



**TECHNICAL REPORT**

**ON THE**

**McFAULDS SOUTH PROJECT,  
NORTHWESTERN ONTARIO,  
CANADA**

Date: March 31, 2011

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## 1. EXECUTIVE SUMMARY

This technical report has been prepared at the request of James Trusler P.Eng., President and CEO of Platinex Inc. The purpose of the report is to provide a summary of scientific and technical data on the Property, including historic exploration activities, and make recommendations concerning future exploration. This Report is based on a review of public domain geological and exploration information. The Property is covered by overburden with little exposed bedrock. The Qualified Person for this report is Mr. Fred W Gittings, who visited the Property on March 28, 2011.

The McFaulds South Property is located in the McFaulds Lake area of northwestern Ontario. It comprises a total of six claim blocks with a combined area of 11,267 hectares and a total of 696 claim units. The closest community with year-round road access is Nakina, located approximately 270 kilometres to the south. The Property is 35-50 kilometres southeast of the First Nation community of Webequie, on Winisk Lake. Although there is year-round scheduled air service to Webequie, there are no air charter operators based there.

According to the Geology of Ontario 1:250,000 base maps, the Property is underlain by Archean mafic to intermediate metavolcanic rocks, mafic intrusive rocks and granitoid rocks of the Oxford-Stull Domain ("OSD"). A provincial airborne magnetics survey flown at line spacing from 200 m to 400 m provides the most accurate depiction of the subsurface geology of the McFaulds area, displaying an arcuate belt of highly magnetic rocks approximately 100 km in length, which could be caused by the presence of mafic metavolcanic rocks, serpentinized ultramafic intrusive rocks or iron formation.

The Ring of Fire ("ROF") refers to a 300km by 150km idealized elliptical feature that stretches from the McFaulds Lake area in the southeast to the Big Trout Ultramafic Complex in the northwest. It is considered to be a vestige of a Neoproterozoic mantle plume. Numerous ultramafic intrusions occur along the rim of this large feature several of which are known to contain Ni-Cu-PGE-Cr deposits. Realistically the intrusive complex is composed of a number of individual intrusive cells related to a single large magmatic event but reflecting separate magma pulses and the character of the host rock of each individual intrusion. While the character of the cells of this presumed large lopolith varies the entire entity should be considered a single metallogenic province.

The Ontario Geological Survey interpretation of the geology of the McFaulds Lake area based on limited outcrop and drill hole information coupled with regional airborne magnetic survey results indicates that about 55 percent of the property is underlain by mafic-ultramafic rocks. The Property is

located within the same stratigraphic package of rocks as the McFaulds Lake Chromite and Ni-Cu-PGE deposits. These deposits occur within a layered mafic-ultramafic sequence and in a mafic-ultramafic magmatic feeder conduit. The deposits are located 25-55 kilometres northeast of the Platinex property.

Massive sulphide volcanogenic Cu-Zn-Pb-Au-Ag deposits have also been discovered in the general area by the Freewest/Spider/KWG joint venture, the WSR - Metalex joint venture and by MacDonald Mines. These discoveries were achieved on magnetic anomalies originally selected in an exploration program targeting diamond-bearing kimberlite pipes.

The success of many exploration companies in the Ring of Fire exploration camp can be attributed in part to the use of modern airborne geophysics as a phase one exploration tool. The ability to discern favourable geology underlying extensive glacial cover has resulted in considerable success in an area that ten years ago was virtually unexplored.

Platinex has developed proprietary exploration techniques and technologies pertaining to recognition discovery and evaluation of magmatic PGE-Ni-Cu-Cr deposits in the Big Trout area of the Ring of Fire. The company believes that the strategies it employed in its successful exploration on the north-western rim of the Ring of Fire will prove an advantage on the McFaulds South Property.

This year Cliffs Natural Resources and Noront Resources have announced plans to bring their chromite and magmatic Ni-Cu-PGE deposits into production within four years. Plans call for an all season road extending from Pickle Lake to Webequie Junction, which is located 45km north-west of the Property.

A two phase exploration program is proposed. Phase I evaluation of the property in 2011 will include a comprehensive airborne magnetometer and electromagnetic survey with flight lines at 100 metre intervals and six to seven days of helicopter-supported prospecting, geological mapping and the collection of up to 100 samples of bedrock, till and/or stream sediment. Heavy mineral separate techniques will be employed to identify indicator minerals and analyses will be performed to determine concentrations of PGE's, base metals and other indicator metals and elements. Phase II will be a 5,000 metre core drilling program to evaluate priority geophysical targets and provide important stratigraphic information for subsequent investigations. The proposed Phase I and Phase II budgets are \$645,000 and \$2,000,000 respectively. The property can be kept in good standing on

the second and subsequent anniversary dates with consecutive minimum exploration expenditure credits of \$274,400.



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## **2. INTRODUCTION AND GENERAL INFORMATION**

### **2.1 Introduction**

This technical report has been prepared at the request of James Trusler P.Eng., President and CEO of Platinex Inc. The purpose of the report is to provide a summary of scientific and technical data on the Property, including historic exploration activities, and make recommendations concerning future exploration. This Report is based on a review of public domain geological and exploration information. The Property is completely covered by overburden with little exposed bedrock. The Qualified Person for this report is Mr. Fred W. Gittings, who visited the Property in March 28, 2011.

Platinex Inc. staked the McFaulds South claims in the James Bay Lowlands as a result of recent discoveries in the area and apparent similarities to the underlying geology and metallization of the Big Trout Lake area where the company has developed proprietary exploration expertise on ultramafic layered intrusions. Of particular note, were the 2007-2008 Noront discoveries of two magmatic Cu-Ni-PGE deposits and the Blackbird One and Two chromium deposits in the ultramafic rocks of the Ring of Fire Intrusion (RFI) west of McFaulds Lake. Numerous volcanogenic Cu-Zn-Au-Ag (-Pb) discoveries have also been made in the area between 2001 and 2008. To-date exploration companies have had an extremely high success ratio of discoveries to targets drill-tested.

Fred W Gittings was retained by Platinex Inc. to prepare an independent Technical report, in compliance with the Securities Act, National Instrument 43-101, Standards of Disclosure for Mineral Projects.

The purpose of this report is to characterize the geology, geochemistry and geophysical setting for the McFaulds South claim blocks and to outline the objectives and proposed budget for the initial exploration program. No previous mineral exploration activity is known to have occurred on the property other than the initial airborne magnetic surveys conducted in the mid 1990's by the Spider-KWG syndicate.

### **2.2 Terms of Reference**

This report utilizes standard System International (SI) units. Dollars are expressed in Canadian currency (CAD\$) unless otherwise noted. Unless otherwise mentioned, all coordinates in this Report are provided as UTM datum NAD83, Zone 16. Some common abbreviations used in the text are defined in Appendix B.

### **2.3 Scope of Work and Sources of Information**

This report has been prepared from the compilation and review of information in the public domain. The high level of exploration activity over the past three years has greatly increased the geological knowledge in the McFaulds Lake area. A number of companies have produced NI43-101 compliant Technical reports on the respective deposits. These Technical reports can be obtained on the SEDAR website. Likewise the Ontario Geological Survey has produced a number of reports on the area in the last several years. A preliminary, reconnaissance examination of the property and evaluation of the physical setting is planned but has not yet occurred.

### **2.5 Disclaimer**

Land tenure information has been extracted from the Ministry of Northern Development and Mines website ([www.geologyontario.mndmf.gov.on.ca/website/claimapsiii/viewer.htm](http://www.geologyontario.mndmf.gov.on.ca/website/claimapsiii/viewer.htm)) and compared against “Applications to Record” as submitted by the contract staker. Field inspection and verification of claim posts, tags and claim lines has not been carried out to date.

Geological, geophysical and geochemical data used in this report has been extracted from government reports, SEDAR filings by exploration companies active in the area and exploration company websites. The author has not validated the collected information and interpretations and does not accept responsibility for the accuracy of such information.

## **3. RELIANCE ON OTHER EXPERTS**

The author has completed this Report in accordance with the methodology and format outlined in National Instrument 43-101, companion policy NI43-101CP and Form 43-101F1. This Report was prepared and is directed solely for the development and presentation of data with recommendations to allow Platinex Inc. 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 the author by Platinex, as well as various published geological reports, the author has assumed that the reports and other data listed in the “References” section of this report are substantially accurate and complete.

The author has also used the spatial claim information found on the website <http://www.geologyontario.mndmf.gov.on.ca/website/claimapsiii/viewer.htm> to portray the claim boundaries relative to local topography and geology.

Some relevant information on the Property presented in this Report is based on data derived from reports written by geologists and/or engineers, whose professional status may or may not be known in relation to the NI43-101 definition of a Qualified Person.

## **4. PROPERTY DESCRIPTION AND LOCATION**

### **4.1 Property Description**

The McFaulds South property comprises six separate claim blocks that include one to twenty-four claims for a total of forty-seven (47) claims (Figure 2). There are 696 claim units for a total area of 11,267 hectares (Table 1). The claims are located within BMA 524864, BMA 525863, BMA 525864 and BMA 526864 map areas and registered in the Thunder Bay Mining Division. Assessment Work is due between February 2 and 19<sup>th</sup> 2012.

### **4.2 Property Location**

The McFaulds South property is located in the James Bay Lowlands of northern Ontario approximately 510 kilometres northeast of the city of Thunder Bay (Figure 1). National Topographic System (NTS) references are 43D7 and 43D10 and the co-ordinates for the centre of the project area are 52° 35' N and 86° 45' W. Universal Transverse Mercator (UTM) co-ordinates are 512000E/5822000N, Zone 16, NAD 83. The closest full-service community with year-round road access is Nakina, located 270 kilometres south of the property. Winter-only road access is available from about sixty-five kilometres northeast of Pickle Lake to First Nations communities at Eabametoong (Fort Hope), Neskantaga (Lansdowne House) and Webequie. The Webequie winter road passes about sixty kilometres west of the property.

**TABLE 1: LIST OF CLAIMS**

Township/Area	Claim No.	Recording Date	Claim Due Date	Status	Percent Option	Work Required	Claim Units
BMA 524864	4230198	2008-May-02	2012-Feb-19	A	100%	\$6,400	16
BMA 524864	4230199	2008-May-02	2012-Feb-19	A	100%	\$6,400	16
BMA 524864	4230200	2008-May-02	2012-Feb-19	A	100%	\$6,400	16
BMA 524864	4230201	2008-May-02	2012-Feb-19	A	100%	\$6,400	16
BMA 524864	4230202	2008-May-02	2012-Feb-19	A	100%	\$6,400	16
BMA 525863 (TB)	3006659	2008-May-02	2012-Feb-19	A	100%	\$6,000	15
BMA 525863 (TB)	4216980	2008-May-02	2012-Feb-19	A	100%	\$2,000	5
BMA 525863 (TB)	4216987	2008-May-02	2012-Feb-19	A	100%	\$5,600	14
BMA 525863 (TB)	4216988	2008-May-02	2012-Feb-19	A	100%	\$6,400	16
BMA 525863 (TB)	4228321	2008-May-02	2012-Feb-19	A	100%	\$6,400	16
BMA 525863 (TB)	4228322	2008-May-02	2012-Feb-19	A	100%	\$6,000	15
BMA 525863 (TB)	4228323	2008-May-02	2012-Feb-19	A	100%	\$6,400	16
BMA 525863 (TB)	4228324	2008-May-02	2012-Feb-19	A	100%	\$2,800	7
BMA 525863 (TB)	4228325	2008-May-02	2012-Feb-19	A	100%	\$2,800	7
BMA 525863 (TB)	4230187	2008-Apr-15	2012-Feb-02	A	100%	\$6,400	16
BMA 525863 (TB)	4230188	2008-Apr-15	2012-Feb-02	A	100%	\$6,400	16
BMA 525863 (TB)	4230189	2008-Apr-15	2012-Feb-02	A	100%	\$6,400	16
BMA 525863 (TB)	4230190	2008-Apr-15	2012-Feb-02	A	100%	\$6,400	16
BMA 525863 (TB)	4230191	2008-Apr-15	2012-Feb-02	A	100%	\$6,400	16
BMA 525863 (TB)	4230192	2008-Apr-15	2012-Feb-02	A	100%	\$6,400	16
BMA 525863 (TB)	4230193	2008-Apr-15	2012-Feb-02	A	100%	\$6,400	16
BMA 525863 (TB)	4230194	2008-Apr-15	2012-Feb-02	A	100%	\$6,400	16
BMA 525863 (TB)	4230195	2008-Apr-15	2012-Feb-02	A	100%	\$6,400	16
BMA 525863 (TB)	4230196	2008-Apr-15	2012-Feb-02	A	100%	\$6,400	16
BMA 525863 (TB)	4230197	2008-Apr-15	2012-Feb-02	A	100%	\$6,400	16
BMA 525863 (TB)	4230204	2008-May-02	2012-Feb-19	A	100%	\$6,400	16
BMA 525864	4228318	2008-May-02	2012-Feb-19	A	100%	\$4,400	11
BMA 525864	4228319	2008-May-02	2012-Feb-19	A	100%	\$6,400	16
BMA 525864	4228320	2008-May-02	2012-Feb-19	A	100%	\$6,400	16
BMA 525864	4229411	2008-Apr-15	2012-Feb-02	A	100%	\$6,400	16
BMA 525864	4229412	2008-Apr-15	2012-Feb-02	A	100%	\$6,400	16
BMA 525864	4229413	2008-Apr-15	2012-Feb-02	A	100%	\$6,400	16
BMA 525864	4229414	2008-Apr-15	2012-Feb-02	A	100%	\$6,400	16
BMA 525864	4229415	2008-Apr-15	2012-Feb-02	A	100%	\$6,400	16
BMA 525864	4229416	2008-Apr-15	2012-Feb-02	A	100%	\$6,400	16
BMA 525864	4229417	2008-Apr-15	2012-Feb-02	A	100%	\$6,400	16
BMA 525864	4229418	2008-Apr-15	2012-Feb-02	A	100%	\$6,400	16
BMA 525864	4229462	2008-Apr-15	2012-Feb-02	A	100%	\$6,400	16
BMA 525864	4230186	2008-Apr-15	2012-Feb-02	A	100%	\$6,400	16
BMA 525864	4230203	2008-May-02	2012-Feb-19	A	100%	\$6,400	16
BMA 526864	4216979	2008-Apr-15	2012-Feb-02	A	100%	\$5,600	14
BMA 526864	4216981	2008-Apr-15	2012-Feb-02	A	100%	\$6,400	16
BMA 526864	4216982	2008-Apr-15	2012-Feb-02	A	100%	\$6,400	16
BMA 526864	4216983	2008-Apr-15	2012-Feb-02	A	100%	\$6,400	16
BMA 526864	4216984	2008-Apr-15	2012-Feb-02	A	100%	\$6,400	16
BMA 526864	4216985	2008-Apr-15	2012-Feb-02	A	100%	\$3,200	8
BMA 526864	4216986	2008-Apr-15	2012-Feb-02	A	100%	\$3,200	8
<b>TOTAL</b>	<b>47</b>	<b>Claims</b>				<b>\$278,400</b>	<b>696</b>

## **5. ACCESSIBILITY CLIMATE, LOCAL RESOURCES AND PHYSIOGRAPHY**

### **5.1 Accessibility**

Scheduled air charter service is available to Nakina from Thunder Bay and from Nakina to the closest First Nations community of Webequie, located on Winisk Lake. No air charter operators are based in Webequie which is located 35-50 kilometres northwest of various parts of the property. Nakina Air Service, based in Nakina, provides float plane service during the ice-free season and wheel-ski during the period of acceptable ice conditions. Although the closest base for helicopter service is Thunder Bay, arrangements can be made for helicopter support for field operations and for supply flights during the break-up and freeze-up periods.

### **5.2 Climate**

The James Bay Lowlands area of Northern Ontario has a humid continental climate with cool short summers and cold winters. The area does not experience a dry season. The summer temperatures are generally between 10°C and 20°C with a mean July temperature of 12°C. Winter temperatures are generally between -10°C and -30°C with a mean January temperature of -21°C. The extreme winter minimum is -48°C. The period from mid-June to mid-September is generally frost free. Lakes start to freeze in mid-October and start to thaw in mid-April. The average annual precipitation is 699.5 mm with approximately 241.6 mm falling as snow.

