# GEOCHEMICAL (MMI) REPORT
# ON THE
# DOT PROPERTY

**Merritt Area, Southern British Columbia**
**Tenures # 1057517, 1057518**
**Nicola Mining District**
**NTS 92 I-7W (92I 036)**
**50°19’18” N, 120°50’58” W**

**February 15, 2019**

**By:**
**Greg Thomson B.Sc., P.Geo.**
**For**
**Brian W. Scott**

# TABLE OF CONTENTS

## FIGURES

## SUMMARY

Exploration for porphyry-type copper mineralisation has occurred in the southern area of the Guichon Creek batholith for almost 100 years. High-grade copper mineralization was mined shortly after the discovery of the Northwest and Lower Vimy showings by means of two short adits worked between 1920 and 1927. The discovery of historic Cu±Ag±Mo±Au showings located south of Gypsum Lake in the area of the Dot Property fuelled a resurgence in land acquisition and exploration in the area since the 1950's.

This exploration includes numerous Induced Polarization and Total field Magnetic geophysical surveys, geochemical soil surveys, and geologic investigation, trenching, and drilling programs **over** a number of assumed structural targets. The Dot Property **(Minfile # 092ISE-023)** covers three significant and undeveloped zones of Cu+Ag+Mo±Au mineralisation including the Northwest, Southeast, and Copper Zones, as well as the smaller, low grade zone, the Lower Vimy Zone, and a newly described, high-grade zone northeast of the Southeast Zone, called the East Zone. Exploration remained limited until the discovery of the Highland Valley Porphyry district in the central Guichon Creek Batholith. After that discovery, the entire batholith was the focus of much exploration; however it was not until the 1980's that significant mineralisation was delineated on the Upper Vimy, or Northwest Zone. Lawrence Mining Corp. (1981) and Zappa Resources Ltd. (1992) delineated and significantly increased the possible mineral resource of the Northwest Zone through extensive reverse circulation and core drilling programs. In 1996, Alhambra Resources Ltd. discovered the Southeast Zone by drill testing an IP anomaly that extended along strike southeast of the Northwest Zone. The Copper Zone was discovered during step- out drilling conducted by Alhambra Resources Ltd. in 1997. An NI 43-101 compliant inferred and indicated resource estimate of 9.8 million tonnes at 0.46% Cu was calculated after the 2010 drilling by Dot Resources, incorporating all drill results obtained to that time. This estimate was prepared by an independent Qualified Person. The mineralised zones occur in strongly altered and steeply dipping northwest-trending fault zones that cut Highland Valley phase granodiorite and Border phase quartz diorite. Potassic alteration is pervasive and is recognized across the property. Argillic alteration is pervasive within the fault zones that host mineralisation. Phyllic and propylitic alteration is fracture and vein controlled. Copper sulphide and oxide mineralisation is disseminated and fracture and vein controlled in all zones. Elevated Cu+Ag+Mo+Au grades correlate with increased fracture density and silicification associated with zones of intense phyllic alteration.


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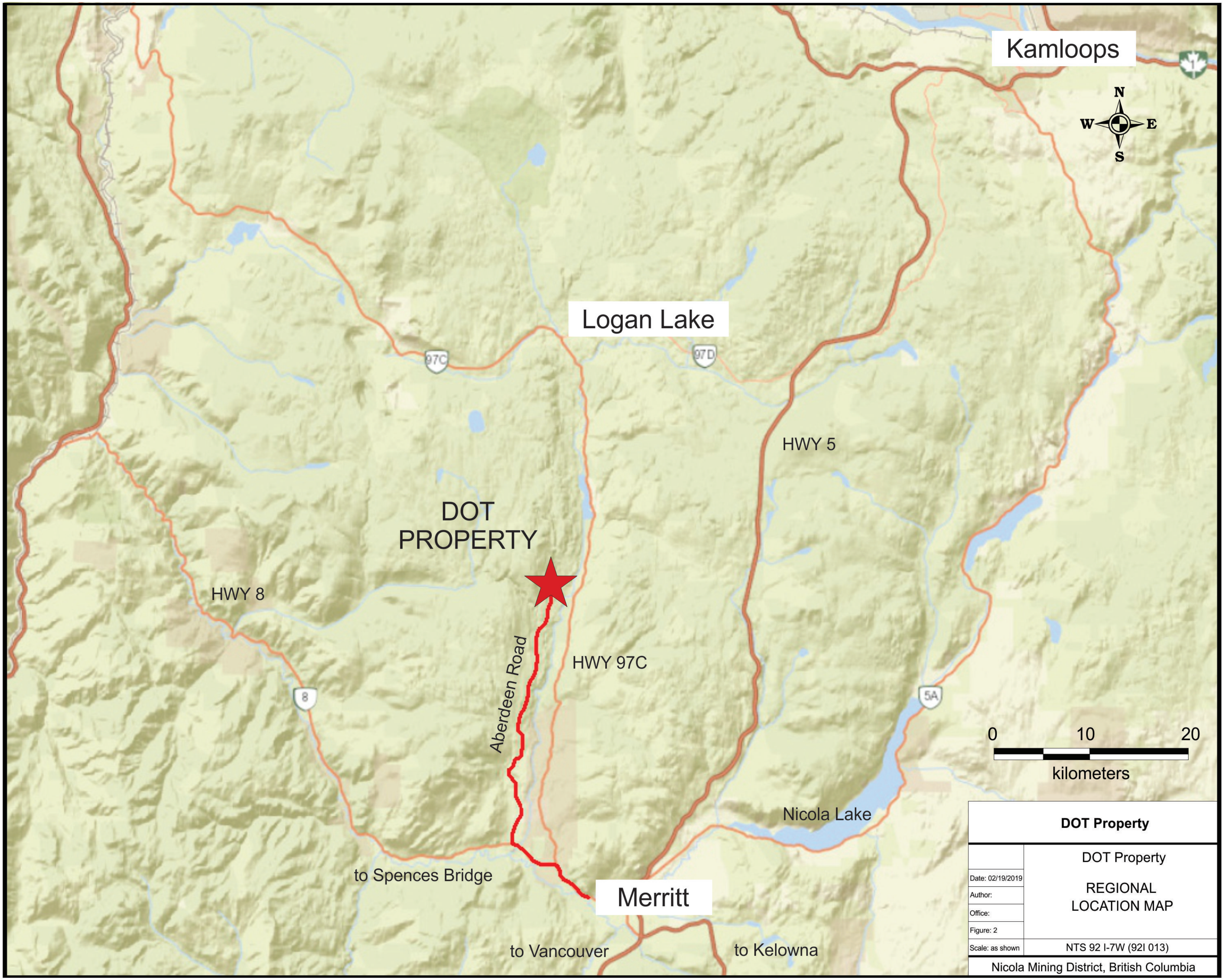
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Nicola Mining District, British Columbia

## 1.0 INTRODUCTION

The DOT Property is located 25 kilometres north of Merritt, B.C. in the Nicola Mining Division and consists of 2 contiguous mineral claims covering an area of prospective Cu ±Ag±Mo±Au porphyry intrusive rocks of the Guichon Creek batholith. The Guichon Creek batholith is host to the Highland Valley Deposits, which include several past pro ducers. Highland Valley Copper mines owned by Teck Resources Ltd. is the largest open pit copper mine in Canada, located near Logan Lake, British Columbia. It is an amalgamation of three historic mining operations: Bethlehem, Lornex and Highmont, with mining operations projected to last to 2028.

Though the Vimy showings (now the northern end of the Northwest Zone) were sporadically mined beginning in the 1920's, it wasn't until the discovery of the Highland Valley porphyry deposits in 1956 that the southern Guichon Creek batholith became a target of rigorous exploration. Historic work has included ground geophysical surveys, specifically IP and Magnetic surveys, geochemical surveys, geologic investigation, trenching and drilling, both percussion and diamond drilling. Much of this work was submitted for assessment and is available through the British Columbia Ministry of Energy and Mines.

The DOT Property, previously operated by Dot Resources Ltd. over the period 2007 to 2010 covered an area of 1,944 hectares. The DOT property claim holdings were later forfeited and a portion of the pre-existing DOT property was staked by Brian Scott on January, 2016. The current DOT Property now covers a smaller area of 846 hectares, but retains the primary porphyry copper mineral zones, specifically the Northwest Zone and the Southeast Zone.
This assessment report was prepared to describe an MMI soil sampling program carried out on the DOT mineral property over the period of September 24th to 25th, 2018.
Although numerous significant exploration programs have been carried out for many years over the area of the DOT property, much of this work has been only partially documented and resource definition for the various mineral zones remain as either inferred or indicated estimates. The author wishes to acknowledge that most of the historical and geological information presented in this assessment report has been obtained from the technical report written by R.J. Robinson, on behalf of Dot Resources:

***Robinson, R. J., 2009, Technical Report On A Mineral Resource Estimate For DOT Resources Ltd.'s Dot Property, Merritt, British Columbia, Nicola Mining Division, N.T.S. 092I/07W, 50°19'18" N, 120°50'58" W. 74 pages.**

## 1.1 Location and Access

The Dot Property is located in south-central British Columbia, Canada and falls on NTS map sheet 092I/07W. It is centred about 50°20'00" N latitude and 120°51'00" W longitude or 653528E, 5576788N (UTM NAD 83, zone 10N). The claim group lies in the Nicola Mining Division and covers copper-gold mineralisation approximately 20 kilometres southeast of
the Highland Valley porphyry copper district. The Craigmont Mine site is located approximately 12 kilometres south-southwest of the property along the access road to the property.

Further north along this road, the Aberdeen Mine site **(Minfile # 092ISE-024)** is locatednear the southern limit of the property. The eastern limit of the claims is cut intermittently by Guichon Creek, which runs sub-parallel to highway 97C. The location of known mineralised zones and mine workings with respect to outside property boundaries are shown on Figure 5.

The Dot Property is located 50 kilometres south of the city of Kamloops and 25 kilometres north of Merritt, BC. It is accessed by all weather roads from Merritt or Kamloops via the Craigmont Mine site and Aberdeen Mine Road. Highway 97C running between Merritt and Logan Lake falls immediately east of the eastern claim boundary for the length of the property. Mobility about the property is facilitated by unmaintained logging roads that remain in good condition.

## 1.2 Topography, Climate, Vegetation

The property is located east of the Cascade Mountains and south of the Highland Valley in the Thompson Plateau physiographic region of BC. Most of the property is covered by windfall of dense stands of Lodgepole Pine. Spruce and Fir grow in at lower elevations to the southeast and in localized areas of greater moisture. Guichon Creek roughly parallels the eastern N-S property boundary, while the drainage of Bloom Creek crosses the westernmost portion of the property in the vicinity of the Aberdeen copper prospect. The property is also traversed by numerous small seasonal and year round creeks. Glacial overburden covers much of the property. Scattered outcrops of granodiorite are present to the north and west of the property at higher elevations.

The climate is typical of the southern interior with an average annual precipitation of approximately 30cm. Temperatures in the summer can reach 35°C and plunge to -40°C in the winter. Snow covers the property from mid November to May.

