NI 43-101 Technical Report on the Manuels Low Sulphidation Epithermal Gold Project

Conception Bay South

Avalon Peninsula, Newfoundland

Submitted to:

MLK Gold Ltd. (formerly Mountain Lake Minerals Inc.)

Effective Date: July 01, 2021

Signing Date: July 23, 2021

Submitted by:

R. Mark Graves, P. Geo

Frontispiece

The Chairman of Mountain Lake Minerals Inc. (Mr. William Fleming) examining a banded rhyolite outcrop near the Boxcar gold occurrence. The Town of Conception Bay South lies in the background and Bell and Kelly's Islands can be seen on the horizon.

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List of Abbreviations

ABBREVIATION	MEANING OF ABBREVIATION
°	degrees Celcius
°C	degrees Celcius
%	percent
$	dollars
CAN$	Canadian dollars
US$	USA dollars
3D	three dimensional
AA	atomin absorption
Ag	silver
Au	gold equivalent at 50/1 Ag/Au ratio @ 100% metal recovery
$AuEq_{50}$	gold equivalent at 50/1 Ag/Au ratio @ 100% metal recovery
cm	centimetres
g	gram(s)
g/t	gram(s) per tonne
ha	hectare(s)
ICP	inductively coupled plasma
ID^2	inverse distance squared
in	inch(es)
kg	kilogram(s)
km	kilometre(s)
L	litre(s)
m	metre(s)
m^3	cubic metre(s)
mm	millimetre(s)
Mt	million tonnes
oz.	troy ounce(s)
QA/QC	Quality Assurance/Quality Control
ppb	parts per billion
ppm	parts per million
t	tonne(s)
t/m^3	tonnes per cubic metre
Kozs.	kilo ounces
Mozs.	million ounces
g/l	grams per litre
P_{80}	80% passing
kg/t	kilograms per tonne
NaCN	Sodium Cyanide
NTS	National Topographic System
WGS84	World Geodetic System 1984
UTM	Universal Transverse Mercator
Nad83	North American Datum 1983
Nad27	North American Datum 1927
Z	Zone
GPS	Global Positioning System
AMSL	Above Mean Sea Level
ATV	All Terrain Vehicle
ft.	feet
=	equals
@	at
lbs	pounds
#	number

List of abbreviations (cont.)

ABBREVIATION	MEANING OF ABBREVIATION
Ag	Silver
Au	Gold
Ba	Barium
Cu	Copper
Fe	Iron
Pb	Lead
Zn	Zinc
&	and
CEO	Chief Executive Officer
cont.	continued
CSE	Canadian Securities Exchange
DDH	Diamond Drill Hole
GHR	Gifthorse Resources
MEC	Minerals Engineering Centre
NSDEM	Nova Scotia Department of Energy and Mines
P. Geo.	Professional Geoscientist
NI 43-101	National Instrument 43-101, Standards of Disclosure for Mineral Deposits
NSR	Net Smelter Return
NMR	Non Mineral Registration
MVT	Mississippi Valley Type
VMS	Volcanogenic Massive Sulphide
AST	Atlantic Standard Time
NST	Newfoundland Standard Time
EST	Eastern Standard Time
CST	Central Standard Time
MST	Mountain Standard Time
PST	Pacific Standard Time
Ltd.	Limited
Pres.	President
max.	maximum
min.	minimum
ND	not determined
No.	number
Nos.	numbers

List of metric conversions

To Convert From	To	Multiply by
Feet	Metres	0.3048
Metres	Feet	3.281
Miles	Kilometres	1.609
Kilometres	Miles	0.621
Acres	Hectares	0.405
Hectares	Acres	2.471
Grams	Ounces (Troy)	0.032
Ounces (Troy) per ton	Grams	31.103
Tonnes	Short tons	1.102
Short tons	Tonnes	0.907
Grams per tonne	Ounces (Troy) per ton	0.029
Ounces (Troy) per ton	Grams per tonne	34.438

Certificate of Qualifications

R. Mark Graves, (P. Geo.)

I, R. Mark Graves, P. Geo., residing at 99 Skyway Drive, Wolfville, NS, B4P 1S3, do certify that:

• This certificate applies to the report entitled, "Assessment Report on Diamond Drilling on the Manuels Low Sulphidation Epithermal Gold Project, Conception Bay South, Avalon Peninsula, Newfoundland; NTS Map Sheets 001N/07 and 001N/10, Lic. 023601M, 025177M, & 027292M", and has an effective date of July 01, 2021.

• I am a graduate of Dalhousie University, with a Bachelor of Science degree in Geology. I am currently licensed by the "Association of Professional Geoscientists of Nova Scotia" (Lic. No. 172) and "Professional Engineers and Geoscientists of Newfoundland and Labrador" (Lic. No. 2911).

• I have read the definition of "qualified person" set out in National Instrument 43-101 (NI 43-101) and certify that by reason of my education and relevant work experience, I fulfill the requirements to be a "qualified person" for the purpose of NI 43-101. This Report is based on my geological work conducted on this property during the period from November 11, 2020, to January 24, 2021.

• My summarized career experience is as follows:

- I have practiced my profession continuously since 1978.
- Industry Exploration Geologist primarily in Nova Scotia, 1978-1985.
- Quaternary Geologist with Nova Scotia Department of Mines and Energy, 1985-1989.
- Industry Exploration Geologist primarily in Newfoundland, 1989-1995.
- Chief Geologist with Archean Resources in Newfoundland, 1995-2005.
- Industry Exploration Geologist primarily in Newfoundland, 2005-2009.
- Senior Exploration Geologist Acadian Mining Corporation, 2009-2012.
- Industry Exploration Geologist primarily in Mexico and Colorado, 2013-Present.

• I have read NI 43-101 and Form 43-101F1 and this Report has been prepared in compliance therewith.

• To the best of my knowledge, all technical information in this Report is factual and is not misleading.

Effective Date: July 01, 2021

Signing Date: July 23, 2021

R. Mark Graves, (P. Geo.)

1. Executive Summary

The Manuels low sulphidation epithermal gold property consists of three contiguous licences (Lic. 02601M, 025177M, and 027292M) that contain twenty-one mineral claims with a combined area of approximately 525 hectares. The property is located immediately adjacent to the south side of the Town of Conception Bay South and shares, in part, a western boundary with the Trinity Resources mining lease and pyrophyllite mine.

R. Mark Graves, P.Geo. was retained by Mountain Lake to prepare an independent Qualified Person's Review and National Instrument 43-101 Technical Report ("NI 43-101") for the Property.

The area is underlain by a structurally complex sequence of faulted Manuels Volcanic Suite felsic and mafic volcanics with overlying volcanoclastic and epiclastic sediments in fault contact with quartz monzonite of the White Hills Intrusive Suite. Low level grades for gold mineralization occur in narrow quartz breccias in maroon colored rhyolite. Glacial till deposits have variable thickness ranging up to approximately thirty metres. The overburden consists of coarse boulder-rich till with a coarse grit matrix.

A 100% interest in the property was acquired by Mountain Lake Minerals in April 2020 from New Dawn Resources Inc. ("NDRI" or "New Dawn"), and a private individual who is also the sole director of New Dawn. The purchase also included properties in central Newfoundland and other areas on the Avalon.

There are several small gold occurrences outside the property boundary, and one known as the Boxcar occurrence that lies within the property. In addition, the down-dip extension of the Farmer's Field gold occurrence is projected to trend from the Trinity lease onto Mountain Lake's claims (Lic. 023601M) at approximately 170 metres depth.

An exploration program was designed to conduct basic prospecting, soil sample geochemistry and diamond drilling. Prospecting was conducted over all three licences while soil geochemistry and diamond drilling was confined to the immediate area associated with the Boxcar and Farmer's Field gold occurrences. A total of thirteen prospecting samples (six from the Boxcar occurrence) and 142 soil samples were collected for geochemistry. Six drill holes were completed for 591.05 metres with a total of 193 core samples collected for assay.

Total expenditures for the project in 2020 and 2021 were $415,295.

Historical exploration of the Manuels Volcanic Suite has demonstrated it hosts significant gold grades (e.g., Bergs and Steep Nap Road prospects).

Although the potential for similar gold mineralization may exist at the Manuels property, there is no guarantee any gold-bearing low sulphidation breccia veins will be discovered. As mentioned in this report, continued exploration and evaluation of the property should comprise prospecting, geological mapping, structural and lineament interpretation, soil anomaly evaluation, further soil geochemistry, airborne VLF/magnetics, and diamond drilling.

A recommended budget for the 2021 exploration is $120,000. A follow-up program is contingent on successful results from that phase of work.

1.1. Results

The highest gold assay from the prospected rock samples was 42 ppb Au which came from the base of the Boxcar occurrence. Prospecting on the eastern two licences (025177M and 027292M) did not reveal positive encouragement for gold mineralization due to lack of outcrop and younger cover rock in this area. As a result, no samples were collected from either of these licences during this program.

Soil sample analyses were low for gold with the highest assay at 12 ppb Au however, a zone of anomalous silver (up to 4.8 ppm Ag) occurs south of Burnt Hill Pond that appears not to be accounted for by scavenging.

Delays and cost-overruns during the drill program were caused by difficulty drilling through both the overburden and a siliceous, maroon rhyolite. The analytical results did confirm previously known gold in quartz breccia style zones in maroon rhyolite host rocks. The highest assay was 207 ppb Au in hole 21MAN-05a and a second elevated assay of 81 ppb Au from hole 20MAN-01, also in maroon rhyolite. This suggests there may be two gold-positive zones that lie east of the Farmer's Field gold occurrence, although faulting and dislocation does not allow for a direct correlation. Drill results from the Boxcar occurrence has a maximum assay of 48 ppb Au (sample 76796 from hole 21MAN-02).

2. Introduction

2.1 Project Scope and Terms of Reference

The Manuels Epithermal Gold Project of Mountain Lake Minerals Inc. ("Mountain Lake", "MLK" or "the Company" or "Mountain Lake") purchased a 100% interest in the Manuels property from New Dawn Resources Inc. and a private individual in 2020. There are several low-grade gold targets on the property and following a review of information it was decided to carry out initial exploration consisting of prospecting, reconnaissance geological mapping, soil sampling, and diamond drilling.

The property consists of three licences (Lic. 023601M, 025177M, and 027292M) that include a total of seven, nine, and five claims, respectively. The property covers a key geological terrain within a prospective region of volcanic, plutonic, and sedimentary rocks of the Eastern Avalon High Alumina Belt (Sparks, 2005). Felsic volcanics elsewhere in the belt host low-sulphidation gold-silver prospects such as the Berg, Roadcut, Santana, and Steep Nap mineral occurrences.

Prospecting was carried out on all three licences while soil sampling and diamond drilling was confined to Lic. 023601M. A total of six-man days of property review and orientation was spent at the property and a total of twenty-four man-days were spent prospecting across the three licences.

This NI 43-101 Technical Report was prepared by R. Mark Graves, P.Geo. with logistical support from the Company.

On March 15, 2018, Mountain Lake Minerals Inc. announced that it had signed a Letter of Intent ("LOI") whereby the Company would acquire 1151024 B.C. and complete a spinout of its mining assets to existing shareholders subject to certain conditions. Mountain Lake signed a definitive share exchange agreement (dated June 6th, 2018) with 1151024 B.C. Ltd. for the acquisition of all the issued and outstanding shares of 1151024 B.C. Ltd. and subject to the spin-off of its mining assets under a plan of arrangement to be concluded following the completion of the Transaction. On June 7th, 2018, Mountain Lake-CSE announced it had executed an arrangement agreement with its wholly owned subsidiary (Spinco MLK) for the purpose of completing the spin-off of existing mineral property assets by way of this plan of arrangement.

On January 18, 2019, the Company announced it had entered into asset purchase agreements to acquire a 100% interest in the Highfield Base Metal property (the "Property") located in Windsor, Nova Scotia from two private companies.

On April 30, 2020, Mountain Lake Minerals Inc. (CSE) changed its name to Pac Roots Cannabis Corp. and Spinco changed its name from 1167343 B.C. Ltd. to Mountain Lake Minerals Inc. ("Spinco MLK"). Collectively this is referred to as the "Name Changes" in the amended agreement. The new Spinco MLK will hold all the mineral assets of the former Company and will receive certain monies from Pac Roots. Any future reference to the former CSE listed Mountain Lake Minerals company will be referred to "Mountain Lake-CSE" in this report while the new company will be referred to as Spinco MLK (or "Spinco" or "MLK") to help avoid any confusion.

There is a 1% NSR on the property payable to New Dawn Resource Inc. and a private individual who is also a director of New Dawn Resources in a 40%-60% proportion, respectively. In addition, there are annual $7,200 payments against this NSR for a period of 10 years and is to be deducted from any future NSR payments to New Dawn of the private individual Director.

A 2% NSR is also payable to Warwick Gold Inc. The majority owner of Warwick Gold is also the Chairman of MLK Gold.

Terms of reference for this Report were established through discussions between the President & CEO of Mountain Lake-CSE and the author in early 2021. Mountain Lake began a diamond drilling program on December 21, 2020, which was completed on January 23, 2021. The intent and purpose of this Technical Report is to prepare a geological introduction to the Manuels Property and report on the 2020-2021 exploration results in accordance with NI 43-101 and amended and adopted Canadian Institute of Mining, Metallurgy and Petroleum ("CIM") Definition Standards (May 10, 2014). The effective date of this report is July 1, 2021, and the signing date is July 30, 2021

The material in this Technical Report is a compilation of publicly available information and new results obtained during the 2020-2021 exploration program by Mountain Lake. References in this Technical Report are made to publicly available reports that in part were written prior to implementation of NI 43-101. These include government geological publications and Mineral Assessment Reports that were filed with and available through the Newfoundland and Labrador Department of Industry, Energy and Technology. All reports are cited in the References section and are familiar to the author.

The author and P.K. Smith worked on the Manuels property conducting geological mapping, core logging and managing the diamond drill program from November 11, 2020, to January 25, 2021, with a two-week break over Christmas.

No material changes have occurred at the property as of the signing date of this report since the author's last site visit following completion of diamond drilling, and examination and sampling of drill core.

R. Mark Graves, P. Geo., the author of this Technical Report, is an independent Qualified Person as defined under NI 43-101 and has conducted work associated with the preparation of this report on a fee for service basis. Map generation and desktop publish expertise was provided by Mountain Lake Minerals. The author is independent of all companies mentioned in this report who are affiliated with Mountain Lake-CSE, Spinco MLK, 1151024 B.C. Ltd. and any of their associated company transactions. The author has specific knowledge of the geology and mineralization type detailed in this report.

3. Reliance on Other Experts

Other experts were not consulted during the preparation of this report. The report was written by the author for Mountain Lake Minerals Inc. and the data, conclusions, and recommendations within are based upon data available when the report was written. This report relies on external sources to the extent that information on regional geology, local geology in part, styles of mineralization, scientific work and previous exploration history were extracted from available internet sources. To that extent, this information is not within the author's control however the author has no reason to question the quality of the data utilized in this report.

Mr. N. Mercer was most helpful in pointing out numerous outcrops with various geological features and low-level gold mineralization.

The author has not attempted to either remap or rewrite the geological history of the property, however the results from diamond drilling during this exploration phase indicate the structural geology (particularly the abundance of faulting) is more complex on Licence 023601M than initially thought. Previously unrecognized faults are interpreted both north and south of Burnt Hill Pond. Faults appear to trend in a NW-SE direction and transpose both strongly altered, high sulphidation rhyolite and/or White Hills granite with variably altered maroon to grey rhyolite.

The author of this Technical Report is not qualified to provide or comment on legal issues associated with the Property, or the scope and intent of Sections 1 and 4 of this Report pertaining to both legal and title issues. Documents related to information in these sections were copied from publicly available downloads from the Newfoundland and Labrador government website ("Geofiles Online") and reviewed by the author. The associated agreements include, but are not limited to agreements between Mountain Lake-CSE, 1151024 B.C. Ltd., 1167343 B.C. Ltd., and Gifthorse Resources and Creo Resources, and New Dawn Resources Inc. and an agreement between a third party and 1167343 B.C. Ltd.

Although the author has reviewed all relevant information for these sections and has formulated all technical aspects of this report independent of outside input, the author has not sought a legal opinion on any of these agreements.

The author has reviewed mineral exploration title status records and assessment reports on Manuels Licenses 023601M, 025177M and 277292M on the Newfoundland and Labrador Department of

Industry, Energy and Technology ("Geofiles Online" and "Minerals Rights Inquiry") websites and confirms comments referenced in this report are accurate based on those reviews.

4. Property Description and Location

4.1. Property Ownership

A 100% interest in the Manuels and Caledonia Brook properties was acquired by Mountain Lake Minerals in April 2020 from New Dawn Resources Inc. ("NDRI" or "New Dawn") and a private individual who is also the sole director of New Dawn. Mountain Lake Minerals-CSE entered into an option agreement on the Caledonia Brook property with New Dawn Resources Inc. on October 30, 2017. Initial discussions for the purchase of a 100% interest in both the Manuels and Caledonia Brook properties commenced on June 10th, 2019. The initial purchase included a total of seven licences at three different properties, including three contiguous licences at the Manuels epithermal gold prospect on the Avalon Peninsula south of Conception Bay South, two non-contiguous licences at Caledonia Brook in central Newfoundland near Diversion Lake, and two separate licences at Harbour Main, NL (these licences were dropped as the purchase agreement could not be completed in time to transfer the licences to MLK or perform the required exploration expenditures. The two Harbour Main licences were not regarded as key claims for the Company.

4.2. Manuels Licences and Claims

The three contiguous Manuels licences include twenty-one claims on licences, Lic. 023601M (7 claims), Lic. 025177M (9 claims), and Lic. 027292M (5 claims). The total area covered by the three licences is 525 ha. The Minerals Road passes through the west side of the property and is subject to a usage permit of $400 that the Company paid to the Town of Conception Bay South.

The mineral exploration claims that comprise the Manuels Property are currently registered to Mountain Lake Minerals Inc. having been transferred from Kevin Ryan of St. John's, NL prior to the commencement of the drill program. Mountain Lake Minerals Inc. holds a 100% interest in the 21 claims held under Mineral Exploration Licences 23601M, 25177M and 27292M covering an area of 21 hectares.

A summary of the Manuels claims and licences is provided in Table 4-1.