### **5.3 Local Resources and Infrastructure**

The Property lies close to the First Nations community of Webequie, which could provide a source for general labour and supplies. Otherwise, there is no major infrastructure in the region and most supplies must be flown in from larger cities such as Timmins and Thunder Bay, which are several hundred kilometres away. A pool of skilled labour for both exploration and mining activities and accustomed to working in remote locales may be found in both of these cities. Some services, such as airports with regularly scheduled flights, nursing stations, etc. are available at Webequie and at other nearby First Nations communities. An adequate supply of water for diamond drilling can be sourced from the lakes within and around the Property boundaries. The nearest high voltage power line of the provincial power grid is at Nakina.

It should be noted, for the sake of completeness, that the recent exploration successes in the area have promoted discussions about extending the railway from Nakina, which is on the main CPR east-west rail line north into the area. Cliffs Natural Resources of Cleveland Ohio has gained a controlling interest in several Chromite deposits in the McFaulds area with the intention of bringing as least one



of them into production KWG Resources staked a prospective 328 km. rail corridor from Nakina to the area and has filed \$7.7million dollars of assessment work on the route. ([www.kwgresources.com/news](http://www.kwgresources.com/news)) Cliffs now controls 19.9% of KWG Resources. According to their most recent annual report Cliffs had a profit of just over one billion dollars (US) in 2010. Ontario Premier, Dalton McGuinty, in his government throne speech, made the area's development a key pillar in his "Open Ontario" plan (The Toronto Star, March 9, 2010).

On March 23, 2011 Noront provided details of its project description in a press release ([www.norontresources.com](http://www.norontresources.com)) .Noront announced their intention to begin production on their Eagle's Nest deposit in 2015.Plans call for a road from Webequie Junction, 20km south of the community of Webequie, to Highway 808 north of Pickle Lake. A generating plant will be located at Webequie Junction. The mine is estimated to produce 150,000 tonnes of concentrate annually, the concentrate will be piped as slurry to Webequie Junction and filtered and dried prior to being shipped to a rail head near Savant Lake.

#### **5.4 Physiography and Topography**

The Property is within the James Bay Lowlands of Ontario, an area characterized by a plain of low relief, which gently slopes towards James Bay to the northeast with a mixture of string bog and isolated stunted spruce stands. The claims are covered only sparingly by northern boreal forest comprising spruce and subarctic barrens. Local wildlife includes moose, wolf, black bear, hare and several species of birds.

A LANDSAT 7 image (Figure 3) and the topographic map of the area (Figure 4) display all of the features of the project area. The property area has very little relief with elevations ranging from about 150-170m above mean sea level (MSL), except along the Muketei River and its tributaries which has cut through the plain.

Several ponds, swamps and muskeg typify the property and reflect the presence of thick clay deposits and low relief. The Muketei River traverses the southeast corner of the property flowing east; one of its tributaries flows south within and along the western boundary of the property. The Muketei River flows north and east to James Bay on Hudson's Bay.

Regional mapping by the Ontario Geological Survey has indicated very sparse outcrop.

## **5.5 Ecology and Environment**

The area is proximal to the boundary between two forest regions identified by the Ministry of Natural Resources as the Hudson Bay Lowlands forest and the boreal forest. The former dominates the property and is described as an area of subarctic barrens with black and white spruce and willow trees. It is typified by a large, low relief expanse of wetland dominated by both treed and open muskeg and dotted with thousands of small lakes and ponds. Productive forest cover is less than 25 percent and is generally made up of stunted tamarack and black spruce that grow along river banks and other well-drained areas.

The boreal forest of northern Ontario extends from the Great Lakes-St. Lawrence forest to the Hudson Bay Lowlands but appears to be absent on the property. Black spruce and larch (tamarack) are usually associated with poorly drained areas. Trembling aspen (poplar), white spruce, white birch and jack pine usually grow on well-drained upland or rocky sites. A diversity of wildlife typical of the boreal forest includes wolves, lynx, moose, caribou, 300 species of migratory birds and small mammals such as marten, hare, red fox and porcupine. Hunting, trapping and fishing are traditional land uses of First Nations that occupy remote communities across northern Ontario.

The Ontario government has recently declared that 50% of the boreal forest north of the 51<sup>st</sup> parallel will be protected and that development activities will be carefully vetted to protect the environment and the First Nations rights.

Platinex believes that there are no environmental issues on the subject claims. Any conditions to the contrary will be documented during an initial inspection and subsequent field activities.

## **5.6 Communities, First Nations Relations and Resources**

The nearest communities are all First Nations communities. The closest, is Webequie, located about 60 kilometres to the west on Winisk Lake. Neskantaga, located on Attawapiskat Lake, is about 140 kilometres to the south-southwest. Marten Falls (Ogoki), on the Albany River is approximately 160 kilometres to the south-southeast. Contact has been made with representatives of the three First Nations communities and several meetings have been held to discuss Memoranda of Understanding. Platinex plans to continue the dialogue and meetings until both parties reach mutually agreeable terms for Platinex to perform exploration on the property, utilize local resources whenever possible and protect the environment.

The First Nations representatives for Webequie and Marten Falls have been notified that plans for preliminary work on the property include the need for personnel to assist in camp location and establishment of a dock, camp site, and helicopter pad and fuel cache. There will also be opportunities to assist in reconnaissance mapping and collection of representative till samples. The services of Mr. Glenn Nolan have been contracted to assist in the communications and negotiation process.

## **6. HISTORY**

The Geological Survey of Canada (GSC) was the first to explore the James Bay Lowlands/McFaulds Lake area in 1886. Robert Bell of the GSC mapped geology along the Attawapiskat River from the James Bay coast inland past the McFaulds Lake area. Mapping was also completed in 1906 and between 1940 and 1965 by the GSC and the Ontario Department of Mines (ODM). This work was focused on the potential for petroleum in the sedimentary basins associated with Hudson Bay and James Bay and, in Moose River, the potential for industrial and fuel minerals.

The Geological Survey Canada produced the Lansdowne House map (Bostok, 1962). This mapping information has been used in subsequent compilation maps completed by the Ontario Geological Survey.

Early exploration activities in the McFaulds Lake area focused on diamonds and occurred sporadically between 1959 and 1988 until the discovery of the Attawapiskat diamondiferous kimberlite field by Monopros Limited (De Beers Canada Inc). In the early to mid 1990s Spider Resources Inc. and KWG Resources Inc. conducted an airborne magnetic survey for diamond exploration throughout the northern part of the James Bay Lowlands as joint venture partners. In 2002, De Beers Canada Inc. entered in a joint venture with Spider Resources and KWG Resources after discovering the McFaulds No. 1 volcanogenic massive sulphide deposit while searching for kimberlites. Subsequent work by Spider Resources and KWG Resources led to the discovery of the McFaulds No. 3 deposit and other related VMS occurrences. The discovery of these deposits led to a staking rush by junior mining companies that began in December, 2002 and continued well into 2003. The staking rush and extensive exploration led to the discovery of many of the deposits shown on Figure 7.

Noront discovered the Eagle Nest magmatic massive sulphide deposit while searching for VMS mineralization in 2007. Follow up testing of other airborne anomalies led to the discovery of the Eagle Two shear hosted sulphide deposit. It was drilling of this occurrence that led to the later discovery of

the Blackbird Chromite deposits in 2008 hosted by the same ultramafic complex as Eagle One. These deposits occur within a 4 square km. area are now referred to in the literature as the ENB Complex. The most recent discovery by Noront in the ultramafic complex has been the Thunderbird vanadium occurrence which is located in ferrogabbroic units approximately 14 km northeast of the ENB Complex.

## **7. GEOLOGICAL SETTING**

### **7.1 Regional Geological Setting**

Ongoing study of the northwestern Superior Province has led to the revision of the Terrane subdivisions of the area. Previously the area was referred to as being located in the Sachigo Greenstone belt Stott et al. (2010) have now determined that the Sachigo should be revised and subdivided into the Island Lake Domain and the Oxford-Stull Domain and included in the larger North Caribou Terrane. This report follows this convention.

The McFaulds Lake area is underlain by rocks of the northwestern part of the Archean Superior Province, which is the world's largest continuously-exposed Archean craton. The northwestern Superior Province is composed of a series of major Mesoarchean volcanic and plutonic belts trending from west to east that each formed as separate microcontinents <3.0 Ga, and are separated by younger Neoproterozoic metasedimentary belts and crustal-scale faults. These continental fragments underwent rifting and lateral transport through processes considered to be a mixture of modern horizontal plate tectonics and those that would have occurred during the Archean when the continents were thinner, hotter, and less dense. Later subduction of the oceanic crust between these microcontinents eventually led to their collision and amalgamation to form the current geometry of the Superior Province.

The McFaulds South Property is situated within the Neoproterozoic Oxford-Stull Domain (OSD) which lies between two older sialic terranes, the Hudson Bay Terrane and the North Caribou Terrane. According to Stott et al. (2010) the OSD displays some evidence of Mesoarchean mid-ocean ridge basalt (MORB)-like sequences and represents juvenile crust formed without significant input from older terranes.

In the McFaulds area the Oxford-Stull Domain is separated from the North Caribou Core by the Stull-Wunnummin Fault. To the west the Oxford-Stull Domain is in fault contact with the Island Lake Domain.

The Island Lake Domain shows a prevalence of Mesoarchean zircon ages and isotopic evidence for a shared constructive history with the OSD, across the Stull–Wunnummin fault (Stott et al. 2010).

## **7.2 Regional Geology and Rock Types**

The project area is in the southeastern portion of a 300 kilometre long elliptical feature that hosts numerous mafic-ultramafic intrusions and volcanic terrain referred to as the Ring of Fire (ROF) (Figure 6). The OGS has stated it believes the ROF is the result of a Neoproterozoic magma plume. As such the Ring of Fire is a composite of individual intrusives formed during the same event. The Ring of Fire is similar in size to the Bushveld Complex of South Africa which is made up of a number of individual magma chambers or lobes that while similar, differ in the details of their stratigraphic layering. The Big Trout Complex on the northwestern edge of the ROF is similar to the McFaulds area in that it has massive chromite layers within a lower dunite-peridotite ultramafic sequence. Technical expertise gained by Platinex on its Big Trout Property will prove valuable on the South McFaulds Property.

Owing to topography, geological exposures are scarce and, in the eastern part of the OSD, the Archean basement rocks were overlain by Ordovician and Silurian aged sedimentary rocks. River cuts expose the only bedrock in some areas. Thurston et al (1975) reported primarily mafic flows and mafic intrusives within meta-granitoid rocks in the McFaulds Lake area.

The most recent OGS geological interpretation of the area (Stott, 2008) is based on limited prior OGS mapping, drill hole information and extensive government and private airborne magnetic surveys. The interpretation has been incorporated into Figure 7 to show the geology of the McFaulds area at a property scale.

The oldest rocks in the area are Mesoarchean tonalite to granodiorite gneisses dated at 2924Ma which were intruded by a younger Neoproterozoic plutonism ca 2731 Ma which Stott (2008) states is approximately coeval with the volcanism in the McFaulds Lake greenstone belt.

The success of a number of exploration companies in the region, and the subsequent high level of exploration activity, has resulted in an amount of new information being released in the three years since Stott's report. In addition, the Ontario Geological Survey (OGS) has increased its level of involvement in the region. The OGS is currently undertaking a three year study of the area that will undoubtedly result in a clearer understanding of McFaulds Lake regional geology.

A more detailed understanding of the area has also evolved as a result of news releases and reports by many exploration companies. Primary contributors include, but are not limited to the following: Noront Resources Limited (Noront); Spider Resources Inc. (Spider) and/or joint venture partners KWG Resources Inc. (KWG) and Freewest Resources Canada Inc. (Freewest); MacDonald Mines (MacDonald); WSR Gold Inc. (WSR) and/or joint venture partners Metalex Ventures Ltd. and Arctic Star Resources Inc.; and, Probe Mines Limited.

Information from reports by or on behalf of Noront, Spider and Probe have been used herein. The technical report by Probe (Palmer, 2005) on their Victor project was particularly effective in summarizing the regional geology of the Oxford-Stull Domain lithologies. Information about the setting of the Ni-Cu-PGE deposits has been gleaned from Noront and WSR. The geological setting of the volcanogenic deposits has been described to various degrees by Spider, MacDonald and Probe.

A key feature of the McFaulds Lake area is a prominent linear magnetic high (associated with laterally extensive formational conductors) that is continuous for up to tens of kilometres, and forms a semi-circle, 60 km in diameter from north to south, as seen on the regional airborne magnetic anomaly maps. This prominent linear magnetic high has been interpreted as a regionally extensive iron formation that was deposited along the margins of a regional scale granodiorite pluton, one that had been intruded into and caused doming of supracrustal rocks of the Oxford-Stull Domain. Along its length it is generally intercalated with mafic to intermediate lavas and tuffs and intruded by a variety of mafic to intermediate sills and dykes. Numerous diamond drill hole intersections demonstrate that the high magnetic susceptibility of the stratigraphy is predominantly due to the presence of silicate- and oxide-facies iron formation that locally contains laminated to massive beds of pyrrhotite and pyrite.

Subsequent to the deposition of the iron formation, a major ultramafic magmatic event (the ROF Intrusion) was marked by the emplacement of peridotitic to dunitic dykes and sills which host the Eagle's Nest-Blackbird (ENB) Complex. These ultramafic bodies cut through older tonalitic to granodioritic intrusions (that structurally underlie the iron formation), and then intrude up through the iron formation and into the overlying mafic to intermediate metavolcanic rocks. The iron formation is interpreted to face outward from the ROF, based on layering in ultramafic sills and the settling of magmatic sulphides within ultramafic intrusions. This prominent marker horizon separates older, highly deformed rocks west of the ROF from younger rocks east of the ROF which show a relatively simple aeromagnetic fabric indicative of a simpler deformational history. The location and trace of the Ring of Fire Intrusion is easily visualized from the change in the first vertical derivative of the regional

aeromagnetics . The high calculated vertical derivative trends SW from the area of the chromite discoveries passing through Platinex's Goods Lake Claim Block.(Figure 11).

Several magmatic Ni-Cu-PGE sulphide occurrences, such as Noront's Eagle's Nest deposit and AT12 mineral occurrence, are hosted in ultramafic dykes that are interpreted to be feeder dykes to the overlying layered sills. The differentially layered ultramafic sills (which are considered to form the main intrusion) consist of dunite, harzburgite, orthopyroxenite, and chromite. These sills were preferentially developed at the horizon formerly occupied by the iron formation (the iron formation was substituted by the ultramafic body as it was intruded). This most likely occurred via magmatic assimilation. Recently obtained lithochemical and geochronological data indicate that the deposits of the region were formed as part of a single, large regional magmatic event triggered by the evolution of a mantle plume (Figure 7 ).

The following description of the ROF intrusive that hosts the chromite horizons is taken from a report on the Big Daddy Deposit by Gowans et al (2010).

Drilling and geophysical data suggest that the sill segment containing the Big Daddy deposit is contained within a fault bounded block of the ROF with a 1km strike length. The sill is well differentiated with dunite at the base overlain by peridotite with massive chromite horizons. Conformably overlying the peridotite is pyroxenite and gabbro. In the drill defined area of the deposit the ROF sill has been intruded between a granodiorite and volcanic rocks. Total thickness is approximately 1000m. The sill to the south-west, across the fault contact contains a thin slice of dunite. Limited information suggests that the sill thins to the southwest. Mappable geologic contacts and limited igneous structures (e.g., bedding) indicate that the sill has been rotated from an original horizontal to a nearly vertical to overturned position.

Silicate minerals within the sill have been pervasively altered to serpentinite (serpentine-talc-chlorite); however, original textures are well preserved in both hand specimen and thin section.

The dunite is typically coarse grained and dull green. While the grain size varies there is little evidence of disruption. Magnetite occurs as rims around former olivine grains, as diffuse patches and in narrow (~1 cm wide), massive veinlets. The latter are strongly conductive. The abundance of magnetite and presence of narrow but highly conductive magnetite veinlets produce large amplitude total magnetic fields and diffuse but persistent AEM anomalies that extend from the Big Daddy claim, northwards onto the Black Creek (Probe-Noront) and Black Thor-Black Label properties.

The peridotite is chaotic in appearance, being marked by abrupt grain size changes. Scoates (2009-03) describes an extensive, magmatic breccia unit that reflects a high energy magmatic environment possibly occupying a feeder dyke. Massive chromite fragments were observed in earlier (pre-2009) holes (ibid.) but were rare in subsequent holes.

The peridotite unit also contains the economically significant chromite mineralization of which two intervals were typically observed. The stratigraphically lower unit(s) are characterized by variable (from interval to interval) chromite contents between 15% and 40% Cr<sub>2</sub>O<sub>3</sub>. The upper massive unit comprises uniform, ~40% Cr<sub>2</sub>O<sub>3</sub>, and grades, often within 1% over tens of metres. The grade of the upper unit is consistent over the deposit with the exception of the southwest part where grades drop to ~38% Cr<sub>2</sub>O<sub>3</sub>.

