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Énergie et Ressources naturelles
Québec

Form 43-101F1 Technical Report

The Peninsula Fe-Ti property
Lower North Shore, Quebec
Duplessis County, Puylajon and Parker Townships

NTS sheets 12L06 and 12L11

CANAMARA ENERGY CORPORATION

October 5, 2011

GM 66499

REÇU AU MRNF
03 MAI 2012
DIRECTION DES TITRES MINIERS

GÉON

Michel Boily, PhD., P. Géo.

1196800

DATE AND SIGNATURE

CERTIFICATE OF QUALIFICATIONS

I, Michel Boily, Ph.D., P. Geo. HEREBY CERTIFY THAT:

I am a Canadian citizen residing at 2121 de Romagne, Laval, Québec, Canada.

I obtained a PhD. in geology from the Université de Montréal in 1988.

I am a registered Professional Geologist in good standing with l'Ordre des Géologues du Québec (OGQ; permit # 1097).

I had the following work experience:

From 1986 to 1987: Research Associate in Cosmochemistry at the **University of Chicago**, Chicago, Illinois, USA.

From 1988 to 1992: Researcher at **IREM-MERI/McGill University,** Montréal, Québec as a coordinator and scientific investigator in the high technology metals project undertaken in the Abitibi greenstone belt and Labrador.

From 1992 to present: Geology consultant with **Geon Ltée,** Montréal, Québec. Consultant for several mining companies. I participated, as a geochemist, in two of the most important geological and metallogenic studies accomplished by the Ministère des Richesses naturelles du Québec (MRNQ) in the James Bay area and the Far North of Québec (1998-2005). I am a specialist of granitoid-hosted precious and rare metal deposits and of the stratigraphy and geochemistry of Archean greenstone belts.

I have gathered field experience in the following regions : James Bay, Quebec; Strange Lake, Labrador/Quebec; Val d'Or and Rouyn-Noranda, Quebec; Grenville (Saguenay and Gatineau area); Cadillac, Quebec; Otish Mountains, Quebec, Lower North Shore, Quebec,Sinaloa Province, Mexico, Marrakech and Ouarzazate, Morocco.

I am the author of the 43-101F1 Technical Report entitled : "The Peninsula Fe-Ti Property, Lower North Shore, Quebec Duplessis County, Puyjalon and Parker Townships,NTS sheets 12L06 and 12L11" written on August 10, 2011 for CANAMARA ERNERGY CORPORATION.

As of the date of the certificate, to the best of my knowledge, information and belief, this Technical Report contains all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

The Qualified Person, Michel Boily, has written this report in its entirety and is responsible for its content.

I read the National Instrument 43-101 Standards of Disclosure for Mineral Projects (the "Instrument") and the report fully complies with the Instrument.

I am an independent qualified person, QP, according to NI 43-101. I have no relation to Canamara Energy Corp. according to section 1.4 of NI 43-101. I am not aware of any relevant fact which would interfere with my judgment regarding the preparation of this technical report.

As of the date of the certificate, to the best of my knowledge, information and belief, this technical report contains all scientific and technical information that is required to be disclosed to make the report not misleading.

I have visited the Peninsula property on September 7, 2011.

I have had prior involvement with the Peninsula property that is the subject of this report. The work consisted of a geological report on the property written in 2010.



_____
Michel Boily, PhD., P. Geo.
Dated at Montréal, Qc
October 5, 2011



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ITEM 1 SUMMARY

A global increase in the demand and price of iron and titanium concentrates particularly in China and emerging South Asian markets has stimulated the exploration for these metals in the Province of Quebec. Over the last three years, the Lower North Shore of Quebec has witnessed a surge in mining exploration owing to its numerous Fe-Ti showings and deposits associated with anorthosite complexes. This prompted Canamara Energy Corp. to acquire the 1675 hectares Peninsula Fe-Ti property located within the Havre St-Pierre Anorthosite Suite (HSPAS), just 6 km south of the Lake TiO Fe-Ti open pit mine.

The HSPAS exposes a number of showings and deposits of ilmenite and magnetite of varying dimensions principally in the lake Allard and Puyjalon areas. The main Peninsula showing forms an anvil-like protrusion jetting in Lake Puyjalon and consists of a succession of dm to meter-thick layers of leucoanorthosite and ilmenite leuconorite including meter-thick sub-concordant layers of ilmenitite-norite and several horizons of massive ilmenitite 15 to 30 cm- thick. The entire sequence is 25 to 50 m in thickness and is overlain by 50 m of anorthosite and leuconorite containing lenses of ilmenite aggregates.

Results of a heliborne magnetic geophysical survey (May 2011) show a small negative anomaly overlying the anvil protrusion in the Lake Puylajon related to the Peninsula showing. This constitutes the first target within a 750 x 600 m area revealing several horizons of massive ilmenitite 15 to 30 cm thick (Hocq, 1982). A strong magnetic anomaly shows negative values of < -7400 nT that roughly coincide with the contours of the ilmeninite/ilmeninite norite unit south of Lake Aline. According to Hocq (1982), the anomaly corresponds to numerous thick layers of ilmeninite. A 1600 x 650 m area covering the zone of strongest magnetic lows forms the second target zone.

Canamara Energy Corp. will initiate a two phase exploration program on the Peninsula property. The first phase will consist of line cutting, ground-based magnetic and gravimetric surveys and rock sampling on both defined targets. The proposed budget for Phase I exploration is $249,758. Phase II, expecting to cost $785,328, is devoted to a drilling program including 2250 m of core distributed in eight holes.

ITEM 2 INTRODUCTION

On July 2011, Canamara Energy Corp. of Vancouver, British-Columbia, Canada, mandated GÉON to write a 43-101F1 Technical Report on the Peninsula property located in the St-Lawrence Lower North Shore of Quebec, Puyjalon and Parker Townships. This report was prepared in compliance with National Instrument 43-101 Standards of Disclosure for Mineral Projects and form 43-101F1. The report provides technical geological data relevant to Canamara Ernergy Corp. Peninsula Fe-Ti property. The purpose of this report is to present the status of current geological information and propose recommendations for future work.
The author has extracted data and information from private and public reports and general geological reports and maps. Some of the information and reports were dated before the implementation of the NI 43-101 norm. Although many authors of such reports and information appear to be qualified and the information was prepared to standards acceptable to the exploration community at the time, the data does not fully meet present requirements.
The author however believes the information provided is verifiable in the field, and that it is a reasonable representation of the mineralization. The author visited the Peninsula property in August 2011. The grass root nature of the project restricted the visit to key sites with important ilmenite-magnetite mineralization.

Units presented in this report use the metric system. Fe and Ti concentrations are given in weight % (wt. %). Tonnage is expressed in dry metric tons. Currency unit used is the Canadian Dollar (CAD$). The weight, the measurement as well as the currency convention which is used in the course of this study is in conformity with the nomenclature of the international system (IS).

ITEM 3 RELIANCE ON OTHER EXPERTS

The author has relied upon information provided by Canamara Energy Corp. that describes the purchase option agreement into which the Company entered into the project and on data that describe the exploration rights, obligations and claim titles. The author has seen documents indicating that the appropriate annual claim payments have been made and that the claims are valid until at least January 2012. To the best knowledge of the author, there are no current or pending litigations that may be material to the Peninsula property assets.

ITEM 4 PROPERTY DESCRIPTION AND LOCATION

The Peninsula titanium property is located in the St-Lawrence Lower North Shore of Quebec in the Duplessis County, Puyjalon and Parker Townships, NTS map sheets 12L11 and 12L06. The property is situated 32 km NNE of the town of Havre-St-Pierre (pop. 3,200) and 220 km east of the town of Sept-Iles (pop. 25,200). It consists of thirty-one (31) continuous mineral claims (polygons) bringing the total area to 1674.85 hectares or 16.75 km^2 (Figure 1). The claim block is centered at coordinates 63°23'17" W Long. and 50°31'17" N. Lat or UTM coordinates 472487 E and 5596671 N (NAD83; Zone 20N), with the details of the titles given in Appendix 1.The Peninsula property, 100% owned by Mr. Fayz Yacoub, was staked through the GESTIM website run by the Ministère des Richesses naturelles et de la Faune du Québec. The UTM coordinates and grid contours on the geological maps are extracted from the information given on the GESTIM website. There are no mineral resources or mineral reserves on the Peninsula property according to the 2005 CIM Definition Standards.

Pursuant to an Agreement made and dated on July 29, 2010 between the Optionor (Mr. Fayz Yacoub), the legal and beneficial owner of an undivided 100% interest in and certain mineral claims situated in the St-Lawrence River Lower North Shore of Quebec, in the Duplessis County, Puylajon and Parker Townships, NTS map sheets 12L/006 and 12L/11 and the Optionor (Canamara Energy Corp.) who has agreed to grant an exclusive option of the Optionee, entitling the Optionee to acquire an undivided 100% interest in and into the Property on the terms and conditions hereinafter set forth:

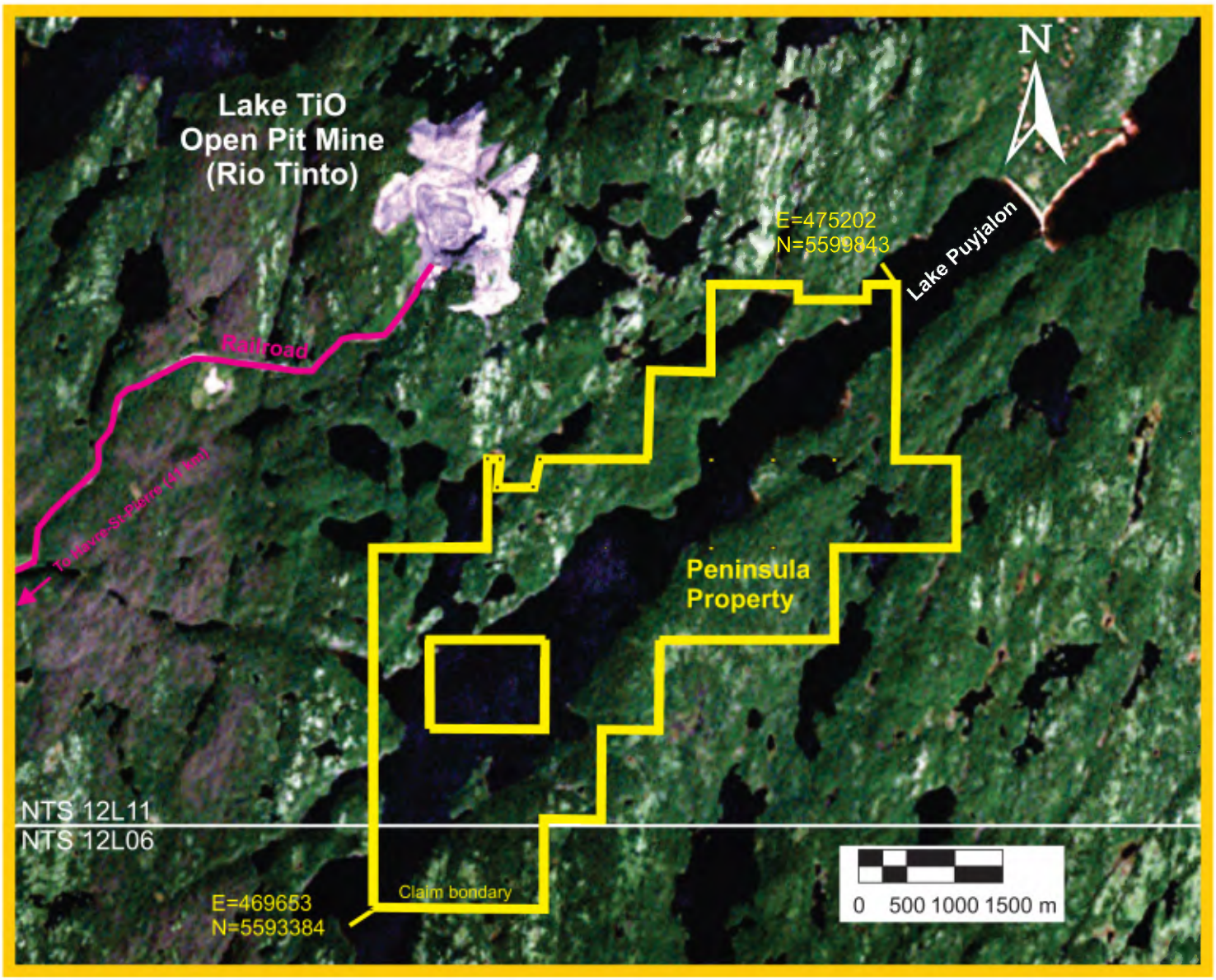


Figure 1. Localization and bondaries of the designated claims of the Peninsula property.

1) The Optionee making the following cash payments to the Optionor: a) $30,000 payable on the Effective Date, b) an additional $40,000 on or before the first anniversary of the Effective Date, c) an additional $40,000 on or before the second anniversary of the Effective Date, d) an additional $50,000 on or before the third anniversary of the Effective Date and e), $50,000 on closing IPO (amended agreement dated May 26, 2011); 2) The Optionee allotting and issuing the following common shares in its capital stock to the Optionor : a) 250,000 shares deliverable on the Effective date, b) an additional 250,000 shares on or before the first anniversary of the Effective Date, c) an additional 500,000 shares on or before the second anniversary of the Effective Date and d), an additional 500,000 shares on or before the third anniversary of the Effective Date; 3) The Optionee incurring the following Expenditures on the Property, with On Track Exploration to act as operator: a) $100,000 on or before the first anniversary of the Effective Date, b) an additional $200,000 on or before the second anniversary of the Effective Date and c), an additional $300,000 on or before the third anniversary of the Eeffective Date.

An amending agreement made and dated on July 14, 2011 adds the following clauses to section 1 and 2 above. 1 f) an additional $40,000 on or before the 10th day after the shares of the Optionee commence trading on the TSX Venture Exchange and 2 e), An additional 500,000 shares on or before the 10th day after the shares of the Optionee commence trading on the TSX venture Exchange.

