT
FLIGHT HOURS	1:41:00	20:50:00
SURVEY HOURS	0:21:47	7:58:02
LKMS ACCEPT	53.93	1132.64
LKMS REJECT		
LKMS % TOTAL	1.46%	30.57%

SUMMARY BY BLOCK:

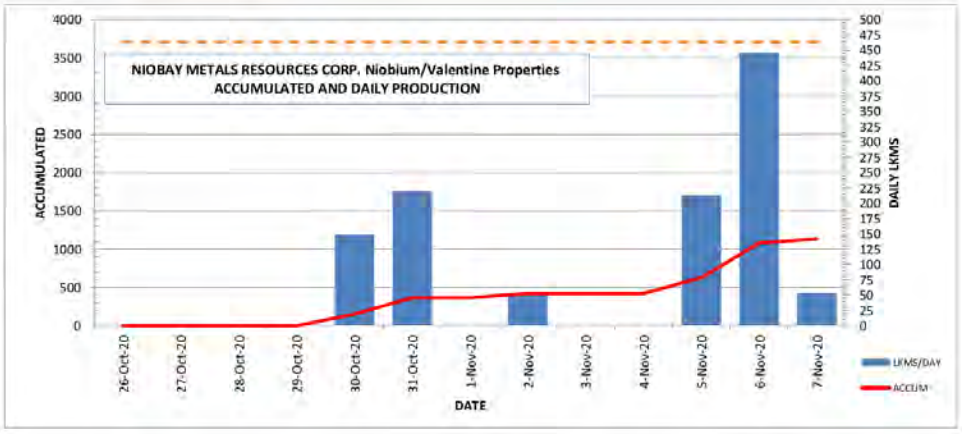
NAME	CODE	PLAN		FLOWN		COMPL (%)
		NLIN	LKMS	NLIN	LKMS	
Valentine	VAL	195	1132.64	195	1132.64	100.00%
James Bay Niobium	NIO	319	2571.85			

COMMENTS

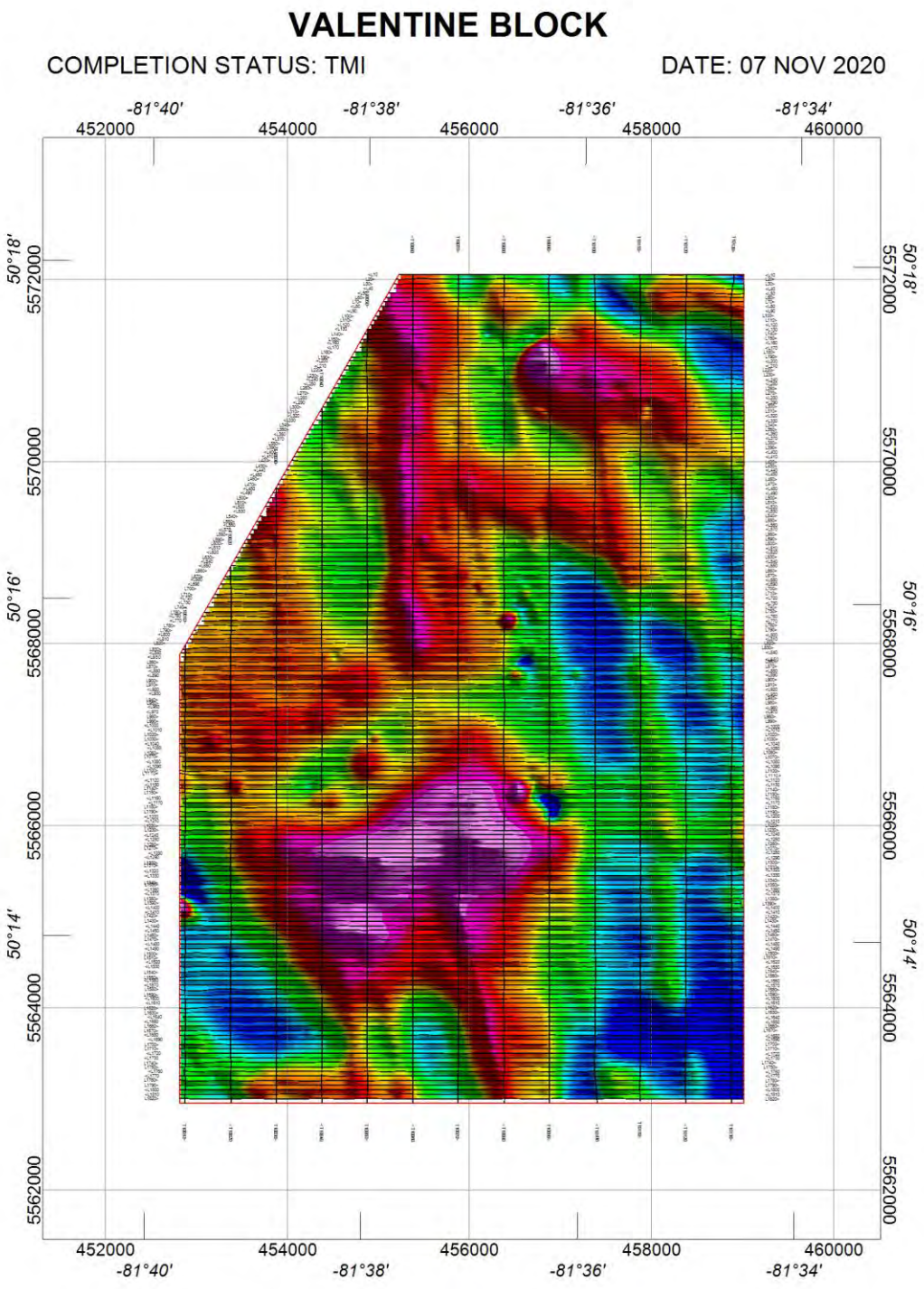
FKK040; acquisition complete on VALENTINE Block

C-FFKK

DAY CLASS SUMMARY	
CALIBRATION	2.0
EQUIPMENT	
INSTALL	
MAINT (SCHED)	
MAINT (UNSCHED)	
MOB/DEMOB	1.0
SETUP	1.5
SURVEY	3.5
TESTING	
STANDBY/WX	4.5
STANDBY/DIURNAL	
STANDBY/TQ	0.5
STANDBY/CLIENT	
STANDBY/RESTRICT	
TRAINING	
TOTAL	13.0



Preliminary Magnetic Field Plot (provided at end of survey):



7 Data Processing

7.1 DATA QUALITY CONTROL & DTM

The field data were sent to a senior processing geophysicist by ftps site to be examined to inspect the data for quality control and tolerances. All data were approved and checked for continuity and integrity. The raw data were preliminary processed and gridded to produce preliminary plots (previous section) which were forwarded to the client for approval. The *Digital Terrain Model* (DTM) was calculated by subtracting the radar altimeter values from the real-time corrected GPS positions (Compare with satellite topographic map around the edge of the survey area on the navigation map in section 2.5). All final maps are shown in section 7.5.

7.2 FINAL MAGNETIC DATA PROCESSING

7.2.1 Lag Correction of Total Magnetic Field

The evaluation of the magnetic lag factor was accomplished by acquiring survey data flown in opposite directions over a series of distinct magnetic anomalies. The measured factors were 0 seconds for the nose magnetometer (the GPS antenna was located near the nose of the stinger).

7.2.2 Diurnal Data

In the first place, the base station magnetic data were used to verify the general diurnal activity at the time of the survey for adherence to contract specifications. In the data processing routine, the Diurnal magnetic data were scrutinized for spurious readings (data spikes) and any obvious cultural interference. Any such features were manually removed and the data re-interpolated (Akima spline) to maintain a continuous record. Diurnal correction using the measured base station data was applied to the airborne data prior to tie-line leveling but it did not improve the quality of the data set, possibly due to the distance to the survey grid, so it was not used for this purpose.

7.2.3 Rotor Effect Removal

In the helicopter stinger assembly, the nose magnetometer sensor head is mounted just ahead of the disk swept out by the main rotor, and it therefore "senses" the tips of the blades as they pass over the stinger assembly (the helicopter transmission and, to a lesser extent, tail rotor also contribute to a lesser extent). The Eurocopter ASTSAR 350 B2 has a relatively pronounced effect because of its three, carbon-fibre blades. A high frequency suppression filter was applied to the 20 Hz magnetic data to suppress the aliased rotor noise.

7.2.4 Total Magnetic Field (TMI) Tie-Traverse Line Intersection Leveling

Tie-Traverse line intersection leveling was applied to the Traverse line data. Using the Geosoft Oasis implementation of this procedure, an initial table of tie-traverse line intersection differences was compiled (together with supporting ancillary parameters such as local gradient, etc.) and intersection data loaded into the processing databases. In a series of iterative leveling passes, outlier intersection values were either disabled or modified to refine and finalize the overall result.

7.2.5 Total Magnetic Field (TMI) Micro-Leveling

Minor leveling imperfections may still exist in the intersection levelled data, most likely due to incomplete removal of diurnal influences in sections of lines between intersection points. These errors were removed

by application of mild micro-leveling procedure whereby highly directional filtering identifies and removes residual noise correlated with the traverse direction. The resulting corrections are limited to the maximum amplitude of +/-5 nT to avoid "damaging" valid, geologic responses to achieve the final *Total Magnetic Intensity.*

7.2.6 Anomalous (IGRF Corrected) Total Magnetic Intensity

The *Anomalous Field* correction was made using 2020 field coefficients calculated to November 5, 2020 at an effective altitude of 150 m AMSL.

7.2.7 Calculated Vertical Derivative

The first *Vertical Derivative* was calculated using a 2D FFT operator on the Total Field data grid. Unwanted, high frequency "ringing" in the resulting 1VD grid was minimized by concurrent application of an 8th order Butterworth low pass filter with a cut-off keyed to the line spacing without damaging the geologic signal.

7.2.8 Magnetic Analytic Signal (ANSIG)

The angle of the earth's magnetic field at this survey latitude is flattened substantially, affecting the apparent location of magnetic sources in the Total Magnetic Intensity map. The resulting interpretational complexity may be simplified by calculation and display of the magnetic *Analytic Signal*. Analytic signal, which is derived from the three orthogonal magnetic gradients, has the advantage of producing body centric anomalies - regardless of magnetic inclination - with source edges mapped out by the function's maxima. Additionally, approximate source depth may be estimated by measuring individual anomaly widths at half amplitude.

7.2.9 Data Grids

All the magnetic data were interpolated using Bi-Directional (Akima) gridding at a cell size of 10 metres.

7.3 MATRIX VLF-EM TOTAL FIELD

7.3.1 Matrix VLF-EM Monitoring

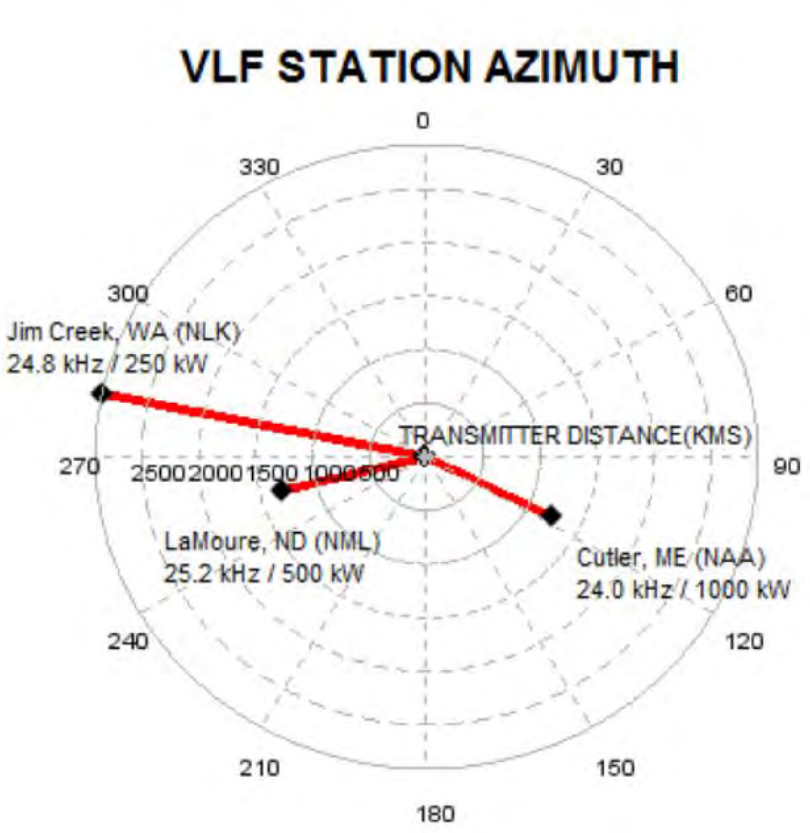
VLF-EM data were captured using a Magenta Inc. Matrix Digital VLF receiver. This instrument is capable of simultaneously monitoring up to four VLF frequencies, recording amplitude of secondary field, transmitter station azimuth (relative to aircraft orientation), vertical and planar ellipticities, Tipper coefficient and field tilt angle. For this project, the following VLF transmitters were monitored:

- Station NAA: Cutler, Maine – 24.0 kHz
- Station NML: La Moure, North Dakota – 25.2 kHz
- Station NLK: Jim Creek, Washington – 24.8 kHz

Transmitter power, distances and azimuths relative to the survey block are illustrated below and on the plotted maps. Transmitter stations are nominally shut down for scheduled maintenance as follows: NAA Cutler, Maine on Mondays, NML LaMoure, North Dakota on parts of Tuesdays, and NLK Seattle, Washington progressively throughout Wednesday such that there is generally always some signal. Tie lines and aircraft maintenance were scheduled on transmitter-off times to ensure that all survey production lines did not have any VLF Transmitter-off days.

