# 43-101F1 Technical Report Aldershot Resources Ltd., Haultain Property, Haultain, Nicol, Milner and Van Hise Townships, Ontario

(NTS 41P10)



Prepared For

Aldershot Resources Ltd.

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## 1.0 SUMMARY

Aldershot Resources Inc. is a public company currently listed on the TSX Venture Exchange NEX trading board (ALZ.H). Aldershot is actively carrying on business and pursuing opportunities to increase shareholder value and return to the main TSX Venture Exchange trading board. In April of 2016, Aldershot Resources Inc. executed a binding letter of intent to enter into an option agreement with Transition Metals Corp. (TSX-V: XTM) ("Transition") to acquire up to a 75% interest in Transition's Haultain Property located in Gowganda Ontario, approximately 75 kilometres southwest of Kirkland Lake Ontario. Transition Metals Corp., have been actively exploring the Haultain Property since July 2010 incurring exploration expenditures totaling \$1,022,000. Work completed includes geological mapping and sampling, stripping and trenching, geophysical and geochemical surveys, and diamond drilling. The results of this work provides evidence for the presence of a structurally complex gold bearing system associated with multi-phase syenitic dykes meriting additional exploration.

In 2011, Transition Metals engaged T.R. Hart P. Geo to prepare a technical report regarding the Haultain project compliant with the requirements of NI 43-101. This report prepared in accordance with NI 43-101 was commissioned by Aldershot Resources Ltd to update the Hart (2011) report with subsequent events. Aldershot, intends to pursue upgrading their listing from the NEX Board onto the Toronto Venture Exchange, and conduct additional work on the Property based on the recommendations contained in this report.

The Property consists of 34 unpatented mining claims registered 100% to Transition Metals, which were either acquired pursuant to an option agreement with S. Swain, dated July 1, 2010 or by staking, and one additional claim subject to a pending proceedings declaration. All claims are in good standing with the Ontario Ministry of Northern Development, Mines as of the effective date of this report.

The Property is situated around an inlier of Archean greenstone occurring south of the Round-Lake Batholith in the south-western part of the Abitibi greenstone belt. The Property is bordered and/or overlain in places by Proterozoic sediments of the Cobalt Embayment. The Abitibi greenstone belt is prospective for a number of metallic mineral deposit types including lode gold deposits, volcanogenic massive base metal sulphide deposits and magmatic sulphide (Ni-Cu) deposits.

In spite of the proximity of the gold occurrences identified on the Property to areas of historical silver mining that followed the discovery of major deposits of silver in the Cobalt-Elk Lake-Gowganda areas just after the turn of the last century, little record of exploration on the Property for gold could be identified. Exploration work undertaken to date by the Transition Metals Corp is considered early in nature, consisting of surface mapping, trenching, bedrock sampling, a limited gradient array induced polarization geophysical survey, a soil gas hydrocarbon geochemical survey and 2,251 metres of diamond drilling in 21 short holes. This work resulted in the discovery of gold mineralization on the Property occurring in zones where favourable structural and geological conditions exist to host potentially economic concentrations. In addition, the work has highlighted a number of geological, geophysical, and geochemical targets that remain untested.

A two phase exploration programme is recommended. The first phase (Phase-1) will consist of a detailed review of the existing structural date to improve future drill hole targeting, re-establish and extend the grid on the property and complete a quality pole-dipole spectral Induced Polarization and Gradient Magnetometer geophysical surveys, followed by a 2,000 metre programme of diamond drilling. A Phase-1 budget of approximately \$454,720 has been proposed. Contingent upon the results of the Phase-1 programme, a second phase 6,000metre programme of diamond drilling (Phase-2) at an estimated cost of \$1,139,152 may be warranted.

# 2.0 INTRODUCTION

This technical report has been commissioned by the management of Aldershot Resources Ltd. (Aldershot Resources Ltd) to bring current an existing NI 43-101 prepared in January 2011 by Mr. Thomas R. Hart, P.Geo. for Transition Metals Corp., the property vendor. Subsequent to the 2011 Hart report, the Haultain property has increased in size and been subjected to programmes of trenching, channel sampling, mapping and diamond drilling. This updated report has been prepared by Pizye Nankamba and Lorne Burden, both of whom are registered as Professional Geoscientists with the Association of Professional Geoscientists of Ontario and familiar with the Haultain Property and data. Lorne Burden is an independent qualified person as per definition in NI 43-101 and is responsible for this report. It is understood that it is the intention of Aldershot Resources Ltd to file this report with the Toronto Venture Exchange in support of the Haultain Property being accepted as a property and project of merit.

This report contains details of land tenure, a summary of previous exploration and development work, a compilation and synthesis of geology, geochemical and geophysical data. The report also contains recommendations for further exploration of the Property. The author did not review legal, environmental, political, surface rights, water rights or other non--technical issues that might indirectly relate to this report but relies on information supplied by the property vendor, Transition Metals Corp.

# 2.1 Sources of Information

Technical information in this report is derived from a variety of sources, including technical articles in scientific publications, and other files including laboratory certificates and analytical data. Most of the information acquired for reporting on the historical work completed on this property, and adjacent areas, was obtained from the Assessment File Report Image (AFRI) records of the Ontario Ministry of Northern Development and Mines (MNDM). Additional information was obtained from the hardcopy files of the Ontario Geological Survey's Resident Geologists' Office in Kirkland Lake. All documents used in the preparation of this report are listed at the end of the report.

# 2.2 Units of Measure

Some of the historical work on the showings on or near the Haultain Property was stated in Imperial Measurements, including feet (ft), ounces (oz), and ounces per short ton (oz Au / t). All measurements are reported in the units used in the original reports with equivalent metric measurements shown in brackets. The conversion for lengths was 1 inch equals 2.54 centimetres and 1 foot equals 0.3048 metres. The conversion used for imperial to metric gold values was 1 troy ounce per ton equals 31.10 grams per tonne.

Throughout this report, common measurements are in metric units, with linear measurements in millimetres (mm), centimetres (cm), metres (m), or kilometres (km). Metal contents are given as parts per billion (ppb), parts per million (ppm) or percent (%), and precious metal values (gold, platinum, and palladium) as grams per tonne (e.g. g /t). Volumetric measures are in millilitres

(mL), and mass measurements are in grams (g) and kilograms (kg). The conversion from ppm Au to g Au/t is 1 ppm Au equals 1 g Au/t.

# 3.0 RELIANCE ON OTHER EXPERTS

The authors have reviewed and analyzed data provided by Transition Metals Corp., its consultants and previous operators of the property and, augmented by its direct field examination, has drawn its own conclusions therefrom. The authors have not carried out any independent exploration work, drilled any holes or completed any extensive programme of sampling and assaying on the property. However, during its field visit in August of 2016, the authors did collect eight samples including two samples of drill core from zones of mineralization located on the Haultain Property. The results of this sampling programme are contained in this report.

While exercising all reasonable diligence in checking, confirming and testing, the authors have has relied upon Transition's presentation of its project data in formulating its opinion.

The agreements under which Transition holds title to the mineral claims for this project have not been reviewed by the authors and the authors offer no legal opinion as to the validity of the mineral title claimed. A description of the property, and ownership thereof, is provided for general information purposes only.

Comments on the state of environmental conditions, liability, and estimated costs have been made where required by NI 43-101. Where the authors have relied on the work of other experts it understands to be appropriately qualified, they offer no opinion on the state of the environment on the property. The statements are provided for information purposes only.

The descriptions of geology, mineralization and exploration used in this report are taken from reports prepared by Transition Metals Corp or their consultants. The conclusions of this report rely on data available in published and unpublished reports supplied by the various companies which have conducted exploration on the property, and information supplied by Transition Metals Corp. The information provided to Transition Metals Corp. was supplied by reputable companies or government agencies and the authors have no reason to doubt its validity.

Some of the figures and tables for this report were reproduced or derived from historical reports written on the property by various individuals and/or supplied to the authors by Transition Metals Corp. Most of the photographs were taken by the authors of this report during their respective site visits. In the cases where photographs, figures or tables were supplied by other individuals or Transition Metals Corp. they are referenced below the inserted item.

Land tenure information for staked claims has been obtained from the MNDM web site, which contains a disclaimer as to the validity of the provided information.

# 4.0 PROPERTY LOCATION AND DESCRIPTION

## 4.1 **Property Location**

The Property consists of 35 unpatented mining claims comprising 220-16 ha units covering a land area of approximately 3,520 hectares centrally located about Hwy 560 adjacent to the unorganized municipality of Gowganda Ontario in Nicol, Haultain, Milner, and Van Hise Townships, Larder Lake Mining Division (Figure 1).

The centre of the Property is located in UTM Zone 17 at approximately 517,800 mE, 5,279,500 mN, 34 kilometres west of the Town of Elk Lake (population 350), and 33 kilometres southwest of the Town of Matachewan (population 450). It is centrally located between the major mining centres of Timmins, 235 kilometres to the northwest, Kirkland Lake, 115 km to the north, and Sudbury, 250 kilometres to the southwest. The closest major centre to Gowganda, is the City of Timiskaming Shores, an amalgamation of Towns of New Liskeard, Cobalt and Haileybury, located 100 kilometres to the east.

The Property is located within the Montreal River water shed, an area constituting part of a traditional land use area of both the Matachewan First Nation and the Teme-Augama Anishnabai or Temagami First Nation (TAA). In 1973, The Teme-Augama Anishnabai exercised a land caution preventing any economic developments on 110 townships covering some 10,000 square kilometres surrounding the Temagami area and including those lands currently within the Haultain Project area. The Attorney-General of Ontario pursued legal action against the TAA for this caution, and in 1984 the TAA lost this court case. After the subsequent appeal by the TAA it went to the Supreme Court of Canada where the lower court's ruling was upheld; the Land Caution was lifted in 1995, and the Ontario Government reopened the area to staking in September of 1996.

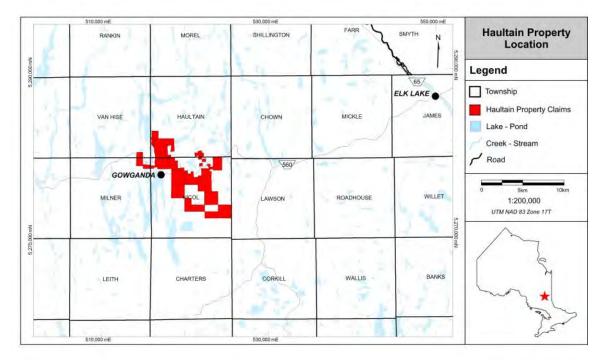


Figure 1. Property Location Map (provided by Transition Metals Corp.)

## 4.2 **Property Description**

### 4.2.1 Status

The property consists of 35 staked mining claims located in the Townships of Haultain, Nicol, Milner and Van Hise of the Larder Lake Mining Division. Ownership of 34 mining claims comprising 216 claim units are currently registered at 100% interest to Transition Metals Corp. one additional claim (1227354) comprised of 4 claim units is presently registered at 100% to Sherry Swain but is subject to an agreement with Transition Metals. Table 1 presents a listing of mining claims forming the Haultain Project property and provides both status and ownership as of the effective date of this report. Figure 2 depicts the approximate location of the Property as recorded by the MNDM.

Township / Area	Claim Number	Number of Units	Recording Date	Claim Due Date	Status	Percent Option	Owner	Work Required	Total Applied	Total Reserve	Claim Bank
HAULTAIN	1248799*	6	2004-Nov-17	2015-Mar-30	AS	100%	Transition	\$1,600	\$20,000	\$580,916	\$0
HAULTAIN	3000444*	12	2005-Nov-02	2015-Mar-15	AS	100%	Transition	\$4,800	\$33,600	\$43,494	\$0
HAULTAIN	4201494*	1	2006-Jul-24	2014-Dec-04	AS	100%	Transition	\$400	\$2,400	\$7,549	\$0
HAULTAIN	4202103*	2	2006-Nov-17	2017-Mar-30	AS	100%	Transition	\$800	\$6,400	\$3,622	\$0
HAULTAIN	4247250	2	2010-Jul-13	2017-Jul-13	А	100%	Transition	\$800	\$4,000	\$0	\$0
HAULTAIN	4259076	4	2010-Nov-15	2016-Nov-15	А	100%	Transition	\$1,600	\$6,400	\$490	\$0
HAULTAIN	4259079	2	2010-Nov-15	2017-Nov-15	А	100%	Transition	\$800	\$4,000	\$2,822	\$0
HAULTAIN	4259080	6	2010-Nov-15	2016-Nov-15	A	100%	Transition	\$2,400	\$9,600	\$3,497	\$0
HAULTAIN	4259081	4	2010-Nov-15	2015-Mar-28	AS	100%	Transition	\$1,600	\$3,200	\$7,540	\$0
HAULTAIN	4259082	1	2010-Nov-15	2019-Nov-15	A	100%	Transition	\$400	\$2,800	\$2,823	\$0
HAULTAIN	4259083	4	2010-Nov-15	2016-Nov-15	А	100%	Transition	\$1,600	\$6,400	\$2,823	\$0
NICOL	3007395*	4	2007-Nov-15	2016-Nov-15	Α	100%	Transition	\$1,600	\$11,200	\$7,549	\$0
NICOL	4201423*	6	2005-Nov-16	2016-Nov-16	A	100%	Transition	\$2,400	\$21,600	\$5,540	\$0
NICOL	4211968	3	2015-Feb-18	2017-Feb-18	А	100%	Transition	\$1,200	\$0	\$0	\$0
NICOL	4227300*	4	2007-Nov-15	2015-Mar-28	AS	100%	Transition	\$1,600	\$8,000	\$4,423	\$0
NICOL	4227301*	2	2007-Nov-15	2016-Nov-15	А	100%	Transition	\$800	\$5,600	\$3,623	\$0
NICOL	4247246	3	2010-Jul-13	2017-Jul-13	A	100%	Transition	\$1,200	\$6,000	\$0	\$0
NICOL	4247247	16	2010-Jul-13	2017-Jul-13	A	100%	Transition	\$6,400	\$32,000	\$0	\$0
NICOL	4247248	13	2010-Jul-13	2017-Jul-13	А	100%	Transition	\$5,200	\$26,000	\$0	\$0
NICOL	4247249	10	2010-Jul-13	2017-Jul-13	А	100%	Transition	\$4,000	\$20,000	\$0	\$0
NICOL	4259073	8	2010-Nov-15	2016-Nov-15	A	100%	Transition	\$3,200	\$12,800	\$0	\$0
NICOL	4259074	2	2010-Nov-15	2016-Nov-15	A	100%	Transition	\$800	\$3,200	\$0	\$0
NICOL	4259075	1	2010-Nov-15	2020-Nov-15	A	100%	Transition	\$400	\$3,200	\$461	\$0
NICOL	4259077	2	2010-Nov-15	2016-Nov-15	A	100%	Transition	\$800	\$3,200	\$2,822	\$0
NICOL	4259078	1	2010-Nov-15	2016-Nov-15	А	100%	Transition	\$400	\$1,600	\$3,158	\$0
NICOL	4259407	16	2010-Nov-15	2016-Nov-15	А	100%	Transition	\$6,400	\$25,600	\$0	\$0
NICOL	4259408	8	2010-Nov-15	2016-Nov-15	A	100%	Transition	\$3,200	\$12,800	\$0	\$0
NICOL	4259409	8	2010-Nov-15	2016-Nov-15	A	100%	Transition	\$3,200	\$12,800	\$0	\$0
NICOL	4259410	8	2010-Nov-15	2016-Nov-15	A	100%	Transition	\$3,200	\$12,800	\$0	\$0
NICOL	4259412	16	2010-Nov-15	2016-Nov-15	A	100%	Transition	\$6,400	\$25,600	\$0	\$0
NICOL	4270528	1	2012-Jun-06	2017-Jun-06	Α	100%	Transition	\$400	\$1,200	\$460	\$0
NICOL	4278373	16	2015-Nov-26	2017-Nov-26	A	100%	Transition	\$6,400	\$0	\$0	\$0
NICOL	4278374	16	2015-Nov-26	2017-Nov-26	A	100%	Transition	\$6,400	\$0	\$0	\$0
NICOL	1227354**	4	1999-Aug-11	2001-Aug-11	PP	100%	Swain	\$1,600	\$0	\$0	\$0
VAN HISE	4211967	8	2015-Feb-18	2017-Feb-18	A	100%	Transition	\$3,200	\$0	\$0	\$0

#### Table 1: List of Claims, Haultain Property

\* Subject to terms of Option Agreement between Transition Metals Corp and Sherry Swain, dated July 1, 2010

\*\* Pending Proceedings commenced December 21, 2000, Claim registered 100% in name of S. Swain, subject to terms of the July 1, 2010 Option Agreement with Transition Metals Corp

Table 1 lists the property claims status as being A-Active, AS-Active Special, and PP-Pending Proceedings. The Active claims are under no encumbrances and low impact exploration is allowed at most times. In April of 2013, the Ministry of Northern Development and Mines (MNDM) implemented new regulations which stipulate where exploration may have an impact, such as where geophysical programmes use a generator, survey lines are cut greater than 1.5 metres in width, or where programmes of stripping, pitting, trenching or diamond drilling are expected an exploration plan must be submitted to the MNDM for approval before work may commence. Transition Metals Corp have submitted an Exploration Plan covering six mining claims that are part of the Haultain Project property to the MNDM which is awaiting approval. At present, the MNDM has placed the claims under an Active Special status. Under Active Special status, the clock stops with respect to any requirement to complete work on the property. On approval of the Exploration Plan, the MNDM will provide an exclusion of time order which resets the claim expiry date thereby providing sufficient time to complete the work contemplated in the Exploration Plan.

Where mining claims are the subject of legal proceedings whether it is before the Ontario Mining and Lands Commissioner or the Provincial Courts, the claims in question are placed under suspension by the Mining Recorder 'pending proceedings' and the claim holder does not have to perform or file assessment work, and the crown will not forfeit the claims on the anniversary date. However the claim holder may continue to perform and file assessment work, assign credits from contiguous mining land, and may make application for an exclusion of time order from the Commissioner before the forfeiture decision is made.

In the Province of Ontario, after the second anniversary date, eligible work expenditures of \$400 per 16 hectare claim unit must be completed in each year to maintain mining claims in good standing. Work filed in excess of this minimum requirement can be held in reserve for application at a later date, or for distribution onto contiguous claims on record on the date of filing of the eligible work. With respect to the current claim package, 28 claims comprising 171 claim units have significant banked work credits available to draw down from. It is the claim holder's responsibility to maintain mining claims by filing an Application to Distribute Banked Assessment Work Credits before any due date. The authors note that three claims (4259075, 4259076, and 4270528) are not contiguous to the main claim block which precludes the ability to draw down existing work credits from the banked source. Furthermore, an additional four claims (4211967, 4211968, 4278373, and 4278374), were acquired after the most recent eligible work programmes were completed and as such are also precluded from drawing down work credits from those banked. As a result to maintain the current claim group, eligible work in the amount of a \$17,200 must be completed on the recently acquired claims or those contiguous claims before February of 2017, and \$1,110 must be completed on one (4259076) of the non-contiguous claims before November 2016.

There are no known formal native land claims covering the Haultain Property. However, the mining claims are within traditional land use areas of both the Matachewan First Nation and the Teme-Augama Anishnabai or Temagami First Nation (TAA) as recognized by the MNDM. It is important for anyone expecting to work on traditional aboriginal lands to engage communities early build relationships and, where appropriate, formalize commitments through arrangements.

To the extent known there are no other significant factors and risks, besides noted in the technical report that may affect access, title, or the right or ability to perform work on the property.

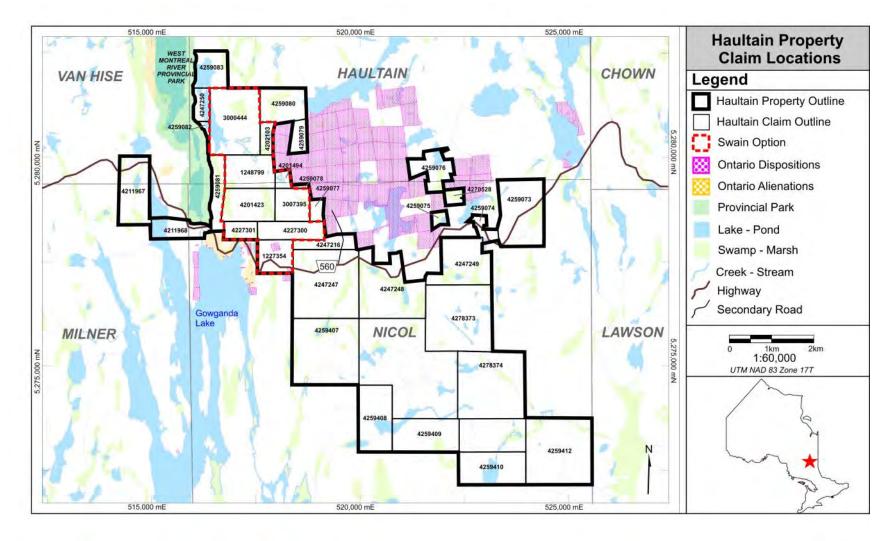


Figure 2 Haultain Property Claim Locations (provided by Transition Metals Corp.)

## 4.2.2 Nature of Transition Metals Corp. Property Interest

Thirty four mining claims consisting of 216 claim units are registered to Transition Metals Corp (Client 407930). This includes 26 mining claims that were staked on Crown Land by or for Transition Metals Corp. and an additional nine mining claims consisting of 41 claim units subject to an option agreement between Transition Metals and prospector Sherry Swain of Gowganda Ontario dated July 1, 2010. Under the terms of that agreement, Transition Metals had the right to earn a 100% interest in the Property by making cash payments totalling \$35,000 and incurring work expenditures of \$250,000 by July 1, 2015. Transition fulfilled the terms of the agreement and acquired a 100% interest in the Swain property in June 2015. The agreement provides Swain a 2% NSR, of which 50% can be purchased back by Transition Metals at any time for the aggregate sum of \$1,000,000. In addition, Transition Metals retains the right to a 100% interest in an additional Swain claim numbered 1227354 consisting of four units pending a favourable resolution to the legal proceedings commenced by a third party in December 2000. This additional claim is peripheral to the principle mineralized trends recognized on the property and resolution of the proceedings is in no way material to any of the work proposed in this report.