According to Quebec government records, no part of the land covered by the property is a park or mineral reserve. To our knowledge, the property is devoid of royalties, back in rights, payments or other encumbrances. The Peninsula property is not subject to environmental liabilities except for those specified in the "Loi sur les Mines" (L.R.Q. chapter M-13.1). An intervention permit must be obtained from the Quebec Province government in order to initiate a drilling campaign. In Quebec, the mining claim is valid for a period of 2 years. During this period and/or until renewal, the owner or optionor must spend $1,200 per claim validated as exploration expenses (i.e. geological mapping, geophysical survey, drilling…) for the claim to remain in good standing. The renewal must be forwarded to the Quebec Government 60 days prior the claim expiration date. The renewal is obtained only if the exploration expenses

satisfy all the requirements established by the Ministère des Richesses naturelles et de la Faune du Québec.

ITEM 5 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE AND PHYSIOGRAPHY

The property can be reached by train form the town of Havre-St-Pierre. The company QIT Fer et Titane (now Rio Tinto) has built a railroad from Havre St-Pierre to the Lake TiO open pit mine for transporting the titanium ore. The Peninsula showing is situated 6.2 km south of the TiO Lake deposit. Alternatively, a helicopter or a floatplane can be rented from Havre St-Pierre to carry personal to the Peninsula site in less than 30 minutes. Hydro-Quebec is in the process of developing a new vast hydroelectric complex along the Romaine River. The project includes four main hydro stations (Romaine I to IV) which will be joined by a new road. This road will pass less than 8 km east from Lake Puyjalon when reaching the Romaine II station. The new road is located 32 km west of Havre-St-Pierre. It is the intention of the Company to ask permission to Hydro Quebec to travel along this road when completed. There is also a camp for lodging the Hydro-Quebec workers at the Romaine II station. The Company will also enquire about the possibility to stay at the camp. It will be then necessary to build an 8 km access road to the Peninsula property.

The Havre St-Pierre area is characterized by a maritime cold climate. Summers (early-May to mid-September) are temperate with average maxima and minima of 18°C and 10°C (July). Winter is harsh and starts in October and lasts until April, with an extensive snow cover (333 cm) from November to April. Average temperatures reach – 17°C (min) and –7°C (max) in January. The cold and humid climate favours the growth of black spruce and moss, whilst the proximity of the shore and low relief facilitates the development of peat bogs especially at the river mouths. Wildlife in the area includes caribou, moose, black bear, rabbit, beaver, muskrat, wolf and mink. The different type of fish present in the lakes, rivers and streams are: trout, pike, wananish, touladi and salmon.

From the St-Lawrence Gulf to the interior, the topography changes from a coastal plain into a dissected narrow plateau and transforms into a region dominated by high altitude plateaus (500

to 900 m). Sand and gravel delta deposits associated with peat bogs characterize the littoral plain. The main rivers: Mingan, La Romaine, St-Jean, Magpie, Au Tonnerre are generally draining from north to south and shedding into the St-Lawrence River. These are quite rough rivers that contain several rapids rendering navigation difficult. Elongated small lakes occupy the dissected valley floors.

In the town of Havre-St-Pierre, one can find a regional airport, deep water port, lodging, food, truck rentals and hospital. Sept-Îles forms the major economic center of the Lower North Shore of Quebec. A smelting and shipping center for the iron ore extracted and transported from the mines of the Labrador Trough (i.e. Fermont, Gagnon), Sept-Îles possess modern infrastructures including airport, lodging, government offices and can provide adequate services to the mining exploration companies.

ITEM 6 HISTORY

6.1-Introduction

The first occurrence of ilmenite mineralization associated with anorthosite was recognized by Low (1895). In 1941, Retty, a geologist from the Quebec Department of Mines, described the findings of ilmenite outcrops within anorthosites on the shores of lakes Puyjalon, Allard, Petit-Pas and Bat-le-Diable (see Retty, 1944). Chemical assay results for the lakes Bat-le-Diable and Allard mineralized zones produced average contents of 35 wt. % TiO_2 and 55 wt. % FeO. Late in 1942, claims were staked and later optioned by Kenneco Explorations and by the New Jersey Zinc Company. In 1946, Kenneco geologists discovered eight ilmenite deposits in the area, among which the Lake TiO. The Quebec Iron and Titanium Corporation (QIT) was formed to develop this new property. A loading dock was built at Havre-St-Pierre and a 41 km railroad was completed to the site of Lake TiO where an open pit was established. The ore was then shipped from Havre St-Pierre to Sorel, Quebec where an electric smelting plant was constructed. In 1947, the QIT Corporation conducted an aeromagnetic survey over a large area to discover that the main deposit was associated with a strong negative magnetic anomaly.

6.2-History of the Peninsula Property

There is scant information concerning the exploration of the Peninsula property. The Ministère des Richesses naturelles du Québec files indicate that a magnetic geophysical survey was run in 1949 on part of the peninsula jetting into Lake Puyjalon Peninsula (Lees, 1949; GM11512-C). In 1951, Dubuisson Mines sunk three DDH totaling 196 m (see Table 1 below). Core assays produced results of 19.23 wt. % TiO_2/6.1 m and 23.2 wt. % TiO_2/12.2 m. In 1967, Gulf Titanium Ltd. completed three holes totaling 175 m (Hart, 1967: GM22125). Best intersection in one hole cut 50 m with a grade of 17.2 wt. % TiO_2. However, no trace of this drilling campaign was found in the Ministère des Richesses naturelles du Québec files.

# DDH	Azimuth (°)	Plunge (°)	Depth (m)
P-1 (GM01770B)	340	70	64,0
P-2	330	70	69,6
P-3	330	70	52,0

Table 1. Diamond drill holes sunk by Dubuisson Mines on the Peninsula property.

In 2002, Les Ressources d'Arianne conducted a series of geochemical, mineralogical and mineragraphic analyses on Fe, Ti and V-mineralized rock samples collected from properties located in the Grenville Province and associated with anorthosite complexes (Boulianne, 2003; GM60442). Their geochemical and mineralogical survey included the Peninsula Property (Table 2). Ten samples represent massive ilmenitites which contain between 78% to 98% oxide minerals mostly composed of hemoilmenite (76 to 92%) showing fine lamellae of hematite (20-30%). These massive rocks possess little magnetite (1-2 %) and sulphides (1-2%), mainly pyrite, chalcopyrite and pyrrhotite. Other accessory minerals are pyroxene, biotite, chlorite and carbonate. The texture is principally granoblastique and the oxide granulometry varies from 0.4 to 4 mm. Chemical analyses of these rocks reveal average TiO_2, Fe_2O_{3T} and V_2O_5 contents of 33.38 wt. % , 57.09 wt.% and 0.35 wt. % respectively, with low average contents of SiO_2 (4.58 wt. %), Al_2O_3 (2.56 wt.%), MgO (2.21 wt. %) and CaO (0.71 wt.%) (Table 2). These results are very similar to those given for the Lake TiO ore; i.e. 34 wt.% TiO_2, 55.76 wt.% Fe_2O_3, 0.41 wt.% V_2O_5, 3.5 wt. % SiO_2, 3.5% Al_2O_3, 0.9 wt.% CaO and 3.1 wt.% MgO (Perreault et al.,

Table 2. Chemical and mineral compositions of ilmenitite and leucoanorthosite samples collected by Les Ressources d'Arianne from the Peninsula prospect. (From Boulianne, 2003)

Sample	Rock Type	TiO_2 (wt. %)	P_2O_5	SiO_2	Al_2O_3	Fe_2O_{3T}	MnO	MgO	CaO	Na_2O	K_2O	V	V_2O_5
02PUY001	Ilmenitite	36.50	0.01	0.25	1.02	61.20	0.10	2.45	0.09	0.00	0.03		
02PUY002	Leucoanorthosite (7-8% Ox.)	9.63	0.06	41.00	19.30	16.60	0.04	1.97	4.59	3.62	1.75		
02PUY003A	Ilmenitite	36.00	0.02	0.11	1.01	61.20	0.11	2.57	0.06	0.01	0.03	0.20	0.36
02PUY003B	Leucoanorthosite (1% Ox.)	22.30	0.02	22.00	10.40	37.90	0.07	1.59	3.56	2.03	0.36		
02PUY004A	Ilmenitite	36.30	0.01	0.76	1.11	59.90	0.11	2.57	0.08	0.01	0.03	0.20	0.36
02PUY004B	Leucoanorthosite (25% Ox.)												
02PUY005	Ilmenitite	20.40	0.02	24.50	11.00	35.90	0.10	1.89	3.92	0.65	0.35		
02PUY006	Ilmenitite	34.60	0.02	3.35	2.15	58.70	0.10	2.21	0.53	0.22	0.08	0.19	0.34
02PUY007	Ilmenitite	31.30	0.01	6.32	2.93	55.60	0.11	3.03	0.80	0.34	0.08		
02PUY008	Ilmenitite	36.20	0.01	0.60	0.64	61.50	0.12	1.69	0.09	0.01	0.02	0.20	0.36
02PUY009	Ilmenitite	35.80	0.04	0.73	0.58	62.70	0.13	1.24	0.11	0.01	0.03		

Sample	Oxyde (%)	Sulphide	Silicate	Total	Rutile (%)	Hemoilmenite	Hematite	Ilmenite	Magnetite	Hercynite	Pyrite	Chalcopyrite	Pyrrhotite
02PUY001	96	1.0	3	100		92	30	70	1.0	2.0	0.7	0.1	0.1
02PUY002	15	0.1	84	99.1	2.0	9	22	78	5.0	0.0	0.1	0.1	
02PUY003A	98	0.1	2	100.1		94	20	80	2.0	2.0	0.1	0.0	
02PUY003B	60	0.5	40	100.5		57	25	75	0.1	1.5	0.1	0.1	
02PUY004A	98	1.5	2	101.5	0.1	92			2.0	2.0	0.5	0.1	
02PUY004B	23	0.1	77	100.1		0					0.0	0.0	
02PUY005	78	0.1	22	100.1		76					0.1	0.1	
02PUY006													
02PUY007													
02PUY008													
02PUY009													

Sample	Plagioclase (%)	Pyroxene	Biotite	Chlorite	Carbonate	Epidote	Total
02PUY001		0.1	1.0	0.1	3.0		100.2
02PUY002	82.0			2.0		0.1	100.4
02PUY003A	0.8	0.8	0.5			0.1	100.4
02PUY003B	38.0		2.0	0.1			99.0
02PUY004A							97.0
02PUY004B							
02PUY005							78.3
02PUY006							
02PUY007							
02PUY008							
02PUY009							

2003). The other collected samples are anorthosite or leuconorite including 15-60% oxide minerals expressed as hemoilmenite

ITEM 7 GEOLOGICAL SETTING AND MINERALIZATION

7.1- Regional Geological Setting

The Peninsula property is located in the Grenville Province of the Canadian Shield (Figures 2 and 3). The Grenville Province is bordered to the north by the "Grenville Front", a zone of faulting with a sharply delineated metamorphic boundary with the Superior Province. The main crustal build-up of the Grenville Province occurred through prolonged, 1.80 to 1.24 Ga, Andean-type continental arc and intracontinental back-arc magmatism with some lateral accretion of magmatic arcs (Rivers, 1997; Hanmer et al., 2000; Gower and Krogh, 2002). The Grenville Province is subdivided into two main semi-continuous parallel stacked belts known as the Parautochthonous Belt and the structurally overlying Allochthonous Polycyclic Belt, as well as into a series of supracrustal-dominated assemblages termed the Allochthonous Monocyclic Belt.

The area north of Havre-St-Pierre belongs to the Allochtonous Polycyclic Belt and is locally overlain by Paleozoic carbonates of the St-Lawrence Platform. The Precambrian rocks were deformed and amalgamated during the Pinawarian (1530-1540 Ma) and Grenvillian (1190-980 Ma) orogenies. The Lower North Shore region is subdivided into three lithotectonic domains: Lac-à-L'Aigle, St-Jean and Natashquan (Figure 4). The domains are limited by large shear zones (ex: Romaine and Abbé-Huard) that are also prevalent within each domain. The Natashquan domain is composed of several lithostratigraphic and lithodemic units (Gobeil et al., 2003). The central segment is occupied by the Wakeham Group (1.63-1.50 Ga); a large sedimentary basin (8100 km^2) containing metamorphosed sandstones, with a small proportion (~10%) of metapelite, and mafic to felsic metavolcanic or hypabyssal layers. It is surrounded by metamorphic complexes: (Aguanish, Boulain and Buit). The Buit Complex forms an assemblage of orthogneiss, foliated granitoids, tonalite gneiss and amphibolites. The Complex also displays alkali feldspar granite, syenite, pegmatite massifs and cm- to km-long enclaves and rafts of paragneiss and quartzite commonly migmatized. Near the contact with the St-Jean domain, the Buit Complex exhibits mangerite and charnockite rocks which were tectonically emplaced on the

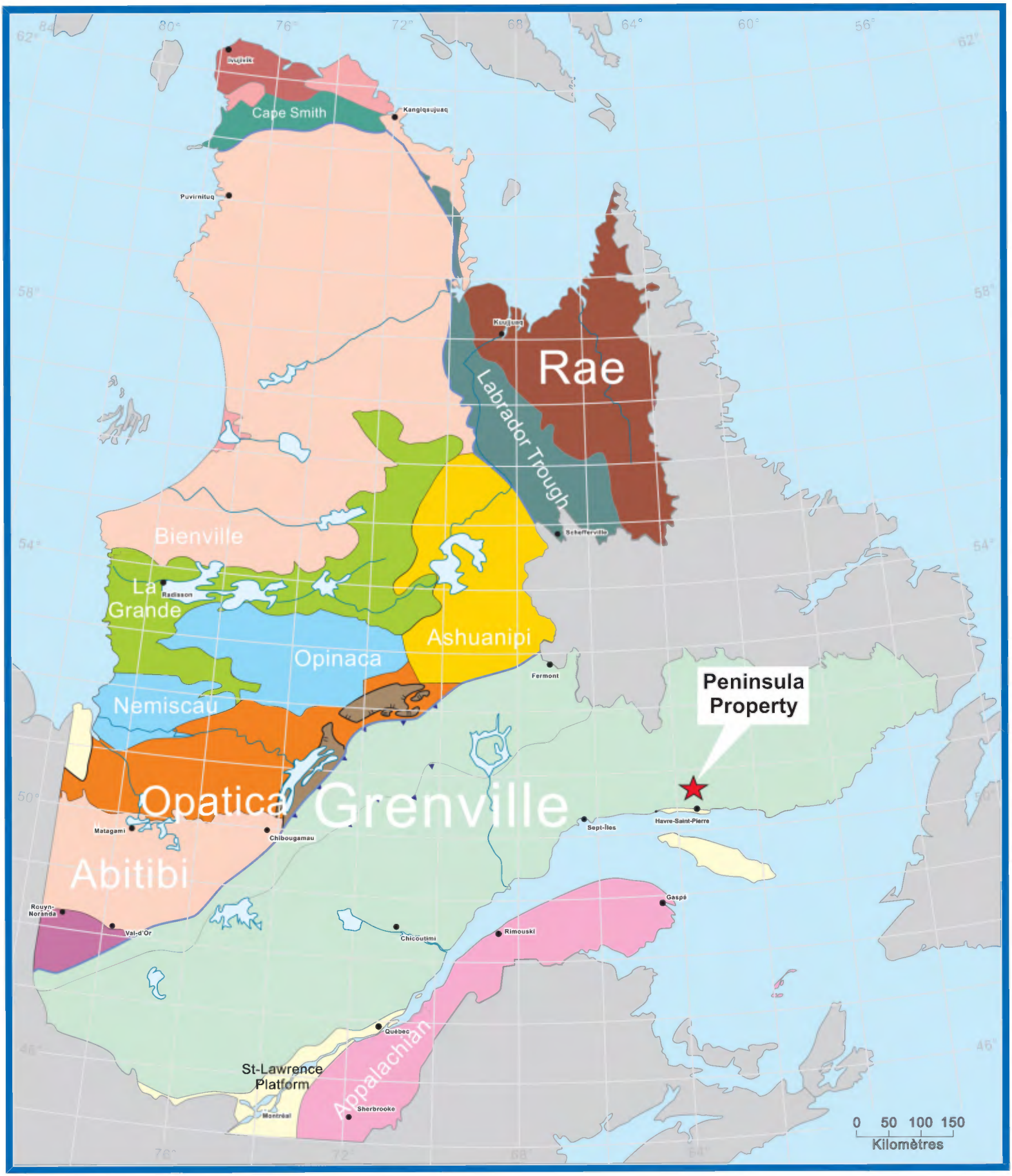


Figure 2. Geological map of the Quebec province illustrating the different geological provinces and subprovinces and the localisation of the Peninsula Property.