Table 4-1: List of Manuels Property licences and claims

Licence #	Map	Issue Date	Renewal Date	Number of Claims
023601M	01N/07 & 01N/10	2010/02/11	2025/02/11	7
025177M	01N/07 & 01N/10	2017/06/14	2022/06/14	9
027292M	01N/07 & 01N/10	2019/08/29	2024/08/29	5
			Total	**21**

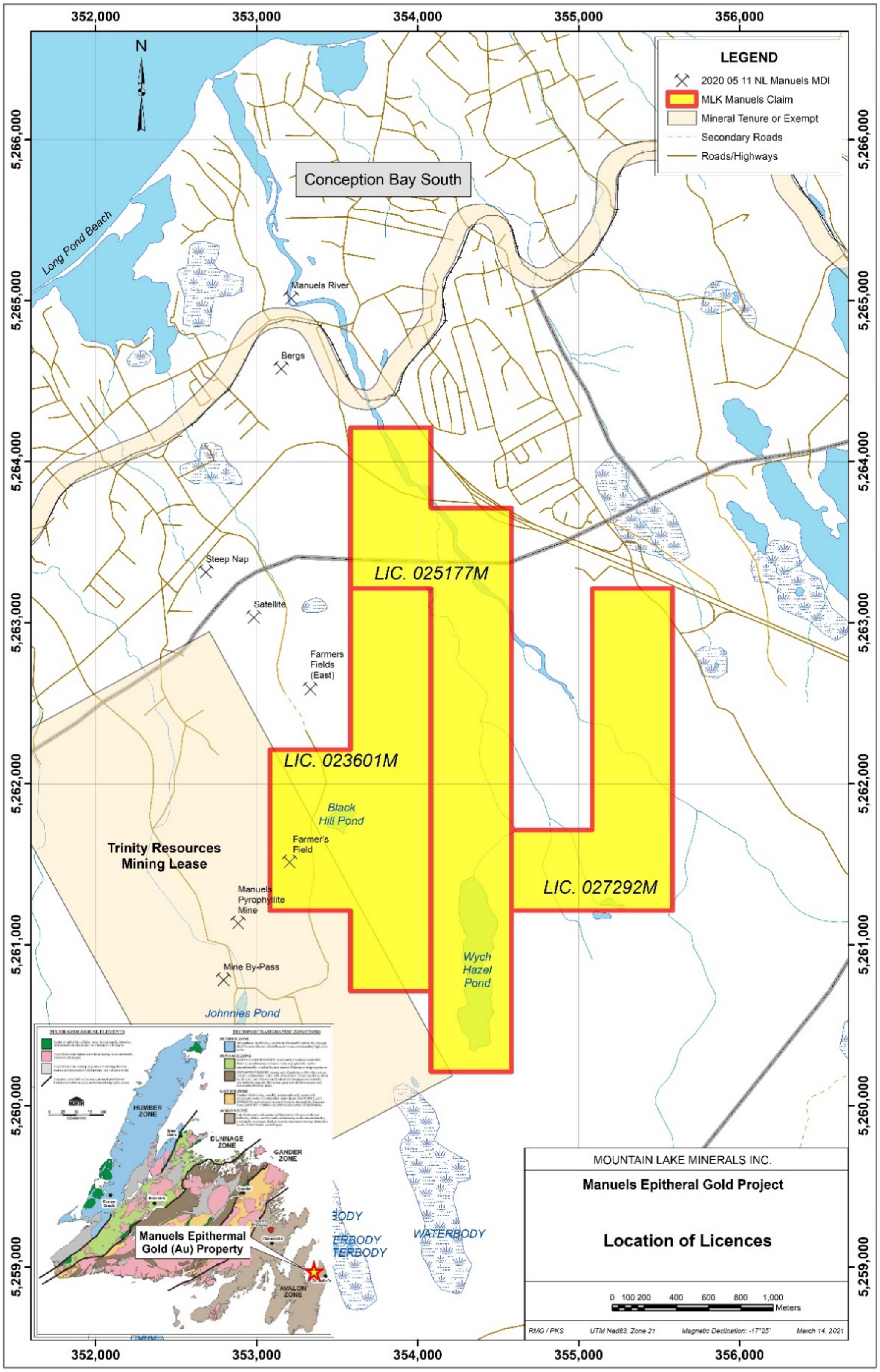

Figure 4-1: Location of contiguous mineral licences at Manuels

4.3. Description and Location

The Manuels Property is located on the Avalon Peninsula in the northwestern and southwestern corners respectively of NTS Map sheets 1N/07 “Bay Bulls” and 1N/10 “St. John’s” crossing the boundary approximately 2 kilometres south of Conception Bay South. The property is bounded on the west by the Trinity Resources Ltd. pyrophyllite deposit lease and is located 20 kilometres southwest of St. John’s, NL. (Figure 4).

The area along the Minerals Road consists of a mixture of small cleared agricultural fields and thick spruce woods. Many of the agricultural fields are sponsored by the Newfoundland Provincial Government under special leases.

The three licenses collectively measure approximately 4.0 x 2.5 kilometres at their maximum north-south and east-west dimensions, respectively.

The southeast-to-northwest-flowing Manuels River crosses the center of Licence 027292M on the east and crosses the NE corner at the top of Licence 025177M. Much of the wooded areas have been historically logged and wood harvesting is common on some plots. There are two small lakes on the property, Burnt Hill Pond measuring approximately 100 x 200 metres, and Wych Hazel Pond which measures approximately 1000 x 175 metres with the long axis orientation in a N-S direction parallel to both structure and stratigraphy.

The southwest corner of Licence 023601M is encroached on by the overlapping Trinity Resources pyrophyllite lease. Any exploration activities inside this Trinity lease area are subject to permissions and agreements with Trinity Resources. Mountain Lake Minerals does not have an agreement or permission with Trinity at this time and exploration was not conducted on the Trinity mining lease.

Glacial overburden has variable thickness ranging up to approximately thirty (30) metres. The overburden comprises coarse boulder and cobble rich till of largely local provenance with a coarse sandy matrix. Late Wisconsinan ice flow was at 300° across the property.

4.4. Conditions of Exploration Title

Mineral exploration and mining in the province are regulated by the Government of Newfoundland and Labrador and other key public institutions, principally through the provincial Department of Industry, Energy and Technology. The information below was extracted from the Guidebook to Exploration, Development and Mining in Newfoundland and Labrador, January 2010.

4.4.1.Mineral Exploration

A mineral is defined in the Mineral Act (RSNL 1990, Chapter M-12)as a naturally occurring inorganic substance including coal and minerals contained in mine tailings, but does not include water, quarry materials as defined in the Quarry Materials Act, stratified deposits other than coal from which oil can be extracted by destructive distillation, or petroleum as defined in the Petroleum and Natural Gas Act (RSNL 1990, Chapter P10).Companies intending to carry out exploration in the Province must be registered with the Registry of Companies, as per the Corporations Act (RSNL 1990, Chapter C-36). In addition, under Sections 16 and 18 of the Engineers and Geoscientists Act (RSNL 2008, Chapter E-12.1), company personnel are obligated to be licensed to practice geoscience in the province. Applications for permits and licences to practice are available through the Newfoundland and Labrador Professional Engineers and Geoscientists website.

4.4.2.Acquiring a Mineral licence

Acquisition of Mineral Rights under the Mineral Regulations (1143/96) is by online map staking (as per Regulation 10 through the Province's Mineral Rights Administration System, known as MIRIAD. Registration forms can be found on the Department's website. To stake claims, one must be at least 19 years of age or a corporation and must be registered with the Mineral Claims Recorders Office. A prospector's licence is not required to stake claims or conduct mineral exploration in the province. Details about how to stake claims can be found on the Mineral Rights Claims Brochure (the "Claims Brochure"). Land Tenure A mineral licence gives the licensee the exclusive right to explore for minerals in, on or under the area of land described in the licence. A mineral exploration licence is issued for a five-year term and may be renewed and held for a maximum of twenty years, provided the required annual assessment work is completed, reported, and accepted by the Department, and the renewal fees are paid. A licence holder has the right to convert any part of a mineral licence to a mining lease provided all provisions of Section 31 of the Mineral Act are met. Fees The cost to stake a claim is $60: this includes a $10/claim recording fee and a $50/claim security deposit. The security deposit is refundable upon submission and acceptance of the first-year's assessment work report. The required annual assessment work increases from year to year, as outlined in the Claims Brochure. Genuine Prospector Designation Individuals designated as Genuine Prospectors (as per Mineral Regulation 13(2)) may stake up to thirty claims in no more than five licences in a calendar year without posting a security deposit. To qualify for Genuine Prospector status, applicants should have completed the Department's Prospector Training Course. The designation is renewable.

4.4.3. Maintaining a Mineral Licence

Annual assessment work must be completed on or before the anniversary date of licence issuance. The amount and type of expenditures allowed are outlined in Sections 47 and 48 of the Mineral Regulations and can also be found in the Claims Brochure. If the licence holder is unable to complete the required assessment work for any twelve-month period, he/she may apply for a 12-month work extension as per Condition 2 of the Mineral Act. This requires posting a refundable security deposit to keep the claims in good standing as described in the Claims Brochure. The delivery of a security deposit may be waived in the event of certain environmental considerations, as per Condition 2 (4). There is no provision to allow payment in lieu of assessment work. Assessment Reporting Expenditures on exploration and development activities within the area of a mineral licence are credited as assessment work and must be reported. The report must be submitted within 60 days after the anniversary date, in the assessment year the work was performed. If a report can-not be submitted on schedule, a 60-day reporting extension may be requested as per Condition 3 of the Mineral Act. To grant the extension, the Department requires a partial report (described in Claims Brochure) and a reason for the extension request. A sample assessment report, Guidelines for the Form of Assessment Reports, and a Check list of items and formats required for assessment report submission are all available on the Mineral Rights webpage. Licence Renewal A mineral licence must be renewed every five years during its currency. Renewal fees and procedures are listed in the Claims Brochure. Grouping, Splitting and Surrendering Licences Details of how to group, split, or partially surrender a mineral licence are described in the Claims Brochure. Any number of coterminous map-staked licences may be grouped to form a single licence, provided the number of claims grouped does not exceed 256, licences are in good standing and held by the same individual or corporation, no Condition 2 extensions are active, and first-year assessment reports are submitted and accepted. A map-staked licence may be split by providing new sketches for the split areas; excess assessment credit will be applied proportionally to all new licences that result from the split. Part(s) of a map staked licence may be surrendered at any time and work requirements will be based on the number of claims retained.

4.4.4.Transfers and Other Agreements

A licence may be transferred at any time during its currency by forwarding an original, duly executed transfer to the Mineral Claims Recorder. Options and other agreements relating to mineral rights must be registered with the Mineral Claims Recorder's Office; otherwise, the transaction is not valid and has no legal effect. Further information on Transfers and Options can be found in the Claims Brochure. A Licence Transfer form is available online.

4.4.5. The Exploration Approval Process

Any person who intends to conduct an exploration program must submit prior notice with a detailed description of the activity to the Department. An exploration program that may result in ground disturbance or disruption to wildlife habitat must have an Exploration Approval from the Department before the activity can commence. Applications are available online. Recommended best operating practices for exploration companies are available in Environmental Guidelines for Construction and Mineral Exploration Companies. Some exploration activities, such as bulk sampling and road construction, or activities in designated sensitive areas, may require registration for environmental assessment as defined in the Environmental Assessment Regulations (54/03). Further information may be obtained from the Environmental Assessment Division of the Department of Environment and Conservation. The online permitting system, Mineral Exploration Approval Management System (MEAMS), when activated, will provide a one-stop shop for most permits required for mineral exploration in the province.

4.4.6. Aboriginal Land claims

A land claims agreement was reached between the Governments of Newfoundland and Labrador and Canada and the Labrador Inuit Association (LIA) in 2005. The Labrador Inuit Land Claims Agreement Act (SNL2004 CHAPTER L-3.1) created a limited, self-governing region called Nunatsiavut. Of most significance to the mineral industry, the agreement provided the Inuit with surface rights to 15,800 km2, or about 5.4% of Labrador, an area known as Labrador Inuit Lands (LIL). Regulations governing development standards and economic benefits for projects in LIL lands are specified in the Labrador Inuit Land Claims Agreement. Implications for exploration and development in Labrador Inuit Lands are further clarified online. The province has also signed an historic agreement-in-principle (subject to ratification) with the Innu Nation of Labrador, in September 2008. The Tshash Petapen ("New Dawn") Agreement provides for, among other matters, the transfer of legal title to almost 13,000 km2, or about 4.4% of Labrador, to the Innu Nation. The Innu will have jurisdiction to make laws in relation to specified matters and share in resource royalties on these lands. The Innu will also have special rights and benefits concerning resource royalty sharing on an additional 23,000 km2 of provincial land. Further information may be obtained from the Director of Mineral Lands. Exploring on Labrador Inuit

Lands Exploration Standards for Labrador Inuit Lands are available online and legislated through the Labrador Inuit Land Claims Agreement Act. Any person wishing to carry out an exploration program on Labrador Inuit Lands must submit a Work Plan to the Department of Natural Resources and the Nunatsiavut Government detailing the proposed exploration program.

4.5. Underlying Agreements/Acquisitions

There is an underlying agreement dated November 16, 2020, between Mountain Lake Minerals Inc. and Warwick Gold that in consideration for certain cash payments and warrants, transfers a 50% interest in the Manuels property to Warwick Gold.

5. Accessibility, Climate, Local Resources, Infrastructure and Physiography

5.1. Accessibility

The Manuels Property is located on the Avalon Peninsula in the northwestern and southwestern corners respectively of NTS Map sheets 1N/07 "Bay Bulls" and 1N/10 "St. John's" crossing the boundary approximately 2 kilometres south of Conception Bay South. The property is bounded on the west by the Trinity Resources Ltd. pyrophyllite deposit and located 20 kilometres southwest of St. John's, NL. (Figure 4).

The paved highway #2 Peacekeepers Way and formerly referred to as the C.B.S. bypass road crosses about 2 kilometres north of the property from east to west. The claims are accessible via the Minerals Road from the Conception Bay South exit. The distance to the property along the Minerals Road is about 4 kilometres of which much of the trip is on a gravel-based road.

As noted above in Section 4.1, an exploration agreement between Kevin Ryan and Mountain Lake Minerals Inc. transferred the mineral rights to Mountain Lake Minerals Inc. prior to the diamond drill program.

Exploration drilling was conducted after all permits being received from the various provincial government departments and from the town of Conception Bay South. A toll fee was paid to Conception Bay South by Mountain Lake Minerals for access use of the Minerals Road.

The author believes that additional lands would need to be acquired to sustain a long-term gold mining operation on the Manuels property.

5.2. Climate

The climate of Newfoundland is characterized by freezing, snowy winters and mild or cool summers. Located in the easternmost part of Canada, the east coast (Avalon Peninsula) is in an area where different ocean currents merge. The cold Labrador Current that comes from Greenland and the Gulf Stream mix further south along the coast. This gives rise to frequent rain, snow, and fog for a few months each year.

Climatic conditions are temperate on the Avalon Peninsula. Mean annual total precipitation for the region is 1,191 millimetres of rain and 322 centimetres of snow. Mean July daily temperature is 15.8°C and in January it is -4.5C° (Table 5-1). In general, the field season lasts from mid-April/early-May to late-October/early-November. Geophysics, selected geochemistry, and diamond drilling and many other activities can all be conducted year-round.

Table 5-1: Newfoundland average temperature and precipitation by month

	January	February	March	April	May	June	July	August	Septem-ber	October	November	December
Avg. Temperature °C (°F)	-2.6 °C (27.2) °F	-3.3 °C (26.1) °F	-1.7 °C (29) °F	1.9 °C (35.5) °F	5.7 °C (42.2) °F	10 °C (50.1) °F	15.6 °C (60.1) °F	16.4 °C (61.6) °F	13.4 °C (56) °F	8.7 °C (47.7) °F	4.5 °C (40.1) °F	0.1 °C (32.2) °F
Min. Temperature °C (°F)	-5.2 °C (22.7) °F	-5.8 °C (21.5) °F	-4.1 °C (24.6) °F	-0.6 °C (31) °F	2.8 °C (37.1) °F	7.1 °C (44.8) °F	12.6 °C (54.7) °F	13.9 °C (57) °F	10.8 °C (51.5) °F	6.7 °C (44) °F	2.4 °C (36.3) °F	-2 °C (28.4) °F
Max. Temperature °C (°F)	0.3 °C (32.5) °F	-0.4 °C (31.2) °F	1 °C (33.9) °F	4.8 °C (40.6) °F	9.1 °C (48.3) °F	13.6 °C (56.5) °F	19.2 °C (66.5) °F	19.5 °C (67.1) °F	16.4 °C (61.5) °F	11.1 °C (52.1) °F	6.9 °C (44.5) °F	2.5 °C (36.6) °F
Precipitation / Rainfall mm (in)	129 (5.1)	108 (4.3)	109 (4.3)	92 (3.6)	77 (3)	69 (2.7)	80 (3.1)	83 (3.3)	95 (3.7)	112 (4.4)	115 (4.5)	133 (5.2)
Humidity(%)	77%	79%	78%	80%	82%	83%	83%	81%	80%	79%	79%	78%
Rainy days (d)	11	10	10	10	8	8	8	8	8	10	10	12

5.3. Local Resources

Supplies are generally available for small exploration programs although specialized parts and equipment are procured from outside the province. A significant workforce is available but workers with specific skills may necessarily come from away. Fortunately, several active mines in the province have resulted in knowledgeable personnel to assist in numerous resource-based capacities. Vale Newfoundland and Labrador have a policy of hiring locally first for positions at their Voisey's Bay mine and the Long Harbour hydro-met plant.

General construction equipment and materials are readily available on the Avalon Peninsula and local people are very resourceful.

5.4. Infrastructure

This property should generally be regarded as a "greenfield" project and as such no significant infrastructure has been established nor is it currently necessary. However, a high voltage transmission line crosses the northern portion of the property and road access is available for approximately seven of the twelve-months of the year.

Between the City of St. John's and the Town of Conception Bay South (and locations in between) there are hotels, restaurants, grocery chains, and equipment shops. Other large box stores are also present nearby on the Avalon.

5.5. Physiography

Topography in the area consists of moderately sloped hills and valleys with local steep hills and cliff scarps reaching more than thirty meters high. Local relief south of the Satellite occurrence is approximately seventy-five metres. A steep hill located about 700 metres west of the Oval Pit also has local relief of more than seventy metres and maximum elevation on the property is approximately 200 metres.

Although elevations on the island of Newfoundland are generally less than 500 metres with maximum elevations located on the west side of the island reaching 815 metres (Lewis Hills). Elevations on the Avalon Peninsula vary from 30-300 metres.

Forest cover is heavy and consists of stunted black spruce, fir, birch, and alder. Local barren ground with abundant outcrop exposure occurring in the ridge areas and on the northern end of Black Mountain. Residents carry out minor logging for firewood in several parts of the Manuels property. Low areas a typically swampy but tend to become dry in summer months. Glacial overburden consists of rounded boulders with interstitial grit and is up to thirty metres thick locally.

6. History

Reports of iron mineralization (oolitic hematite) on Bell Island (located several km to the north of the Manuels property) date back to 1578 but, notwithstanding any records to the contrary, the deposits were not seriously investigated until 1892 with mining commencing in 1895. The iron mine on the island closed in 1966 after producing approximately eighty-one million tonnes averaging 50 to 51% iron.

The recognition of other mineral resources began with the discovery of pyrophyllite in 1898. This eventually led to the current-day mining and shipping operations by Trinity Resources from the Oval Pit located approximately three kilometres southeast of the Town of Conception Bay South.

The Silvercliff and La Manche prospects produced 2,600 tonnes of high-grade lead-silver (65% Pb, 623g/t Ag) ore between 1922-1925 and 3,500 tonnes of lead ore (6-12% Pb) between 1857 and 1873, respectively (Taylor, et.al., 1979). The Silvercliff deposits occur as polymetallic veins containing galena, sphalerite, pyrite, and chalcopyrite in quartz-siderite-barite gangue. La Manche is an epithermal, polymetallic vein type deposit located about 110 kilometres west of St. John's.

Historically, the Avalon Zone in Newfoundland has been considered to have little mineral potential. Interest in such elements as U, Sn, W and other rare elements (e.g., Mo, and base metals) in the 1960's and 1970's led to increased exploration on the Avalon. Prior to this, exploration was restricted to fluorspar veins at St. Lawrence.

Increased exploration activities took place on the Avalon Peninsula (e.g., Kerr Addison Mines Ltd., Murphy Corporation Ltd.) in the early- to mid- 1970's, respectively.

At about the same time B.P. Minerals and Nalco were exploring for uranium on the Burin Peninsula further west.

6.1. Discovery of Gold

In the mid- 1990's, the identification of low-sulphidation, auriferous veins were first noted by O'Brien et al., (1997, 1998). Since that time, several occurrences of crustiform–colloform, adularia-bearing, low-sulphidation veins have been identified by other workers (Mills et al., 1999; O'Brien, 2002; O'Brien and Sparkes, 2004; B.A. Sparkes, 2003a, b, 2005a, b).

6.2. The years 1952 to 2019

A summary of selected exploration and academic research is presented below in bullet format.