## 4.2.2.1 Nature of Aldershot Resources Relationship with Transition Metals Corp.

On April 26, 2016 Transition Metals Corp. and Aldershot Resources Ltd announced that they had executed a binding letter of intent to enter into an Option and Joint Venture Agreement whereby Aldershot can earn a 51% interest and up to a 75% interest in the Haultain project property. To earn a 51% interest in the property, Aldershot must enter into an Option and Joint Venture Agreement with Transition that commits to funding \$400,000 in exploration expenditures in year one and an aggregate of \$2.0 million over three years. In addition, Aldershot must issue shares valued at \$200,000 on the first anniversary and shares valued at \$250,000 on the third anniversary of the Option and Joint Venture Agreement; the value of the stock is to be based on the 20 day volume weighed average price. Upon earning a 51% interest, Aldershot may opt to acquire an additional 24% interest in the property (for a total of 75%) by committing to completing a positive feasibility study. In consideration for entering into the binding letter of intent, Aldershot has agreed to issue the Company, subject to regulatory approval, 1,000,000 common shares.

## 4.2.3 Environment and Permitting

On April 1, 2013, the Ministry of Northern Development and Mines (MNDM) introduced a new regulation for exploration plans and permits, with graduated requirements applying to early exploration activities with low to moderate impact undertaken on mining claims, mining leases and licenses of occupation. Exploration proponents must provide maps of the general location of the project and where the proposed activity will take place. They

must also confirm that they have a gualified supervisor who has completed the Mining Act Awareness Program (MAAP). Proponents are required to provide notice of their intent to conduct early exploration activities and should include with that notice a draft copy of the exploration permit application to those whose property is within the mining claim, lease or licence of occupation area that will be explored. When an application for an exploration permit is received, MNDM will provide a copy to Aboriginal communities and request that those communities provide comments. The ministry and the early exploration proponent will consider comments provided from Aboriginal communities and the proponent may be required to take additional steps to consult with communities, as directed by the ministry. Applications will also be posted on the Environmental Registry and comments received through that process, and any comments received from surface rights owners, will be considered. Comments received will assist the ministry in making a decision as to whether or not to issue an exploration permit, and may result in site specific terms and conditions being included in an exploration permit. The time to process an application for an early exploration permit is expected to take between 31 and 50 days from the circulation date. That timeframe can be temporarily held where additional time is needed to, for instance, conduct additional consultation with Aboriginal communities. Unless the process has been placed under a temporary hold, the Director of Exploration is required to make a decision whether to issue the permit and, if so, under what site specific terms and conditions, within 50 days of the circulation date. Early exploration proponents may commence their activities once an exploration permit has been issued. All exploration permit activities must be performed in accordance with Provincial Standards for Early Exploration. An exploration permit will be effective for a period of three years from the day issued.

Transition Metals Corp have submitted an exploration plan for an exploration permit covering six mining claims that are part of the Haultain Project property to the MNDM which is pending activation. Aldershot Resources have not submitted any documentation for permitting purposes.

In addition, under the Occupational Health and Safety Act regulations for Mine and Mining Plants, notification of diamond drilling must be provided to the Ministry of Labour prior to commencement of any drilling programme.

The Property is not subject to any known environmental encumbrances or other liabilities however it should be noted that the western boundary of the claims abuts the West Montreal River Provincial Park.

# 5.0 ACCESS, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE AND PHYSIOGRAPHY

## 5.1 Access

The Property is centrally bifurcated by Hwy 560, the main access route between Hwy 144 to the west of Gowganda, and Hwy 65 to the east at Elk Lake. The Property is located immediately north and east of the community of Gowganda. Most areas of the

Property can be accessed by 4-wheel drive truck or all-terrain vehicles (ATV) off a network of logging roads and hunting trails. Commercial air travel, from domestic and international destinations, is available from Timmins and Sudbury. Charter air service can be obtained to the nearby communities of Earlton and Kirkland Lake. Drive time from Toronto to Gowganda is approximately 8 hours.

# 5.2 Climate

The Haultain Property has a continental climate. Average values compiled by the Government of Canada at the Earlton Airport located 70 kilometres to the east of the property between 1981 and 2010 provide an average annual temperature of 2.6 °C, an average monthly high of 18.3 °C in July and an average monthly low of -22.4 °C in January. Total annual precipitation amounts to 786.3 mm, including 576.5 mm rain and 222.4 cm of snow.

While field exploration work can be conducted year-round, drill access in low-lying boggy areas is best undertaken during the frozen winter months. Periodic heavy rainfall or snowfall can hamper exploration at times during the summer or winter months. In addition, when rainfall is scarce, extreme fire conditions can result in cease work orders from the Ministry of Natural Resources for many forms of field work. Precipitation in the fall typically increases as temperatures drop below zero in the evenings resulting in the accumulation of snow as early as late October.

# 5.3 Local Resources and Infrastructure

Wildlife on the property is typically to the region and consists of moose, black bear, wolf, fox, beaver, and small game. Vegetation is characteristic of the southern boundary of the boreal forest range, consisting of white spruce, black spruce, white pine, red pine, jack pine, poplar, white birch and maple with alder, cedar and swamp maple growing in the lower wet areas. Sections of the property have been recently commercially logged and support immature second growth consisting of fir, spruce, cedar, birch and willow. Water for diamond drilling programmes may be obtained from several creeks, beaver ponds and lakes scattered across the property and pumped to the drill sites.

The unincorporated community of Gowganda consisting of approximately 100 people is located on the shores of Gowganda Lake in the District of Timiskaming. Services available include meals and lodgings available at local commercial hunting and fishing camps, equipment outfitting, and the ability to purchase basic food stuffs and fuel. The town was founded in 1908 after a discovery of silver was made following the earlier major discoveries in Cobalt and Elk Lake. By 1910, seven silver mines were in operation in Gowganda and the population of the town had reached approximately 5,000. A fire destroyed most of the community in 1911. The last silver mine closed in 1972, however for a short time in the early 1980's the Castle Mine was reopened and produced silver. Many unused structures remain in Gowanda that could be repurposed for accommodation, storage, and office space.

Gowganda is located approximately 34 kilometres west of Elk Lake (population 350), 33 kilometres southwest of Matachewan (population 450). It is centrally located between major mining centres of Timmins, 235 kilometres to the northwest, Kirkland Lake, 115 km to the north, and Sudbury, 250 kilometres to the southwest. The closest major centre to Gowganda, is the City of Timiskaming Shores with a population of 10,000 which is an amalgamation of the towns of New Liskeard, Cobalt and Haileybury. Most supply and service needs, including emergency medical attention, can be obtained in Timiskaming Shores

The power line servicing Gowganda crosses the centre of the Property. Power to the area is currently supplied by a 7200 volt 3 phase service, but the transmission capacity of the service line running from Elk Lake is suitable to tie into 44 kilovolt transmission if required. Potential nearby sources of ground and surface water are abundant. Historically utilized tailings fields associated with the past producing silver operations occur on adjacent properties, and are within 1km of the current property boundary. Several gold milling facilities are in operation within a 150 km radius of the Property including the Young-Davidson Mine of Alamos Gold Inc, one of the largest underground gold mines in Canada which is located in Matachewan just 75 km to the northeast along existing paved roads.

# 5.4 Physiography

The topography of the area consists of flat topped ridges, rolling hills, lakes, and several expansive low marshy areas. Elevations range from a low of 330 metres (1,082 feet) on the shore of Lake Gowganda to a high of 420 metres (1,380 feet) above sea level on radio tower hill. Flat lying Huronian metasedimentary rocks and Nipissing gabbro sills form butte or mesa like caps that overlie deformed Archean greenstones and granite that form peneplain like surfaces. The margins of the butte-like vegetation clad features frequently form cliffs or very steep debris slopes.

#### 6.0 HISTORY

Despite a remarkable history of silver exploration and development near Gowganda in the early to mid-20<sup>th</sup> century, no record of past exploration for gold on the Property has been reported. The exploration history of the area is summarized adeptly in a report prepared for the Ontario Geological Survey by McIlwaine (1978), by Hart (2011), and here in Table 2. Much of the information contained in this section was derived from these earlier reports. With the discovery of rich silver veins in 1908 mineral exploration in the mining camp continued to concentrate on the exploration for silver hosted by the Nipissing gabbro (Area shown in purple in Figure 3). Numerous undocumented trenches, pits, and even small shafts are located on the Property. However, the bulk of both silver exploration and production in the Gowganda silver camp was concentrated approximately 1km east of the north eastern boundary of the Property. Very little exploration effort was expended on the underlying Archean volcanic rocks in the area, despite there being prospective indications of gold associated with Archean rocks in other exposed greenstones south of the Round Lake Batholith, to the west in Tyrrell Township, and to east into Tudhope and Bryce Townships.

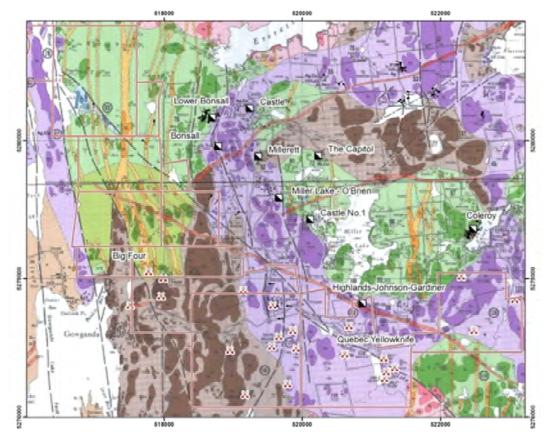


Figure 3: Former Producing Silver Mines Near the Haultain Property (outline in red) (after McIlwaine 1978)

Since the Gowganda Silver camp became active in 1907, ownership of mining rights over the Haultain Property has been consecutively held by various corporations and entities engaged in the exploration and exploitation of silver associated with calcite veins in, or very close to the upper contact of flat lying Nipissing gabbro exposed to the east of, and on the Nicol Township portion of the Property.

By 1926, property ownership in the Gowganda Camp was held fractiously by a number of parties. In 1929, an amalgamation of Capitol Silver Mines and Trethewey Silver and Cobalt Mines Ltd resulted in the formation of a consolidated silver company called Castle Trethewey Mines Ltd which held the ground now constituting part of the Haultain Property. Production activities of the adjacent Castle Trethewey mine ceased circa 1931 and were not renewed until 1948.

The south-central part of the Property covers a portion of the former Hylands-Johnson -Gardiner property located near the upper contact of the Nipissing gabbro in the Miller Lake basin. Work on this property commenced in 1925 with stripping and was followed by the completion of a 30.5 m (100 ft) shaft (McIlwaine 1978). In 1926, the operation was taken over by Plata Mines Limited, a subsidiary of Noranda Mines Ltd., who deepened the shaft to 87 m and completed 850 m (2,800 feet) of crosscutting and drifting. In 1952, the property was optioned by the Gardiner-Johnson Property Syndicate and work completed by them included dewatering the shaft, sampling, and diamond drilling.

In 1947, a number of claims located in the south central portion of the current property were the focus of exploration by Quebec Yellowknife Gold Mines Ltd. By 1950, the company completed geological mapping, trenching, and three diamond drill holes (Quebec Yellowknife 1950, 1951). Mapping and trenching delineated several vein systems and one sample returned 8.41 oz Ag/t and 14.29 % copper. Assessment files on file in the Kirkland Lake Resident Geologists office report additional areas of mineralization on the property which includes cobaltite, bismuthinite, and chalcopyrite.

Indore Gold Mines Limited held claims located in the southern portion of the current property in the early 1950's. Two diamond drill holes were completed in 1951 with an additional three holes in 1953 (McIlwaine 1978). One hole intersected an 18 cm (0.6 foot) interval containing 30 percent chalcopyrite that returned 10.25 % copper and 0.68 oz/t silver. Several pits are located in the area south of highway 560, with associated rubble piles containing carbonate-quartz veins with bornite, chalcopyrite, and pyrite.

The Big Four showing also referred to as the Banker Bay occurrence, is located in the southwest portion of the current property and at one time was held by Tego Silver-Cobalt Mines Ltd. This showing includes a series of trenches and pits, and a 25 ft (7.6 m) deep shaft located on the north side of radio tower hill, just to the north of highway 560. In the area of the shaft and main pit, a northeast-trending, 5-6 in. (12.7-15.2 cm) carbonate-quartz vein containing arsenopyrite, cobaltite, pyrite, and galena cuts Archean iron formation. The pyritic/sulphide iron formation has a Archean quartz porphyry footwall just east of the shaft, and this exposed 6 ft (1.83 m) wide sulphide iron formation grades into a more siliceous iron formation to the north. Assay results from assessment filed by R. McDougall in 1968 returned 40.6 % sulphur and up to 10.8 oz Ag/t (336 g Ag). A total of seven diamond drill holes totalling 214 m (705.5 feet) were completed by Caesar

Mineral Ltd. in 1961 in the area east of the trenching and pitting in an attempt to trace the iron formation under the Huronian sediments. (Thoday 1961)

The consolidated Castle Trethewey property was taken over by McIntyre Porcupine Mines in 1959. Silver mining activity in the area adjacent to the Haultain Property continued until 1966. In 1967, the Castle Trethway property was optioned to United Siscoe Mines who resumed mining is the vicinity of the Capital workings. In addition, in 1967 Siscoe Mines conducted a soil sampling programme covering a large portion of the current property, then referred to as the Roy Ten Claim Group (Benjelloun 1968). Samples were collected on a sampling density of approximately one sample of the "B" soil horizon every 100x200' (30.5 x 61.0 m) which analysed for silver, mercury and cobalt. Several silver anomalies were identified close to the known silver workings to the east of the current property, but no follow-up work was proposed. In 1972 Siscoe Mines ceased production activities in the Gowganda area and returned the property to McIntyre Porcupine Mines. (McIlwaine 1978).

In 1971, Raylloyd Mines acquired portions of the current property from McIntyre Porcupine Mines referred to by Siscoe as the Roy Ten Group (Raylloyd Mines 1972). Raylloyd completed three drills holes into magnetic and Induced Polarization (IP) targets believed to be prospective for hosting nickel (Raylloyd Mines 1972). This work was successful in confirming the presence of a large peridotite/dunite body located in the northwest portion of the property, however no prospective indications for nickel were observed.

In 1973, The Teme-Augama Anishnabai first nation (TAA) exercised a land caution against development on the Crown land covering 110 townships or 10,000 square kilometres in the Temagami area of northeastern Ontario. The Ontario Government withdrew these lands from staking pending proceedings and the Attorney General of Ontario pursued legal action against the Band for this caution. From 1973 to the reopening of staking in September of 1996, exploration activities in the area were all but non-existent.

The remaining Castle Trethewey Mines Ltd property, located adjacent to the Haultain Property, was optioned by Agnico Eagle Mines Ltd.in 1979 and to 1989 ore was extracted from the Castle Mine area amounting to a total of 101,024 tonnes. This was trucked to and milled in Agnico's facilities in Cobalt, Ontario producing 91,421,294 grams silver (2.67 million ounces of silver), 34,597 kilograms cobalt and 10,180 kg copper (Kirkland Lake Resident Geologists Office).

In 2006, Temex Resources completed a purchase of the Miller Lake O'Brien Silver property and related assets and facilities from Sandy K Mines. This property is located adjacent to the east side of the Haultain Property, and includes the past producing Miller Lake O'Brien Mine with a historical production of 40.7 million ounces of silver at an average grade of 22 ounces of silver per ton (Temex 2010). Since 2006, Temex has conducted assessments of the exploration potential of the property and has investigated the revenue potential from processing tailings. In 2011, Temex disclosed a NI 43-101 compliant resource estimate for the tailings based on 2,039 assay samples taken from auger, drive pipe, and sonic drill holes. Using a cut-off grade of 10.0 g Ag/t they outlined a tailings resource of 1,940,000 tonnes grading 47.5 g Ag/t containing approximately

2,960,000 contained ounces of silver (Campbell et al, 2011). Temex Resources Corp became a wholly owned subsidiary of Lakeshore Gold Corp in 2015, and Lakeshore Gold became a wholly owned subsidiary of Tahoe Gold Mines in 2016.

To the north of the Miller Lake-Obrien Silver property the adjacent Castle Trethewey Mines Ltd property was acquired by Gold Bullion Development Corp from Milner Consolidated Silver Mines Ltd, in 2006. They subsequently they completed preliminary metallurgical testing on a grab composite sample of silver tailings material extracted from the tailings pond in 2008. A concentrate was produced containing 8408.75 grams per tonne silver (245.25 ounces per ton silver) 2.12% cobalt and 12.64% arsenic. Since 2011, they have completed programmes of mapping, trenching, MMI geochemistry, and contracted Quantec Geoscience Limited to carried out a Titan-24 DC-IP and MT survey over portions of the property (Duplessis, 2015). In March 2015, Takara Resources Inc entered into an agreement to acquire the Castle Trethewey Mines property.

Gowganda based prospector, Sherry Swain acquired by staking a property position roughly similar to Siscoe's Roy Ten claim grouping between 1999 and 2009. Work undertaken by Swain on claim 1248799 in 2006 resulted in the identification of anomalous gold values associated with altered and deformed Archean greenstones located west of the camps historical silver workings. Mechanical stripping conducted around exposures of altered rock on the property by Swain between 2006 and 2008 resulted in the identification of several additional zones of anomalous gold mineralization. In 2008, a grab sample containing 15.6 g/t Au was obtained on claim 1248799 by Swain from a piece of glacial float (Swain 2009). In 2008, the property was briefly optioned by Norcanex Resources Ltd. who completed a high resolution airborne magnetic survey covering the property. The property was returned to Swain without completing any physical field work on the property.

In July of 2010, the claims owned by S. Swain were optioned by Transition Metals, and at that time areas peripheral to the Swain claims were staked to complement the existing property position. Additional claims were staked in 2012 and 2015. To date, work completed by Transition Metals includes trenching, stripping, mapping, and channel sampling programmes, soil gas hydro carbon (SGH), and mobile metal ions (MMI) geochemistry surveys, an induced polarization geophysical survey (IP), and diamond drilling. The results of these programmes are summarised in the following sections.

Year	Company	Work Description
1947 - 1950	Quebec Yellowknife Gold Mines Limited	Geological mapping, trenching of numerous calcite veins with one sample returning 8.41 oz Ag/t and 14.29 % copper near the centre of current claim 4247248, and three diamond drill holes
1961	Caesar Minerals Ltd	Completed seven diamond drill holes (totally 214m), near the historical Big Four showing located on the north side of the radio tower hill (current claim 4227300). A 12.7 -15.2 cm carbonate-quartz vein containing arsenopyrite, cobaltite, pyrite, and galena cross cutting a pyritic/sulphide Archean iron formation with up to 40.6 % sulphur and 10.8 oz Ag/t (336 g Ag) was identified.
1967-1972	Siscoe Mines	Conducted a soil sampling programme over a large portion of the current property outline; several silver anomalies were identified close to the known silver workings east of the current property but no follow-up work was proposed.
1971	Raylloyd Mines	Completed 3 drills holes into magnetic and IP targets in claims 3000444 and 1248799; one hole north of Trench 9 returned 622 ppb Au /0.9m.
1999-2007	Sherry Swain	Prospecting, stripping, a grab sample containing 15.6 g/t Au from float.
2008	Norcanex Resources Ltd.	High resolution airborne magnetic survey (MPX Geophysics).
2010	Transition Metals Corp.	Four trenches (claims 3000444 and 1248799) and two diamond drill holes completed. Work near Trench 3 outlining a 100m by 60m zone of east-west trending syenite dykes with increased pyrite content within and along the margins of quartz/carbonate veinlets on claim 1248799. Values up to 20.2 g/t Au from core with visible gold. One hole had an interval of 1.57 g/t Au over 11.69 metres.
2011	Transition Metals Corp.	Property scale mapping programme; six trenches stripped, washed, mapped, and channel sampled on claim 1248799. Gold mineralization on the property occurs as quartz-carbonate, and quartz veins, and in disseminated sulphides hosted primarily by late syenite dykes, but also present in the ultramafic metavolcanic rocks, monzonites, and to a lesser extent in the mafic metavolcanic rocks. The fragmental syenite unit returned the two highest values, 97.6 g/t over 0.4 m in Trench 6 and 25 g/t Au over 0.41 metres in Trench-5. Trench-5 and 6 returned the best continuous values. A Soil Gas Hydrocarbon test survey was completed outlining six anomalous areas worthy of follow-up investigations. Two lines of pole-dipole IP was completed over 1.3 line kilometres, and an additional 10.4 kilometres of gradient array IP was completed in an attempt to characterize the geophysical signature of the mineralization. Nineteen holes totalling 2,085 m were completed on mining claim 1248799. Anomalous gold values were returned in 18 of the 19 holes drilled.
2013	Transition Metals Corp	Reconnaissance geological mapping and prospecting.
2014	Transition Metals Corp.	Mineralogical and geochemical study and classification was made on the various syenite phases present on the property.
2014	Transition Metals Corp	Reconnaissance geological mapping and prospecting on the Keyhole Claims. A line of soil samples collected off claim 1248799 were processed for MMI.
2015	Transition Metals Corp	Detailed geological and structural mapping and three lines of soil samples were processed for MMI on claim 1248799, and the Orphan Claim was prospected.