Drilling of the Big Daddy deposit has been carried out from footwall to hanging wall so that the peridotite has been well sampled. The unit is marked by frequent faulting and fracturing reflected in poor recoveries, lower RQD's and evidence of deep weathering.

The upper contact of the massive chromitite with olivine-poor pyroxenite is sharp, occurring over as little as a centimetre. The pyroxenite comprises a distinctive pale green unit in which pseudomorphs after pyroxene are distinctive. In addition the Cr<sub>2</sub>O<sub>3</sub> contents drops from ~40% to less than 1% across this contact.

Gabbros, some in contact with overlying volcanics, were reported in several holes.

Volcanic hanging wall rocks were not encountered during the recent drill campaign. Work on the McFaulds Lake volcanogenic massive sulphides suggests that they reflect a back arc environment.

### **7.2.1 Felsic and Intermediate Intrusive Rocks**

Granitic rocks represent the dominant lithologies in the Oxford-Stull Domain and include, from oldest to youngest: gneissic tonalities; foliated tonalities; a muscovite granodiorite–granite series; and a diorite-monzonite- granodiorite suite (Thurston et al., 1991).

Tonalitic rocks of the Oxford-Stull Domain are batholithic in proportion, and display a general west to northwest strike in their layering, which shows divergence around younger intrusives and in the vicinity of shear zones. Contact relationships with greenstone terrains are almost invariably tectonic, while more gradational with other felsic intrusives (Thurston et al., 1991).



Foliated tonalites include amphibole-bearing and biotite-bearing varieties, and typically form irregular batholiths and stocks at the interface between greenstone terrains and massive tonalite in the Oxford-Stull Domain. Amphibole-bearing tonalite typically contains less than 20% mafic minerals, usually as hornblende, while more felsic versions are dominated by biotite in their mafic assemblages (Thurston et al., 1991).

Feldspar megacrystic granodiorite and biotite granodiorite form the two dominant lithologies within the granodiorite to granite suite (Thurston et al., 1991). Magnetite is common in this series and accounts for its high magnetic signature in regional aeromagnetics. Mafic minerals, dominated by biotite, typically make up less than 10% of the rock.

Members of a muscovite-bearing granite suite range from granodiorite to granite, and are coarse-grained to pegmatitic, often containing metasedimentary xenoliths. They include two-mica granites and leucogranites, which are usually associated with major shear zones in the Sachigo subprovince. Their young ages (2653 Ma), compared to two-mica granites in the southern Superior Province, smaller sizes and tectonic association suggest that these granites may have formed from melting of metasedimentary units during late block-to-block movement (Thurston et al., 1991).

Rocks of the diorite - monzonite – granodiorite suite represent the youngest felsic/intermediate intrusions in the Oxford-Stull Domain, and range between quartz diorite and quartz monzonite. Mafic mineral assemblages can be high, up to 30%, with hornblende typically dominant over biotite, and occasional pyroxene (Thurston et al., 1991). Rocks of this suite show a spatial association with mafic intrusives, and usually display a gradational transition to gabbroic compositions. The rocks are generally inclusion-rich, and this, coupled with the mafic mineralogy, suggests that they are mantle derived, similar to monzodiorite plutons in the southern Superior (Stern et al., 1989).

### **7.2.2 Mafic-Ultramafic Intrusive Rocks**

Different genetic classifications of the mafic-ultramafic rock types provide a deeper understanding of the geological history and tectonic setting of the area. These rocks can be indicative of a mid-ocean ridge (MOR) environment or could represent komatiitic or tholeiitic sequences extruded or intruded in an island arc setting. Thurston et al (1991) considered most mafic to ultramafic rocks in the region to be pre-tectonic sills of synvolcanic origin.

Current interpretations of the more detailed geology at Noront's ENB Complex have indicated that the extensive peridotite sill (Ring of Fire Intrusive, or RFI) has been emplaced along the margin of a

regional scale granodiorite pluton which intruded and caused doming of the McFaulds Lake greenstone belt rocks. Feeders or conduits for the RFI are reported to cut across and through the granodiorite. Post-tectonic magmatism in the northwestern Superior Province includes three diabase dyke swarms, comprising the 2171 Ma Marathon swarm, 1888 Ma Molson Swarm and the 1267 Ma MacKenzie Swarm.

The largest exposed and best known and investigated mafic-ultramafic intrusion in the populated ROF is the Big Trout Lake Intrusive Complex, which is located on the northwestern flank of the ROF structure. It is a folded, 5000m thick sill with an unfolded 93 kilometre long strike length and in part comprises a 500m thick lower ultramafic sequence of dunite, chromitites (chromite-rich layers) overlain by homogeneous peridotite. Two batches of tholeiitic magma are indicated in the formation of the sill (Borthwick and Naldrett, 1984). PGE Exploration by INCO, Canadian Occidental Petroleum (Canoxy), Platinum Exploration Canada Inc., International Platinum Corporation and now Platinex Inc., has confirmed the presence of significant Pt-Pd mineralization in four reef type deposits and significant chromium deposits. Platinex, in particular, has mapped four ultramafic cycles using proprietary lithogeochemical techniques.

Stott's mafic-ultramafic intrusive bodies in the "Ring of Fire" area may, however, have a combined strike length of 120 kilometres (Figure 6). The thickness of individual sequences range from three kilometres in the Noront Double Eagle strata to as much as a thirty-four kilometre composite thickness of several sequences in the McFaulds South Area. Another large feature in the area, the Highbank Lake layered intrusion, is located about 17 kilometres southeast of the project area and about 31 kilometres south of ENB Complex. Its approximate dimensions are 58 kilometres by 21 kilometres.

### **7.2.3 Volcanic Rocks of the McFaulds Lake Area**

The volcanic rocks are reported (Franklin, 2003) to comprise highly altered mafic and felsic volcanic rocks, that have locally undergone extensive Mg-metasomatism to form talc-magnetite altered assemblages. Commonly the replacement alteration makes primary lithologies indiscernible since all units tend to resemble basaltic flows. The hydrothermal character of the talc-magnetite rock has been established to a fair degree of confidence through whole rock geochemical comparisons utilizing major and trace element characteristics, while precursor lithologies have been demonstrated to be a bimodal population of basaltic and rhyolitic-dacitic volcanic rocks (Franklin, 2003). The intense alteration of the felsic sequence may indicate high temperature deposition of VMS mineralization within volcanic strata, rather than at a sea-floor interface.

### *Mafic Volcanic Rocks*

Franklin (2003) has interpreted from drill sections that basalts dominate the volcanic sequence in both the hanging wall and footwall sections at the Spider deposits (Franklin, 2003). Descriptions of the basalts are limited to chloritic and locally spherulitic. A calc-alkaline composition is inferred by high LREE/HREE ratios.

### *Felsic Volcanic Rocks*

Original logging of Spider Resources' diamond drill core from the McFaulds area suggested that felsic volcanic rocks were rare in the sequence. Although both fragmental and massive flow textures had been recognized, the visual identification of their felsic nature was impaired by intensive chloritic alteration. Investigations by Lesher et al. (1986) and Franklin (2003) determined that the felsic units can be recognized by their rare earth element (REE) enrichment and flat REE patterns in comparison to the basalts. It is now recognized that the REE patterns are indicative of high temperature rhyolites which are often associated with VMS terrains and that the felsic volcanic units comprise a significant portion of the sequence. As a result, Franklin (2003) was able to demonstrate that the felsic units occur in much greater quantities than first thought and noted that the units appear to be discontinuous due to poor correlation between drill sections.

At Probe Mines Victor project diamond drilling identified felsic volcanic layers that predominantly comprise coarse-grained lapilli tuffs and fragmental units, as well as fine-grained ash-fall tuffs (Palmer, 2005).

## **7.3 Property and Local Area Geology**

### **7.3.1 Quaternary Geology**

Two lobes of late-Wisconsinan ice sheets are interpreted to cover the Hudson Bay Lowlands of northwestern Ontario (Prest, 1963). The Lac Seul lobe advanced and retreated in an east-west direction and the Windigo lobe was active in a north-south direction. The associated tills overlie the 53,000 year old non-glacial Missinaibi sediments (Thurston et al, 1979; McDonald, 1969).

Evidence of the Windigo lobe occurs in the vicinity of the property and more precisely in the proximity and east of Winisk Lake where north-south glacial striae were reported at four locations (Riley, 1973, 1974). The most prominent glacial feature in the area is a 130 kilometre long north-south esker interpreted to represent a late glacial "Cochrane I" re-advance with slightly different trend than the Windigo lobe. The southern limit of this esker is about 20 kilometres east of the McFaulds South

project area. Some of this esker coincides with the banks of the Muketei River and it also crosses the west side of the McFaulds North property of Platinex. Other similarly striking eskers have been identified near the eastern part of Winisk Lake and further south. An area of different NW-SE glacial direction occurs about 50 kilometres north and northeast of Winisk Lake.

Once the glaciers had receded sufficiently, Hudson Bay was flooded by the Arctic Ocean through the Hudson Strait to form the Tyrrell Sea which deposited several meters of thixotropic, fossil bearing mud. Riley interpreted the westerly limit of the late glacial Tyrrell Sea shoreline to have extended north-westerly through the Good's Lake-Sooter Lake area, coincident with the easternmost claim block of the McFaulds South project area.

### **7.3.2 Bedrock Geology**

The Precambrian bedrock geology associated with the six claim blocks and the surrounding area (Figure 7 and 8) is dominated by a northeast trending sequence of geophysically-interpreted mafic and ultramafic intrusive rocks, older metavolcanic and metasedimentary rocks and a suite of younger gneissic and foliated tonalite (Stott, 2008). The mafic-ultramafic rocks may underlie as much as 55 percent of the total property and appear correlative with the host rocks at the conduit hosted Ni-Cu-Cr-PGE and stratiform chromite deposits located 25 kilometres to the northeast in the McFaulds Lake area. The ultramafic rocks of the McFaulds South area appears to be thicker than in the discovery area of the chromite deposits further north-east. It is possible that the increased thickness may translate into a sill body thick enough to host a reef type PGE deposit such as the Bushveld or the Stillwater deposits.

Three separate mafic to ultramafic intrusive units have been interpreted in the area. The longest unit extends over 27 kilometres to the northeast. A small, short unit occurs several kilometres to the northeast and abuts a regional fault. About four kilometres northeast of the fault is another mafic-ultramafic intrusive that extends for 54 kilometres to the north-east. The thickest, 'central unit' in the McFaulds South area appears to have a minimum strike length of 27 kilometres and thickness from 3-13.5 kilometres (Figure 8). On-property strike length is 5.6-7.8 kilometres and the thicknesses of the unit ranges from 3.2 to 6.8 kilometres.

A much thinner 'southeast' mafic-ultramafic unit extends for an interpreted minimum strike length of 22.5 kilometres and thickness ranges from 0.8 to 2.5 kilometres. On-property strike length ranges from 1.5 to 5.5 kilometres and thickness of this unit ranges from 0.5-1.2 kilometres under parts of four claim blocks.

The thick, 'northwest' mafic-ultramafic intrusive unit has a half-moon shape with only a minor segment 2.3 kilometres long and up to 1.2 kilometres thick underlying the northwest claim block (Sature Lake Claim Block).

Stott has interpreted that metasedimentary rocks, a thin mafic to intermediate metavolcanic unit and a substantial unit of gneissic tonalite separate the 'southeast' and "central' mafic-ultramafic intrusive units. Two wedge-shaped units of mafic-ultramafic volcanic rocks and a foliated tonalite suite appear to pinch-out against each other and separate the 'central' and the 'northwest' mafic-ultramafic intrusive units. It is possible that some of the rocks interpreted as felsic intrusive rocks adjacent to the mafic-ultramafic intrusions could be anorthosite.

In 2008 MacDonald Mines drilled hole AD-08-02 along the west shore of Goods Lake approximately 400m south of Platinex's Goods Lake Claim Block. The hole was drilled into a magnetic high close to the interpreted trace of the Ring of Fire Intrusion that passes through Platinex's Goods Lake Claim Block. The 176m long drill hole intersected diorite and gabbro. The geological drill log submitted for assessment credit is vague and does not offer any explanation for the magnetic high. Apparently magnetic susceptibility was not done on the core. Only six samples were taken from the core; three whole rock samples and three 1.5m long samples which were analyzed for Cu, Zn, Pb, Ni, Pt, Pd Ag and Au. One of which contains 987ppm Cu.

Government geological mapping done over the property has been regional in nature. The area along the shoreline of Goods Lake has a number of outcrops shown on government maps including gabbroic and mafic volcanic rocks. The property visit was done at a time when the snow was a meter deep along the shoreline and none of these outcrops were visible. While a number of outcrops were sampled, a summer mapping program is recommended to establish the relationships between the intrusive rocks and the volcanogenic-sedimentary host rock package.

#### **7.4 Structural Geology**

Property-scale structural data is unavailable. Volcanic strata identified in other areas typically show subvertical to vertical dips. Noront has reported the ultramafic sequence at the Eagle deposits to dip steeply west but young to the east, thereby indicating an overturned sequence. Probe Mines, in their VMS target drilling on the Victor project east of the ROF, have identified open to isoclinal folding in drill core and have noted a weak S1 foliation parallel to sub-parallel to layering. Rare S2 foliations have been identified at 30-35° to S1 foliation.

The Big Daddy Chromite deposit is fault bounded on the east and west by north-south striking faults which have displaced the igneous stratigraphy.

## **8. DEPOSIT TYPES**

The McFaulds area hosts three types of mineral deposits and Platinex interprets there to be significant potential for a fourth type of mineral deposit

### **8.1 Volcanogenic Massive Sulphides**

The first recognized deposit type in the ROF is Archean Noranda-type volcanogenic, hydrothermal massive sulphide deposits (VMS) of Cu-Zn-Au-Ag. Discoveries in the McFaulds area such as Probe's Tamarack and Victory occurrences and MacDonald Mines Butler property north of Platinex's South McFaulds property are examples of this type of deposit. They are typified by Cu-rich feeder zones in alteration pipes and more Zn-rich massive sulphide bodies at or near the interface between felsic volcanic sequences and overlying andesitic, mafic or even other felsic volcanic rocks.

VMS deposits are major sources of copper, zinc, lead, silver and gold, with by-products including tin, cadmium, antimony and bismuth. The deposits belong to a larger class of concordant massive sulphide deposits, which can be considered as having formed through discharge of hydrothermal fluids onto the seafloor. The term volcanogenic massive sulphide is actually a bit of a misnomer, as the sulphides are formed from a specialized hydrothermal system, which sometimes develop around submarine volcanic vents. VMS deposits occur exclusively in geological domains containing volcanic rocks extruded on the sea floor, and there is no preferred geotectonic environment, although, like submarine volcanic sequences, they are more commonly found near plate margins. VMS deposits are not restricted to any geochemically distinct volcanic sequence, although there may be a preferential association with evolved calc-alkaline members. There is a spatial association among VMS deposits, with most occurring in clusters associated with a particular level in the stratigraphic sequence. This "favourable horizon" often contains structural or topographic features responsible for the localization of deposits. The deposits also tend to be associated with felsic volcanic rocks, with approximately 50% related to areas of rhyolitic domes and felsic fragmental rocks. Sedimentary rocks are often an integral part of a VMS terrane, and indicate periods of volcanic quiescence, a break required for the deposition of sulphides from hydrothermal fluids emanating from submarine vents. The deposits themselves display a remarkably consistent mineralogical zonation, probably related to the thermal gradient developed around the vent. The vent itself typically consists of a stockwork system containing the richest Cu ore, while

within the sulphide mound itself an outward zonation of Fe-Cu to Fe-Cu-Zn-Pb to Fe-Zn-Pb-Ba and finally Fe-Ba is developed.

## **8.2 Magmatic Massive Sulphides**

The second type of deposit recognized in the area is the Ungava or Jinchuan-style mineralized Ni-Cu-PGE feeder dykes or conduit style mineralization sometimes referred to as magmatic massive sulphide deposits (MMS). Noront's Eagle Nest and Eagle Two deposits are associated with a mantle-derived, highly magnetic ultramafic peridotite intrusion emplaced along the margin of a regional scale granodiorite intrusion which had been intruded into and caused a doming of the host McFaulds Lake greenstone belt rocks. The Eagle One deposit occurs within a conduit feeder located a short distance from the overlying sill of the (RFI). The Eagle Two discovery has been described as a Shear Hosted Sulphide (SHS) zone interpreted to occur within the "throat or mouth" portion of the conduit where it empties into the main body of the RFI. Recent results at Eagle Two infer that the intermittent bands and stringers of Cu-Ni bearing sulphide mineralization coalesce and increase in overall thickness along strike to the northwest. Presumably the thickening infers a conduit that is part of the original feeder system of the main body of the intrusion.