- 1952 – E.R. Rose, maps the Eastern Avalon area,
- 1963 – J.M. Dawson documented the extended strike length of the pyrophyllite – sericitized rich rhyolite from Topsail to Ocean Pond and correlated the southern extension along strike of the pyrophyllitized and sericitized rhyolitic rocks with those hosting the pyrophyllite deposit south of Manuels,
- 1969 – W.D. McCartney studies the regional geology of the Avalon area and incorporated his findings into a regional stratigraphic framework,
- 1975 – C. Douglas and E. Hsu; compiles mineral occurrence data of Newfoundland and Labrador maps at a 1 inch to 4 miles and 1:500,000 scales, respectively,
- 1986 – M.H. Lenters, for Esso Minerals conducts a regional exploration program including geological mapping, rock sampling and stream sediment sampling,
- 1988 – A.F. King produces a compilation map of the Geology of the Avalon Peninsula,
- 1989 – J.P. Hayes and C.F. O'Driscoll defined the fifteen kilometre long north-south striking high alumina belt and discussed its gold potential,
- 1990 – P.H. Davenport et al. conducted a lake sediment survey over the Avalon Peninsula,
- 1990 - J.P. Hayes and C.F. O'Driscoll define the eastern Avalon high alumina belt and discuss the gold potential,
- 1995 – J.W. Pickett carried out line cutting, detailed geological mapping, soil geochemistry and VLF-EM and magnetometer geophysical surveys over a limited area in the general vicinity of the Roadcut gold occurrence for Avalon Mines Limited. The company subsequently carried out a four-hole diamond drill program at the Roadcut occurrence,
- 1997 – R.M. Graves for Northstar Exploration Ltd. conducted chip and grab sample assays at Steep Nap (road cut) resulting in values up to 4,320 ppb Au,
- 1998 – S.J. O'Brien et.al., compares geological setting of gold mineralization & hydrothermal alteration in Avalon rocks of Newfoundland to gold deposits elsewhere in the Appalachians,
- 1998 – J. Mills studies the Steep Nap vein system for his B.Sc. honors thesis,

- 1999 – P. Lewis for Fort Knox Gold Resources drilled and trenched at the Santana occurrence. A single drill hole at the Steep Nap occurrence failed to intersect the vein system,
- 2002 – G. Sparkes maps the area as part of his Master of Science thesis,
- 2002 – B.A. Sparkes for Rubicon Minerals who optioned the area enclosing the Steep Nap vein and conducts an exploration program of prospecting, geological mapping, grid cutting, trenching, soil sampling and channel sampling. Channel sampling of the trenches produced 4.66 g/t Au over 0.25 meters in trench #4, and grab samples assayed up to 9.23 g/t Au,
- 2004 – B.A. Sparks for IAMGold who acquired a 55% option in Rubicon Minerals property at Steep Nap with exploration work consisting of infill lake sediment sampling, geological and alteration mapping, trenching, channel sampling, and 1182 metres of diamond drilling at Steep Nap and Grog Pond prospects,
- 2005 – G. Sparks maps the region for the Department of Natural Resources,
- 2009 – D. Palmer et. al. for Canstar Resources carried out 1,181-line kilometres of VTEM and drilled 1,196 metres in twelve (12) diamond drill holes (CBS-08-01 to -12) south of the property,
- 2012 – S.J. O'Brien, et.al. produce the GAC-MAC publication on Neoproterozoic epithermal gold mineralization of the northern Avalon Peninsula (Guidebook A5),
- 2012 – W. Jacob (on behalf of K. Ryan) carries out detailed mapping of the Farmers Field and the Boxcar-Blowhard showings and collects a total of nineteen grab samples for assays as well as three additional grab samples from the Smokey and Redface showings located further south of Mountain Lake Minerals' Manuels property. Other work included prospecting, soil sampling, channel sampling, and a limited ground magnetometer survey,
- 2013 – K. Ryan and N. Mercer carried out prospecting and geochemical exploration on five licences in the Manuels River area.
- 2015 - K. Ryan conducted a small soil sampling program on Licence 023601M at the Manuels area.

7. Geological Setting and Mineralization *(after O'Brien et.al., 2012)*

7.1. Geological Setting

The Avalonian volcano-plutonic terrane hosts numerous examples of well-preserved, late Neoproterozoic, high- and low-sulphidation-style epithermal systems.

These hydrothermal systems formed within an extensive late Neoproterozoic orogenic system, vestiges of which are preserved within the younger Appalachian–Caledonian and Variscan orogens throughout the North Atlantic borderlands. Magmatism, sedimentation, and tectonism related to this Avalonian cycle pre-date much of the Appalachian Wilson cycle of opening and closing of the Paleozoic Proto-Atlantic (Iapetus) Ocean. The older tectonic events are in part linked to the development of the extensive Pan African orogenic system.

The Avalonian Belt chronicles the development of magmatic arcs and intervening marine to terrestrial basins that evolved at an active plate margin peripheral to the ancient continent of Gondwana between ca. 800 and 540 Ma. The rocks of the Avalonian Belt record the complex, episodic and protracted development, and dispersal of segments of a Neoproterozoic orogenic system that, in part, was analogous in scale and tectonic setting to present-day Pacific Rim magmatic arcs, including the Andean Belt. Importantly, large-scale precious metal-bearing hydrothermal systems developed at several times during the formation of the Avalonian Belt that has led to extensive mineral exploration.

The defining Proterozoic characteristic of the Avalonian Belt, both within and outside the confines of the Appalachian Orogenic Belt, is widespread magmatic activity, most notably between 640 and 560 Ma. In this period, extensive magmatic arcs developed in a variety of arc and back-arc or analogous continental extensional settings.

Many of the magmas generated at this time rose to high crustal levels and vented onto the surface as subaerial, caldera-facies, volcanic complexes. In some cases, cooling and degassing of these magmas resulted in establishment of large-scale hydrothermal convective systems active at high levels in the crust. The resultant hydrothermal alteration was locally accompanied by the deposition of gold, with or without silver and copper, in a variety of volcanic, sedimentary, hypabyssal, and plutonic settings.

The North American Avalonian Belt hosts many examples of Neoproterozoic gold-bearing systems belonging to the epithermal and associated intrusion-related clans of lode-gold deposits (see Dubé et al., 2001). The best-documented Neoproterozoic Avalonian gold deposits are the Hope Brook Mine (Au–Cu) in Newfoundland, and the Brewer (Au–Cu), Hail, Ridgeway, and Barite Hill gold mines in northern South Carolina (Figure 7-1); see O'Brien et al., 1998 and references therein). Together, they contain a total gold resource more than 5,000,000 ounces.

The Hope Brook and Brewer mines represent well-documented examples of metamorphosed, high-sulphidation-type epithermal systems (see Dubé et al., 1998; Scheetz et al., 1991). Similar alteration systems occur in other parts of the Avalonian Belt, most notably in the northern Burin Peninsula, southeastern Newfoundland. Barite Hill represents a possible example of a high-sulphidation-style, gold-rich VMS deposit. The style of mineralization at Ridgeway and Hail mines is more equivocal, and both syn-metamorphic and metamorphosed epithermal origins have been argued for these deposits. Both share several features with non-carbonate stockwork-disseminated mineralization, and they may correspond to relatively deeper, intrusion-related systems (see O'Brien et al., 1998). Some local remobilization and enrichment of Neoproterozoic mineralization may have occurred during Paleozoic tectonism of the Avalonian Belt, particularly in the Carolinas. To date, classic low-sulphidation-style epithermal systems have only been identified within Avalonian rocks of Newfoundland. The Steep Nap prospect, in southeastern Newfoundland, is an excellent example of a late Neoproterozoic low-sulphidation colloform quartz–adularia Au–Ag vein system (Mills et al., 1999).

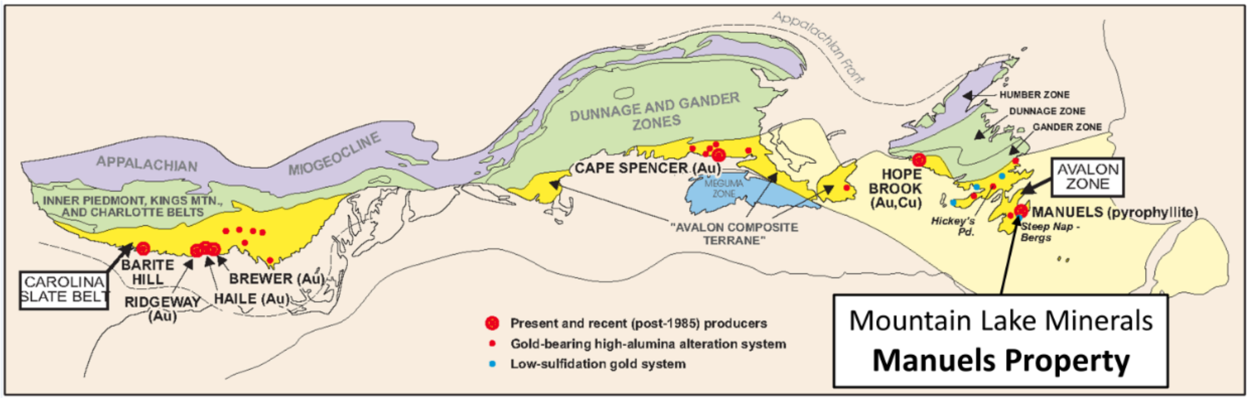

Figure 7-1: Distribution of Avalonian rocks within the Appalachian Orogen; (modified from O'Brien et. al., 1999; base map modified from Williams and Hatcher, 1983)

Hydrothermal alteration and precious-metal mineralization within the North Atlantic Avalonian Belt typically occur in the upper parts of thick volcanic piles, close to the boundary with overlying Neoproterozoic siliciclastic rocks, and near the intrusive contacts with high-level comagmatic plutonic suites.

The presence within the Avalonian Belt of large-scale advanced argillic alteration at the interface between subaerial felsic volcanic rocks and shallow marine to terrestrial volcanogenic sedimentary rocks suggests that environments conducive to the formation of Au-rich, high-sulphidation-style VMS deposits may also be preserved. Polymetallic base-metal mineralization in shallow marine successions adjacent to high-sulphidation epithermal belts in Newfoundland (e.g., Peter Snout, Pastureland Road) may also illustrate such potential for Au-rich VMS systems (Dubé et al., 2001).

7.2. Mineralization

The formation and preservation of precious-metal bearing epithermal and intrusion-related systems are integral aspects of the late Neoproterozoic tectonic history of the volcano-plutonic arc complexes that characterize the Avalonian and related accreted peri-Gondwanan terranes of the eastern Appalachians (see review papers in Nance and Thompson, 1996). These Neoproterozoic high-sulphidation-, low-sulphidation- and intrusion-related gold systems are linked to Avalonian-cycle magmatic pulses that pre-date much of the Appalachian Wilson cycle of opening and closure of the Paleozoic Proto-Atlantic (Iapetus) Ocean (see O'Brien et al., 1983). These gold systems formed in a once-contiguous, Pan-African-cycle orogenic belt, composed of complex assemblages of 760 to 540 Ma calc-alkaline to alkaline arcs and intervening marine and terrestrial siliciclastic sedimentary basins. Accretion of the mineralized arcs to the inboard elements of the Appalachian Orogenic Belt occurred primarily in the Silurian and Devonian, at which time the Cambro-Ordovician Iapetus Ocean and its marginal basins were closed (see Williams, 1979 and reviews in Williams et al., 1995).

Gold in the Neoproterozoic high-sulphidation systems occurs with copper in vuggy silica and in breccias and/or network fracture systems, within zones of polyphase silicic replacement, enveloped by regionally developed (metamorphosed) zones of quartz–pyrophyllite–andalusite–alunite-bearing advanced argillic alteration (Dube et al., 1998; O'Brien et al., 1999a). In other instances, regionally developed (and apparently barren) pyrophyllite–diaspore-bearing, advanced argillic alteration zones, related to either weakly developed or deeply eroded high-sulphidation systems, are juxtaposed with younger Neoproterozoic low-sulphidation colloform–crustiform banded, silica–adularia vein and breccia systems that contain significant gold grades. Several of the epithermal belts are spatially associated with breccia-hosted Cu–Au (e.g., Butlers Pond) and Au–Cu–Zn mineralization; however, most of this intrusion-related gold mineralization formed during demonstrably earlier magmatic events (Sparkes et al., 2002; O'Brien et al., 2000, 2005).

Large tracts of the mineralized Avalonian belt became submerged by the end of the Proterozoic and remained so through the early Paleozoic, until its accretion to North America in Late Silurian–Devonian times. Where the Avalonian rocks are far removed from the Appalachian Central Mobile Belt, Neoproterozoic low-sulphidation mineralization is exceptionally well preserved. Deeper and more extensively tectonized, high-sulphidation systems are preserved in areas that were more strongly affected by Paleozoic deformation on the Burin Peninsula, and within the Appalachian Central Mobile Belt in the Hermitage Flexure region of southern Newfoundland, respectively (e.g., Dubé et al., 1998, O'Brien et.al., 1999a). Early tilting of the mineralized successions and subsequent rifting, collapse, and marine incursions, during late Neoproterozoic through Early Paleozoic break-up and dispersal of the Avalonian belt, reduced the scale and rate of erosion of mineralized successions, favoring their preservation through time (e.g., Dubé et al., 1998, O'Brien et al., 2005). The recognition of the geochemical, mineralogical, and textural signatures of modern highland low-sulphidation epithermal systems in these deformed rocks allows the distinction from mainly younger, shear-zone related (e.g., orogenic) gold systems formed at deeper crustal levels, within the Paleozoic orogenic hinterland.

7.3. The Eastern Avalon Holyrood Horst

The distribution of geological units within the central portion of the eastern Avalon Peninsula is largely controlled by an area of regional uplift (Figure 7-2) known as the Holyrood Horst (McCartney, 1969; O'Brien et al., 2001). This north-south trending structure plunges toward the south and is dominated by the regionally extensive, ca. 620 Ma Holyrood Intrusive Suite at its core (King, 1988). Plutonic rocks related to the Holyrood Intrusive Suite were historically interpreted to be broadly coeval and comagmatic with the surrounding volcanic rocks, known as the Harbour Main Group, which dominate the remainder of the horst structure (O'Brien et al., 1997 and references therein). However, further geochronological studies within the area have identified the existence of several sequences of volcanic and associated volcaniclastic sedimentary rocks ranging in age from 730 to 580 Ma (Figure 2; O'Brien et al., 2001). O'Brien et al. (2001) further subdivided the Harbour Main Group into six main subdivisions; in decreasing age they are: Hawke Hill Tuff (ca. 730 Ma), Triangle Andesite, Peak Tuff, Blue Hill Basalt, Manuels Volcanic Suite (ca. 580 Ma) and the Wych Hazel Pond Complex. The plutonic and volcanic rocks within the core of the horst structure are flanked by a sequence of Neoproterozoic marine, deltaic and fluviatile siliciclastic sedimentary rocks, disposed symmetrically around the older core, and shoaling upwards (e.g., Wych Hazel Pond, Conception, and St. John's groups; Rose, 1952; King, 1988; O'Brien et al., 2001). The Neoproterozoic volcanic, plutonic, and sedimentary rocks are unconformably overlain by a fossiliferous, shale-rich, Cambrian to earliest Ordovician cover sequence, exposed around Conception Bay (Figure 7.3). Prior to the deposition of the Cambrian platform sedimentary cover sequence, the underlying rock units were subjected to inhomogeneous deformation, low-grade metamorphism, uplift, and erosion.

The Horst structure is somewhat asymmetric based on current knowledge and geochronological data, with most of the older volcanic rocks exposed along its western margin. Along the eastern margin of the horst, plutonic rocks correlated with the Holyrood Intrusive Suite are juxtaposed with and locally intrude a bimodal volcanic suite consisting of predominantly subaerial felsic volcanic rocks

These volcanic rocks contain an extensive zone of advanced argillic alteration, approximately fifteen kilometres in length and up to one kilometre in width (Figure 7-4), referred to as the eastern Avalon high-alumina belt (Hayes and O'Driscoll, 1990). This belt of alteration is host to the local development of pyrophyllite–diaspore high-sulphidation-style epithermal alteration (Papezik and Keats, 1976; Papezik et al., 1978; Hayes and O'Driscoll, 1990; O'Brien et al., 1998). The pyrophyllite deposits have produced commercially on an intermittent basis. In the mid 1990's the identification of auriferous low-sulphidation related veins was first noted by O'Brien et al. (1997, 1998), and since that time several occurrences of crustiform–colloform, adularia-bearing low-sulphidation related veins have been identified (Mills et al., 1999; O'Brien, 2002; O'Brien and Sparkes, 2004; B.A. Sparkes, 2003a, b, 2005a, b).

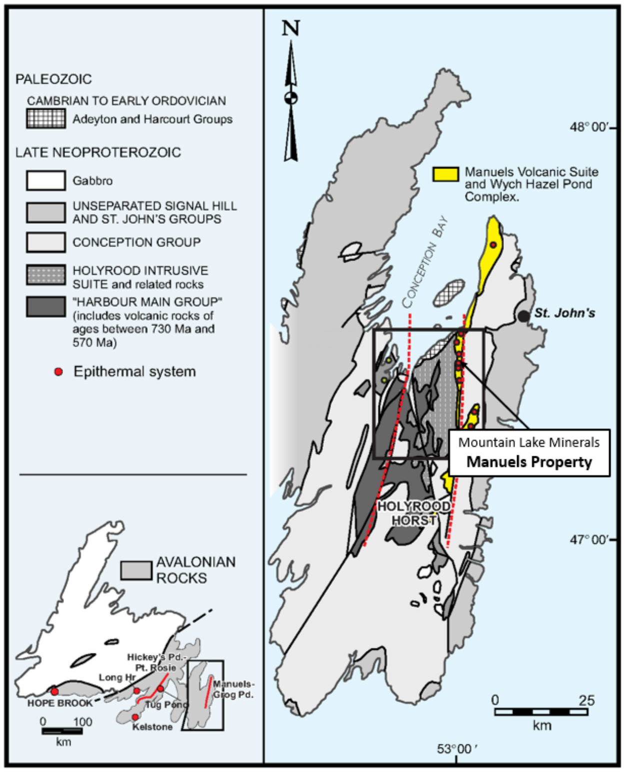

Figure 7-2: Simplified geological map of the Avalon Peninsula (modified from King. 1988) . Shaded area in the inset map shows approximate distribution of "Avalonian" rocks, red dits and lines delineate epithermal prospects and/or deposits (after O'Brien et.al., 1998)

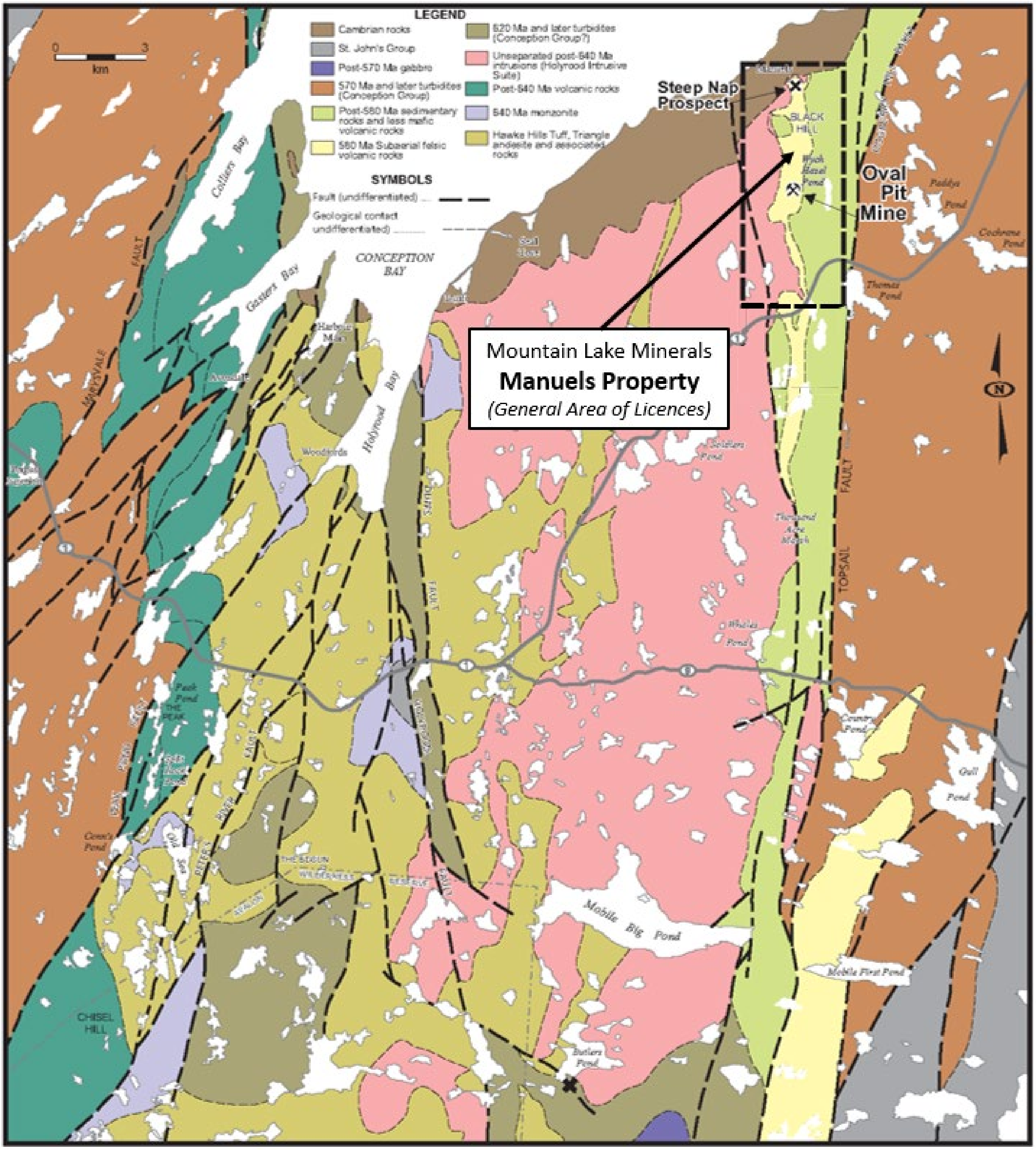

Figure 7-3:Simplified geological map of the eastern Avalon Holyrood Horst and surrounding units. (modified from O'Brien et.al., 2012)