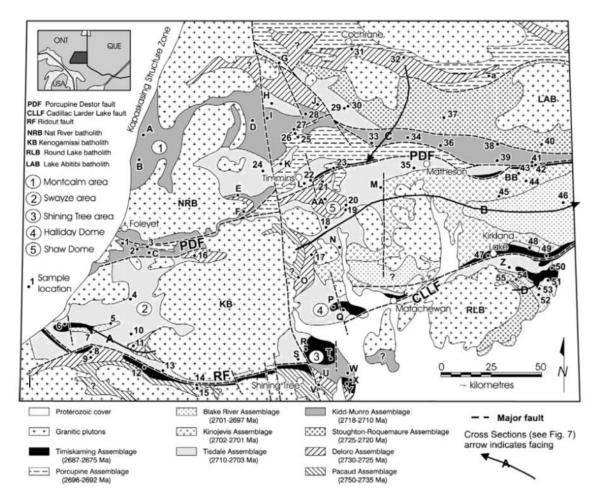
# Table 2: Summary of Reported Work

## 7. GEOLOGICAL SETTING

## 7.1 Regional Geology

Hart (2011) provides the following description of the Abitibi greenstone belt which he extracted from the works of Ayer et al. (2002, 2005) and Thurston et al. (2008) and on the references found in those papers. The Abitibi greenstone belt is composed of east-trending synclines of mainly volcanic rocks and intervening domes cored by synvolcanic and/or syntectonic plutonic rocks (gabbro -diorite, tonalite, and granite) alternating with east-trending bands of turbiditic wackes (Figure 4). Most of the volcanic and sedimentary rock dip vertically and are generally separated by east-trending faults with variable dips. Some of these faults, such as the Porcupine-Destor fault, display evidence for overprinting deformation events including early thrusting, later strike-slip and extension events. There are two ages of unconformable successor basins, early, widely distributed "Porcupine-style" basins of fine-grained clastic rocks, followed by later "Timiskaming-style" basins of coarser clastic and minor volcanic rocks which are largely proximal to major strike-slip faults (e.g. Porcupine-Destor, Larder-Cadillac). Numerous late-tectonic plutons from syenite and gabbro to granite with lesser dykes of lamprophyre and carbonatite cut the belt.

Metavolcanic and metasedimentary rocks of the Abitibi greenstone belt have been subdivided into a series of assemblages. The Pacaud assemblage is the oldest supracrustal unit in the southern Abitibi, with rhyolites ranging from 2747 to 2736 Ma. It occurs on the flanks of the Round Lake batholith with a basal intrusive contact with granitoid units (Figure 4). The thickest remnant of the Pacaud assemblage occurs in the Shining Tree area where it is represented by tholeiitic mafic volcanic rocks with lesser komatiite and calc-alkaline intermediate to felsic volcanic rocks. Units of the 2730 to 2724 Ma Deloro assemblage occur as homoclinal panels underlain by the Pacaud assemblage on the northeastern flank of the Round Lake batholith, and on the northern flank of the Ramsey-Algoma batholith in the Shining Tree and Swayze areas. The Deloro assemblage is composed of calc-alkaline flows and pyroclastic rocks capped by a sedimentary interface zone consisting of a regionally extensive iron formation and related hydrothermal breccias and debris flows. The 2723 to 2720 Ma Stoughton-Roquemaure assemblage, characterised by broad regions of tholeiitic basalts, komatiitic basalts, and komatilites with several relatively minor felsic volcanic centres, is located on the southeast flank of the Round Lake batholith. Units of the Kidd-Munro assemblage have been subdivided into the 2719–2717 Ma lower part consisting of dominantly intermediate to felsic calc-alkaline volcanic rocks, and the 2717-2711 Ma upper part consisting of tholeiitic and komatiitic units with graphitic metasedimentary rocks and localized felsic volcanic centres. In the Shining Tree area, 2717 Ma rocks of this assemblage occur in Tyrrell Township. The 2710 to 2706 Ma lower Tisdale assemblage consists of mafic tholeiitic flows with locally developed komatiite and intermediate to felsic calc- alkaline volcanic rocks and iron formation and has been correlated with 2707 Ma rocks in the northwest portion of the Shining Tree area. Calc-alkaline intermediate to felsic volcanic rocks of the 2701 to 2696 Ma upper Blake River assemblage occur in the Kirkland Lake and central Swayze areas.



#### Figure 4: Regional Geology of the Southern Abitibi Greenstone Belt (Ayer et al. 2002)

There are two types of successor basins are present in the Abitibi greenstone belt: early Porcupine assemblage and the late Timiskaming assemblage. The 2690 to 2685 Ma age Porcupine-type basins form wacke-dominated, kilometre-scale sequences unconformably overlying the metavolcanic and sedimentary rocks and are transitional into much more extensive basins (e.g. Pontiac subprovince). In the northern Shining Tree area, the 2687 Ma Natal Group consists of proximal volcanic flows and breccias of shoshonitic affinity in the southeast grading to fine-grained volcaniclastic rocks and turbidites. The 2677 to 2670 Ma Timiskaming assemblage includes alluvial-fluvial conglomerates, sandstones, turbidites, and alkalic to calc-alkaline volcanic rocks that unconformably overlie metavolcanic rocks and/or Porcupine assemblage units.

The Indian Lake Group, in the Shining Tree area, consists of 2740 and 2702 Ma immature, coarse grained, quartz rich, lithic arenites and conglomerates locally with 2688 Ma felsic volcanic rocks. The volcanic rocks and coeval plutons range from ultrapotassic to shoshonitic and closely resemble potassic-rich rocks.

The plutonic rocks of the Abitibi greenstone belt were subdivided by Aver et al. (2005) into synvolcanic, syn-tectonic and post-tectonic intrusions. The synvolcanic intrusions were further subdivided in to felsic to intermediate, and mafic to ultramafic intrusions. Felsic to intermediate synvolcanic intrusions range in age from about 2745 to 2696 Ma and are coeval with, and geochemically similar to, the volcanic assemblages. These intrusions typically foliated tonalite to granodiorite predate significant compressional strain, and are found predominantly within the larger granitic complexes (e.g. Ramsey-Algoma, Round Lake) batholiths. Mafic to ultramafic synvolcanic intrusions range from approximately 2740 to 2700 Ma and mainly occur as peridotite to gabbro and diorite sills or lenticular units that cut stratigraphy at a low angle. Syn-tectonic plutons may be related to the deformational events and can be subdivided into early and late series. Early 2695 to 2685 Ma tonalite, granodiorite, diorite and feldspartguartz porphyries with adakitic geochemistry similar and coeval to the Porcupine assemblage volcanic rocks occur as stocks within the greenstone belt and as major portions of the surrounding batholithic complexes. Late 2680 to 2672 Ma syntectonic intrusions are broadly coeval with the Timiskaming assemblage, and are relatively small, occurring in close proximity to the main faults (e.g. Larder Lake - Cadillac deformation zone). These intrusions are typically alkalic, and consist of monzonite, syenite and albitite with the more mafic phases including diorite, gabbro, clinopyroxenite, hornblendite and lamprophyre. Latetectonic intrusions range in age from about 2670 to 2660 Ma and are typically massive and occur within batholiths and the greenstones. They consist of "Algoman" biotite granite, pegmatite and biotite-muscovite S-type granite.

A number of mafic dykes swarms cut the rocks of the Abitibi greenstone belt (Osmani 1991). The 2454 Ma Matachewan dykes are north-trending, vertical to sub-vertical and composed of quartz diabase and commonly contain plagioclase phenocrysts up to 20 cm in length. West to northwest -trending, vertical dykes of the 1238 Ma Sudbury dyke swarm are generally medium to coarse-grained with ophitic to subophitic textures of olivine tholeiites. The 1140 Ma east to northeast- trending olivine gabbro to monzodiorite dykes of the Abitibi dyke swarm may be related to the Keewanawan Midcontinent Rift event.

Archean rocks are unconformably overlain by Paleoproterozoic rocks of the Huronian Supergroup, which were deposited in a north trending graben referred to as the Cobalt Embayment in the area overlying the Abitibi greenstone belt. Four formations, the Gowganda, Lorrain, Gordon Lake, and Bar River, were deposited in the Embayment and form the upper most sedimentary cycle of the Huronian Supergroup collectively referred to as the Cobalt Group (Bennett et al. 1991). The Gowganda Formation has been subdivided in to the lower Coleman Member consisting of clast and matrix supported conglomerate, and the upper Firstbrook Member consisting of pebbly wacke, wacke, siltstone, mudstone, and arenite. The Coleman Member conglomerates have been interpreted to have been glacial or alternatively debris flows or turbidity currents. The finer sediments of the Firstbrook Member have been interpreted to have been deposited in a deltaic environment. Lorrain Formation arkose and quartz arenite conformably overly the Gowganda Formation and sedimentary structures found in this formation would support either a shallow marine or fluviatile depositional environment.

Gabbroic rocks of the Nipissing Intrusive event intrude all older rocks of the Cobalt Embayment forming sills, dykes and undulating sheets up to a few hundred metres thick (Bennett et al. 1991). A two pyroxene gabbro is the most common lithology in the Nipissing but olivine gabbro, hornblende gabbro, feldspathic pyroxenite, leucogabbro, granophyric gabbro. and granophyres are also present. The 2219 Ma Nipissing gabbro may have originated from a radiating dike swarm related to the 2217-2210 Ma Ungava magmatic event located under the Labrador Trough fed via the 2216 Ma Senneterre dykes which form part of a radiating dike swarm (Ernst 2007). Locally, emplacement of the Nipissing appears to have been controlled by pre-existing structures in the Huronian and Archean basement rocks.

Supracrustal units in the Abitibi greenstone belt are dominated by east-west striking volcanic and sedimentary assemblages and east-trending Archean deformation zones and folds. Larger batholithic complexes external to the supracrustal rocks (e.g. Round Lake) represent centres of structural domes. The intervening areas define belt-scale synclinoria that deformed during a number of distinct periods. This pattern is interrupted by the trends of Porcupine and Timiskaming assemblage rocks which unconformably overlie the older assemblage. Older syntectonic intrusions (2695-2685 Ma) may be related to the compressive stresses that induced early folding and faulting related to the onset of continental collision between the Abitibi and older sub provinces to the north. Younger syntectonic intrusions (2680-2670 Ma) are coeval with the Timiskaming assemblage and are spatially associated with the Porcupine Destor and Larder Lake Cadillac deformation zones. The late tectonic intrusions (2670–2660 Ma) are possibly synchronous with D4 folding within the Timiskaming assemblage rocks in the Timmins area and represent the final stage in transgressional deformation along the Porcupine Destor deformation zone and may be correlative with the D2 event identified in the Kirkland Lake-Larder Lake area. The regional deformation zones commonly occur at assemblage boundaries and are spatially closely associated with long linear belts representing the sedimentary assemblages (i.e., Porcupine and Timiskaming). It has been proposed that the regional association of the Porcupine Destor and Larder Lake Cadillac deformation zones and major assemblage boundaries are proximal to the locus of early synvolcanic extensional faults.

## 7.2 Property Geology

Collins (2010), Hart (2011) and later Kuuskman (2012) describe an inlier of Archean rocks being located in the northwestern portion of the Property straddling the western boundary between Haultain and Nicol Townships. This inlier consists of predominately of ultramafic, mafic, and intermediate to felsic volcaniclastic metavolcanic rocks that locally contains interbedded chert-magnetite oxide facies iron formation and clastic metasedimentary rocks (Figure 5). A series of syn -tectonic gabbro, lamprophyre, and syenite dykes intrude the metavolcanic rocks within a strongly developed east-west oriented shear zone and along structures running parallel and in close proximity to the Jacobs Lake Fault. An intermediate to felsic body intrudes the southern portion of the inlier, and intermediate to felsic plutonic rocks of the Round Lake Batholith intrude the metavolcanic rocks along the north edge of the Property. North to northwest-trending

Matachewan diabase dyke swarm rocks cut all younger units, and several northeasttrending Abitibi diabase dykes cross the Property. The Archean rocks are variably deformed and folded and cut by the northwest-trending Jacobs Lake fault. Regional metamorphism reached lower to middle greenschist facies.

In the southeastern portion of the Property, primarily in Nicol Township the Archean rocks are overlain by Proterozoic age Huronian Supergroup rocks and intruded by sills of Nipissing Gabbro (Collins 2010). The Cobalt Formation of the Huronian Supergroup consists of feldspathic arenite, feldspathic greywacke, and paraconglomerate of the Gowganda Formation and feldspathic and micaceous sandstones of the Lorrain Formation. Nipissing Gabbro sills, one of the youngest intrusive rocks noted on the Property are mainly composed of pyroxene gabbro with limited subophitic textures and occasional granophyric phases in the upper portions.

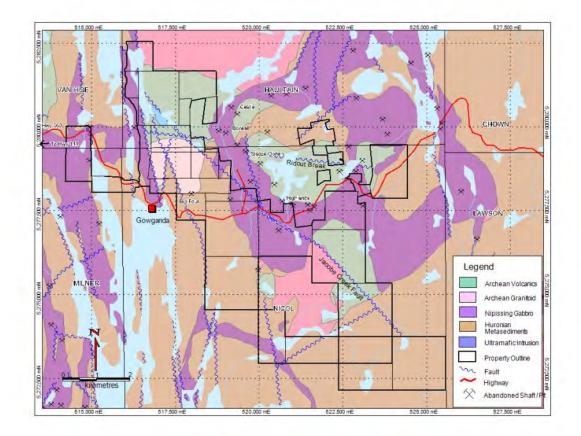


Figure 5: Local Geology of the Haultain Property (provided by Transition Metals Corp.)

## 7.2.1 Metavolcanic Rocks

## 7.2.1.1 Ultramafic to Mafic Metavolcanic Rocks

Classification of the metavolcanic rocks is based on colour index and textures. Ultramafic to mafic metavolcanic rock are interpreted to dominate the volcanic sequence north from the area of the exploration trenches to the north edge of the Property. Many of the units have been referred to as massive flows, but in most cases they are moderate to well foliated units that may have a flow or volcaniclastic origin. These units are fine to medium grained, medium to dark green to green grey with pale green mica, and moderate to strongly carbonatized. A number of poorly exposed outcrops located along a west to northwest strike and about 100 m from Trench 3, have an alteration style similar to units classified as ultramafic rocks during the trench mapping programme. A spinifex-textured flow was intersected in drill hole TMH10-01 in the lower half of the hole and would project to surface in the area south of Trench 3. Two units located along the trench access trail, on the east side of the Property are massive to weakly foliated, medium-grained, dark green, and strongly magnetic and tentatively identified as ultramafic in composition.

Several units were classified as tuffaceous based on a schistose to bedded appearance, and one example appeared to be <1.0 m in thickness. In the northern portion of the Property, east of Dinny Lake, and along the stream northwest of Trench-4 the mafic tuffs have a well-developed west-trending cleavage and fine bedding and occasionally interbedded with <0.5 m thick more massive units. As a result of the well-developed cleavage, these tuffs resemble siltstones and may be comparable to the narrow sedimentary units, composed mainly of quartzite mapped by McIlwaine (1978) east of Miller Lake.

Two types of coarse volcaniclastic units were observed; a monolithic, moderately well foliated mafic lapilli tuff and a heterolithic, weakly foliated to massive debris flow. The heterolithic debris flow contained clasts with spinifex-like textures and depending on the composition of the matrix may be more properly classified as ultramafic rather than mafic units. A good example of the heterolithic debris flow is exposed in the north-central portion of Trenchs 2 and 3.

## 7.2.1.2 Felsic to Intermediate Metavolcanic Rocks

Felsic to intermediate metavolcanic rocks consisting of massive and volcaniclastic units interbedded with ultramafic to mafic metavolcanic rocks occur south of the exploration trenches. The massive units are fine- to medium-grained, massive to weakly foliated, medium grey to grey-pink and variably porphyritic with quartz and feldspar phenocrysts. It is possible they could be intrusive in origin. Examples of more massive porphyritic units are exposed in the area close to the Town of Gowganda, along the north side of Tower Hill, and in the area south of the trenches. A number of units in the area south of the trenches consist of coarse volcaniclastic rocks. These are composed of predominately pebble to cobble-size, round to subrounded dacite clasts with the

occasional quartz porphyritic rhyolite clasts and mafic, chlorite-rich clasts in a dacitic tuffaceous matrix. A similar unit was intersected in the lower portion of drill hole TMH10-01 interbedded with the ultramafic to mafic volcanic rocks. The volcaniclastic rocks occur as metre scale units interlayered with the mafic volcanic and tuffaceous rocks. The mixture of clast compositions suggests that the volcaniclastic units are debris flows or volcanic sediments. McIlwaine (1978) described the felsic to intermediate metavolcanic rocks in thin sections as being composed of phenocrysts of plagioclase (oligoclase) and quartz in a groundmass composed of a mosaic of quartz, feldspar, secondary white mica, and lesser amounts of carbonate and secondary amphibole.

## 7.2.2 Metasedimentary Rocks

#### 7.2.2.1 Chemical Metasedimentary Rocks

A thin-bedded chert-magnetite, oxide facies iron formation outcrops on the north side of the radio tower hill, east of Gowganda and north of the highway. The iron formation appears to be over two metres thick, but is complexly folded hindering the identification of the original thickness. The unit strikes west with a steep north dip and its south margin is in contact with a quartz porphyritic felsic flow or possible sill. Outcropping of the iron formation in two locations approximately 50 m apart, in a north-south manner may indicate the presence of more than one iron formation, or a structural offset of the unit. A portion of the iron formation, located to the east of the Big Four shaft, is composed of massive to bedded pyrite which was described by McIlwaine (1978) as grading laterally into oxide facies iron formation.

## 7.2.2.2 Clastic Metasedimentary Rocks

Clastic metasedimentary rocks consisting of mudstones and argillites are exposed in the old trench located south of Trench-3, and as siltstone in the south end of Trench-2 and along the trail to the east. The mudstones are very thin-bedded to laminated, black units forming a horizon <5 m thick interbedded with ultramafic to mafic metavolcanic rocks. The siltstones are thin-bedded, light green grey to grey units and appear to be located near the south edge of the Jacobs Lake fault zone. Beds are generally massive, but rare graded beds suggest an overturned, north dipping orientation. The age of these units is not clear but they are considered to be Archean as they are interbedded with the Archean metavolcanic rocks and lack the immature alkali feldspar clasts common in Timiskaming-type sedimentary rocks.

A mappable belt of poorly sorted polymictic gravels containing rounded granite clasts, overlain by thinly banded mudstones appears to unconformably overly the felsic to intermediate metavolcanic rocks described in 7.2.2.1. An excellent exposure of this rock unit is located approximately 200 metres southwest of Trench-2.

## 7.2.3 Synvolcanic Intermediate to Felsic Intrusive Rocks

Medium to coarse-grained porphyritic units are exposed in the area south of the trenches and the southwest part of the Property. No exposures of contact relationships exist and they cannot be definitively identified as being either extrusive or intrusive. Their position within the metavolcanic rocks suggests that if intrusive in origin, that they are subvolcanic in nature.

## 7.2.4 Syn-tectonic Ultramafic to Mafic Intrusive Rocks

A series of ultramafic intrusive bodies were emplaced in a westerly trend extending from Miller Lake in the east to Dinny Lake to the west. Although classified as peridotites during the 2010 fall field season, McIlwaine (1978) referred to these bodies as being composed of serpentinized dunite. The peridotites are medium to coarse grained, massive, dark green to dark grey green with some outcrops displaying a polygonal texture suggesting a chill margin as per the outcrop seen in the old trench west of Trench-2 and along the northwest shore of Miller Lake. Some fractures contain a very coarse-grained, serpentine group minerals including chrysotile, as observed in a boulder located in the sediment trench located west of Trench-2. McIlwaine (1978) reported that these rocks are composed of 50 to 80 % serpentine, 7 to 40 % magnetite, 5 to 40 % chlorite, trace to 15% talc, 2 to 3 % sulphide minerals, and traces of biotite, carbonate, and pyroxene.

A fine- to medium-grained, massive, dark green to grey green gabbro was observed on the north side of a chain of swamps which drain northwest into Dinny Lake. The unit appears to be weakly to moderately altered, and hornblende-rich. Close to an old silver exploration pit, the exposed gabbro contains trace to 1%, medium-grained, disseminated, and subhedral pyrite. McIlwaine (1978) reported that in thin section this gabbro consists of 40 to 50 % saussuritized plagioclase, 40 to 50 % uralitized pyroxene, less common are 5 to 15% chlorite, 2 to 3% sulphide minerals, and traces of apatite and quartz.

The ultramafic and mafic intrusive rocks are intruded by 2450 Ma Matachewan diabase dykes and are overlain by sediments of the Huronian Gowganda Formation indicating that they are late Archean or early Proterozoic age. McIlwaine (1978) suggested that the gabbro may surround the ultramafic rocks forming a zoned ultramafic intrusion, but no evidence was noted to support this interpretation. Alternately, the gabbro could form part of a thick flow as McIlwaine (1978) observed similar coarse-grained cores to thick flows to the west of the Property, near the north end of Firth Lake.

## 7.2.5 Syn-tectonic Syenitic Intrusive Rocks

A swarm of medium to coarse grained, massive to weakly foliated dykes, ranging from grey green to reddish brown, intrude the highly altered and deformed northwesterly

striking and steeply north dipping package of mafic to ultramafic metavolcanic rocks centred about claim 1248799. Central to this sequence is a robust swarm of east-west striking and north dipping syenitic dykes which have intruded into a strongly sheared zone with a similar orientation. Additional dyke swarms are observed intruding west to northwesterly trending structures although these dip more shallowly to the north. Locally the syenitic rocks are overprinted by a brittle fracturing event that controlled at least one alteration event that introduced gold bearing fluids. There appears to have been at least two generations of dykes, some are altered and contain gold mineralized quartzcarbonate veins and these are cut by younger unaltered dykes. Unaltered the dykes are grey to green in colour, but become pink to reddish brown with increasing degrees of potassic and hematitic alteration. Fresh samples consist of approximately 60% alkali feldspar, 30% plagioclase, 5% biotite/augite and a variable amount of dolomitic/iron carbonates. The dykes, classified as mafic syenites based on their field and whole rock geochemical characteristics are variably hematite and silica altered. All the dykes are altered to varying degrees resulting in a weathered to a rusty/leached rind ranging from 1 to 10 cm on all exposed bedrock surfaces.

Dykes are generally a few metres to tens of metres thick and vary in width along strike. Irregularly distributed areas within the dykes contain a highly variable percentage of subangular to irregularly shaped dark green to black, chlorite fragments up to 3.5 cm, medium to coarse grained green mica, and sub-rounded up to 1 cm chert/quartz fragments, and rare up to 20 cm rounded granite fragments. The fragment content is highly irregular and some older dykes contain predominate clots of green mica with a little or none of the other fragment types.