## **8.3 Stratiform Chromite Deposits**

The third deposit target is magmatic stratiform chromite, as typified by the Noront Blackbird deposits and Cliffs Big Daddy deposit. These deposits occur in sills stratigraphically above the conduit feeder dyke Ni/Cu magmatic sulphide deposits. In the McFaulds area they occur in fault blocks of varying thickness. Given the large areal extent of the Ring of Fire intrusions, the sills discovered to date are not relatively thick in comparison to the Bushveld or the Stillwater complexes.

Stratiform deposits account for 45% of total world chromite production and 95% of reserves. The Bushveld alone accounts for 35% of production. Other significant producers are the Great Dyke, Kemi and Brazilian deposits, which together produce about 10% of the world's total.

Stratiform chromite deposits are formed by magmatic segregation during fractional crystallization (fractionation) of mafic-ultramafic magma. Stratiform chromite deposits require that chromite be the major and ideally the sole crystallizing phase over an extended period. Irvine (1975, 1977) suggested two mechanisms whereby a chromite saturated picritic tholeiite liquid becomes more siliceous either by contamination (assimilation) with granitic and/or volcanosedimentary material or alternatively by mixing with a more siliceous differentiate of the parent magma, thereby causing chromite to precipitate in the absence of silicate minerals.

On the evidence of field relations and mineralogical data (Jackson 1961, von Gruenewaldt 1979) combined with isotopic studies (Kruger and Marsh 1982, Sharpe 1985, Lambert et al. 1989) it has been shown that large layered intrusions are not the result of single, one-event injections of magma, but are the result of repetitive inputs. Irvine (1977) demonstrated that if a new input of magma was injected into one that had reached a higher level of fractionation, the resultant mixing action could inhibit the fractional crystallization of silicate minerals such as olivine and orthopyroxene and permit the crystallization of chromite alone. This is the mechanism by which layers of massive chromitite can develop, without dilution by cumulate silicates.

The suggestions by Irvine (1977) are consistent with observations on chromitites in layered intrusions. Most significant amongst these observations is the fact that most of these chromitite layers occur at the base of well defined cyclic units (e.g. Bushveld Complex and Great Dyke in Southern Africa) or at/near the base of similar cyclic units. Further evidence comes from the textures of the underlying rock units which indicate a common cotectic crystallization of chromite with olivine or orthopyroxene showing that the magmas previously in the chambers were saturated with respect to chromite.

Gowans (2010b) states that information on the Big Daddy deposit indicates that both mixing of primitive magma with fractionated magma and crustal contamination of the parental magma appear to have had complementary roles in the formation of the Big Daddy chrome deposit. The hanging wall volcanics include both banded iron formation intervals and volcanogenic sulphide accumulations which, if assimilated by the sill, could alter magma chemistry sufficiently to deposit chromite.

#### **8.4 Reef Type PGE-Ni-Cu Deposits**

Reef-type Pt-Pd deposits similar to those in the Bushveld Igneous Complex in South Africa and the Stillwater Complex in Montana, USA are the fourth mineral deposit target. Platinex and other predecessors have delineated type three and four deposits at the Big Trout mafic-ultramafic complex along the northwestern rim of the ROF. The significant size of the geologically/geophysically-defined mafic-ultramafic intrusions and the potential for them to be part of a much larger complex that extends to Big Trout Lake infers a potential for the existence of major reef-type PGE deposits.

The following description of Reef Type PGE deposits is taken from a technical report by Gittings (2008) for Platinex's Muskox PGE property.

Much has been written on the formation of PGE mineralization within large layered intrusions. Theories on how mineralogically distinct layers form and their relationship to magmatic ore deposits



has been evolving over the last sixty-five years. There is no doubt that current research will continue to expand and alter our understanding of these geological phenomena.

The key factor in any ore formation process is the mode of concentration. To form a grade of 5.0 g/t Pt and 10 g/t Pd from a magma containing 10 ppb Pt and 20 ppb Pd requires a 500:1 concentration factor.

There are three main theories proposing mechanisms to achieve such a concentration. The first two are orthomagmatic and the third is deuteric. One orthomagmatic theory is Campbell's (1983) magma mixing model. This model envisions the injection into the magma chamber of a new magma pulse with a lower density than that of the magma occupying the chamber. The difference in magma densities required by this model occurs over an interval of the crystallization sequence referred to by Campbell as the "roll-over window". During the formation of the ultramafic zone the density of the residual liquid decreases as the crystallization of iron, chromium and magnesium minerals occurs. A primitive magma entering the chamber during this period will be slightly denser than the residual liquid. The new magma will spread out along the floor of the intrusion failing to equilibrate with a significant volume of liquid (resulting in a low R factor). The commencement of plagioclase crystallization at the base of the gabbroic zone will reverse the liquids density trend. Since iron is not compatible within the plagioclase crystal structure it will remain in the liquid phase gradually increasing the liquid density. A point will occur when the density of the residual liquid becomes greater than that of a fresh magma pulse. A fresh, primitive magma pulse entering the chamber after the "cross over" point will rise through the liquid as a turbulent plume enabling it to equilibrate with a very large volume of magma (resulting in a large R factor). Sulphides within the new pulse scavenge PGE from the entire magma chamber and upon cooling form a layer with very high PGE-bearing sulphides at the base of the chamber.

In studying the Stillwater Complex, Todd et al (1982) suggested that the J-M Reef was formed when an anorthositic affinity magma was injected into the residual ultramafic affinity magma. Sharpe (1982) reached similar conclusions on the formation of the Merensky Reef.

Whether the mixing event is triggered by a change in the residual magma density as in the Campbell model or the injection of a different magma type as in the Todd/Sharpe model remains unresolved.

An important element in the formation of a commercial PGE deposit is the sulphide saturation point. Sulphides, whether or not they have been PGE enriched, will remain in the liquid magma until the sulphide saturation point is reached. With regard to the Todd/Sharpe model of differing magma affinities, Irvine et al (1983) states that U-type magmas are characterized by a low sulphur content. A

low sulphide content would allow PGE-bearing sulphides to remain in solution during crystallization and gradually become concentrated in the diminishing residual liquid.

The second type of orthomagmatic model does not require any special attributes of magma entering the chamber. Kruger et al. (2002) writing on the Bushveld Complex, suggests that the PGE rich horizons were emplaced when a fountain of new magma entered the chamber with such force that it reached and partially assimilated the high silica melt and roof rocks of the intrusion. This sudden silica shock would cause the partition of chromite rich slurry which would then cascade down entraining PGE while being swept to the top of the cumulate pile at the base of the intrusion. This mechanism would explain the unconformable nature of the PGE rich horizons as the chromite bearing slurry swept down eroding portions of the pre-existing cumulate pile much like a turbidite flows down a continental slope. The process would only continue while the velocity of the magma pulse was strong enough to carry it to the top of the intrusion, then the crystallization sequence would revert to the normal differentiation trend.

The third main PGE deposit model is the "Filter pressing model". The proponents of this theory speculate that as the crystallization occurs those elements incompatible with the forming silicates partition into the liquid phase. Platinum group elements, because of their highly siderophile affinities tend to be included in the sulphide fraction of the residual liquid.

Prior to the compaction of the crystal mush, the intercumulate liquid occupies up to 40% of the crystal pile. Upon compaction the residual liquid is forced up through the crystal pile migrating upwards.

An important aspect of this theory is that the sulphide droplets are not frozen at a specific time-stratigraphic level as in the case of the magma mixing theories. Since sulphides have a much lower temperature of solidification than the majority of silicates they will remain in the liquid phase migrating upwards continuing to preferentially scavenge PGE from a large volume of residual liquid.

The filter pressing model suggests a concentration of sulphides could form at any level within the intrusion depending on where in the stratigraphy the internal hydrostatic pressures were no longer great enough to force intercumulus liquid out of the crystal pile. There could be more than one sulphide-bearing layer within an intrusion as a result of this mechanism.

Vermaak (1976, p.1295) writing on the genesis of the Merensky Reef suggested that "platinoids ... were transferred via the intercumulus fluid from the base of the complex to be concentrated in the magmas which were now successively entrapped, together with volatiles, by a temporal sequence of anorthosite mats".

The success of the filter pressing mechanism in producing a PGE ore deposit would depend on two factors. The grade would depend on the volume of magma with which the sulphide droplets could scavenge PGE during their ascent through the crystal pile as well as the original PGE content of the magma (concentration factor). The second factor is the volume of sulphides concentrated within the layer when hydrostatic equilibrium occurred. Obviously if sulphide droplets were able to migrate through the entire sequence without being immobilized along the way the resulting sulphide accumulation at the roof of the Intrusion would be considerable (volume factor).

It is extremely unlikely that sulphide migration would continue uninterrupted through the entire crystal pile. Irvine's concept of the development of a series of double convecting cells within a large intrusion would confine, to a large degree, migration of sulphide droplets to each individual cell. The crystallization of silicates at the interface of each cell would form a physical barrier to the migration of sulphide droplets from cell to cell.

Massive chromitite layers would be especially effective as nets to trap the upward migrating sulphides. Chromitite layers form early in the crystallization sequence. The tightly packed character and smaller grain size would be a more effective net than larger, less tightly packed olivine cumulate layers.

Many writers now believe a variant of the filter pressing mechanism called magmatic metasomatism is responsible for the enrichment of sulphide-bearing horizons created by an orthomagmatic process.

## **9. MINERALIZATION**

No surface exploration work has taken place on the McFaulds South Property and therefore there is no mineralization to report. Reconnaissance type geological mapping by government has not located any mineralization on the property in large part due to the sparsity of outcrop in the James Bay Lowlands.

## **10. EXPLORATION**

No surface exploration for economic mineralization has taken place on the property by Platinex or others to the author's knowledge. Because of sparse outcrop exposure in the James Bay Lowlands the first phase of exploration includes tightly spaced airborne geophysical surveys in order to deduce the underlying hidden geology of an area. In order to achieve adequate coverage over irregularly shaped claim blocks it is often necessary to extend coverage over adjacent claims. Platinex's

McFaulds South Property has been partially surveyed by other exploration companies for this reason. The extent and results of this work by others on Platinex's property is shown on Figures 9 and 10. In order to encourage exploration in the area the Ontario Government has undertaken Airborne Geophysical Surveys of a regional nature.

## **10.1 Geophysical Surveys**

### **10.1.1 Regional Airborne Geophysical Data**

Airborne Geophysical data for the area including the McFaulds South project area comprises magnetic data compiled by the Ontario Geological Survey (OGS) as part of "Operation Treasure Hunt" (OTH). The data was compiled as the Attawapiskat Airborne Geophysical Survey, Geophysical Data Set 1211. The Block 1 of the four-block airborne magnetic survey covers the Platinex property. High Sense Geophysics Limited (now a division of Fugro Airborne Surveys) performed the survey for KWG Resources as part of an exploration program to define kimberlite pipes. The surveys were carried out during 1993 to 1996 with a Piper Navajo PA31 fixed wing aircraft equipped only for magnetometer surveys. Lines were flown north-south at 400 metre spacing. Other specifications are provided in the OGS report.

The OGS compilation and interpretation included digital color maps of contoured total field magnetic, first and second magnetic gradients or derivatives, and the Keating Correlation Coefficients used to identify circular anomalies that would represent priority kimberlite targets.

This data set was instrumental in locating the Platinex claims along a magnetic anomaly that appears to correlate with mafic-ultramafic rocks.

### **10.1.2 Regional Gravity Survey**

The Ontario Geological Survey supervised and edited the compilation of digital gravity data obtained from the National Gravity Data Base maintained by the Geophysical Data Centre, Geological Survey of Canada (Gupta, 1991). The reconnaissance-scale data indicate that the northwest claim block of the McFaulds South property is centred on a single station gravity high. The remainder of the property is on the flanks of this gravity high. A similar scale of gravity anomaly is associated with the Nemeigusabins Lake arm of the Big Trout Lake intrusion.

### **10.1.3 Project Airborne Geophysical Surveys**

#### **10.1.3.1 Other Party Survey Data**

Airborne magnetic data from Data Set 1211 has been extracted for the McFaulds South project area. The first vertical derivative colour application interpretation is provided as Figure 10.

Magnetic data provided by the first derivative of the vertical field emphasize the apparent lateral continuity of geological units. The mafic-ultramafic intrusive units only occasionally identified by outcrop (Thurston et al, 1979) and extensively interpreted from incorporation of the geological and geophysical data by Stott (2007) are faithfully mapped by the vertical derivative of the magnetic data.

More detailed airborne magnetic and electromagnetic surveys elsewhere along the Ring of Fire have defined numerous electromagnetic anomalies associated with anomalous magnetic features. Several of these coincident geophysical features have now been defined as magmatic massive sulphide deposits and others have correlated with volcanogenic massive sulphide deposits.

Follow-up airborne geophysical surveys carried out by the most exploration companies have involved 100 metre flight line spacing and in some priority areas, 50 metre flight line spacing. The resolution and accuracy provided by the helicopter-borne geophysical systems with GPS navigation systems has been exceptional, to the degree that follow-up ground geophysical surveys are becoming rarer.

### **10.2 Geochemical Investigations**

#### **10.2.1 Regional Geochemical Surveys by Others**

The interest in the diamond potential of the James Bay Lowlands triggered a number of regional-scale geochemical surveys in the area (OFR-6097 Spider 3; OFR-6108 James Bay) to evaluate heavy mineral geochemistry of stream sediments.

The most comprehensive publication of the information was an evaluation of stream sediment samples for indicator minerals that could assist in selection of priority targets for diamondiferous kimberlite pipes (Crabtree, 2003). The evaluated indicator minerals included chromite which can also indicate the presence of chromite-bearing mafic-ultramafic complexes that could host magmatic massive sulphide deposits and platinum group metal deposits. The presence of other, more diagnostic indicator minerals is apparently very important in the selection of areas for follow-up exploration programs (Averill, 1999), as is a good understanding of the Quaternary geology.

## **11. DRILLING**

Platinex has not performed any overburden drilling or diamond drilling on the property, nor is there any record of previous drilling on the property. There are no drill logs, or assay/analytical results to present and therefore no certificates of analyses to append.

## **12. SAMPLING METHOD AND APPROACH**

This section does not apply to this Report.

## **13. SAMPLE SECURITY, PREPARATION, AND ANALYSES**

This section does not apply to this Report.

## **14. DATA VERIFICATION**

The Property was visited by Fred Gittings on March 9, 2011. At the time of the property visit, the Property was completely frozen and covered by snow. In general, the property is covered by swamp with little to no exposed bedrock. All Information in this report comes from all publicly available information including all public news releases, company websites who are actively exploring the area, information on SEDAR describing discovered mineralization, MNDM website for any other assessment work and all publicly available analytical results.

## **15. ADJACENT PROPERTIES**

There are a number of exploration companies and individuals with mining claims in the immediate area of the Property exploring for magmatic Ni-Cu-PGE mineralization, VMS mineralization, mesothermal gold mineralization and massive chromite mineralization. All mineralization and analytical results discussed in this section were collected from public domain sources, which are referenced in the applicable sections and may or may not be indicative of mineralization on the Property.

The original VMS occurrence in the McFaulds Lake area was discovered in 2002 by Spider, KWG, and De Beers, working in joint venture, while exploring the area for kimberlite bodies, the host for diamonds. The initial massive sulphide discovery was in a reverse circulation drill hole that ended in sulphides. Sampling results from this hole returned values that averaged 1.6% Cu over 8 metres. This discovery became the site of McFauld's #1 VMS occurrence ([www.spiderresources.com](http://www.spiderresources.com)). Since

then the McFaulds area has been found to host a number of deposits including magmatic massive sulphides in feeder conduits and chromite deposits that occur in overlying ultramafic sills that have been described as being well differentiated but variable along strike. These magmatic deposits are situated in the Ring Of Fire Intrusion part of a large magmatic event of the Neoproterozoic that has been attributed to a mantle plume with the dimensions of 350 by 175km. (OGS-Resident Geologists, 2010)

The success of many exploration companies in the Ring of Fire exploration camp can be attributed in part to the use of modern airborne geophysics as a phase one exploration tool. The ability to discern favourable geology underlying extensive glacial cover has resulted in considerable success in an area that ten years ago was virtually unexplored.