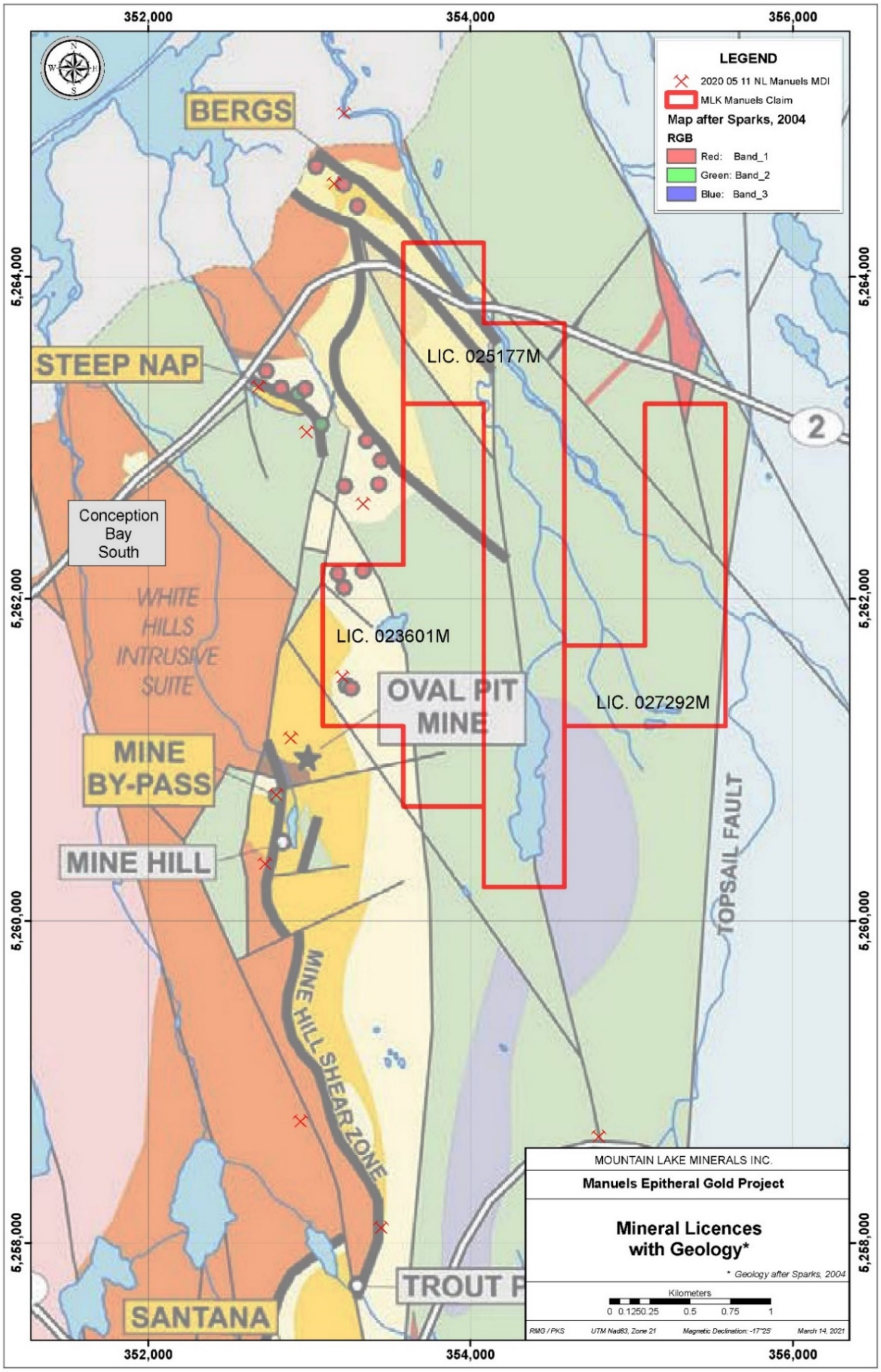

Figure 7-4: Regional geological map of the eastern side of the Holyrood Horst (modified after O'Brien, et. al., 2012)

7.3.1. Epithermal Setting of the Eastern Avalon Zone

The high-sulphidation, pyrophyllite–diaspore-bearing, advanced argillic alteration within the eastern Avalon Zone is primarily confined to the eastern margin of the Holyrood Horst, where it is hosted within predominantly felsic rocks of the composite Manuels Volcanic Suite (O'Brien et al., 2001). The precious-metal-bearing, low-sulphidation veining is developed proximal to the high-sulphidation alteration and is hosted by the pre-620 Ma White Mountain Volcanic Suite as well as the ca. 580 Ma Manuels Volcanic Suite (Sparkes et al., 2005). The main occurrence of pyrophyllite–diaspore alteration is developed within the Oval Pit Mine (Figure 7-4). From here the alteration can be traced southward, along the zone known as the Mine Hill Shear Zone (Figure 7-4). This major structural feature defines the regional boundary between the older White Mountain Volcanic Suite to the west and the younger Manuels Volcanic Suite to the east (Sparkes et al., 2005). Near the Oval Pit Mine the Manuels Volcanic Suite is unconformably overlain by siliciclastic sedimentary and associated mafic volcanic rocks of the ca. 580 Ma (and younger) Wych Hazel Pond Complex. The onset of marine sedimentation generally corresponds with the cessation of volcanism and marks the onset of an extensive period of basin infilling, the termination of the high-sulphidation-related alteration, and the transition into a submarine mineralizing environment.

The age of the rhyolite and ash-flow tuff hosting the pyrophyllite–diaspore alteration (and maximum age of the high-sulphidation system) is precisely defined at 584 ± 1 Ma (Sparkes et al., 2005). The sedimentary rocks of the overlying Wych Hazel Pond Complex contain detritus eroded from the high-sulphidation alteration. The base of the complex is drawn at a silica–pyrite-altered conglomerate, which is overlain by a pumiceous tuff bed that has been dated at 582 ± 1.5 Ma (Sparkes et al., 2005). Together, these data constrain the formation, uplift, and erosion of the high-sulphidation-style advanced argillic alteration to a period from 585 to 580.5 Ma.

The most extensive zone of low-sulphidation veining identified to date occurs in the region of the Steep Nap prospect (Figure 7-4), located approximately three (3) kilometres to the north of the Oval Pit Mine, where crustiform–colloform banded veins can be traced intermittently for up to 550 m along strike (B.A. Sparkes, 2005a). At the Steep Nap prospect, the low-sulphidation related veins are hosted within a polylithic lapilli tuff of the pre-620 Ma White Mountain Volcanic Suite. These veins locally display well preserved boiling textures and similar veins in the region have produced up to 54 g/t Au (O'Brien and Sparkes, 2004). The maximum age limit for gold-bearing colloform–crustiform chalcedonic silica–adularia ± calcite veins is provided by a vein-bearing crystal-rich, ash-flow tuff, dated at 582 ± 4 Ma. The low-sulphidation system, which is unconformably overlain by sedimentary rocks containing lower Cambrian fossils, is thus bracketed between 586 Ma and the age for the Lower Cambrian (between ca. 540 and 513 Ma). Feldspar-porphyry intrusions into the Wych Hazel Pond Complex sedimentary sequence yield a preliminary age of 585 ± 5 Ma. The porphyries, which are geochemically distinct from the older plutons, are the youngest felsic intrusions within the region and may play an important role in the development of the regional epithermal systems (Sparkes et al., 2005, 2007). Available data are consistent with a model whereby the high sulphidation system has been focused along (and above) a preexisting structure coincident with the contact between the 625-620 Ma plutonic rocks and the younger, ca.580 Ma volcanic suite. This boundary is now marked by the post-alteration Mine Hill Shear Zone (Figure 7-4).

The relationship between the high- and low-sulphidation epithermal systems remains equivocal. Current modelling for such systems (e.g., Hedenquist et al., 2000) would imply that Oval Pit Mine (pyrophyllite–diaspore) and the Bergs–Steep Nap system (chalcedonic silica–adularia ± calcite) formed in contrasting environments at distinctly different crustal levels. Thus, the proximity of these two types of systems in the eastern Holyrood Horst would require their original separation in either space or time. Existing field and U–Pb geochronological data do not provide enough precision to separate the two systems with respect to the timing of their formation to adequately explain the observed proximity of such contrasting epithermal systems. The possibility remains that the low-sulphidation colloform–crustiform veins and breccias represent a slightly younger (>1 Ma) telescoped, near-surface epithermal system overprinting a relatively deeper high-sulphidation system.

7.4. Local Unit Descriptions

Lithologies on the property show differing levels of alteration (silica-sericite-pyrophyllite-iron) but is especially prevalent in felsic volcanic rocks. Where alteration is most intense the original protolith is often difficult to impossible to recognize.

The units shown below are fully described by Sparks (2005) and the reader is referred to that document for a description of each unit and it contact relationships. A more restricted description of selective units encountered during diamond drilling is described in Table 7-1.

7.4.1. Paleozoic Rocks

- Cambrian Sedimentary rocks (Adeyton and Harcourt Groups)

7.4.2. Conception Bay Group

7.4.3. Wych Hazel Pond Complex

- Lower Wych Hazel Pond Complex
- Upper Wych Hazel Pond Complex
- Mafic Dikes
- Amygdaloidal Basalt / Hyaloclastite
- Fowlers Road Porphyry

7.4.4. Manuels Volcanic Suite

- Aphanitic Flow-Banded Rhyolite
- Aphanitic, Massive, Rhyolite / Polymictic Lithic Volcanoclastic Tuff
- Pale Grey-Green, Porphyritic, Rhyolite
- Grey-Green, Pyritic, Pumiceous, Crystal-bearing, Ash-flow Tuff
- Dark Purple, Crystal-bearing, Ash-flow Tuff
- Massive, Poorly Sorted, Lithic-rich, Breccia
- Mafic Volcanic / Intrusive Rocks
- Sericite-Silica ±Pyrite Alteration
- Silica-Sericite-Pyrite-Pyrophyllite-Diaspore-Rutile Alteration
- Hematite-Chlorite-rich Hydrothermal Breccia

7.4.5. White Hills Intrusive Suite

- Monzonite
- Medium- to Coarse-grained Equigranular Granite

- Quartz-Feldspar Porphyry

7.4.6. Holyrood Intrusive Suite

- Pink-White-Green Granite

7.4.7. White Mountain Volcanic Suite

- Aphyric, Flow Banded Rhyolite (Manuels River Rhyolite)
- Massive, Lithic-Rich, Polymictic, Lapilli Tuff
- Welded, Fiamme-bearing Ash-Flow Tuff

Table 7-1: Generalized stratigraphy of the Manuels area(compiled from Sparks, 2005)

<table>
<tr><th>ERA</th><th>PERIOD</th><th>MAJOR SUBDIVISIONS</th><th>AGE (Ma)</th><th>UNITS</th></tr>
<tr><td>Early Paleozoic</td><td>Middle to Lower Cambrian</td><td>Adeyton and Harcourt Groups</td><td>541 to 513</td><td>Red and black siltstone and mudstone with interbedded grey limestone; locally massive, poorly sorted boulder conglomerate at base</td></tr>
<tr><td rowspan="12">Late Paleozoic (pre-625 to 541 Ma</td><td rowspan="11">Ediacaran</td><td colspan="3">Erosional unconformity</td></tr>
<tr><td>Conception Group</td><td>ca 575 to 565</td><td>Unseparated marine siliciclastic sedimentary rocks</td></tr>
<tr><td colspan="3">Fault contact with Wych Hazel Pond Complex</td></tr>
<tr><td>Wych Hazel Pond Complex</td><td>582 to ca 575</td><td>Intercalated marine sedimentary rocks and mafic volcanic rocks; includes lower unit of red siltstone and basal brown breccia; locally intruded by feldspar porphyry</td></tr>
<tr><td colspan="3">Erosional unconformity</td></tr>
<tr><td>Manuels Volcanic Suite</td><td>585</td><td>Subaerial felsic volcanic rocks including flow-banded rhyolite and minor ash-flow tuff; contains minor mafic volcanic rocks</td></tr>
<tr><td colspan="3">Fault contact with White Hills Intrusive Suite</td></tr>
<tr><td>White Hills Intrusive Suite</td><td>625 to 620</td><td>Medium- to coarse-grained monzonite, granite and quartz-feldspar porphyry</td></tr>
<tr><td colspan="3">Fault contact with Holyrood Intrusive Suite</td></tr>
<tr><td>Holyrood Intrusive Suite</td><td>620</td><td>Medium- to coarse-grained equigranular granite</td></tr>
<tr><td colspan="3">Intrusive contact with White Hills Intrusive Suite</td></tr>
<tr><td>Ediacaran and/or earlier</td><td>White Mountain Volcanic Suite</td><td>pre-625</td><td>Subaerial felsic volcanic rocks including flow-banded rhyolite and minor lapilli tuff</td></tr>
</table>

8. Deposit Types

The Island of Newfoundland represents an emerging, underexplored gold district, where focused exploration for precious metals was essentially non-existent prior to the early 1980's. Gold has historically been mined from epithermal (gold-copper) and orogenic (gold-only) deposits, and as a by-product in several volcanogenic massive sulphide (VMS) operations. Production from orogenic and VMS deposits is continuing, but several new advanced projects are targeting similar deposit styles.

Exciting new and ongoing exploration is also directed at both high- and low-sulphidation epithermal deposits in parts of Newfoundland (e.g., Avalon Zone). Recent option- and joint-venture-agreements, coupled with new claim-staking, indicate renewed interest in underexplored terranes of central Newfoundland.

In the Manuels project area low-sulphidation epithermal gold veins occur in highly altered and structurally complex acid volcanic rocks (e.g., Steep Nap, Bergs). High-sulphidation alteration in the area is characterized by the world class pyrophyllite mine of Trinity Resources. The N-S trending belt of mineralization (Au ± Cu) extends more than thirty (30) kilometres from Conception Bay South in the north to just west of Witless Bay, although low-sulphidation gold occurrences are more common in the northern part of the belt. Minor base metal mineralization is also present along the belt (e.g., Pastureland Road, Obvious Pit).

9. Exploration

An exploration approval was received from the Newfoundland Department of Industry, Energy and Technology on September 28, 2020. Final approvals from the Town of Conception Bay South were received on December 21, 2020, so that the project exploration could proceed.

The 2020-2021 program consisted of prospecting (12 days, i.e., 24 person days), soil sampling (142 samples), and diamond drilling (six holes for a total of 591.05 metres). The overall purpose of the exploration program was to determine the stratigraphy, alteration, and gold-bearing potential of the banded rhyolite unit hosting the Boxcar breccia-style of mineralization. In addition, three (3) holes tested the down-dip extension of the Farmers Field breccia zone to the east of the Trinity Resources lease boundary.

Mountain Lake Minerals established its base for field operations, including drill core logging and temporary storage, at 188 Conception Bay Highway in Conception Bay South (Photo 9-1). The warehouse facility is owned by Greenslade’s Construction Ltd.

Photo 9-1: Greenslade's Construction Limited warehouse facility located at 188 Conception Bay Highway in the town of Conception Bay South

9.1. Personnel

The following is a list of personnel directly involved in the 2020-2021 Manuels exploration program (Table 9-1). This table shows the actual days spent in the field (except for K. Ryan). Exploration included prospecting, soil sampling, and diamond drilling in addition to moving drill core to the long-term provincial government storage facility in St. John's. Soil sampling was carried out by M. and E. Zwicker while drill core was moved to storage by M. Zwicker and D. Abbott. All other activities (prospecting and diamond drilling) were conducted by the author, P.K. Smith, and B. Fleming.

Table 9-1: Personnel involved in exploration at Manuels

Manuels Project Personnel (2020-2021)		
PROFESSIONAL		
Function	**# of Days**	**Name**
Project Management & Prospecting	5	B.Fleming
Project Supervision & Exploration	69	P.K. Smith
Exploration & Oversight	66	R.M.Graves
TECHNICAL SUPPORT		
Technical	5	M. Zwicker
Technical	4	E. Zwicker
Technical	1	D. Abbott
Advisory	1	N. Mercer
Consulting (contract)	(4 months)	K. Ryan

9.2. Prospecting

Prospecting on the property was conducted by P.K. Smith, B. Fleming, and the author at various times. In general, the ground is heavily wooded with numerous wet, boggy areas (Photo 9-2). Outcrop is sparse and attaining meaningful structural and stratigraphic information is difficult on the eastern two licences. Prospecting on the northeast side of the Manuels River was not conducted (Photo 9-3).

Photo 9-2: Small bog adjacent to Burnt Hill Pond

Photo 9-3: Small outcrop (Wych Hazel Fm.) at east side of property

A total of twelve days were spent prospecting with the purpose of locating either quartz veins having potential for gold mineralization or identifying areas with highly altered rhyolitic host-rocks that might warrant further investigations. All traverse locations were recorded on a handheld Garmin GPSMAP 62sc (Photo 9-4). Data was downloaded every night and imported into both ArcGIS and Basecamp software (Figure 9-1).

Photo 9-4: Survey marker located during prospecting.

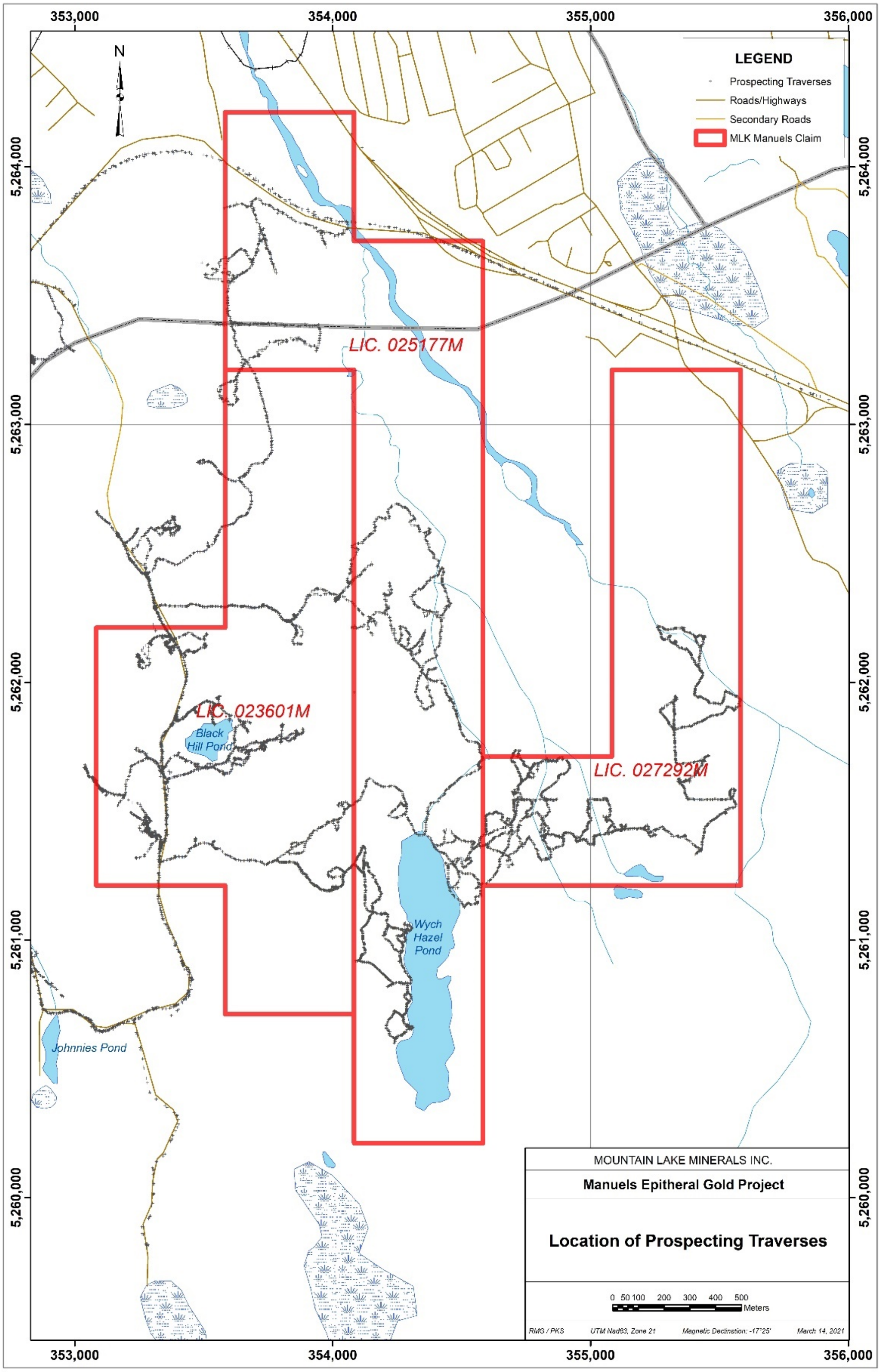

Figure 9-1: Map showing handheld GPS prospecting traverses.