Spherulitic textures are common and thought to be the result of quenching during emplacement but this may disappear along the length of a dyke

# 7.2.6 Lamprophyre Dykes

Dark brown, fine to medium grain biotite-rich dykes cut all older metavolcanic and intrusive units and quartz- carbonate veining. The biotite varies from fine-grained in the chill margins to coarse grained in the core of the dykes. Relict olivine phenocrysts up to 1cm in diameter were also observed. These dykes frequently occur in close proximity to the syenitic dyke swarms.

# 7.2.7 Matachewan Dibase Dykes

The north-to northwest trending, 3 to 120 m wide dykes cut the Archean units, but not the Huronian sediments or Nipissing Gabbro sills. Bifurcation results in some wider exposures of dyke and localized areas with west trending contacts. The dykes are massive in texture, composed of fine to medium grained, medium grey feldspar and dark grey to black pyroxene with aphanitic chilled margins. Locally, the dykes are feldspar porphyritic with tabular to sub-rounded phenocrysts up to 4 cm in length that are either randomly oriented or occasionally aligned sub-parallel to the dyke margins. Although the magnetic character of the dykes means they are easily traced using magnetic surveys, a complex branching was evident during detailed mapping on the Property.

# 7.2.8 Huronian Supergroup

Rocks of the Gowganda Formation of the Cobalt Group are exposed in Nicol Twp and on the southwest portion of the Property they un-conformably overlying the Archean rocks. The dominate units are conglomerates of the Coleman Member which consist of sand-sized, rounded to sub-rounded, quartz and feldspar grains in a muddy siliceous and chloritic matrix containing pebble to boulder sized clasts of rounded to sub-rounded, granitic with lesser amounts of gabbro and metavolcanics. Clast density varies over short distances from small and densely packed pebbles to larger isolated cobbles and boulders.

# 7.2.9 Nipissing Gabbro (Diabase) Sills

Nipissing Gabbro (Diabase) sills are present in the east and west portions of the Property intruding Gowganda Formation and Archean metavolcanic rocks. The sills are grey to brown, fine to coarse grained, massive pyroxene or amphibole gabbro. A medium grained, massive gabbro containing light pink feldspar phenocrysts collected from the southwest edge of the Property may represent the granophyre phase occasionally reported in the sills. The sills may be up to 150 m thick and were emplaced as shallowly dipping undulating sheets intruding both Huronian sediments and Archean rocks. McIlwaine (1978) describes this unit as being composed of 40 to 56% saussuritized plagioclase (calcic andesine to sodic labradorite) with up to 45% augitic pyroxene or amphibole, with minor quartz, chlorite, biotite and magnetite.

# 7.2.10 Abitibi Diabase Dykes

Several northeast-trending, vertically dipping quartz diabase dykes up to 30 m thick interpreted to be part of the Abitibi dyke swarm cross the central portion of the Property. The dykes are massive, equigranular, medium-grained dark green to greenish grey quartz diabase.

# 7.2.11 Sudbury Diabase Dykes

A northwest-trending, approximately 30 m thick olivine diabase dyke interpreted to be related to the Sudbury dyke swarm crosses the central portion of the Property. The dyke is a fine to medium grained, grey to black, and locally porphyritic with plagioclase phenocrysts up to 5 cm in length.

## 7.2.12 Structure

The Archean rocks in the north portion of the Property have west trending foliations with vertical to sub-vertical dips. Foliation trends to the southwest to southeast in the central and southern portions of the Property suggest the presence of regional folding. The Huronian sediments are generally flat-lying and un-conformably overlay the Archean rocks. Undulations in the Nipissing gabbro are considered primary and are probably the result of local variations in stress at the time of sill emplacement similar to the mechanisms proposed for the undulating sills of the Nipigon Embayment (Hart and MacDonald 2007).

Four fault orientations, have been observed on the Property, a northwest and northnortheast-trending structures are recorded on early maps and McIlwaine (1978) also noted the presence of northeast and east-trending faults in the areas on and bounding the Property. Transition Metals geologists have observed two fault orientations that appear to have a controlling influence of gold mineralization. The principal controlling structure seems to be an east-west trending structure that Transition believes may be the easterly extension of the Rideout Fault extending from the West Shiningtree and Swazye areas. Related to this structure are a series of northwesterly trending structures that may be riedel shears. Both structural trends host syenite dykes and altered ultramafic metavolcanic rocks which contain elevated concentrations of gold.

McIlwaine (1978) found evidence of approximately 30 m (100 feet) of right-hand displacement on Matachewan-type diabase dikes in the eastern portion of the Property, and carbonatization and shearing in the cliffs along Jacobs Lake, southeast of the Property. A sub-parallel structure was interpreted by McIlwaine (1978) to trend south from Dinny Lake through the area of the Big Four showing.

# 8. MINERAL DEPOSIT TYPES

# 8.1 Lode Gold Mineralization

The principal exploration target on the Haultain Property is lode gold mineralization host by Archean intrusive and metavolcanic rocks which outcrop and are interpreted to extend beneath bounding exposures of Huronian metasediments and Nipissing gabbro. The Abitibi greenstone belt is known to host numerous world class economic lode gold deposits that have produced in excess of 180 million oz of gold to date (e.g. Hollinger-McIntyre, Kerr Addison, LaRonde, Macassa). Within this general class of deposits, there are features of a number of different gold deposit models that appear to apply to the gold mineralization on the Haultain Property, including the greenstone-hosted quartzcarbonate vein deposit type of Dubé and Gosselin (2007), the syenite-associated disseminated gold deposit type of Robert (2001), and the gold and copper-gold porphyry deposit type of Sinclair (2007) that may be important guides for exploration on this property.

### 8.1.1 Greenstone Host Quartz-Carbonate Vein Deposits

Gold mineralization on the Haultain Property is in many respects consistent with the greenstone-hosted quartz-carbonate vein deposit type, which is a subtype of lode gold deposits, also known as mesothermal, orogenic, lode gold, shear-zone-related quartz-carbonate or gold-only deposits (Dubé and Gosselin 2007). This style of mineralization consists of simple to complex networks of gold-bearing, laminated quartz-carbonate fault-fill veins in moderately to steeply dipping, compressional brittle-ductile shear zones and faults, with locally associated extensional veins and hydrothermal breccias. Gold is mainly confined to the vein networks but may also be present in significant amounts in iron-rich sulphidized wall rock selvages or within silicified and arsenopyrite-rich replacement zones. The host rocks are dominantly mafic rocks of greenschist to locally lower amphibolites facies, but may include a wide variety of rock types including mafic and ultramafic volcanic rocks, competent iron-rich differentiated tholeiitic gabbroic sills, granitoid intrusions, porphyry stocks and dykes and clastic sedimentary rocks. Mineralization is syn- to late-deformation and typically post-peak greenschist-facies or syn-peak amphibolites facies metamorphism and generally formed at 5-10 km depth.

This type of deposit is distributed along major compressional to transpressional crustalscale fault zones in deformed greenstone terranes Dubé and Gosselin (2007). Generally gold mineralization is associated with second and third order compressional reverse-oblique to oblique brittle-ductile high-angle shear and high strain zones commonly located within 5 km of the first order fault. However, brittle faults associated with Timiskaming like regional unconformities may also be the main host to gold mineralization as present along the Kirkland Lake Main Break. Structural traps, such as fold hinges or dilational jogs along faults or shear zones, may be important in locating the orebodies.

The proximal alteration haloes are typically zoned and the mineral assemblages vary with metamorphic grade, and reflect the depth of formation. At greenschist facies, ironcarbonatization and sericitization, with sulphidation of the immediate vein selvages (mainly pyrite, less commonly arsenopyrite) is reflected by enrichments in CO<sub>2</sub>, K<sub>2</sub>O, and S, and leaching of Na<sub>2</sub>O. Haloes to the vein, consisting of various amounts of chlorite and calcite and locally magnetite, vary in size depending on the composition of the host rocks and may entirely envelope deposits host by mafic and ultramafic rocks. Pervasive chromium or vanadium rich green micas and ankerite with zones of quartz-carbonate stock-works are common in sheared ultramafic rocks. At amphibolite facies, the common hydrothermal alteration assemblages include biotite, amphibole, pyrite, pyrrhotite and arsenopyrite, and at higher grades, biotite/phlogopite, diopside, garnet, pyrrhotite and/or with variable amounts of feldspar, calcite, and clinozoisite.

## 8.1.2 Syenite Associated Disseminated Gold Deposits

A key characteristic of the gold mineralization observed on the Property is its close relationship to late syntectonic potassic altered syenite dykes. A group of Archean gold deposits spatially associated with quartz-monzonite to syenite stocks and dykes that occur mainly along major fault zones (e.g.Duparquet, Matachewan, Harker-Holloway,

Ross) was described by Robert (2001) as syenite-associated disseminated gold deposits. Gold mineralization is associated with disseminated sulphide replacement zones with irregularly developed stock-works of quartz-carbonate+/-K-feldspar veinlets, within zones of carbonate, albite, K-feldspar, and sericite alteration that occur within composite syenitic stocks or along their margins, along satellite dykes and sills, and along faults and lithologic contacts away from intrusions. The syenitic intrusions are broadly synchronous with deposition of Timiskaming sedimentary rocks which have been overprinted by subsequent regional folding and related penetrative cleavage. These gold deposits are considered distinct from quartz-carbonate vein deposits, which can also be hosted by pre-Timiskaming syenitic intrusions

The intrusions associated with these types of deposits range in composition from quartzmonzonite to syenite, forming small stocks, commonly elongated subparallel to the overall structural trend, and are generally surrounded by numerous satellite dykes. In some deposits (e.g. Holt-McDermott), only dykes are exposed and no related stocks have been identified. The stocks are composite, multiphase intrusions and the presence of several textural types of dykes in some deposits ranging from equigranular to porphyritic, with K-feldspar phenocrysts in a fine grained to aphanitic groundmass. Overprinting of fault and shear zones are also common in these deposits and range from relatively ductile shear zones to narrow brittle faults.

Orebodies consist of zones of disseminated sulphides with irregularly developed stockworks characterized by an increase in sulphide content, gold grades, and intensity of stock-work fracturing. An abundance of micro-veinlet stock-working and fracturing may result in a brecciated appearance. The orebodies represent replacement zones that lack the simple extensive tens of metres long quartz-carbonate veins typically present in greenstone hosted quartz-carbonate vein gold deposits. The morphology of the deposits ranges from tabular to pipe-like, although many have rather irregular outlines generally steeply dipping and/or steeply plunging; however shallower dipping orebodies are also known.

The total sulphide mineral content of the orebodies is typically less than 10% by volume, and commonly consists of only a few percent fine to very fine-grained pyrite, with significant anounts of arsenopyrite being known in a few deposits. Stockworks consist of millimetre to centimetre thick veinlets of gray to cherty quartz containing subordinate amounts of carbonate (Fe-dolomite and calcite), albite, and pyrite. Other ore related minerals include minor to trace amounts of chalcopyrite and hematite, telluride minerals, molybdenite, and magnetite. Accordingly, orebodies are generally enriched in Cu, As, and Te, with common, but variable enrichments in Pb, Mo, W, Zn, and locally Sb. The gold to silver ratios of the ores generally range from about 1:1 to 5:1. Anhydrite, fluorite, tourmaline, and scheelite are also common. In nearly all examined deposits, barren, shallowly dipping, milky quartz-calcite extensional veins overprint the ore-related stockworks and disseminated mineralization.

Zones of hydrothermal alteration are spatially coincident with zones of disseminated sulphide minerals and veinlet stock-works, with the most intense alteration generally corresponding to economic gold mineralization. Carbonatization and albitization are significant alteration types in nearly all deposits; K-feldspar alteration and sericitization are also present in several deposits, whereas silicification is less frequently important.

Carbonatization is the most extensive type of alteration and displays a zonal distribution, from peripheral calcite, to dolomite or Fe-dolomite within mineralized zones. K-feldspar alteration seems to be restricted to orebodies host within or along the margins of composite syenitic stocks. Albitization is most intense in orebodies associated with satellite dykes.

Gold mineralization in nearby Tyrrell, Natal, Knight and MacMurchy Townships, to the west of the Haultain Property, is spatially associated with syenite stocks and dykes as well as intense carbonate alteration along north-northwest-trending faults and northwest-trending cross faults (Johns and Amelin 1999).

## 8.1.3 Gold and Copper-Gold Porphyry Deposits

A third mineral deposit model to consider at Haultain is gold and copper-gold porphyry deposits. Porphyry deposits are large, low to medium grade deposits, with primary ore minerals dominantly structurally controlled and spatially and genetically related to felsic to intermediate porphyritic intrusions (Sinclair 2007). Mineralization in these deposits is hosted by large, structurally controlled stock-works, veins, vein sets, fractures, and breccias spatially associated with intrusions that may be the source of the magmatic hydrothermal fluids. Mineralized stock-works may occur within the exterior portion of the intrusion and immediately adjacent portions of the country rock. Sinclair (2007) described the hydrothermal alteration as typically zoned on a deposit scale as well as around individual veins and fractures. The typical deposit scale alteration zones consist of an inner potassic zone characterized by K-feldspar and/or biotite and an outer propylitic zone consisting of quartz, chlorite, epidote, calcite and, locally, albite. Phyllic (quartz + sericite + pyrite) and argillic (quartz + illite + pyrite  $\pm$  kaolinite  $\pm$  smectite  $\pm$ montmorillonite ± calcite) zones may occur between the potassic and propylitic zones, or as younger irregular or tabular zones superimposed on older alteration and sulphide assemblages. However, phyllic alteration is not always present, and in many deposits is superimposed on earlier potassic alteration. Alteration mineralogy is controlled by the composition of the host rocks and the mineralizing system. Alteration in mafic host rocks with significant Fe and Mg contain biotite (± minor hornblende) in the potassic alteration zone, and felsic rocks are dominated by K-feldspar.

Economic sulphide zones are most closely associated with potassic alteration. The main ore minerals in Cu-Au porphyries as summarized by Sinclair (2007) are chalcopyrite, bornite, chalcocite, tennantite, native Au, electrum, and tellurides, with associated minerals that may include pyrite, arsenopyrite, and magnetite. Au porphyry deposits are mainly native Au and electrum with minor amounts of chalcopyrite, bornite, and molybdenite and associated minerals that may include pyrite, magnetite (± hematite), and reduced environments contain pyrite, magnetite (± hematite), and reduced environments contain pyrite.

There are few Archean gold deposits that can be definitively classified as porphyries, and identification of these deposits is often based on the presence of mineralization with an age similar to the age of the intrusion, such as Troilus and Lamaque (e.g. Beakhouse 2007) and the McIntrye Mine (e.g. Ayer et al. 2005). In the case of Troilus, potassic,

propylitic, and phyllic alteration styles are associated with gold mineralization, and a porphyry model is being applied to exploration (Evans 2006).

## 8.2 Five Element: Ag-Ni-Co-As-Bi Veins

The widespread occurrence of silver and cobalt bearing five element veins as evidenced by past silver production on adjacent properties, and the presence of a Nipissing gabbro sill with carbonate-quartz veins suggests the potential for native silver mineralization on the Haultain Property be considered. The five-element deposits consist of epigenetic veins containing silver, nickel, cobalt, arsenic, bismuth in predominately arsenide, sulpharsenide and native forms (Ruzicka and Thorpe 1996). The following description is based on the work of Ruzicka and Thorpe (1996) and Kissin (1993). The veins are host by rocks of the Nipissing gabbro/diabase sills and dykes and the Precambrian metasedimentary and metavolcanic rocks that they intrude. Most of the past-producing silver deposits in the Gowganda Silver Camp are host within the upper portion of the sills but deposits in the Cobalt area are host along the lower contacts of the diabase, in the adjacent shale-rich sections of the Coleman Formation, and in the underlying Archean basement. Distribution of the veins is structurally controlled by regional fault systems and by the contact zones between the Nipissing gabbro and specific Huronian sedimentary or Archean rocks.

Veins are open-space filling, with little to no replacement of wall rock that pinch and swell from centimetre to metre scale thickness, and mineable ores frequently occur generally as less than 100 m long steeply dipping ore shoots that become barren with depth. An idealized and complete paragenetic sequence of the mineral assemblages consists of: 1) early barren quartz, sometimes with minor base metal sulphides (pyrite, sphalerite, galena); 2) uraninite-quartz which is completely absent in the Cobalt-Gowganda; 3) native silver in intimate with Ni-Co arsenide minerals (cobaltite, rammelsbergite, safflorite, niccolite, cloanthite, maucherite), and occasionally native bismuth, usually in a dolomite or calcite gangue; 4) pyrite, sphalerite, galena, chalcopyrite and other copper sulphides with native silver and argentite and occasionally native arsenic and antimony in predominantly calcite gangue with guartz. fluorite and barite, and this stage is gradational from the Ni- Co arsenide mineralogy and may contain sulpharsenides, such as arsenopyrite, and Sb-As-Ag sulphosalts; 5) late stage calcite deposited at low temperatures, occasionally accompanied by significant barite or fluorite. This sequence of mineral assemblages appears to represent the evolution of the ore forming solution over time, but interpretations by some workers of extensive replacement could place the sulphide stage prior to Ni-Co arsenide stage. Alteration haloes are developed in the wall rocks along the veins as narrow (less than 10 cm) zones of calcite, chlorite, epidote, K-feldspar, muscovite, and anatase. Chlorite occurs locally in spots, 1 to 5 mm in diameter.

In the Cobalt area, it has been proposed that the veins were derived either from mineralized brines leaching precious and base metals from underlying Archean sedimentary beds, with minor contributions from certain volcanic flows, or from the formational brines of the Archean carbonaceous, pyritic tuffs or their clastic derivatives in the Proterozoic sedimentary sequence. The latter hypothesis is supported by fluid

inclusion and oxygen isotopic data, and a conceptual model is that metalliferous highly saline brines had a long residence time in the sulphide-bearing rocks, but were released into tensional fractures upon intrusion of the Nipissing diabase sheet. This sudden release of pressure caused rapid precipitation of the ore-forming minerals in fractures at the diabase contacts at temperatures between  $130^{\circ}$ C and  $254^{\circ}$ C by hydrothermal solutions of high pH and low Eh.

## 8.3 Discussion of Deposit Models

The focus of exploration by Transition Metals Corp has been concentrating on determining the potential for concentrations of economic gold mineralization to occur on the Haultain Property. The geology of the Property and observed mineralization there on has characteristics commonly associated with the greenstone-hosted quartz-carbonate vein deposit type of Dubé and Gosselin (2007). However, some features of the mineralization on the Haultain Property, including the association with syenite dykes suggests characteristics common to the syenite-associated disseminated gold deposit type of Robert (2001) are also be applicable. In addition, with the presence of shallowly dipping extensional quartz- carbonate veins with large mariolitic cavities (see 8.1.1. Mineralization - Trench 3) suggests that the syenite dykes may have been at a shallower depth than a typical Archean mesothermal gold mineralizing system and some aspects of the gold and copper-gold porphyry deposit model of Sinclair (2007) may be applicable.

Although, the structural controls, and alteration and mineralization styles associated with quartz-carbonated vein gold deposits are probably the best guides for the recent and proposed exploration programmes, other deposit models may become important guides as exploration work progresses and additional information is gathered.

Given that significant portions of the Haultain Property are overlain by rocks of the Nipissing Gabbro Sill, which are locally known to host deposits of five element Ag-Ni-Co-As-Bi veins, the opportunity for discovery of this type of mineralization should not be overlooked. Historical silver production is estimated to have been approximately 60 million oz of silver, mainly coming from a cluster of deposits located near the upper contact of the sill. The lower contact of the sill is only known to have supported production from one deposit (the Lower Bonsall). The lower contact of this sill is extensively exposed on the Haultain Property and it has been poorly explored. Links between Archean basement metallic sources for the mineralized brines that formed the five element deposits have been proposed (Ruzicka and Thorpe 1996). The identification and tracking of potential metal sources in the Archean in should be investigated as a means to generate new targets for the occurrence of 5-element vein systems in the overlying Nipissing gabbro.

### 9.0 MINERALIZATION

At least three known styles of gold mineralization and one style of silver mineralization are known to occur the Haultain property.

Gold is known to occur in intrusion hosted stock-work veining. Syenite dyke swarms having local quartz vein stock-works with gold have been traced for over 2 kilometres on the property. Gold within the syenitic dykes of the Swain Swarm has been identified occupying brittle tensional features occurring as native gold and tellurides within and along the margins of quartz-ankerite veinlets +/- tourmaline and microcline, or associated with zones of disseminated pyrite +/- chalcopyrite/sphalerite/galena developed around the quartz carbonate. Veining within the syenites is typically narrow and erratic, and frequently oriented on perpendicular orientations to the dyke contacts forming groupings of ladder veins and stock-works

Gold is also known to occur in shear hosted vein systems. Narrow and discrete quartz veins occupying shear zones host within metavolcanic rocks are found adjacent to and surrounding the syenite intrusions. Exploration to date has located two shear host gold zones that are identified as the South Central Shear, and the North-West Shear. Assay values of up to assaying 86 g Au/t over 0.36 metres have been returned from the South Central Shear and visible gold has been observed in shear host quartz veins in the Trench-7 area of the North-West Shear.

The third environment in which gold mineralization is known to occur on the property is in zones of elevated disseminated sulphides. Two locations of elevated amounts of disseminated pyrite have returned strongly anomalous gold values; a chloritic gabbro with coarse disseminated euhedral pyrite in close proximity to the South Central Shear has returned an assay of 19.5 g Au/t. In addition, approximately 400 metres to the east along strike, a sample of similar material ran 2.52 g Au/t.