The sills of Ring of Fire intrusive event appear to be located preferentially at the contact between older granitic intrusive and volcanogenic-sedimentary package of rocks. The feeder dykes that were conduits for the magma cut through the older granitic intrusives. In 2007, Noront discovered the Eagle's Nest deposit in such an intrusive conduit dyke. Research on the deposit indicates there are several sub parallel dykes that originally were flat-bladed intrusions ascending along a shallowly inclined fracture towards the base of the overlying sill(s) that host the layered chromite rich seams. The intrusions have been rotated 100 degrees—slightly overturned. The mineralization consists of massive and net textured sulphides (Baker et al. 2010). This discovery touched off another wave of staking, including Platinex's ground acquisitions in the Ring of Fire area. In a press release issued in March 2011, Noront states that that Eagle's Nest deposit contains 20.0 mt of 1.78% Ni, 0.98% Cu 0.99g/t Pt and 3.41g/t Pd. To date Noront has discovered four deposits within a 4 km<sup>2</sup> area. Noront now refers to these collectively as the ENB Complex. In addition to the Eagle's Nest deposit there are the Eagle Two Triple J and the Blackbird Chromite deposit which was discovered in 2008. The Eagle Two Cu-Ni-PGE deposit of "shear hosted sulphides" (SHS zone) was described as occurring within the throat or mouth portion of the peridotite conduit where it empties into the RFI. Coalescing mineralization and an increase in overall thickness along strike have been interpreted to suggest potential to discover more massive conduit-hosted mineralization similar to the Eagle One deposit. Recent assay results for a 16 m mineralized zone included a 6.2 m section with 1.14% Ni, 0.16% Cu, and PGE values less than 0.4g/t.

There are currently four chromite deposits located within the ultramafic bodies that occur along the southern flank of the McFaulds Cell of the Ring of Fire intrusion. These include:

- Noront's Blackbird Deposit- 7.56mt of 36.34% Cr<sub>2</sub>O<sub>3</sub> with a 1.94 Cr/Fe ratio.

- Probe Mine's Black Creek Deposit—8.4 mt—measured and indicated at 40.00% Cr<sub>2</sub>O<sub>3</sub> with a 1.8 Cr/Fe ratio.( Probe Mines Annual Report 2010 available on Sedar.com)
- Cliff's Resources Big Daddy Deposit—23.2mt –indicated at 40.66% Cr<sub>2</sub>O<sub>3</sub> with a Cr/Fe ratio of 2.0.(Gowans, R. et al.2010)
- Black Thor Deposit—reported to contain 69.5 mt grading 32% Cr<sub>2</sub>O<sub>3</sub> (Resourceworld-Vol 8 Issue5 May 2010)now controlled by Cliffs

The high Cr/Fe ratio and high grade of these deposits make them a very desirable exploration deposit type Chromite is used to produce stainless steel and these deposits are the only large high Cr/Fe ratio deposits in North America. As previously stated Cliffs Natural Resources of Cleveland Ohio has moved to acquire a number of these deposits and the junior exploration companies that discovered them.

In five field seasons 10 individual VMS occurrences have been discovered and drill-tested, some with only a single hole by Spider and their joint venture partners. Seven of these contain VMS-style sulphide zones. In addition to the original discovery (McFauld's #1 occurrence) a second significant mineralized occurrence was discovered in late 2003, McFauld's #3. This occurrence is 1.5 km southwest of McFauld's #1 occurrence and has been intersected by 31 holes, all of which contained massive sulphides. The widest intersection and the last hole drilled in the 2004 field season intersected 18.8 metres containing 8.02% Cu at a vertical depth of 250 metres (www.spiderresources.com).

In September 2007, Spider and joint venture partner UC Resources Ltd. announced the intersection of additional base metal mineralization on their McFauld's Lake property. Holes McF-07-75 and McF07-76 (August 30, 2007 press release: www.spiderresources.com) encountered massive sulphide mineralization containing appreciable chalcopyrite and sphalerite. Drill hole McF-07-75 encountered mineralization between 164.28 metres and 183.3 metres (19.02 metres), which averaged 0.35 g/t Au, 6.63 g/t Ag, 2.69% Cu and 4.35% Zn over 19.02 metres. Drill hole McF-07-76 encountered mineralization between 154 metres and 161.5 metres (7.5 metres), which averaged 0.22 g/t Au, 7.47 g/t Ag, 1.8% Cu and 3.3% Zn over 7.5 metres.

In September, 2005, Probe discovered a copper-rich volcanogenic massive sulphide on their Tamarack Property. The discovery hole, M6, intersected a 7.8 metre section of chalcopyrite-rich VMS mineralization grading 3.1% copper in the A-Zone, starting at a vertical depth of 50 metres. Drill hole M7, collared 50 metres west and down dip from M6, intersected the A-Zone at 97 metres vertical



depth and returned 2.4% Cu over 6.0 metres. Both intercepts also returned anomalous concentrations of Zn, Au and Ag (September 20, 2005 press release and Probe Mines Annual Report 2010 both available on SEDAR.com). Probe Mines Limited performed airborne and ground geophysical surveys, then diamond core drill-testing of anomalies on the Victor project area. Nineteen drill holes tested a variety of targets for VMS mineralization. Anomalous sulphide concentrations with sub-economic minor base metal concentrations were encountered in two different environments, a repetitive sequence of mafic to felsic volcanic flows, tuffs and fragmental units with volcanic breaks represented by volcanoclastic units or more rarely periods of quiescence marked by deposition of fine-grained graphitic sediments.

MacDonald Mines Ltd. has been active on their Nugget property, now referred to as the Bulter Property, located north of Platinex's McFaulds South property. Ni sulphide discoveries including Drill hole MN-07-39 which assayed 0.36% Ni over 4.5 metres and 0.26% Ni over 27.0 metres and is hosted by Gabbro (including 0.37% Ni over 6.0 metres and 0.40% Ni over 4.5 metres). In addition, drill hole MN07-40 intersected 0.23% Cu and 0.17% Ni over 3 metres in Gabbro. Drill hole MN-07-40 is located 1.1 km west of MN-07-39 on what is interpreted to be a separate conductor array. Mineralization in both holes occurs as stringer sulphide ([www.macdonaldmines.com/PressReleases/June\\_14,2007.htm](http://www.macdonaldmines.com/PressReleases/June_14,2007.htm)). Press releases indicated the 2007 drilling program objective was to test electromagnetic conductors associated with volcanic and sedimentary sequences and to systematically sample specific geological units. Key results were reported as follows:

- Drill hole MN07-47 intersected a 3.0 m zone that returned 10.6% Zn and 3.7% Pb; including 1.5 m at 11.15% Zn and 6.02% Pb.
- Drill hole MN07-46 intersected a 170m zone of mineralization (170m at 0.18% Ni, including 41.0 M at 0.20% Ni)

In February and March of 2008 Geotech carried out magnetic and EM airborne geophysical surveys for James Bay Resources. Line spacing was 100m and was flown in a NW-SE direction. The survey extended onto five of the six claim blocks of Platinex's Property. The two south-western claim blocks have as much as 65% coverage from this survey ( see Figures 9 and 10).

During the author's property visit on March 28, 2011 MacDonald's Mines' drill was located 1.9km north-east of Platinex's Sature Lake Block of the McFaulds Lake South Property. According to their press release of February 14, 2011 the company is focusing on several targets including vanadium-

bearing magnetite gabbro, VMS mineralization and magmatic Ni-Cu-PGE sulphides. MacDonald Mines will be drilling 3000m on their Bulter Property north of Platinex's ground this winter. Both MacDonald Mines and James Bay Resources have drilled a number of holes within two kilometres of Platinex's Property. (see Figure 8)

According to a press release of March 23.2011, Noront has filed a project description for its Eagle's Nest Deposit. A project description initiates the permitting process for development of the deposit .An all season road is proposed to link Webequie Junction, a site located 20km south of the community of Webequie, with the existing Highway 808 north of Pickle Lake.

Cliffs resources has indicated they will be starting production on their Thor Lake Chromite deposit in 2015, ([www.cliffsnaturalresources.com](http://www.cliffsnaturalresources.com))

## **16. MINERAL PROCESSING AND METALLURGICAL TESTING**

Platinex Inc. has not completed any mineral processing or metallurgical testing in association with the Property.

## **17. MINERAL RESOURCE AND RESERVE ESTIMATES**

Platinex Inc. has not completed any mineral resources or reserve estimates in association with the Property.

## **18. OTHER RELEVANT DATA AND INFORMATION**

All other relevant information and data have been described and reported in this Report. The author is not aware of any other relevant data and information that would be pertinent to the evaluation of the Property that is not already contained in this Report, as available in the public domain and/or provided to the author by Platinex Inc. and/or any of its agents.

## **19. INTERPRETATION AND CONCLUSIONS**

The McFaulds Lake area is evolving into Canada's newest mining camp. Several companies have announced plans to proceed with mine and infrastructure development. Geological knowledge of the regional has increased dramatically over the last five years due to both industry and government efforts.

There appears to be significant potential for discovery of economic mineral deposits on the McFaulds South property for one or more of the following reasons:

- The Property is located on the lobe of the Ring of Fire Intrusion. The first vertical derivative of the regional aeromagnetics indicates the Property overlies the trend of the Ring of Fire Intrusion which hosts economic chromite and magmatic massive sulphide deposits 40km to the north-east.
- The character of the ROF ultramafic-mafic intrusions on the property based on airborne geophysics appears to be thicker than the relatively thin bodies to the north-east that host the discoveries made to date. An increase in thickness of the sill(s) could allow for the volume required to produce a PGE reef type deposit similar to the Bushveld and Stillwater deposits. Similarly a thick sill environment could contain a stratigraphically high-level ferrogabbro capable of hosting significant Titanium and Vanadium deposits.
- Outcrop over the property is sparse but mafic-ultramafic rocks have been recognized on the property during regional mapping by government geologists and the recent regional geological/geophysical interpretation indicates that up to 55 percent of the property may be underlain by the favourable mafic-ultramafic sequences. The potential for conduit Ni-Cu-PGE, reef type PGE and stratiform chromite deposits exists within these mafic-ultramafic sequences.
- There is no record of prior exploration on the property and therefore there exists significant potential for discovery of new deposits.
- Potential may exist for discovery of Cu-Zn-Au (-Pb) volcanogenic massive sulphide deposits within the volcanic package of rocks that occur on the property.

## **20. RECOMMENDATIONS**

Platinex should proceed with comprehensive evaluation of the mineral deposit potential of the McFaulds South property. A two-phase exploration program is proposed.

The first phase of exploration work on the 11,267 hectare property should be performed in 2011. Proposed tasks include an airborne magnetometer and VTEM electromagnetic survey and two to three days of helicopter-supported prospecting, geological mapping and the collection of up to 100 samples of bedrock, till and/or stream sediment. Heavy mineral separate techniques are recommended to identify indicator minerals. Laboratory analyses would be performed by an

accredited lab to determine concentrations of PGE's, base metals and other indicator metals and elements. The proposed Phase I budget is \$645,900. A generalized breakdown of proposed tasks and the estimated costs is provided in Table 2.

Geophysical data collected by James Bay Resources over Platinex's ground should be obtained, if possible. These digital data should be synthesized with the triangulated data from previous surveys to achieve as much detailed information on the property as possible. As drill hole geological information around the property becomes available it should be compiled along with the geophysical information to order to match geophysical signatures to their corresponding geological formations. This exercise will provide a very cost effective first pass exploration tool.

A Phase II program of 5,000 metres of core drilling is also proposed to evaluate priority geophysical targets and provide important stratigraphic information for subsequent investigations. The proposed Phase II budget is \$2,000,000.

<b>TABLE 2</b>		
<b>McFAULDS SOUTH BUDGET</b>		
<b>Phase I – Proposed Task</b>	<b>Quantity</b>	<b>Estimated Cost</b>
Project management & supervision		\$8,500
Mapping, prospecting and till sampling	32 man days	21,600
Airborne Mag & EM survey	2400 line km	361,200
Air Charter & travel		107,500
Accommodation, logistics & supplies	32 man days	25,300
Sample analyses	40 rock; 60 till	14,300
Subtotal		538,300
Administration		53,800
Contingency		53,800
	<b>Phase I Total</b>	<b>\$645,900</b>
<b>Phase II – Drilling</b>	<b>Quantity</b>	<b>Estimated Cost</b>
All inclusive program	5,000m	<b>\$2,000,000</b>

Respectfully submitted

*“Fred W. Gittings”*

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Fred W. Gittings, Hons. B.Sc., P.Geo.

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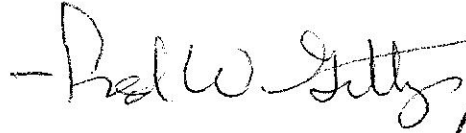
## 22. DATE AND SIGNATURE PAGE

This Report titled "Technical Report, McFaulds South Property, Northwestern Ontario, Canada" and Dated March 31, 2011 was prepared and signed by the following author:

SIGNED AND SEALED

*"Fred W. Gittings"*

Fred W. Gittings, Hons. B.Sc., MBA, P.Geo.  
Dated March 31, 2011  
Grandora Saskatchewan



## APPENDIX A: STATEMENT OF QUALIFICATIONS – FRED W. GITTINGS

As author of this report entitled “Technical Report on the McFaulds South Property, Ontario” dated March 30, 2010, I, Fred W. Gittings, P.Geo. Do hereby certify that:

1. I am a Professional Geoscientist in good standing with the Association of Professional Engineers and Geoscientists of Saskatchewan and the APGO (member #1965) in Ontario and a Fellow of the Geological Association of Canada.
2. I hold the following academic qualifications:  
Hons. B.Sc. (Geological Sciences), Brock University in St. Catharine’s Ontario, 1975.  
M.B.A., University of Saskatchewan, 1991
3. Since graduating from in 1975. I have worked for a number of companies at various levels of seniority throughout Canada. Including: Queenston Gold Mines—Gold exploration in the North Abitibi Greenstone Belt. Uranerz Exploration-Site Geologist at the Key Lake Uranium Deposit. Canadian Occidental Petroleum Ltd. as Project Geologist exploring for various commodities across Canada including PGE exploration on the Big Trout Lake Complex in Northern Ontario. IPCO Ltd as Senior Project Geologist on the Muskox Project in Nunavut. Since 1999 I have been providing consulting services to clients.
4. I am the author of the report titled “Technical Report on the McFaulds South Property, Ontario” dated March 31, 2011 for Platinex Inc.
5. I have had no prior involvement with the Property that forms the subject of this Technical Report.
6. I am not aware of any material fact or material change with respect to the subject matter of the Technical Report that is not reflected in the Technical Report, the omission to disclose which makes the Technical Report misleading.
7. I have read the definition of “qualified person” set out in National Instrument 43-101 (“NI 43-101”) and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements as a Qualified Person for the purposes of NI 43-101
8. I am responsible for the preparation of all sections of the technical report titled “Technical Report on the South McFaulds Property, Ontario,” dated March 31, 2011 and prepared for Platinex Inc.
9. I have no direct or indirect interest in the Property, nor do I expect to receive any direct or indirect interest in the Property.

10. My most recent visit to the Property was on March 28, 2011 for the duration of one (1) day.
11. I consent to the filing of the Technical Report with any stock exchange and other regulatory authority and any publication by them, including electronic publication in the public company files on their websites accessible by the public
12. The work carried out for Platinex Inc. on the McFaulds South Property and the work on this report was done on a consulting basis and I hold no material interest in the Property or Platinex Inc.

I certify that the above statements of qualifications are accurate and true.