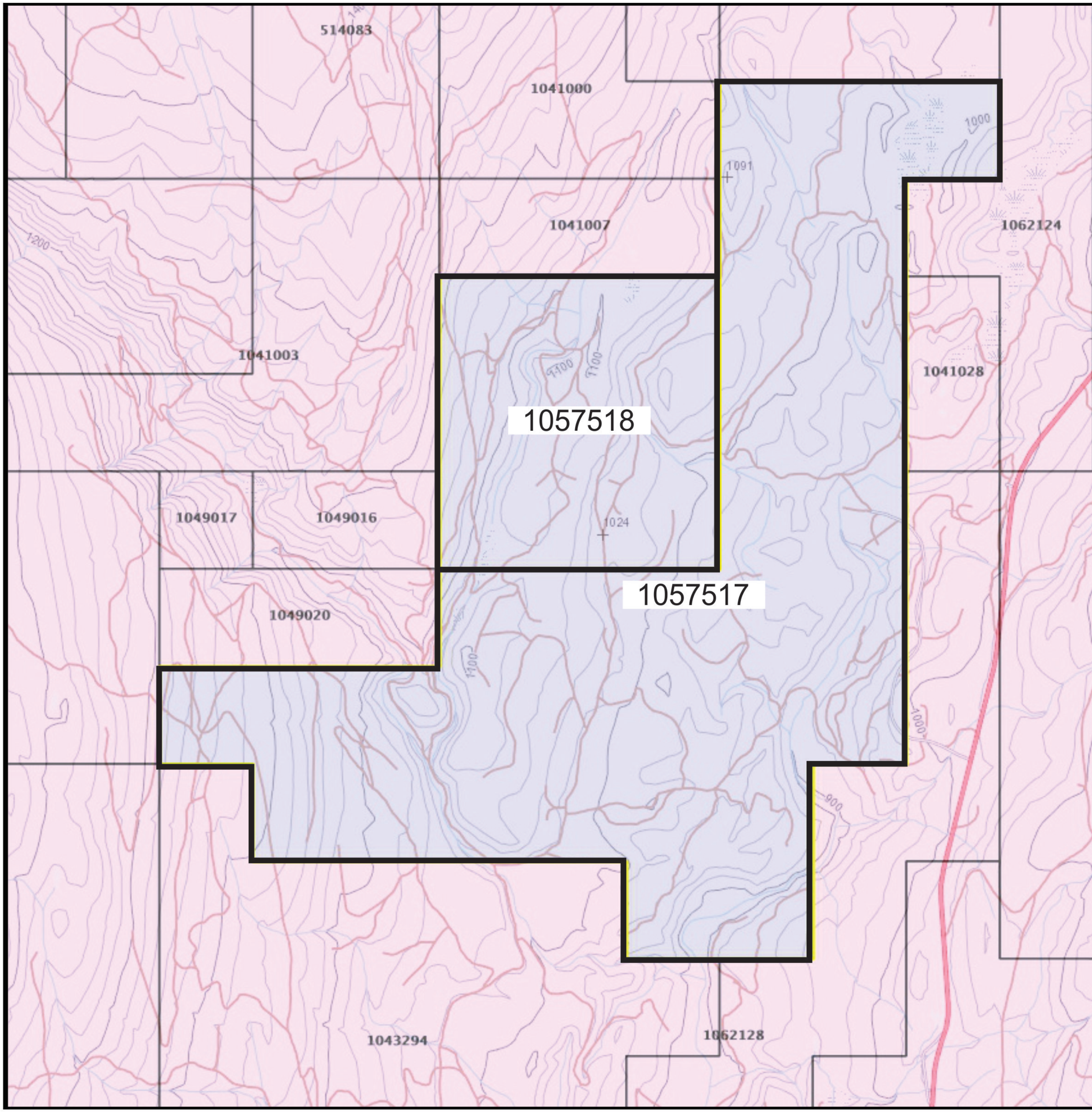
The property is located at approximate elevations of between 1000 to 1100 metres a.s.l. along the southern flank of Gypsum Mountain. Gypsum Mountain has a peak elevation of

1546 metres. The eastern limit of the property extends easterly towards Guichon Creek which lies at an elevation of approximately 930 metres. Property topography is moderate lying along a terraced area midway up the mountain flank.

### 1.3 Property Status

The Dot Property consists of two tenures totaling 846 hectares or 2090.5 acres in area. The property is 100% owned by Mr. Brian W. Scott (Free Miner's Certificate # 124128) and is free of any encumbrances with the tenures in good standing, as shown in the table below. (upon the acceptance of this assessment report). The Property is currently in the process of being optioned by another party. The details pertaining to the two tenures comprising the DOT Property are summarized below:

| TENURE NAME | TENURE NUMBER | AREA (ha) | GOOD UNTIL DATE |
|---|---|---|---|
| Dot Extension | 1057517 | 660.31 | Jan. 7, 2020 |
| The Dot | 1057518 | 185.68 | Dec. 31, 2019 |

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Nicola Mining District, British Columbia

## 1.4 History

Chalcocite was first recognized at the Aberdeen Mine site, located approximately 1500 metres to the south of the Southeast Zone, in 1887. Small shipments of copper grading 7% were shipped in 1916 and 1917 (Sanguinetti, 1972).

Exploration and limited mining on Gypsum Mountain northwest of the Dot Property began in 1910. Two short adits were driven on small shear zones 450 metres west of Chataway Lake at Roscoe Creek. The Upper and Lower Vimy showings were sporadically mined between 1920 and 1927 (Sanguinetti, 1972). A shaft was sunk at the Upper Showing to a depth of 50 metres with a crosscut at the bottom that intersected a chalcopyrite-, bornite-, hematite-mineralised shear zone (Meyer, 1968). Mineralisation was described as sporadic and discontinuous. The Lower Vimy showing was the target of stripping, drilling, and two short adits. The adits were driven into small high-grade lenses of chalcopyrite, bornite, and copper carbonate in narrow shears (Meyer, 1968). In 1956 and 1957 Northwest Explorations Limited stripped and drilled the main showings and potential extensions with poor results.

The discovery of the Bethlehem Property to the north in Hidden Valley sparked renewed interest in the area. In 1956 the Chataway Mining Syndicate staked a block of claims centred about the Roscoe showing. In 1962 Chataway Exploration Co. Ltd. conducted exploration that included prospecting, geophysical and geochemical surveys, stripping and diamond drilling. Significant copper-bearing mineralisation, referred to as Zone 04, was exposed by trenching south of Gypsum Lake, approximately three kilometres northwest of the Northwest Zone on the Dot Property. This showing was optioned by Bralorne Pioneer Mines Ltd. in 1965. Additional exploration which included stripping, diamond and percussion drilling, and a geophysical survey (Induced Polarization), delineated a low tonnage, high grade mineral occurrence deemed uneconomical at the time (Meyer, 1968). A total of 57 diamond drill holes totalling 3,999 metres and 20 percussion drill holes totalling 3,097 meters were completed on Zone 4 by the end of 1967.

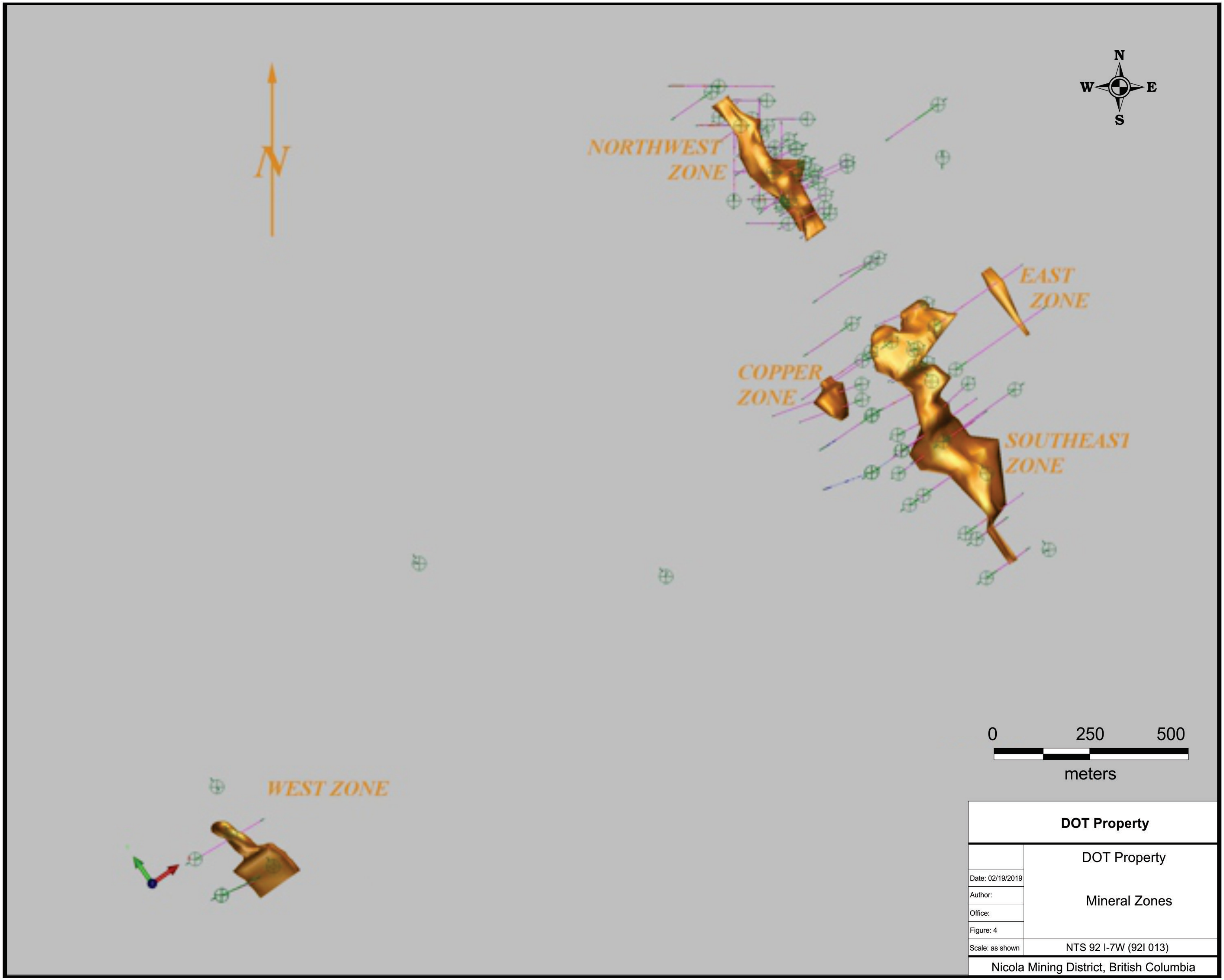
Work in 1968 by Chataway Exploration Co. Ltd. and Bralorne Pioneer Mines Ltd. included geological mapping, surveying, sampling, geochemical and geophysical (Induced Polarization) surveys, and limited trenching. No new mineralised occurrences were identified and it was determined that all existing showings were sub-economic.

Asarco completed 148 percussion holes totalling 5,166 metres on a 610 metre grid (Wells, 1981). The exact location the Asarco drilling is unknown; however, it is assumed to related to the Zone 04 occurrence and therefore to the northwest of the Dot occurrences (Norman, 1992, held by Alhambra Resources Ltd.).