The recorded data from the Jim Creek station was weak and too noisy to process successfully and accordingly it was not processed but is included in the database (see Readme file section 9.5). The azimuths from the remaining stations Cutler ME and LaMoure ND are at good angles such that VLF energization is provided to most of the compass orientations.

B512 Niobay Survey:



7.3.2 Matrix VLF-EM Processing Total Field Strength

The *Total Field Amplitude* from the Cutler and LaMoure stations were processed and presented separately for each of the frequencies. Processing of the raw amplitude data consisted of the following:

- Mask out any embedded "off-line" data
- Noise reduction filtering using non-linear Naudy filtering (5 pt filter width)
- Initial leveling (mean subtraction)
- Fine leveling (micro-leveling)
- Application of bias offsets such that finalized data ranged positive
- Gridded with 10 metre grid cell size

The finalised amplitude data for each channel were presented as a series of colour images of total field strength (amplitude). Conductor axes and other VLF anomalous features (topographic effects, conductive lake sediments, etc.) are mapped by "hot" colours (light brown -> white) as peak centric lineaments.

In addition, final corrected Amplitude data were high-pass filtered (30 fid cut-off) and used to create data grids which were analysed with a peak-detection algorithm (*Blakely algorithm*). The resulting **peak locations** were marked and superimposed on the amplitude images as dots to emphasize conductor axes.

7.4 MATRIX VLF-EM INVERSE MODELLING

7.4.1 Inversion Theory

The VLF signal used in prospection is generated by communication antennas working in the frequency range of 10 kHz to 30 kHz. Those antennas behave like electric dipoles and its associated electromagnetic field (primary field) travels radially outward via two propagation mechanisms: along the earth's surface (wave guided) and by reflection at various charged layers in the ionosphere at altitudes of 60-400 km. The variable primary field induces electrical currents, mainly in conductive structures orientated parallel to the direction the electric field source (VLF transmitter). The induced currents generate an electromagnetic field (secondary field) that can be detected at surface or at some height by the receiver. Having a vertical component of the magnetic field, the following relationship exists between horizontal and vertical components:

$$H_z = T_{zy} H_y$$

where T_{zy} is the magnetic transference function or Tipper. In VLF-EM, the data are the In-phase and Quadrature, or the real and imaginary parts of the tipper (H_z^s/H_y), where H_z^s and H_y are the vertical component of the secondary field and the horizontal component of the total magnetic field.

The nonlinear, smoothness-constrained inversion algorithm (Sasaki, 1989, 2001; DeGroot and Constable, 1990) was adopted for VLF inversion (Monteiro Santos et al., 2006). The inversion is performed by an iterative process that allows the final model to be obtained, with its response fitting the data set in a least square sense. At each iteration, the optimization equations that must be solved to get the corrections of the parameters are represented as follows:

$(\mathbf{J}^T \mathbf{J} + \lambda \mathbf{C}^T \mathbf{C})\, \delta\vec{p} = \mathbf{J}^T \vec{b}$ where $\delta\vec{p}$ is the vector containing the corrections applicable to the parameters (logarithm of block conductivity, σ_j) of an initial model, $\vec{b} = \overrightarrow{T^o} - T_i^c \; is \; t$ is the vector of the differences between the observed and calculated tipper components, **J** is the Jacobian matrix whose elements are given by $(\sigma_j)(\partial T_i^c/\partial \sigma_j)$, the superscript T denotes the transpose operation, and λ is a Lagrange multiplier (Damping factor) that controls the amplitude of the parameter corrections and whose best value is determined empirically. The elements of the matrix **C** are the coefficients of the values of the roughness in each parameter, which is defined in terms of the four neighbours' parameters.

DeGroot-Hedlin C. and Constable S.C., 1990. Occam's inversion to generate smooth, two-dimensional models from magnetotelluric data. Geophysics, 55, 1613-1624.
Monteiro Santos, F.A., António Mateus, Jorge Figueiras, Mário A. Gonçalves, 2006. Mapping groundwater contamination around a landfill facility using the VLF-EM method – a case study. Journal of Applied Geophysics.
Sasaki Y., 1989. Two-dimensional joint inversion of magnetotelluric and dipole-dipole resistivity data. Geophysics, 54, 254-262

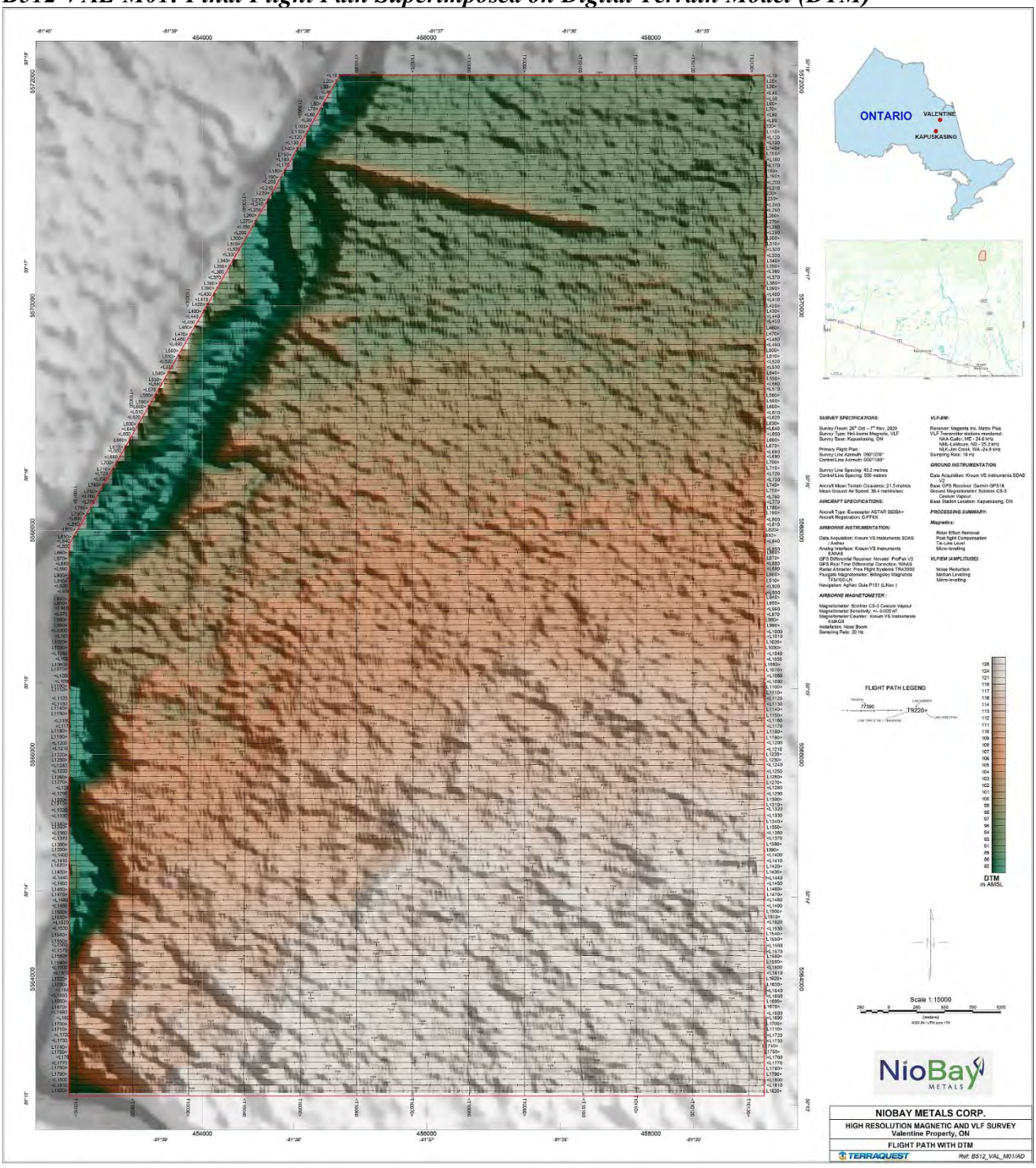
7.4.2 Resistivity Processing

Based on the quality of the Matrix data on this survey and correlation with airborne magnetic, the client requested to have the data inverted to calculate the resistivity. The data from the Jim Creek station was too noisy and was not processed. The final processed Total Field Strength and all recorded parameters were sent to EMTOMO to perform recently developed inversion procedures designed specifically for airborne VLF-EM data. The final Profile Geosoft databases include the modelled and final inversions calculated at 5, 10, 20, 40, 60, 80 and 100 metre depths for Cutler and La Moure and stations as well as for the Tipper values. VLF inversion data were also stored in a Grid format (Resistivity Grid Database) as a series of numerical lattices corresponding to each individual depth inversion which are useful for creating 3D data grids.

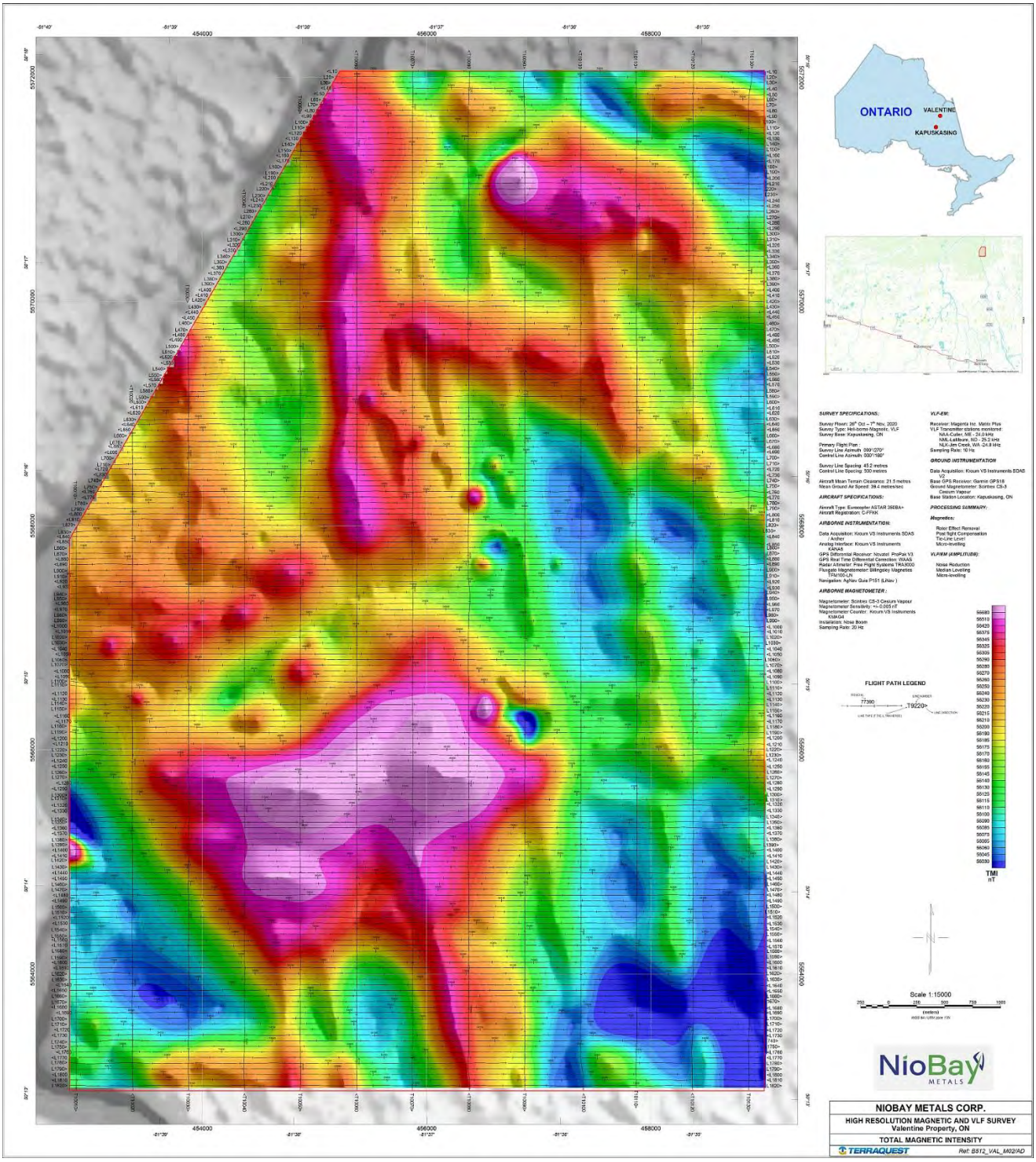
The inversions were final leveled and gridded using 10 metre grid cells by Terraquest Ltd. The depth slices have been stacked as pseudo three-dimensional montages and presented along with map images for each 2D map image. Also, 3D grids in Geosoft VOXEL format of resistivity for each VLF transmitter and Tipper were created and included in the final archive (refer to README file Appendix 9.5); these are best visualized on a computer using 3D rotatable software to select desired parameters and views.