In the southeastern portion of the Property, primarily in Nicol Township is overlain by Proterozoic age Huronian Supergroup rocks and intruded by sills of Nipissing Gabbro (Collins 2010). In the Gowganda Silver Mining Camp, five element Ag-Ni-Co-As-Bi veins commonly occurred in the upper portions of the Nipissing Gabbro Sill, and exploration workings for silver are ubiquitous. On the Haultain property some of the more robust exploration efforts for silver mineralization occurred on the former Hylands-Johnson - Gardiner property on which occurs a 87m deep shaft with 850 metres if lateral workings. Also forming part of the current property is the former Quebec Yellowknife Gold Mines property, where several vein systems were opened up by trenching and a sample from one returned 8.41 oz Ag/t and 14.29 % copper. Also located in the southern portion of the property is the Big Four showing where a series of trenches and pits, and a 25 ft (7.6 m) deep shaft located. Assays of up to 10.8 oz Ag/ton have been reported from this site.

### 10.0 EXPLORATION

### 10.1 Geological Mapping Programme

A geological mapping and sampling programme was completed across a grid established on mining claims 3000444 and 1248799 in May through June 2011 Figure 7). The grid had a 1.1 kilometre long base line running with an azimuth of 320° with cross lines at 100 metre intervals. Additional cross lines at 50-metre spacing were

inserted into the grid over the Trench-3 area (Figure 6).

The grid orientation was selected to obtain the best transects across northwesterly, and east-west trending faults and syenites while seeking to mitigate the impact of north-south trending Matachewan Diabase dykes on geophysical surveys.

Reconnaissance mapping over main portions of the property not covered by the grid was completed in late June through early July 2011. Mapping and prospecting over the peripheral claims not attached to the main group was completed during the 2013 through 2015 field seasons. These mapping programmes established that syenites are present elsewhere on the property and provide additional exploration targets to be investigated for gold mineralization.

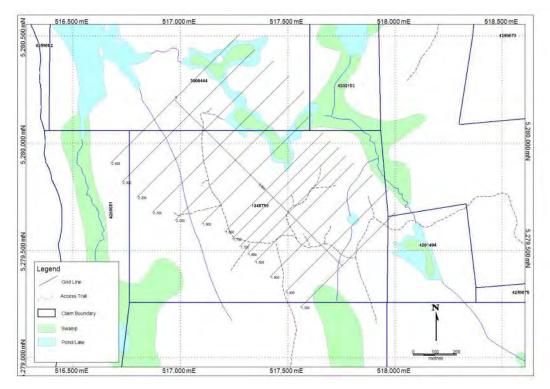


Figure 6: Plan of Geotechnical Grid (provided by Transition Metals Corp)

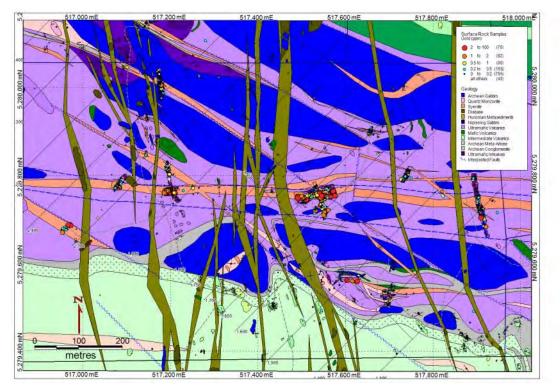


Figure 7, Detailed Geology over the Grid Area (provided by Transition Metals Corp)

## 10.2 Trenching

Transition Metals excavated ten trenches in total between 2010 and 2011. Sites selected by Transition were to provide better exposure of syenitic rocks identified through geological mapping and whole rock analyses. Trenching programmes involved mechanical stripping, high-pressure washing, followed by detailed mapping and channel sampling. Trenches 1 through 4 were completed in the 2010 field season, and trenches 5 through 10, were completed during the 2011 field season. Trench locations on the Haultain property are identified on Figure 8.

Procedures and results of the 2010 trench mapping and sampling programme are described in Hart (2011) and the 2011 programme is documented in Collins and Hart (2011) and Kuuskman (2012). These reports are on file with the MNDM, and can be reviewed at the Kirkland Lake Resident Geologists office.

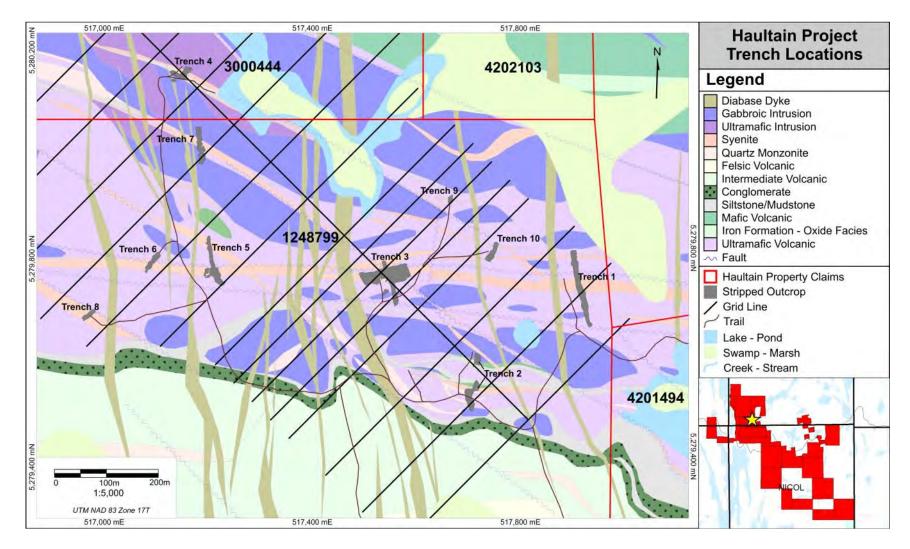


Figure 8: Trench Locations and Geology (provided by Transition Metals Corp)

### 10.3 Induced Polarization Geophysical Survey

Quantec Geoscience Ltd. Of Toronto, Ontario was contracted to complete an Induced Polarization (IP) survey over the Haultain Property grid (Figure 6) between April 21<sup>st</sup> and May 4<sup>th</sup> 2011.

A total of 1.3-line km of pole-dipole array was completed on two lines, and an additional 10.4 line km was carried out over 14 lines using a gradient array.

The pole-dipole IP survey was effective in highlighting contacts between sheared ultramafic rocks, syenite dykes, and mafic metavolcanic rock units. It is an excellent tool for geological mapping in areas obscured by overburden. In addition the pole-dipole array is also an excellent tool for identifying areas of coincident high chargeability and high resistivity which are commonly associated with environments prospective for hosting gold mineralization. On the two 2011, Quantec pole-dipole survey lines, three areas have been identified of coincident high chargeability and high resistivity. These conditions are considered favourable to host gold mineralization (Figure 8b). Two of these anomalous areas (Target A and C) are close to surface and located just outside of the areas stripped around Trench-3. The third anomalous zone (Target B) is located at a depth of approximately 150 metres below the down dip trend of the syenite intrusions. It is recommended that these geophysically anomalous zones be investigated.

The gradient array outlined chargeability signatures in a rough correlation with the thicker accumulations of ultramatic metavolcanic rocks and metasediments. In the southwest corner of the grid, a large zone of chargeability was outline that corresponds to an elevated soil gas gold signature exhibiting a redox cell response with elevated multi-element MMI values. The resistivity component of the gradient array registered well with interpreted faults and intrusive rocks. The authors do not consider the gradient array survey to be an effective tool to influence drill targeting.

The authors recommend that prospective portions of the property be covered by a pole-dipole IP survey in order to better define the geometry of identified features and identify new drill targets.

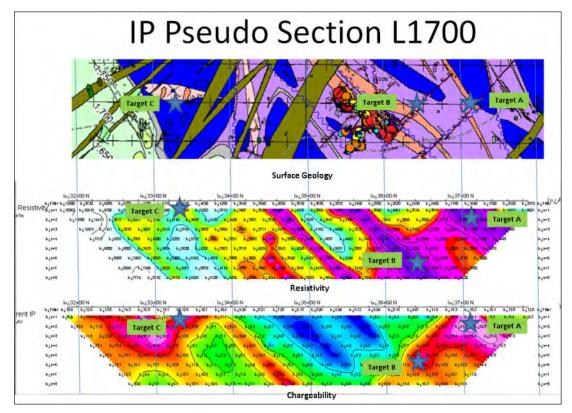


Figure 8b, IP Pseudo Section L1700 (provided by Transition Metals Corp)

## 10.4 Soil Gas Geochemistry Survey

In 2011, Transition Metals Corp collected 369 soil samples over the established cut grid located on mining claims 3000444 and 1248799 (Figure 6). The samples were analyzed by Actlabs of Ancaster Ontario utilizing their Soil Gas Hydrocarbon method and reported on in a report by Sutherland (2011). Sutherland (2011) reports that the survey delineated one large apical zone in the north- west corner of the grid and five smaller apical anomalies, and a large redox cell anomalies (Figure 9). The solid black outlines in Figure 9 depict the outlines of identified responses considered to be favourable indicators for the presence of gold mineralizing systems while the dashed outline highlights a response considered consistent with a buried concentration of oxidizing sulphides, known as a redox cell. The large redox cell anomaly is rated at a 5.5 out of 6.0 where one is the weakest grade association anomaly and six the strongest grade association anomaly. The other five soil gas apical anomalies grade at 4.5 on the anomaly scale. Apical anomalies are interpreted to be representative of the vertical projection of the centre of mineralization.

It is interesting to note that the many of the soil gas anomalies trend in a northwesterly line cross cutting the strike of the geology but are parallel to the strike direction of some of the known faults.

## SGH "GOLD" PATHFINDER CLASS MAP – TRANSITION METALS CORP. HAULTAIN SURVEY

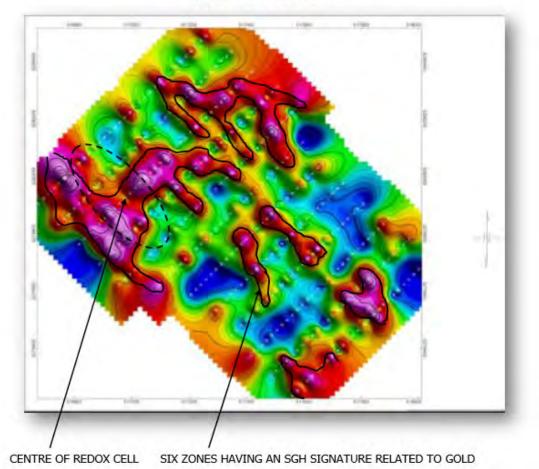


Figure 9, Soil Gas Hydrocarbon Gold Pathfinder Plan (after Sutherland, 2011)

## 10.5 Mobile Metal Ion Geochemistry Survey

Four lines of "B" horizon soil samples were collected between 2014 and 2015 and processed for mobile metal ion (MMI) analysis. A total of 79 samples were analyzed by SGS Laboratories utilizing the MMI-M method which reports values for 53 elements with some elements as low as 0.05 ppb. The data was reported as raw analytical values with no interpretative report prepared. Figure 10 depicted below plots gold values from the MMI survey on top of geology and the contoured gold signal response obtained from the Soil Gas Hydrocarbon Survey. Orange dots represent those samples returning gold analysis above the second standard deviation of the data set, with red dots indicating gold values above the third standard deviation. Transition geologists have observed that the highest MMI gold values occur within broader envelopes of pathfinder elements including silver and tellurium with the best gold values occurring in close proximity to the northwest shear.

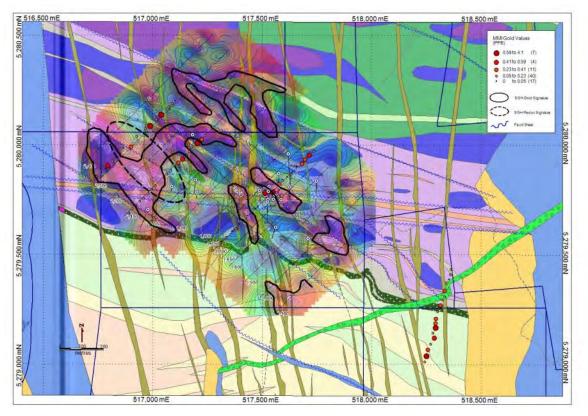


Figure 10, Compilation MMI, Soil Gas, and Geology (provided by Transition Metals Corp.)

## 10.6 Magnetic Susceptibility

As part of the geological mapping programme, magnetic susceptibility readings were taken of the various rock types encountered over the Haultain property in an effort to better undertand the physical rock properties to assist the interpretation of magnetic geophysical responses and to aid geological mapping. The results of the data are provided in Table 3 and show that there is a wide range of overlapping values particularly with the various syenites and felsic dykes.

Rock Type	Magnetic Susceptibility				
	Lower Limit	Upper Limit	Average		
Ultramafic volcanic	0	8.68	1.08		
Mafic Volcanic	0.21	0.51	0.3		
Intermediate Volcanic			0		
Felsic Volcanic	0	0.03			
Iron Formation	356	518	437		
Archean Sediment	0.08	0.57	0.37		
Archean Gabbro	0.5	22.5	8.3		
Ultramafic Intrusive	61.3	102	78.2		
Monzonite	0.13	0.26			
Syenite	0	19.2	2.29		
Syenite - Green Micaceous	0	10.7	1.43		
Syenite - Fragmental	1.35	6.88	3.48		
Matachewan Diabase	0.11	0.51	0.3		
Felsic Intrusive	0.15	0.96	0.5		
Gowganda Formation	1	10	3		
Sudbury Dyke	13.4	15			

Table 3: Magnetic Susceptibility readings\_(provided by Transition Metals Corp.)

### 10.7 Petrography

A Master of Science research study was completed in 2014 by Natalie Chu with a focus on the mineralogical and geochemical classification of the syenitic rocks on the Haultain Property. The report adopted a classification scheme for the syenites base on an igneous petrographic system looking at relative concentrations of quartz and alkali and sodic plagioclase. The report suggests that the mineralogical characteristics of mineralized intrusions identified at Haultain are similar to the syenite identified at the Young Davidson deposit, in Matachewan. The Young-Davidson deposit is an example of a syenite-host gold exploration model (Martin 2012).

### **10.8 Exploration Expenditures**

The total estimated of mineral exploration expenditure since commencement of work on the Haultain property in 2010 to August 2016 is estimated to be \$1,022,000. See Table 4 for a summary of Transition Metals Corp exploration expenditures.

Description	Exploration Expenses
Salaries and Labour Costs	298,513
Camp and Accommodation	77,231
Exploration Expenses and Supplies	47,183
Line Cutting	7,410
Geophysical Surveying	49,403
Diamond Drilling	231,776
Assays	186,921
Transportation	11,563
Environmental, Health and Safety	38,370
Property Maintenance	73,630
<b>Total Project Exploration Expenditures</b>	\$1,022,000

Table 4 Haultain Project Exploration Expenditures, July 2010 – Aug 2016

(Exploration Expenditure Table provided by Transition Metals Corp.)

All geological, engineering and supervision on the mineral exploration portions of the programme were overseen by geological contract staff of Transition Metals Corp, principally by Mr. Thomas Hart, P.Geo., and Mr. Greg Collins, P.Geo., Chief Operating Officer for Transition Metals. All exploration programmes were designed by the geological staff of Transition Metals Corp and based on the analysis of the results of the previous exploration programmes on the Haultain Property.

The authors of this report, discussed exploration objectives and layout with Mr. Greg Collins and Mr. Steven Flank during the site visit to the project. During the site visit, the authors witnessed the exploration workings on site and observed that they were consistent with the standards for the industry, and no abnormal conditions were encountered.

## 11.0 DRILLING

All geological, engineering and supervision on the diamond drilling portions of the exploration programme were overseen by geological contract staff of Transition Metals Corp, principally by Mr. Thomas Hart, P.Geo., and Mr. Greg Collins, P.Geo., Chief Operating Officer for Transition Metals. All drilling programmes were designed by the geological staff of Transition Metals Corp and based on the analysis of the results of the previous exploration and drilling programmes on the Haultain Property.

The authors of this report, discussed exploration objectives and layout of the individual diamond drill holes, as well as logging and sampling procedures with Mr. Greg Collins and Mr. Steven Flank during the site visit to the property. During the site visit, the authors witnessed several of the drilling sites in the field and the current diamond drill core storage facility and observed that they were consistent with the standards for the industry, and no abnormal conditions were encountered. Now having said that, the authors did note that geologists logging the drill core were not making use of Potassium Ferricyanide iron stain, a chemical stain commonly referred to as 'blue juice' and frequently used by geologists in the Matachewan and Shining Tree gold camps to identify iron carbonate alteration a strong pathfinder to gold mineralization in the area.

# 11.1 2010 Diamond Drilling Programme

In November 2010, two NQ- size diamond drill holes totalling 166 metres were completed by Foraco Canada (Table 5, Figure 11). The first hole (TMH10-01) was designed to intersect and obtain a continuous sample at shallow depths of altered and mineralized structures and stratigraphy beneath the exposed central portion of Trench-3 and to further establish the dip of the formations exposed at surface. The second hole (TMH10-02) was designed to assess the depth extent and continuity of gold mineralization associated with the ladder vein structures associated with the Annie's Ladder showing (Collins and Hart 2011). The descriptions of these holes are presented in a report by Hart (2011), and Table 6 provides a listing of significant down hole core length intersections encountered (true thickness is unknown).

Drill Hole	UTM Easting	UTM Northing	Azimuth	Dip	Length (m)
TMH10-01	517527	5279788	175°	-45°	101.0
TMH10-02	517550	5279753	320°	-50°	65.0
Total					166.0

Table 5, 2010 Drill Hole Collar Locations

# 11.2 2011 Diamond Drilling Programme

Nineteen (19) NQ-size diamond drill holes totalling 2,085 metres were completed on claim 1248799 between September and December 2011 by Cabo Drilling Corp operating out of their Kirkland Lake Ontario facilities (Table 6, Figure 11). The objectives of the drill programme were to further test the extent and geometry of mineralization identified by previous programmes in and around Trench-3, and to obtain continuous bedrock samples down-dip from new occurrences of gold mineralization exposed by mechanical stripping in the summer of 2011. The following paragraphs include excerpts from Kuuskman (2012) who reported on the 2011 Transition Metals Corp drilling programme on the Haultain Property.

Hole Number	Easting	Northing	Elevation (m)	Azimuth	Dip	Casing (m)	Length (m)
TMH11-003	517578	5279809	345	180°	-50°	0.0	101
TMH11-004	517531	5279810	345	180°	-50°	2.5	87
TMH11-005	517488	5279793	345	175°	-50°	2.5	95
TMH11-006	517585	5279750	347	300°	-50°	3.0	185
TMH11-007	517555	5279770	350	230°	-50°	1.7	56
TMH11-008	517525	5279752	353	300°	-50°	2.0	104
TMH11-009	517557	5279770	350	200°	-45°	2.0	35
TMH11-010	517522	5279740	353	180°	-50°	2.0	131
TMH11-011	517560	5279625	353	190°	-50°	0.0	83
TMH11-012	517625	5279808	350	180°	-50°	0.0	98
TMH11-013	517200	5279785	349	180°	-60°	0.0	53
TMH11-014	517195	5279840	349	180°	-50°	0.0	90
TMH11-015	517085	5279810	349	185°	-50°	0.0	50
TMH11-016	517182	5280046	350	175°	-60°	0.0	77
TMH11-017	517747	5279836	350	180°	-50°	2.0	182
TMH11-018	517618	5279960	351	180°	-50°	3.0	232
TMH11-019	517575	5279870	350	180°	-60°	3.0	167
TMH11-020	517700	5279575	345	180°	-50°	7.0	125
TMH11-021	516977	5279704	348	200°	-50°	5.0	134
						Total	2,085

Table 6: 2011 Drill Hole Collar locations (NAD83, UTM Zone 17)

In most areas on the property, the syenite units are interpreted to be westerly-striking and moderately north dipping with strike varying from west to a northwest-strike. To test syenite geometry, most of the holes were drilled on an azimuth of 180°.

The lithologies intersected in the drill programme were consistent with those lithologies observed and reported on in the field geological mapping and trenching programme.

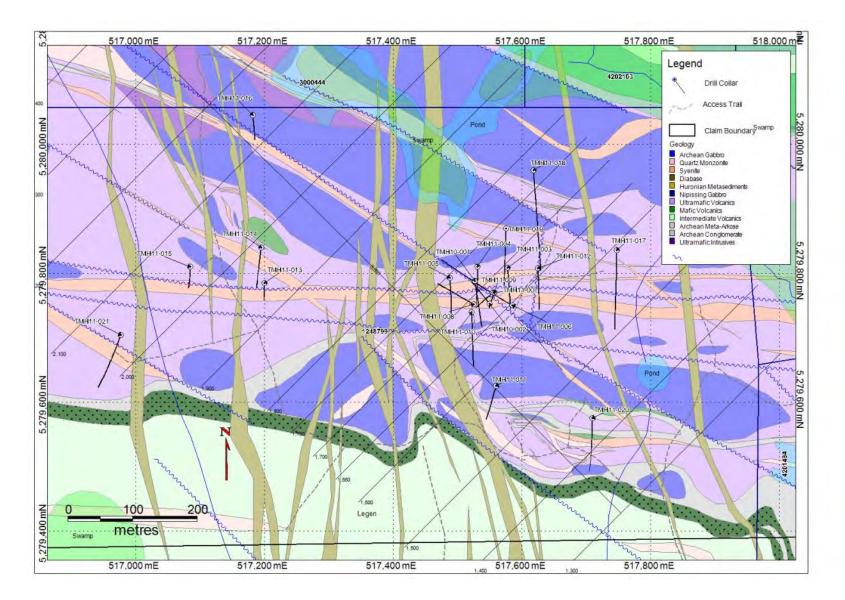


Figure 11: 2010-11 Drilling Plan and Geology (provided by Transition Metals Corp.)

### Drill Holes TMH11-003 to TMH11-005

Drill holes TMH11-003 through 005 were collared approximately 20 metres north of Trench-3, and were designed to test syenite geometry in the western, central and eastern portion of the trench (Figure 11).