The Grenville Province

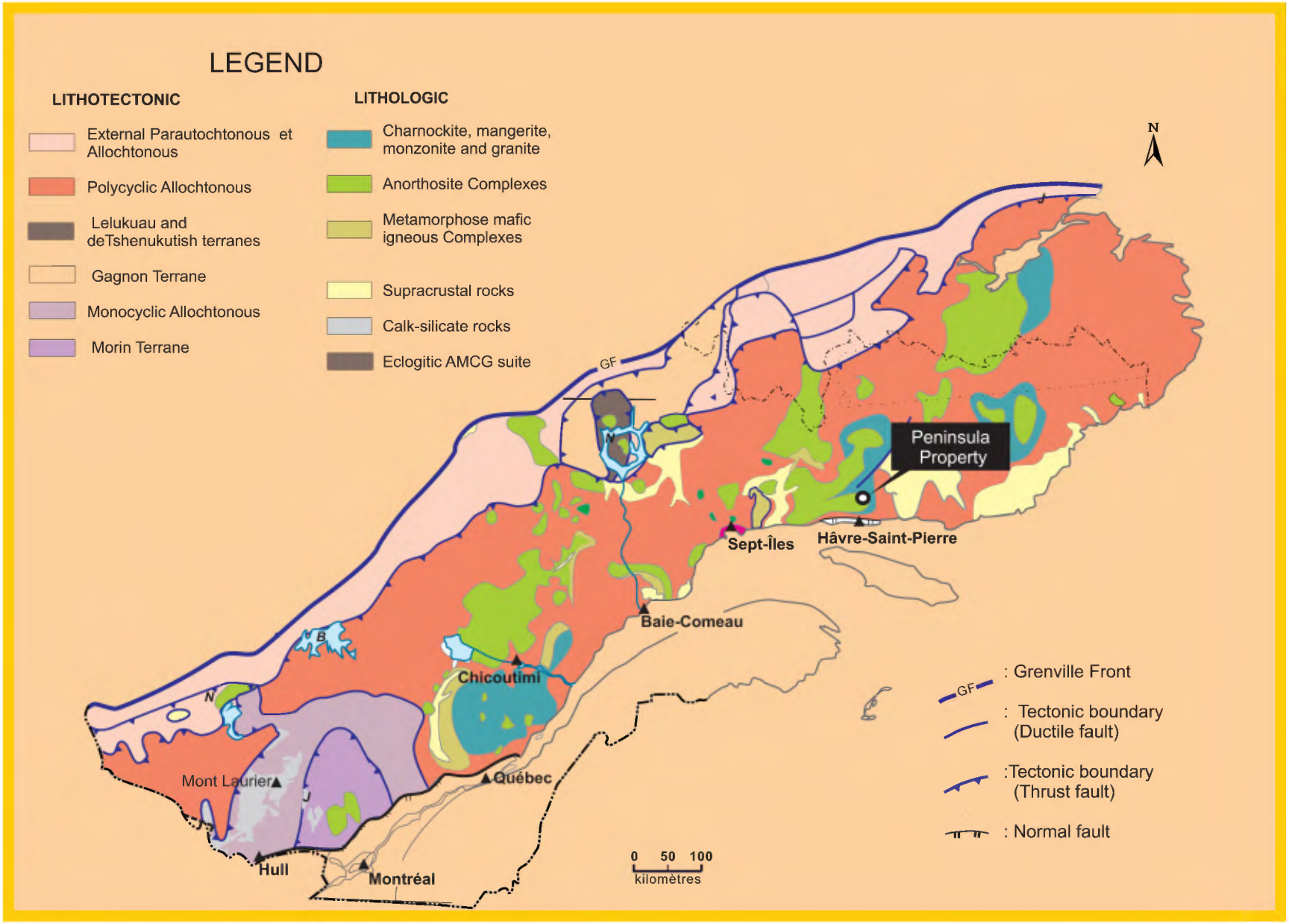


Figure 3. Geology of the Grenville Province of Québec showing the location of the Peninsula property.

Havre-St-Pierre Anorthosite Complex during a late deformation phase.

The area has been subjected to glaciations that resulted in the development of various glacial features such as striations, grooves, polished rock surfaces, eskers, erratics and glacial morraine deposits. Recent fluviatile deposits of gravel, sand and clay are also present. These deposits form terraces especially along the Romaine River.

7.2-The Lac St-Jean Domain

The Lac St-Jean domain is constituted of five rock assemblages: the Manitou Complex, the Magpie Complex, the Matamec Complex, the anorthosite intrusive suites (de Tortue Anorthosite, Thorn Anorthosite and the Havre St-Pierre Anorthosite Suit) and the late mafic to felsic intrusions (Figure 4).

The Manitou Complex incorporates a metamorphosed and deformed assemblage of gneissic rocks and ultramafic to felsic intrusive rocks. Quartzofeldspathic gneiss, orthopyroxene +clinopyroxene+hornblende gneiss and granitic gneiss compose the majority of the rock assemblages. They are accompanied by sillimanite gneiss, quartzite, marble, calc-silicate rock, grenatite, metabasite and by pyroxene amphibolite. The intrusive rocks are moderately to strongly deformed, syn- to post-cinematic, and represented by gabbro, pyroxene amphibolite, mangerite, leucogranite, foliated gneissic granite and syenite. The Magpie Complex defines a crescent shape assemblage of feldspathic and quartzofeledspathic gneiss with rusty paragneiss intercalations. The complex includes granitic to tonalitic orthogneiss, gabbro, gneissic to foliated amphibolite and a massif of foliated granite (Gobeil et al., 2003). The Matamec Complex is dominated by a large gabbronorite intrusion invaded by mangerite, monzonite and granite. The felsic intrusions are intimately associated with gabbronorites forming irregular kilometric-long masses and layers. The Matamec Complex is characterized by numerous evidences of magma mixing of gabbronoritic, monzonitic and granitic components. The Complex is delimited by a ductile shear zone and was thrusted on the Manitou Complex.

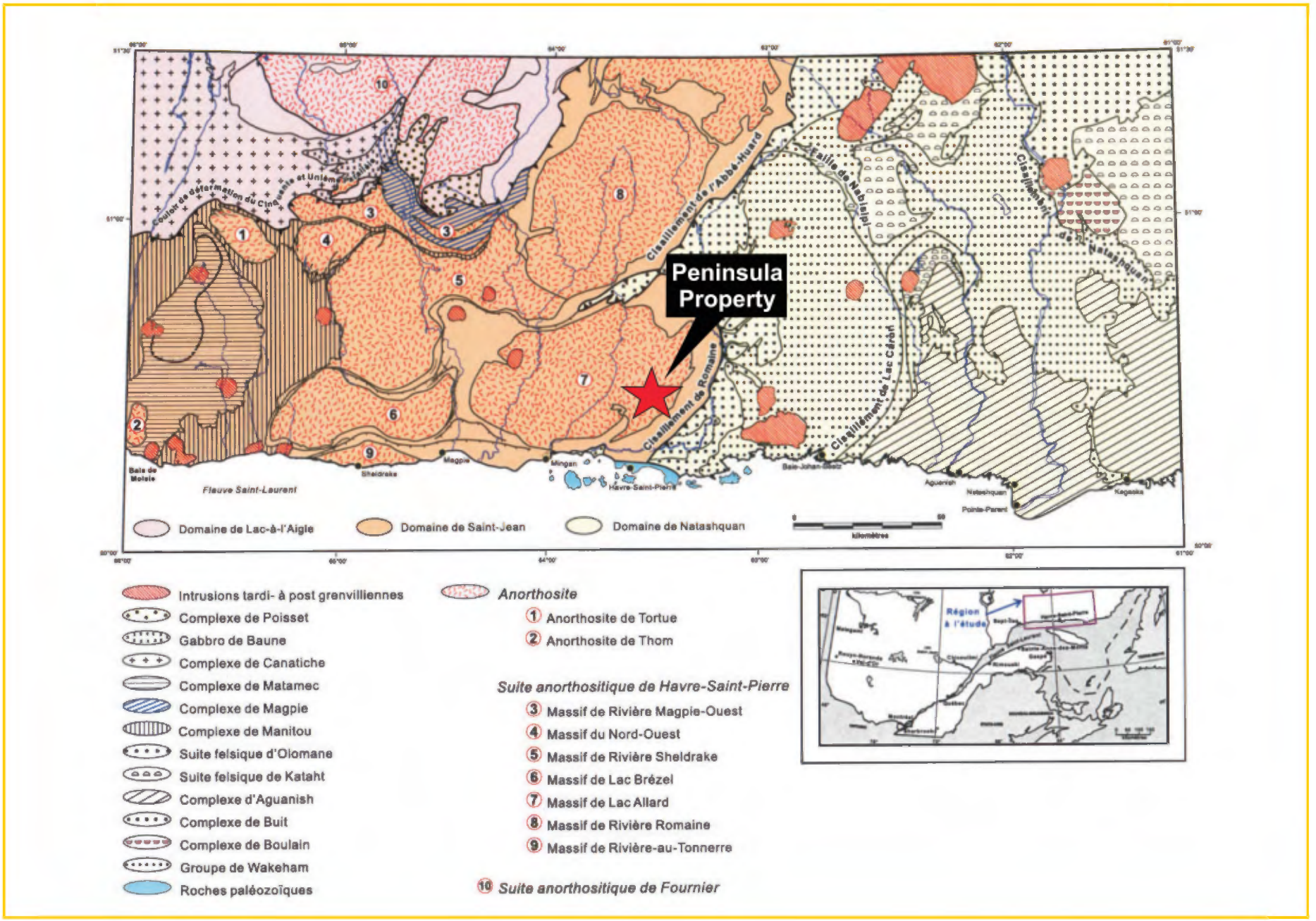


Figure 4. Simplified geological map of lithotectonic domains, stratigraphic units, principal structural elements and anorthositic massifs of the Lower North Shore area. (From Gobeil et al., 2003).

The anorthosite assemblages are constituted of three units: the Tortue Anorthosite, the Thom Anorthosite and the Havre-St-Pierre Anorthosite suite which covers aver two-third of the Lac St-Jean Domain (Figure 4). These units are characterized by a spectrum of anorthosite-leuconorite-leucogabbro-mangerite rocks. The anorthositic plutons present magmatic primary layering and sub-concordant injections. Norite, gabbro and troctolite constitute minor facies in these plagioclase-rich rocks. The Tortue Anorthosite forms an ovoid massif (250 km^2) containing three assemblages: 1) anorthosite and leuconorite with subordinate norite and gabbro; 2) leuconorite with minor anorthosite, norite, gabbro and pyroxenite and 3), a foliated, augen-type monzonite. The Thorn Anorthosite unit forms an ovoid massif (100 km^2) composed of anorthosite with subordinate leuconorite, gabbro and norite. The unit was affected by cataclasis and granoblastic recrystallization and contains gneissic enclaves.

7.3-The Havre St-Pierre Anorthosite Suite (HSPAS)

Madore et al. (1999) and Gobeil et al. (2003) have included the anorthositic massifs and mangerite-charnockite-granite envelope located north of an EW-line joining the village of Sheldrake and the town of Havre-St-Pierre, into the Havre St-Pierre Anorthosite Suite (HSPAS). The HSPAS contains the spectrum of anorthosite-leuconorite-norite-leucogabbro-mangerite rocks. Gabbro, troctolite, monzonite and mangerite constitute minor lithofacies within these plagioclase-rich rocks. Pyroxenites are commonly observed at the border of anorthosite massifs and are spatially associated with Cu-Ni mineralization. The HSPAS contains important ilmenite and magnetite mineralization, notably near lakes Puyjalon, Allard and TiO (Figure 5).