7.5 FINAL MAPS

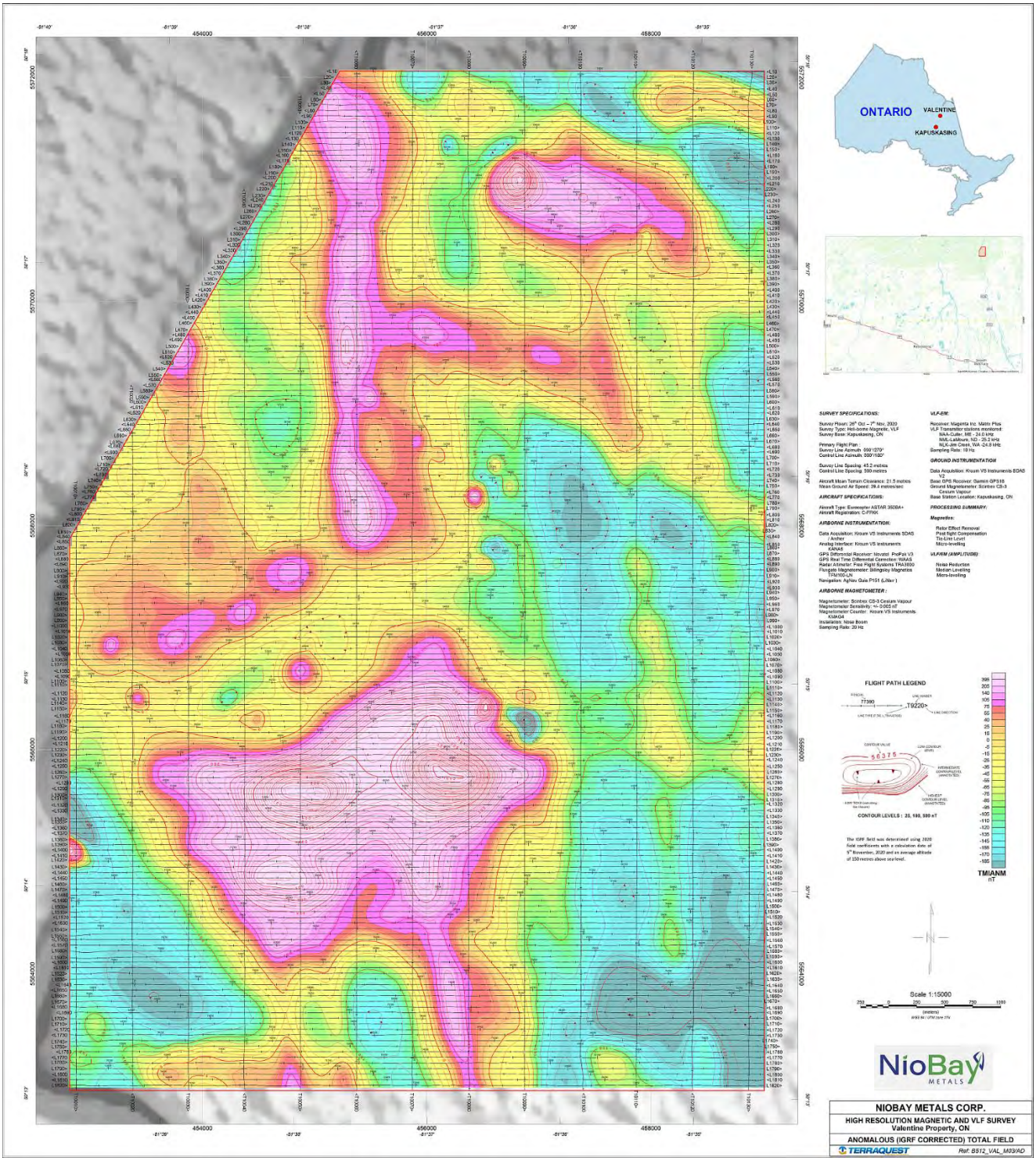
B512-VAL-M01: Final Flight Path Superimposed on Digital Terrain Model (DTM)



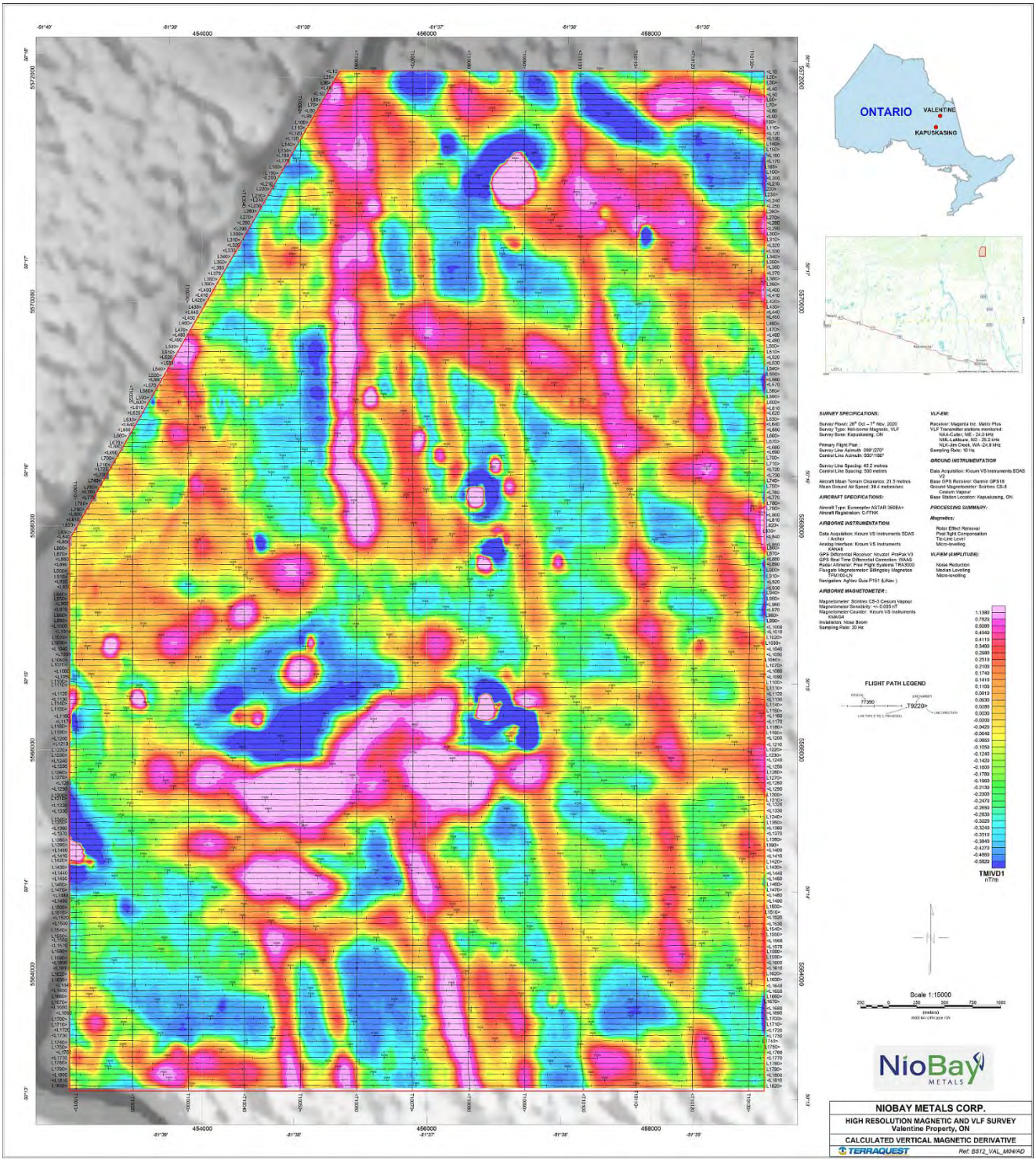
B512-VAL-M02: Total Magnetic Intensity, Colour Shaded Image – TMI (nT)



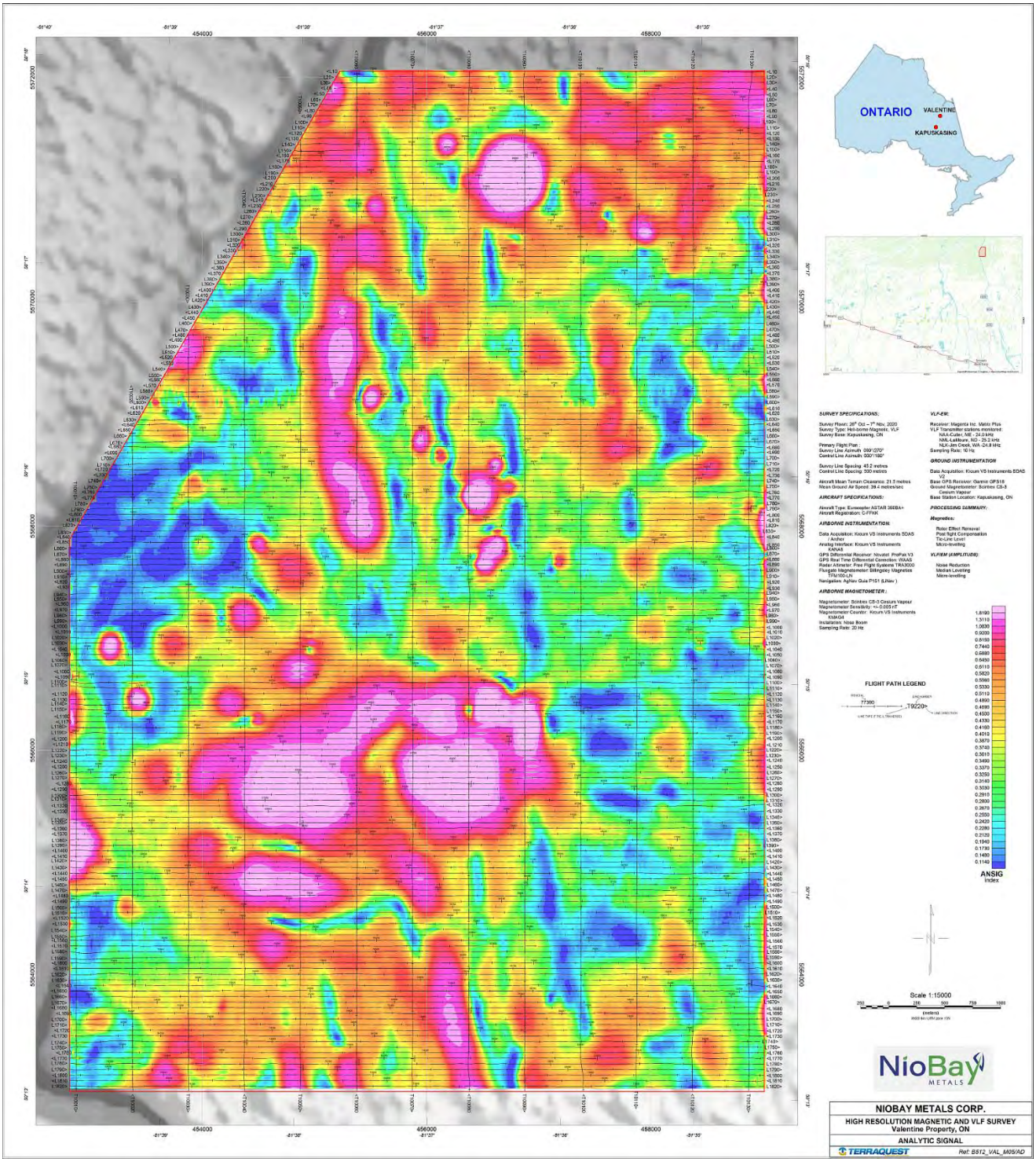
B512-VAL-M03: Anomalous IGRF Corrected Magnetic Field (nT)



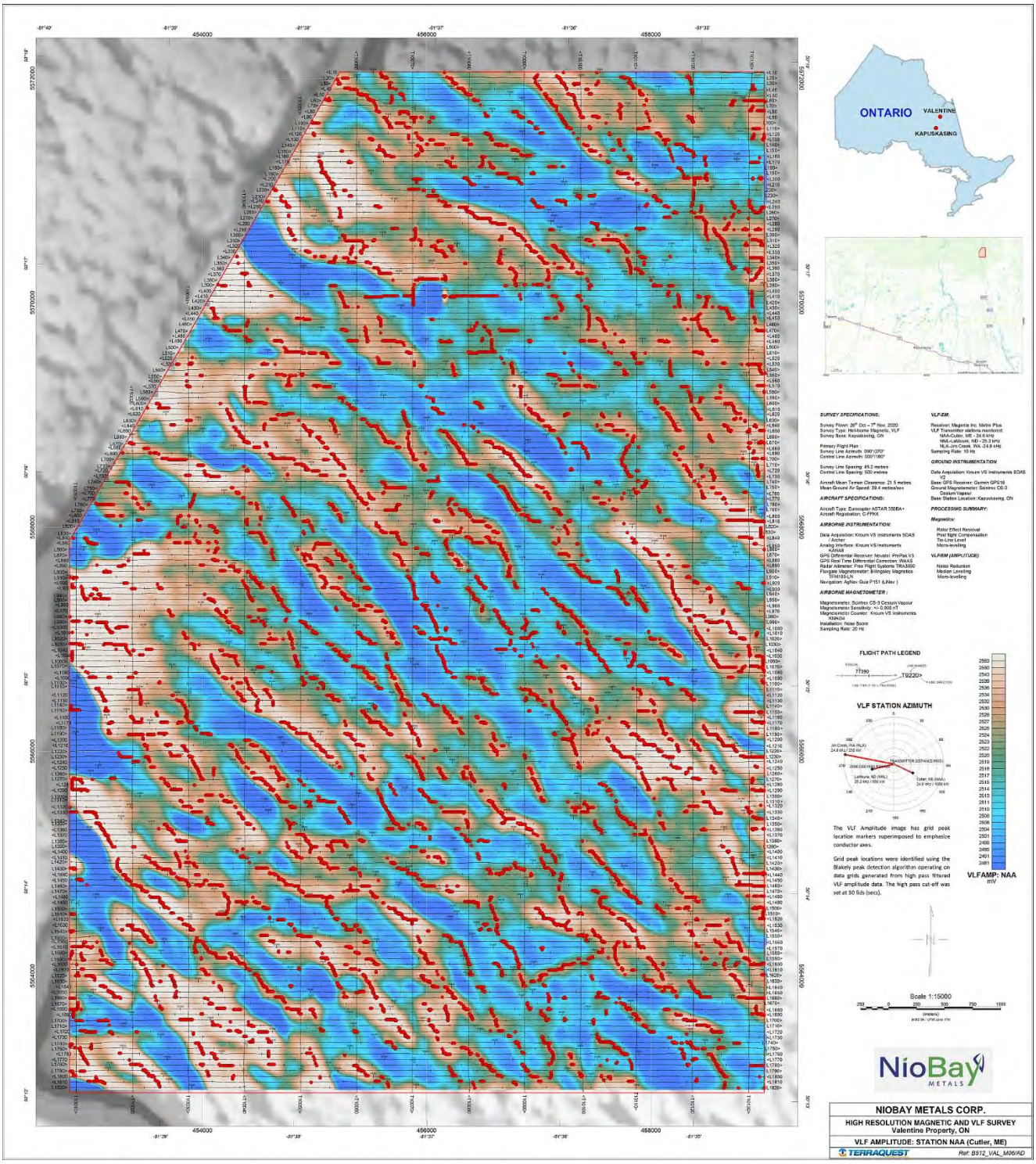
B512-VAL-M04: Calculated Vertical Magnetic Derivative of TMI (nT/m)