9.3. Soil Sampling

A flagged grid measuring approximately 250 x 850 metre was sampled for soils between December 6th and December 15th by M. and E. Zwicker (Photo 9-5, Figure 9-2). Samples were spaced at twenty-five metre intervals along NE-SW oriented lines having a fifty-metre separation (Figure 9-3). Locations were flagged and photos of each sample were taken for a future record. Several samples could not be collected due to either bedrock or boggy conditions. Areas that showed visible signs of cultural debris (e.g., metal wire, junked automobiles, discarded equipment, etc.) were deliberately ignored during sampling. In addition, sample sites that were boggy and peat-rich were also omitted from sample collection.

Photo 9-5: Soil sampling orientation with M. Graves, and Ed and Matthew Zwicker

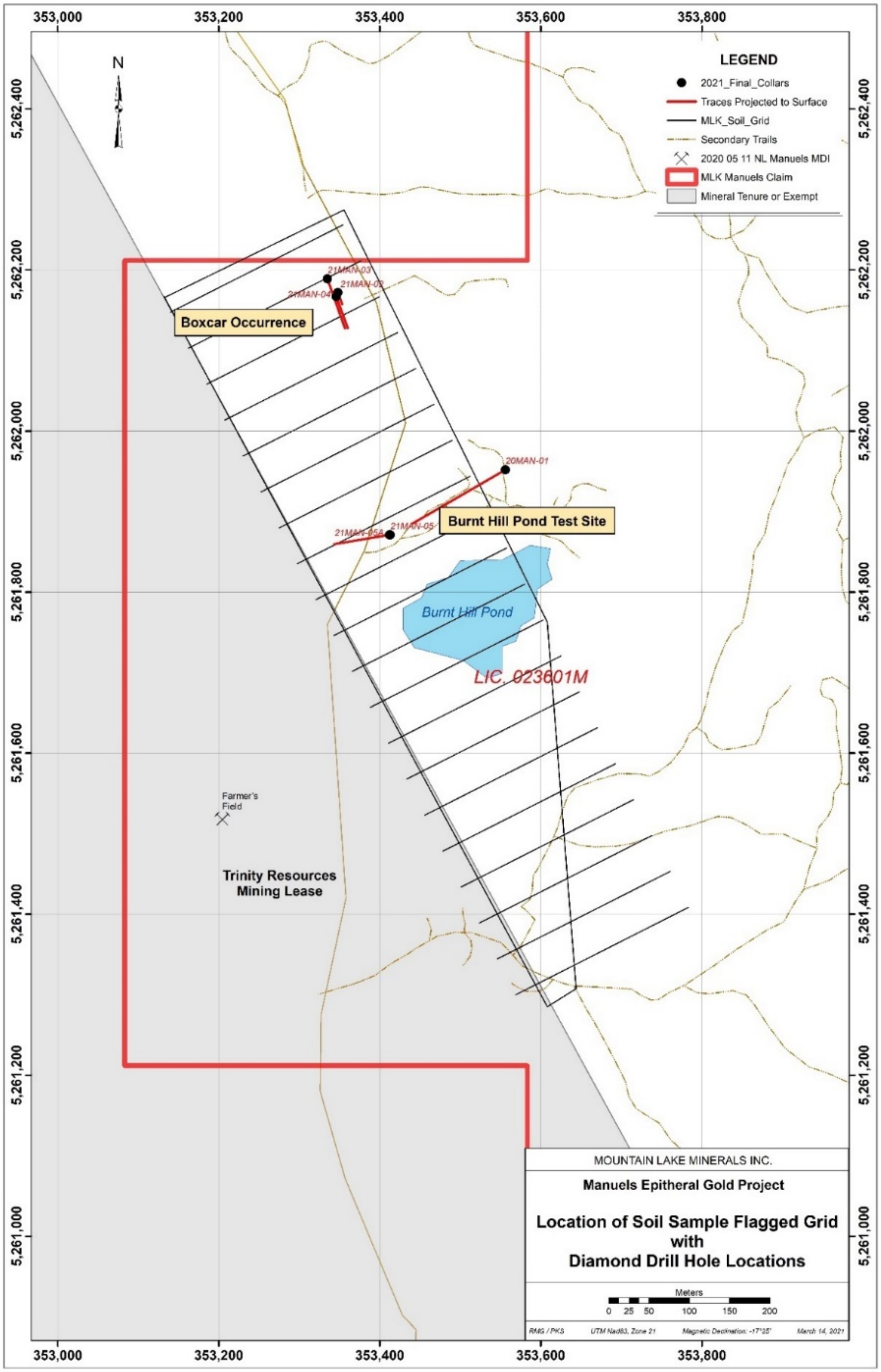

Figure 9-2: Location of flagged soil sample grid

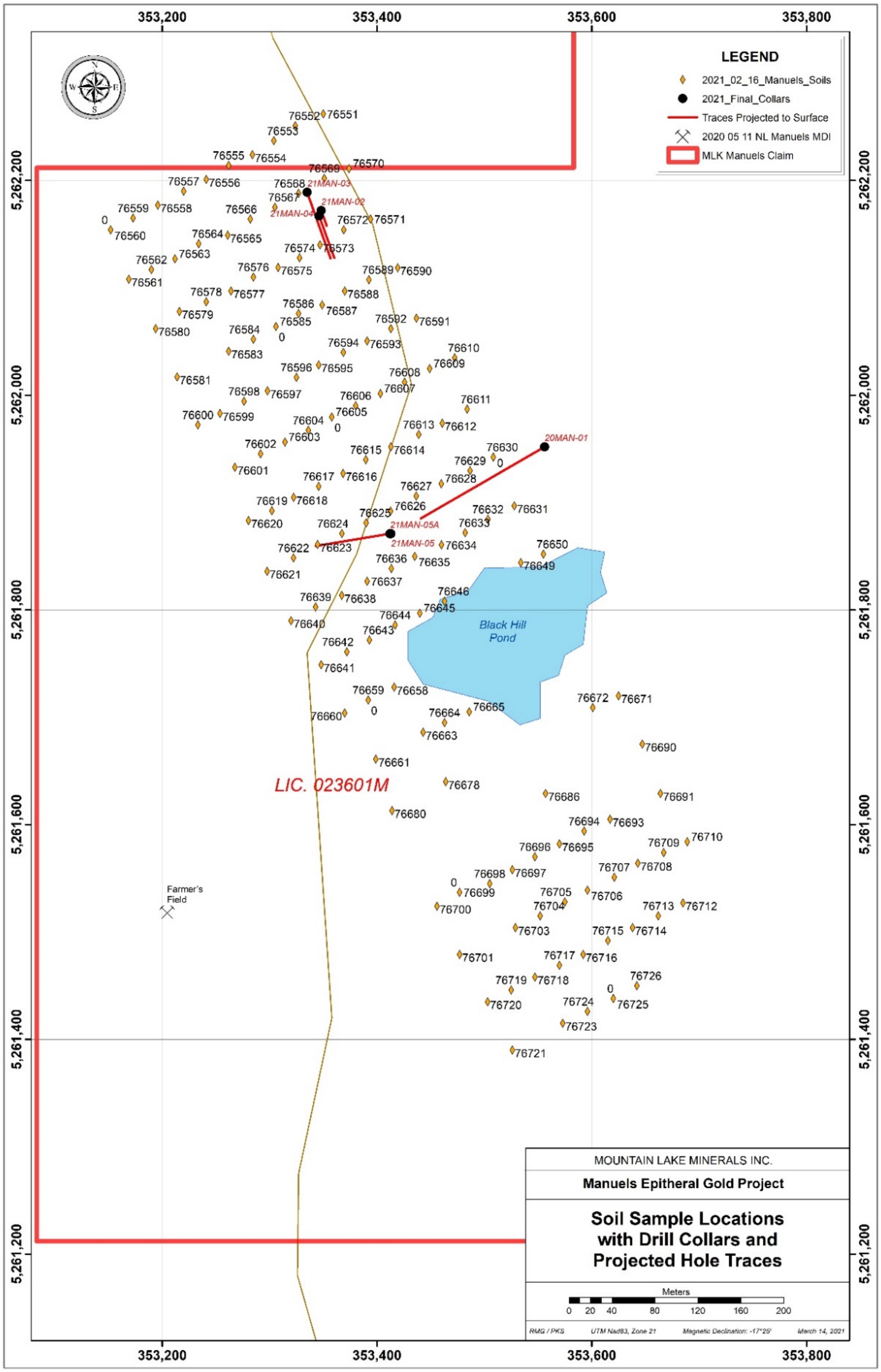

Figure 9-3: Soil Sample locations with sample numbers

Samples were placed in one of three rice bags (Photo 9-6, Table 9-2) and transported to the lab by the author and P.K. Smith for subsequent analyses.

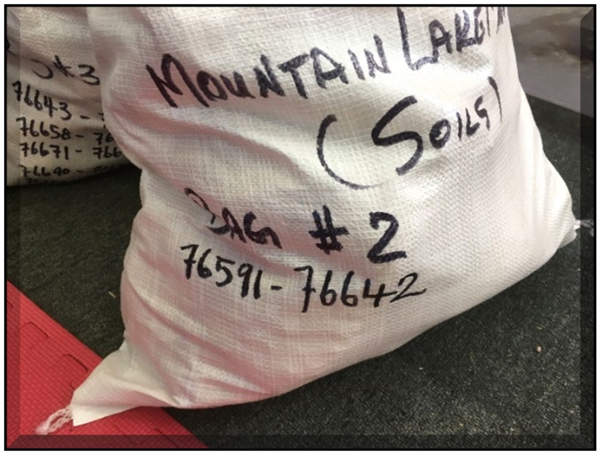

Photo 9-6: One of the rice fibre bags with soil samples

Table 9-2: Soil samples sent to EAL for Au+ICP-34 analyses

Samples (Bag #1)	Samples (Bag #2)	Samples (Bag #3)
76551-76581	76591-76642	76643-76646
76583-76590		76649-76650
		76658-76661
		76663-76665
		76671-76672
		76678
		76680
		76686
		76690-76691
		76693-76701
		76703-76710
		76712-76721
		76723-76726
n=39	*n=52*	*n=51*

Refer to Smith and Graves (2021) for analytical certificates and photographs of the soil samples.

Although the gold assays for the soil samples (Figure 9-4) is surprisingly low, the silver values are elevated in the southern portion of the grid (Figure 9-5). The potential for silver scavenging by either iron or manganese were examined (Figure 9-6, and Figure 9-7, respectively).

These data indicate a generalized relationship between silver and iron but no correlation between silver and manganese. Likewise, there is no correlation between silver with either lead or zinc and overall values of these metals is low. At present there is no explanation for the elevated silver values.