Signed

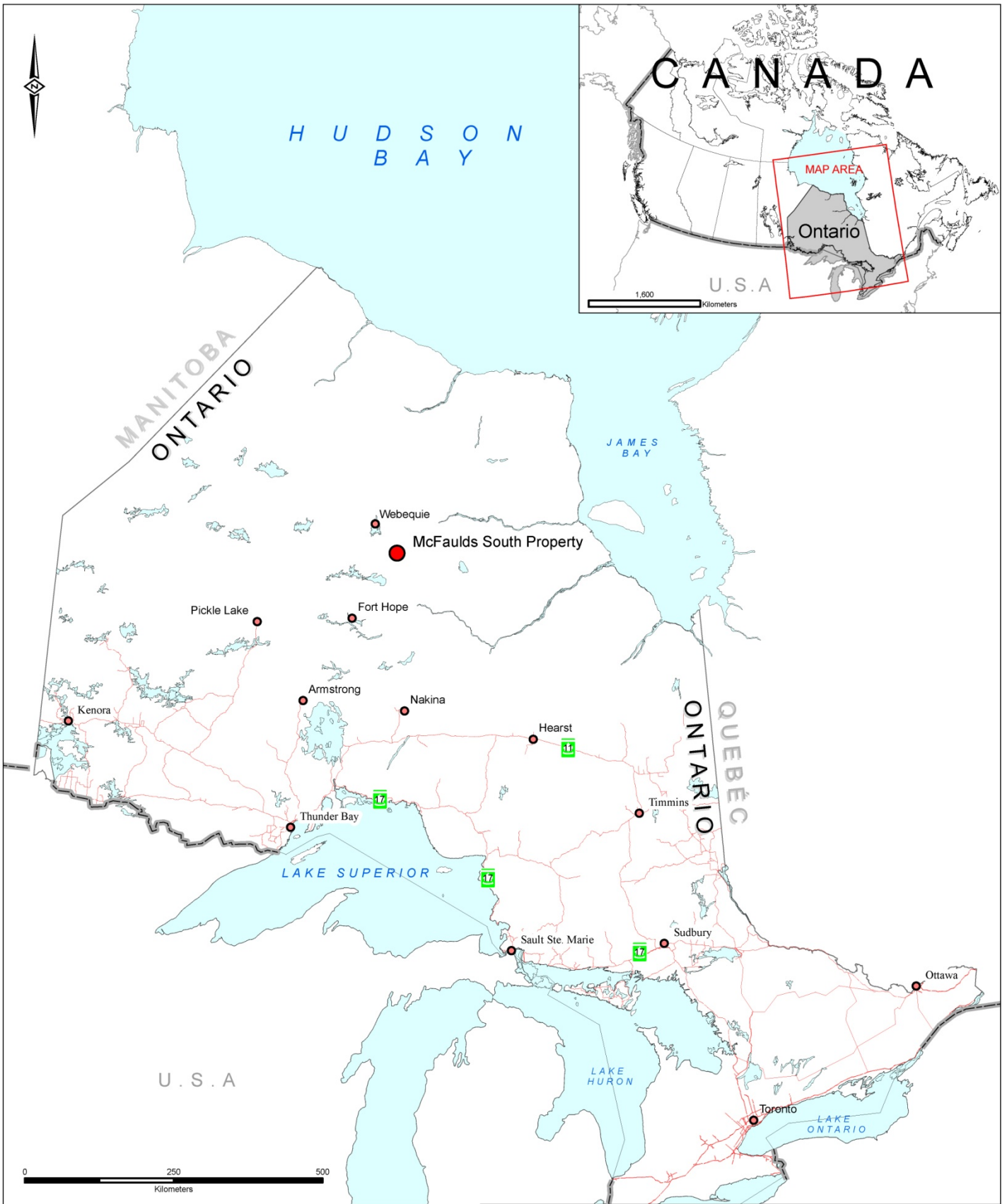


"Fred W. Gittings"



## APPENDIX B: GLOSSARY OF TERM AND ABBREVIATIONS

<b>Term or Abbreviation</b>	<b>Meaning</b>
AEM	Airborne Electromagnetic
Ag	silver
Au	gold
Cu	copper
EM	electromagnetic
g	gram(s)
g/t	grams per tonne (equivalent to ppm)
GPS	Global Positioning Systems
Ha	hectare(s) (2.471 acres)
kg	kilogram(s)
km	kilometre(s)
m	metres
m <sup>3</sup>	cubic metre(s)
MMS	Magmatic Massive Sulphides
MSL	Mean Sea Level (0 m)
Ni	nickel
OGS	Ontario Geological Survey
OSD	Oxford-Stull Domaine
oz	ounce (31.1035 grams)
Pb	lead
Pd	palladium
PGE	platinum group elements
ppm, ppb	parts per million/parts per billion
Pt	platinum
REE	Rare Earth Elements
RFI	Ring of Fire Intrusion
ROF	Ring of Fire
tonnes or t	metric tonnes
UTM	Universal Transverse Mercator
VMS	Volcanogenic Magmatic Survey
Zn	zinc

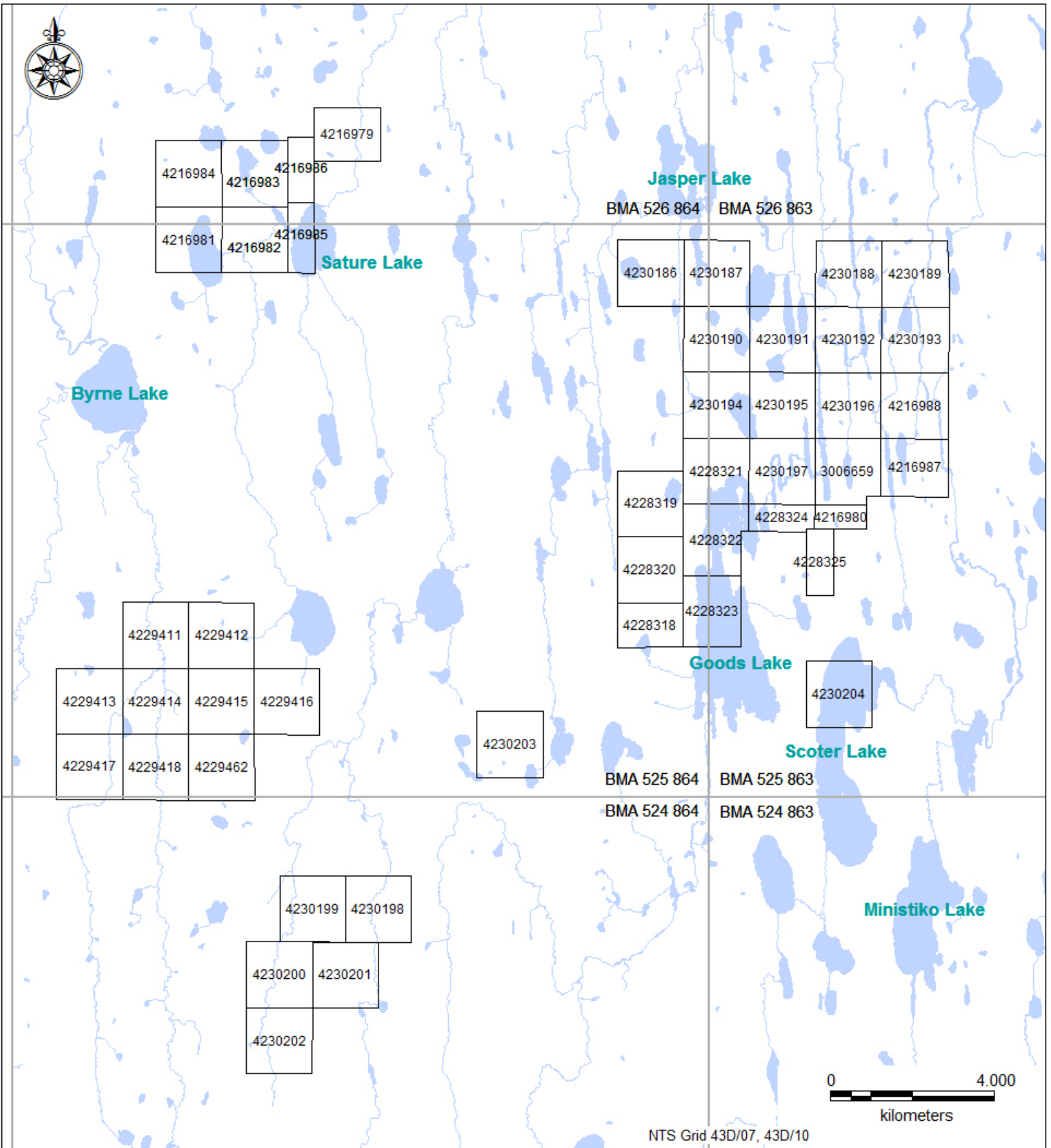


Source: National Topographic Data Base - GeoGratis, April 2007  
 OGS MRD 126, 2005  
 Environmental Systems Research Institute Inc. (ESRI) 2008

**PLATINEX** The Quest for a Greener Planet **McFAULDS SOUTH PROPERTY**

**PROPERTY LOCATION MAP**

Drawn by: MS	Checked by: JGB	Scale: 1: 9 000 000
Date: July 2008	I.D.: MSloc9M080725	FIGURE 1



Source: National Topographic Data Base - GeoGratis

**PLATINEX** The Quest for a Greener Planet **McFaulds South Project**

**Legend**

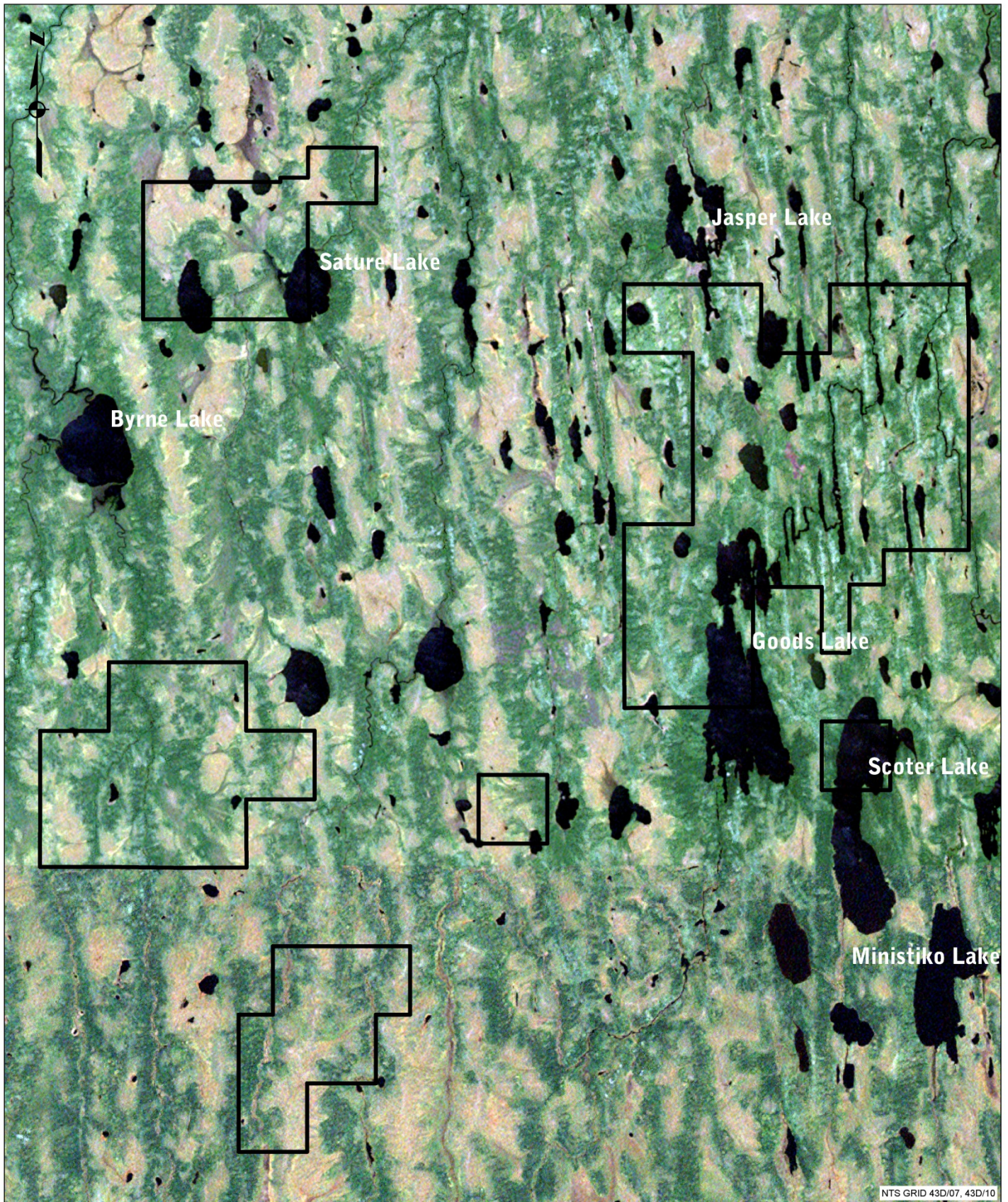
- McFaulds South Claims
- Township Boundary

**PROPERTY CLAIM MAP**

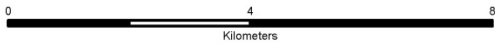
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Date: March 2011	ID:MScl125k110328	Figure 2

Projection: NAD83 Zone 16





NTS GRID 43D/07, 43D/10



**Symbol**

 McFaulds South Property

Source: Centre for Topographic Information, 2002



**McFaulds South Project**

**LANDSAT 7 ORTHOIMAGES**

Drawn by: MS

Checked by: JGB

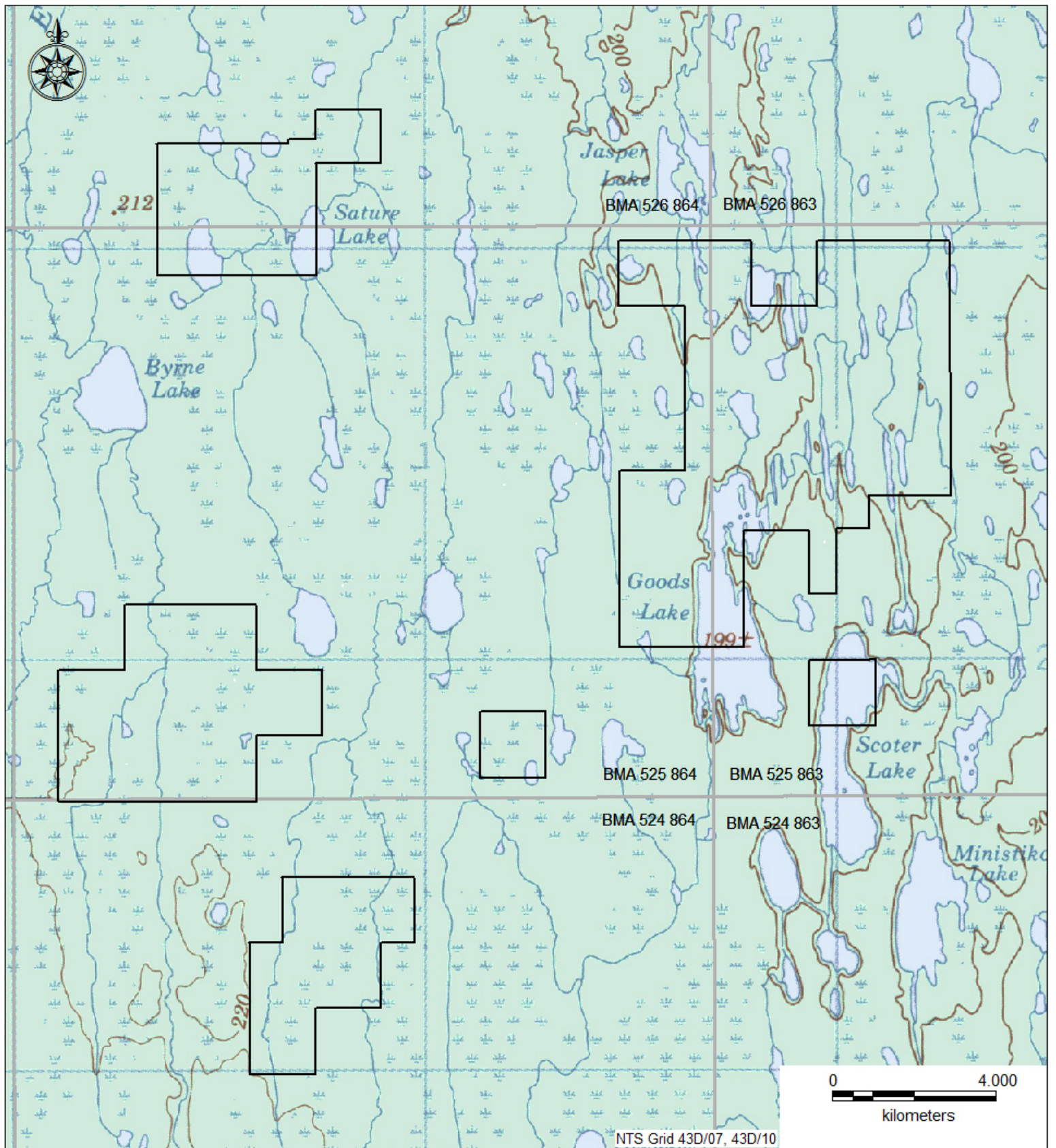
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Date: July 2008