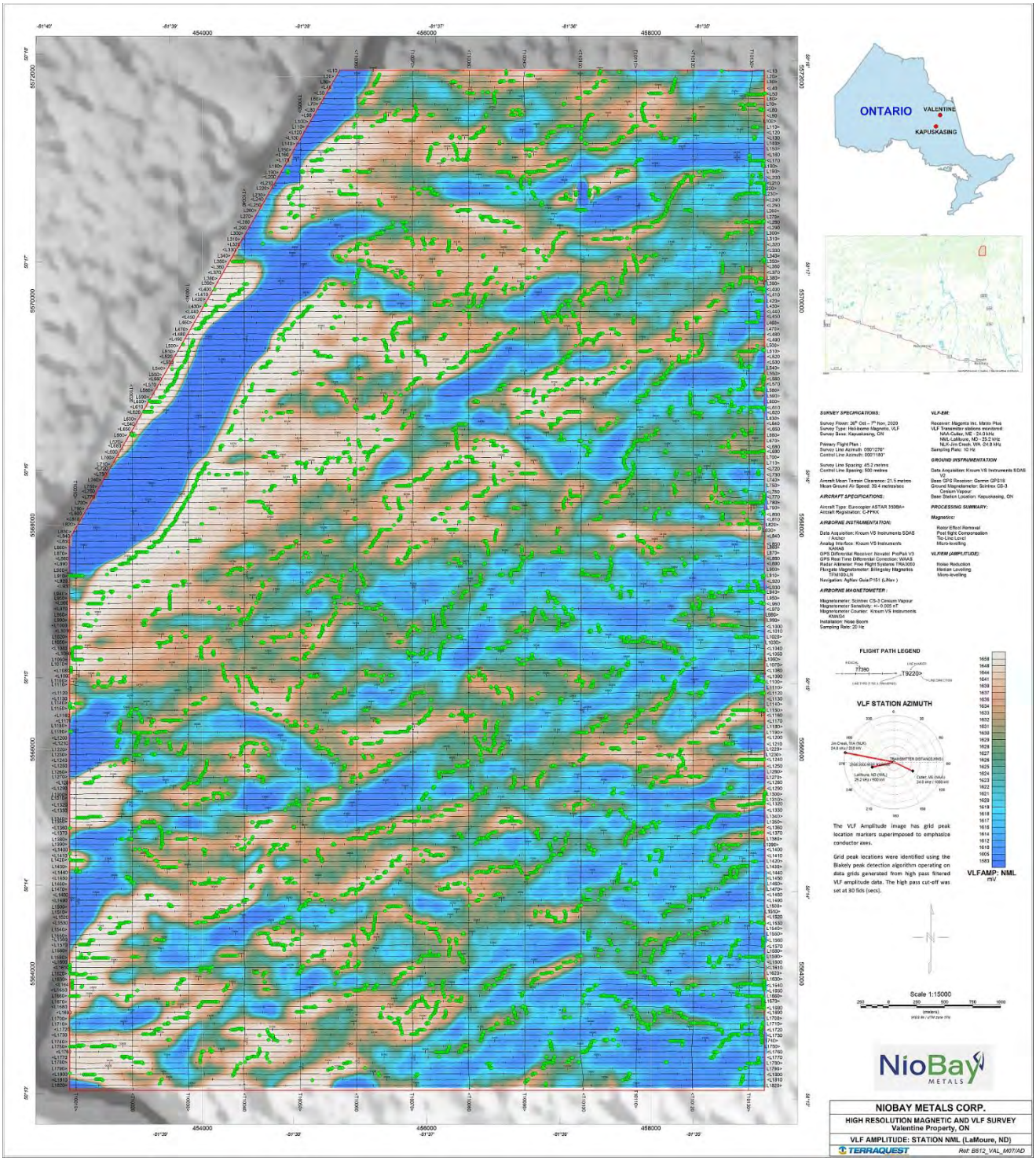
B512-VAL-M05: Calculated Analytic Signal of TMI (ANSIG-index)



B512-VAL-M06: Amplitude &Profile Peaks of Secondary Total Field Strength: NAA, Cutler, ME



B512-VAL-M07: Amplitude &Profile Peaks of Secondary Total Field Strength: NML, LaMoure, ND



To be included in Final Report:

B514-CAR-M08: *Montage of 6 VLF Resistivity Depth Slices - Station NAA (Cutler, ME)*

B514-CAR-M9: *Montage of 6 VLF Resistivity Depth Slices - Station NML (LaMoure, ND)*

7.6 LIST OF FINAL PRODUCTS

Digital and colour glossy hard copies of the following 7 map plots were produced for this survey, plus Low Resolution emailable images for this report (*This is a Preliminary Report, VLF-EM Resistivity will be added to the Final Report*).

Valentine Property (scale 1:15,000)

```
B512_NIOBAY_VAL_M01_FPwDTM.png : Flight Path with DTM grid
B512_NIOBAY_VAL_M02_TMI.png    : Total Magnetic Intensity
B512_NIOBAY_VAL_M03_TMIANM.png : Anomalous (IGRF corrected) Total Field with contours
B512_NIOBAY_VAL_M04_TMIVD1.png : Calculated Vertical Magnetic Derivative
B512_NIOBAY_VAL_M05_ANSIG.png  : Calculated Analytic Signal
B512_NIOBAY_VAL_M06_VLFNAA.png : VLF Amplitude (Total Field) - Station NAA (Cutler, Maine)
B512_NIOBAY_VAL_M07_VLFNML.png : VLF Amplitude (Total Field) - Station NML (LaMoure, North Dakota)
```

The following digital products were produced on a DVD (in back pocket of Report) for the survey Block. There are two zipped directories in the ARCHIVE, one for Magnetics, Total Field VLF-EM, README and Report, *and in the Final Report* a second zipped directory for VLF-EM Resistivity.

Preliminary Report Final Archive Directory: Magnetics and Total Field VLF-EM:

- Database at 20 Hz for Magnetics and VLF-EM Total Field in GEOSOFT GDB format, (compatible with 4.1 or higher)
- Raw VLF-EM data fields in the Archive database include Azimuth, Planar Ellipticity, Vertical Ellipticity, Tilt and Tipper coefficients
- Other VLF-EM data fields in the Archive database include In Phase (from Tilt) and Quadrature (from Vertical Ellipticity)
- 7 Digital grids (Geosoft GRD) and Digital Images (PNG, both LoRes and HiRes) of Magnetics and VLF-EM Total Field Strength
- README files for all databases, grids, map images and report
- Operations Report in PDF format (Archives in back pocket)

Final Archive Directory: VLF-EM Resistivity Modelling:

- 2 2D Databases for VLF-EM Resistivity Modelling (Cutler, LaMoure)
- 2 Resistivity Profile Databases, 2 Grid Databases and 12 data grids (Cutler, LaMoure)
- 2 montage images of 6 depth planes (PNG) (LoRes and HiRes) (Cutler, LaMoure)
- 2 3D Grid Database 6 planes in Geosoft Voxel format (Cutler, LaMoure)
- Other VLF-EM data fields in the Archive database include In Phase (from Tilt) and Quadrature (from Vertical Ellipticity)
- Unprocessed VLF-EM data fields in the Archive database include Azimuth, Planar Ellipticity, Vertical Ellipticity, Tilt and Tipper coefficients

8 SUMMARY

A helicopter borne high sensitivity magnetic and Matrix VLF-EM (including resistivity modelling) survey was performed over the Valentine Block, in the Timmins Mining District of Ontario, located 104 kilometres northeast of Kapuskasing. The surveyed parameters for the Valentine Block are: 50 metres survey line intervals, 500 metres control line intervals, and 21.5 metres mean terrain clearance. With a mean ground speed of 39.4 m/sec the mean GPS positioning, magnetic and VLF-EM data sample points at 20 Hz are at approximately 1.97 metres along the flight lines. The base of operations and magnetic base station was at Kapuskasing.

Preliminary Report: The magnetic and VLF-EM Total Field data were subjected to careful processing to produce the final 20 Hz database, 7 grids and images (HiRes & LoRes) and flight path.

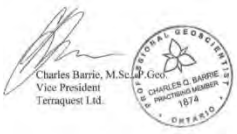
Final Report: Resistivity data include 2 Profile Databases of the Modelled and Final Levelled Inversions (6 planes, 2 stations), 2 Resistivity Grid Databases (6 planes, 2 stations), and 12 Final Resistivity Grids and Images (HiRes & Lo-Res) of 6 depth planes for each Station. For a pseudo-3D representation, the resistivity depth images for each Station have been rendered into stacked Montages and plotted next to 2D resistivity images. All Resistivity depth planes have been gridded in three dimensions to create 2 - 3D resistivity grids in Geosoft voxel format to enable 3D visualization on a computer screen.

The following products are plotted maps on glossy film:

a) **Flight Path** and **Digital Terrain Model**
b) **Magnetics**:
Total Magnetic Intensity - Colour Image and Shaded
Anomalous (IGRF Corrected) Total Magnetic Intensity - Colour Image and Contoured
Calculated Vertical Derivative of TMI - Colour Image
Calculated Analytic Signal
c) **Matrix VLF-EM:**
Total Field Strength and Profile Peaks for Cutler NAA
Total Field Strength and Profile Peaks for LaMoure NML
d) **Matrix VLF-EM Resistivity** (*in Final Report)*
Montage of 6 Resistivity depth slices for Cutler NAA
Montage of 6 Resistivity depth slices for LaMoure NML

All magnetic and VLF-EM databases, readme files, grids, map images and operations report have been archived on DVD contained in the back pocket of a hard copy of this report.

Respectfully Submitted,



9 APPENDICES

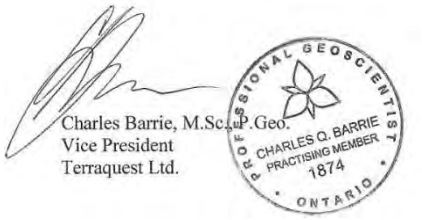
9.1 APPENDIX I - CERTIFICATE OF QUALIFICATION

I, Charles Barrie, certify that I:

1) am registered as a Fellow with the Geological Association of Canada, as P. Geo. with the Association of Professional Geoscientists of Ontario and work professionally as a geologist,
2) hold an Honours degree in Geology from McMaster University, Canada, obtained in 1977,
3) hold an M.Sc. in Geology from Dalhousie University, Canada, obtained in 1980,
4) am a member of the Prospectors and Developers Association of Canada,
5) am a member of the Canadian Institute of Mining, Metallurgy and Petroleum,
6) have worked as a geologist for over forty years,
7) am employed by and am an owner of Terraquest Ltd., specializing in high sensitivity airborne geophysical surveys, and
8) have prepared this operations and specifications report pertaining to airborne data collected by Terraquest Ltd.

Markham, Canada

Signed



Charles Barrie, M.Sc., P.Geo.
Vice President
Terraquest Ltd.