Anorthosite represents the common rock facies. The rock ranges in color from white-grey to blue-grey, green or black. The anorthosite is coarse- to very coarse-grained, locally pegmatitic, equigranular or porphyroid. The plagioclase crystals, white, grey or blue-grey, can reach decimeter length in several massifs. The leucocratic anorthosite contains andesine (An_{38-44}) with some occurrences of leuconorite-norite. We also find labradorite plagioclase (An_{50-65}). The plagioclase is antiperthitic and ilmenite occurs in recrystallized crystals near triple point junctions. Apatite is rare and green hornblende and biotite of metamorphic origin are often

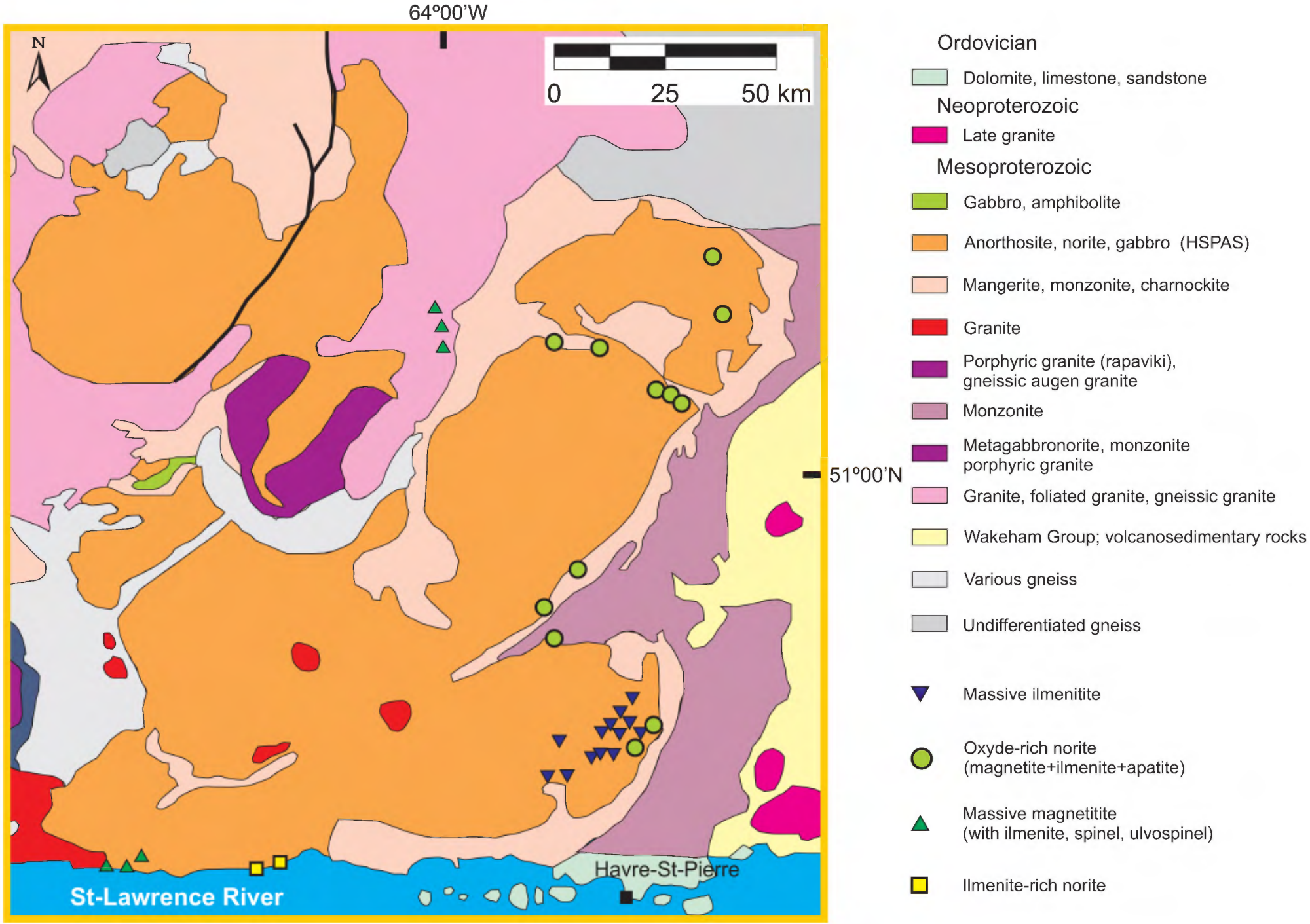


Figure 5. Geology of the Havre-St-Pierre area illustrating the widespread occurrence of anorthositic rocks of the HSPAS. The localization of Fe-Ti mine, prospects and showings are presented and subdivided according to the four types recognized by Perreault et al. (2003). Modified from Perreault et al. (2003).

present. Large crystals of orthopyroxene and clinopyroxene fill the interstices between the plagioclases. Pyroxene commonly posses an interstitial poecilitic texture.

The HSPAS was strongly deformed (Sharma and Franconi, 1975). The least deformed anorthosite is protoclastic, with a film of fine-grained plagioclase neocrystals surrounding the plagioclase phenocrysts. At a more advanced recystallization stage, the anorthosite is porphyroclastic with angular centimetric plagioclases surrounded by a plagioclase-rich matrix presenting granoblastic, granular and interlobate textures. Although some of the plagioclase recrystallization may be syn-magmatic in origin, Gobeil et al. (2003) suggest that most of the recrystallization took place during a regional deformation event associated with tectonic transport during the collisional Grenvillian Orogeny.

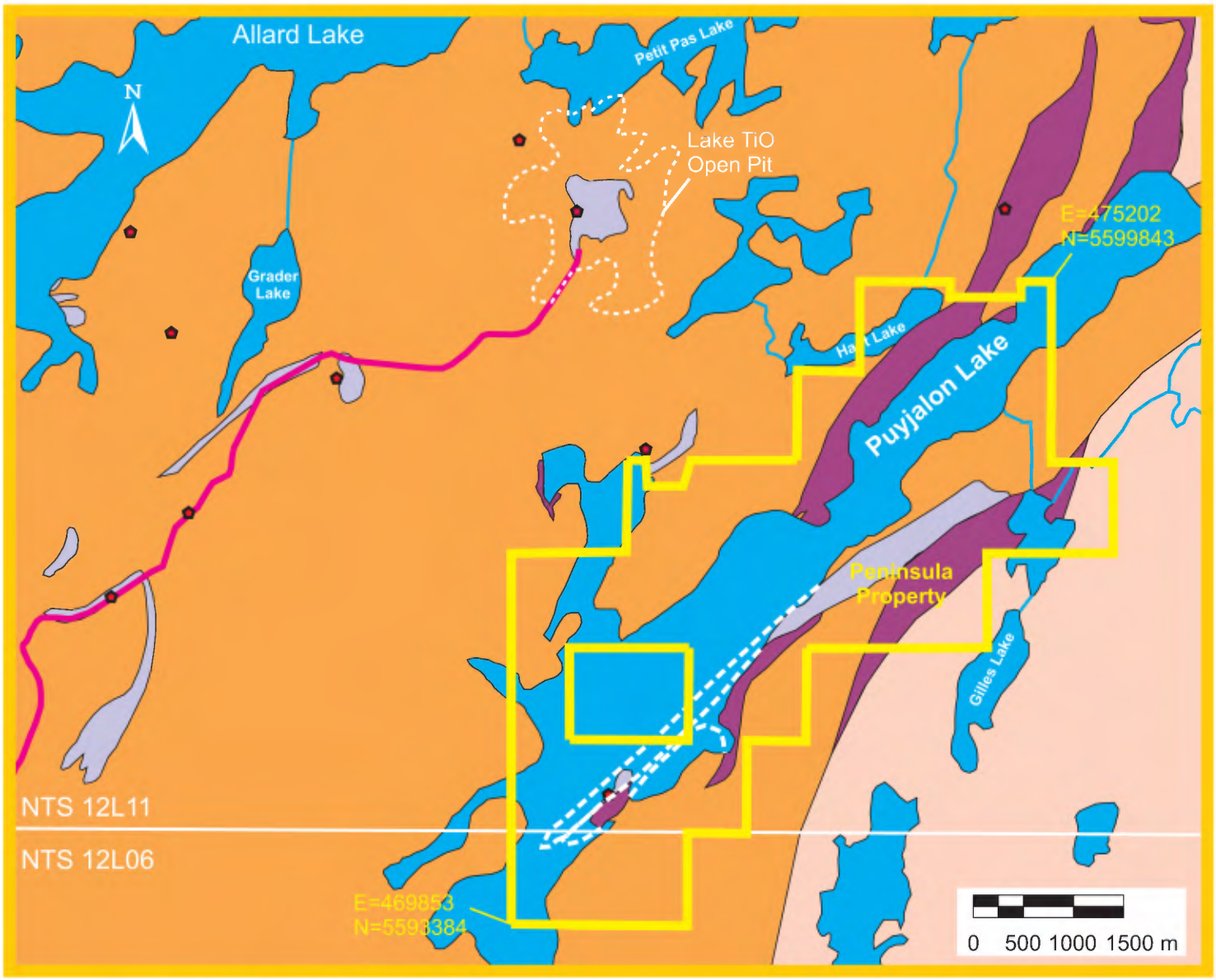
In the eastern area of the Allard anorthosite massif, layers or lenses of norite appear and contain apatite and ilmenite/magnetite mineralization, typical of that encountered at the Peninsula property. The anorthosites are surrounded by a band of mangeritic rocks 1 to 10 km in width (Hocq, 1982). This band is composed of jotunite, mangerite, quartz mangerite (farsundite), charnockite, granite and monzonite. Jotunite commonly occurs at the contact with the anorthosite with variable exposed thicknesses (10-500 m).

The anorthosite massifs and associated mangerite rocks are affected by an N-S (NNW-SSE to NNE-SSW) jointing with minor E-W-oriented joints.

7.4-The Lake Allard-Puyjalon Area

The HSPAS contains a number of deposits of ilmenite and magnetite of varying dimensions principally exposed in the Allard and Puyjalon lakes area (Figure 6). The magnetite and ilmenite occurs either as dissemination or as segregation into bands, patches or large elongated masses.

Magnetite norite, norite ilmenitite, ilmenitite-norite and ilmenitite are non-magnetic and form dark bands, lenses or dykes in leucoanorthosite. These rocks form important zones of mineralization at lakes Puyjalon, Allard, TiO, Manitou and Magpie. Norite-ilmenitite is rare and



Grenville Province
(Lac St-Jean Domain)

Havre-St-Pierre Anorthosite Suite
(HSPAS)

- Jotunite, magnetic
- Massive to finely laminated ilmenitite, noritic ilmenitite
- Mangerite, magnetic, minor charnockite, jotunite, monzonite and quartz monzonite
- Leucocratic anorthosite, partially or totally recrystallized, minor leuconorite, norite, gabbro, olivine gabbro and troctolite

- Titanium showing, prospect or mine
- Havre-St-Pierre Lake TiO Railway (Rio Tinto)

Figure 6. Geology of the Allard and Puyjalon lakes area. The principal titanium mine, prospects and showings are presented. Modified from Hocq (1982). UTM Coord; NAD83; Zone 20N; E=Easting; N=Northing.

occurs exclusively at the border of certain ilmenite bands (massive ilmenitite). Pyroxenite is associated exclusively with the magnetite-norite and ilmenitite-norite bands where they constitute thin plagioclase-poor layers. The magnetite-norites are located generally east of Lake Allard. These are dense and dark rocks containing between 5 to 25% magnetite.

Lenses, bands and layers of ilmenitite constitute the titanium ore of all the deposits, prospects and showings located in the vicinity of the lakes Allard and Puyjalon. They are found in leucocrate anorthosite, rarely in leuconorite or norite. Most bands and layers of ilmenitite show variable thickness (5 cm to 100 m), tend to lay parallel to the anorthosite layering and possess shallow dips (10° to 35°). The ilmenitite rock presents a black lustrous massive and homogeneous or finely laminated texture. Ilmenitite can also form dykes in anorthosite. In certain areas, evidence of sedimentation by gravity has been observed, principally in layers and lenses of ilmenite leuconorite, ilmenite norite and ilmenitite-norite (Hocq, 1982).

7.5-Structure

The structural pattern of the area is greatly influenced by the huge massifs of anorthosite and other plutonic rocks. The Havre St-Pierre Anorthosite Complex has suffered cataclastic deformation, metamorphism and recristallization exhibited by the presence of crushed plagioclase. Other effects of recristallization are the development of mafic minerals, coronae structures in mafics and the development of garnets. However, Hocq (1982) confirms the limited impact of the regional metamorphism on the anorthosite-mangerite rocks. Hyperstene and augite are relatively fresh and there is a conspicuous absence of reaction coronae around pyroxenes or oxides. This suggests that the anorthosite-mangerite evolved and decompressed in a water-poor environment. Structural analysis has shown a regional deformation producing large km-sized folds transported to the west.

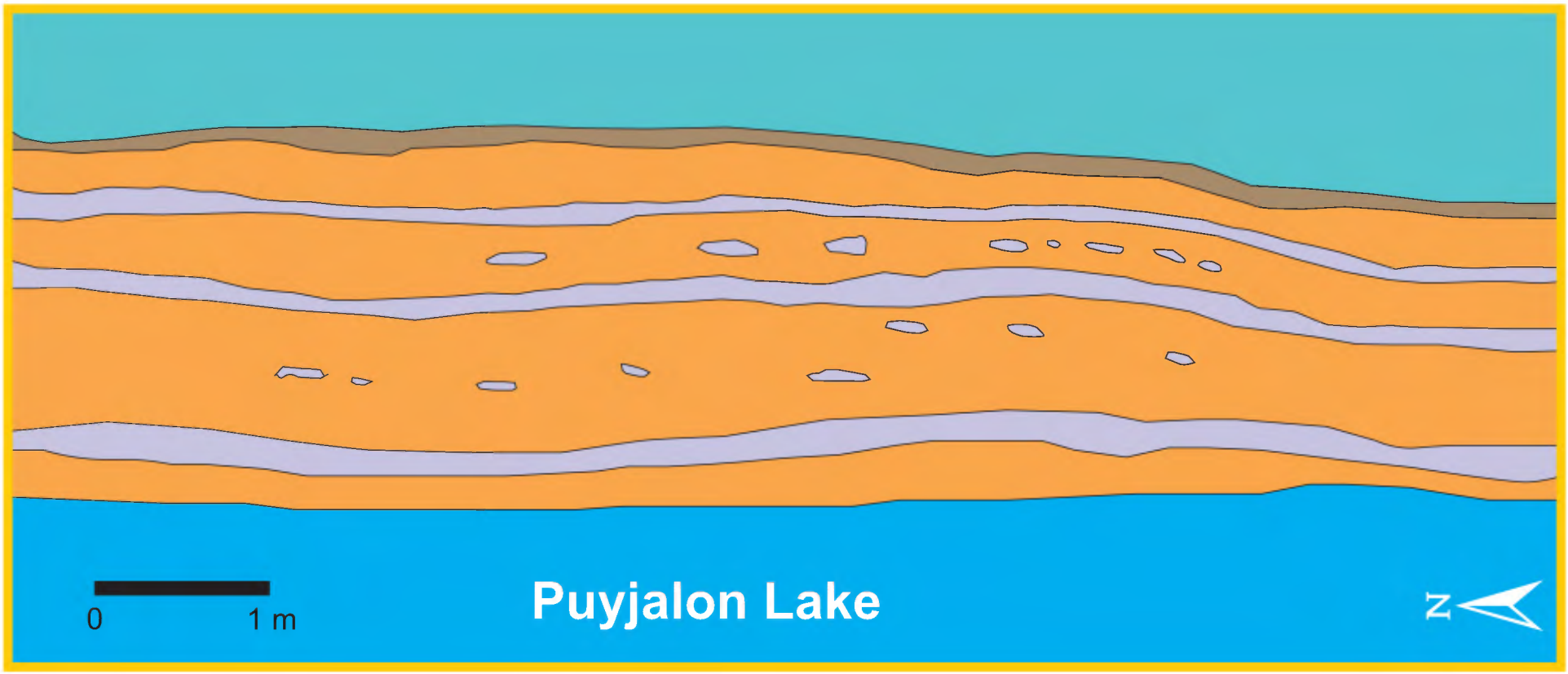
7.6- Geology and Fe-Ti Mineralization of the Peninsula Property