I.D.: MSsat125k080716

**FIGURE 3**






Source: CanMatrix (georeferenced)  
 (1:250,000 Topographic Raster Map)

**PLATINEX** The Quest for a Greener Planet  
**McFaulds South Project**

**Legend**

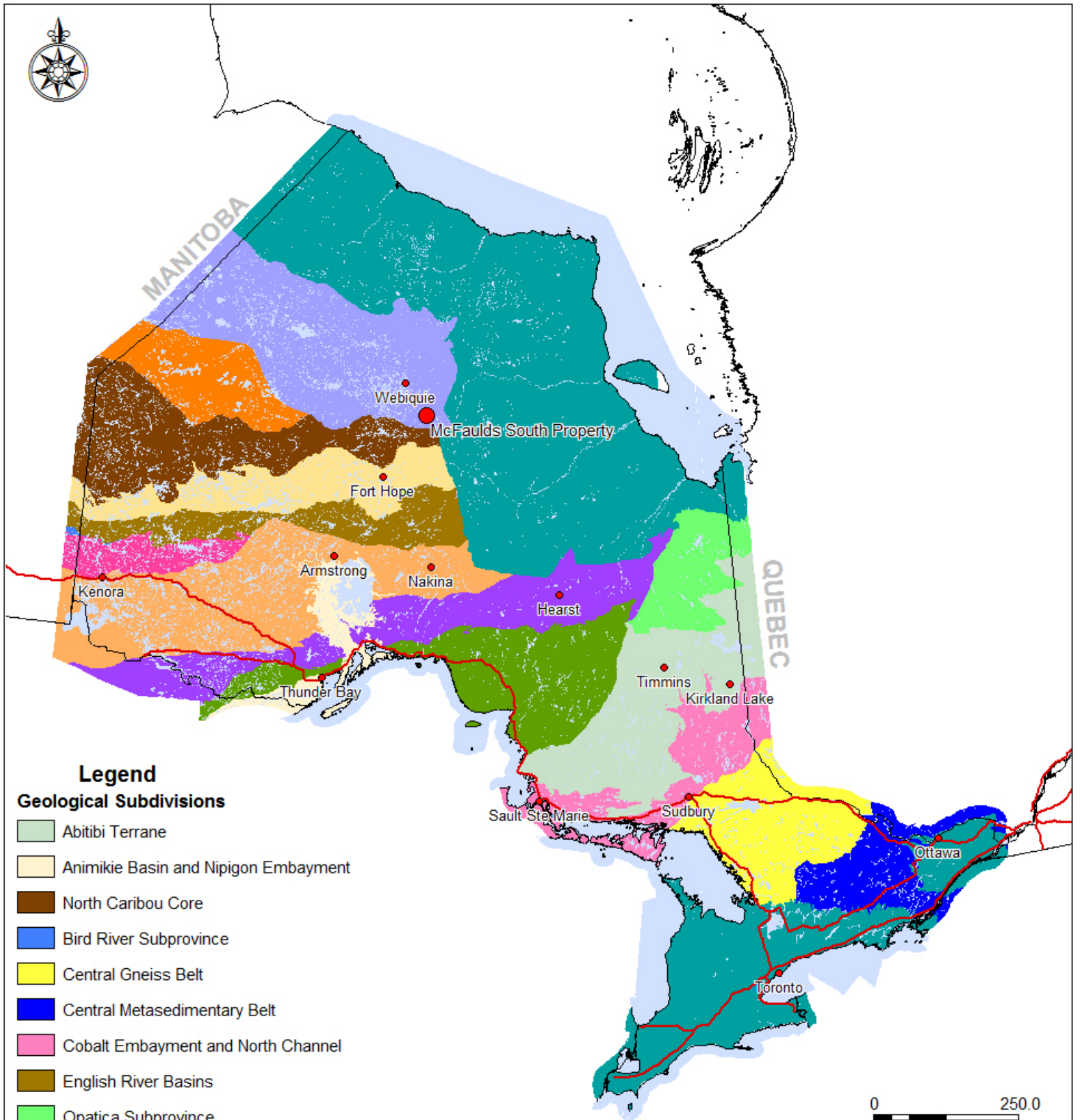
 McFaulds South Property

**TOPOGRAPHY**

Drawn by: IT	Checked by: FWG	Scale: 1:125,000
Date: March 2011	ID: MStopo125k110328	Figure 4

Projection: NAD83 Zone 16





**Legend**

**Geological Subdivisions**

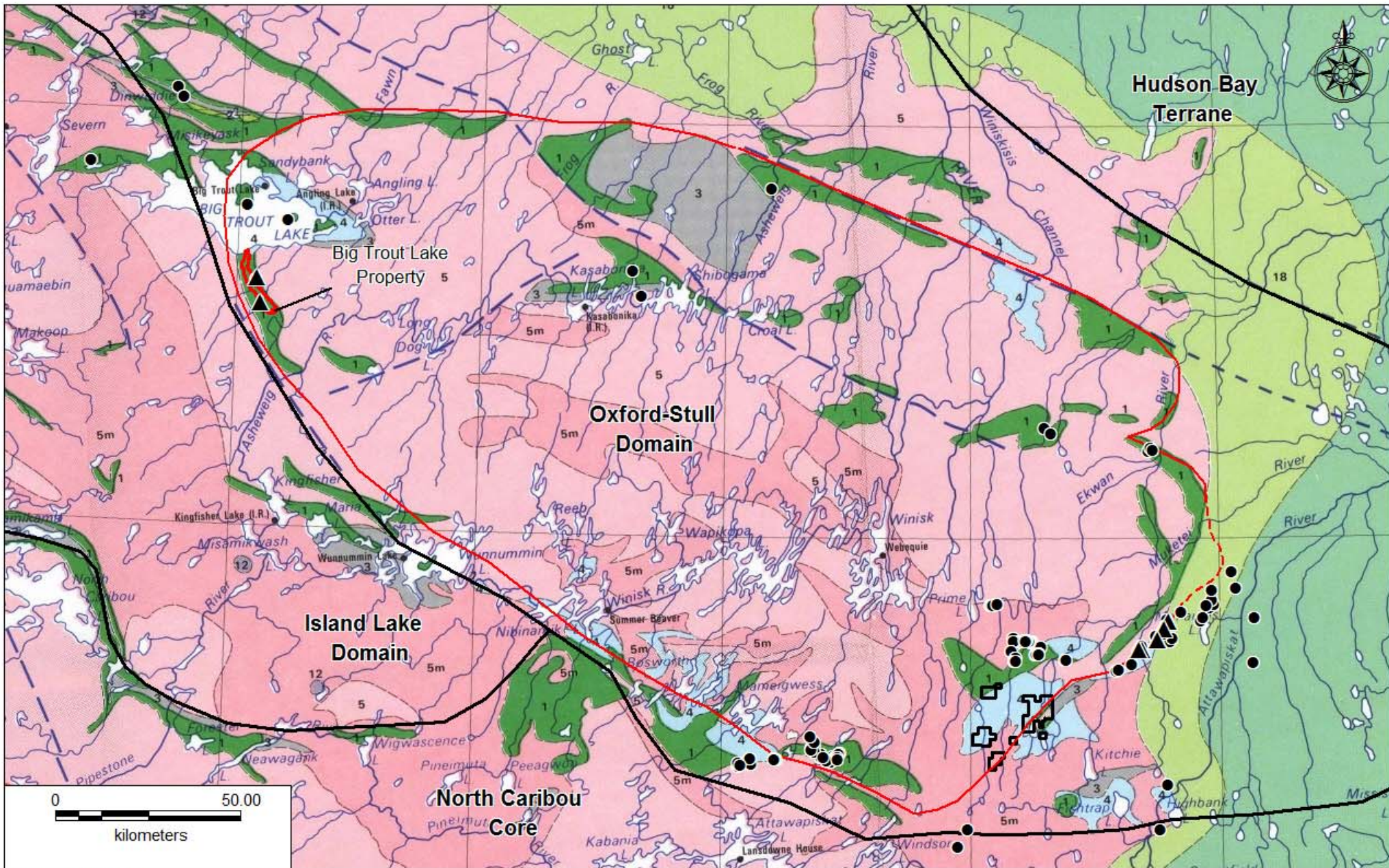
- Abitibi Terrane
- Animikie Basin and Nipigon Embayment
- North Caribou Core
- Bird River Subprovince
- Central Gneiss Belt
- Central Metasedimentary Belt
- Cobalt Embayment and North Channel
- English River Basins
- Opatica Subprovince
- Paleozoic and Mesozoic Basin Sequences
- Qentico Basin
- Oxford-Stull Domain
- Uchi Domain
- Wabigoon Subprovince
- Wawa Terrane
- Winnipeg River Terrane
- Island Lake Domain

0 250.0  
kilometers

Source: OGS MRD 100, G.M. Stott et al 2010

<span style="font-size: 24px; font-weight: bold; vertical-align: middle;">McFaulds South Project</span>		
<h2 style="margin: 0;">GEOLOGICAL SUBDIVISIONS OF ONTARIO</h2>		
Drawn by: IT	Checked by: FWG	Scale: 1:9,000,000
Date: March 2011	ID:MSsubd9m110330	Figure 5





Source: OGS M2506

**Legend**

- - - 'Ring of Fire'
- Domain Boundary
- McFaulds South Property
- ▲ Chrome Deposits
- Other Mineral Deposits, Occurrence

**Peleozoic**

- Silurian Sediments
  - Ordovician Sediments
- Archean**
- Mafic-Ultramafic Intrusions
  - Volcanics
  - Metasediments, Paragneiss
  - Felsic Intrusions, Gneiss

**PLATINEX**  
The Quest for a Greener Planet

**McFaulds South Project**

**RING OF FIRE INTRUSIONS**

Drawn by: IT

Checked by: FWG

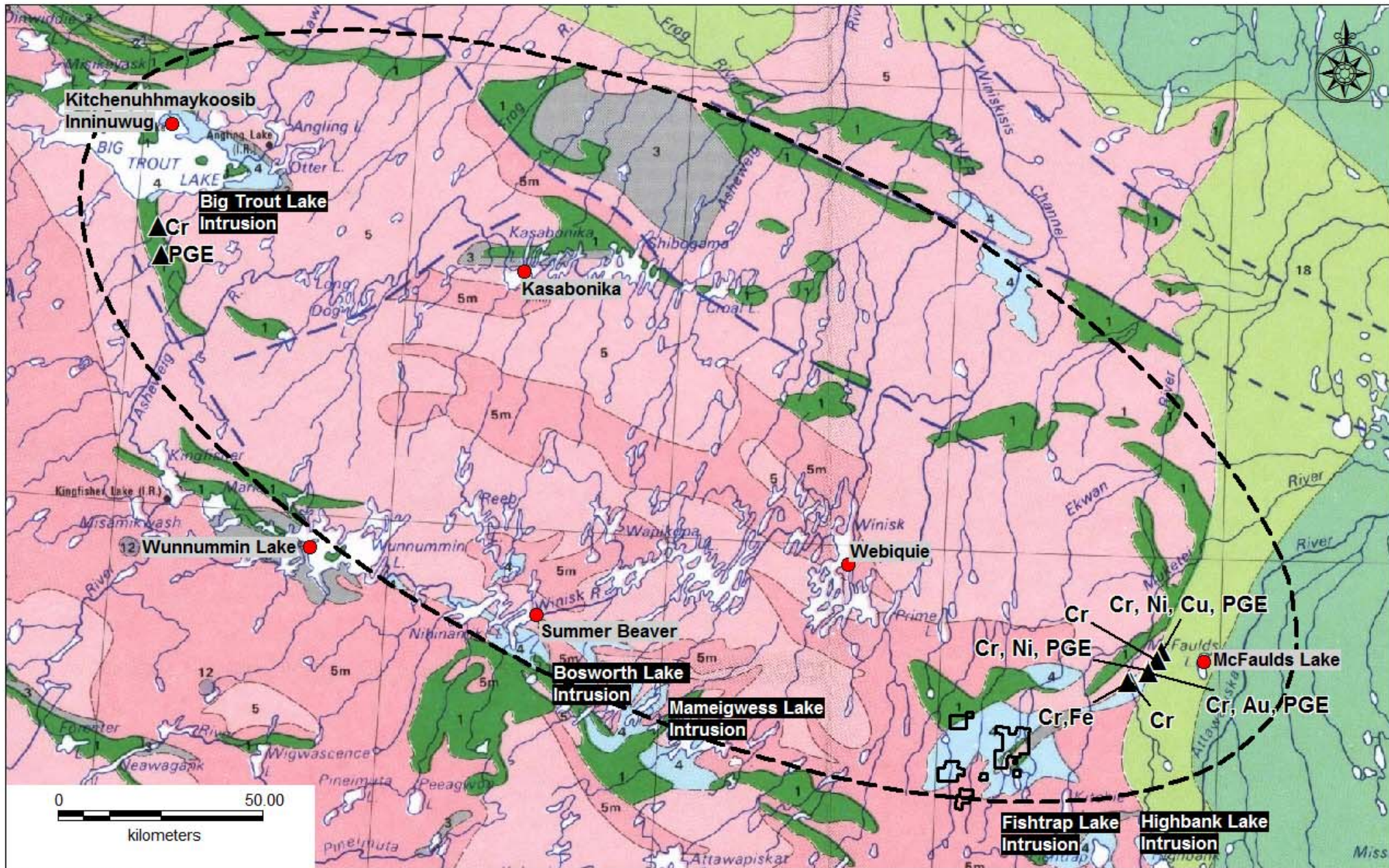
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Date: March 2011

ID: MSTect1.4m110331

Figure 6





Source: OGS M2506

**Legend**

- Crustal Trace of Mantle Plume Head
- McFaulds South Property
- Mineral Deposit, Occurrence
- Community/Lake

**Peleozoic**

- Silurian Sediments
- Ordovician Sediments

**Archean**

- Mafic-Ultramafic Intrusions
- Volcanics
- Metasediments, Paragneiss
- Felsic Intrusions, Gneiss

**PLATINEX**  
The Quest for a Greener Planet

**McFaulds South Project**

**Geology and 'Ring of Fire' Mantle Plume**

Drawn by: IT

Checked by: FWG

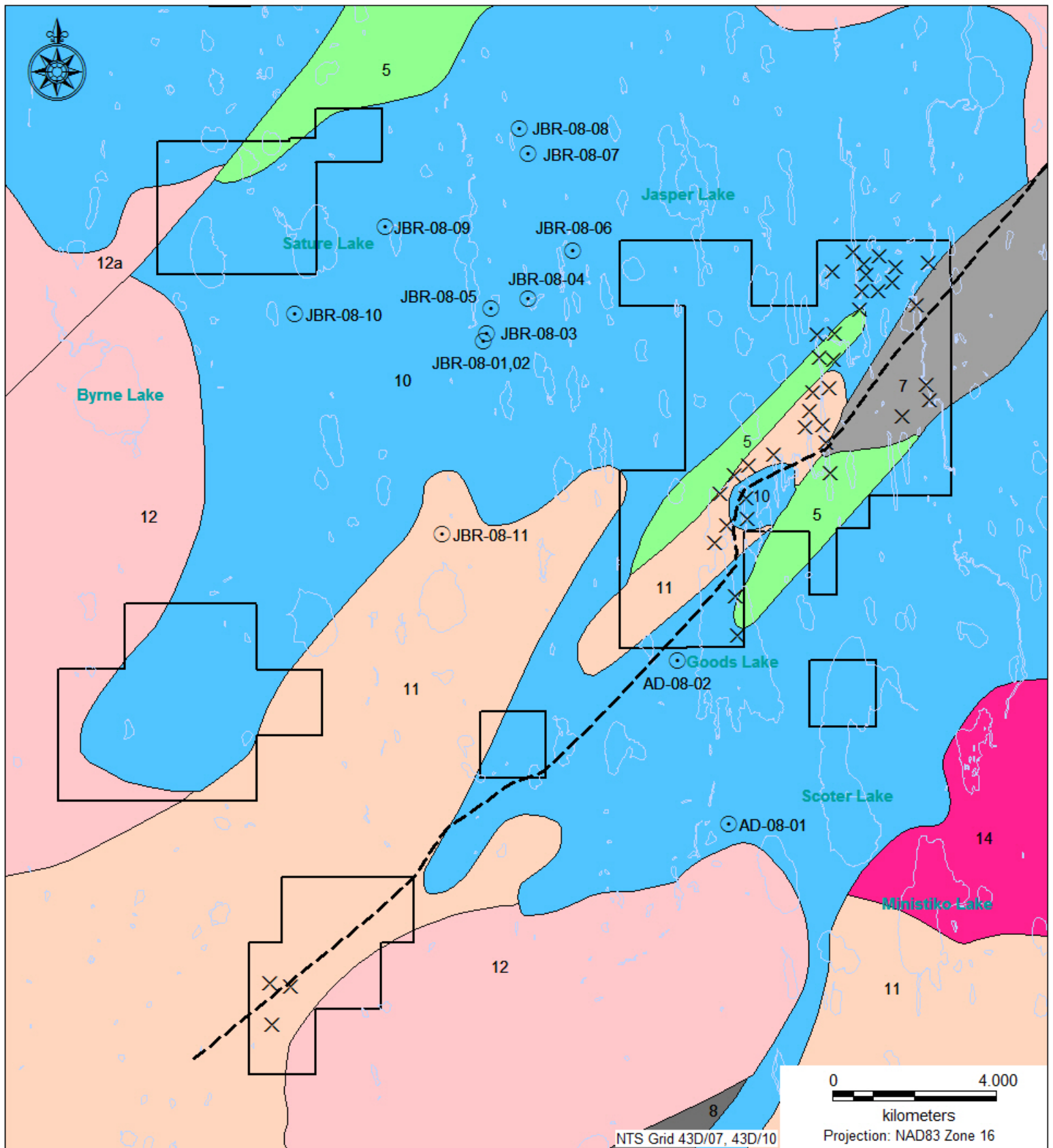
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Date: March 2011