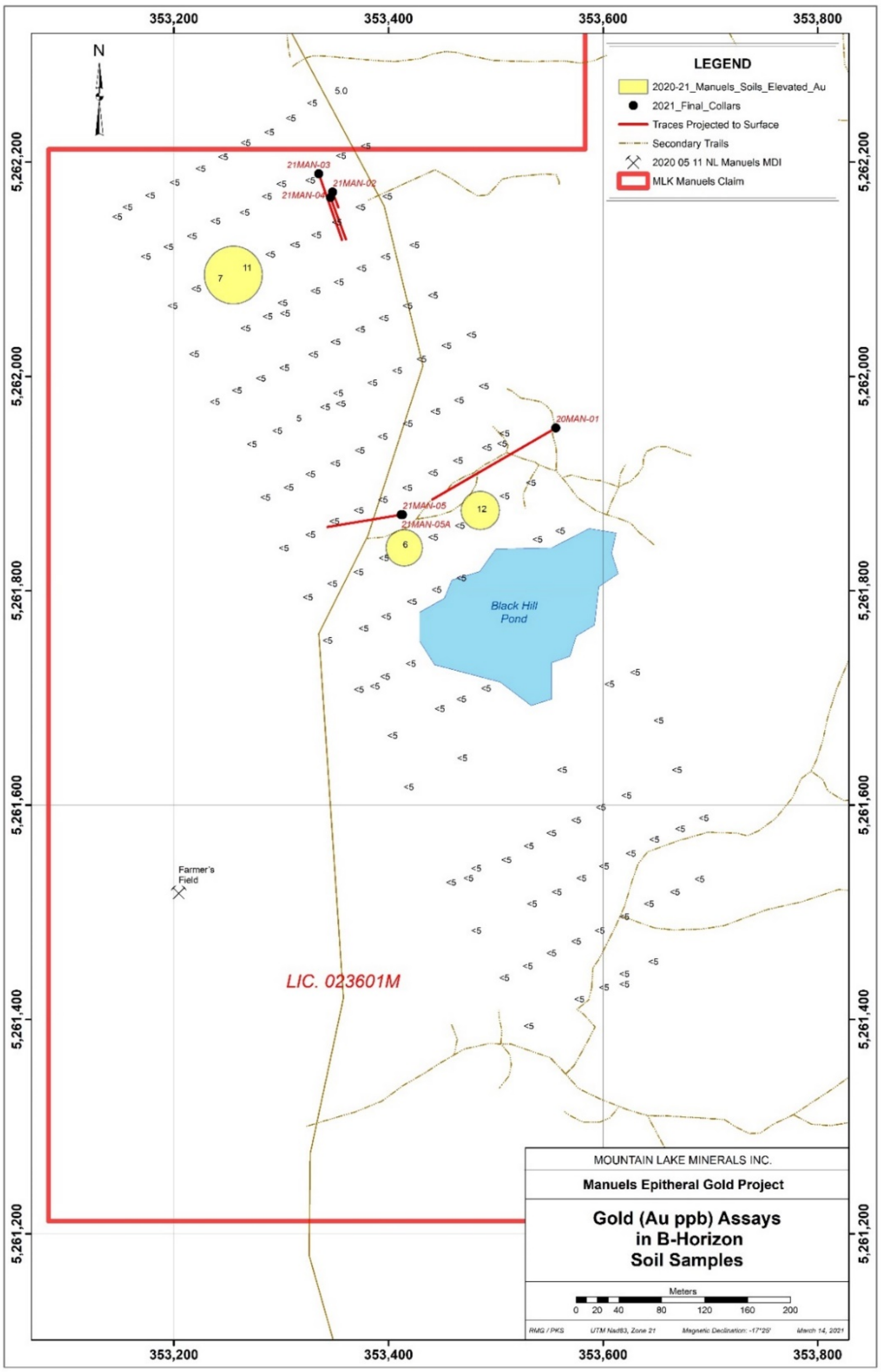

Figure 9-4: Gold values from soils at the Manuels grid

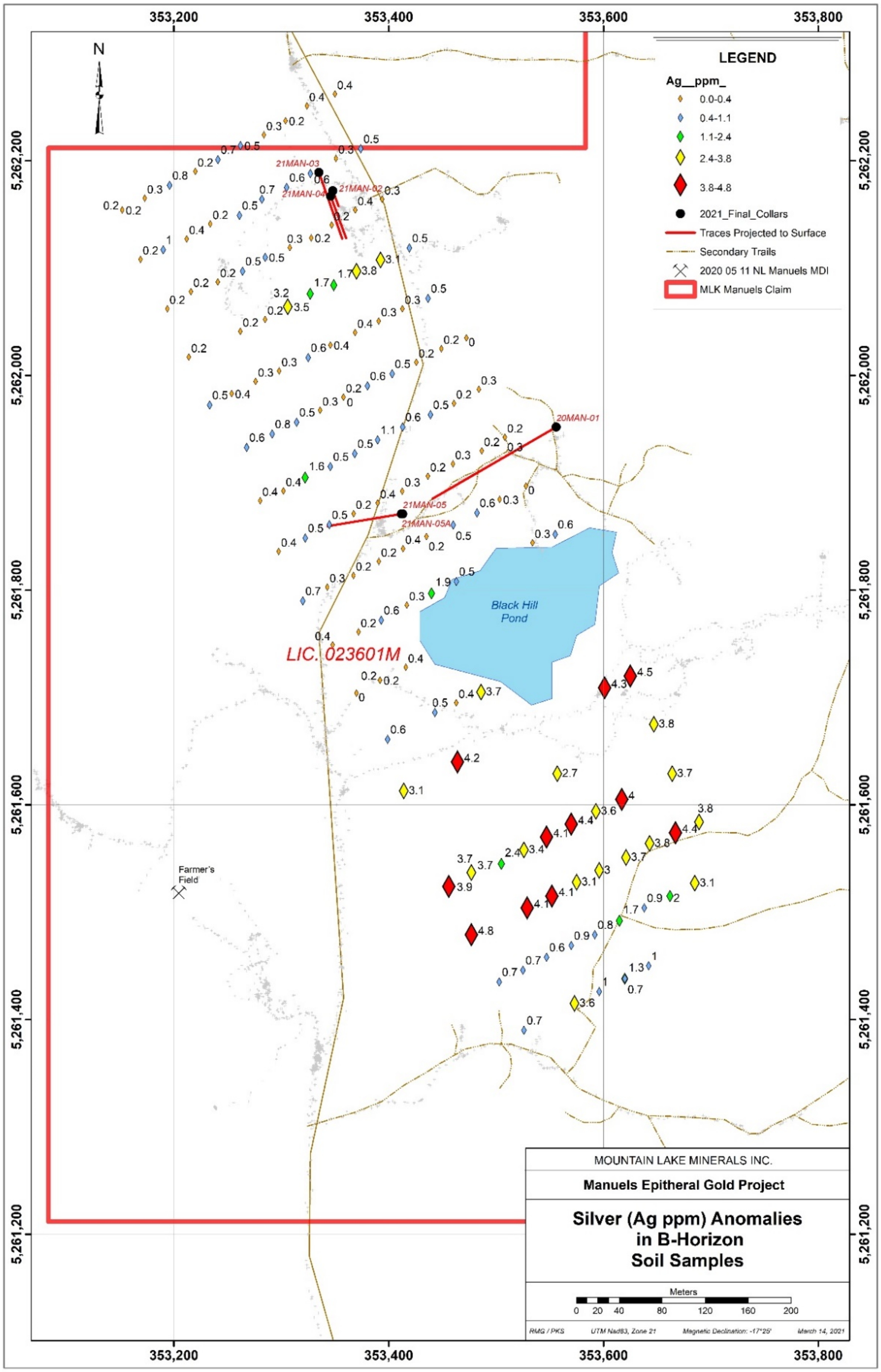

Figure 9-5: Elevated silver (Ag) values in soil at Manuels

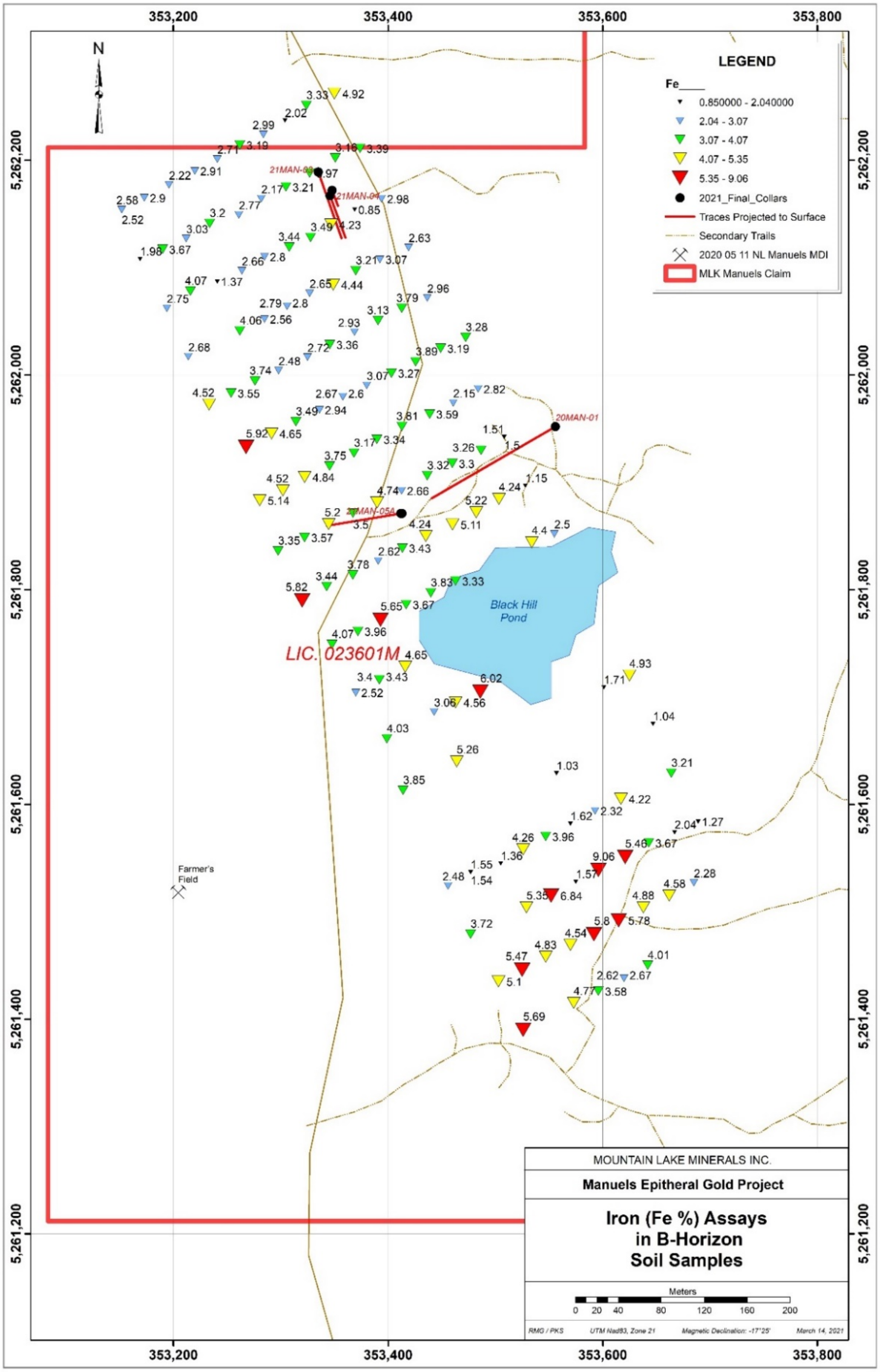

Figure 9-6: Iron (Fe) concentration in soils from the Manuels grid

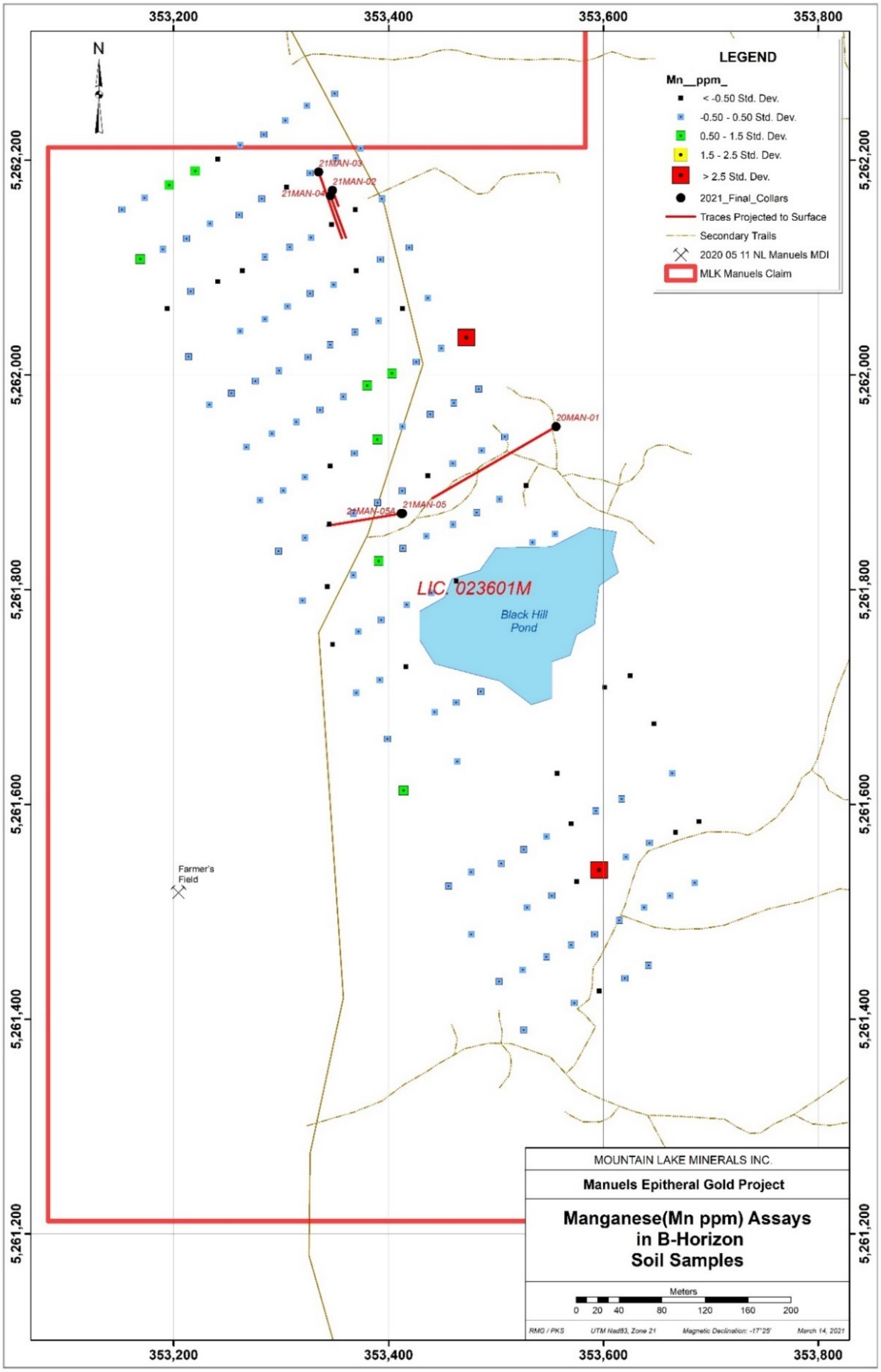

Figure 9-7: Manganese (Mn) concentration in soils at Manuels

9.4. Diamond Drilling

The contract for diamond drilling was awarded to Cartwright Drilling Inc. from Happy Valley – Goose Bay on November 30, 2020. Equipment was delivered to the property between December 8-12, 2020 (Photo 9-7) and the drill company operated with a pair of two-man crews and a foreman. The first shift started on the evening of December 12th with the first core arriving at the core shack several days later (Photo 9-8).

Photo 9-7: Cartwright Drilling's initial setup on hole 20MAN-01

Photo 9-8: Example of drill core near the top of hole 21MAN-01

Drill hole numbers started with the last two numbers of the year in which drilling commenced (i.e., 20 and 21), followed by the project identifier for Manuals ("MAN") separated by a dash and the sequential hole number. Hole 21MAN-05 was abandoned at fifteen (15) metres into overburden and the subsequent hole was moved one metre forward and labeled 21MAN-05a. Total metres drilled were 591.05 metres (Table 9-3).

Table 9-3: Drill holes with site name, coordinates, azimuth, dip, and length

DRILL HOLE #	LOCATION NAME	NAD83E	NAD83N	ELEVATION (m)	AZIMUTH °	INCLINIATION °	LENGTH (m)
20MAN-01	Girl Guide Camp	353556	5261952	206	240	-47	195.20
21MAN-02	Boxcar	353348	5262172	213	160	-47	21.55
21MAN-03	Boxcar	353335	5262189	211	160	-47	95.00
21MAN-04	Boxcar	353346	5262167	212	160	-47	59.95
21MAN-05	Girl Guide Camp	353413	5261871	218	260	-70	15.00
21MAN-05A	Girl Guide Camp	353412	5261871	218	260	-70	204.35
							591.05

10. Drilling

10.1. Introduction

Mountain Lake Minerals designed a five-hole, 591.05 metre diamond drill program to evaluate two gold prospects on their Manuels Property located approximately two kilometres south of Conception Bay South, NL (Figure 10-1). The drill program commenced on December 12, 2020, and ended January 23, 2021, with a two-week break over Christmas.

The gold prospects are locally recognized as the Farmer's Field Breccia and the Boxcar Breccia and are hosted in felsic volcanics (Photo 10-1) belonging to the Manuels Volcanic Suite (Sparkes, 2005). O'Brien et al. (2012) describe the Farmer's Field Breccia as narrow quartz-hematite-chlorite+/- pyrite veins hosting anomalous gold values of up to 136 ppb over 1.40 metres (Photo 10-2). Ryan (2012) describes the Boxcar Breccia host rock as maroon colored, flow-banded rhyolite "showing common to locally abundant, small-scale, quartz veinlet stockwork and quartz/silica-hematite breccia zones" (Photo 10-3). A grab sample from this prospect reportedly assayed 0.5 g/t gold (Ryan, 2012, as reported by Jacob in this report).

Photo 10-1: Thinly flow-banded maroon rhyolite at the Boxcar occurrence

Photo 10-2: Photograph of the Farmer's Field breccia in outcrop

Photo 10-3: Floating clast breccia at Boxcar occurrence with infill quartz

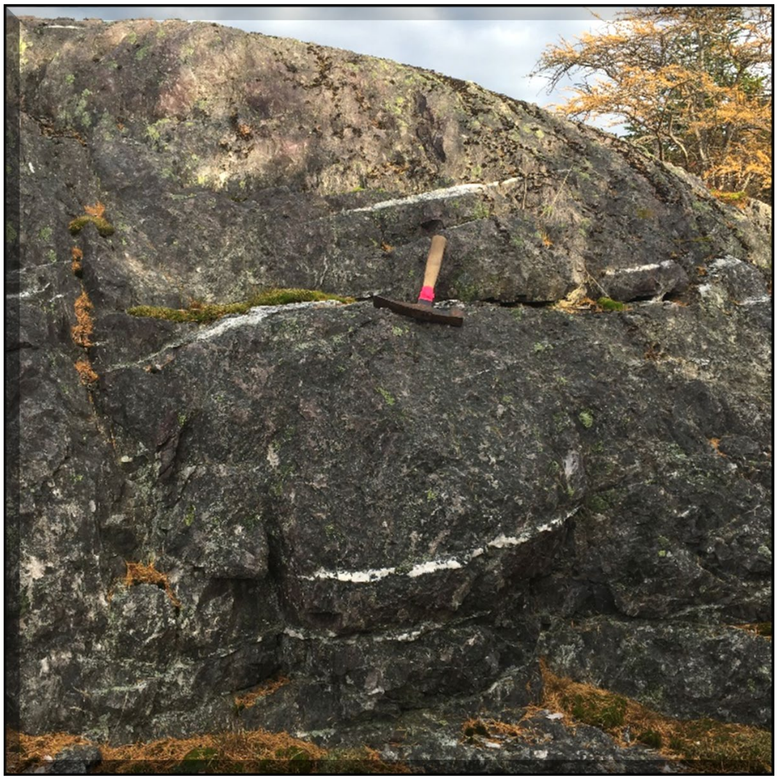

Photo 10-4: Extensional quartz veins at the Boxcar occurrence

Refer to Smith and Graves (2021) for drill logs, assay certificates, sample description sheets and sample interval lists for the drill core.

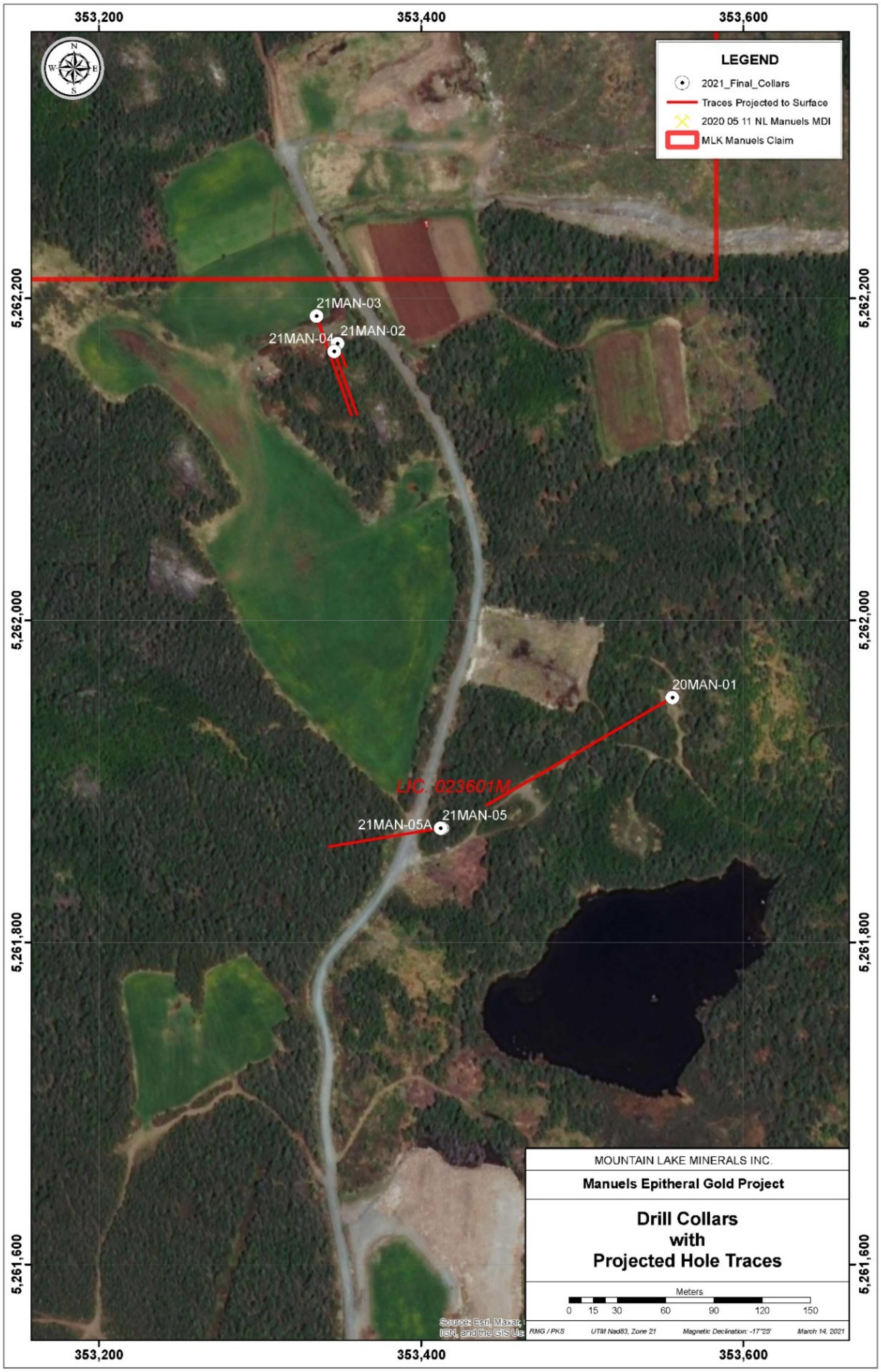

Figure 10-1: Location of Mountain Lake 2020-2021 Drill Holes at Manuels

10.2. DDH: 20MAN-01

10.2.1. Lithology

Diamond drill hole 20MAN-01 was spotted to test the down-dip potential of the Farmer's Field Breccia at approximately 200 metres depth as it crossed from the Trinity Resources mining lease onto Mountain Lake Minerals claims. The Farmers Field Breccia has a 155/335° strike with a dip of -40 to -50° eastward.

20MAN-01 intersected Manuels Volcanic Suite felsic volcanics at 21.0-138.9 metres and bottomed in quartz monzonite of the White Hills Intrusive Suite at 138.9-195.2 metres (Figure 10-2). The Farmer's Field Breccia was not intersected in this hole.

The lithology at 21.0-66.0 metres is a silicic, sericite hematite altered felsic volcanic (Photo 10-5, Photo 10-6) correlative with units 16 and 17 of Sparkes (2005) that overlies intercalated, dark coloured and weakly sericitic felsic volcanics that may be a protolith for the above unit.

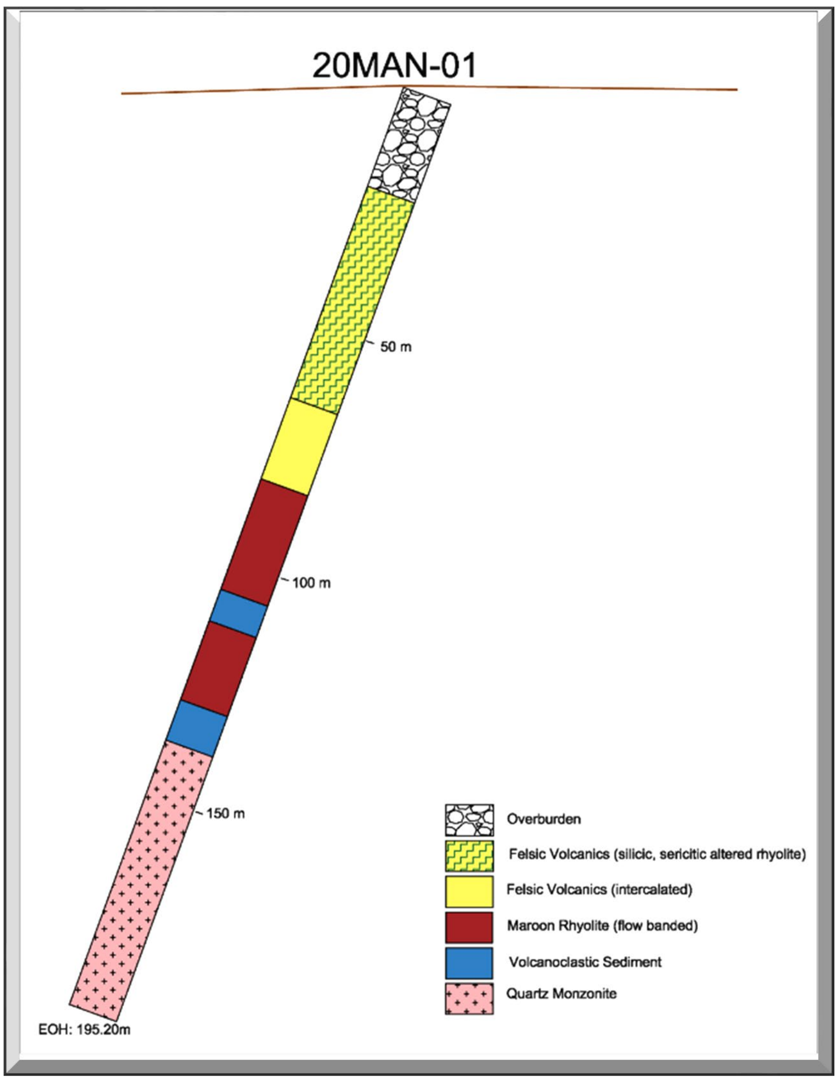

Figure 10-2: Geological cross section for 20MAN-01 (looking northward)

Photo 10-5: Silica-sericite-hematite altered felsic volcanic

Photo 10-6: Silicic-sericite-hematite altered felsic volcanic

Intercalated maroon, flow-banded rhyolite and possible epiclastic volcanoclastic sediment correlative with units 9 and 10 of Sparkes (2005) were intersected at 66.0-138.9 metres. Well developed lithophysae zones in maroon rhyolite at 83.3-101.0 metres (Photo 10-7). Only minor quartz veining occurred in the maroon rhyolite.

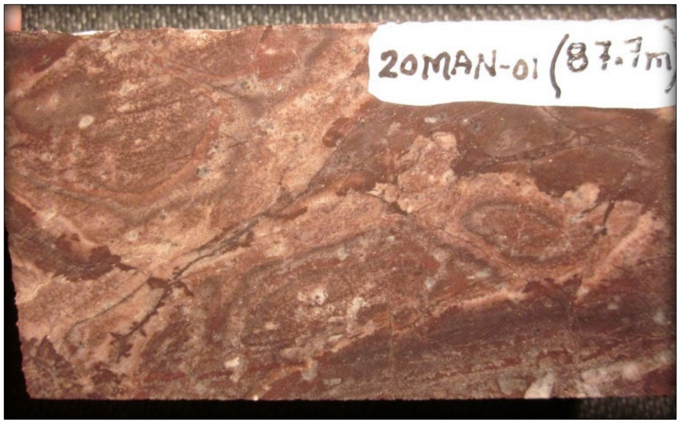

Photo 10-7: Lithophysae texture in maroon colored rhyolite (hole #01 @ 87.7 m)

A pinkish-grey to pink colored quartz monzonite occurs at 138.9-195.2 metres. It is medium-coarse grained equigranular and weakly porphyritic with phenocrysts of plagioclase and potassium feldspar (Photo 10-8). Sericite alteration and veining are common and hosts numerous dioritic(?) xenoliths. The quartz monzonite is correlative with unit 7 of Sparkes (2005).