Lawrence Mining completed an Induced Polarization and Magnetometer survey to the north and south of the existing occurrences and geophysical survey grids. Coincident magnetic lows and chargeability anomalies were drilled by percussion and diamond drilling methods. A total of 20 diamond drill holes (3,400.5 m) and 30 percussion drill holes (2,301.2 m) were completed between May and October of 1981. Core from this program was stored on the property (Wells, 1981). This drilling identified what is presently known by DOT Resources Ltd. as the Northwest Zone. An additional three diamond drill holes were completed by Lawrence Mining in 1982 west of the Aberdeen Mine site. Zappa Resources Ltd. completed six reverse circulation drill holes totalling 638.5 metres to further delineate the Northwest Zone to a strike length of 255 metres and to a depth of 100 metres. All six holes intersected copper-bearing mineralisation that graded from 0.33% to 0.91% Cu (Norman, 1992). A preliminary non-NI 43-101 compliant historical estimate of 2.93 million tonnes grading 0.5% Cu was reported (Norman, 1992). This historical estimate was not prepared by independent Qualified Persons, nor has any of the information contained therein been audited by an independent Qualified Person. The historical estimates do not conform to the Canadian Institute of Mining, Metallurgy and Petroleum ("CIM") standards of reporting pursuant to requirements under National Instrument 43-101. Zappa Resources Ltd. also contracted Westcoast Biotech of Vancouver to conduct preliminary metallurgical testing; results of this work indicate copper sulphide/oxide mineralisation at the Dot Property is amenable to heap leaching (Norman, 1992). In 1996 and 1997 Alhambra Resources Ltd. discovered two new zones of copper mineralisation, the Southeast Zone and adjacent Copper Zone, both of which are along strike to the southeast of the Upper Vimy occurrence. These two zones were tested with 16 diamond drill holes totaling 3108.94 metres in 1996 and five diamond drill holes totaling 1290 metres in 1997. Based on copper mineralisation delineated by this drilling and historical drilling, Alhambra used the Inverse Distance Squared method to estimate a non-NI 43-101 compliant historic estimate of 9.8 million tonnes grading 0.46% Cu (Stewart, 1997). This Historical Estimate was not prepared by independent Qualified Persons, nor has any of the information contained therein been audited by an independent Qualified Person and therefore should not be relied upon. In the fall of 2007, spring 2008, DOT Resources Ltd. carried out a program of surface mapping, sampling, geophysical surveying (IP, Mag and VLF-EM) and diamond drilling. A total of 9.35 kilometres of Induced Polarization surveying, 132 kilometres of magnetic surveying and 132 kilometres of VLF-EM surveying were completed. The diamond drilling was completed to verify historical mineralized intersection reported prior to 2001, to test the strike and depth extent of the copper mineralization in the Northwest, Copper and Southeast zones and to test IP anomalies in the Vimy zone. In 2007 / 2008 DOT Resources drilling in the Lower Vimy and found no significant mineralization except very narrow low grade copper. A total of 3,097.4 m of NQ size core was completed in 14 diamond drill holes.

In 2010 Dot Resources Ltd. carried out a further stage of diamond drilling totaling 4,356 metres in 15 drill holes. Resource Estimates were established on the several Dot property mineral zones. Estimates were made using assay values from the historical and recent drill programs resulting in 5,328,200 tonnes in the Indicated category at 0.54% Cu (equivalent) at 0.2% Cu cutoff grade as well as an Inferred resource of 4,279,700 tonnes at 0.49% Cu (equivalent) at 0.2% Cu cut-off grade. [(1)]

(1) As set forth in the independent NI 43-101 compliant report dated November 30, 2010 prepared by Aurora Geosciences Limited. This report is filed on SEDAR (www.sedar.com) for Dot Resources Ltd.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NTS 92 I-7W (92I 013)
Nicola Mining District, British Columbia

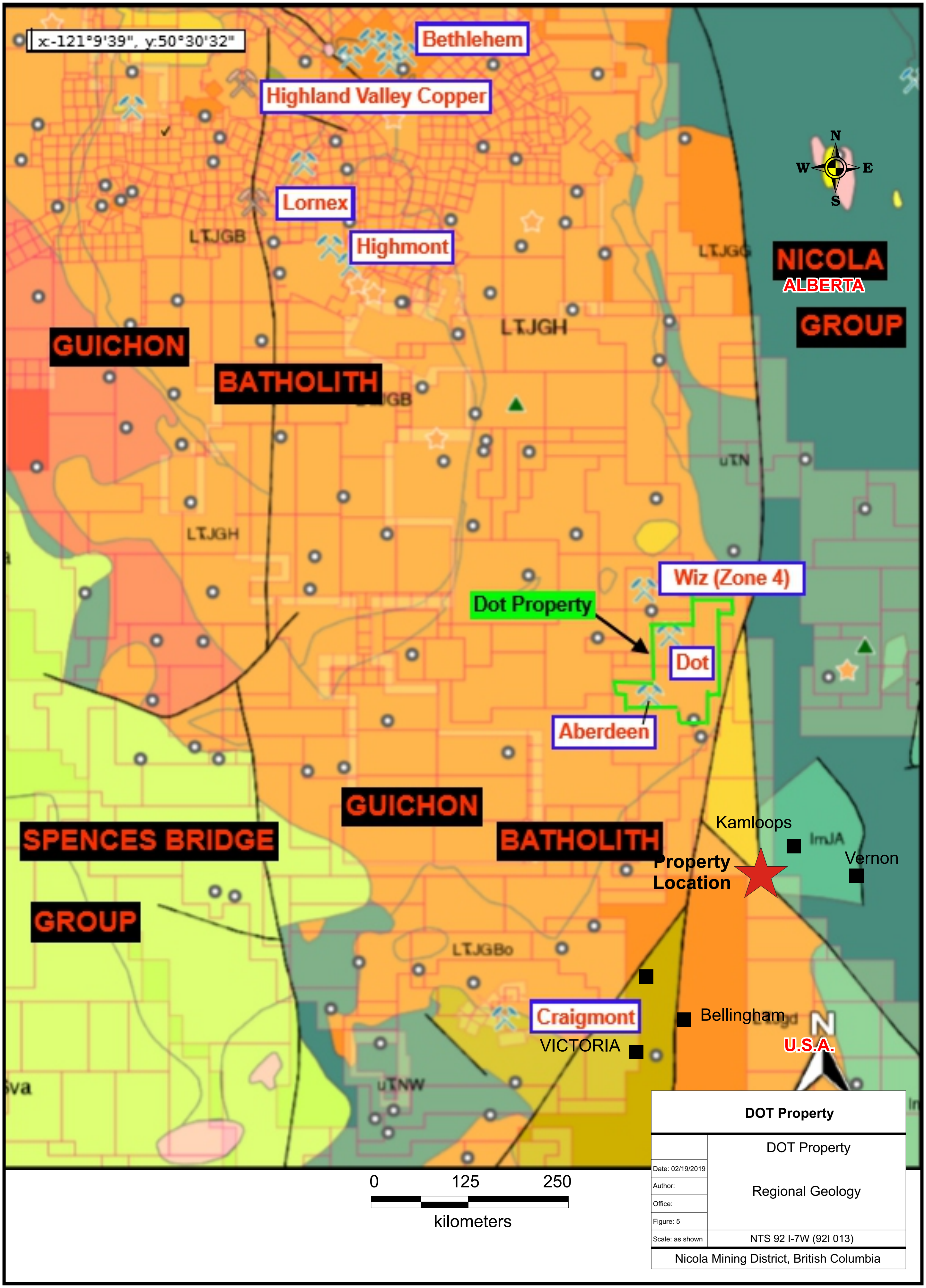
## 2.0 REGIONAL GEOLOGICAL OVERVIEW

The Quesnel Terrane is a volcanic arc terrane that is found along most of the length of the Canadian Cordillera. It is the westernmost of three regional domains that contain distinct facies and assemblages. This terrane is dominantly represented by Middle and Upper Triassic volcanic and sedimentary rocks assigned to the Takla Group in northern and central British Columbia and to the Cache Creek and Nicola groups in the south (Figure 6). These rocks are locally overlain by Lower Jurassic to Middle Tertiary volcanic and sedimentary rocks and are intruded by several suites of Late Triassic through Early Jurassic plutons such as the Guichon Creek batholith (Schiarizza, 2003). Late Triassic-Early Jurassic intrusive rocks are a prominent and economically important component of the Quesnel Terrane. These include both calc-alkaline and alkaline plutonic suites, as well as Alaskan-type ultramafic-mafic intrusions.

The Guichon batholith intrudes sedimentary and volcanic strata of the Mississippian to Triassic aged Cache Creek and Upper Triassic aged Nicola groups and is unconformably overlain by sedimentary and volcanic strata ranging in age from Lower Jurassic to Middle Tertiary including: Triassic Nicola Group volcanics, metasedimentary rocks of the Lower/Middle Jurassic Ladner and Jurassic/Cretaceous Relay Mountain groups, Lower/Middle Cretaceous Jackass Mountain Group sedimentary rocks and Middle/Upper Cretaceous Spences Bridge Group volcanic rocks.

Along the eastern contact of the batholith the Nicola Group rocks are described as an eastern facing succession of calcalkaline, mainly plagioclase-phyric andesitic flows and breccias, with lenticular interlayers of limestone and bedded volcaniclastic rocks. Local exposures of dacite and rhyolite flows, welded tuff and breccia, and intercalated intermediate to felsic heterolithic volcaniclastic rocks represent felsic centers (Moore and Pettipas, 1990). Volcanic (dominantly intermediate, locally felsic and mafic), volcaniclastic (pyrolcastic and sediments), and sedimentary (chert-grain sandstone, conglomerate, minor shale) rocks of the Middle and Lake Cretaceous Spences Bridge Group are exposed at the southwestern contact of the batholith (Minfile Map 092ISW, 1993).

Regional metamorphosed rocks include: Carboniferous to Jurassic Cache Creek Complex melanges, Permian to Lower Cretaceous Bridge River Complex and ultramafic rocks, and Upper Triassic Nicola Group metavolcanic rocks. Locally metamorphosed rocks adjacent to the batholith include hornblende plagioclase gneiss, schist, quartzite, and hornfels that occur in a metamorphic halo up to 500 meters in width (Norman, 1992).The 198 ±8 Ma Guichon Creek batholith is interpreted to be subvolcanic; initial Sr87/Sr86 ratios are primitive indicating an island arc setting during emplacement. Early equigranular phases are interpreted to be mesozonal in contrast to younger and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NTS 92 I-7W (92I 013)
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mineralised porphyritic phases which are interpreted to be epizonal and therefore intruded higher into overlying volcano-sedimentary pile.

Based on present geometry and a gravity profile published in 1972 (Ager, et al., Figure 7), magma is interpreted to have intruded along intersecting basement structures and expanded northward and southward along a dominant zone of weakness (McMillan et al., 1985). Reactivation of these same basement structures syn- to post-plutonism can control fault patterns in the batholith and the distribution of younger volcanic and volcaniclastic rocks adjacent to the batholith. These basement structures are also interpreted to have controlled the distribution of late mineralised porphyry dykes and localized ore deposition (McMillan et al., 1985).

The batholith is host to many phases with distinct mineralogical and textural characteristics. From oldest to youngest, these phases include the Border, Highland Valley (incl. Guichon and Chataway varieties), Bethlehem (incl. Skeena variety), and Bethsaida phases. The older phases occur at the margins of the batholith; the younger phases are concentrated at the core. Contacts between the phases are generally gradational and rarely chilled indicating that consecutive phases intruded prior to complete solidification of the host phase. Crosscutting contacts are observed between all phases.