There is a large band of ilmenite mineralization that extends discontinuously along the southern shore of Lake Puyjalon. The width of this band, oriented 40°-50°/35°-45° varies from several

tens of meters on the Puyjalon Peninsula to 250-350 m to the north near Aline Lake (Hocq, 1982) (Figure 6). The Puyjalon Peninsula forms an anvil-like protrusion in Lake Puyjalon. The Peninsula showing consists of a succession of dm to meter-thick layers of leucoanorthosite and ilmenite leuconorite. On several instances, these bands reveal meter-thick sub-concordant layers of ilmenitite-norite and several horizons of massive ilmenitite 15 to 30 cm thick. The entire sequence is 25 to 50 m in thickness and is overlain by 50 m of anorthosite and leuconorite containing lenses of ilmenite aggregates (Figure 7). The sequence reappears along the Puyjalon lake shore 1 km to the northeast. The outcrops reveal more bands of ilmenitite-norite and norite ilmenitite interlayered with massive fine to medium-grained ilmenitite (30-80 cm), The strong negative magnetic anomaly found on the MERQ magnetic map of the area indicates a gradual thickening of the mineralized sequence to the north reaching 1200 m near Lake Aline. A section of the small hill located 1 km south of this lake is presented in Figure 8. At the base of the valley floor, a laminated leucocratic anorthosite is succeeded by 35 to 40 m of layered ilmenitite alternating with bands of norite-ilmenitite and ilmenitite-norite. The ilmenitites (20-50 cm thick) are finely laminated. Layers with less mineralization are highly rusted and friable, medium-grained and can reach 50 cm to 1 m in thickness. They contain only 20-50% ilmenite. Progressing upward, we observe 5 to 6 m of saccaroid anorthosite with 5- 10% blue plagioclase porphyroclasts. 30 meters further up the hill slope, another 30 m-thick mineralized zone contains ilmenite-norite or norite-ilmenitite altered layers. A 15 to 20 m-thick zone of rusty magnetite/ilmenite melanorite, richer in pyroxene, is found above and is capped by a medium-grained, less magnetic jotunite zone. During a brief helicopter flight over the steep butte located directly SW of Lake Aline, Hocq (1982) has noticed that most of its northern flank is composed of ilmeninite or ilmeninite-norite.

ITEM 8 DEPOSIT TYPE

The numerous deposits of titaniferous magnetite, magnetite-ilmenite-apatite and massive ferroan-ilmenite in the Grenville Province of Quebec have been known since the 1850's. In general, the deposits occur as tabular intrusions, stocks, sills or dykes in anorthosite massifs. Locally, they consist of stratiform mineralization in layered segment of anorthosite massifs or in layered mafic intrusions (Corriveau and Perreault, 1999).



Massive to finely laminated ilmenitite

Leucocratic anorthosite

Figure 7. Representative cross-section of the Pennisula prospect along the shore of the Puyjalon lake. Modified from Hocq (1982).

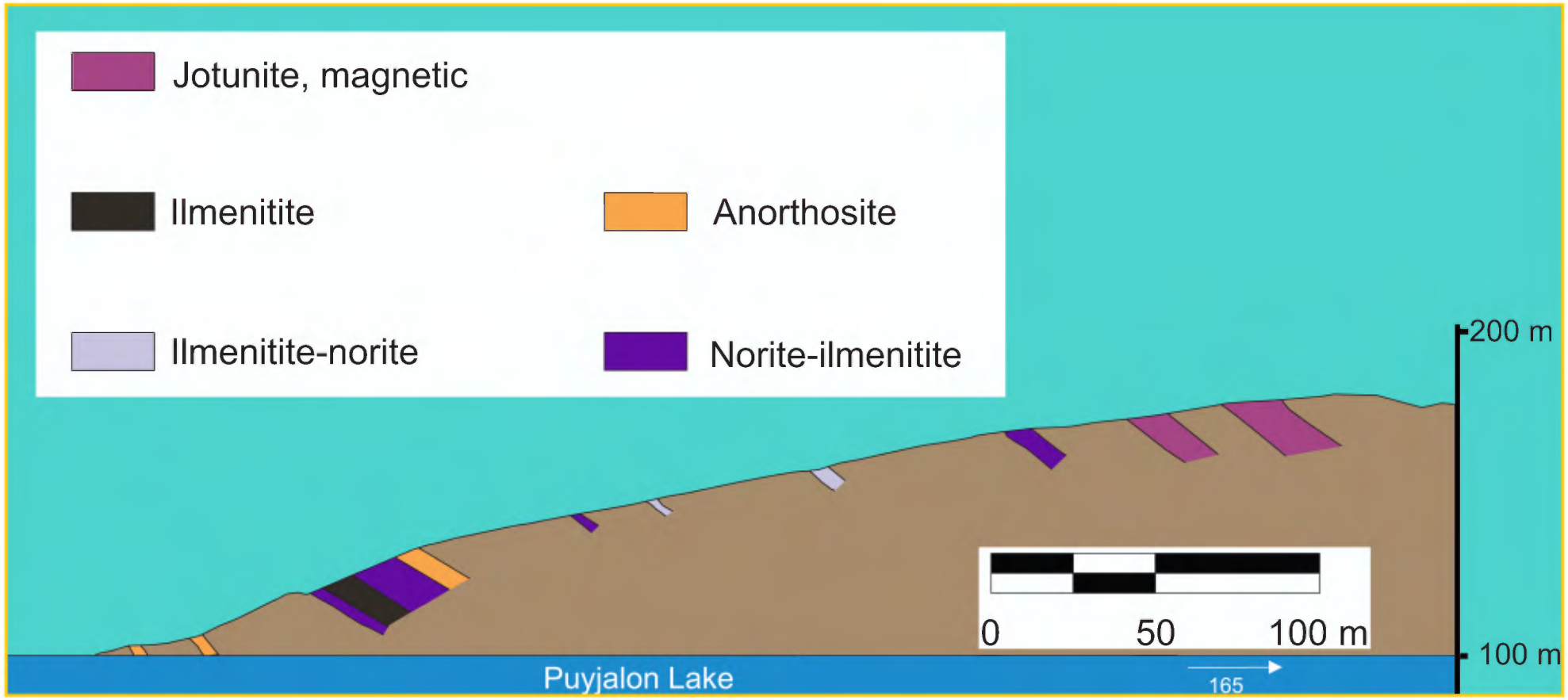


Figure 8. Cross-section of the mineralized band localized on a small along the southern bank of Puyjalon Lake near Aline Lake. Modified from (Hocq, 1982).

Most of the Fe-Ti showings, prospects and mines exposed on the Lower North Shore of Quebec are associated with the Havre-Saint-Pierre Anorthosite Suite or the Fournier anorthosite massif. Perreault et al. (2003) have classified these mineral occurrences in four types: 1) Massive ilmenite dykes and veins related to andesine anorthosite, 2) Ilmenite-magnetite-apatite-rich jotunite (or ferrodiorite) dykes or intrusions emplaced at the contact of mangerite-anorthosite rocks, 3) Magnetite-ilmenite norite dykes and layers accompanied by ilmenite veins injected in labradorite anorthosite and 4), Layers, pods and dykes of massive Ti-rich magnetite intruded at the edges of labradorite anorthosite or jotunite massifs. The Peninsula prospect belongs to Type 1 mineralization.

Several mechanisms have been suggested for the genesis of magnetite-ilmenite deposits associated with massif-type anorthosites. Immiscibility of Fe–Ti–P-rich melts is one process argued by Philpotts (1967) and Kolker and Lindsley (1989). However, experimental studies do not favor immiscibility (Lindsley, 2003), and unrealistically high temperatures are needed for ilmenite– apatite melts (~1400 °C). It ensued that the only plausible mechanism for the formation of magnetite-ilmenite deposits is fractional crystallization of a jotunite, ferrodiorite or high-Al gabbro that commonly occurs in spatial association with anorthosites. Both the Fe-rich dyke and anorthosite are linked to each other by a Fe- enrichment fractionation trend typical of tholeiitic melts/liquids. In layered bodies such at Tellnes (SW Norway), the mineralization is best explained by fractional crystallization with accumulation and enrichment in Fe-Ti oxide minerals often in monomineralic layers in a magma chamber (Duschesne, 1999).

Duschesne (1999) has shown that all Fe-Ti deposits within massif-type anorthosites display various degrees of deformation. As in the case at Peninsula, this deformation could play a role in separating the Fe-Ti oxides from other minerals and from other layered rocks generated in transient magma chamber to concentrate them in pods and veins into the enclosing barren anorthosite. Because crystallization and deformation of anorthosite massifs are probably synchronous, filter press mechanisms could have expelled the oxide ore from more rigid crystal matrixes. It is also possible that the Peninsula ilmenite mineralization originated as cumulates, with or without associated silicate minerals, in a transient magma chamber, which subsequently

has been deformed along with its enclosing anorthosite at high temperature during the emplacement of the Havre St-Pierre Anorthosite Suite. Due to its ability to recrystallize and its wetting properties, ilmenite/magnetite could have separated from the silicate minerals and migrated in the solid state during deformation to form veins. One possible mechanism responsible for the ilmenite/magnetite enrichment in transient magma chambers is removal of plagioclase through segregation by flotation. Plagioclase has a lower density (2.61-2.65 g/cm^3) than ferrodioritic/jotunitic melts from which it crystallizes (ca. 2.75 g/cm^3). Direct evidences for plagioclase buoyancy are found in the Tellnes and Lake TiO deposits where anorthositic outcrops are close to Fe-Ti deposits and commonly at a higher stratigraphic level.

ITEM 9 EXPLORATION

9.1- Helicopter-borne Geophysical Survey

9.1.1- Introduction

From May 1st to 5th 2011, Geophysics GPR International Inc. based in Longueuil, Quebec flew a 336 line-km helicopter-borne magnetic and EM-VLF geophysical survey for Canamara Energy Corporation over the Peninsula property. The surveying was completed on NS-oriented flight lines based on 100 meters line spacing. The following technical details pertaining to the survey were extracted from a report entitled: "Helicopter-borne magnetic gradiometer and VLF geophysical survey, North-Shore region, Québec, NTS map sheets 012L05, 12/L06, 012/L11 and 012/L12, Data acquisition report, Peninsula and Lac Allard project". The survey helicopter was a Eurocopter AS 350 BA Écureuil operated by Canadian Helicopters Inc. The helicopter and geophysical crew were based in Havre-St-Pierre, Québec. Mobilization was completed for the project on April 26th, 2011. A test flight was flown after mobilization in order to validate the orientation of the sensors and check the data acquisition system operation. Five and an half (5.5) days were lost due to the weather conditions and one (1) day was lost due to equipment problems. The crew demobilized on May 6th.

The table below shows the planned survey parameters for the project. The direction of the

flight lines is 0°-180°. The direction of the tie-lines is 90°-270°, with respect to UTM coordinates.

Parameters	Peninsula Property
Mag. Sampling Interval	0.1s (~3.6 m)
Flight-line Spacing	100 m
Flight-line Direction	0°-180°
Control-line Spacing	1000 m
Control-line Direction	90°-270°
Aircraft MTC*	60 m
Mag. Sensor MTC*	30 m
Ground speed	100 km/h

* Main Terrane Clearance

The helicopter was equipped with a Helimager™ system, which is a towed bird system configured with three cesium vapor magnetometers, two at the end of the lateral arms and one above the central body of the bird. DGPS positioning and radar altimeter data were measured at the bird and at the helicopter, allowing a digital elevation model to be produced.

9.1.2- Data Acquisition and Quality Control

During data acquisition, quality control was carried out on the data on a daily basis by GPR's data processor to ensure that quality remained within specifications. At the end of the planned survey, data were reviewed by GPR's team leader and reflight lines were identified. Profiles were checked after each production day to ensure correct flight path recovery and, instrument noise was evaluated and average spectral peaks were verified using Geosoft Oasis Montaj Software.

9.1.3- Helicopter-borne Detectors and Recording Equipment

9.1.3.1- Magnetometers

Three Geometrics G-823A (optically pumped cesium vapor) total magnetic field sensors with a sampling interval of 0.1 second were mounted on the gradiometer, 30 meters below the helicopter. The sensors were installed at each end of the horizontal boom (6 m) and one at the upper pod (1.5 m), in order to measure the lateral and vertical gradients. The magnetometers send the measured magnetic field intensity as nanoTesla (nT) to the data acquisition system via a RS-232 port.

A Geometrics G-856 Ax (proton precession) total field magnetic sensor, with a sampling interval of 1 second was used to record the diurnal variation of the magnetic field at the base-station's location. The base station was set up at a location away from power lines and the main road to avoid interference from traffic. The location of the base-station was located a few kilometers from the helipad in a nearby forest.

A FreeFlight TRA3000 radar altimeter, combined with a TRI30 Indicator unit mounted on the helicopter provides the pilot with highly accurate altitude-aboveground-level (AGL) information. A second radar altimeter comprising the same elements was mounted on the bird, along with the GPS and magnetic sensors.

A Crescent R120 DGPS receiver that offers many differential correction options for various environments and worldwide coverage was used for in-flight navigation, with a sampling interval of 0.1 second. The antenna was mounted directly on the helicopter and allowed an accurate positioning of the bird. The DGPS system provides an accurate positioning as well as the height above the WGS-84 ellipsoid. A LED-type track bar (from AG-NAV Inc.) was used by the pilot for efficient line tracking in any lighting conditions.