Hole TMH11-003 was designed to test the syenite geometry near the eastern edge of Trench-3. The hole intersected a sequence of variably silicified, chloritized, and carbonatized komatiitic metavolcanic rocks, intruded by numerous syenites dykes. Extensive quartz/carbonate (ankerite) veining was observed in the syenites. Fuchsite alteration occurred sporadically in the komatiitic metavolcanic between 47.59 to-99.95 metres. A sample containing 6.57 g Au/t across 0.64 metres was returned from 61.94 to 62.58 metres down hole depth (Table 7).

Hole TMH11-004, collared 50 m west of TMH11-003, was designed to undercut TMH10-001 and test syenite dyke geometry (Figure 11). This hole intersected similar geology to TMH11-003. The best assay value was obtained in a komatilitic ultramafic metavolcanic containing up to 7% pyrite between 15.06 to-15.86 metres, which returned a value of 2.96 g Au/t (Table 6). A massive to brecciated green syenite with a chloritic groundmass returned 1.82 g Au/t between 24.15 to-24.56 metres (Table 7).

Hole TMH11-005, collared 50 m west of TMH11-004, was also designed to test syenite dyke geometry (Figure 11). This drill hole intersected similar geology to TMH11-003 and TMH11-004. From 53.78 to-95.00 metres the hole passed through a Matachewan diabase dyke. Assay results from this hole include 1.34 g Au/t between 13.97 to-14.6 metres from a carbonate banded ultramafic metavolcanic located between two grey syenite dykes (Table 7).

#### Drill Holes TMH11-006 to TMH11-009

These holes were drilled to test quartz vein geometry, and were oriented to drill at an angle thought to be closer to the perpendicular with the veins and down the dip of the syenite dykes. Hole TMH11-006 was collared southeast of Trench-3. This hole intersected primarily syenite dykes, with various styles of syenite occurring between 3.84m and 96.76 metres. Gold assays cannot be directly correlated with the width or wall rock alteration of the quartz veins but values greater than 1 g Au/t were found in intervals with stockwork quartz veinlets (e.g. sample: I801073, from 93.6 to 95 metres returned- 1.17 g Au/t) as well as intervals with 2 cm quartz veins and 2-3% euhedral pyrite (e.g. sample: I801063, 86.42 to 87.00 metres returned 1.17 g Au/t, Table 7). A down hole length weighted average assay of 0.66 g Au/t over 16.09 metres occurs between 91.17 to 107.26 metres (Table 7).



Figure 12: Photo of Syenite in TMH11-006 (provided by Transition Metals Corp.)

Drill hole TMH11-007, collared on the eastern wing of the Trench-3 was designed to undercut TMH10-002 and test quartz vein geometry. This hole intersected irregularly altered syenites overprinted by fracture filling quartz/iron-carbonate veining. The hole intersected altered ultramafic metavolcanic rocks with green carbonate, fuchsite, and alteration from 50 to 53 metres. Assay results from this hole returned several intervals of elevated gold values in syenites including 4.58 metres grading 1.56 g Au/t from 8.92 to 13.5 metres, and 0.97 metres grading 1.47 g Au/t from 18.07 to 19.04 metres. A 1.5m interval of brecciated ultramafic metavolcanic drill core returned a grade of 3.9 g Au/t from 41.0 to 42.5 metres (Table 7).

Drill hole TMH11-008, was collared on the western wing of Trench-3 with an azimuth of 200°. This hole collared in syenite which continued until 81.54m where it intersected Matachewan diabase and several 3 to 7m intervals of ultramafic volcanic rock. Several intervals within syenite units returned elevated gold values including 1.97 g Au/t from 2.77 to 6.1 metres, and 2.73 g Au/t from 50.3 to 51.41m and 6.27 metres grading 0.61 g Au/t from 20.95 to 27.22 metres and also 1.14 g Au/t from 20.95 to 22.38 metres. (Table 7)

Drill hole TMH11-009, collared adjacent to TMH11-007 was designed to undercut TMH10-002 to intersect a series of flat lying veins (Figure 11). This hole intersected a 1.22m flat quartz vein between 9.2 and 10.42 metres. Assay results from this vein include 2.3 g Au/t between 9.02 and 9.43 metres and 7.59 g Au/t between 9.97 and 10.48 metres (Table 7). The best interval assayed in this hole was between 34.65 and 35 metres, grading 42.71 g Au/t (Table 7). This interval contained a 9cm quartz vein host by fragmental syenite, with 1% chalcopyrite and 3% fine- grained pyrite between 34.65 and 35 metres.

#### Drill Holes TMH11-010 to TMH11-012

Drill hole TMH11-010 was drilled south from Trench-3 to test the stratigraphy in a topographic low (Figure 11). It intersected a sequence of erratically altered ultramafic and mafic metavolcanic rocks. The ultramafic metavolcanic is distinguished from the mafic metavolcanic based on the presence of talc and an intense chloritization. The ultramafic metavolcanic provided the best assay values including 1.27 metres grading 1 g Au/t from 10.57 to 11.84 metres and 0.38 metres grading 1.135 g/t from 26 to 26.38 metres (Table 7).

Drill hole TMH11-011 was collared south of Trench-3 to extend the stratigraphic section commenced with hole TMH11-010, and to test gold bearing metasedimentary rocks in vicinity of bounding fault in Sherry's West and East trenches, and the northern extension of the Trench-2 syenites (Figure 11). The hole entered into Matachewan Diabase at 63 metres and was terminated at 83 metres. No values of economic significance were returned from samples collected in this hole.

TMH11-012 was collared east of Trench-3 to test from the strike extension of the syenite dykes to the northeast of Trench 3 towards the Trench 10 area stripings. The first 53 metres of the hole consisted of a metavolcanic flow sequence grading from ultramafic to mafic with textures including banding, spinifex and deformed pillows. This 53-metre interval had poor core recoveries (< 80%) and contained eleven zones of lost core greater than 40cm. The best intervals from this hole were 0.66 metres grading 0.83 g Au/t from 72.1 to 72.76 metres and 1.49 metres grading 0.72 g Au/t from 74.26 to 75.75 metres, both host by ultramafic metavolcanic rocks (Table 7).

### Drill Holes TMH11-013 to THM11-014

Hole TMH11-013, collared in the middle of Trench-5, was designed to undercut the south end of Trench-5 and test the geometry of the syenite dykes (Figure 11). A 23-metre syenite dyke swarm was intercepted by drill core in this hole. Further down hole from the syenite dykes is a dark blue green to light green ultramafic schist which continues to hole termination at 53 metres. The best intervals from this hole were 1.87 metres grading 1.26 g Au/t from 19.66 to 21.53 metres, and 0.45 metres grading 0.83 g Au/t from 25.2 to 26.65 metres (Table 7). The lithologies hosting these intervals are red syenite characterized by a red matrix with 5 to 10% beige mica, and a fragmental syenite that is similar in composition to the red syenite but with 5% sub-angular mafic clasts that are < 2cms. There appears to be an association between gold and the red syenite suggests in the vicinity of Trench-5.

Hole TMH11-014, collared at the north end of Trench-5 was designed to intersect the two syenite dyke swarms observed in Trench-5 (Figure 11). A 15-metre thick swarm of syenite dykes was intersected between 74.9 and 90.72 metres and correlates with the syenite dykes hosting gold mineralization located in the south end of Trench-5. The best intervals from this hole include a length-weighted average of 2.06 g Au/t over 1.31 metres from 44.84 to 46.15 metres, including a 2.64 g Au/t from 44.84 to 45.35 metres (Table 7). This interval is host by an isolated 3-metre interval of purple syenite within the ultramafic volcanic.

The two holes drilled under Trench-5, TMH11-013 and TMH11-015 had assay values lower than those contained in the channel samples collected from the overlying trench. These disappointing assay results could either be due to a nugget effect on the mineralization present in the syenite or the holes failed to intersect any of the northerly striking quartz-carbonate veins observed on surface.

### Drill Hole TMH11-015

Drill hole TMH11-15 was collared north of Trench-6 was designed to undercut the trench and test both the stratigraphy and the subsurface extension of the 97.6 g Au/t assay obtained in the 2011 channel sampling programme (Figure 11). The hole intersected a 15-metre syenite dyke swarm composed of purple, grey, green and red syenites. The dykes contain minimal quartz-carbonate veining, nor any no quartz veining host by red syenite. A Matachewan diabase dyke intrudes into syenite swarm and the hole was terminated. The 97.6 g Au/t surface channel sample host in a fragmental syenite, was not intersected in this hole and most likely displaced by the intrusion of the Matachewan dyke. The best interval in this hole returned 0.51 g Au/t over 0.5 metres from 44.62 to 45.12 metres (Table 7).

#### Drill Hole TMH11-016

Drill hole TMH11-016 was collared at the north end of Trench-7 at an azimuth of 175°. It was designed to test the stratigraphy and investigate the gold potential of the mapped monzonite unit (Figure 11). This hole intersected Archean gabbro varying from moderately foliated coarse-grained hornblende gabbro, to a fine-grained medium grey massive gabbro, that was intruded by monzonite, lamprophyre and syenite dykes. The best interval returned 1.36 g Au/t, between 37.4 and 38.1 metre (Table 7).

### Drill Hole TMH11-017

Drill hole TMH11-017 was collared north of Trench-10. The hole was designed to undercut the trench testing the subsurface extension of the overlying mineralized monzonites and syenites, and test the eastern extension of the syenites exposed in Trench-3 (Figure 11). This hole collared in ultramafic metavolcanic rocks with strong interstitial and banded carbonate alteration with massive, spinifex and foliated textures. The eastern extension of the Trench-3 syenites was intersected from 92.65 to 120.6 metres, and included all various phases observed on surface. The best intervals from this hole include 0.3 metres grading 0.84 g Au/t from 43.07 and 43.47 metres, 0.5 metres grading 0.75 g Au/t from 106.5 and 107 metres and 0.49 metres grading 0.42 g Au/t from 110.51 to 111 metres (Table 7).

#### Drill Hole TMH11-018

Drill hole TMH11-018 was collared approximately 50m northwest of Trench-9. It was designed to test the stratigraphy an area of thicker overburden (Figure 11). The hole was to test the western extension of the syenite dykes and fuchsitic komatiitic metavolcanic rocks exposed in Trench-9. The mafic metavolcanic rocks become ultramafic down the hole and exhibit strong talc-carbonate alteration. Minor dykes of gabbro, red syenite, monzonite and monzogabbro intrude the ultramafic metavolcanic rocks intersected in the hole. The best interval returned 1.92 g Au/t over 0.45 cm, from 123.75 to 124.2 metres host in monzonite with 15% feldspar phenocrysts and 1% disseminated pyrite (Table 7).

### Drill Hole TMH11-019

Hole TMH11-019 was collared approximately 125 metres north of Trench-3. It was designed to undercut a syenite outcrop north of Trench 3 as well undercut drill hole TMH11-003 and further test the down dip extent of the syenite dykes (Figure 11). A fragmental micaceous syenite dyke with massive granite clasts, between 5 to 40 centimetres in diameter was intersected between 84 and 87.33 metres as well as granodiorite (Figure 13) in contact with ultramafic schist. The last 25 metres of the hole were in ultramafic schist with light yellow green alteration near the upper contact with the granodiorite. The best intervals from this hole returned an length weighted average assay of 0.49 g/t over 25.85 metres from 100.17 to 126 metres, including 4.03 g Au/t over 0.41m from 121.29 to 121.7 metres (Table 7).



Figure 13: Granodiorite in TMH11-019

#### Drill Hole TMH11-020

Collared near the north end of Trench-2, hole TMH11-020 was designed to test the alteration zone hosting anomalous gold in Trench-2 and the eastasterly-trending structure running through the trench (Figure 11). From 31 to 36.8 metres, two, 1.5 to 2 metre thick syenite dykes with minor quartz veining were intersected. The hole ended in a 30 metre package of an intermediate metavolcanic flow rocks intercalated with siltstone and sandstone. The best intervals from this hole were host by the monzonite units, with assay results of 1.21 g Au/t over 0.45 metres from 39.15 to 39.6 metres and 1.795 g Au/t over 0.4 metres from 41.35 to 41.75 metres (Table 7). These intervals are the first examples from a drilled monzonite with gold values in excess of 1.0 g/t, providing a new exploration target on the property.

### Drill Hole TMH11-021

Hole TMH11-021 was collared to the northeast of Trench-8. having an azimuth of 200°. The hole was designed to test for mineralization beyond that exposed in Trench 8 and determine the stratigraphy down dip of the exposed syenites (Figure 11). The best intervals were host by the mafic metavolcanic rocks intersected near the end of the hole where 1.355 g Au/t over 1.48 metres from 123.77 to 125.25 metres, and 1.05 g Au/t over 1 metre from 128 to 129 metres were intersected (Table 7). The presence of elevated gold values in mafic metavolcanic rocks at this location suggest that further exploration should be considered in these areas of the property to better understand the nature and extent of this mineralization.

Hole	From (m)	To (m)	Length (m)*	Au ppm
	8.24	8.76	0.52	0.78
	18.1	19.45	1.35	0.5
TMH10-01	29.16	31.59	2.43	0.73
	38.3	41.8	3.5	1.72
	56.53	59.47	2.94	1.67
	2	5.3	3.3	1.46
	7.5	8	0.5	0.76
TMH10-02	23.22	25.39	2.17	3.29
TWIT10-02	26.88	27.22	0.34	0.83
	40.31	52	11.69	1.57
	52.39	55.15	2.76	0.8
	42.16	43.8	1.64	0.82
TMH11-03	58.8	63.16	4.36	1.94
	93.44	98	4.56	0.77
	15.06	15.86	0.8	2.96
	24.15	24.56	0.41	1.82
TMH11-04	29.65	30.73	1.08	1.77
	43.24	47.74	4.5	0.52
	78.15	82.5	4.35	0.51

Table 7, Significant Intersections 2010 & 2011 Drilling Programmes

TMH11-05	13.97	14.6	0.63	1.34
TMH11-06	38.61	39.82	1.21	0.57
	44	48.72	4.72	0.61
	91.17	107.26	16.09	0.66
	104	107.26	3.26	1.32
	8.92	13.5	4.58	1.56
TMH11-07	18.07	19.04	0.97	1.47
	41	42.5	1.5	3.9
TMH11-08	2.77	6.1	3.33	1.97
	20.95	27.22	6.27	0.61
	50.3	51.41	1.11	2.73
TMH11-09	8.42	15.48	7.06	2.37
	34.3	35	0.7	42.71
TMH11-10	10.57	11.84	1.27	1
TN41111 12	72.1	72.76	0.66	0.83
TMH11-12	74.26	75.75	1.49	0.72
	19.66	21.53	1.87	1.26
TMH11-13	25.2	25.65	0.45	0.83
	36.16	36.52	0.36	0.82
TMH11-12	44.84	46.15	1.31	2.06
TMH11-15	44.62	45.12	0.5	0.51
TMH11-16	37.4	38.1	0.7	1.36
TN41144 47	43.07	43.37	0.3	0.84
TMH11-17	106.5	107	0.5	0.75
TN 414 4 40	101.55	102.9	1.35	0.44
TMH11-18	124.2	125.78	1.58	0.89
	54.5	56	1.5	0.55
	82.6	83.15	0.55	0.76
TMH11-19	100.17	126	25.83	0.49
	142.5	143	0.5	0.47
	160.77	161.22	0.45	0.64
TMH11-20	39.15	41.75	2.6	0.68
	14.2	16.29	2.09	0.41
	49.53	52.17	2.64	0.54
TMH11-21	123.77	125.25	1.48	1.36
	128	129	1	1.05

\*Length intervals are core length, additional information is required to define the exact true width of these intersections.

## 12.0 SAMPLING APPROACH, PREPARATION, ANALYSIS and SECURITY

### 12.1 Bedrock Channel Sampling

Building on the knowledge acquired in the initial channel sampling programme from Trenches-1 through 4, during the summer of 2011 an additional six trenches, Trenches-5 to 10 and the northern extension of Trench-1 were excavated and stripped of overburden and washed with high pressure water pumps. This newly exposed bedrock was mapped at a 1:100 scale and this was followed by channel sampling of suspected mineralized material. Channel samples were cut 10 to 15 cm into bedrock over widths of 3-5 cm using a rock saw with a diamond blade. Individual samples were chiseled out, described, labelled, placed in sample bags and sealed. Lots of seven to ten samples would be placed in larger fabrene bags, sealed and made ready for shipping to the assay lab. Sample lengths were determined by lithology but restricted to being no less than 0.3 m and no more than 1.5 m. Resampling of some of the 2010 channels was also carried out to verify initial results.

### 12.2 Diamond Drill Core

Drill core was retrieved from the drill on a daily basis by the geological staff during their visits to the drill site.

Once the core boxes arrived at the logging facility in Gowganda, the boxes were laid out in order, the lids removed and the core was then laid out on the logging tables to check the core pieces for best fit, ensure correct depth marker placements, and the core measured to determine and record core recovery. The correct from-to of each box was recorded and labels attached to each box identifying hole number and from-to depths.

Core recovery was generally > 95% with the exception of a few highly fractured zones.

### 12.2.1 Geotechnical Logging

The rock quality designation (RQD) is a rough measure of the degree of jointing or fracture in a rock mass, measured as a percentage of the drill core in lengths of 10 cm or more. It is measurement used by geotechnical engineers to measure the strength of rock units, and some exploration geologist use it to identify the proximity of lithological or fault contacts. RQD was measured and the data input into the Gemcom GEMS core logging software GEMS-logger, a commercial Microsoft ACCESS based software tool.

### 12.2.2 Core Logging and Sampling

The drill core was descriptively logged on paper, and photographed (three boxes at a time). The descriptive logs recorded the different lithologies; alteration types and relationships; mineralization types and relationships, position and orientations of veins, fractures and other structures. During the core logging process the geologist would define the sample contacts and designate the axis along which to split the core with special attention paid to the mineralized zones to ensure representative splits. This information was transferred on site to the Gemcom GEMS core logging software GEMS-logger, which is an Access database (Figure 14). Included in the information transferred into GEMS-logger were sample numbers and intervals.

Sampling protocols required sample widths to remain within zones of like mineralogy, lithology, vein, structure, or alteration zone and be no less than 0.3m and no more than 1.5m.

In most cases, entire drill holes were sampled with each sample interval recorded in the drill log and in a sample tag book. Sample intervals were identified on the drill core by China Marker with the last three digits of each sample number identified written on the drill core at the end of each sample. Drill core sample was then cut in half down its axis using a core saw equipped with a diamond blade. Once the core was cut, one half of the core was placed into a sequentially numbered plastic sample bag conforming to the numbers identified in the sample tag book along with an identification tag from the sample tag book and the bags were securely fastened. The other half of the drill core was returned to the core box in its original position for future reference. The boxes containing the remaining half core were stacked and stored. Sample numbers and corresponding intervals were recorded on paper and transferred on site into Gemcom GEMS core logging software GEMS-logger. A field geologist in the employ of Transition Metals Corp. supervised this work.

Groups of seven to ten sequentially numbered samples in plastic sample bags were then placed in Fabrene shipping securely closed with zip ties at the field office in Gowganda and transported by Transition personnel directly to the ALS-Chemex facilities in Sudbury, Ontario for sample preparation.

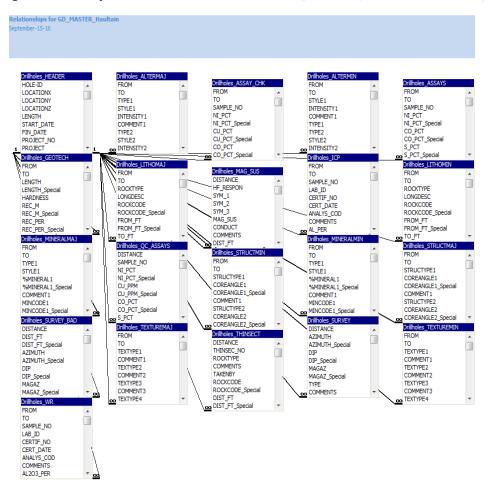


Figure 14: Snapshot of Drill Hole Database (provided by Transition Metals Corp.)

### 12.3 Sample Database

Information from core logging was input into the Transition Haultain database, includes:

- Location data collar location for drill hole was input in NAD 83, Zone 17 UTM coordinate system
- Down hole data includes major and minor lithology, structure, mineralization and alteration, core recovery, RQD, and descriptions
- Assay Sample data includes numbers and intervals, sample date and assays, lab certificate numbers
- Down hole orientation surveys Drill hole number, true azimuth and hole inclination obtained using a REFLEX magnetic azimuth orientation and clinometer dip orientation tool, corrected for magnetic declination.

Physical sample preparation and analysis for gold was completed by ALS-Chemex in Sudbury, Ontario and North Vancouver, British Columbia. ALS-Chemex is a public company and the world's largest provider of state-of-the-art analytical services; ALS-Chemex is independent of Aldershot Resources and Transition Metals Corp. ALS-Chemex procedural and analytical methods comply with international standards ISO 9001:2000 and ISO 17025:2005.

### 12.4 Sample Analyses

On arrival at ALS Chemex, Sudbury, the samples were dried as required, and crushed to 70% less than 2 mm or better using a jaw and/or roller crusher. The crushed sample was split using a riffle splitter and an approximately 250 g split was pulverized to 85% less than 75 microns or better using a ring and puck grinding mill. The pulverized splits of the samples were transported by ALS-Chemex to their facility in North Vancouver for analyses. All samples were analyzed by fire assay for gold and for multiple elements from an aqua regia leach.

The following method descriptions were supplied by ALS-Chemex.

Channel and core samples of sampling were analyzed by the fire assay using the Au-ICP22, this technique requires that a 30 g aliquot be fused with a mixture of lead oxide, sodium carbonate, borax, silica and other reagents as required, inquarted with 6 mg of gold-free silver. The resulting lead button is cupelled to remove the lead and yield a precious metal bead. The bead is digested in 0.5 mL dilute nitric acid in the microwave oven. Then 0.5 mL concentrated hydrochloric acid is added and the bead is further digested in the microwave at a lower power setting. The digested solution is cooled, diluted to a total volume of 4 mL with de-mineralized water, and analyzed by inductively coupled plasma-atomic emission spectrometry (ICP-AES) against matrix-matched standards. The upper and lower limits for gold by this method are 10.0 and 0.001 ppm respectively.