Periodic dyke emplacement commenced after the intrusion of the Bethlehem phase. This phase of intrusion is associated with the first major period of ore formation in the batholith. These dykes have textural and chemical affinities to the Bethlehem phase, and because they crosscut Bethlehem and older phases are interpreted to be a late- stage volatile-rich and incompatible phase of Bethlehem plutonism (McMillan et al., 1985). The Bethlehem ore deposits and South Seas and Krain occurrences are associated with these dykes and related magmatic-hydrothermal breccias. Central to the batholith and to the south a series of north- to northwest-trending dykes are interpreted to be younger than the initial ore-bearing phase of the north. These dykes are coeval with Bethsaida phase plutonism or representative of younger more evolved magmas. McMillan (1985) suggests that the largest ore deposits in the batholith are associated with this event.

Quaternary sediments occur as thick drifts along the main rivers and some of the larger creeks.

## 2.1 Property Geology

Lithologies of the Guichon Creek batholith range from diorite at the margin through quartz diorite, quartz monzodiorite, and granodiorite at the core. The Dot Property is located near the southeastern margin of the Guichon Creek batholith and predominantly overlies Guichon Variety medium grained hornblende monzodiorite to granodiorite of the Highland Valley phase. This phase is intruded by coarser grained granodiorite and younger porphyry intrusive rocks, possibly of Chataway, Skeena, or Bethsaida affinity

Aplite dykes are observed in drill core from the Northwest and Southeast Zones. The dykes are fine grained, leucogranitic in composition, and little- to un-altered. This unit is described in outcrop north of the Dot Property as a series of small dykes and stringers of random orientation that intrude most lithologies. They are documented to have no spatial relationship to mineralisation though they can be weakly mineralised where observed to the north (Meyer, 1968). On the Dot Property these dykes are spatially associated with copper mineralisation.

Granodiorite and quartz monzonite underlie the western and northwestern portion of the property. This phase is a generally fine to medium grained, locally porphyritic.

### Alteration

Alteration identified at surface and in drill core on the Dot Property supports at least two, and possibly three, generations of ore-bearing fluid emplacement. The northwest striking mineralised zones show a positive correlation with a strong argillic,potassic, hematitic, and lesser phyllic and propylitic alteration halo which may extend up to 200 meters from the mineralised zone. Locally, argillic alteration may replace up to 90% of the host rock to clay minerals interpreted to be fine-grained sericite and kaolinite leaving only primary and secondary quartz. Phyllic alteration includes silicification and sericitization of the host rock. Where sericite is present it is coarse-grained and occurs along fracture surfaces. Hematite is concentrated along fracture planes and possibly overprinting potassic alteration. Specular hematite is noted to be abundant in historic drill logs; however, most of the hematite observed during re-examination of drill core conducted in February of 2007 exists as a weak to intense staining of fracture planes and mineral crystal faces. This oxidizing event has thoroughly eliminated any magnetic minerals from the mineralised zones.

### Mineralization

The Northwest and Southeast Zones are hosted in a northwest-trending structural zone of altered granodiorite. Disseminated, fracture controlled, and vein hosted copper- bearing mineralisation includes native copper, chalcocite, bornite, chalcopyrite, and malachite.

These features of mineralisation are common in porphyry systems. Higher- grade copper mineralisation is associated with silicification where fracture density is high or where fractures show strong crosscutting relationships. The Copper Zone is host to predominantly native copper as disseminations and fracture coats and lesser disseminated chalcocite. Mineralisation in this zone appears to be related to supergene enrichment.

Malachite is restricted to strongly oxidized intervals near the paleosurface; where mineralisation is intersected subjacent to tertiary overburden. It is strongly fracture controlled, commonly of massive habit along fracture surface coatings and rarely as subhedral habit where filling open fracture space.

Native copper may be disseminated and spatially associated with chalcocite and platy in fracture fillings and quartz veins (Norman, 1992; Figure 11 Photo B). Copper associated with quartz veins may be remobilized or related to a younger phase of mineralisation. Disseminated copper occurs in oxidized granodiorite and aplite dykes intersected in the Southeast Zone. Massive chalcocite occurs as fracture fillings in oxidized intervals.

Chalcopyrite is massive and occurs in veins, fracture fillings and coarse disseminations when associated with bornite and intense phyllic+argillic alteration Bornite is the most abundant copper-bearing mineral on the property. It occurs in veins of massive bornite or with smoky white quartz; in fracture fillings; and as coarse and fine disseminations when associated with strong phyllic+argillic alteration).

Copper-bearing sulphide mineralisation is strongly associated with potassic±Phyllis ±argillic alteration.

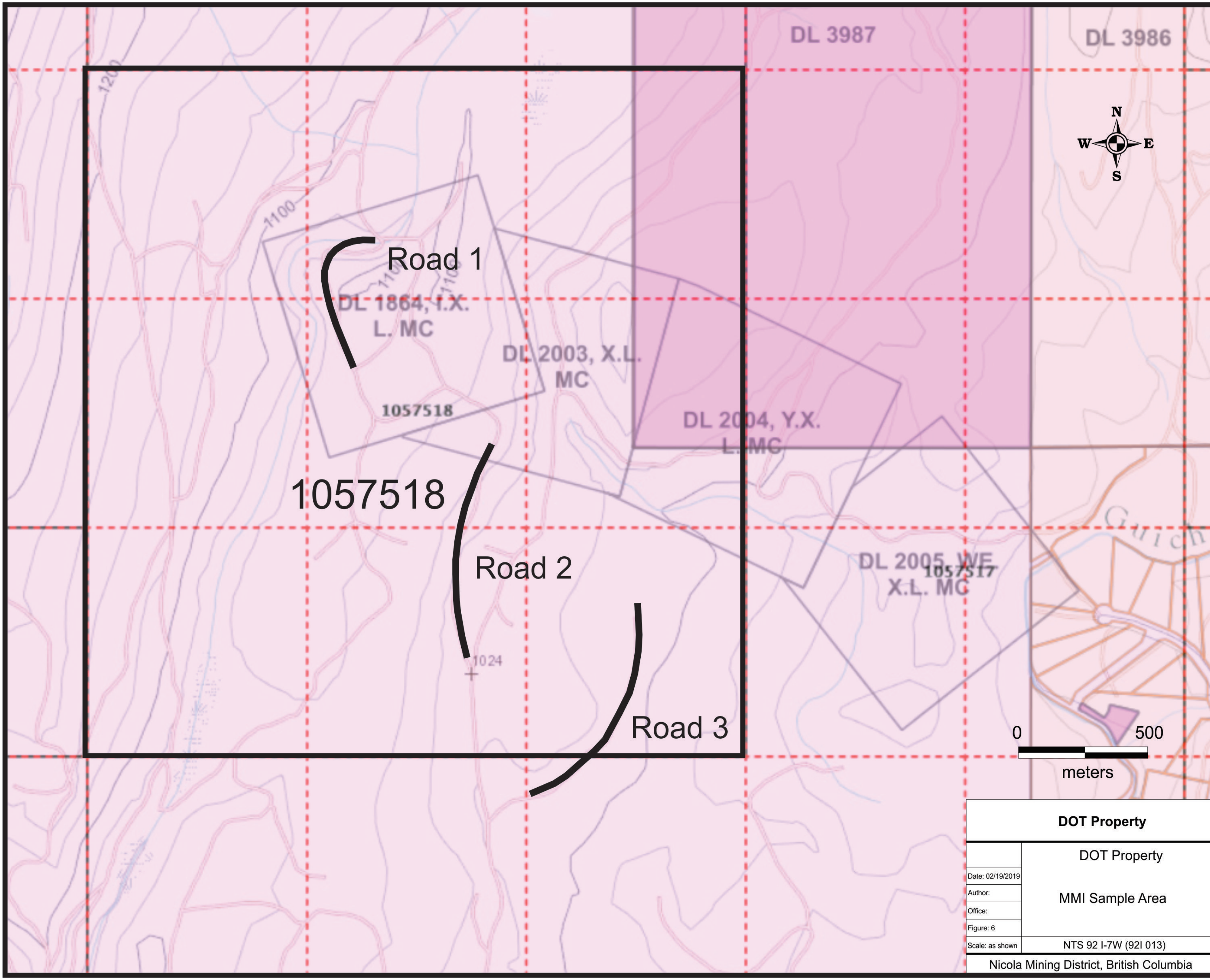
**Structure**

At a regional scale, a framework of north and northwest striking structural zones host mineralisation. This trend is evident on the Dot Property as the Northwest (Upper Vimy) and Southeast zone, Lower Vimy Zone, the Copper Zone, and a number of copper occurrences are concentrated along structural breaks which trend north-northwest. These mineralised zones are interpreted to be locally offset by crosscutting northeast trending structural breaks, which on the Dot Property, show dextral offset. Many of the fault and shear zones that host mineralisation are interpreted to be older than mineralisation and therefore acted as conduits for mineralised fluids during at least two generations of reactivation as supported by crosscutting relationships in mineralised fractures. Reactivation of these faults can be caused by subsequent intrusive phases of the batholith.

The mineralised northwest-trending structures dip steeply to the northeast in the both the Northwest and Southeast Zones. Geologic cross sections indicate that these features dip from 65 degrees to subvertical. The fault and shear zones show evidence for multiple generations of crosscutting fracture networks, displacement surfaces and brecciation. Many of these crosscutting features are mineralised.

## 3.0 MMI EXPLORATION SURVEY

On September 23-25, 2018, the author in the company of two field assistants carried out an MMI soil sampling orientation survey in the area of two known mineral zones found on the current DOT property.
Conventional historic soil sampling methods have not generally been recognized as a useful exploration tool in the past due to the obstruction effects of thick glacial overburden cover in this region of the province. The MMI sampling program was therefore employed to test for the location of deeply buried mineral zones, not detectable by previous conventional soil surveys.
The soil sampling program was carried out alongside three gravel roads, which were assumed to transect the known trend of the mineral zones referred to as the Northwest Copper Zone and the Southeast Copper Zone, which lie in a NW-SE orientation along a strike length of approximately 1000-1200 m. The Northwest Zone is approximately 275 m in length, while the Southeast Zone, lying along a common strike direction, is approximately 450 m long. A barren gap of approximately 200 m apparently separates the two main mineral zones (see fig. 4).
The MMI sampling program was carried out along three existing roads referred to as Road 1, Road 2 and Road 3 (see figs 5 and 6). Road 1 tested the MMI soil signature in the area of the Northwest Zone, Road 2 tested the soil signature of the Southeast Zone and Road 3 tested for possible southeasterly extensions of the Southeast Zone. The samples were taken at 50 m intervals along the roads, as measured using a hip-chain device. Sample locations were marked with labelled flagging tape, with sample station locations recorded using a Garmin hand-held GPS instrument.
The MMI soil sampling program was carried out using strict sampling protocols. Samples were generally taken on upslope areas several 10's of metres from the road surface in areas with little or no recognizable previous disturbance.
Soil samples were taken from a pit using a steel long-handled shovel, generally dug to a depth of 20-30 cms. Soil samples were collected from the sample pit using a plastic trowel, with the sample taken starting at 10 cms below the base of the organic layer, then continuously another 20 cms to the base of the sample pit. Collected samples were placed into clean zip-lock sample bags, with the sample bag marked with the sample number. Any loose non-decomposed matter (leaves, bark, twigs), debris and any larger pebbles were manually removed from the various samples.
The samples were kept in possession by the author and personally delivered by him to the SGS Canada analytical labs in Burnaby, BC.