Photo 10-8: Weakly altered quartz monzonite of the White Hills Intrusive Suite

10.2.2 Sampling

Thirty-one core samples were collected from drill hole 20MAN-01, and all samples (except for one) analyzed either below or immediately above the lower detection of 5 ppb. Only sample 76773, consisting of maroon rhyolite from 113.55-114.10 metres was anomalous at 71 ppb Au.

10.3. DDH: 21MAN-02

10.3.1. Lithology

20MAN-02 was drilled under the Boxcar Breccia prospect to evaluate the gold signature at a depth of approximately twenty-five metres. Significant veining and brecciation of the maroon rhyolite wallrock were observed along a small cliff face at this outcrop but only low levels of gold were assayed by the lab. Hole 20MAN-02 was drilled to a depth of 21.55 metres and was then lost it a mud seam/fault which could not be penetrated further by the drill contractor and the hole was abandoned (Figure 10-3).

21MAN-02 intersected maroon rhyolite from 8.6-21.35 metres. The core was significantly silica veined and silica brecciated from 8.6-15.35 and less so at 15.35-21.35 where the unit was a flow-banded rhyolite (Photo 10-9 and Photo 10-10). The maroon rhyolite is correlative with unit 9 of Sparkes (2005).

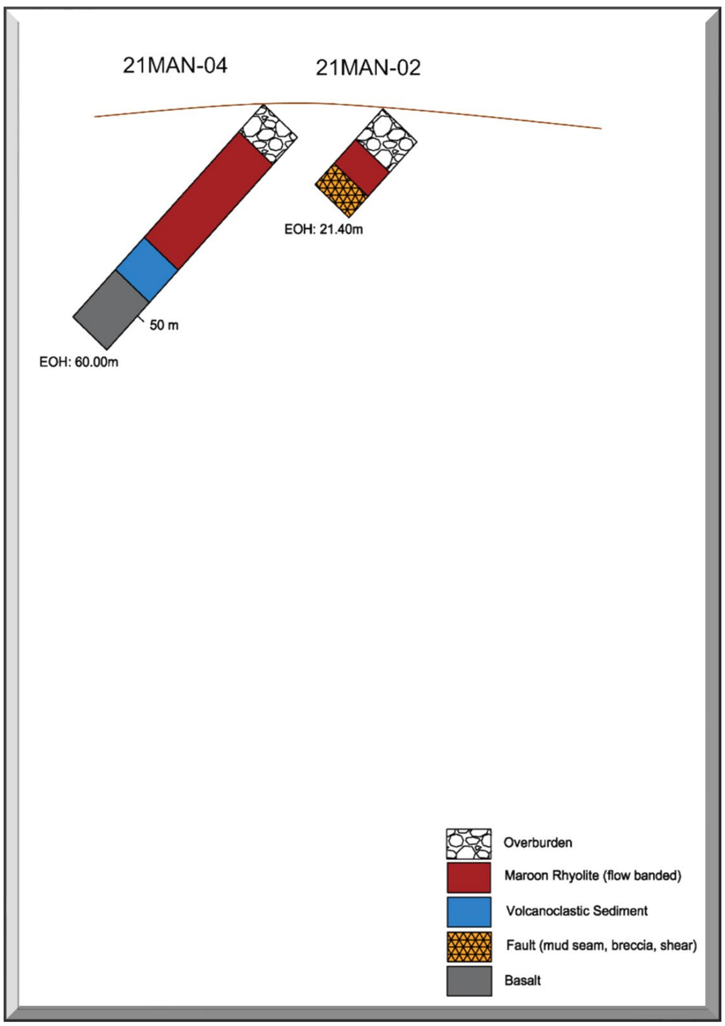

Figure 10-3: Geological cross-section for holes #02 and #04 (looking westward)

Photo 10-9: Brecciated maroon rhyolite at 14.5 m depth in hole 21MAN-02

Photo 10-10: Flow banded rhyolite at 17.7 m depth in hole 21MAN-02

10.3.2. Sampling

Twenty-four core samples were collected from 21MAN-02, which was the entire hole. Eight of the thirteen samples collected in the brecciated rhyolite between 8.6-15.4 metres were above the detection limit of five ppb at between 9-47 ppb gold. None of the eleven samples collected in the flow banded rhyolite at 15.4-21.0 metres analyzed above the five-ppb detection limit.

10.4. DDH: 21MAN-03

10.4.1. Lithology

20MAN-03 was a second attempt to drill through the Boxcar Breccia outcrop. The hole was spotted about thirty metres northwest of 21MAN-02 (Figure 10-1). The maroon rhyolite, which is the wallrock host for quartz veining and siliceous breccia in the Boxcar Breccia was not intersected in this hole.

21MAN-03 collared in silicic, sericitic-hematitic felsic volcanics like that seen in 20MAN-01 at 21.0-66.0 metres and then drilled through plagiophyric mafic tuff, amygdular basalt, and volcanclastic sediment to the bottom of the hole that ended at 95.0 metres (Figure 10-4, Photo 10-11). This mafic volcanic pile is believed to be correlative with Unit 15 of Sparkes (2015). The hole was halted given the unfavourable stratigraphy.

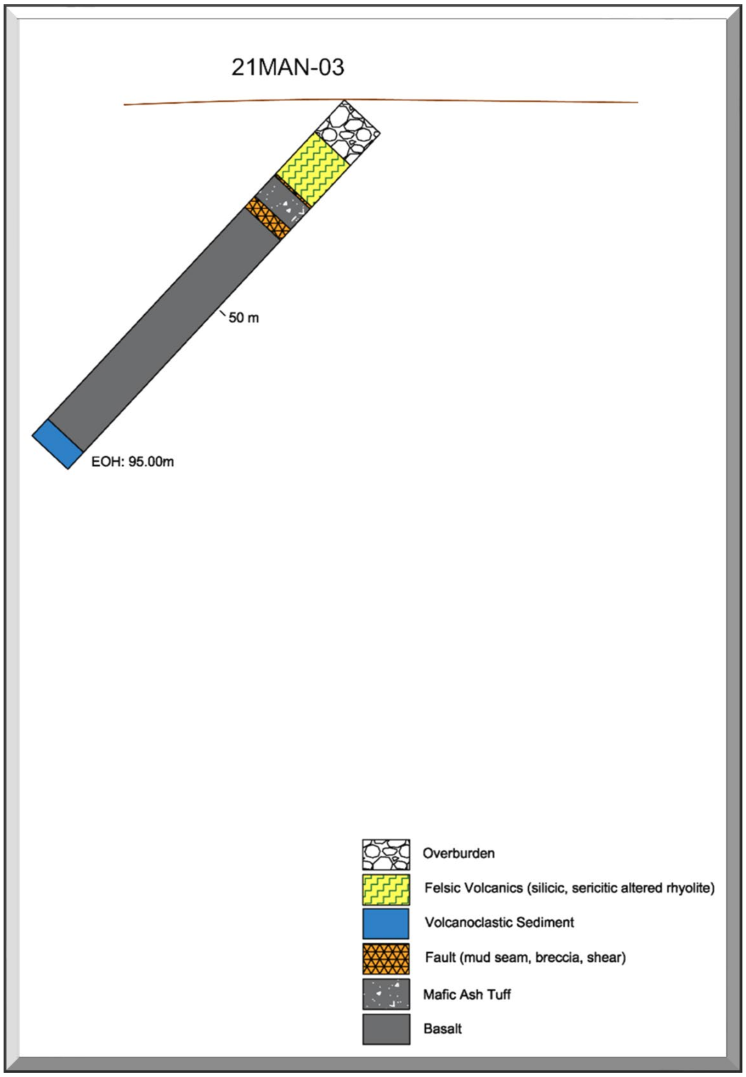

Figure 10-4: Geological cross section of hole 21MAN-03 looking westward

Photo 10-11: Core boxes 13-23 from hole 21MAN-03 on rack

10.4.2 Sampling

20MAN-03 was sampled from 8.9-22.45 metres where fifteen samples were collected. Samples are from within the altered felsic volcanic and underlying breccia. All gold analyses were either near the detection limit of 5 ppb or slightly below.

10.5. DDH: 21MAN-04

10.5.1. Lithology

21MAN-04 was spotted to drill beneath hole 21MAN-02 and was successful at drilling into the Boxcar breccia outcrop (see Figure 10-3 above). Hole 21MAN-04 drilled through the target maroon rhyolite lithology at 7.7-37.5 metres (Photo 10-12). The lithologies beneath this interval comprised volcanoclastic sediment (Photo 10-13) and basalt which are unfavourable hosts. This mafic volcanic pile is believed to be correlative with Unit 15 of Sparkes (2015). Given the unfavourable stratigraphy the hole was terminated at sixty (60) metres depth.

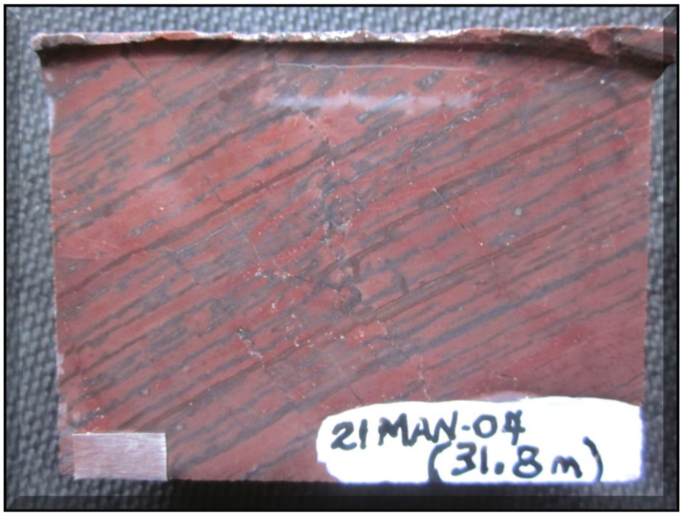

Photo 10-12: Cut maroon, banded rhyolite from hole 21MAN-04

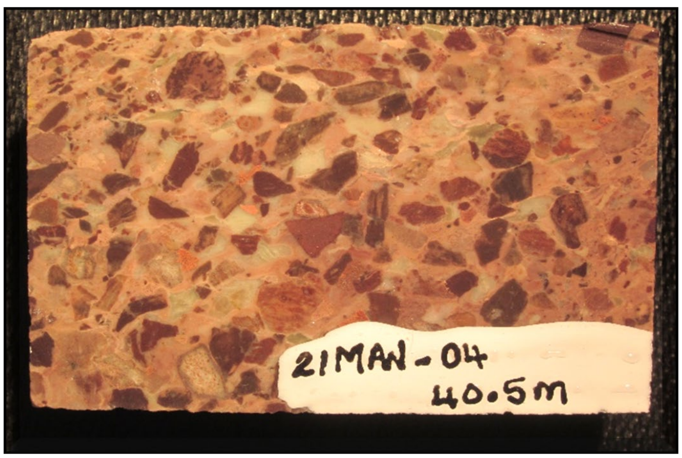

Photo 10-13: Volcanoclastic sediment from hole 21MAN-04

10.5.2. Sampling

There was significant quartz veining and siliceous breccia in the maroon rhyolite. Twenty-three core samples were collected for assay. Most of the samples were beneath the lower detection limit of 5 ppb with just six samples assayed immediately above detection having values ranging from 6-20 ppb gold.

10.6. DDH: 21MAN-05

10.6.1. Lithology

Hole 21MAN-05 (Figure 10-5) was abandoned at fifteen (15) metres into boulder-rich overburden that resulted in drilling difficulties.

10.6.2. Sampling

No samples were collected from this hole.

10.7. DDH: 21MAN-05A

10.7.1. Lithology

Diamond drill hole 21MAN-05A was re-collared about one metre in front of hole 21MAN-05 and is located approximately 165 metres forward (southwest) of hole 20MAN-01. Hole 21MAN-05a (Figure 10-5) was drilled to test the down-dip potential of the Farmer's Field Breccia as it crossed from the Trinity Resources mining lease onto Mountain Lake Minerals claims. The main Farmer's Field breccia zone has a 155/335° strike with a dip of -40-50° towards the east. Hole 21MAN-05a intersected Manuels Volcanic Suite felsic volcanics at 21.0-138.9 metres and bottomed in a White Hills Intrusive Suite quartz monzonite at 138.9-195.2 metres (Figure 10-5, Photo 10-14). The Farmer's Field breccia zone was not intersected in this hole.

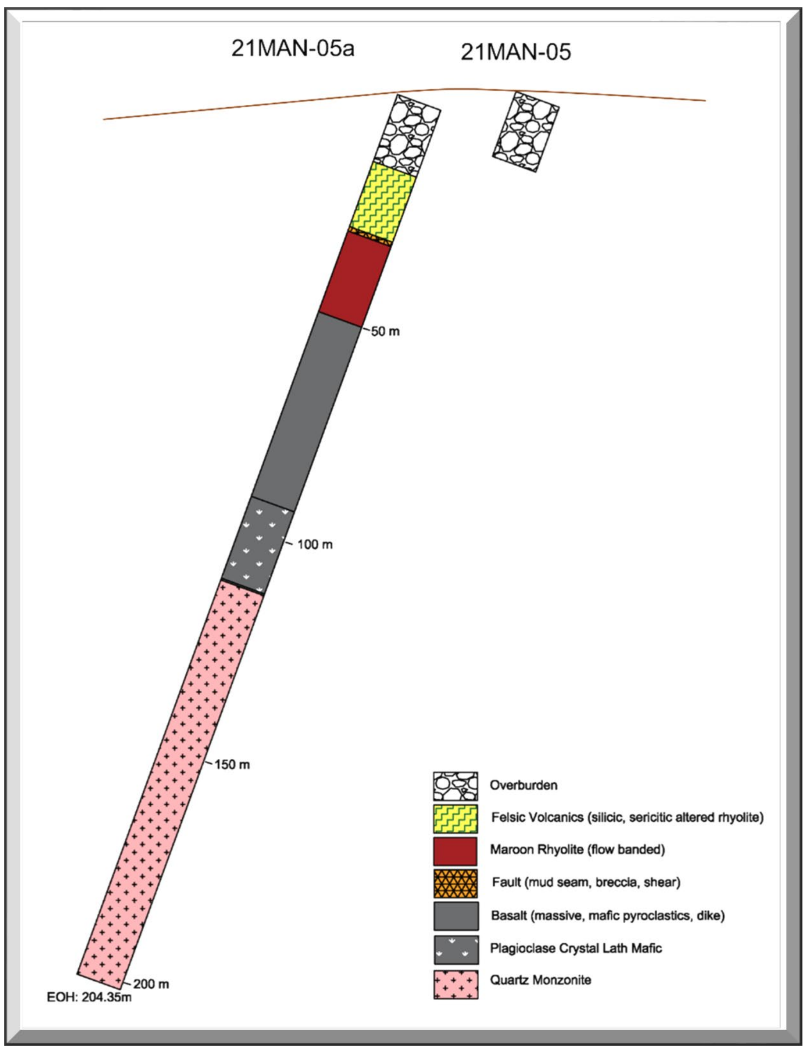

Figure 10-5: Geological cross section for hole 21MAN-05 and -05a (looking northward)

Photo 10-14: Quartz monzonite near the bottom of hole 21MAN-05a

The lithology at 15.5-30.6 metres is a silicic, sericite hematite altered felsic volcanic (Photo 10-15) correlative with units 16 and 17 of Sparkes (2005). It occurs in faulted contact with various maroon and green intercalated, weakly sericitic felsic volcanics at 31.55-50.30 metres that are perhaps correlative with Unit 9 of Sparkes (2005). These felsic volcanics overlie mafic ash tuff, amygdaloidal basalt, volcanoclastic sediment (Photo 10-16) and a distinctive plagioclase-phyric mafic (dike?) at 50.30-112.50 metres that may be correlative with Unit 15 of Sparkes (2005). The mafic pile then overlies a very sericitic quartz monzonite belonging to the White Hills Intrusive Suite that occurs at 112.5-204.35 metres.

Photo 10-15: Silica-sericite altered felsic volcanics at 21.5m depth, Hole 21MAN-05a

Photo 10-16: Intermediate volcaniclastic sediment (84.5 m, hole 21MAN-05a)

Photo 10-17: Plagioclase phyric (dike?) and amygdaloidal basalt (hole 21MAN-05a)between 91.65 (upper left corner) and 94.9 m (lower right corner)

The entire sequence is overlain by interbedded green siltstone and sandstone at 14.9-15.5 metres correlative with Unit 19a Lower Wych Hazel Pond Complex of Sparkes (2005).

10.7.2. Sampling

Seventy-eight (78) core samples were collected from drill hole 21MAN-05a. The various rhyolites from 15.5-50.25 metres depth in the hole largely analyzed less than detectable gold to low level anomalies just above 5 ppb. The only exception is a maroon rhyolite sample at 39.6-40.0 metres that analyzed 207 ppb Au.

The sericitized quartz monzonite was extensively sampled and the background level was almost always less than detectable gold (i.e., <5ppb Au).

11. Sample Preparation, Analyses, Security and QA/QC

11.1. Sample Preparation and Collection

Drill hole locations were spotted in the field by Mountain Lake Minerals geologists. Drill pad construction was supervised and holes oriented using a Silva Ranger compass. Drilling was conducted by Cartwright Drilling Inc. of Goose Bay, NL using a CDI-500 drill designed and constructed by Cartwright Drilling. Core size collected in this drill program was NQ and down-hole surveys were collected periodically using a Reflex survey tool to measure azimuth and hole dip. It was the drill contractor's responsibility to ensure the core was oriented correctly in the core box with depth tags in the proper location.

The core boxes were placed on core logging tables and checked to ensure the core is continuous, in the correct order and depth tags properly positioned. The core was cleaned and photographed both wet and dry. The core was observed for recovery which was >95%. The core boxes were labelled with aluminum tags displaying hole number, box number and depth interval. Geological logging of the NQ core was conducted with core sample positions determined by lithological and alteration changes. Core was cut using a diamond saw blade. Samples collected for analysis were placed in plastic bags, numbered using a three-tag system and stored in 'bushel' sized fibre bags with standards and blanks for QA/QC purposes for delivery to Eastern Analytical Limited. Fibre bags were numbered, labelled with the sample range and company name with a laboratory instruction sheet placed in bag #1 of the sampling batch.

11.2 Analyses

Analyses were performed at Eastern Analytical Limited, Springdale, NL. The core was assayed by fire assay and the soil samples by fire assay and ICP-OES 34 elements. Eastern Analytical Limited has ISO 17025 accreditation and their analytical services, laboratory methods and QA/QC procedures are available on their website https://www.easternanalytical.ca/

11.3 Security and Chain of Custody

All drill core was processed at an office/warehouse owned by Greenslade's Construction Ltd., at 188 Conception Bay Highway, Conception Bay South. NL. The facility was locked, secure and rented by Mountain Lake Minerals solely for the purpose of this drill program.

Core was collected at the drill by Mountain Lake Minerals personnel and driven by pick-up truck to the core logging facility in Conception Bay South. On occasion, the Cartwright Drilling foreman would deliver core from the drill to the logging and sampling facility.

Core samples were driven by Mountain Lake Minerals personnel from the core logging facility in Conception Bay South to the Eastern Analytical Laboratory in Springdale, NL and handed directly to their employees.

11.4 QA/QC

The certified reference material (CRM) was obtained from CDN Resource Laboratories Ltd. of Langley, B.C. The CRM used in this drill program was CDN-CM-37 and the description appears in Appendix 28.1. Table 11-1 presents the certified mean value reported for this material.

Table 11-1:Certified Reference Material CDN-CM-37

Certified Material	Certified Au Value (g/t)
CDN-CM-37	**0.171 g/t +/- 0.024 /t**

CRM samples were received in 50 g paper packets and were individually placed in a plastic sample bag labelled according to the normal core numbering scheme. The CRM samples were inserted at a rate of 1 in 20 samples and therefore 10 certified reference samples were submitted for analysis and plotted for the purposes of this report. Figure 11.1 present CRM results for the drilling program and the data clearly falls within the +/- 2 standard deviation limit for the project.