ID:MSMplu1.25m110331

Figure 7





Source: OGS Map P3598-Rev, MRD 126-Rev1

### Legend

<span style="background-color: #00aaff; border: 1px solid black; padding: 2px;">10</span> Mafic and Ultramafic Rocks	<span style="border: 1px solid black; display: inline-block; width: 20px; height: 10px;"></span> McFaulds South Property
<span style="background-color: #cccccc; border: 1px solid black; padding: 2px;">7</span> Metasedimentary Rocks	<span style="border-bottom: 1px dashed black; display: inline-block; width: 20px;"></span> Interpreted base of 'Ring of Fire' Intrusion
<span style="background-color: #ffb6c1; border: 1px solid black; padding: 2px;">12</span> Foliated Tonalite Suite	<span style="border: 1px solid black; display: inline-block; width: 10px; height: 10px;"></span> Lakes
<span style="background-color: #ff00ff; border: 1px solid black; padding: 2px;">14</span> Diorite-Monzondiorite-Granodiorite Suite	<span style="font-size: 2em;">X</span> Outcrops
<span style="background-color: #00ff00; border: 1px solid black; padding: 2px;">5</span> Mafic to Intermediate Metavolcanic Rocks	<span style="border: 1px solid black; border-radius: 50%; padding: 2px;">⊙</span> Diamond Drill Hole
<span style="background-color: #333333; border: 1px solid black; padding: 2px;">8</span> Migmatized supracrustal rocks	
<span style="background-color: #ffa500; border: 1px solid black; padding: 2px;">11</span> Gneissic Tonalite Suite	

**PLATINEX**  
The Quest for a Greener Planet

McFaulds South Project

## PRECAMBRIAN GEOLOGY

Drawn by: IT

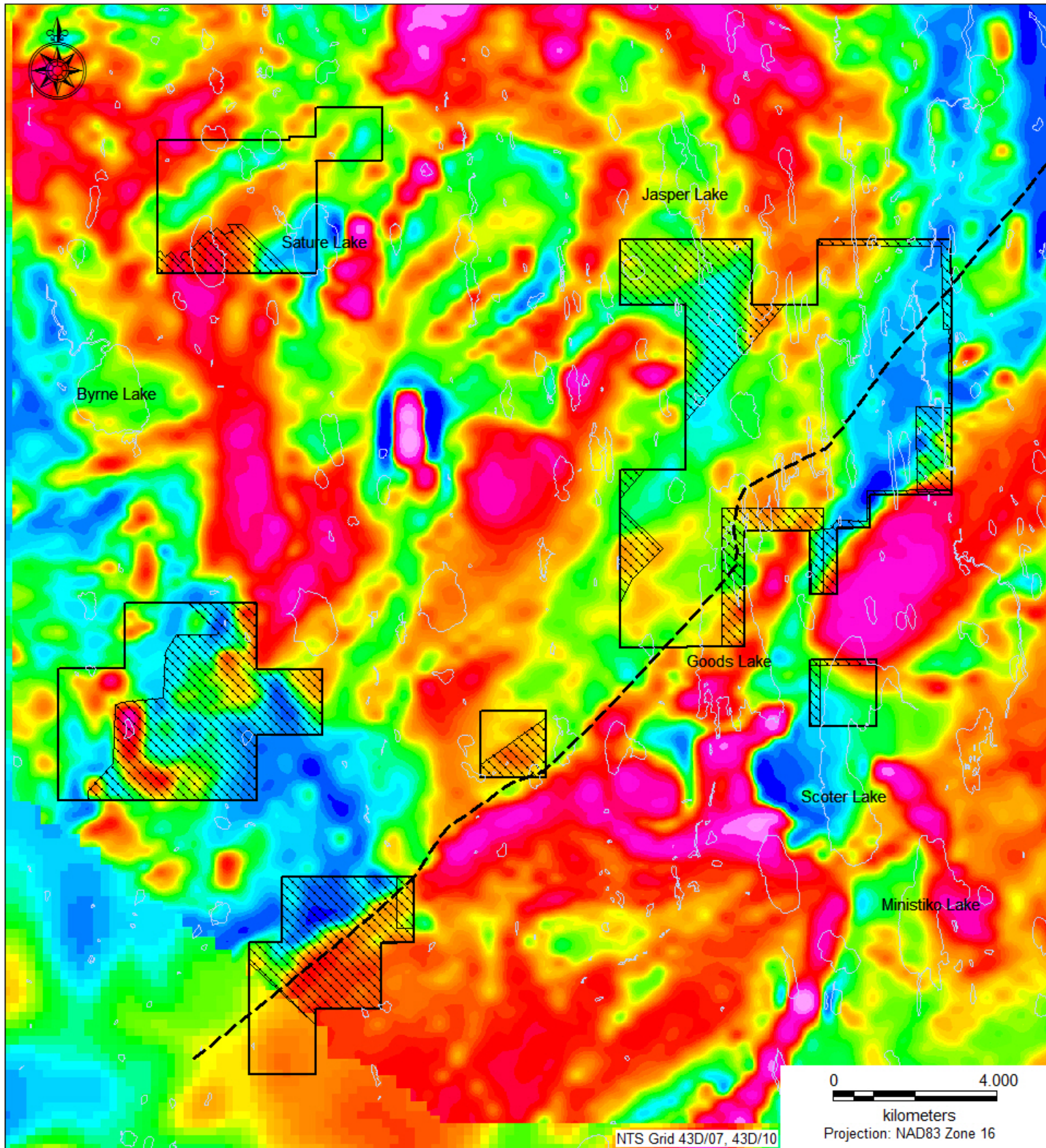
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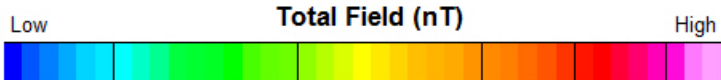
Figure 8



Source: OGS Geophysical Data Set 1211

**Legend**

- McFaulds South Property
- Lakes
- Other Companies' Magnetic Survey Overlap  
Line Spacing at 100m
- Interpreted base of 'Ring of Fire' Intrusion



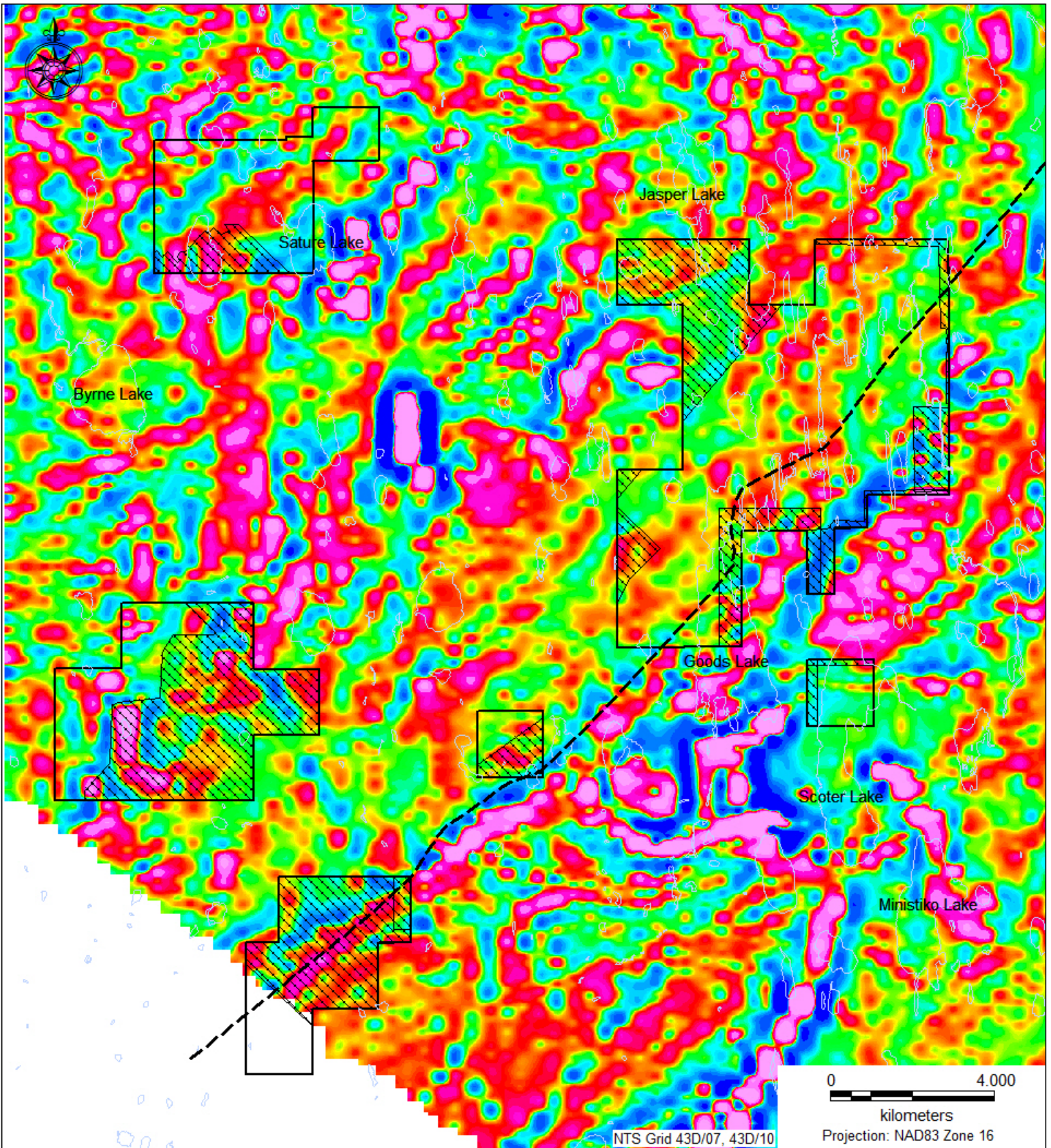
**PLATINEX**  
The Quest for a Greener Planet

**McFaulds South Project**

**TOTAL FIELD MAGNETICS**

Drawn by: IT	Checked by: FWG	Scale: 1:125,000
Date: March 2011	ID:MSmatf125k110328	Figure 9

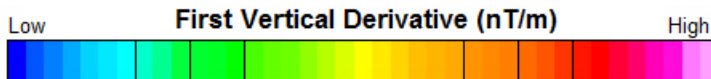




Source: OGS Geophysical Data Set 1211

**Legend**

- McFaulds South Property
- Lakes
- Other Companies' Magnetic Survey Overlap  
Line Spacing at 100m
- Interpreted base of 'Ring of Fire' Intrusion



**PLATINEX**  
The Quest for a Greener Planet

**McFaulds South Project**

**FIRST VERTICAL  
DERIVATIVE MAGNETICS**

Drawn by: IT

Checked by: FWG

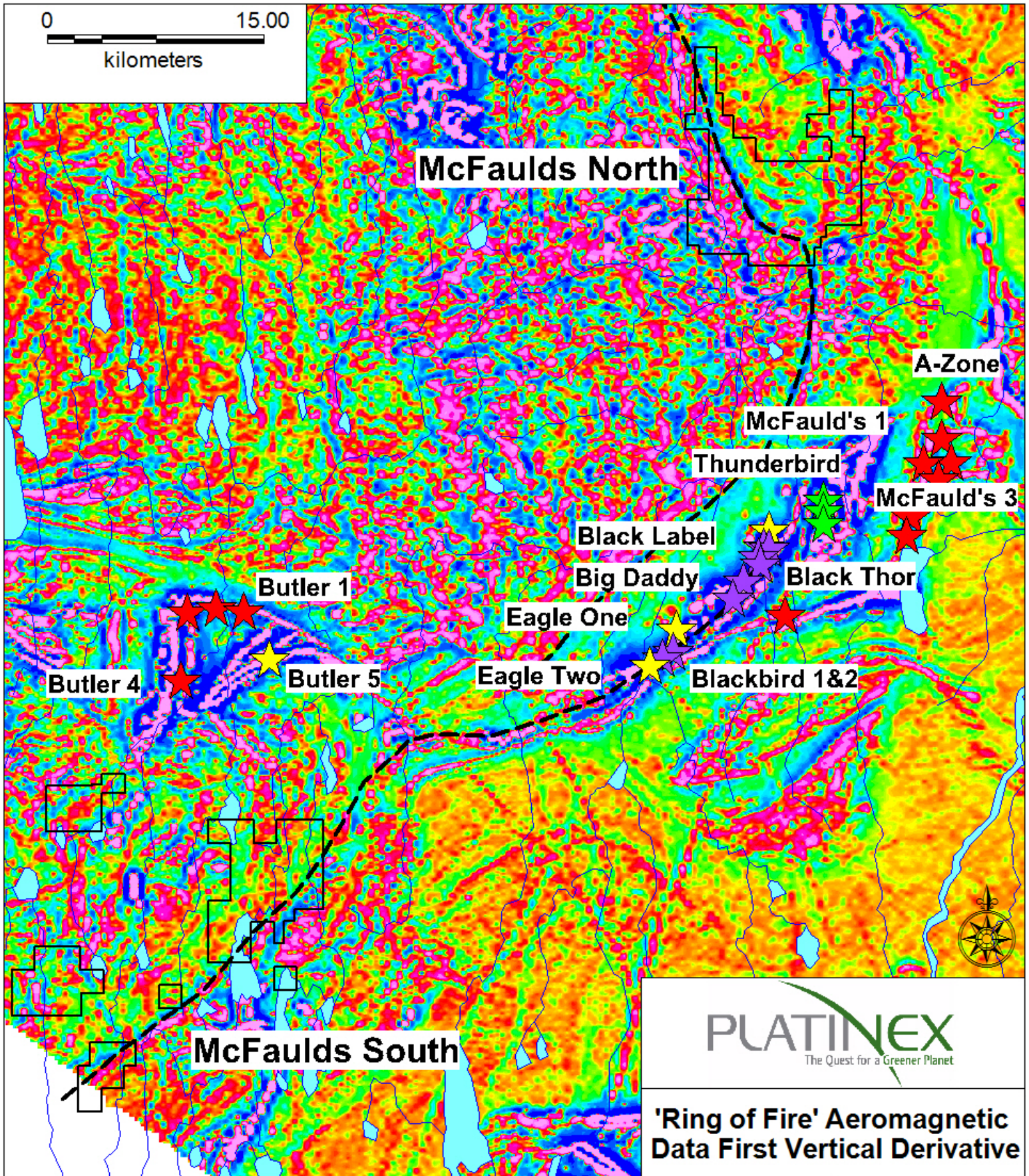
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Date: March 2011

ID:MSma1d125k110328

Figure 10





**'Ring of Fire' Aeromagnetic Data First Vertical Derivative**

- Legend**
- Platinex Claims
  - Interpreted Ultramafic Horizon
  - Rivers/Drainage
  - Lakes

- Discoveries**
- Copper-Lead-Zinc
  - Chromite-PGE
  - Nickel-Copper-PGE
  - Vanadium-Titanium

Drawn by: IT	Scale: 1:350,000
Checked by: FWG	Date: May 2011
ID: MFxz350k110502	Figure 11