9.2 APPENDIX II – OPERATIONS SUMMARIES

TERRAQUEST

PROJECT REF B512 /NIOBAY METALS RESOURCES CORP. /Niobium/Valentine Properties: AUTUMN, 2020

CURRENT STATUS:	18-Nov-20	C-FFKK						
	TOTAL DAYS	INSTALL/ SET-UP	HIATUS	OPS DAYS	LKM/DAY	COMPL (%)	TOTAL FLT TIME	TOTAL PRD TIME
	24	4		20	185.2	100.00%	45:16:00	24:57:27

OVERALL PRODUCTION SUMMARY:

	PLAN		FLOWN			
	NLIN	LKMS	NLIN	LKMS	REMAIN	COMPL (%)
TOTAL	514	3704.5	514	3704.5	0.0	100.00%
LINE	483	3359.4	483	3359.4	0.0	100.00%
TIE	31	345.1	31	345.1		100.00%
BORDER						

SURVEY STATS		
	DAY	PROJECT
FLIGHT HOURS	3:02:00	45:16:00
SURVEY HOURS	2:12:03	24:57:27
LKMS ACCEPT	325.57	3704.49
LKMS REJECT		
LKMS % TOTAL	8.79%	100.00%

SUMMARY BY BLOCK:

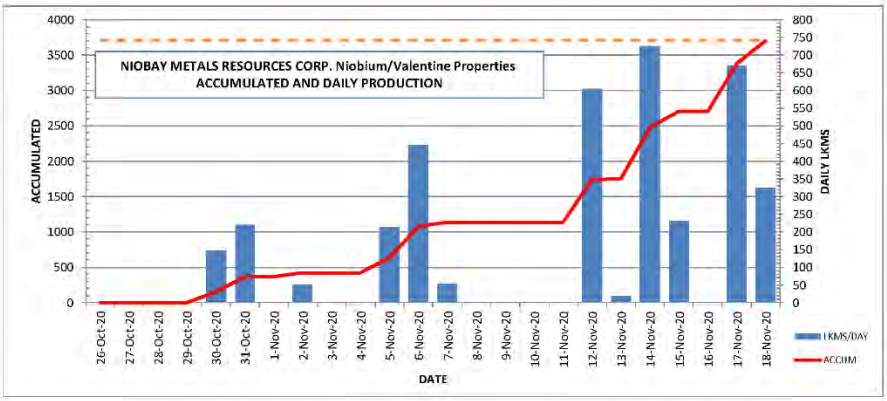
NAME	CODE	PLAN		FLOWN		COMPL (%)
		NLIN	LKMS	NLIN	LKMS	
Valentine	VAL	195	1132.64	195	1132.64	100.00%
James Bay Niobium	NIO	319	2571.85	319	2571.85	100.00%

COMMENTS

FKK051 - acquisition complete; await de-mob instruction in pm

C-FFKK

DAY CLASS SUMMARY	
CALIBRATION	2.0
EQUIPMENT	
INSTALL	
MAINT (SCHED)	
MAINT (UNSCHED)	
MOB/DEMOB	2.5
SETUP	2.5
SURVEY	7.5
TESTING	
STANDBY/WX	8.5
STANDBY/DIURNAL	
STANDBY/TQ	1.0
STANDBY/CLIENT	
STANDBY/RESTRICT	
TRAINING	
TOTAL	24.0



DAILY LOG

AC	DATE	COUNT	CLASS_AM	CLASS_PM	LKMS	ACCUM	COMMENT
C-FFKK	26-Oct-20	1	MOB/DEMOB	MOB/DEMOB			Alexis Desbois, Helicopter arrive site
C-FFKK	27-Oct-20	2	CALIBRATION	SETUP			David Salvatori (relief operator) arrives site; FOM attempt (FKK029:failed -sensor frozen); base station deployment continues
C-FFKK	28-Oct-20	3	SETUP	SETUP			Base Station refinements; TF2 Sensor testing etc
C-FFKK	29-Oct-20	4	CALIBRATION	CALIBRATION			FOM attempt #2 (FKK030: failed - aircraft Strobe + Position Lights left on by mistake)
C-FFKK	30-Oct-20	5	CALIBRATION	SURVEY	148.73	148.7	FOM attempt #3 (FKK031: successful); first production flight (FKK032)
C-FFKK	31-Oct-20	6	SURVEY	STANDBY/WX	219.76	368.5	Production flight in AM (FKK033); strong winds in afternoon prevent second flight
C-FFKK	1-Nov-20	7	STANDBY/WX	STANDBY/WX		368.5	Snow, low clouds, visibility below minimums.
C-FFKK	2-Nov-20	8	SURVEY	STANDBY/WX	51.73	420.2	WX in AM; FLKK034 in PM - flight cut short due to conditions
C-FFKK	3-Nov-20	9	STANDBY/WX	STANDBY/WX		420.2	Low celings/visibility/icing conditions: no flights
C-FFKK	4-Nov-20	10	STANDBY/WX	STANDBY/WX		420.2	Attempted production flight (FKK035): abort due to conditions
C-FFKK	5-Nov-20	11	SURVEY	STANDBY/WX	212.52	632.7	FKK036; attempt second flight (FKK037) but conditions below minimum at block (abort flight)
C-FFKK	6-Nov-20	12	SURVEY	SURVEY	445.97	1078.7	FKK038; FKK039
C-FFKK	7-Nov-20	13	SURVEY	STANDBY/TQ	53.93	1132.6	FKK040; acquisition complete on VALENTINE Block

FLIGHT LIST -Valentine Block

FLT

TERRAQUEST

AC	FLIGHT	DATE	TYPE	TIME UP	TIME DOWN	FLIGHT TIME	FROM	TO	CREW	PROD TIME	LKMS
C-FFKK	29	27-Oct-20	CAL	19:13:00	20:17:00	1:04:00	CYYU	CYYU	Dumont,Salvatori		
C-FFKK	30	29-Oct-20	CAL	15:37:00	16:20:00	0:43:00	CYYU	CYYU	Strobach,Salvatori		
C-FFKK	31	30-Oct-20	CAL	16:10:00	16:56:00	0:46:00	CYYU	CYYU	Strobach,Salvatori		
C-FFKK	32	30-Oct-20	SURVEY	19:56:00	22:21:00	2:25:00	CYYU	CYYU	Strobach,Salvatori	1:05:59	148.73
C-FFKK	33	31-Oct-20	SURVEY	12:42:00	15:42:00	3:00:00	CYYU	CYYU	Strobach,Salvatori	1:36:11	219.76
C-FFKK	34	2-Nov-20	SURVEY	16:53:00	18:44:00	1:51:00	CYYU	CYYU	Strobach,Salvatori	0:22:03	51.73
C-FFKK	35	4-Nov-20	SURVEY	13:30:00	13:34:00	0:04:00	CYYU	CYYU	Strobach,Salvatori		
C-FFKK	36	5-Nov-20	SURVEY	13:30:00	16:23:00	2:53:00	CYYU	CYYU	Strobach,Salvatori	1:30:45	212.52
C-FFKK	37	5-Nov-20	SURVEY	17:57:00	18:30:00	0:33:00	CYYU	CYYU	Strobach,Salvatori		
C-FFKK	38	6-Nov-20	SURVEY	13:29:00	16:38:00	3:09:00	CYYU	CYYU	Strobach,Salvatori	1:43:38	254.42
C-FFKK	39	6-Nov-20	SURVEY	18:03:00	20:44:00	2:41:00	CYYU	CYYU	Strobach,Salvatori	1:17:38	191.55
C-FFKK	40	7-Nov-20	SURVEY	13:51:00	15:32:00	1:41:00	CYYU	CYYU	Strobach,Salvatori	0:21:47	53.93

LINE LIST *– Valentine Block, Helicopter ASTAR 350B2 Registration C-FFKK*

AC	BLK	LTYP	DATE	FLIGHT	FLINE	UTC_START	UTC_END	ACCEPT	IGNORE	REJECT	STATUS	PROD TIME
C-FFKK	VAL	LINE	6-Nov-20	39	10	19:34:20	19:35:57	3.8			FULL	0:01:37
C-FFKK	VAL	LINE	5-Nov-20	36	20	14:43:15	14:44:50	3.8			FULL	0:01:35
C-FFKK	VAL	LINE	6-Nov-20	39	30	19:32:38	19:34:07	3.8			FULL	0:01:28
C-FFKK	VAL	LINE	5-Nov-20	36	40	14:41:11	14:42:57	3.9			FULL	0:01:46
C-FFKK	VAL	LINE	6-Nov-20	39	50	19:30:42	19:32:19	3.9			FULL	0:01:37
C-FFKK	VAL	LINE	5-Nov-20	36	60	14:39:18	14:40:55	3.9			FULL	0:01:37
C-FFKK	VAL	LINE	6-Nov-20	39	70	19:28:56	19:30:28	4.0			FULL	0:01:32
C-FFKK	VAL	LINE	5-Nov-20	36	80	14:37:13	14:38:59	4.0			FULL	0:01:46
C-FFKK	VAL	LINE	6-Nov-20	39	90	19:26:52	19:28:37	4.0			FULL	0:01:45
C-FFKK	VAL	LINE	5-Nov-20	36	100	14:35:18	14:36:56	4.0			FULL	0:01:38
C-FFKK	VAL	LINE	6-Nov-20	39	110	19:25:02	19:26:37	4.1			FULL	0:01:35
C-FFKK	VAL	LINE	5-Nov-20	36	120	14:33:13	14:35:00	4.1			FULL	0:01:46
C-FFKK	VAL	LINE	6-Nov-20	39	130	19:23:03	19:24:44	4.1			FULL	0:01:41
C-FFKK	VAL	LINE	5-Nov-20	36	140	14:31:15	14:32:57	4.2			FULL	0:01:42
C-FFKK	VAL	LINE	6-Nov-20	39	150	19:21:08	19:22:47	4.2			FULL	0:01:38
C-FFKK	VAL	LINE	5-Nov-20	36	160	14:29:02	14:30:57	4.2			FULL	0:01:55
C-FFKK	VAL	LINE	6-Nov-20	39	170	19:19:03	19:20:51	4.3			FULL	0:01:48
C-FFKK	VAL	LINE	5-Nov-20	36	180	14:26:55	14:28:44	4.3			FULL	0:01:49
C-FFKK	VAL	LINE	6-Nov-20	39	190	19:17:12	19:18:50	4.3			FULL	0:01:38
C-FFKK	VAL	LINE	5-Nov-20	36	200	14:24:38	14:26:38	4.3			FULL	0:02:00
C-FFKK	VAL	LINE	6-Nov-20	39	210	19:15:03	19:16:52	4.4			FULL	0:01:49
C-FFKK	VAL	LINE	5-Nov-20	36	220	14:22:30	14:24:21	4.4			FULL	0:01:51
C-FFKK	VAL	LINE	6-Nov-20	39	230	19:13:07	19:14:49	4.4			FULL	0:01:42
C-FFKK	VAL	LINE	5-Nov-20	36	240	14:20:13	14:22:09	4.5			FULL	0:01:56
C-FFKK	VAL	LINE	6-Nov-20	39	250	19:10:59	19:12:49	4.5			FULL	0:01:50
C-FFKK	VAL	LINE	5-Nov-20	36	260	14:18:07	14:19:57	4.5			FULL	0:01:50
C-FFKK	VAL	LINE	6-Nov-20	39	270	19:08:58	19:10:43	4.5			FULL	0:01:46
C-FFKK	VAL	LINE	5-Nov-20	36	280	14:15:50	14:17:48	4.6			FULL	0:01:58