A select group of the channel samples were analyzed by the fire assay, using the Au-ICP21, technique where a 50 g aliquot is used but otherwise follows the same procedure as the preceding description with adjustment to reagent weights and measures to properly process the larger sample aliquot. The upper and lower limits for gold by this method are the same as the AU-ICP21, or 10.0 and 0.001 ppm respectively. This method is used where nugget gold is suspect.

Any samples that exceeded the upper limits of the AU-ICP22 method for the fire assay gold analyses were re- analyzed using a gravimetric Au-GRA22 method finish. In particular, any

sample returning fire assay values greater than 3.0 g Au/t were flagged to be automatically rerun by ALS-Chemex using a full gravimetric analysis (Au-GRA22).

A gravimetric finish involves the bead that is produced by fire assay fusion and cupelling being placed in dilute nitric acid which dissolves the silver and leaves a bead of gold. The gold bead is weighed, and this weight is then used to determine the original grade of the sample. The upper and lower limits for gold detection by this method are 10,000 and 5 ppm respectively.

Channel and core samples were submitted for a multi-element analysis by the ME-ICP41 technique which involved the prepared sample being digested with aqua regia in a graphite heating block. After cooling, the resulting solution is diluted to 12.5 mL with deionized water, mixed and analyzed by ICP-AES. The analytical results are corrected for inter element spectral interferences. It should be noted that in the majority of geological matrices, data reported from an aqua regia leach should be considered as representing only the leachable portion of the particular analyte.

### 12.5 QA-QC Programme

### 12.5.1 Standards and Blanks

During 2011 drilling programme, sampling procedures included the insertion of internal standards at a frequency of one sample per 25 core samples submitted. The reference standard utilized was SJ53, a certified standard reference material prepared and purchased from Rocklabs Ltd. of Auckland New Zealand (Appendix A). This standard has been analyzed at 43 commercial laboratories and contains an average gold content of 2.637 g/t gold. The standard material was purchased in a 2.5 kg wide mouth jar, sample packets containing approximately 50 g of material prepared on site for insertion into the sample train and submission to the lab. A total of 76 internal standards were submitted to ALS-Chemex for multi element ICP analysis and fire assay. The standards did show good replication with an exception of Sample I528377. See Figure 15. Reported results are believed to be within acceptable limits.

Core blanks were inserted into the sample preparation sequence following intervals with any visible gold mineralization or suspicion from the geologist that a sample interval could contain elevated gold values. The intent of this methodology was to assess the possibility and extent of sample preparation contamination. The blank samples consisted of NQ sized core samples of felsic norite, a well-known and commonly used barren reference material collected from drilling the upper portions of the Sudbury Intrusive complex. During the 2011 drill programme a total of 15 blanks were submitted to ALS-Chemex. Based on the results with exception of Sample 1801399, the blank samples show insignificant amounts of contamination from the sample preparation and procedures as shown in Figure 16.

As results were received from the ALS-Chemex, assay certificates were reviewed to inspect and compare results of internal standards. If an internal standard or blank was flagged as being sufficiently different by more than 2-standard deviations of the expected mean value of the reference material, results from the certificate were deemed to have failed and investigative and corrective measures were taken, which included review of the tag books, core and database for any entry errors during sample preparation, or to assess whether sample sequencing issues could have occurred at the lab. In cases where no explanation for a standard failure were apparent and the internal QA-QC protocols used by ALS-Chemex did not detect issued with the analytical systems, Transition instructed the ALS-Chemex to re-run analysis on the sample

reject material. In cases where the internal QA-QC of ALS-Chemex did not trigger a failure, but did highlight what Transition considered to appear to be problematic analysis, Transition would instruct ALS-Chemex to re-run the pulps.

The results of the QA-QC reference material (SJ53) submitted by Transition Metals appear to be reasonably accurate, displaying a good degree of repeatability. Results of the analyses on the blank material of felsic norite submitted by Transition Metals, and the results of the laboratory duplicates, suggests that contamination during sample handling, cutting and laboratory preparation and analyses was insignificant.

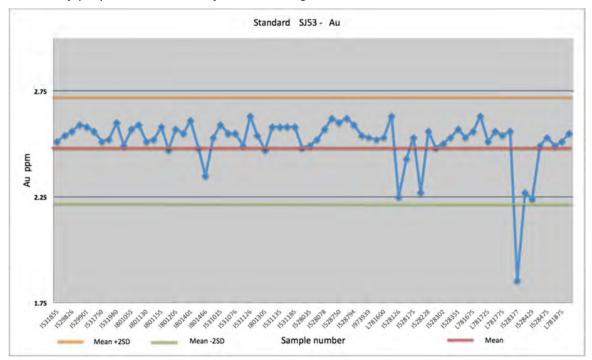


Figure 15, Rock Labs Standard SJ53

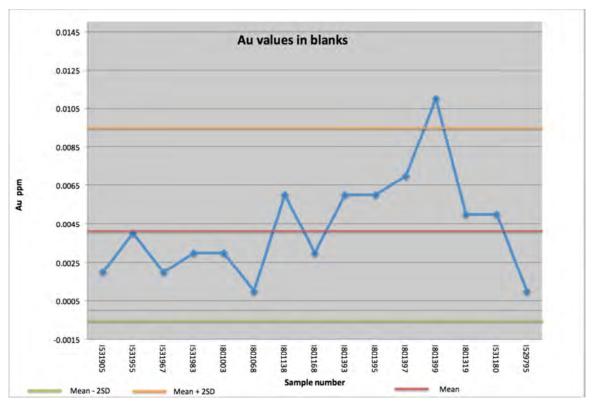


Figure 16 Blank Felsic Norite

## 12.5.2 Duplicates

Variability displayed by the results of the field duplicate assays suggests that there is a 'nugget effect' related to coarse size fraction gold grains. The nugget effect in assay samples can be minimized to some point by smaller/shorter rather than larger/longer sample sizes so that more of the samples are pulped and the aliquot analyzed is more representative of the whole sample (Kuuskman and Hart 2011). However, the shorter sample length does not guarantee that the gold grain will be included in the aliquot analyzed as the same vein sampled previously.

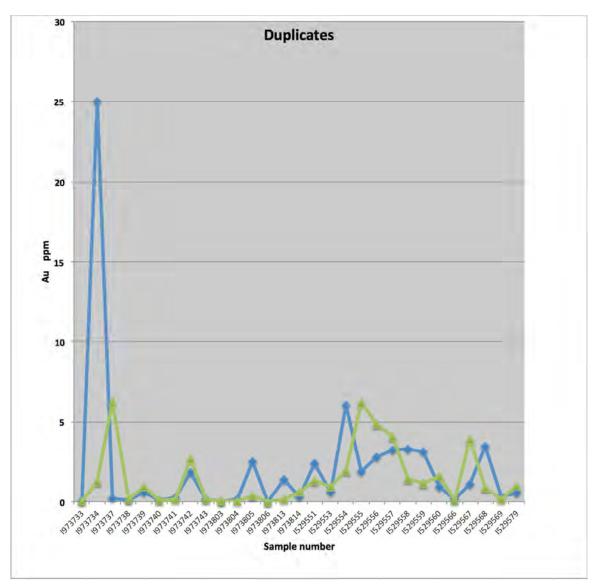


Figure 17: Summary of Original Assays vs Field Duplicates

### 13.0 DATA VERIFICATION

Transition Metals Corp's mineral exploration data has been entered into a number of digital data tables which are stored on a secure server in Sudbury Ontario. Files on the server are backed up daily and stored at a secure location off site. The data tables exist in formats that can be easily imported into various computer programs for statistical data message, or for use in GIS mapping programs such as *MapInfo, ArcGIS*, or *Oasis montaj*. The authors have completed an audit of the data and found it to be complete and correct.

The authors visited the Haultain Property on August 29<sup>th</sup> and 30<sup>th</sup>, 2016 in the company of Mr. Greg Collins P.Geo., Chief Operations Officer of Transition Metals Corp and Mr. Steven Flank P.Geo., Project Geologist with Transition Metals Corp. During the site visit the authors collected eight samples to independently verify the mineralization on the property (Figure 18). These samples were secured by the author, L. D. Burden P.Geo and accompanied by him to the SGS Laboratory in Lakefield Ontario where they underwent analysis.



Figure 18, Collecting Samples for Check Assays Aug 23, 2016

During the site visit, areas of stripping, trenching, and channel sampling, the locations of several drill holes, a property claim post and lines, and the core storage facilities in Gowganda were visited (Figure 19). Specks of visible gold were seen in situ at some trenched locations.



Figure 19, Inspecting Physical Work August 23, 2016

The authors arranged for all of the samples collected to be analyzed for gold. Samples underwent SGS procedure GO FAA505 for ore grade gold analysis by standard fire assay techniques where a 50 g aliquot of crushed and pulverized material is mixed with flux and fused using lead oxide at  $1100 \,^{\circ}$ C, followed by cupellation of the resulting lead button. The bead is than dissolved using 1:1 HNO<sub>3</sub> to HCl and the resulting solution is analyzed by Flame Atomic Absorption Spectrometer (AAS)- with an AAS finish. The analyses were completed at the secure site of SGS Laboratories in Lakefield Ontario. The locations and details of the authors check sampling, analytical results, and where available the twinned sample collected by Transition Metals Corp is summarized in Table 8 and Table 9. Appendix B contains the assay certificates from SGS.

Sample Number	UTM mN	UTM mE	Description
23467	5279753	517555	Twinned 0.55 m channel sample of Transition sample 1803367
23468	5279753	517552	Twinned 0.40 m channel sample of Transition sample 1803368
23469	5279753	517554	Twinned 0.40 m channel sample of Transition sample 1803369
23470	5279763	517539	Twinned 0.70 m channel sample of south half Transition sample 1803200
23471	5279762	517540	Twinned 0.70 m channel sample of north half Transition sample 1803200
23472	-	-	Drill hole TMH11-007 10.35 to 10.65 metres (remaining half core), Transition sample 1529950
23473	-	-	Drill hole TMH11-009 6.39 to 6.85 metres (remaining half core), Transition sample 1801386
23474	-	-	Composite grab of quartz vein material located south red alteration zone at east end of Trench-3

Table 8 Location and Details of Check Sampling

Sample Number	SGS Verification Assay ppm Au	Transition (ALS) Assay ppm Au	Transition Sample Number
23467	5.21	3.60	1803367
23468	1.56	1.89	1803368
23469	2.17	2.44	1803369
23470	0.70	0.72	1803200
23471	4.65	9.72	
23472	5.43	4.27	1529950
23473	0.03	0.019	1801386
23474	0.41	-	-

Table 9 Check Sampling vs Transition Sampling

The authors are satisfied that the comparison between the check assay results and the original assays obtained by Transition Metals Corp confirms the presence of gold mineralization, and where it is present it can be highly variable due to nugget effect.

During the site visit the authors also noted that the geology as indicated by the drill holes match for the most part the descriptions contained in the drill logs.

Transition Metals made use of temporary core logging facilities which are no longer accessible for review. Drill core for both the 2010 and 2011 programmes is stored in core rack adjacent to the old public school in Gowganda on lands currently owned by Tahoe Resources Inc. (Figure 20).



Figure 20, Drill Core Storage Gowganda Ontario

The author's review of the project also consisted of a review of all of the available material with respect to exploration programmes, including all the geophysical, geochemical and geological data and reports for the project. This information was provided to the authors by Transition Metals Corp.

## 14.0 ADJACENT PROPERTIES

The Haultain Property lays adjacent to the past-producing Gowganda silver camp which produced in excess of 60,000,000 ounces of silver, with two thirds of this coming from the Miller Lake O'Brien Mine (McIlwaine 1978). The bulk of the silver production in the Gowganda silver camp was concentrated approximately 1 km east of the north eastern boundary of the Property. These mines are found near the upper contact of the Nipissing gabbro/ diabase sill within carbonate veins which contain native silver associated with other cobalt-nickel -iron arsenide minerals. The Property is underlain by portions of the lower sill contact along this eastern boundary.

In 2014, Castle Silver Mines a wholly owned subsidiary of Takera Resources identified new zones of gold mineralization outcropping within the central portion of the Miller Lake basin in rocks identified as Archean metavolcanics. These newly discovered occurrences are approximately 2.4 km east of Transition's main gold showings located on mining claim 1248799. In 2016, Gold Bullion Resources announced that it had acquired property adjacent to Transition claim 4259076 from Takera and communicated its intent to further investigate the newly recognized gold potential in this area.

The southeast part of the Property is underlain more extensively by Nipissing gabbro and numerous trenches, pits, and shafts located there are a testament to extensive past surface exploration for silver. The only mineralization explored along the lower contact of the Nipissing gabbro sill in the Gowganda area is in vicinity of the Lower Bonsall Mine area. There is little information available for this property, which was part of the larger United Siscoe Mines property which included the Millerett and Upper Bonsall Mines and the Roy-Ten group of claims (McIlwaine 1978). Very little production is recorded from the Lower Bonsall, but McIlwaine (1978) reports that all of the ore mined in 1968 was at the lower contact of the Nipissing gabbro along an axis which plunged gently to the southeast. New ore was not encountered along this axis and underground operations were suspended in 1969.

The information on the adjacent properties has not been verified by the Qualified Person and is not necessarily indicative of the mineralization on the Property that is the subject of the current technical report.

# 15.0 MINERAL PROCESSING AND METALLURGICAL TESTING

No mineral processing or metallurgical testing has been conducted on this Property.

## 16.0 MINERAL RESOURCE AND MINERAL RESERVE ESTIMATES

No mineral resource or mineral reserve estimates have been reported.

## 17.0 OTHER RELEVANT DATA AND INFORMATION

No other relevant exploration data is known that may make this technical report understandable.

## 17.1. Phase-1 Environmental Study

In September of 2011, Blue Heron Environmental Management was contracted to conduct an independent Phase-1 environmental baseline study. A Phase-1 study is conducted under Ministry of the Environment regulations by or under the supervision of a qualified person to determine the likelihood that one or more contaminants may have affected any land or water on, in or under the property. The process involves multiple water monitoring events across the property, and provides a permanent record of conditions at that point in time. Water samples collected by Blue Heron were all within regulation.

## 18.0 INTERPRETATION AND CONCLUSIONS

Work to date on the Haultain Property by Transition Metals Corp. has been systematic and successful in discovering previously unrecognized occurrences of gold mineralization, and supports the thesis that the property exhibits favourable structural and geological conditions to host potentially economic deposits of gold. Mineralized trends currently identified by Transition remain open and undefined.

Since acquiring the Haultain Property, Transition Metals have undertaken a methodical and pragmatic approach to exploration of the property. To date they have completed the following:

- Property scale prospecting and geological mapping
- Detailed geological mapping and sampling over areas of significant potential
- Trenching and channel sampling over mineralized corridors
- Induced polarization (IP) geophysical surveys
- Soil Gas Hydrocarbon (SGH) geochemical survey
- Mobile Metal Ion (MMI) geochemical survey
- 2,251 metres of diamond drilling

Total exploration and diamond drilling expenditures incurred by Transition Metals to August 2016 are \$1,022,000.

The principal area of focused gold exploration by Transition Metals on the property has been on mining claim 1248799 where elevated gold assays within a 400 by 1,000 metre corridor have been returned in rock samples collected as part of mapping, trenching and diamond drilling programmes. Data derived from of airborne magnetic and ground Induced Polarization geophysical surveying, soil sampling, as well as from property and detailed scale geological mapping and diamond drilling programmes have been interpreted and modeled by Transition Metals Corp. geologists. This work has highlighted three prospective gold bearing environments and controlling structures that Transition geologists consider to be strong exploration targets that warrant additional investigation.

## Environment 1: Intrusion Hosted Stock-work Veining

Exploration work to date has focussed on determining the extent and distribution of gold mineralization within a series of syenitic intrusions exposed at surface on and in the vicinity of claim 1248799. These sheeted multi-phase dyke like intrusions are concentrated within

the central portion of a strongly sheared komatiite dominated metavolcanic unit where they run parallel to two common structural orientations.

The largest accumulation of gold bearing syenite dykes occur within a strongly developed shear zone that has an east-west orientation which dips northerly at 50° to 60°. Dykes within this corridor individually range from decimetres to several metres in thickness, but converge into masses or swarms ranging from 15 to 40 metres in thickness. The biggest swarm, referred to by Transition geologists as the Swain Swarm has been traced for approximately 2 kilometres.

A second orientation of dykes occupies structures running at an azimuth of 330°, and dips northerly at -50°. Transition geologists surmise that the east-west shear orientation may directly correspond to the interpreted extension of the Rideout structure and that the northwest oriented swarm may be occupying related tensional structures.

Gold mineralization within the syenitic dykes, has been identified occupying brittle tensional features occurring as native gold and tellurides within and along the margins of quartz-ankerite veinlets +/- tourmaline and microcline, or associated with zones of disseminated pyrite +/- chalcopyrite/sphalerite/galena developed around the quartz carbonate. Veining within the syenites is typically narrow and erratic, and frequently oriented on perpendicular orientations to the dyke contacts forming groupings of ladder veins and stock-works. Field relationships in outcrop provide evidence that the gold mineralizing event occurred during the emplacement phase of the syenites, and that subsequent intrusive activity and deformation occurred post mineralization.

Gold mineralization within the intrusion hosted environment is pervasive. The average of all assays collected within this intrusive environment is ~0.5 g Au/t. Locally, where there are strong potassic altered sections in this intrusive type environment it is typically overprinted by quartz/carbonate fractures and/or disseminated sulphides, and the average gold content increases. At Trench-3, the average of grab and channel samples collected in this environment over a 20 x 60 metre section of exposed syentite averaged 3.5 g Au/t.

#### **Conclusions:**

This environment appears similar to and consistent with a style of mineralization that is not uncommon to the region and is known to host economic concentrations of gold amenable to bulk mining methods both at surface and underground. Examples of similar deposits in the area that are currently being exploited include Aurico's Young Davidson underground mine in Matachewan, and the Agnico-Eagle Goldex Mine in Val d'Or, Quebec. Transition geologists interpret that a similar intrusive environment exists on the Haultain property and that large volumes of mineralized material may occur either close to surface or at depth. Additional exploration work is necessary to more fully assess the economic potential for open pit mining opportunities and test for higher grade material at depth.

Transition geologists have recognized that some of the best intrusion host gold values in the Trench-3 area occur along a northwest oriented corridor which coincide with the intersection between east-west, and northwest trending structures. This intersection may define a favourable plunge direction on which to pursue higher grade intrusion host material within the dyke swarms. Currently five potential intersection sites have been identified as exploration targets to be explored in the next phase of work on the property. However, targeting in this environment requires a strong understanding of the geology and the interacting structures and it is the opinion of the author that future targeting in this environment could be enhanced by a detailed review of all the existing structural information by a structural specialist.

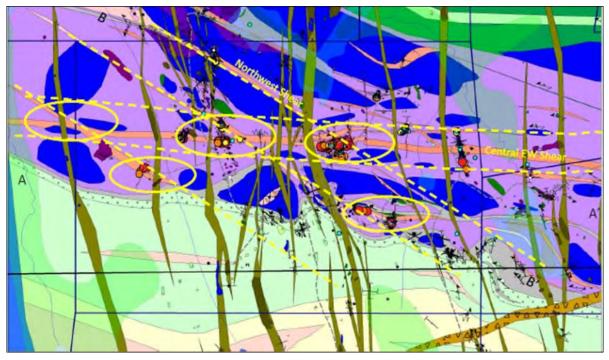


Figure 21, Intrusion Host Stockwork Veining Exploration Targets (provided by Transition Metals Corp.)

#### **Environment 2: Shear Hosted Gold**

Geological mapping and sampling have identified a second favourable environment for hosting gold mineralization as evidenced by the occurrence of narrow and discrete quartz veins occupying shear zones in the metavolcanic rocks adjacent to and surrounding the syenite intrusions and within other tensional fault structures active at the time of the gold mineralizing event(s).

Work to date has identified two mineralized shear environments. The South Central Shear vein system occurs within a strong east-west oriented shear zone cutting carbonatized ultramafic metavolcanics, gabbro and metasediments. This is best illustrated with the shear host veining exposed near the southern end of Trench-3 and is depicted in Figure 22 below. Drill hole TMH11-009 is interpreted to have intersected the extension of this zone and returned a sample assaying 86 g Au/t over 0.36 metres as the last sample in the hole.

The second identified shear zone has a north-west trending, north dipping orientation and is best exposed in Trench-7. Evidence from drilling and mapped features at Trench-3, supports an interpretation that this northwest trending shear may interact with the Swain syentite complex exposed at Trench-3 in the vicinity of a strongly mineralized section of syenite. Coincident soil gas and MMI geochemical results and elevated pathfinder group elements at surface and in drill holes TMH11-002, 004, 011, 014 and 016 provide strong evidence in support of this shear structure being a favourable host to gold mineralization. Transition Metals Corp have named this structure the Northwest Shear



Figure 22, (provided by Transition Metals Corp.)

# **Conclusions:**

To date, the shear hosted gold environment has not been directly targeted by Transition's exploration programmes on the Haultain property despite the fact that it is in this environment that the bulk of historical gold production from the Abitibi has come from. It is the opinion of the authors that additional work be completed along this structure including a pole-dipole Induced Polarization geophysical survey which should provide greater certainty to the existing geochemical targets located in association with these structures and deliver a focus to drill target selection.

## **Environment 3: Disseminated Sulphides**

Disseminated sulphide mineralization carrying elevated gold values have been encountered at two locations on the property. One is in the vicinity of the South Central Shear at Trench-3, where a chloritic gabbro unit located near the southern contact of the syenite dykes and metavolcanics rock, hosts coarse disseminated euhedral pyrite where a sample has returned 19.5 g Au/t. A similar style of mineralization was identified at what is interpreted to be a strike extension of this contact 400 metres to the east in Trench-1 where a sample of this material returned an assay value of 2.52 g Au/t.