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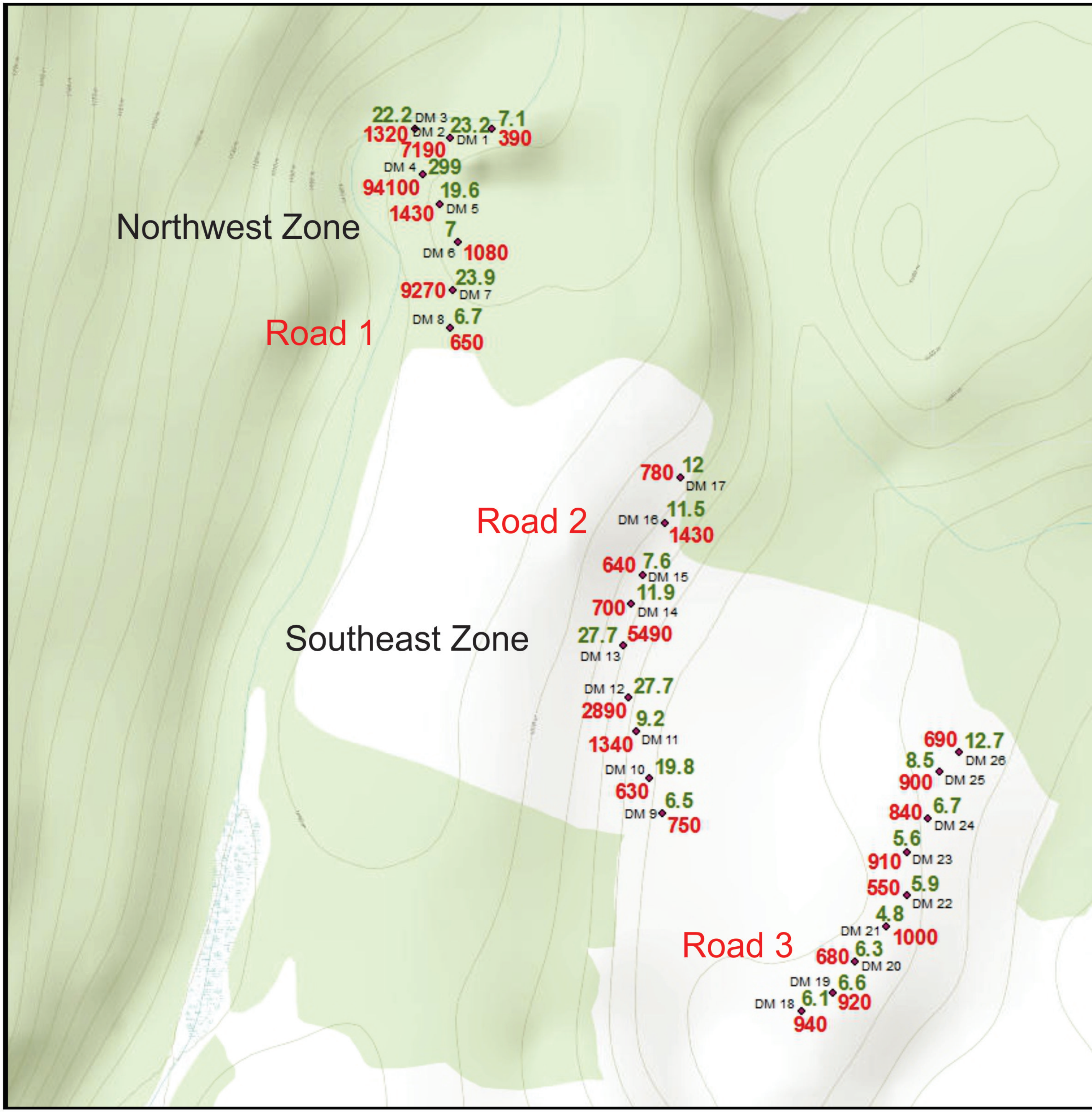


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| Office: | |
| Figure: 7 | |
| Scale: as shown | NTS 92 I-7W (92I 013) |
| Nicola Mining District, British Columbia | |

### 3.1 MMI Survey Discussion

The recent MMI soil sampling program carried out over the known mineral zones on the DOT property clearly demonstrates its usefulness at detecting mineral zones buried at depth.  The copper mineral zones were clearly defined, particularly indicated with copper values at greater than 1000 ppb Cu.  The higher copper values are clearly associated with anomalous silver values as illustrated on Figure 6.

Gold values were generally quite low, which was to be expected in the currently known mineral zones.

Sample DM-04, located near the historic Upper Vimy Mine was highly anomalous in copper (**94,100 ppb Cu**) and silver (**299 ppb Ag**), also with a molybdenum value of **226 ppb Mo** and a cobalt value of **150 ppb Co**. Sample DM-07 ( on Road 1) and DM-13 (on Road 2) were also anomalous in cobalt at **110 ppb Co** and **203 ppb Co**, respectively.

The highly anomalous Copper +/- silver values along the Road 1 sampling area clearly reflects the presence of the underlying Northwest copper zone, while the Road 2 sampling transect clearly shows the underlying presence of the Southeast copper zone. On Road 2, consecutive samples DM-11 to DM-13, ran **1340 ppb Cu, 2890 ppb Cu** and **5490 ppb Cu**, respectively which indicates an underlying copper zone of at least 100 metres in width. Also on Road 2, sample DM-16, with a value of **1430 ppb Cu**, may indicate a narrow mineralized fault structure, possibly representing the **East Zone** (see fig. 4) lying to the east of and sub-parallel to the Southeast copper zone.

The Road 3 sampling interval, to  the southeast of Road 2 did not return as highly anomalous values as were found on Road 1 and Road 2, but were generally elevated in copper, with sample DM-21 returning a value of 1000 ppb Cu.  Of the 9 samples collected along Road 3, six of these samples returned anomalous values of between 840 ppb Cu to 1000 ppb Cu, which suggests further investigation is justified in this area of the Dot Property

The higher copper value samples also show an increase in associated anomalous manganese, which is likely a result of Mn ion release at the weathered and faulted paleo-surface of the mineral zones.

## 4.0 CONCLUSIONS AND RECOMMENDATIONS

Mobile Metal Ion (MMI) geochemistry is a proven advanced geochemical exploration technique known to find mineral deposits. It is especially well suited for deeply buried mineral deposits. MMI™ measures metal **ions** that travel upward from mineralization through unconsolidated surface materials such soil, till, sand and so on.

Over 20 years of research, and the practical application of MMI Geochemistry in mineral exploration has seen a substantial increase in the understanding of the release, migration and accumulation near surface of mobile metallic ions emanating from buried mineralization sources and underlying lithologies.

What has been demonstrated is that metal ions move towards the surface, given sufficient time they can accumulate near surface in a soil profile. MMI has proved successful in a broad range of landform situations including relic, lateritic, erosional and depositional regimes.

The results of the MMI Survey on the DOT property have shown that the MMI soil sampling procedure is a useful and reliable method of locating deeply buried zones of porphyry style mineralization. Future exploration of the DOT Property will certainly employ the MMI procedure for carrying out further exploration work on the Property.

To date the main exploration tool that has been useful in locating new areas of mineralization on the DOT property has been the employment of Induced Polarization (IP) surveys. Other exploration surveys such as magnetics (mag), electomagnetic (EM) and conventional soil sampling have not led to reliable or definitive drilling targets.

Although IP surveys are a very useful exploration tool, it is recommended that MMI sampling be first considered as a less expensive alternative for further reconnaissance - level exploration of outlying areas of the property area.

For almost 40 years (since the early 1980's), the Dot Property has seen several programs of percussion drilling, reverse-circulation drilling and diamond drilling. The usefulness of the data produced by the various drilling programs has been compromised by various factors, including questionable drill hole locations, variable depths of drilling and variable drill hole orientations.

Attempts have been made to blend percussion drilling data with diamond drilling data, resulting in questionable or unreliable geological interpretations.

At present the Dot Property has a mineral resource estimate in the lower confidence inferred and indicated categories. Another more comprehensive and consistent program of tightly-spaced diamond drilling is recommended to establish a higher confidence level in the probable and proven mineral reserve categories.

## 5.0 REFERENCES

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## 6.0 STATEMENT OF EXPENSES (Sept 23-25, 2018)

| | | | |
|---|---|---|---|
| **SALARIES** | | | |
| G. Thomson, P.Geo. | 3days | $600/day | $1800.00 |
| G. Brown (assistant) | 3 days | $200/day | $600.00 |
| G. Davidson (assistant) | 3 days | $200/day | $600.00 |
| **EXPENSES** | | | |
| **Motel (Merrit)** | 2 nights | | $434.70 |
| **Meals** | 3 days | | $544.05 |
| **Truck Rental** | 3 days | $100/day | $300.00 |
| **Gasoline** | | | $621.53 |
| **Field equipment and supplies** | | | $555.49 |
| **SGS lab analyses** | 26 MMI samples | | $1200.00 |
| **Assessment Report** | | | $1500.00 |
| | | | |
| **TOTAL** | | | **$8,155.77** |
| | | | |

## 7.0 STATEMENT OF QUALIFICATIONS

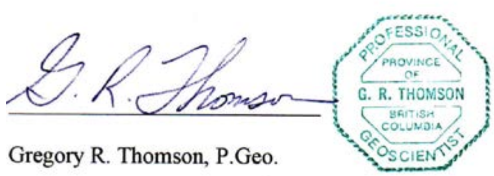
I: Gregory R. Thomson, of Langley, British Columbia, Canada do hereby certify:

That I am a certified Professional Geoscientist registered in the province of British Columbia, Canada

That I am a graduate Geologist from the University of British Columbia (1970) and have over 35 years of mineral exploration experience, working mainly in British Columbia, also with work experience in U.S.A., Mexico and Mongolia.

That the information contained in this report is based upon a review of government reports, assessment reports and technical reports related to the area of the DOT Mineral Property.