9.1.3.2- Helicopter Data Acquisition and Recording System

The Helicopter data acquisition and recording system is composed of proprietary hardware developed by Geophysics GPR International Inc. and an industry standard

navigation / recording software package (Hypack Max 6.2). Data were recorded on hard disk and backed up after each flight. A dedicated laptop computer was used on-site for the purpose of displaying geophysical data for quality control, calculating and displaying the navigation, producing preliminary magnetic, spectrometry maps and backing up digital data.

9.1.4 - Data Processing

9.1.4.1- Magnetic Data

Data recorded on the helicopter were transferred after each flight to the processing computer for verification and quality control. The raw GPS data (longitude, latitude and height) were recorded in the WGS-84 geodetic system. These coordinates were transformed into the NAD83 datum, UTM projection, Zone 18N by the navigation software and compared in real-time to the theoretical coordinates of the flight paths to provide a correction to the pilot. The DGPS data (1.0 s interval) were interpolated at the same rate as the magnetic data (0.1 s interval) and exported for flight path recovery and quality control. The raw line data was transformed into Oasis Montaj .XYZ format by a proprietary software program.

Classical tie-line leveling was performed on the original Total Magnetic Intensity (TMI) data. The enhanced total magnetic field was obtained by integrating the vertical gradient in the frequency domain derived from the observed horizontal gradients using Laplace's equation. The noisy long-wavelength data originating from the horizontal gradients were replaced by the almost noise free total magnetic field long-wavelength data. A lag correction of 0.7 second was applied to the final processed magnetic data based on a lag test executed on survey location. The magnetic data recorded at the base-station were synchronized, using the GPS time and merged with the helicopter-borne data. Subsequently, the diurnal corrections obtained by subtracting the mean value of the base station readings were applied to the data after low pass filtering. The First Vertical Derivative (FVD) was obtained with the help of the 2D-FFT first vertical derivative calculated from the total magnetic field. The Digital Terrain Model

(DTM) was obtained by subtracting the radar altimeter readings (helicopter mounted) from the DGPS height (helicopter mounted). The radar altimeter was corrected, for a lag estimated to be 3 seconds.

9.1.5-Interpretation

9.1.5.1-The Magnetic Properties of Fe-Ti Minerals

Aeromagnetic surveys have become an important tool for exploration of mineral resources. An important assumption in this surveying method is that induced magnetization dominates over remanent magnetization. Nevertheless, examples are encountered, where magnetic susceptibility is significantly lower than would be expected for coarse-grained magnetite, and where the rock body could be shown to contain a large negative remanent magnetism. The reason for this behavior is that magnetic properties of iron-titanium minerals vary greatly with their composition, texture, temperature, and pressure. One of the important magnetic properties of these minerals is their ability to produce magnetic anomalies. Another key attribute is their varying capacity to retain a hard component of remanent magnetism; and a third related property is their inherent mechanism of reversing their magnetic fields.

Rocks containing magnetic minerals may have two types of magnetization: induced and remanent. Induced magnetization is created only in the presence of an external magnetic field. Remanent magnetization, however, is frozen within the rock, and the rock remains magnetized in a field-free area. Sometimes the direction of the Earth's field at the time of rock formation or alteration is preserved. Both induced and remanent magnetization vanish above the Curie temperature (about 580°C for magnetite). Rose (1969) conducted studies of the remanent magnetism in oriented iron-titanium ore samples. He arrived at the following conclusions :1) Remanent magnetism is characteristically strongly developed and retained in intergrowths of iron-titanium oxide mineral, especially in ilmenite/hematite intergrowths, but is also found in certain magnetite (magnetite-ilmenite) deposits; 2) Remanent magnetism is commonly subordinate to induced magnetism in most titaniferous magnetite; because of this, titaniferous magnetite is commonly unstable under magnetic washing, whereas ilmenite-hematite is

commonly stable. Rose (1969) concluded that the magnetic anomalies associated with titaniferous deposits are generally controlled either by titaniferous magnetite with a strong component of induced magnetism and high magnetic susceptibility, or by ilmenite-hematite with weak component of induced magnetism and low magnetic susceptibility. There is a hard component of remanent magnetism of both titaniferous magnetite and ilmenite-hematite. However, the reverse (negative) remanence of ilmenite-hematite (much less commonly of titaniferous magnetite) commonly produces a reversed or true negative magnetic anomaly.

9.1.5.2- Result of the Heliborne Magnetic Survey

The results of the airborne geophysical survey can be best summarized into key contour maps that illustrate the First Vertical Derivative (FVD) and Total Magnetic Intensify (TMI) field variations both in logarithmic and in linear modes (Figures 9 to 12).

The enhanced residual magnetic field contour map (RMF; Figure 9), reveals pronounced variations associated with specific lithologies and a general NE-SW trend probably related to the strike of the main foliation affecting the plutonic rocks. In general, the anorthositic rocks are associated with moderately low signatures (-700 to -1330 nt) depicted as light blue to green hues. Anorthosites are made of > 90 plagioclase and contain < 5% magnetite-ilmenite. The jotunite rocks, which according to Hocq (1982), contain various proportions of magnetite display relatively high magnetic values particularly associated with a NE-SW oriented band located SE of Lake Puylajon. However another 7 km long NE-SE-oriented jotunite shows more varied signatures punctuated by magnetic highs and lows. A strong magnetic low roughly corresponds to the body of the ilmeninite/ilmeninite norite unit as defined by Hock (1982) south of Lake Aline. A smaller negative trough overlies the initial location of the Peninsula showing on the protruding anvil on Lake Puylajon.

The magnetic contours may better define the lithological units than the geological map which is based on large interpolation from scattered rock exposures. For instance, the jotunite band situated SE of Lake Puylajon can be delineated by the contours of magnetic high values associated with the elevated magnetite content of this intermediate plutonic rock. Furthermore,

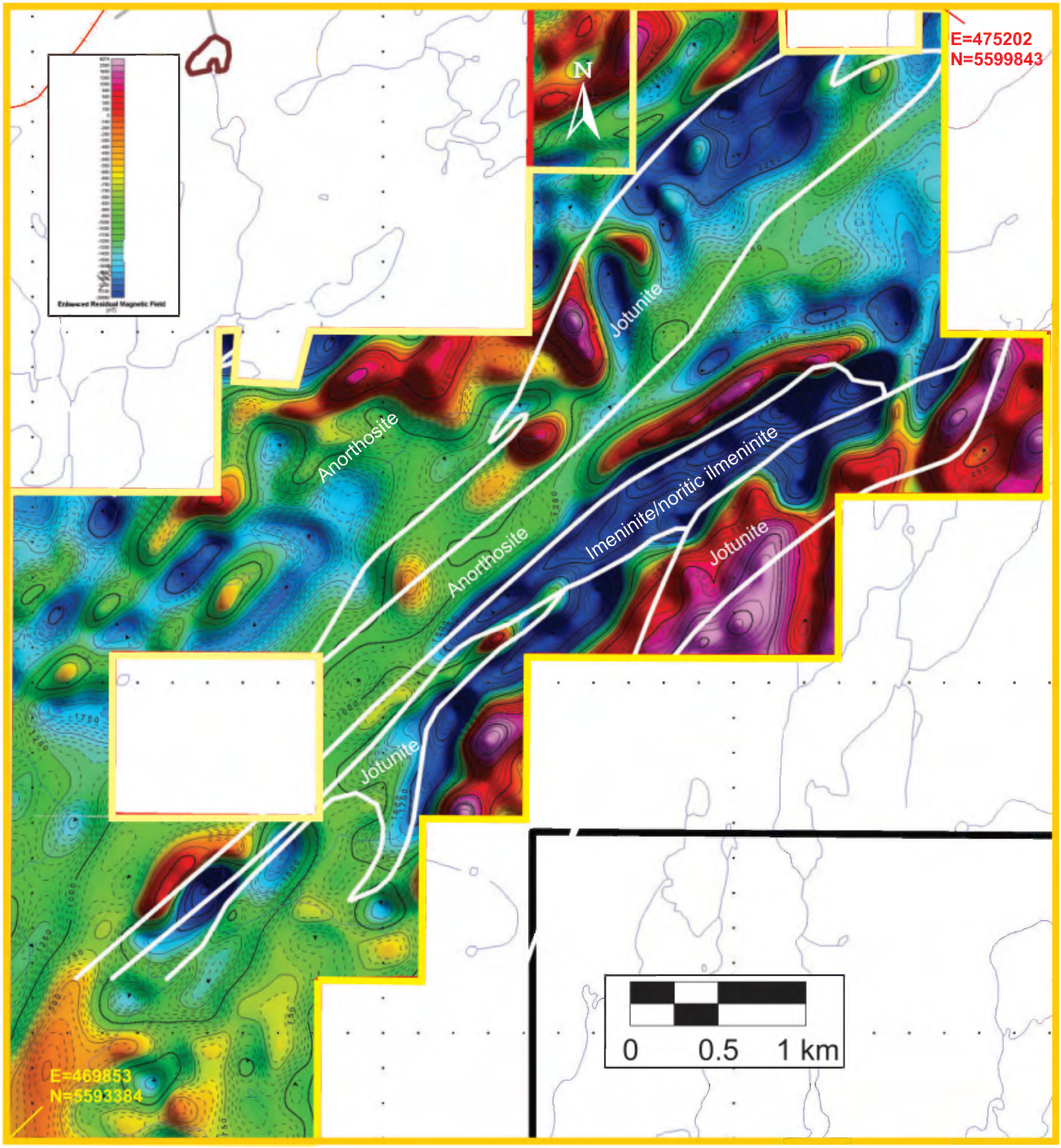


Figure 9. Residual Magnetic Field (RMF) contour map (nT) of the Peninsula property in logarithmic mode. UTM Coord.; NAD83; Zone 20N; E=Easting; N=Northing.

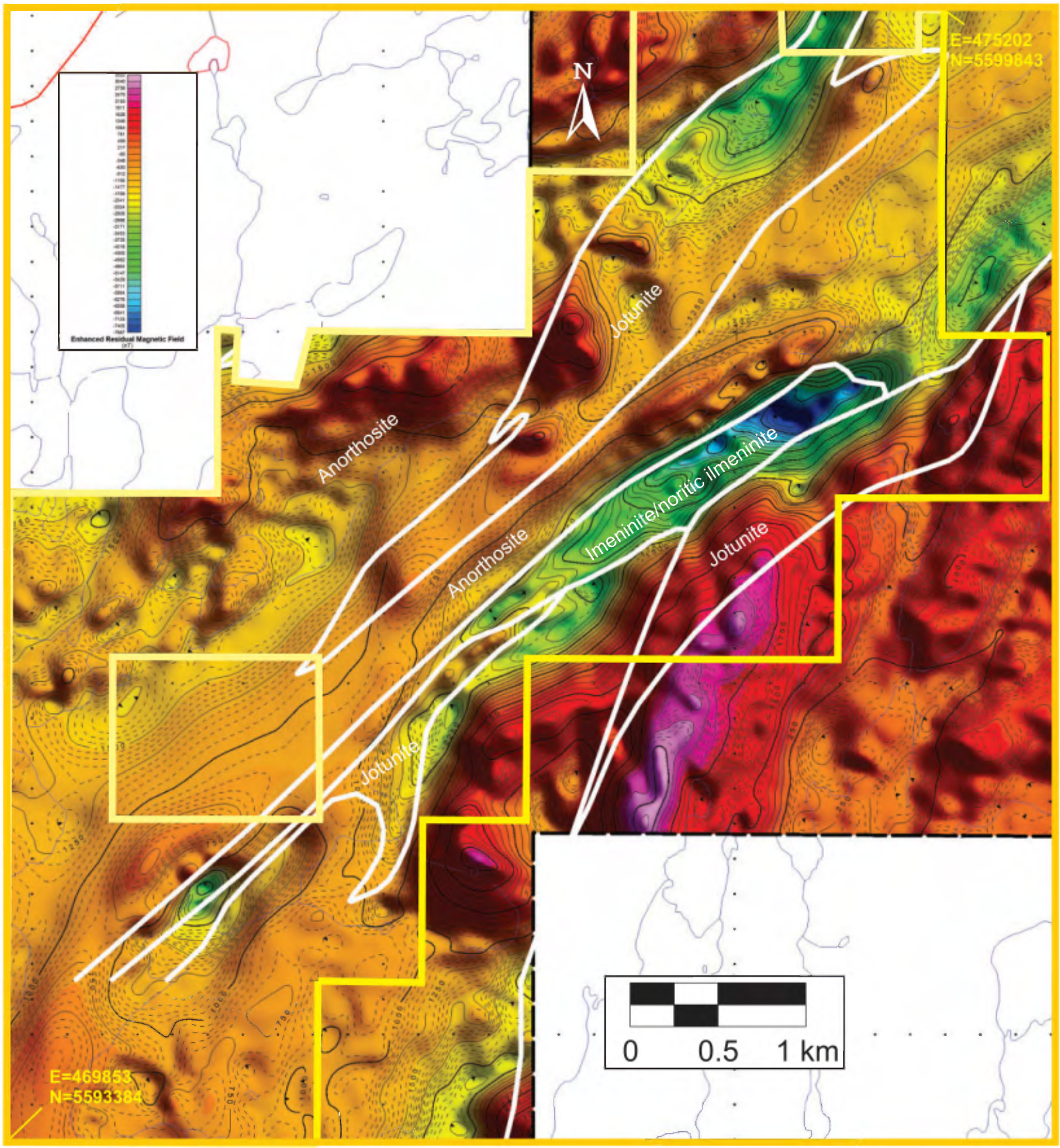


Figure 10. Residual Magnetic Field (FVD) contour map (nT) of the Peninsula property in linear mode. UTM Coord.; NAD83; Zone 20N; E=Easting; N=Northing.

other high-magnetic bands oriented parallel to the general NE-SW lithological trend may also indicate the presence of magnetite-rich jotunite rocks or magnetitite layers within anorthosite rocks. The transition between the leuconorite/norite±ilmeninite norite and ilmeninite/noritic ilmeninite may be better visualized on the RMF contour map, with the magnetic low values (in blue and dark blue hues) representing grater proportions of ilmeninite bands. The RFM contour map expressed in linear mode highlights areas of extreme values which may help constrain the area of exploration for ilmenite-magnetite mineralization (Figure 10). A zone of dark blue hues located at the SE contact of the noritic ilmeninite/ilmeninite and anorthosite shows negative values < -7400 nT, which according to Hocq (1982) corresponds to numerous thick layers of ilmeninite. This is the primary exploration target area. For comparison, the magnetic signature of the exposed mineralization at the site of the Peninsula showing (i.e. the anvil) is around -5500 nT.