LINE LIST *– Helicopter ASTAR 350B2 Registration C-FFKK …….continued*

AC	BLK	LTYP	DATE	FLIGHT	FLINE	UTC_START	UTC_END	ACCEPT	IGNORE	REJECT	STATUS	PROD TIME
C-FFKK	VAL	LINE	6-Nov-20	39	290	19:06:43	19:08:40	4.6			FULL	0:01:56
C-FFKK	VAL	LINE	5-Nov-20	36	300	14:13:40	14:15:33	4.6			FULL	0:01:54
C-FFKK	VAL	LINE	6-Nov-20	39	310	19:04:40	19:06:27	4.7			FULL	0:01:47
C-FFKK	VAL	LINE	5-Nov-20	36	320	14:11:14	14:13:20	4.7			FULL	0:02:06
C-FFKK	VAL	LINE	6-Nov-20	39	330	19:02:15	19:04:23	4.7			FULL	0:02:08
C-FFKK	VAL	LINE	5-Nov-20	36	340	14:08:55	14:10:59	4.7			FULL	0:02:04
C-FFKK	VAL	LINE	6-Nov-20	39	350	19:00:07	19:02:01	4.8			FULL	0:01:54
C-FFKK	VAL	LINE	5-Nov-20	36	360	14:06:32	14:08:37	4.8			FULL	0:02:05
C-FFKK	VAL	LINE	6-Nov-20	39	370	18:57:46	18:59:48	4.8			FULL	0:02:02
C-FFKK	VAL	LINE	5-Nov-20	36	380	14:04:17	14:06:14	4.9			FULL	0:01:56
C-FFKK	VAL	LINE	6-Nov-20	39	390	18:55:37	18:57:30	4.9			FULL	0:01:53
C-FFKK	VAL	LINE	2-Nov-20	34	400	17:56:10	17:58:32	4.9			FULL	0:02:22
C-FFKK	VAL	LINE	6-Nov-20	39	410	18:53:17	18:55:20	4.9			FULL	0:02:03
C-FFKK	VAL	LINE	2-Nov-20	34	420	17:53:29	17:55:35	5.0			FULL	0:02:07
C-FFKK	VAL	LINE	6-Nov-20	39	430	18:51:01	18:52:57	5.0			FULL	0:01:56
C-FFKK	VAL	LINE	2-Nov-20	34	440	17:50:49	17:53:05	5.0			FULL	0:02:16
C-FFKK	VAL	LINE	6-Nov-20	39	450	18:48:34	18:50:42	5.1			FULL	0:02:08
C-FFKK	VAL	LINE	2-Nov-20	34	460	17:42:45	17:44:49	5.1			FULL	0:02:03
C-FFKK	VAL	LINE	6-Nov-20	39	470	18:46:13	18:48:14	5.1			FULL	0:02:01
C-FFKK	VAL	LINE	2-Nov-20	34	480	17:40:00	17:42:21	5.1			FULL	0:02:21
C-FFKK	VAL	LINE	6-Nov-20	39	490	18:43:40	18:45:56	5.2			FULL	0:02:15
C-FFKK	VAL	LINE	2-Nov-20	34	500	17:37:35	17:39:40	5.2			FULL	0:02:05
C-FFKK	VAL	LINE	6-Nov-20	39	510	18:41:21	18:43:23	5.2			FULL	0:02:02
C-FFKK	VAL	LINE	2-Nov-20	34	520	17:34:57	17:37:15	5.3			FULL	0:02:18
C-FFKK	VAL	LINE	6-Nov-20	39	530	18:38:43	18:41:00	5.3			FULL	0:02:18
C-FFKK	VAL	LINE	2-Nov-20	34	540	17:32:32	17:34:39	5.3			FULL	0:02:07
C-FFKK	VAL	LINE	6-Nov-20	39	550	18:36:11	18:38:24	5.3			FULL	0:02:12
C-FFKK	VAL	LINE	2-Nov-20	34	560	17:30:01	17:32:15	5.4			FULL	0:02:14
C-FFKK	VAL	LINE	6-Nov-20	38	570	15:55:02	15:57:21	5.4			FULL	0:02:18
C-FFKK	VAL	LINE	2-Nov-20	34	580	17:27:31	17:29:42	5.4			FULL	0:02:11
C-FFKK	VAL	LINE	6-Nov-20	38	590	15:52:30	15:54:45	5.5			FULL	0:02:15
C-FFKK	VAL	LINE	7-Nov-20	40	600	14:29:13	14:31:29	5.5			FULL	0:02:16
C-FFKK	VAL	LINE	6-Nov-20	38	610	15:49:51	15:52:10	5.5			FULL	0:02:19
C-FFKK	VAL	LINE	7-Nov-20	40	620	14:32:03	14:34:15	5.5			FULL	0:02:12
C-FFKK	VAL	LINE	6-Nov-20	38	630	15:47:16	15:49:33	5.6			FULL	0:02:17
C-FFKK	VAL	LINE	31-Oct-20	33	640	14:59:37	15:02:13	5.6			FULL	0:02:36
C-FFKK	VAL	LINE	6-Nov-20	38	650	15:44:31	15:46:56	5.6			FULL	0:02:25
C-FFKK	VAL	LINE	31-Oct-20	33	660	14:56:39	14:59:14	5.7			FULL	0:02:35
C-FFKK	VAL	LINE	6-Nov-20	38	670	15:41:52	15:44:12	5.7			FULL	0:02:20
C-FFKK	VAL	LINE	31-Oct-20	33	680	14:53:46	14:56:15	5.7			FULL	0:02:29
C-FFKK	VAL	LINE	6-Nov-20	38	690	15:39:04	15:41:32	5.7			FULL	0:02:27
C-FFKK	VAL	LINE	31-Oct-20	33	700	14:50:14	14:52:46	5.8			FULL	0:02:32
C-FFKK	VAL	LINE	6-Nov-20	38	710	15:35:57	15:38:22	5.8			FULL	0:02:25
C-FFKK	VAL	LINE	31-Oct-20	33	720	14:47:15	14:49:52	5.8			FULL	0:02:37
C-FFKK	VAL	LINE	6-Nov-20	38	730	15:33:16	15:35:36	5.9			FULL	0:02:20
C-FFKK	VAL	LINE	31-Oct-20	33	740	14:44:14	14:46:56	5.9			FULL	0:02:42
C-FFKK	VAL	LINE	6-Nov-20	38	750	15:30:39	15:33:01	5.9			FULL	0:02:22
C-FFKK	VAL	LINE	31-Oct-20	33	760	14:41:05	14:43:51	6.0			FULL	0:02:46
C-FFKK	VAL	LINE	6-Nov-20	38	770	15:27:48	15:30:18	6.0			FULL	0:02:30
C-FFKK	VAL	LINE	31-Oct-20	33	780	14:38:05	14:40:48	6.0			FULL	0:02:43
C-FFKK	VAL	LINE	6-Nov-20	38	790	15:25:12	15:27:32	6.0			FULL	0:02:20
C-FFKK	VAL	LINE	31-Oct-20	33	800	14:34:59	14:37:41	6.1			FULL	0:02:42
C-FFKK	VAL	LINE	6-Nov-20	38	810	15:22:15	15:24:54	6.1			FULL	0:02:39
C-FFKK	VAL	LINE	31-Oct-20	33	820	14:32:07	14:34:40	6.1			FULL	0:02:33
C-FFKK	VAL	LINE	6-Nov-20	38	830	15:19:05	15:21:33	6.2			FULL	0:02:28
C-FFKK	VAL	LINE	31-Oct-20	33	840	14:27:55	14:30:40	6.2			FULL	0:02:45
C-FFKK	VAL	LINE	6-Nov-20	38	850	15:16:13	15:18:46	6.2			FULL	0:02:33
C-FFKK	VAL	LINE	31-Oct-20	33	860	14:24:57	14:27:37	6.2			FULL	0:02:40
C-FFKK	VAL	LINE	6-Nov-20	38	870	15:13:28	15:15:56	6.2			FULL	0:02:28
C-FFKK	VAL	LINE	31-Oct-20	33	880	14:21:29	14:24:23	6.2			FULL	0:02:54
C-FFKK	VAL	LINE	6-Nov-20	38	890	15:10:35	15:13:05	6.2			FULL	0:02:29
C-FFKK	VAL	LINE	31-Oct-20	33	900	14:18:31	14:21:11	6.2			FULL	0:02:40
C-FFKK	VAL	LINE	6-Nov-20	38	910	15:07:30	15:10:00	6.2			FULL	0:02:30
C-FFKK	VAL	LINE	31-Oct-20	33	920	14:15:33	14:18:11	6.2			FULL	0:02:38
C-FFKK	VAL	LINE	6-Nov-20	38	930	15:04:34	15:07:06	6.2			FULL	0:02:32
C-FFKK	VAL	LINE	31-Oct-20	33	940	14:12:32	14:15:14	6.2			FULL	0:02:42
C-FFKK	VAL	LINE	6-Nov-20	38	950	15:01:52	15:04:19	6.2			FULL	0:02:27
C-FFKK	VAL	LINE	31-Oct-20	33	960	14:09:33	14:12:08	6.2			FULL	0:02:35
C-FFKK	VAL	LINE	6-Nov-20	38	970	14:58:49	15:01:27	6.2			FULL	0:02:38
C-FFKK	VAL	LINE	31-Oct-20	33	980	14:06:33	14:09:16	6.2			FULL	0:02:43

LINE LIST *– Helicopter ASTAR 350B2 Registration C-FFKK …….continued*

AC	BLK	LTYP	DATE	FLIGHT	FLINE	UTC_START	UTC_END	ACCEPT	IGNORE	REJECT	STATUS	PROD TIME
C-FFKK	VAL	LINE	6-Nov-20	38	990	14:55:58	14:58:32	6.2			FULL	0:02:34
C-FFKK	VAL	LINE	31-Oct-20	33	1000	14:03:22	14:06:07	6.2			FULL	0:02:45
C-FFKK	VAL	LINE	6-Nov-20	38	1010	14:53:01	14:55:34	6.2			FULL	0:02:33
C-FFKK	VAL	LINE	31-Oct-20	33	1020	14:00:28	14:03:05	6.2			FULL	0:02:38
C-FFKK	VAL	LINE	6-Nov-20	38	1030	14:50:17	14:52:43	6.2			FULL	0:02:26
C-FFKK	VAL	LINE	31-Oct-20	33	1040	13:57:28	14:00:04	6.2			FULL	0:02:36
C-FFKK	VAL	LINE	6-Nov-20	38	1050	14:47:22	14:49:52	6.2			FULL	0:02:30
C-FFKK	VAL	LINE	31-Oct-20	33	1060	13:54:26	13:57:11	6.2			FULL	0:02:45
C-FFKK	VAL	LINE	6-Nov-20	38	1070	14:44:38	14:47:07	6.2			FULL	0:02:29
C-FFKK	VAL	LINE	31-Oct-20	33	1080	13:51:22	13:54:00	6.2			FULL	0:02:38
C-FFKK	VAL	LINE	6-Nov-20	38	1090	14:41:40	14:44:14	6.2			FULL	0:02:34
C-FFKK	VAL	LINE	31-Oct-20	33	1100	13:48:19	13:51:07	6.2			FULL	0:02:48
C-FFKK	VAL	LINE	6-Nov-20	38	1110	14:38:54	14:41:22	6.2			FULL	0:02:28
C-FFKK	VAL	LINE	31-Oct-20	33	1120	13:45:12	13:47:55	6.2			FULL	0:02:43
C-FFKK	VAL	LINE	6-Nov-20	38	1130	14:35:56	14:38:33	6.2			FULL	0:02:37
C-FFKK	VAL	LINE	31-Oct-20	33	1140	13:42:11	13:44:56	6.2			FULL	0:02:45
C-FFKK	VAL	LINE	6-Nov-20	38	1150	14:33:07	14:35:38	6.2			FULL	0:02:31
C-FFKK	VAL	LINE	31-Oct-20	33	1160	13:39:09	13:41:48	6.2			FULL	0:02:39
C-FFKK	VAL	LINE	6-Nov-20	38	1170	14:30:13	14:32:47	6.2			FULL	0:02:34
C-FFKK	VAL	LINE	31-Oct-20	33	1180	13:36:06	13:38:51	6.2			FULL	0:02:45
C-FFKK	VAL	LINE	6-Nov-20	38	1190	14:27:28	14:29:55	6.2			FULL	0:02:26
C-FFKK	VAL	LINE	31-Oct-20	33	1200	13:33:11	13:35:47	6.2			FULL	0:02:37
C-FFKK	VAL	LINE	6-Nov-20	38	1210	14:24:03	14:26:37	6.2			FULL	0:02:34
C-FFKK	VAL	LINE	31-Oct-20	33	1220	13:30:06	13:32:55	6.2			FULL	0:02:48
C-FFKK	VAL	LINE	6-Nov-20	38	1230	14:21:16	14:23:47	6.2			FULL	0:02:31
C-FFKK	VAL	LINE	31-Oct-20	33	1240	13:27:07	13:29:47	6.2			FULL	0:02:40
C-FFKK	VAL	LINE	6-Nov-20	38	1250	14:18:28	14:20:56	6.2			FULL	0:02:28
C-FFKK	VAL	LINE	31-Oct-20	33	1260	13:24:04	13:26:49	6.2			FULL	0:02:45
C-FFKK	VAL	LINE	6-Nov-20	38	1270	14:15:41	14:18:12	6.2			FULL	0:02:31
C-FFKK	VAL	LINE	31-Oct-20	33	1280	13:21:01	13:23:41	6.2			FULL	0:02:40
C-FFKK	VAL	LINE	6-Nov-20	38	1290	14:12:51	14:15:22	6.2			FULL	0:02:32
C-FFKK	VAL	LINE	31-Oct-20	33	1300	13:18:03	13:20:42	6.2			FULL	0:02:39
C-FFKK	VAL	LINE	6-Nov-20	38	1310	14:10:09	14:12:35	6.2			FULL	0:02:26
C-FFKK	VAL	LINE	31-Oct-20	33	1320	13:15:07	13:17:44	6.2			FULL	0:02:36
C-FFKK	VAL	LINE	6-Nov-20	38	1330	14:07:25	14:09:51	6.2			FULL	0:02:26
C-FFKK	VAL	LINE	31-Oct-20	33	1340	13:12:19	13:14:51	6.2			FULL	0:02:32
C-FFKK	VAL	LINE	6-Nov-20	38	1350	14:04:42	14:07:09	6.2			FULL	0:02:27
C-FFKK	VAL	LINE	30-Oct-20	32	1360	21:38:58	21:41:45	6.2			FULL	0:02:46
C-FFKK	VAL	LINE	6-Nov-20	38	1370	14:01:54	14:04:23	6.2			FULL	0:02:29
C-FFKK	VAL	LINE	30-Oct-20	32	1380	21:35:58	21:38:40	6.2			FULL	0:02:42
C-FFKK	VAL	LINE	6-Nov-20	38	1390	13:59:11	14:01:39	6.2			FULL	0:02:28
C-FFKK	VAL	LINE	30-Oct-20	32	1400	21:32:54	21:35:39	6.2			FULL	0:02:44
C-FFKK	VAL	LINE	5-Nov-20	36	1410	15:46:37	15:49:28	6.2			FULL	0:02:51
C-FFKK	VAL	LINE	30-Oct-20	32	1420	21:29:50	21:32:35	6.2			FULL	0:02:46
C-FFKK	VAL	LINE	5-Nov-20	36	1430	15:43:44	15:46:20	6.2			FULL	0:02:35
C-FFKK	VAL	LINE	30-Oct-20	32	1440	21:26:44	21:29:34	6.2			FULL	0:02:50
C-FFKK	VAL	LINE	5-Nov-20	36	1450	15:40:38	15:43:31	6.2			FULL	0:02:53
C-FFKK	VAL	LINE	30-Oct-20	32	1460	21:23:41	21:26:26	6.2			FULL	0:02:45
C-FFKK	VAL	LINE	5-Nov-20	36	1470	15:37:48	15:40:20	6.2			FULL	0:02:31
C-FFKK	VAL	LINE	30-Oct-20	32	1480	21:20:40	21:23:26	6.2			FULL	0:02:46
C-FFKK	VAL	LINE	5-Nov-20	36	1490	15:34:43	15:37:30	6.2			FULL	0:02:47
C-FFKK	VAL	LINE	30-Oct-20	32	1500	21:17:39	21:20:22	6.2			FULL	0:02:43
C-FFKK	VAL	LINE	5-Nov-20	36	1510	15:31:57	15:34:25	6.2			FULL	0:02:28
C-FFKK	VAL	LINE	30-Oct-20	32	1520	21:14:33	21:17:21	6.2			FULL	0:02:48
C-FFKK	VAL	LINE	5-Nov-20	36	1530	15:28:49	15:31:37	6.2			FULL	0:02:48
C-FFKK	VAL	LINE	30-Oct-20	32	1540	21:11:33	21:14:14	6.2			FULL	0:02:41
C-FFKK	VAL	LINE	5-Nov-20	36	1550	15:26:05	15:28:33	6.2			FULL	0:02:28
C-FFKK	VAL	LINE	30-Oct-20	32	1560	21:08:25	21:11:13	6.2			FULL	0:02:47
C-FFKK	VAL	LINE	5-Nov-20	36	1570	15:23:03	15:25:47	6.2			FULL	0:02:44
C-FFKK	VAL	LINE	30-Oct-20	32	1580	21:05:27	21:08:09	6.2			FULL	0:02:41
C-FFKK	VAL	LINE	5-Nov-20	36	1590	15:20:14	15:22:49	6.2			FULL	0:02:35
C-FFKK	VAL	LINE	30-Oct-20	32	1600	21:02:22	21:05:11	6.2			FULL	0:02:49
C-FFKK	VAL	LINE	5-Nov-20	36	1610	15:17:20	15:19:59	6.2			FULL	0:02:39
C-FFKK	VAL	LINE	30-Oct-20	32	1620	20:59:14	21:02:03	6.2			FULL	0:02:49
C-FFKK	VAL	LINE	5-Nov-20	36	1630	15:14:31	15:17:06	6.2			FULL	0:02:35
C-FFKK	VAL	LINE	30-Oct-20	32	1640	20:56:15	20:58:57	6.2			FULL	0:02:42
C-FFKK	VAL	LINE	5-Nov-20	36	1650	15:11:32	15:14:15	6.2			FULL	0:02:43
C-FFKK	VAL	LINE	30-Oct-20	32	1660	20:53:15	20:55:58	6.2			FULL	0:02:42
C-FFKK	VAL	LINE	5-Nov-20	36	1670	15:08:51	15:11:19	6.2			FULL	0:02:28
C-FFKK	VAL	LINE	30-Oct-20	32	1680	20:50:01	20:52:57	6.2			FULL	0:02:56