I personally supervised the MMI sampling program carried out on the DOT Property over the period September 23-25, 2018




Dated at Langley, British Columbia, February 15, 2019

# APPENDIX 1 MMI Soil Sample Locations (Dot Property)

| SAMPLE NO. | Northing | Easting | copper ppb | silver ppb |
|---|---|---|---|---|
| DM 1 | 5576604 | 653091 | 390 | 7.1 |
| DM 2 | 5576592 | 653040 | 7190 | 23.2 |
| DM 3 | 5576604 | 652997 | 1320 | 22.2 |
| DM 4 | 5576548 | 653006 | 94100 | 299 |
| DM 5 | 5576512 | 653027 | 1430 | 19.6 |
| DM 6 | 5576465 | 653049 | 1080 | 7 |
| DM 7 | 5576407 | 653043 | 9270 | 23.9 |
| DM 8 | 5576360 | 653039 | 650 | 6.7 |
| DM 9 | 5575768 | 653299 | 750 | 6.5 |
| DM 10 | 5575811 | 653283 | 630 | 19.8 |
| DM 11 | 5575868 | 653266 | 1340 | 9.2 |
| DM 12 | 5575910 | 653258 | 2890 | 27.7 |
| DM 13 | 5575973 | 653251 | 5490 | 27.7 |
| DM 14 | 5576024 | 653261 | 700 | 11.9 |
| DM 15 | 5576059 | 653274 | 640 | 7.6 |
| DM 16 | 5576123 | 653301 | 1430 | 11.5 |
| DM 17 | 5576178 | 653320 | 780 | 12 |
| DM 18 | 5575527 | 653468 | 940 | 6.1 |
| DM 19 | 5575550 | 653506 | 920 | 6.6 |
| DM 20 | 5575587 | 653534 | 680 | 6.3 |
| DM 21 | 5575630 | 653572 | 1000 | 4.8 |
| DM 22 | 5575668 | 653597 | 550 | 5.9 |
| DM 23 | 5575721 | 653597 | 910 | 5.6 |
| DM 24 | 5575763 | 653623 | 840 | 6.7 |
| DM 25 | 5575819 | 653636 | 900 | 8.5 |
| DM 26 | 5575843 | 653661 | 690 | 12.7 |

# APPENDIX 2

## MMI Analytical Results

# Certificate of Analysis
## Work Order : VC183616
## [Report File No.: 0000034131]

**Date:** February 12, 2019

**To:** **Greg Thomson**
**COD SGS MINERALS - GEOCHEM VANCOUVER**
40 - 21928 48th Ave
Langley
BC V3A 8H1

**P.O. No.:** THOMSON GEOLOGICAL / 26 Soil Samples
**Project No.:** -
**Samples:** 26
**Received:** Oct 1, 2018
**Pages:** Page 1 to 8
(Inclusive of Cover Sheet)

**Methods Summary**

| No. Of Samples | Method Code | Description |
|---|---|---|
| 26 | G_LOG02 | Pre-preparation processing, sorting, logging, boxing |
| 26 | GE_MMI_M | Mobile Metal ION standard package/ICP-MS |

**Comments:**

Upon Client's request, this Certificate/Report has been issued in more than one original. Only the first original is a legally binding document and may be used for any legal purpose, including payment.

Certified By : ______________________
Gerald Chik
Operations Manager/Chief Chemist

***SGS Minerals Services Geochemistry Vancouver conforms to the requirements of ISO/IEC 17025 for specific tests as listed on their scope of accreditation which can be found at http://www.scc.ca/en/search/palcan/sgs***

Report Footer:

| | | | |
|---|---|---|---|
| L.N.R. | = Listed not received | I.S. | = Insufficient Sample |
| n.a. | = Not applicable | -- | = No result |

*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

| Element | Ag | Al | As | Au | Ba | Bi | Ca | Cd |
|---|---|---|---|---|---|---|---|---|
| Method | GE_MMI_M | GE_MMI_M | GE_MMI_M | GE_MMI_M | GE_MMI_M | GE_MMI_M | GE_MMI_M | GE_MMI_M |
| Det.Lim. | 0.5 | 1 | 10 | 0.1 | 10 | 0.5 | 2 | 1 |
| Units | ppb | ppm | ppb | ppb | ppb | ppb | ppm | ppb |
| DM1 | 7.1 | 33 | <10 | <0.1 | 3230 | <0.5 | 413 | 2 |
| DM2 | 23.2 | 12 | <10 | 0.2 | 3700 | <0.5 | 742 | 3 |
| DM3 | 22.2 | 52 | <10 | <0.1 | 12900 | <0.5 | 401 | 2 |
| DM4 | 299 | 4 | <10 | 2.5 | 3930 | <0.5 | 677 | 2 |
| DM5 | 19.6 | 8 | <10 | 0.3 | 4810 | <0.5 | 469 | 1 |
| DM6 | 7.0 | 32 | <10 | 0.1 | 5690 | <0.5 | 291 | 1 |
| DM7 | 23.9 | 20 | <10 | 0.4 | 4190 | <0.5 | 598 | 4 |
| DM8 | 6.7 | 34 | <10 | 0.2 | 10900 | <0.5 | 398 | 1 |
| DM9 | 6.5 | 21 | <10 | 0.1 | 7840 | <0.5 | 332 | 1 |
| DM10 | 19.8 | 32 | <10 | <0.1 | 2620 | <0.5 | 288 | 3 |
| DM11 | 9.2 | 19 | <10 | 0.2 | 4170 | <0.5 | 343 | 1 |
| DM12 | 27.7 | 6 | <10 | 0.3 | 4520 | <0.5 | 876 | 9 |
| DM13 | 27.7 | 9 | <10 | 0.4 | 2470 | <0.5 | 490 | 3 |
| DM14 | 11.9 | 15 | <10 | 0.1 | 1810 | <0.5 | 390 | <1 |
| DM15 | 7.6 | 21 | <10 | 0.2 | 6010 | <0.5 | 281 | <1 |
| DM16 | 11.5 | 18 | <10 | <0.1 | 4580 | <0.5 | 434 | <1 |
| DM17 | 12.0 | 60 | <10 | <0.1 | 1380 | <0.5 | 268 | 1 |
| DM18 | 6.1 | 29 | <10 | 0.1 | 5790 | <0.5 | 456 | 1 |
| DM19 | 6.6 | 12 | <10 | <0.1 | 7440 | <0.5 | 509 | 2 |
| DM20 | 6.3 | 24 | <10 | <0.1 | 4920 | <0.5 | 413 | 1 |
| DM21 | 4.8 | 7 | <10 | 0.5 | 4470 | <0.5 | 475 | <1 |
| DM22 | 5.9 | 25 | <10 | <0.1 | 4590 | <0.5 | 422 | 2 |
| DM23 | 5.6 | 26 | <10 | <0.1 | 5400 | <0.5 | 396 | 2 |
| DM24 | 6.7 | 17 | <10 | 0.1 | 5330 | <0.5 | 478 | 1 |
| DM25 | 8.5 | 15 | <10 | 0.6 | 9990 | <0.5 | 526 | 1 |
| DM26 | 12.7 | 28 | <10 | 0.1 | 5690 | <0.5 | 470 | 2 |
| *Rep DM6 | 9.0 | 35 | <10 | 0.2 | 5940 | <0.5 | 306 | 1 |
| *Rep DM10 | 18.9 | 27 | <10 | 0.2 | 2680 | <0.5 | 277 | 2 |
| *Std MMISRM24 | 20.4 | 32 | <10 | 3.5 | 130 | <0.5 | 69 | 6 |
| *Blk BLANK | <0.5 | <1 | <10 | <0.1 | <10 | <0.5 | <2 | <1 |

## Final : VC183616  Order: THOMSON GEOLOGICAL / 26 Soil Samples

Report File No.: 0000034131

| Element | Ce | Co | Cr | Cs | Cu | Dy | Er | Eu |
|---|---|---|---|---|---|---|---|---|
| Method | GE_MMI_M | GE_MMI_M | GE_MMI_M | GE_MMI_M | GE_MMI_M | GE_MMI_M | GE_MMI_M | GE_MMI_M |
| Det.Lim. | 2 | 1 | 100 | 0.2 | 10 | 0.5 | 0.2 | 0.2 |
| Units | ppb | ppb | ppb | ppb | ppb | ppb | ppb | ppb |
| DM1 | 91 | 21 | <100 | 0.5 | 390 | 5.9 | 2.9 | 1.8 |
| DM2 | 51 | 18 | <100 | 0.6 | 7190 | 6.8 | 3.6 | 2.4 |
| DM3 | 276 | 16 | <100 | 1.1 | 1320 | 32.5 | 16.3 | 8.6 |
| DM4 | 35 | 150 | <100 | 1.6 | 94100 | 11.8 | 9.0 | 1.9 |
| DM5 | 153 | 55 | <100 | <0.2 | 1430 | 6.9 | 2.9 | 2.7 |
| DM6 | 130 | 31 | <100 | 0.6 | 1080 | 6.9 | 3.2 | 2.5 |
| DM7 | 212 | 110 | <100 | 0.2 | 9270 | 40.5 | 24.4 | 9.3 |
| DM8 | 276 | 37 | <100 | 0.5 | 650 | 18.7 | 8.9 | 6.2 |
| DM9 | 254 | 57 | <100 | 0.5 | 750 | 15.3 | 6.7 | 5.2 |
| DM10 | 173 | 42 | <100 | 0.3 | 630 | 9.6 | 4.6 | 2.7 |
| DM11 | 344 | 18 | <100 | 0.3 | 1340 | 28.7 | 12.1 | 7.6 |
| DM12 | 26 | 47 | <100 | 0.2 | 2890 | 28.6 | 13.5 | 7.0 |
| DM13 | 140 | 203 | <100 | <0.2 | 5490 | 61.3 | 36.2 | 12.4 |
| DM14 | 135 | 19 | <100 | 0.2 | 700 | 10.3 | 5.0 | 3.1 |
| DM15 | 120 | 29 | <100 | 0.4 | 640 | 6.0 | 2.8 | 2.1 |
| DM16 | 184 | 22 | <100 | 0.3 | 1430 | 9.9 | 4.7 | 3.3 |
| DM17 | 113 | 31 | <100 | 1.2 | 780 | 5.6 | 2.7 | 2.0 |
| DM18 | 453 | 67 | <100 | 0.3 | 940 | 38.2 | 17.9 | 9.4 |
| DM19 | 197 | 20 | <100 | 0.3 | 920 | 24.3 | 11.9 | 7.6 |
| DM20 | 281 | 31 | <100 | 0.3 | 680 | 14.3 | 6.3 | 4.5 |
| DM21 | 64 | 18 | <100 | <0.2 | 1000 | 6.0 | 2.6 | 2.1 |
| DM22 | 124 | 32 | <100 | 0.2 | 550 | 9.0 | 4.5 | 3.1 |
| DM23 | 317 | 73 | <100 | 0.4 | 910 | 15.7 | 7.2 | 4.9 |
| DM24 | 193 | 24 | <100 | 0.2 | 840 | 11.1 | 5.2 | 3.7 |
| DM25 | 204 | 27 | <100 | <0.2 | 900 | 27.8 | 12.3 | 9.1 |
| DM26 | 153 | 25 | <100 | 0.3 | 690 | 11.1 | 5.0 | 3.4 |
| *Rep DM6 | 146 | 26 | <100 | 0.6 | 1060 | 7.9 | 3.6 | 2.8 |
| *Rep DM10 | 146 | 29 | <100 | 0.3 | 570 | 7.5 | 3.7 | 2.2 |
| *Std MMISRM24 | 47 | 15 | <100 | 10.5 | 260 | 3.1 | 1.3 | 1.2 |
| *Blk BLANK | <2 | <1 | <100 | <0.2 | <10 | <0.5 | <0.2 | <0.2 |