The First Vertical Derivative (PVD) contour map generated in logarithmic mode provides a similar overall picture than the previous map (Figure 11). The ilmeninite/noritic ilmenite unit is well defined. Note the presence of significant low values (dark blues) associated with the Peninsula showing and the presence of high magnetic parallel zones at the northern contact with the anorthosite rocks. These bands may coincide with layers of magnetite-rich jotunite or of magnetitite. The FVD map generated in linear mode again emphasize the two targets zones of ilmenite mineralization: the Puyjalon anvil and the Lake Aline site (Figure 12). At both sites, the blue and red hues expressing very high (> 38 nT/m) and low (< -40 n/T) magnetic values define bands oriented parallel to the general principal foliation and lithological contacts.

ITEM 10 DRILLING

No drilling took place during the course of this study.

ITEM 11 SAMPLE PREPARATION, ANALYSES AND SECURITY

No rock samples were collected from the Peninsula property during the course of this study.

ITEM 12 DATA VERIFICATION

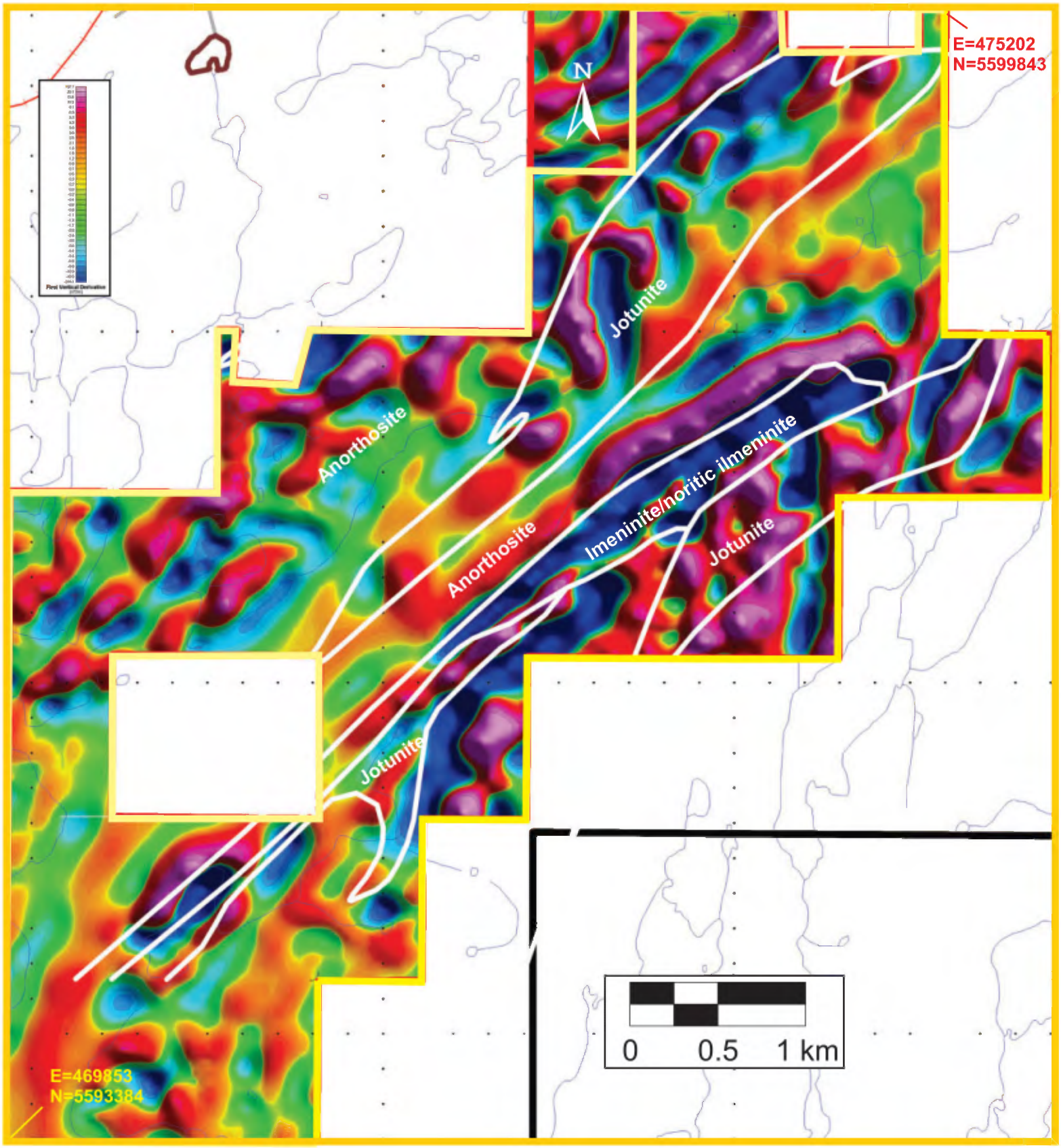


Figure 11. First Vertical Derivative (FVD) contour map of the total magnetic field (nT/m) of the Peninsula property in logarithmic mode. UTM Coord.; NAD83; Zone 20N; E=Easting; N=Northing.

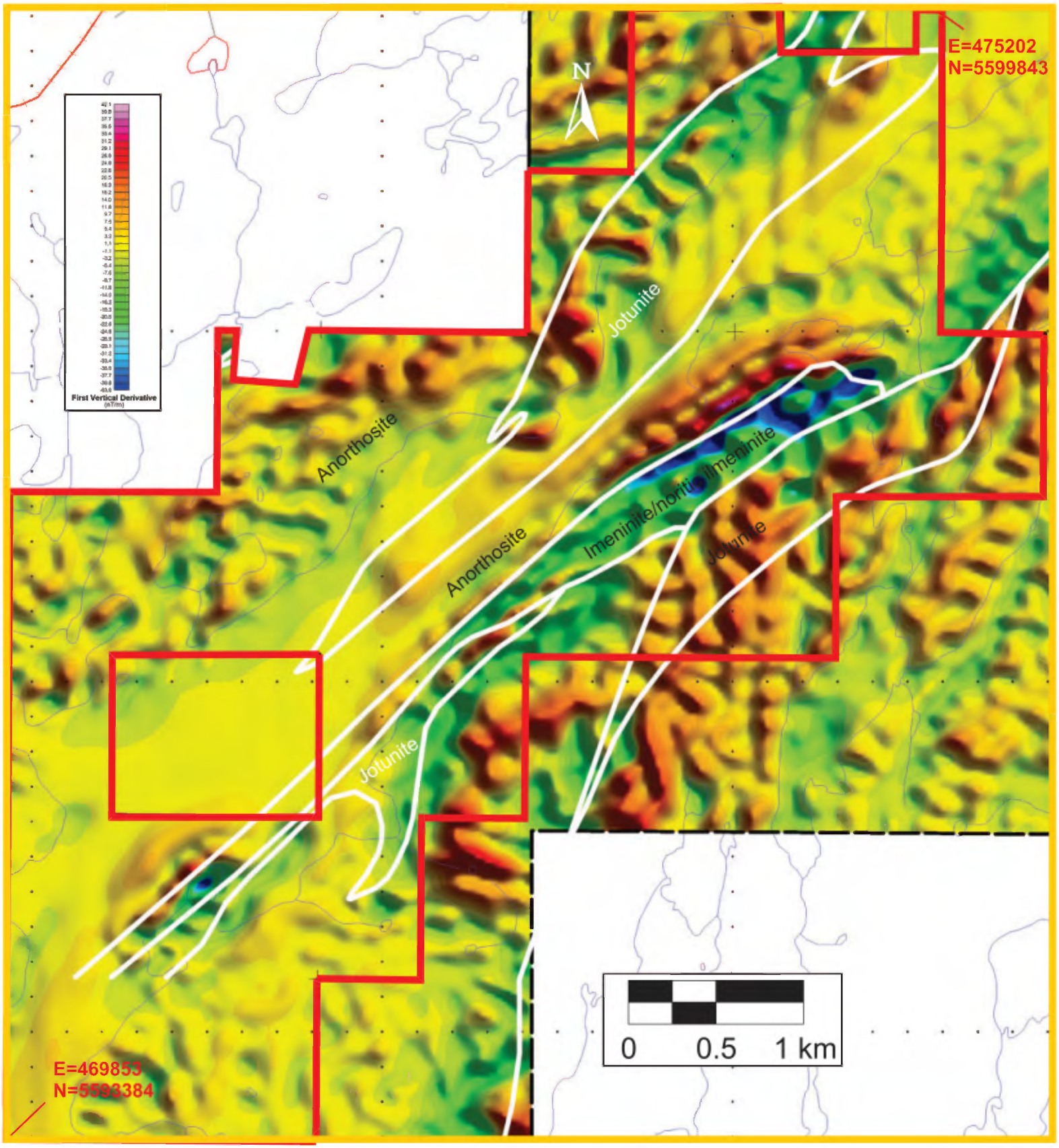


Figure 12. First Vertical Derivative (FVD) contour map of the total magnetic field (nT/m) of the Peninsula property in linear mode. UTM Coord.; NAD83; Zone 20N; E=Easting; N=Northing.

Non applicable

ITEM 13 MINERAL PROCESSING AND METALLURGICAL TESTING

No Mineral Processing and Metallurgical Testing were conducted during the course of this study.

ITEM 14 MINERAL RESOURCES ESTIMATE

No Mineral Resource Estimate was performed during the course of this study.

ITEM 23 ADJACENT PROPERTY

The Lake TiO mine, still in operation, is located just 2.5 km north of the northern limit of the Peninsula claims. The mine is defined by a tabular sub-horizontal intrusion divided in three zones separated by normal faults (Bergeron, 1986). The main deposit is inclined 10°W and occupies an area roughly 1 x 1.1 km with a thickness of 110 m. The "Northwest" deposit forms a 7 to 60 m thick band of massive ilmenite within decimetric to decametric anorthosite layers. The Cliff deposit has an elliptic shape and forms a small hill overlooking the Lake TiO pit. The massive ilmenite zone is 328 x 225 m with a mean thickness of 60 m.

The main deposit is subdivided into three parts: the upper zone, composed of massive ilmenite with occasional ilmenitic norite, an intermediate zone made of an alternance of massive ilmenitite and ilmenite anorthosite and a lower zone of massive ilmenitite. Inclusions of anorthosite, as well as horizons of ilmenite-rich anorthosite, are found throughout the orebody. The main body is covered by a low-grade cap composed of alternating bands of ilmenitite and anorthosite. These bands have a shallow dip (10°E). Megascopically, the Lake TiO deposit consists of crystal aggregates of thick, tabular ilmenitite. Gangue minerals occur in interstices and include plagioclase, biotite, pyrite, phyrrhotite and chalcopyrite. Microscopically, the ilmenite grains contain elongated and parallel lamellae of hematite. The Lake TiO mineral mixture consists of 75% ilmenite and 25% hematite. The Main deposit contains at least of 125 Mt of ore with a mean composition of 34.2 wt. % TiO_2 and 56.1 wt.% Fe_2O_{3T} (Rose, 1969).

ITEM 24 OTHER RELEVANT DATA AND INFORMATION

There is no Other Relevant Data and Information.

ITEM 25 INTERPRETATION AND CONCLUSIONS

The Peninsula titanium property is located in the St-Lawrence North Shore of Quebec in NTS map sheets 12L11 and 12L06. The property is situated 32 km NNE of the town of Havre-St-Pierre and consists of thirty-one (31) continuous mineral claims (polygons) totaling 1675 hectares. The Peninsula showing is situated 6.2 km south of the Lake TiO deposit and can be reached by train along the TiO Lake mine-Havre-St-Pierre railroad or by helicopter or floatplane from Havre-Ste-Pierre. A new road located 32 km west from Havre-St-Pierre is currently established by Hydro-Quebec to connect the four main dams related to the Romaine River Complex. The road, when completed, will pass less than 8 km east of the Peninsula property.

The Peninsula property is situated in the Havre-St-Pierre Anorthosite Suite (HSPAS) which exposes a number of deposits of ilmenite and magnetite of varying dimensions principally in the lakes Allard and Puyjalon areas where the Lake TiO titanium mine is currently in operation. The Puyjalon Peninsula forms an anvil-like protrusion in Lake Puyjalon. The Peninsula showing consists of a succession of dm to meter-thick layers of leucoanorthosite and ilmenite leuconorite. On several instances, these bands reveal meter-thick sub-concordant layers of ilmenitite-norite and several horizons of massive ilmenitite 15 to 30 cm thick. The entire sequence is 25 to 50 m in thickness and is overlain by 50 m of anorthosite and leuconorite containing lenses of ilmenite aggregates.

Results of the airborne geophysical magnetic survey (May 2011), expressed as Residual Magnetic Field (RMF) and First Vertical Derivative (FVD) contour maps, show strong magnetic lows that roughly correspond to the contours of the ilmeninite/ilmeninite norite unit south of Lake Aline and to the initial location of the Peninsula showing on the protruding anvil on Lake Puylajon. The RFM contour map expressed in linear mode highlights areas of extreme values which help constrain the area of exploration for ilmenite-magnetite mineralization. A zone of dark blue hues located at the SE contact of the noritic ilmeninite/ilmeninite and anorthosite

shows negative values of < -7400 nT, which according to Hocq (1982) corresponds to numerous thick layers of ilmeninite. This is a primary exploration target area.

Geologist from Les Ressources d'Arianne have collected samples of massive ilmenitites from the Peninsula property site. The ilmenitites contain between 78% to 98% oxides minerals mostly composed of hemoilmenite (76 to 92%) showing fine lamellae of hematite (20-30%). Chemical analyses of these rocks reveal average TiO_2, Fe_2O_{3T} and V_2O_5 contents of 33.38 wt. %, 57.09 wt. % and 0.35 wt. % respectively. These results are very similar to those given for the Lake TiO ore; i.e. 34 wt. % TiO_2, 55.76 wt. % Fe_2O_{3T} and 0.41 wt. % V_2O_5.