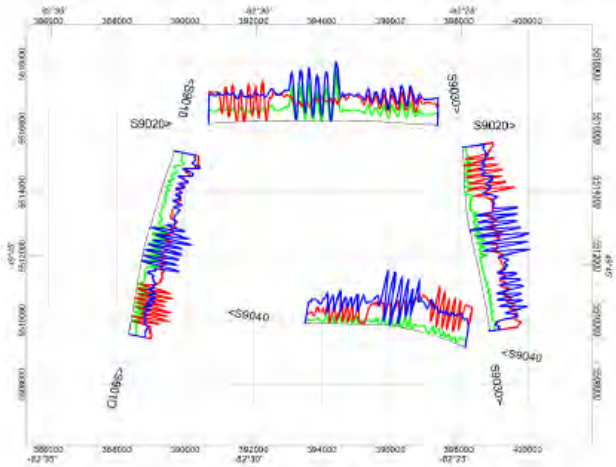
***LINE LIST** – Helicopter ASTAR 350B2 Registration C-FFKK …….end*

AC	BLK	LTYP	DATE	FLIGHT	FLINE	UTC_START	UTC_END	ACCEPT	IGNORE	REJECT	STATUS	PROD TIME
C-FFKK	VAL	LINE	5-Nov-20	36	1690	15:05:51	15:08:33	6.2			FULL	0:02:43
C-FFKK	VAL	LINE	30-Oct-20	32	1700	20:46:55	20:49:42	6.2			FULL	0:02:46
C-FFKK	VAL	LINE	5-Nov-20	36	1710	15:03:08	15:05:35	6.2			FULL	0:02:28
C-FFKK	VAL	LINE	30-Oct-20	32	1720	20:43:50	20:46:39	6.2			FULL	0:02:48
C-FFKK	VAL	LINE	5-Nov-20	36	1730	15:00:09	15:02:51	6.2			FULL	0:02:43
C-FFKK	VAL	LINE	30-Oct-20	32	1740	20:40:52	20:43:33	6.2			FULL	0:02:41
C-FFKK	VAL	LINE	5-Nov-20	36	1750	14:57:18	14:59:51	6.2			FULL	0:02:33
C-FFKK	VAL	LINE	30-Oct-20	32	1760	20:37:48	20:40:36	6.2			FULL	0:02:48
C-FFKK	VAL	LINE	5-Nov-20	36	1770	14:54:19	14:57:02	6.2			FULL	0:02:44
C-FFKK	VAL	LINE	30-Oct-20	32	1780	20:34:50	20:37:29	6.2			FULL	0:02:39
C-FFKK	VAL	LINE	5-Nov-20	36	1790	14:51:31	14:54:03	6.2			FULL	0:02:33
C-FFKK	VAL	LINE	30-Oct-20	32	1800	20:31:49	20:34:33	6.2			FULL	0:02:44
C-FFKK	VAL	LINE	5-Nov-20	36	1810	14:48:27	14:51:12	6.2			FULL	0:02:45
C-FFKK	VAL	LINE	30-Oct-20	32	1820	20:28:43	20:31:18	6.2			FULL	0:02:35
C-FFKK	VAL	TIE	7-Nov-20	40	10010	14:57:50	14:59:51	5.0			FULL	0:02:01
C-FFKK	VAL	TIE	7-Nov-20	40	10020	14:54:33	14:57:04	5.9			FULL	0:02:31
C-FFKK	VAL	TIE	7-Nov-20	40	10030	14:51:15	14:53:59	6.8			FULL	0:02:45
C-FFKK	VAL	TIE	7-Nov-20	40	10040	14:47:18	14:50:22	7.6			FULL	0:03:03
C-FFKK	VAL	TIE	7-Nov-20	40	10050	14:42:38	14:45:55	8.5			FULL	0:03:17
C-FFKK	VAL	TIE	7-Nov-20	40	10060	14:38:14	14:41:56	9.1			FULL	0:03:42
C-FFKK	VAL	TIE	6-Nov-20	39	10070	20:04:52	20:08:27	9.1			FULL	0:03:35
C-FFKK	VAL	TIE	6-Nov-20	39	10080	20:00:29	20:04:14	9.1			FULL	0:03:45
C-FFKK	VAL	TIE	6-Nov-20	39	10090	19:56:19	19:59:52	9.1			FULL	0:03:33
C-FFKK	VAL	TIE	6-Nov-20	39	10100	19:51:49	19:55:41	9.1			FULL	0:03:52
C-FFKK	VAL	TIE	6-Nov-20	39	10110	19:47:50	19:51:19	9.1			FULL	0:03:29
C-FFKK	VAL	TIE	6-Nov-20	39	10120	19:43:35	19:47:18	9.1			FULL	0:03:44
C-FFKK	VAL	TIE	6-Nov-20	39	10130	19:39:14	19:42:53	9.1			FULL	0:03:40

9.3 APPENDIX III – FIGURE OF MERIT

B512 - NIOBAY METALS / FALL 2020					
Magnetic Figure of Merit Analysis (FLIGHT FKK031)					
Job Ref:	B512	Date:	30-Oct-20	Aircraft:	C-FFKK
Location :	Kapuskasing, ON				

Flight Path + Manoevers



LINE	DIR	SD: RAW			SD: COMPENSATED			IMPROVEMENT RATIOS*		
		TF1RAW	TF2RAW	TF3RAW	TF1CMP	TF2CMP	TF3CMP	TF1-IR	TF2-IR	TF3-IR
S9010	NORTH		1.7171			0.0220			78.1	
S9020	EAST		1.9987			0.0185			108.0	
S9030	SOUTH		1.5866			0.0282			56.3	
S9040	WEST		1.2463			0.0210			59.3	

* Note: Improvement ratio defined as SDRAW/SDCMP; an improvement ratio of 1.0 indicates neutral compensation (i.e. no effective removal of manoeuvre effect)

FOM Index : Sensor 2												
LINE	DIR	TRAV FLG	PITCH		ROLL		YAW			P	R	Y	Σ
			MAX	MIN	MAX	MIN	MAX	MIN					
9010	N		0.0121	-0.0326	0.0391	-0.0316	0.0611	-0.0226		0.0447	0.0707	0.0837	0.1991
9020	E		0.0230	-0.0203	0.0379	-0.0191	0.0264	-0.0363		0.0432	0.0570	0.0627	0.1630
9030	S		0.0282	-0.0322	0.0538	-0.0791	0.0685	-0.0871		0.0604	0.1330	0.1556	0.3489
9040	W		0.0540	-0.0336	0.0434	0.0212	-0.0432	-0.0432		0.0876	0.0223	0.0000	0.1099
									Σ	0.2359	0.2830	0.3019	0.8208
									Full FOM Index :	0.8208			
									Eq. Traverse FOM Index (Σ Trav x 2) :	1.0960			

9.4 APPENDIX IV – RADAR ALTIMETER CALIBRATION

The radar altimeter was calibrated by performing an ascent over a fixed ground reference point and correlating the resulting corrected GPS altitude clearances (in metres) with the raw radar altimeter data (in mV):

Terraquest LTD Radar Altimeter Calibration 07/12/2020

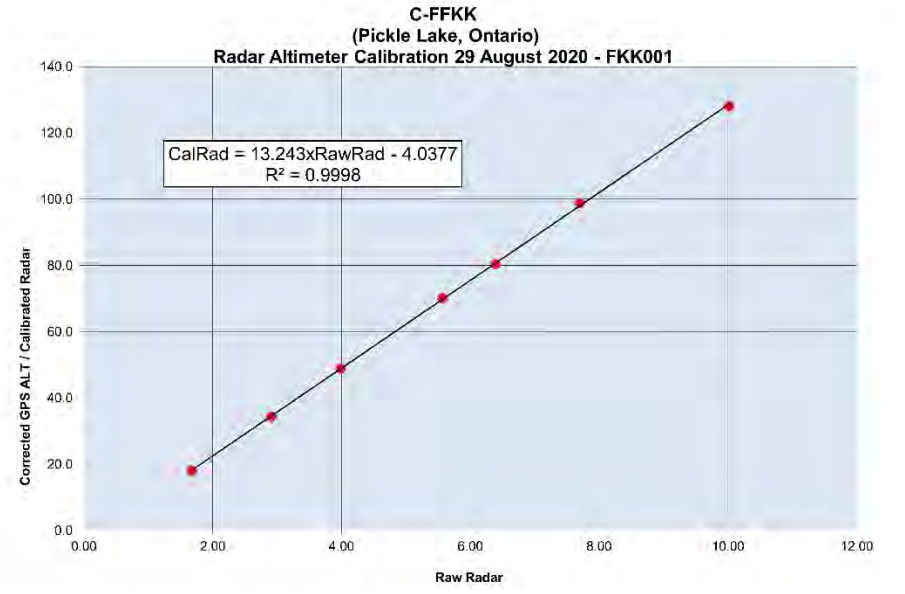
C-FFKK: RADAR CALIBRATION DATA SUMMARY
Calibration performed: Pickle Lake Airport, Ontario (29 August 2020, FKK001)

					INTERCEPT	-4.0377	
					SLOPE	13.2434	
LINE	RAW RADAR	GPS ALT	CORRECTED GPS ALT	LASER	CALIBRATED RADAR		ERROR *
Ground Ref		375.0	0.0				
S10050	1.6760	393.0	18.0		18.2		0.2
S10100	2.9100	409.3	34.3		34.5		0.2
S10150	3.9883	423.8	48.8		48.8		0.0
S10200	5.5710	445.1	70.1		69.7		-0.4
S10250	6.3957	455.4	80.4		80.7		0.3
S10300	7.7004	473.8	98.8		97.9		-0.9
S10400	10.0239	503.1	128.1		128.7		0.6
S10500	16.8656	542.5	167.5		219.3		51.8

** Error estimated as (Calibrated Radar) - (Corrected GPS Alt)*

Imperial Units		
LINE	GPS_ALT (ft)	CAL_RAD (ft)
S10050	59.1	59.6
S10100	112.5	113.2
S10150	160.1	160.0
S10200	230.0	228.8
S10250	263.8	264.6
S10300	324.1	321.3
S10400	420.3	422.3
S10500	549.5	719.6