| Element | Fe | Ga | Gd | Hg | In | K | La | Li |
|---|---|---|---|---|---|---|---|---|
| Method | GE_MMI_M | GE_MMI_M | GE_MMI_M | GE_MMI_M | GE_MMI_M | GE_MMI_M | GE_MMI_M | GE_MMI_M |
| Det.Lim. | 1 | 0.5 | 0.5 | 1 | 0.1 | 0.5 | 1 | 1 |
| Units | ppm | ppb | ppb | ppb | ppb | ppm | ppb | ppb |
| DM1 | 31 | 2.2 | 6.9 | <1 | <0.1 | 41.1 | 25 | 3 |
| DM2 | 15 | 0.7 | 9.4 | <1 | <0.1 | 46.9 | 16 | <1 |
| DM3 | 31 | 3.3 | 38.8 | <1 | <0.1 | 32.7 | 123 | 1 |
| DM4 | 6 | <0.5 | 9.3 | 5 | <0.1 | 53.1 | 7 | 3 |
| DM5 | 18 | 0.6 | 9.2 | <1 | <0.1 | 39.4 | 54 | 1 |
| DM6 | 28 | 2.3 | 8.5 | <1 | <0.1 | 26.8 | 61 | 1 |
| DM7 | 28 | 1.1 | 46.8 | <1 | <0.1 | 40.8 | 87 | 1 |
| DM8 | 21 | 1.4 | 22.3 | <1 | <0.1 | 20.9 | 97 | 2 |
| DM9 | 32 | 1.9 | 21.0 | <1 | <0.1 | 38.6 | 103 | 3 |
| DM10 | 42 | 2.3 | 11.3 | <1 | <0.1 | 65.1 | 54 | 2 |
| DM11 | 22 | 1.4 | 32.9 | <1 | <0.1 | 63.5 | 113 | 3 |
| DM12 | 5 | <0.5 | 37.9 | <1 | <0.1 | 124 | 24 | 22 |
| DM13 | 9 | <0.5 | 70.8 | <1 | <0.1 | 104 | 67 | 8 |
| DM14 | 32 | 1.1 | 13.5 | <1 | <0.1 | 74.3 | 48 | 1 |
| DM15 | 26 | 1.6 | 7.5 | <1 | <0.1 | 76.2 | 41 | <1 |
| DM16 | 26 | 1.3 | 12.3 | <1 | <0.1 | 31.7 | 64 | 2 |
| DM17 | 61 | 5.1 | 7.0 | <1 | <0.1 | 35.2 | 42 | 2 |
| DM18 | 18 | 1.2 | 41.0 | <1 | <0.1 | 17.8 | 148 | 4 |
| DM19 | 16 | 0.6 | 32.1 | <1 | <0.1 | 43.6 | 90 | 2 |
| DM20 | 24 | 1.5 | 17.3 | <1 | <0.1 | 24.2 | 102 | 2 |
| DM21 | 11 | 0.5 | 8.1 | <1 | <0.1 | 66.4 | 30 | 1 |
| DM22 | 27 | 1.8 | 11.5 | <1 | <0.1 | 79.8 | 50 | 2 |
| DM23 | 25 | 1.5 | 18.2 | <1 | <0.1 | 35.7 | 87 | 8 |
| DM24 | 25 | 1.3 | 13.8 | <1 | <0.1 | 37.9 | 57 | 3 |
| DM25 | 16 | 0.6 | 37.2 | <1 | <0.1 | 28.4 | 135 | 2 |
| DM26 | 25 | 1.5 | 12.7 | <1 | <0.1 | 42.2 | 50 | 3 |
| *Rep DM6 | 30 | 2.4 | 10.0 | <1 | <0.1 | 26.7 | 70 | 1 |
| *Rep DM10 | 35 | 1.9 | 9.3 | <1 | <0.1 | 66.1 | 46 | 1 |
| *Std MMISRM24 | 8 | 2.6 | 4.9 | 2 | <0.1 | 12.6 | 19 | 1 |
| *Blk BLANK | <1 | <0.5 | <0.5 | <1 | <0.1 | <0.5 | <1 | <1 |

| Element | Mg | Mn | Mo | Nb | Nd | Ni | P | Pb |
|---|---|---|---|---|---|---|---|---|
| Method | GE_MMI_M | GE_MMI_M | GE_MMI_M | GE_MMI_M | GE_MMI_M | GE_MMI_M | GE_MMI_M | GE_MMI_M |
| Det.Lim. | 0.5 | 100 | 2 | 0.5 | 1 | 5 | 0.1 | 5 |
| Units | ppm | ppb | ppb | ppb | ppb | ppb | ppm | ppb |
| DM1 | 30.3 | 1800 | 3 | 0.7 | 32 | 65 | 5.0 | 25 |
| DM2 | 12.4 | 2400 | 8 | <0.5 | 35 | 64 | 1.9 | 8 |
| DM3 | 21.3 | 900 | 4 | 0.7 | 165 | 23 | 1.4 | 77 |
| DM4 | 35.1 | 6300 | 226 | <0.5 | 19 | 74 | 1.7 | 9 |
| DM5 | 78.8 | 400 | 4 | 0.5 | 52 | 102 | 1.9 | 28 |
| DM6 | 48.8 | 1400 | 3 | 1.0 | 50 | 30 | 2.0 | 34 |
| DM7 | 94.4 | 10100 | 6 | <0.5 | 147 | 276 | 1.4 | 31 |
| DM8 | 51.2 | 1100 | 3 | <0.5 | 113 | 40 | 1.5 | 29 |
| DM9 | 53.4 | 500 | <2 | 1.0 | 106 | 58 | 3.0 | 49 |
| DM10 | 36.1 | 1500 | 3 | 2.2 | 59 | 59 | 5.8 | 35 |
| DM11 | 47.8 | 400 | <2 | 0.9 | 156 | 55 | 3.3 | 22 |
| DM12 | 95.5 | 3100 | 4 | <0.5 | 70 | 491 | 1.7 | 19 |
| DM13 | 167 | 8400 | 5 | <0.5 | 153 | 599 | 0.9 | 31 |
| DM14 | 33.9 | 200 | 3 | 1.1 | 67 | 93 | 5.2 | 28 |
| DM15 | 43.5 | 200 | <2 | 1.4 | 41 | 31 | 4.8 | 42 |
| DM16 | 57.1 | 400 | <2 | <0.5 | 69 | 60 | 2.3 | 21 |
| DM17 | 38.7 | 400 | 2 | 2.2 | 37 | 40 | 9.0 | 35 |
| DM18 | 78.7 | 900 | <2 | <0.5 | 169 | 91 | 1.1 | 25 |
| DM19 | 73.1 | 1200 | 2 | <0.5 | 145 | 85 | 1.3 | 16 |
| DM20 | 55.9 | 700 | <2 | <0.5 | 99 | 46 | 1.5 | 31 |
| DM21 | 69.9 | 600 | 3 | <0.5 | 37 | 54 | 2.4 | 13 |
| DM22 | 63.0 | 1600 | 6 | 0.6 | 58 | 88 | 3.3 | 40 |
| DM23 | 76.2 | 1000 | 3 | <0.5 | 98 | 120 | 2.5 | 59 |
| DM24 | 81.2 | 400 | 3 | <0.5 | 69 | 83 | 1.5 | 28 |
| DM25 | 80.5 | 300 | <2 | <0.5 | 181 | 69 | 1.4 | 27 |
| DM26 | 59.7 | 900 | <2 | <0.5 | 64 | 77 | 1.5 | 36 |
| *Rep DM6 | 49.1 | 1200 | 3 | 1.1 | 58 | 34 | 2.1 | 38 |
| *Rep DM10 | 34.2 | 1300 | 3 | 1.9 | 49 | 48 | 6.2 | 29 |
| *Std MMISRM24 | 13.1 | 300 | 22 | <0.5 | 27 | 121 | 0.4 | 236 |
| *Blk BLANK | <0.5 | <100 | <2 | <0.5 | <1 | <5 | <0.1 | <5 |

| Element | Pd | Pr | Pt | Rb | Sb | Sc | Sm | Sn |
|---|---|---|---|---|---|---|---|---|
| Method | GE_MMI_M | GE_MMI_M | GE_MMI_M | GE_MMI_M | GE_MMI_M | GE_MMI_M | GE_MMI_M | GE_MMI_M |
| Det.Lim. | 1 | 0.5 | 0.1 | 1 | 0.5 | 5 | 1 | 1 |
| Units | ppb | ppb | ppb | ppb | ppb | ppb | ppb | ppb |
| DM1 | <1 | 7.4 | <0.1 | 41 | <0.5 | 15 | 7 | <1 |
| DM2 | <1 | 6.8 | <0.1 | 44 | <0.5 | 8 | 9 | <1 |
| DM3 | <1 | 37.1 | <0.1 | 90 | <0.5 | 26 | 37 | <1 |
| DM4 | <1 | 3.2 | <0.1 | 34 | <0.5 | 12 | 6 | <1 |
| DM5 | <1 | 12.5 | <0.1 | 21 | <0.5 | 12 | 10 | <1 |
| DM6 | <1 | 12.5 | <0.1 | 61 | <0.5 | 14 | 9 | <1 |
| DM7 | <1 | 29.4 | <0.1 | 31 | <0.5 | 20 | 35 | <1 |
| DM8 | <1 | 26.6 | <0.1 | 81 | <0.5 | 21 | 23 | <1 |
| DM9 | <1 | 26.7 | <0.1 | 56 | <0.5 | 23 | 21 | <1 |
| DM10 | <1 | 14.4 | <0.1 | 48 | <0.5 | 23 | 12 | <1 |
| DM11 | <1 | 37.2 | <0.1 | 55 | <0.5 | 24 | 35 | <1 |
| DM12 | <1 | 10.7 | <0.1 | 31 | <0.5 | 8 | 25 | <1 |
| DM13 | <1 | 26.7 | <0.1 | 16 | <0.5 | 13 | 47 | <1 |
| DM14 | <1 | 14.6 | <0.1 | 38 | <0.5 | 16 | 13 | <1 |
| DM15 | <1 | 9.9 | <0.1 | 32 | <0.5 | 14 | 8 | <1 |
| DM16 | <1 | 16.0 | <0.1 | 27 | <0.5 | 12 | 13 | <1 |
| DM17 | <1 | 9.6 | <0.1 | 82 | <0.5 | 20 | 7 | <1 |
| DM18 | <1 | 37.3 | <0.1 | 61 | <0.5 | 45 | 38 | <1 |
| DM19 | <1 | 30.5 | <0.1 | 69 | <0.5 | 13 | 32 | <1 |
| DM20 | <1 | 24.2 | <0.1 | 52 | <0.5 | 15 | 19 | <1 |
| DM21 | <1 | 8.2 | <0.1 | 19 | <0.5 | 9 | 8 | <1 |
| DM22 | <1 | 14.0 | <0.1 | 37 | <0.5 | 16 | 12 | <1 |
| DM23 | <1 | 24.3 | <0.1 | 34 | <0.5 | 23 | 20 | <1 |
| DM24 | <1 | 15.7 | <0.1 | 38 | <0.5 | 15 | 14 | <1 |
| DM25 | <1 | 38.0 | <0.1 | 22 | <0.5 | 13 | 37 | <1 |
| DM26 | <1 | 15.1 | <0.1 | 58 | <0.5 | 17 | 14 | <1 |
| *Rep DM6 | <1 | 14.0 | <0.1 | 59 | <0.5 | 15 | 10 | <1 |
| *Rep DM10 | <1 | 11.9 | <0.1 | 45 | <0.5 | 20 | 10 | <1 |
| *Std MMISRM24 | 5 | 6.4 | 2.6 | 135 | <0.5 | 6 | 5 | <1 |
| *Blk BLANK | <1 | <0.5 | <0.1 | <1 | <0.5 | <5 | <1 | <1 |