## **Conclusions:**

The initial investigative test of gradient Induced Polarization geophysical methods completed on the property detected a zone of chargeability closely coincident to where this style of mineralization is identified at surface. Additional IP surveying on the property could be used to target this style of mineralization where exposures are poor, or at depth.

# 19.0 **RECOMMENDATIONS**

The geology of the Property appears favourable to host potentially economical deposits of gold in a manner akin to those deposits associated with other major gold camps in the Abitibi (Timmins, Kirkland Lake, Larder Lake, Val d'Or). Additional work to further assess the economic characteristics of the known gold occurrences and mineralized trends identified on the property is strongly recommended.

# **19.1 Proposed Exploration Programme**

The authors the observations made in this report, supports the concepts as outlined and it is our opinion that the property merits further exploration and believe the following proposed two phase plan is justified. A Phase-1 budget of \$454,720 is proposed (Table 10), and contingent on the results of the initial phase, a Phase-2 budget of \$1,139,152 is proposed (Table 11).

#### Phase 1

(1) Complete a detailed review of the existing structural date acquired in the geological mapping programmes and diamond drilling programmes to determine if there are any azimuths, dips or plunges to be considered when interpreting geophysical and geochemical anomalies and targeting future drill holes.

(2) Re-establish and extend the geophysical grid over the metavolcanic portions of the Haultain property.

(3) Complete a pole di-pole array Induced Polarization survey with an A-spacing no greater than 25 metres as well as a walking Gradient Magnetic survey. These surveys will better define features identified in the earlier Gradient IP survey, place geological contacts, and provide greater certainty to drill targets.

(4) Complete 2,000 metre diamond drilling programme to test identified geological, geochemical, and geophysical targets (Table 9a).

Proposed Hole	UTM Easting	UTM Northing	Length (m)	Azimuth	Dip	Objectives
AH-001	517300	5279825	125	180°	-50°	Test 330 °dyke swarm as it converges with Swain Syenite Swarm and South Central Shear
AH-002	517675	5279925	250	180°	-55°	Test intersection between South Central and Northwest Shears in vicinity of Swain Swarm Syenites
AH-003	517675	5279925	275	225°	-50°	Test coincident IP Chargeability and Resistivity at 150m vertical depth.
AH-004	517240	5280045	400	180°	-50	Test Northwest Shear between Trenches 3 and 7, a soil gas anomaly, and the South Central Shear
AH-005	516875	5279875	200	180°	-50°	Test soil gas redox anomaly located near the projected convergence of Swain and Southern Dyke Swarms
AH-006	507050	528000	350	190°	-50°	Test soil gas redox anomaly and extend hole through syenite dyke swarms and South Shear
AH-007	517050	5279700	150	180°	-50°	Investigate soil gas anomaly south of Trench-8 where another NW shear structure may exist
AH-008	516900	5279700	250	180°	-50	Follow up hole to investigate further anomalous gold intersected in hole TMH-021

Table 9a, Proposed Drilling Programme

Description	Exploration Expenses
Salaries and Labour Costs	40,000
Camp and Accommodation	7,000
Exploration Expenses and Supplies	7,500
Structural Compilation and Consultation	15,000
Line Cutting (15kms)	10,000
Induced Polarization and Gradient Magnetic Surveys	42,000
Diamond Drilling (2,000m)	200,000
Assaying	80,000
Vehicle Rental	3,000
Warehouse/Coreshack Rental	1,500
Subtotal	406,000
Permitting (2%)	8,120
Operating Admin Fee (10%)	40,600
Total Project Phase-1 Exploration Expenditures	\$454,720

# Table 10, Itemized Phase-1 Budget

# Phase 2

Contingent on positive results from the Phase-1 programme, a 30-hole 6,000 metre diamond drilling programme could be warranted at a cost of \$1,139,152.

# Table 11, Itemized Phase-2 Budget

Description	Exploration Expenses
Salaries and Labour Costs	120,000
Camp and Accommodation	18,000
Exploration Expenses and Supplies	15,000
Assaying	240,000
Diamond Drilling (6,000m)	600,000
Down Hole Surveying	10,000
Vehicle Rental	9,600
Warehouse/Coreshack Rental	4,500
Subtotal	1,017,100
Permitting (2%)	20,342
Operating Admin Fee (10%)	101,710
Total Project Phase-2 Exploration Expenditures	\$1,139,152

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## 21.0 STATEMENT OF THE QUALIFIED PERSONS

#### Statement of Qualifications Lorne D. Burden

I Lorne D. Burden, of the Town of Hastings, in the Province of Ontario, do hereby certify that:

- 1. I am a registered Professional Geoscientist, residing at 714 Baxter Road, Hastings, Ontario, K0L 1Y0.
- This certificate is to accompany the Report entitled: '43-101F1 Technical Report Aldershot Resources Ltd., Haultain Property, Haultain, Nicol, Milner and Van Hise Townships, Ontario (NTS 41P10); for Aldershot Resources Inc.', dated September 30, 2016.
- 3. I am a graduate of the University of Toronto (1981), and have a B.Sc. Geology Specialist degree. I am registered as a Professional Geoscientist with the Association of Professional Geoscientists of Ontario (1005), the Association of Professional Engineers and Geoscientists of Saskatchewan (10767), and a member of and former Director to the Prospectors and Developers of Canada. I have worked as an exploration geologist/project manager for over 30 years including 20 plus years an independent consultant where I evaluated mineral exploration opportunities, as well as undertook and managed mineral exploration programmes through to development of mining projects targeting gold, diamond, base metal, magmatic Cu/Ni/PGE, and rare earth mineral deposits. I have read the definition of "Qualified Person" set out in National Instrument 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 fulfil the requirements to be a "Qualified Person" for the purposes of NI 43-101
- 4. I did personally visit and inspected the exploration workings on the Haultain Property on August 29<sup>th</sup> and 30<sup>th</sup>, 2016 spending in total 16 hours physically on the property.
- 5. I am responsible for the entire report entitled '43-101F1 Technical Report Aldershot Resources Ltd., Haultain Property, Haultain, Nicol, Milner and Van Hise Townships, Ontario (NTS 41P10); for Aldershot Resources Inc.', dated September 30, 2016.
- 6. I am an independent "qualified person" within the meaning of National Instrument 43-101 Standards of Disclosure for Mineral Projects of the Canadian Securities Administrators. I have had no prior involvement with the property that is the subject of this technical report. I certify that there is no circumstance that could interfere with my judgment regarding the preparation of this technical report. I certify that, at the effective date of the report, to the best of my knowledge, information, and belief, the technical report contains all scientific and technical information that is required to be disclosed to make the technical report not misleading.
- 7. I have based my interpretations and recommendations in the preceding report on my professional expertise, my personal knowledge of the property, and the information available to me at the time of writing
- 8. I have read National Instrument 43-101 and Form 43-101F1 and have prepared this report in compliance with the Instrument and Form; as of the date of the certificate, to the best of my knowledge, information and belief, this report contains all the scientific and technical information required to be disclosed to make this report not misleading, and I am not aware of any material fact or material change with regard to the Property that would make the report misleading.

Dated at Hastings, Ontario this 30<sup>th</sup> day of September, 2016.

Lorne D. Burden, P.Geo.

#### Statement of Qualifications Pizye Mutukwa Nankamba

I Pizye Mutukwa Nankamba, of the Town of Marathon, in the Province of Ontario, do hereby certify that:

- 1 I am a registered Professional Geoscientist, residing at of 3 Hemlo Drive, Marathon, Ontario.
- 2 This certificate is to accompany the Report entitled: '43-101F1 Technical Report Aldershot Resources Ltd., Haultain Property, Haultain, Nicol, Milner and Van Hise Townships, Ontario (NTS 41P10); for Aldershot Resources Inc.', dated September 30, 2016.
- 3 I am a graduate of the University of Zambia (2006) in Lusaka, Zambia with a B.Sc. in Natural Science, and of Acadia University (2011) in Wolfville, Nova Scotia with a M.Sc. in Geology. I am registered as a Professional Geoscientist with the Association of Professional Geoscientists of Ontario (2332). I have practiced as a Professional Geoscientist for three years and my relevant experience includes copper and gold exploration in Zambia and gold mine exploration and development in Ontario.
- 4 I did personally visit and inspected the exploration workings on the Haultain Property on August 29<sup>th</sup> and 30<sup>th</sup>, 2016 spending in total 16 hours physically on the property.
- 5 I have read the definition of "Qualified Person" set out in National Instrument 43-101 and by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I certify that at this time I do not fulfil the requirements to be a "Qualified Person" as defined for the purposes of NI 43-101. I served to assist Lorne D. Burden P.Geo., the "Qualified Person" in preparing this report as part of the Association of Professional Geoscientists of Ontario mentorship programme which enables new Geoscientists to gain additional industry experience.
- 6 I am an independent within the meaning of National Instrument 43-101 Standards of Disclosure for Mineral Projects of the Canadian Securities Administrators. I have had no prior involvement with the property that is the subject of this technical report. I certify that there is no circumstance that could interfere with my judgment regarding the preparation of this technical report. I certify that, at the effective date of the report, to the best of my knowledge, information, and belief, the technical report contains all scientific and technical information that is required to be disclosed to make the technical report not misleading.
- 7 I have read National Instrument 43-101 and Form 43-101F1 and to the best of my knowledge this report is in compliance with the Instrument and Form as of the date of the certificate and contains all the scientific and technical information required to be disclosed to make this report not misleading, and furthermore I am not aware of any material fact or material change with regard to the Property that would make the report misleading.

Dated at Marathon, Ontario this 30<sup>th</sup> day of September, 2016.

Pizye Mutukwa Nankamba, P.Geo.

# 22.0 APPENDIX

#### 22.1 Appendix A, Rock Labs Ltd Gold Standard SJ53



# **Certificate of Analysis**

# **Reference Material SJ53**

Recommended Gold Concentration: 2.637 µg/g 95% Confidence Interval: +/- 0.016 µg/g

The above values apply only to product in jars or sachets which have an identification number within the following range: 202 949 – 204 651

Malcolm Smith BSc, FNZIC

Prepared and Certified By:

Malcolm Smith Reference Materials Ltd 40 Oakford Park Crescent, Greenhithe North Shore City 0632 NEW ZEALAND Email: Malcolm@MSRML.co.nz Telephone: +64 9 444 3534 **Date of Certification:** 19 April 2010 **Certificate Status:** Original This reference material has been packed in wide-Available Packaging: mouthed jars that contain 2.5 kg of product. The contents of some jars may be subsequently repacked into sealed polyethylene sachets. **Origin of Reference Material:** Feldspar minerals, basalt and iron pyrites with minor quantities of finely divided goldcontaining minerals that have been screened to ensure there is no gold nugget effect. **Supplier of Reference Material: ROCKLABS Ltd** P O Box 18 142 Auckland 1743 NEW ZEALAND Email: sales@rocklabs.com Website: www.rocklabs.com Telephone: +64 9 634 7696 Certificate of Analysis, ROCKLABS Reference Material S153, 19 April, 2010. Page 1 of 6.

#### Description:

The reference material is a light grey powder that has been well mixed and a homogeneity test carried out after the entire batch was packaged into wide-mouthed jars. There is no soil component. The product contains crystalline quartz and therefore dust from it should not be inhaled.

	The approximate chemical composition is: (Uncertified Values)	
	A. 97 C. 90	%
	SiO <sub>2</sub>	55.11
	$Al_2O_4$	15.71
	Na <sub>2</sub> O	4.26
	K <sub>0</sub>	4.99
	CaO	3.51
	MgO	3.24
	TiO <sub>2</sub>	0.96
	MnO	0.08
	$P_2O_5$	0.27
	Fe <sub>2</sub> O <sub>3</sub>	5.20
	Fe	2.6
	S	2.8
Intended Use:	This reference material is design batch of samples analysed and monitoring and assessment put	
Stability:	The container (jar or sachet) an heated to temperatures higher likely to oxidize in the air but to increase in weight of an expose matrix, in the Auckland climat	than 50 °C. Iron pyrites are tests have shown that the ed reference material of similar
Method of Preparation:	Pulverized feldspar minerals, t	

Preparation: Pulverized feldspar minerals, basalt rock and barren from pyrites were blended with finely pulverized and screened, gold-containing minerals. Once the powders were uniformly mixed the composite was placed into 1703 wide-mouthed jars, each bearing a unique number. 48 jars were randomly selected from the packaging run and material from these jars was used for both homogeneity and consensus testing.

#### Homogeneity Assessment:

An independent laboratory carried out gold analysis by fire assay of 30 g portions, using a gravimetric finish. Steps were taken to minimize laboratory method variation in order to better detect any variation in the candidate reference material.

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#### Homogeneity Assessment continued:

The contents of six randomly selected jars were compacted by vibration (to simulate the effect of freighting) and five samples removed successively from top to bottom from each jar. In addition, five samples were removed from the last jar in the series. A sample was also removed from the top of each of the 48 jars randomly selected from the 1703 jars in the batch. The results of analysis of the 83 samples (randomly ordered and then consecutively numbered before being sent to the laboratory) produced a relative standard deviation of 1.3 %.

#### Analytical Methodology:

Once homogeneity had been established, two sub-samples were submitted to a number of well-recognized laboratories in order to assign a gold value by consensus testing. The sub-samples were drawn from the 48 randomly selected jars and each laboratory received samples from two different jars. Indicative concentration ranges were given. All laboratories used fire assay for the gold analysis, with most using an instrument finish and some a gravimetric finish.

#### **Calculation of Certified Value:**

Results for gold were returned from 43 laboratories. Statistical analysis to identify outliers was carried out using the principles detailed in sections 7.3.2 - 7.3.4, ISO 5725-2: 1994. Assessment of each laboratory's performance was carried out on the basis of z-scores, partly based on the concept described in ISO/IEC Guide 43-1. Details of the criteria used in these examinations are available on request. As a result of these statistical analyses, seven sets of results were excluded for the purpose of assigning a gold concentration value to this reference material. A recommended value was thus calculated from the average of the remaining n = 36 sets of replicate results. The 95 % confidence interval was estimated using the formula:-

#### $X \pm ts/\sqrt{n}$

(where X is the estimated average, s is the estimated standard deviation of the laboratory averages, and t is the 0.025 tail-value from Student's t-distribution with n-1 degrees of freedom). The recommended value is provided at the beginning of the certificate in  $\mu g/g$  (ppm) units. A summary of the results used to calculate the recommended value is listed on page 4 and the names of the laboratories that submitted results are listed on page 5. The results are listed in increasing order of the individual laboratory averages.

Statistical analysis of the consensus test results has been carried out by independent statistician, Tim Ball.

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ample 2 2.520 2.55 2.57 2.585 2.59 2.599 2.58 2.60 2.58 2.60 2.58 2.60 2.58 2.60	Average 2.523 2.575 2.575 2.580 2.583 2.593 2.593 2.595 2.595 2.595
2.55 2.57 2.585 2.59 2.599 2.58 2.60 2.58 2.60 2.58 2.62	2.575 2.575 2.580 2.583 2.593 2.595 2.595 2.595
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2.58 2.62	2.595
2.62	
	2.595
2.607	2.598
2.630	2.610
1. The second	2.610
	2.625
	2.630
	2.635
	2.637
	2.637
	2.640
	2.645
	2.650
2.59	2.650
2.66	2.655
2.65	2.655
2.64	2.657
2.66	2.665
2.65	2.665
2.72	2.675
2.65	2.680
2.69	2.680
2.69	2.685
2.666	2.694
2.675	2.695
2.72	2.695
2.70	2.705
2.76	2.765
	2.65 2.64 2.66 2.65 2.72 2.65 2.69 2.69 2.69 2.666 2.675 2.72 2.70

Summary of Results Used to Calculate Gold Value (Listed in increasing order of individual laboratory averages)

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	Participating Laboratories
Australia	ALS Mineral, Kalgoorlie ALS Mineral, Orange ALS Mineral, Perth ALS Mineral, Townsville Amdel Ltd, Adelaide Amdel Ltd, Kalgoorlie Genalysis Laboratory Services, Perth Independent Assay Laboratories, Perth SGS Minerals Services, Perth Standard and Reference Laboratories, Perth Ultra Trace Pty Ltd, Perth
Burkina Faso	ALS Mineral, Burkina Faso
Canada	Acme Analytical Laboratories Ltd, Vancouver ALS Mineral, Val d'Or ALS Mineral, Vancouver Assayers Canada, Vancouver International Plasma Labs Ltd, Richmond Loring Laboratories Ltd, Calgary SGS Mineral Services, Lakefield Techni-Lab S.G.B. Abitibi Inc, Quebec TSL Laboratories Inc, Saskatoon
Chile	Acme Analytical Laboratories Ltd, Santiago ALS Mineral, La Serena
Kyrgyzstan	Stewart Assay and Environmental Laboratories LLC, Kara-Balta
Malaysia	Performance Laboratories, Raub
Mali	ALS Mineral, Bamako
New Zealand	Amdel Ltd, Reefton SGS Minerals Services, Waihi
Peru	ALS Mineral, Lima Inspectorate Services Peru S.A.C., Callao Minera Yanacocha SRL – Newmont, Lima
South Africa	AB Analytical Laboratory Services, Boksburg ALS Mineral, Johannesburg Anglo Research, Johannesburg Goldfields West Wits Analytical Laboratory Performance Laboratories, Allanridge Performance Laboratories, Randfontein SGS South Africa (Pty) Ltd, Johannesburg
UK	Inspectorate International Ltd, Essex
USA	ALS Mineral, Reno Barrick Goldstrike – Met Services Newmont Mining Corporation, Carlin Laboratory Newmont Mining Corporation, Lone Tree Laboratory

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#### Instructions and Recommendations for Use:

Weigh out quantity usually used for analysis and analyze for total gold by normal procedure. Homogeneity testing has shown that consistent results are obtainable for gold when 30g portions are taken for analysis.

We quote a 95% confidence interval for our estimate of the declared value. This confidence interval reflects our uncertainty in estimating the true value for the gold content of the reference material. The interval is chosen such that, if the same procedure as used here to estimate the declared value were used again and again, then 95% of the trials would give intervals that contained the true value. It is a reflection of how precise the trial has been in estimating the declared value. It **does not** reflect the variability any particular laboratory will experience in its own repetitive testing.

Some users in the past have misinterpreted this confidence interval as a guide as to how different an individual test result should be from the declared value. Some mistakenly use this interval, or the standard deviation from the consensus test, to set limits for control charts on their own routine test results using the reference material. Such use inevitably leads to many apparent out-of-control points, leading to doubts about the laboratory's testing, or of the reference material itself.

A much better way of determining the laboratory performance when analysing the reference material is to accumulate a history of the test results obtained, and plot them on a control chart. The appropriate centre line and control limits for this chart should be based on the average level and variability exhibited in the laboratory's **own** data. This chart will provide a clear picture of the long-term stability or otherwise of the laboratory testing process, providing good clues as to the causes of any problems. To help our customers do this more simply for themselves, we can provide a free Excel template that will produce sensible graphs, with intelligently chosen limits, from the customer's own data.

#### Legal Notice:

This certificate and the reference material described in it have been prepared with due care and attention. However ROCKLABS Ltd, Malcolm Smith Reference Materials Ltd and Tim Ball Ltd accept no liability for any decisions or actions taken following the use of the reference material.

#### **References:**

For further information on the preparation and validation of this reference material please contact Malcolm Smith.

**Certifying Officer** 

M G Smith BSc, FNZIC

Independent Statistician

Tim Ball BSc (Hons)

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Certificate of Analysis Work Order : LK1600634 [Report File No.: 0000007706] To: GREG COLLINS Date: Sep 01, 2016 INVOICE APPROVER TRANSITION METALS UNIT 5 410 FALCONBRIDGE RD SUDBURY ON P3A4S4 P.O. No. Project No. No. Of Samples : 8 : Aug 26, 2016 Date Submitted Report Comprises : Pages 1 to 2 (Inclusive of Cover Sheet) Distribution of unused material: To Be Determined: Brut Certified By : Brett Pipher Project Coordinator SGS Minerals Services (Lakefield) is accredited by Standards Council of Canada (SCC) and conforms to the requirements of ISO/IEC 17025 for specific tests as indicated on the scope of accreditation to be found at http://www.scc.ca/en/programs/lab/mineral.shtml L.N.R. - Listed not received I.S. - Insufficient Sample Report Footer: - Not applicable - No result n.a. "INF - Composition of this sample makes detection impossible by this method M after a result denotes ppb to ppm conversion, % denotes ppm to % conversion Methods marked with an asterisk (e.g. "NAA08V) were subcontracted Elements marked with the @ symbol (e.g. @Cu) denote assays performed using accredited test methods For solid samples: Unless otherwise noted, all GT\_tests are reported on a dried at 105°C basis. Other tests are performed on an as received basis unless otherwise indicated. Exceptions will be marked. For example rec (e.g. Cu rec) indicates the results are reported on an as received basis or dry (e.g. Cu dry) indicates the results are reported on a dried basis. This document is issued by the Company under its General Conditions of Service accessible at <a href="http://www.sgs.com/terms\_and\_conditions.htm">http://www.sgs.com/terms\_and\_conditions.htm</a>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. WARNING: The sample(s) to which the findings recorded herein (the "Findings") relate was (were) drawn and / or provided by the Client or by a third party acting at the Client's direction. The Findings constitute no warranty of the sample's representativity of the goods and strictly relate to the sample (s). The Company accepts no liability with regard to the origin or source from which the sample(s) later said to be extracted. The findings report on the samples provided by the client and are not intended for commercial or contractual settlement purposes. Any unauthorized alteration, forgery or faisification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law SGS Canada Inc. Minerals 185 Concession Street Lakefield ON K0L 2H0 t+1(705) 652-2000 f+1(705) 652-6365 www.ca.sgs.com Member of the SGS Group (Société Générale de Surveillance)

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Element Method Detection Limit Units	W1Kg G_WGH79 0.001 kg	Au GO_FAA505 0.01 ppm
23467	1.600	5.21
Rep 23467		5.76
23468	0.955	1.56
23469	1.278	2.17
23470	1.808	0.70
23471	1.266	4.65
23472	0.611	5.43
23473	0.889	0.03
23474	2.236	0.41

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