ITEM 26 RECOMMENDATIONS

After carefully evaluating the geological and metallogenic characteristics of the Peninsula prospect, the author believes that the property warrants more exploration work due to its proximity to the Lake TiO mine and the scant attention devoted to it over the years. On the basis of the heliborne magnetic survey results, the author has defined two key target areas where future exploration work needs to take place. The most important target is located south of Lake Aline at the northeastern end of the ilmeninite unit (Figure 13). The 1600 x 650 m area covers the zone of strongest magnetic lows attributed to the presence of thick ilmenite-rich bodies at shallow depth. The second target consists of the "anvil" protrusion which is associated with the initial Puylajon showing. A 750 x 600 m area contains a small negative anomaly related to the presence of numerous meter-thick sub-concordant layers of ilmenitite-norite and several horizons of massive ilmenitite 15 to 30 cm thick (Hocq, 1982).

Both target areas will be submitted to line cutting with line spacing of 50 m. It is our intention to conduct ground-base gravimetric/magnetic surveys along cut lines to estimate the mineralogical composition (i.e. ilmenite or magnetite) and tonnage of the buried Fe-Ti mineralization. It would be preferable that the survey be conducted during the winter months to take advantage of frozen lake surfaces. Grab and channel samples could also be systematically taken along the gridlines.

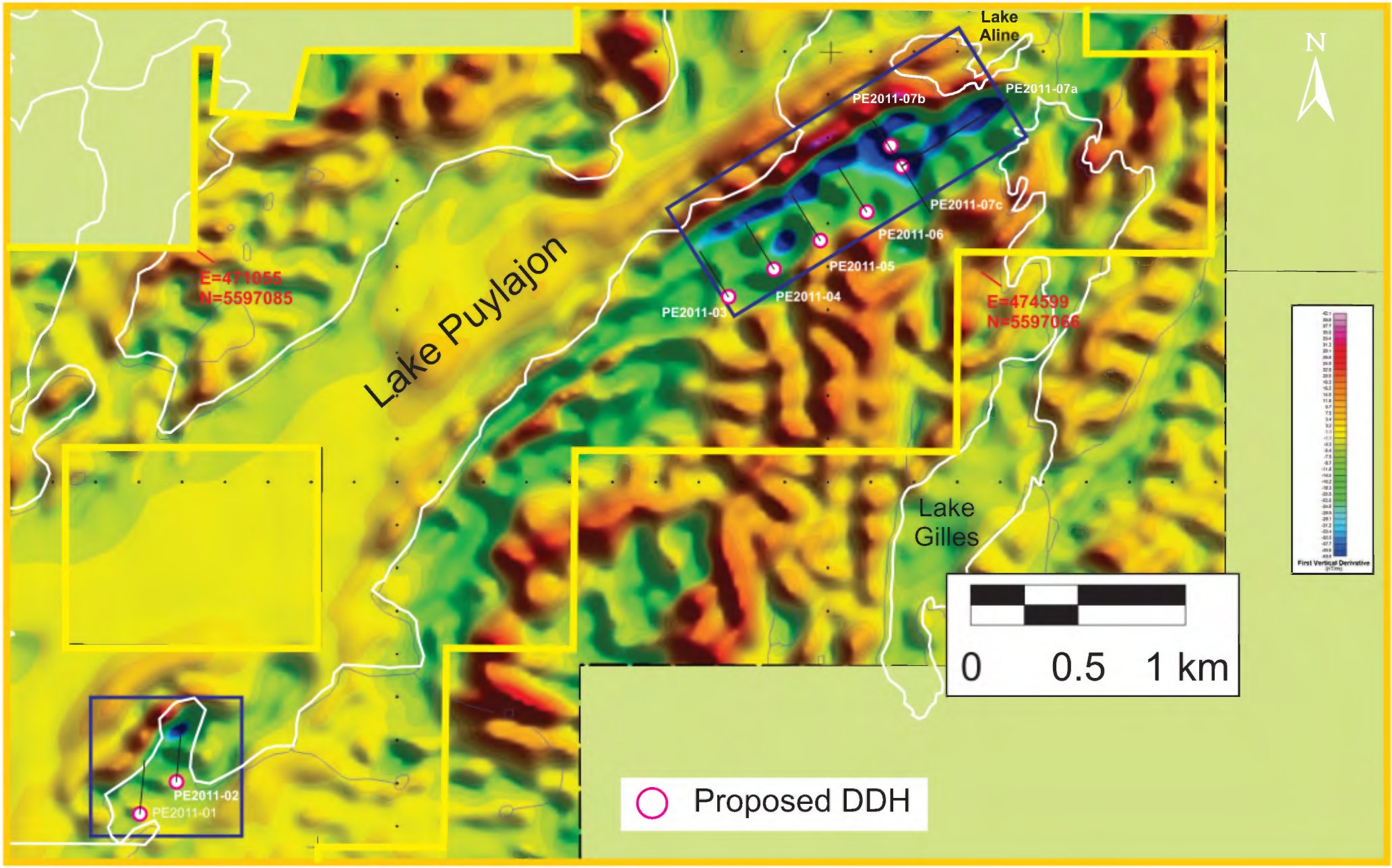


Figure13. Proposed diamond drill hole location in the two main target zones, Peninsula property. UTM Coord.; NAD83; Zone 20N; E=Easting; N=Northing.

Contingent to the results obtained during Phase I of the survey, Phase II would involve a drilling campaign on both target zones (Figure 13). The position of the collars at the Lake Aline zone will have to be adjusted to take into account the steep topography. We proposed ninet holes, the first four aligned along a 58° direction, plunging 45° with a 328° azimuth. A fan hole located at northeasternmost limit of a plateau will include three DDH with azimuths of 58°, 158° and 328° respectively (see Table below). The last two holes will be sunk on the original Peninsula showing near the Lake Puylajon shore (Figure 13).

Hole no.	Easting*	Northing	Azimuth (°)	Plunge (°)	Depth (m)
PE2011-01	470781	5594467	5	-45	250
PE2011-02	470974	5594608	5	-45	250
PE2011-03	473517	5596855	328	-45	250
PE2011-04	473717	5596981	328	-45	250
PE2011-05	473928	5597113	328	-45	250
PE2011-06	474171	5597257	328	-45	250
PE2011-07a	474358	5597455	58	-45	550
PE2011-07b	474358	5597455	328	-45	250
PE2011-07c	474358	5597455	148	-45	250

* UTM Coord.; NAD83; Zone 20N

Table 3. Localization, azimuth, plunge and depth for the proposed diamond drill holes related to the 2011 campaign, Peninsula property.

.26.1-Budget Breakdown

PENINSULA TI DEPOSIT	
(PHASE I)	
LINE CUTTING	
30 km x $650/km	$19,500
Camp: Lodging and food (4 men line cutting crew x 30 days)	$36,000
CHANNEL AND GRAB SAMPLING	
Geologist ($600/day x 15 days)	$9,000
Assistant geologist (300/day x 15 days)	$1,800
Analyses: 100 samples @ $50/sample (Fe,Ti, V)	$5,000
Camp: Lodging and food (3 men crew x 15 days)	$18,000
GROUND BASED GRAVIMETRIC/MAGNETIC SURVEY	$50,000
30 km x $300/km	$9,000
Camp: Lodging and food (4 men crew x 30 days)	$36,000
GEOLOGICAL REPORTS	$15,000
Subtotal	$199,300
Contingency (10%)	$19,930
Total before taxes	$219,230
GST (5%)	$10,962
QST (8.5%)	$19,566
Grand Total	$249,758

26.1-Budget Breakdown (Ctnd.)

PENINSULA LAKE TI DEPOSIT	
(PHASE II)	
DRILLING	
2550 m (NQ) X $100/m	$255,000
Mobilisation-demobilisation	$50,000
Drill moving, water set-up	$15,000
Permits	$1,000
Core racks	$5,000
Core shack (12'x 16')	$3,000
Analyses: 1900 samples X $50/sample	$95,000
Supervision: 1 geologist :$600/day X 50 days	$30,000
2 technicians: $300/day X 50 days	$30,000
1 camp manager: $350/day x 50 days	$17,500
Core splitter, survey instrument, sample bags, etc..	$20,000
Administration/supervision	$10,000
GOLOGICAL REPORT	$20,000
CAMP: LODGING AND MEALS	$51,000
EQUIPMENT	
Truck location, ATV	$10,000
Maps, stationary, etc..	$20,000
Subtotal	$632,500
Contingency (10%)	$63,250
Total before taxes	$695,750
GST (5%)	$34,788
QST (7.5%)	$54,790
Grand Total	$785,328

ITEM 27 REFERENCES

Bergeron, M. 1986. Minéralogie et géochimie de la Suite anorthositique de la région du lac Allard, Québec : évolution des membres mafiques et origine des gîtes massifs d'ilmnénite. École Polytechnique, Montréal, PhD. thesis; 485 pp.

Boulianne, D. 2003. Rapport des travaux de 2002-2003. Projet Titane 2002, Province Géologique de Grennville. GM60442; 80 pp.

Corriveau, L., Perreault, S. 1999. Prospectivity of the Grenville Province : A perspective. Geological Survey of Canada (GSC) and the Mineral Deposits Division (MDD) of the Geological Association of Canada; 38 pp.

Derry, D.R. Diamond drill record, Peninsula ilmenite property. GM01770B; 11 pp.

Duchesne, J.C., Liégeois, J.P., Vander Auwera, J., and Longhi, J. 1999. The crustal tongue melting model and the origin of massive anorthosites. Terra Nova, volume 11; p. 100-105.

Gobeil, A., Brisebois, D., Clark, T., Verpaelst, P., Madore, L., Wodicka, N., Chevé, S. 2003. Synthèse géologique de la région de Manitou-Wakeham (Moyenne-Côte-Nord). In Brisebois, D., Clark, T., eds. Géologie et resources minérales de la partie est de la Province de Grenville. Ministère des Ressources naturelles et de la Faune, Québec. DV 2002-03; p. 9-58.

Gower, C.F., Krogh, T.E. 2002. A U-Pb geochronological review of the Proterozoic history of the eastern Grenville Province. Canadian Journal of Earth Sciences, vol. 39; p. 795-829.

Hanmer, S., Corrigan, D., Pehrsson, S. Nadeau, L. 2000. SW Grenville Province Canada: The case against post 1.4 Ga accretionary tectonics. Tectonophysics, vol. 319; pp. 33-51.

Hart, E.A. 1967. Report on Gulf Titanium Ltd., Parker and Puyjalon Twps., County of Duplessis, Quebec. GM22125; 10 pp.

Hocq, M. 1982. Région du lac Allard. Ministère des Ressources naturelles et de la Faune, Québec. DPV-894; 99 pp.

Kolker, A., Lindsley, D.H. 1989. Geochemical evolution of the Maloin Ranch pluton, Laramie Anorthosite Complex, Wyoming: Petrology and mixing relations. American Mineralogist, v. 74; p. 307-324.

Lees, E.J. 1949. Geological plan with magnetic readings, Dubuisson Mines Ltd. GM11512-C; 1 p.

Lindsley, D. 2003. Do Fe-Ti oxide magmas exists? Geology: Yes; Experiments: No!, In Duchesne, J.-C. and Korneliussen, A., eds., Ilmenite deposits and their geological environment. Norges geologiske undersokelse, Special Publication 9; p. 34-35.

Low, A.P. 1895. Report on explorations in the Labrador Peninsula along the Eastmain, Koksoak, Hamilton, Manikuagan and portions of other rivers in 1892-93-94-95. Geological Survey of Canada Annual Report, vol 8; pp 202L, 229L, 232L, 287L and 1-387L.

Madore, L., Verpaelst, P., Brisebois, D., Hocq, M., Dion, D.J., Lavallée, G. Choinière, J. Géologie de la région du lac Allard (12L/11). Ministère des Richesses naturelles et de la Faune du Québec, RG98-01; 39 pp.

Perreault, S., Jacob, H.L., Buteau, P. 2003. Les Minéraux industriels de la moyenne Côte-Nord. In Brisebois, D.,Clark, T., eds. Géologie et resources minérales de la partie est de la Province de Grenville. Ministère des Ressources naturelles et de la Faune, Québec. DV 2002-03 ; p. 287-408.

Philpotts, A.R. 1967. Origin of certain iron-titanium oxide and apatite rocks. Economic Geology, v. 62; p. 303-315.

Retty, J.A. 1944. Lower Romaine River area, Saguenay County. Ministère des Ressources naturelles et de la Faune, Québec. RG019(A); 39 pp.

Rivers, T., 1997. Lithotectonic elements of the Grenville Province in western Labrador – anatomy of an ancient orogenic front. Precambrian Research, v. 86; p. 117-154.

Rose. E.R. 1969. Geology of titanium and titaniferous deposits of Canada. Geological Survey of Canada, Economic Geology Report no. 25; 177 pp.

Sharma, K.N.M., Franconi, A. 1975. Région des rivières Magpie, Saint-Jean et Romaine. Ministère des Richesses naturelles et de la Faune du Québec, RG163; 85 pp.

Appendix 1. List of designated claims for the Peninsula property.

TITLE #	SURFACE AREA (Ha)	Expiry date
CDC2180693	54.77	2013/03/11
CDC2180694	54.77	2013/03/11
CDC2180695	54.76	2013/03/11
CDC2180696	54.76	2013/03/11
CDC2180697	54.76	2013/03/11
CDC2203670	54.75	2012/06/06
CDC2203671	54.75	2012/01/27
CDC2236749	54.77	2012/06/06
CDC2236750	54.76	2012/06/06
CDC2236751	54.75	2012/06/06
CDC2236752	54.74	2012/06/06
CDC2236753	54.77	2012/06/06
CDC2238440	54.74	2012/06/16
CDC2238441	54.74	2012/06/16
CDC2238442	54.74	2012/06/16
CDC2238443	54.73	2012/06/16
CDC2238444	54.73	2012/06/16
CDC2239450	54.73	2012/07/05
CDC2246919	54.74	2012/08/18
CDC2246920	54.73	2012/08/18
CDC2246921	54.73	2012/08/18
CDC2246923	54.71	2012/08/18
CDC2246924	54.85	2012/08/18
CDC2246925	44.14	2012/08/18
CDC2258444	54.75	2012/01/11
CDC2258445	54.75	2012/01/11
CDC2258446	43.04	2012/01/11
CDC2258447	54.73	2012/01/11
CDC2258448	54.73	2012/01/11
CDC2239045	54.72	2012/06/29
CDC2282169	54.71	2013/03/31