Final : VC183616 Order: THOMSON GEOLOGICAL / 26 Soil Samples

Report File No.: 0000034131

| Element | Sr | Ta | Tb | Te | Th | Ti | Tl | U |
|---|---|---|---|---|---|---|---|---|
| Method | GE_MMI_M | GE_MMI_M | GE_MMI_M | GE_MMI_M | GE_MMI_M | GE_MMI_M | GE_MMI_M | GE_MMI_M |
| Det.Lim. | 10 | 1 | 0.1 | 10 | 0.5 | 10 | 0.1 | 0.5 |
| Units | ppb | ppb | ppb | ppb | ppb | ppb | ppb | ppb |
| DM1 | 1730 | <1 | 1.0 | <10 | 17.4 | 150 | 0.2 | 6.8 |
| DM2 | 1300 | <1 | 1.2 | <10 | 10.4 | 30 | 0.2 | 13.8 |
| DM3 | 1810 | <1 | 5.2 | <10 | 15.2 | 90 | 0.2 | 18.9 |
| DM4 | 1320 | <1 | 1.4 | <10 | 20.2 | 10 | <0.1 | 22.6 |
| DM5 | 2310 | <1 | 1.2 | <10 | 25.7 | 60 | <0.1 | 12.5 |
| DM6 | 2020 | <1 | 1.1 | <10 | 26.3 | 170 | <0.1 | 6.7 |
| DM7 | 2350 | <1 | 6.3 | <10 | 35.2 | 20 | <0.1 | 29.2 |
| DM8 | 3080 | <1 | 3.1 | <10 | 28.7 | 50 | 0.1 | 10.4 |
| DM9 | 2310 | <1 | 2.5 | <10 | 27.3 | 180 | <0.1 | 9.9 |
| DM10 | 1430 | <1 | 1.5 | <10 | 26.6 | 220 | <0.1 | 8.2 |
| DM11 | 2030 | <1 | 4.8 | <10 | 17.3 | 80 | <0.1 | 10.0 |
| DM12 | 4390 | <1 | 4.7 | <10 | 5.7 | 10 | <0.1 | 5.2 |
| DM13 | 2310 | <1 | 9.2 | <10 | 31.5 | 20 | <0.1 | 22.4 |
| DM14 | 1490 | <1 | 1.7 | <10 | 16.3 | 90 | <0.1 | 11.0 |
| DM15 | 1620 | <1 | 1.0 | <10 | 21.5 | 130 | <0.1 | 7.4 |
| DM16 | 2260 | <1 | 1.6 | <10 | 30.0 | 60 | <0.1 | 11.3 |
| DM17 | 1340 | <1 | 1.0 | <10 | 27.4 | 410 | <0.1 | 6.9 |
| DM18 | 3370 | <1 | 5.9 | <10 | 27.8 | 10 | 0.1 | 23.5 |
| DM19 | 2890 | <1 | 4.2 | <10 | 27.2 | 20 | <0.1 | 14.7 |
| DM20 | 2330 | <1 | 2.3 | <10 | 36.6 | 60 | <0.1 | 9.5 |
| DM21 | 2610 | <1 | 1.0 | <10 | 11.0 | 20 | <0.1 | 10.8 |
| DM22 | 2010 | <1 | 1.5 | <10 | 27.1 | 120 | <0.1 | 8.2 |
| DM23 | 2510 | <1 | 2.7 | <10 | 31.2 | 130 | <0.1 | 8.1 |
| DM24 | 2610 | <1 | 1.9 | <10 | 32.6 | 40 | <0.1 | 12.9 |
| DM25 | 3410 | <1 | 4.8 | <10 | 22.8 | 30 | <0.1 | 16.5 |
| DM26 | 2590 | <1 | 1.7 | <10 | 30.8 | 90 | <0.1 | 9.9 |
| *Rep DM6 | 2080 | <1 | 1.3 | <10 | 26.5 | 180 | <0.1 | 7.2 |
| *Rep DM10 | 1420 | <1 | 1.3 | <10 | 23.1 | 200 | <0.1 | 7.3 |
| *Std MMISRM24 | 1520 | <1 | 0.6 | <10 | 14.1 | 40 | 0.1 | 8.9 |
| *Blk BLANK | <10 | <1 | <0.1 | <10 | <0.5 | <10 | <0.1 | <0.5 |

## Final : VC183616 Order: THOMSON GEOLOGICAL / 26 Soil Samples

Report File No.: 0000034131

| Element | W | Y | Yb | Zn | Zr |
|---|---|---|---|---|---|
| Method | GE_MMI_M | GE_MMI_M | GE_MMI_M | GE_MMI_M | GE_MMI_M |
| Det.Lim. | 0.5 | 1 | 0.2 | 10 | 2 |
| Units | ppb | ppb | ppb | ppb | ppb |
| DM1 | <0.5 | 25 | 2.4 | 610 | 46 |
| DM2 | <0.5 | 44 | 2.9 | 130 | 23 |
| DM3 | <0.5 | 173 | 13.1 | 100 | 155 |
| DM4 | <0.5 | 96 | 10.1 | 30 | 30 |
| DM5 | <0.5 | 35 | 2.4 | 60 | 43 |
| DM6 | <0.5 | 37 | 2.5 | 100 | 116 |
| DM7 | <0.5 | 226 | 20.3 | 130 | 37 |
| DM8 | <0.5 | 97 | 7.1 | 40 | 85 |
| DM9 | <0.5 | 78 | 5.0 | 50 | 103 |
| DM10 | <0.5 | 45 | 3.9 | 240 | 187 |
| DM11 | <0.5 | 119 | 10.2 | 130 | 172 |
| DM12 | <0.5 | 161 | 8.6 | 20 | 9 |
| DM13 | <0.5 | 337 | 27.0 | 10 | 31 |
| DM14 | <0.5 | 52 | 3.8 | 20 | 65 |
| DM15 | <0.5 | 27 | 2.2 | 50 | 112 |
| DM16 | <0.5 | 48 | 3.7 | 60 | 54 |
| DM17 | <0.5 | 27 | 2.3 | 220 | 83 |
| DM18 | <0.5 | 181 | 14.1 | 80 | 61 |
| DM19 | <0.5 | 120 | 9.5 | 70 | 52 |
| DM20 | <0.5 | 64 | 5.3 | 100 | 66 |
| DM21 | <0.5 | 30 | 2.1 | 120 | 36 |
| DM22 | <0.5 | 44 | 3.7 | 300 | 75 |
| DM23 | <0.5 | 71 | 5.9 | 200 | 100 |
| DM24 | <0.5 | 53 | 4.5 | 80 | 64 |
| DM25 | <0.5 | 134 | 8.9 | 50 | 59 |
| DM26 | <0.5 | 50 | 4.3 | 190 | 92 |
| *Rep DM6 | <0.5 | 43 | 2.9 | 100 | 112 |
| *Rep DM10 | <0.5 | 37 | 3.3 | 220 | 166 |
| *Std MMISRM24 | <0.5 | 21 | 0.8 | 160 | 22 |
| *Blk BLANK | <0.5 | <1 | <0.2 | <10 | <2 |

# APPENDIX 3

# MMI Analytical Procedures

Minerals Services METHOD SUMMARY

# MMI - M : The Determination of Mobile Metal Ions (MMI): Ag, Al, As, Au, Ba, Bi, Ca, Cd, Ce, Co, Cr, Cs, Cu, Dy, Er, Eu, Fe, Ga, Gd, Hg, In, K, La, Li, Mg, Mn, Mo, Nb, Nd, Ni, P, Pb, Pd, Pr, Pt, Rb, Sb, Sc, Sm, Sn, Sr, Ta, Tb, Te, Th, Ti, Tl, U, W, Y, Yb, Zn, Zr by partial extraction and ICP-MS.

1. **Parameter(s) measured, unit(s):**
   Silver (Ag); Aluminum (Al); Arsenic (As); Gold (Au); Barium (Ba); Bismuth (Bi); Calcium (Ca); Cadmium (Cd); Cerium (Ce); Chromium (Cr); Cobalt (Co); Cesium (Cs); Copper (Cu); Dysprosium (Dy); Erbium (Er); Europium (Eu); Iron (Fe); Gallium (Ga); Gadolinium (Gd); Mercury (Hg); Indium (In); Potassium (K); Lanthanum (La); Lithium (Li); Magnesium (Mg), Manganese (Mn); Molybdenum (Mo); Niobium (Nb); Neodymium (Nd); Nickel (Ni); Phosphorus (P); Lead (Pb); Palladium (Pd); Praseodymium (Pr); Platinum (Pt); Rubidium (Rb); Antimony (Sb); Scandium (Sc); Samarium (Sm); Tin (Sn); Strontium (Sr); Tantalum (Ta); Terbium (Tb); Tellurium (Te); Thorium (Th); Titanium (Ti); Thallium (Tl); Uranium (U); Tungsten (W); Yttrium (Y); Ytterbium (Yb); Zinc (Zn) and Zirconium (Zr) by partial extraction and ICP-MS: ppb.

2. **Typical sample size:**
   50 g

3. **Type of sample applicable (media):**
   Soils

4. **Sample preparation technique used:**
   Mobile metal ions present in soil samples are partially extracted using a concentrated MMI –M solution.

5. **Method of analysis used:**
   The extracted sample solution is analyzed by Inductively coupled plasma Mass Spectrometer (ICP-MS). Samples are analyzed against known calibration materials to provide quantitative analysis of the original sample.

6. **Data reduction by:**
   The results are exported via computer, on line, data fed to the SGS Laboratory Information Management System (SLIM) with secure audit trail.

7. **Figures of Merit:**

| Element | Reporting Limit (ppb) | Element | Reporting Limit (ppb) | Elemen t | Reporting Limit (ppb) | Element | Reporting Limit (ppb) |
|---|---|---|---|---|---|---|---|
| Ag | 0.5 | Er | 0.2 | Nd | 1 | Ta | 1 |
| Al | 1.0 (ppm) | Eu | 0.2 | Ni | 5 | Tb | 0.1 |
| As | 10 | Fe | 1.0 (ppm) | P | 0.1 (ppm) | Te | 10 |
| Au | 0.1 | Ga | 0.5 | Pb | 5 | Th | 0.5 |
| Ba | 10 | Gd | 0.5 | Pd | 1 | Ti | 10 |
| Bi | 0.5 | Hg | 1 | Pr | 0.5 | Tl | 0.1 |
| Ca | 2 (ppm) | In | 0.1 | Pt | 0.1 | U | 0.5 |
| Cd | 1 | K | 0.5 (ppm) | Rb | 1 | W | 0.5 |
| Ce | 2 | La | 1 | Sb | 0.5 | Y | 1 |
| Co | 1 | Li | 1 | Sc | 5 | Yb | 0.2 |
| Cr | 100 | Mg | 0.5 (ppm) | Sm | 1 | Zn | 10 |
| Cs | 0.2 | Mn | 100 | Sn | 1 | Zr | 2 |
| Cu | 10 | Mo | 2 | Sr | 10 | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Dy | 0.5 | Nb | 0.5 | | | | |

**8. Quality control:**

Instrument calibration is performed for each batch or work order and calibration checks are analyzed within each analytical run. Quality control materials include method blanks, replicates and reference materials and are randomly inserted with the frequency set according to method protocols at ~14%.

Quality assurance measures of precision and accuracy are verified statistically using SLIM control charts with set criteria for data acceptance. Data that fails is subject to investigation and repeated as necessary.