Terraquest LTD Radar Altimeter Calibration 07/12/2020



9.5 APPENDIX VI – **DATA ARCHIVES ("ReadMe" file**s)

```
TERRAQUEST Final Data Archive Documentation
==========================================

TERRAQUEST reference : B512

Client: NioBay Metals Inc.
Project: Valentine and Niobium Properties
Type: High Resolution Aeromagnetic and VLF Survey (Helicopter)
Operations: Fall, 2020
Survey Base: Kapuskasing, ON (Valentine)
Survey Base: Moosonee, ON (Niobium)
Aircraft: AS 350BA+, C-FFKK
Archive Version: 210414
Prepared By: Allen Duffy

1. Data Organisation:

    Geophysical data for the Valentine ("VAL") and Niobium ("NIO") blocks
    archived in separate sub-directories ("VAL" and "NIO")

\---B512ARC_NIOBAY_210414
    +---NIO
    |   +---DATA
    |   |       B512ARC_NIOBAY_NIO_MAG_210414.gdb
    |   |
    |   +---GRIDS
    |   |       DTMLVL.grd
    |   |       DTMLVL.grd.gi
    |   |       NAAFNL.grd
    |   |       NAAFNL.grd.gi
    |   |       NAAFNL_HP.grd
    |   |       NAAFNL_HP.grd.gi
    |   |       NMLFNL.grd
    |   |       NMLFNL.grd.gi
    |   |       NMLFNL_HP.grd
    |   |       NMLFNL_HP.grd.gi
    |   |       TF2ANM.grd
    |   |       TF2ANM.grd.gi
    |   |       TF2ANSIG.grd
    |   |       TF2ANSIG.grd.gi
    |   |       TF2FNL.grd
    |   |       TF2FNL.grd.gi
    |   |       TF2VD1.grd
    |   |       TF2VD1.grd.gi
    |   |       VLFPEAKS_NAA.grd
    |   |       VLFPEAKS_NAA.grd.gi
    |   |       VLFPEAKS_NML.grd
    |   |       VLFPEAKS_NML.grd.gi
    |   |
    |   \---MAPS
    |       |   B512_NIOBAY_NIO_M01_FPwDTM.png
    |       |   B512_NIOBAY_NIO_M02_TMI.png
    |       |   B512_NIOBAY_NIO_M03_TMIANM.png
    |       |   B512_NIOBAY_NIO_M04_TMIVD1.png
    |       |   B512_NIOBAY_NIO_M05_ANSIG.png
    |       |   B512_NIOBAY_NIO_M06_VLFNAA.png
    |       |   B512_NIOBAY_NIO_M07_VLFNML.png
    |       |
    |       \---LORES
    |               B512_NIOBAY_NIO_M01_FPwDTM.png
```

```
|               B512_NIOBAY_NIO_M02_TMI.png
|               B512_NIOBAY_NIO_M03_TMIANM.png
|               B512_NIOBAY_NIO_M04_TMIVD1.png
|               B512_NIOBAY_NIO_M05_ANSIG.png
|               B512_NIOBAY_NIO_M06_VLFNAA.png
|               B512_NIOBAY_NIO_M07_VLFNML.png
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+---README
|       B514_NIOBAY.ReadMe
|
+---REPORT
|
+---VAL
    +---DATA
    |       B512ARC_NIOBAY_VAL_MAG_210414.gdb
    |
    +---GRIDS
    |       DTMLVL.grd
    |       DTMLVL.grd.gi
    |       NAAFNL.grd
    |       NAAFNL.grd.gi
    |       NAAFNL_HP.grd
    |       NAAFNL_HP.grd.gi
    |       NMLFNL.grd
    |       NMLFNL.grd.gi
    |       NMLFNL_HP.grd
    |       NMLFNL_HP.grd.gi
    |       TF2ANM.grd
    |       TF2ANM.grd.gi
    |       TF2ANSIG.grd
    |       TF2ANSIG.grd.gi
    |       TF2FNL.grd
    |       TF2FNL.grd.gi
    |       TF2VD1.grd
    |       TF2VD1.grd.gi
    |       VLFPEAKS_NAA.grd
    |       VLFPEAKS_NAA.grd.gi
    |       VLFPEAKS_NML.grd
    |       VLFPEAKS_NML.grd.gi
    |
    \---MAPS
        |   B512_NIOBAY_VAL_M01_FPwDTM.png
        |   B512_NIOBAY_VAL_M02_TMI.png
        |   B512_NIOBAY_VAL_M03_TMIANM.png
        |   B512_NIOBAY_VAL_M04_TMIVD1.png
        |   B512_NIOBAY_VAL_M05_ANSIG.png
        |   B512_NIOBAY_VAL_M06_VLFNAA.png
        |   B512_NIOBAY_VAL_M07_VLFNML.png
        |
        \---LORES
                B512_NIOBAY_VAL_M01_FPwDTM.png
                B512_NIOBAY_VAL_M02_TMI.png
                B512_NIOBAY_VAL_M03_TMIANM.png
                B512_NIOBAY_VAL_M04_TMIVD1.png
                B512_NIOBAY_VAL_M05_ANSIG.png
                B512_NIOBAY_VAL_M06_VLFNAA.png
                B512_NIOBAY_VAL_M07_VLFNML.png
```

2. Database Contents:

MAGNETICS DATABASE - provided in Geosoft Database [.gdb] format
(B512ARC_NIOBAY_VAL_MAG_210414.gdb, B512ARC_NIOBAY_NIO_MAG_210414.gdb)

Database Contents (Data sampled at 20Hz) :

```
X_UTM_WIN  : UTM Easting - WGS84, UTM Zone 15N (metres)
Y_UTM_WIN  : UTM Easting - WGS84, UTM Zone 15N (metres)
Flight     : Flight Number
DATE       : Flight Date (DD/MM/YYYY format - ASCII)
AZIMUTH    : Flight line direction (ranged 0-360 degrees)
FID        : Fiducial (UTC seconds)
TIME       : UTC TIME (hh:mm:ss.ss format)
RADAR      : Raw Radar (m AGL)
RADLAG     : Radar Altimeter, lag corrected (m AGL)
ALT        : WGS84 Altitude (metres AMSL)
DTMLVL     : Final, calculated Digital Terrain model (m AMSL)
LAT        : Latitude (degrees)
LON        : Longitude (degrees)
VMX        : Fluxgate X component (nT)
VMY        : Fluxgate Y component (nT)
VMZ        : Fluxgate Z component (nT)
TF2RAW     : Raw measured TMI (nT) - Centre Boom
TF2CMP     : Compensated TMI (nT) - Centre Boom
TF2HDG     : Heading corrected TMI (nT)
TF2LVL     : Tie Line levelled TMI (nT)
TF2FNL     : Final, micro-levelled TMI (nT)
IGRF_TF    : IGRF Total Field using 2020 IGRF coefficients
             (Calculation dates: VAL: 05 NOV 2020, effective altitude = 150m;
                                 NIO: 15 NOV 2020, effective altitude = 66m;)
TF2ANM     : Anomalous (IGRF corrected) TMI (nT)
Ampl_1     : Raw VLF Amplitude (Station NAA, Cutler, Maine)
Azmt_1     : Raw VLF Azimuth (Station NAA, Cutler, Maine)
El_P_1     : Raw VLF Planar Ellipticity (Station NAA, Cutler, Maine)
El_V_1     : Raw VLF Vertical Ellipticity (Station NAA, Cutler, Maine)
Tilt_1     : Raw VLF Tilt Angle (Station NAA, Cutler, Maine)
Ampl_2     : Raw VLF Amplitude (Station NML, LaMoure, North Dakota)
Azmt_2     : Raw VLF Azimuth (Station NML, LaMoure, North Dakota)
El_P_2     : Raw VLF Planar Ellipticity (Station NML, LaMoure, North Dakota)
El_V_2     : Raw VLF Vertical Ellipticity (Station NML, LaMoure, North Dakota)
Tilt_2     : Raw VLF Tilt Angle (Station NML, LaMoure, North Dakota)
Ampl_3     : Raw VLF Amplitude (Station NLK, Jim Creek, Washington)
Azmt_3     : Raw VLF Azimuth (Station NLK, Jim Creek, Washington)
El_P_3     : Raw VLF Planar Ellipticity (Station NLK, Jim Creek, Washington)
El_V_3     : Raw VLF Vertical Ellipticity (Station NLK, Jim Creek, Washington)
Tilt_3     : Raw VLF Tilt Angle (Station NLK, Jim Creek, Washington)
TpXi       : Tzx Tipper - Quadrature
TpXr       : Tzx Tipper - InPhase
TpYi       : Tzy Tipper - Quadrature
TpYr       : Tzy Tipper - InPhase
NAAFNL     : Processed VLF Amplitude (Total Field) - Station NAA (Cutler, Maine)
NAAFNL_HP  : Processed VLF Amplitude (HP filtered) - Station NAA (Cutler, Maine)
NMLFNL     : Processed VLF Amplitude (Total Field) - Station NML (LaMoure, North Dakota)
NMLFNL_HP  : Processed VLF Amplitude (HP filtered) - Station NML (LaMoure, North Dakota)
IP1_FNL    : Final In-Phase (from Tilt Angle)) - Station NAA (Cutler, Maine)
QD1_FNL    : Final Quadrature (from Vertical Ellipticity)) - Station NAA (Cutler, Maine)
IP2_FNL    : Final In-Phase (from Tilt Angle)) - Station NML (LaMoure, North Dakota)
QD2_FNL    : Final Quadrature (from Vertical Ellipticity)) - Station NML (LaMoure, North Dakota)
```

3. GRIDS

VAL (Valentine) Block:

Grids prepared using Bi-directional (Akima) spline interpolation with a 10m grid cell size and archived in the "GRIDS" folder of the VAL sub-directory:

```
ANSIG.grd        : Calculated Analytic Signal
DTMLVL.grd       : Digital Terrain Model (m AMSL)
NAAFNL.grd       : VLF Amplitude (Total Field) - Station NAA (Cutler, Maine)
NAAFNL_HP.grd    : VLF Amplitude (HP filtered) - Station NAA (Cutler, Maine)
NMLFNL.grd       : VLF Amplitude (Total Field) - Station NML (LaMoure, North Dakota)
NMLFNL_HP.grd    : VLF Amplitude (HP filtered) - Station NML (LaMoure, North Dakota)
TF2ANM.grd       : Anomalous (IGRF corrected) TMI (nT)
TF2FNL.grd       : Final, Levelled Total Magnetic Field (nT)
TF2VD1.grd       : Calculated First Vertical Magnetic Derivative (nT/m)
VLFPEAKS_NAA.grd : VLF peak marker overlay (Station NAA): Geosoft Color grid
VLFPEAKS_NML.grd : VLF peak marker overlay (Station NML): Geosoft Color grid
```

NIO (NioBium) Block:

Grids prepared using Bi-directional (Akima) spline interpolation with a 10m grid cell size and archived in the "GRIDS" folder of the NIO sub-directory:

```
ANSIG.grd        : Calculated Analytic Signal
DTMLVL.grd       : Digital Terrain Model (m AMSL)
NAAFNL.grd       : VLF Amplitude (Total Field) - Station NAA (Cutler, Maine)
NAAFNL_HP.grd    : VLF Amplitude (HP filtered) - Station NAA (Cutler, Maine)
NMLFNL.grd       : VLF Amplitude (Total Field) - Station NML (LaMoure, North Dakota)
NMLFNL_HP.grd    : VLF Amplitude (HP filtered) - Station NML (LaMoure, North Dakota)
TF2ANM.grd       : Anomalous (IGRF corrected) TMI (nT)
TF2FNL.grd       : Final, Levelled Total Magnetic Field (nT)
TF2VD1.grd       : Calculated First Vertical Magnetic Derivative (nT/m)
VLFPEAKS_NAA.grd : VLF peak marker overlay (Station NAA): Geosoft Color grid
VLFPEAKS_NML.grd : VLF peak marker overlay (Station NML): Geosoft Color grid
```

4. MAPS

PNG images of the printed map series in full resolution (300 DPI) and low resolution (emailable, files in sub folder 'LORES').

VAL (Valentine) Block

Data are presented on a series of 7 1:15000 scale maps (archived in the "MAPS" folder of the VAL sub-directory):

```
B512_NIOBAY_VAL_M01_FPwDTM.png : Flight Path with DTM grid
B512_NIOBAY_VAL_M02_TMI.png    : Total Magnetic Intensity
B512_NIOBAY_VAL_M03_TMIANM.png : Anomalous (IGRF corrected) Total Field with contours
B512_NIOBAY_VAL_M04_TMIVD1.png : Calculated Vertical Magnetic Derivative
B512_NIOBAY_VAL_M05_ANSIG.png  : Calculated Analytic Signal
B512_NIOBAY_VAL_M06_VLFNAA.png : VLF Amplitude (Total Field) - Station NAA (Cutler, Maine)
B512_NIOBAY_VAL_M07_VLFNML.png : VLF Amplitude (Total Field) - Station NML (LaMoure, North Dakota)
```

NIO (Niobium) Block

Data are presented on a series of 7 1:20000 scale maps (archived in the "MAPS" folder of the NIO sub-directory):

```
B512_NIOBAY_NIO_M01_FPwDTM.png : Flight Path with DTM grid
B512_NIOBAY_NIO_M02_TMI.png    : Total Magnetic Intensity
B512_NIOBAY_NIO_M03_TMIANM.png : Anomalous (IGRF corrected) Total Field with contours
```

```
   B512_NIOBAY_NIO_M04_TMIVD1.png : Calculated Vertical Magnetic Derivative
   B512_NIOBAY_NIO_M05_ANSIG.png  : Calculated Analytic Signal
   B512_NIOBAY_NIO_M06_VLFNAA.png : VLF Amplitude (Total Field) - Station NAA (Cutler, Maine)
   B512_NIOBAY_NIO_M07_VLFNML.png : VLF Amplitude (Total Field) - Station NML (LaMoure, North Dakota)

5. README

   Archive documentation: this file (B514_NIOBAY.ReadMe)

6. REPORT

   Operational/Logistics Survey report
```