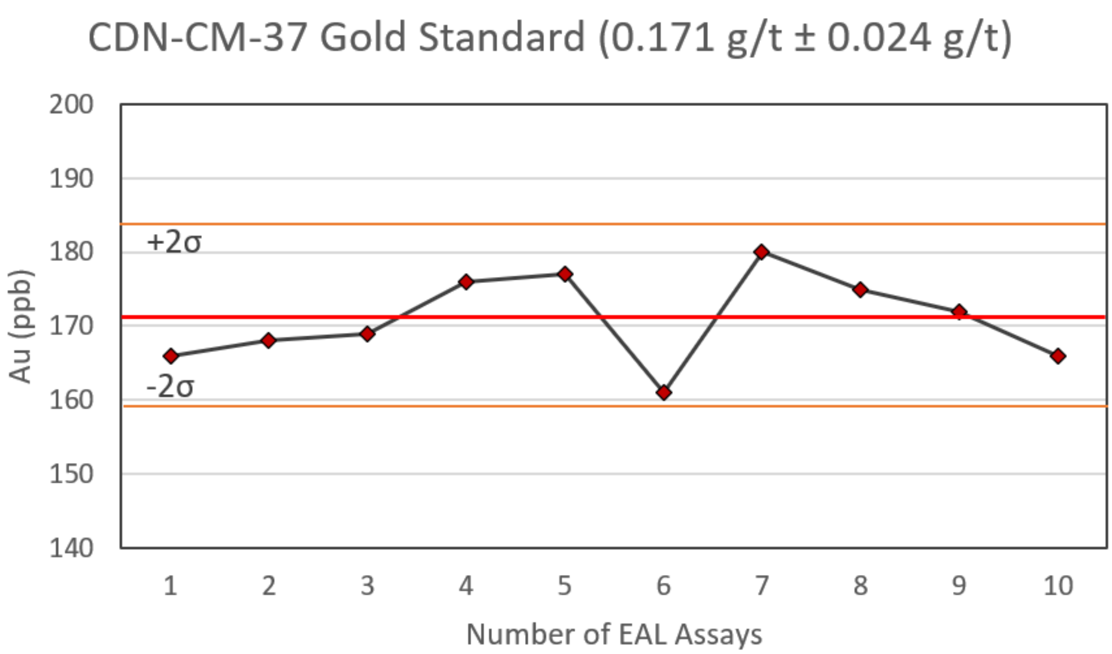

Figure 11-1: Certified Reference Standard CDN-CM-37

Blank Sampling Program

Figure 11-2 presents the results of gold analytical results for 8 blank samples submitted for analysis during the drill program. All blank samples analyzed gold values less than 5ppb detection limit for the analytical method and therefore indicates sample cross-contamination did not occur.

This sample blank comprised Triassic basalt collected from a quarry at Glenmont on the North Mountain in Nova Scotia and has a gold value of <5ppb Au. The approximate coordinates (UTM NAD 83, Zone 20) are 382,800E, 5,004,150N.

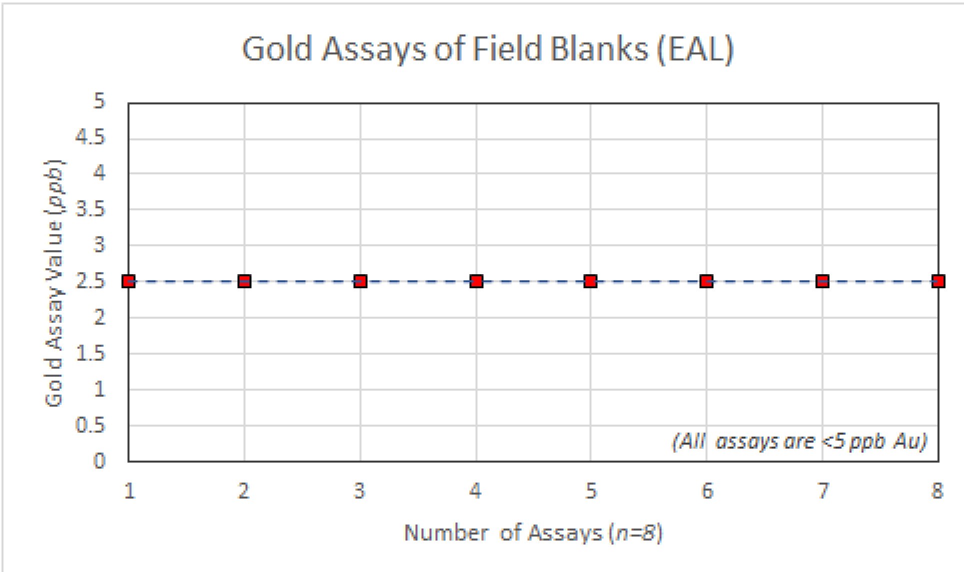

Figure 11-2: Blank sampling analyses for Manuels drill program

12.Data Verification

This section is not currently relevant.

13.Mineral Processing and Metallurgical Testing

No mineral processing or metallurgical testing has been carried out at this property.

14.Mineral Resource Estimates

None have been established.

15.Mineral Reserve Estimates

None have been established.

16.Mining Methods

This section is not currently relevant.

17.Recovery Methods

Nothing to comment on.

18.Project Infrastructure

There is not project infrastructure as there has been no development.

19.Market Studies and Contracts

No market studies have been either initiated or completed and no contracts to do so have been sought.

20.Environmental Studies, Permitting and Social or Community Impact

No environmental studies or operating permits have been applied for at this time. The author is aware that should a project become economically viable at Manuels then there would be social and community impacts. The area provides a modest agricultural and forest-harvesting income to a small number of residents in the area. The author is also aware that any operation on the property could negatively impact the sparce water resources at this raised elevation (maximum elevation on the property is approximately 200 metres) and would need to be mitigated.

21.Capital and Operating Costs

The project has not advanced to the stage that an estimation of capital and operating costs could be evaluated.

22.Economic Analysis

The Manuels epithermal gold property does not currently have any quantifiable mineral resources and therefore, no economic analysis has been attempted on the minimal available information.

23.Adjacent Properties

Although mineral exploration is currently active in Central Newfoundland due to several gold discoveries following the resource calculations by Marathon Gold at Valentine Lake. A second active exploration belt has emerged along the length of Burin Peninsula running northeastward towards Clarenville and Bonavista Bay, and is known to host epithermal-style (low- and high-sulphidation) gold and silver ± copper mineralization. Notwithstanding these activities along the western limit of the Avalon Zone, exploration to the east on the Avalon peninsula of Newfoundland has been far more subdued since the mid-1990's.

23.1. Trinity Resources Ltd.

John Hurley (President & CEO) of Trinity Resources has operated the pyrophyllite mine operations at the Oval Pit for many years. The impost land (lease) area was first granted as the F.W. Andrews Fee Simple Mining Grant (Volume 1, Folio 81) and was known as a talc mine. The area was acquired in 1902 and put into production in 1904. High quality deposits were not developed until 1938, when the Industrial Minerals Company of Newfoundland Limited started mining at the present site. They shipped to the United Kingdom, the United States and Canada until the mine closed in 1947. The Newfoundland government assumed control of the property under the Undeveloped Mineral Area Act of 1952. It was reopened in 1956 by Newfoundland Minerals Limited, a subsidiary of a company that later became the American Olean Tile Company.

Historically, the mining rate has been about 40,000 tons per year. The mine was thereafter owned and operated by Armstrong World Industries Canada Limited and later by Trinity Resources Limited.

23.2. Other Stakeholders

In addition to the three (3) mineral licences held by Mountain Lake Minerals Inc., other shake-holders include, E. Stockley, J. White & White Fox Silver Resources, H. Simms, S. Sheppard, Eagleridge International Ltd, Quest Inc., and M. Noel. Other than the current exploration efforts by Mountain Lake the author are not aware of any active exploration in the area, except for the purpose of claims maintenance.

Noteworthy gold occurrences in the immediate area of the three MLK licences (based on literature and government records) include (from north to south), Bergs, Steep Nap, Satellite, Farmers Fields (East), Farmers Field, Mine By-Pass, Santana, and the Roadcut.

The map in Appendix 0 shows other stakeholders adjacent to Mountain Lake Minerals licences in the Manuels area.

24.Other Relevant Data and Information

24.1. Remediation

The location of each soil sample site was marked with a red flag. Drill collars were left protruding from the ground approximately fifty (50) centimetres at holes 20MAN-01, 21MAN-02, and 21MAN-04. The collars were removed from hole 21MAN-03 due to its proximity to a hay field and the risk of damaging farm equipment, and from hole 21MAN-05a resulting from the drill rig striking the drill casing during demobilization.

Each of the drill sites were remediated by removal of all historical debris, levelling the immediate area, and placing hay around each site. In the case of the Boxcar drilling, discarded historical debris (old car parts, discarded farming equipment, and old parts from construction equipment) was buried in a large hole at the request of the local farmer. In addition, large boulders and low vegetation was moved from the roadway entering the property to allow for a future staging area for farming purposes.

The author is not aware of any other relevant information that would enhance this report.

25.Interpretation and Conclusions

Stratigraphy and structure in the area are somewhat complex due to extensive block faulting. Although the stratigraphy of the area is reasonably well documented, faulting makes predicting exact geological mapping problematic. This drilling program has offered much needed detail in the area and documented the location of several major faults that have N-S and NW-SE orientations. These faults indicate apparent displacements of several hundred metres.

Alteration in the felsic volcanics is highly variable however, drilling has offered a limited explanation of contact relationships between high- and low-sulphidation styles of alteration. Drilling does show the alteration zones may occur at high angles to flow banding in rhyolites. Alteration in the White Hill Intrusive Suite is less intense but ubiquitous in these drill holes.

The only surface gold target on the property is the Boxcar occurrence which has a maximum width of up to eleven metres based on drill hole 21MAN-04. There may be additional mineralization at the north end of the mineral licences (Lic. 023601M and 025177M) however, the Company's exploration permit allowed for only limited access in this area. Drilling did not detect the presence of the Farmer's Field prospect dipping eastward onto the Manuels property.

A closely spaced soil geochemistry grid over a small area of the property has not highlighted any notable gold anomalies except for one sample that assayed 12 ppb Au and thus is considered a spurious anomaly. Based on diamond drilling, the basement at this location is quartz monzonite of the White Hills Intrusive Suite which may mitigate the potential of gold-bearing, low sulphidation veins occurring at depth.

Soil geochemistry outlined an area of elevated silver values up to 4.8 ppm Ag located south of Burnt Hill Pond. The area is wooded and there are no other associated elements correlated with silver. There is a

NW-SE trending fault recognized in drilling (hole 21MAN-05a) that has a topographic surface expression which trends through the middle of these anomalous samples and another N-S trending fault that occurs at the western limit of the elevated samples.

Gold assays from both surface grab samples, and drill core did not show encouraging results with the highest gold value coming in hole 21MAN-05a between 39.6-40.0 metres from a maroon rhyolite (sample 76887) having 207 ppb Au. This is similar to other values reported from both the Boxcar and the Farmer's Field occurrences. Laminated or banded low sulphidation veins were not intersected in this drill program.

26.Recommendations

Based on the results of the 2020-2021 exploration program at Manuels on the three (3) Licences 023601M, 025177M, and 027292M the following program for future work is recommended. These include, but are not limited to:

- Further prospecting only on licences 025177M, and 027292M;
- Examination of outcrops shown on all historical maps on the above two (2) licences, with emphasis given to the areas along the Manuels River and its tributaries on Lic. 025177M;
- Construction of a detailed surface lineament map;
- Further evaluation of the silver (Ag) anomaly south of the Burnt Hill Pond;
- Extend the soil grid from the south side of Burnt Hill Pond eastward across Lic. 025177M and onto Lic. 027292M to further evaluate the soil anomaly.

The recommended budget for the 2021 Phase 1 exploration program is approximately $120,000. It is estimated the airborne geophysical program will cost $30,000. A follow-up diamond drill program comprising three 100-metre drill holes will cost $60,000 with drill core analyses charges of $10,000. Geological management in estimated at $20,000.

A Phase 2 exploration program is contingent on successful results from Phase 1.

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28.Appendices

28.1. Specification for Geochemical Standard CDN-CM-37

CDN Resource Laboratories Ltd.

#2, 20148 – 102nd Ave, Langley, B.C., Canada, V1M 4B4, 604-882-8422, Fax: 604-882-8466 (www.cdnlabs.com)

REFERENCE MATERIAL: CDN-CM-37

Recommended values and the "Between Lab" Two Standard Deviations

Gold	*0.171 g/t*	±	*0.024 g/t*	*Provisional value*	*30g FA / ICP or AA*
Silver	*1.28 g/t*	±	*0.27 g/t*	*Provisional value*	*4-acid / ICP or AA*
Silver	***1.17 g/t***	±	***0.12 g/t***	***Certified value***	***Aqua regia / ICP or AA***
Copper	***0.212 %***	±	***0.012 %***	***Certified value***	***4-acid / ICP or AA***
Copper	***0.214 %***	±	***0.012 %***	***Certified value***	***Aqua regia / ICP or AA***
Molybdenum	***0.0266 %***	±	***0.0024 %***	***Certified value***	***4-acid / ICP or AA***
Molybdenum	*0.026 %*	±	*0.003 %*	*Provisional value*	*Aqua regia / ICP or AA*

Note: Standards with an RSD of near or less than 5% are certified; RSD's of between 5% and 15% are Provisional; RSD's over 15% are Indicated. Provisional and Indicated values cannot be used to monitor accuracy with a high degree of certainty.

The certified value and between lab 2SD calculated for each element are done so for a specific analytical procedure. It is inappropriate to apply them to other techniques (eg. geochemical analyses).

PREPARED BY: CDN Resource Laboratories Ltd.
CERTIFIED BY: Duncan Sanderson, B.Sc., Licensed Assayer of British Columbia
INDEPENDENT GEOCHEMIST: Dr. Barry Smee., Ph.D., P. Geo.
DATE OF CERTIFICATION: July 10, 2014

METHOD OF PREPARATION:

Reject ore material was dried, crushed, pulverized and then passed through a 270 mesh screen. The +270 material was discarded. The -270 material was mixed for 5 days in a double-cone mixer. Splits were taken and sent to 15 laboratories for round robin assaying.

ORIGIN OF REFERENCE MATERIAL:

Standard CDN-CM-37 was prepared using ore from a project in the south-central Far East. The ore is from K-silicate, silicic and sericitic altered intermediate volcanic and related intrusive rocks exhibiting porphyry-style copper and gold mineralization.

Approximate chemical composition (from whole rock analysis) is as follows:

	Percent			Percent
SiO2	61.7		MgO	1.7
Al2O3	16.7		K2O	3.0
Fe2O3	6.6		TiO2	0.5
CaO	3.1		LOI	3.9
Na2O	2.1		S	1.5

Statistical Procedures:

The final limits were calculated after first determining if all data was compatible within a spread normally expected for similar analytical methods done by reputable laboratories. Data from any one laboratory was removed from further calculations when the mean of all analyses from that laboratory failed a t test of the global means of the other laboratories. The means and standard deviations were calculated using all remaining data. Any analysis that fell outside of the mean ±2 standard deviations was removed from the ensuing data base. The mean and standard deviations were again calculated using the remaining data. This method is different from that used by Government agencies in that the actual "between-laboratory" standard deviation is used in the calculations. This produces upper and lower limits that reflect actual individual analyses rather than a grouped set of analyses. The limits can therefore be used to monitor accuracy from individual analyses, unlike the Confidence Limits published on other standards.

REFERENCE MATERIAL   CDN-CM-37

Results from round-robin assaying:

	Lab 1	Lab 2	Lab 3	Lab 4	Lab 5	Lab 6	Lab 7	Lab 8	Lab 9	Lab 10	Lab 11	Lab 12	Lab 13	Lab 14	Lab 15
	Au g/t	Au g/t	Au g/t	Au g/t	Au g/t	Au g/t	Au g/t	Au g/t	Au g/t	Au g/t	Au g/t	Au g/t	Au g/t	Au g/t	Au g/t
CM-37-1	0.174	0.182	0.175	0.174	0.172	0.200	0.166	0.164	0.19	0.170	0.181	0.156	0.166	0.164	0.17
CM-37-2	0.182	0.186	0.203	0.152	0.162	0.165	0.160	0.165	0.19	0.168	0.184	0.170	0.171	0.156	0.18
CM-37-3	0.188	0.195	0.227	0.169	0.154	0.204	0.165	0.164	0.18	0.178	0.165	0.170	0.163	0.164	0.20
CM-37-4	0.178	0.192	0.168	0.201	0.151	0.174	0.163	0.167	0.18	0.171	0.197	0.155	0.140	0.167	0.18
CM-37-5	0.180	0.188	0.186	0.177	0.157	0.183	0.183	0.168	0.15	0.173	0.179	0.148	0.171	0.158	0.18
CM-37-6	0.160	0.180	0.171	0.177	0.161	0.175	0.176	0.175	0.15	0.179	0.164	0.155	0.149	0.165	0.18
CM-37-7	0.184	0.186	0.176	0.165	0.155	0.158	0.168	0.166	0.20	0.176	0.161	0.166	0.165	0.158	0.19
CM-37-8	0.162	0.187	0.174	0.151	0.150	0.232	0.178	0.178	0.19	0.168	0.157	0.154	0.143	0.155	0.18
CM-37-9	0.154	0.175	0.179	0.179	0.183	0.168	0.175	0.173	0.17	0.171	0.178	0.158	0.193	0.160	0.17
CM-37-10	0.177	0.191	0.185	0.179	0.172	0.218	0.163	0.175	0.16	0.176	0.189	0.149	0.170	0.156	0.19
Mean	0.174	0.186	0.184	0.172	0.162	0.188	0.170	0.170	0.176	0.173	0.176	0.158	0.163	0.160	0.182
Std. Devn.	0.0114	0.0060	0.0180	0.0145	0.0108	0.0246	0.0077	0.0052	0.0178	0.0040	0.0132	0.0080	0.0157	0.0043	0.0092
% RSD	6.53	3.20	9.75	8.41	6.66	13.12	4.55	3.09	10.09	2.33	7.50	5.04	9.62	2.71	5.05
4-acid	Ag g/t	Ag g/t	Ag g/t	Ag g/t	Ag g/t	Ag g/t	Ag g/t	Ag g/t	Ag g/t	Ag g/t	Ag g/t	Ag g/t	Ag g/t	Ag g/t	Ag g/t
CM-37-1	2.1	1.3	< 3	1.27	1.4	1.2	1.0	<10	1.4	1.3	1.30	1.3	<2	1.3	1.5
CM-37-2	1.4	1.2	< 3	1.27	1.4	1.3	1.0	<10	1.2	1.4	1.40	1.2	<2	1.2	1.5
CM-37-3	<0.5	1.4	< 3	1.24	1.5	1.3	1.0	<10	1.4	1.2	1.40	1.2	<2	1.2	1.5
CM-37-4	<0.5	1.3	< 3	1.24	1.3	1.3	1.0	<10	1.2	1.3	1.20	1.3	<2	1.2	1.5
CM-37-5	2.2	1.2	< 3	1.32	1.2	1.2	1.0	<10	1.3	1.7	1.20	1.2	<2	1.2	1.5
CM-37-6	1.2	1.3	< 3	1.56	1.3	1.3	0.9	<10	1.2	1.5	1.20	1.2	<2	1.3	1.5
CM-37-7	1.7	1.3	< 3	1.37	1.3	1.3	0.9	<10	1.3	1.6	1.20	1.2	<2	1.1	1.5
CM-37-8	1.1	1.3	< 3	1.22	1.2	1.3	1.2	<10	1.3	1.4	1.30	1.1	<2	1.2	1.5
CM-37-9	1.5	1.5	< 3	1.25	1.5	1.4	1.0	<10	1.0	1.3	1.30	1.2	<2	1.3	1.5
CM-37-10	1.2	1.3	< 3	1.26	1.5	1.2	1.0	<10	1.3	1.4	1.20	1.2	<2	1.2	1.5
Mean	1.55	1.31	#DIV/0!	1.30	1.36	1.28	1.00	#DIV/0!	1.26	1.41	1.27	1.21	#DIV/0!	1.22	1.50
Std. Devn.	0.4175	0.0876	#DIV/0!	0.1013	0.1174	0.0632	0.0816	#DIV/0!	0.1174	0.1524	0.0823	0.0568	#DIV/0!	0.0632	0.0000
% RSD	26.93	6.68	#DIV/0!	7.79	8.63	4.94	8.16	#DIV/0!	9.32	10.81	6.48	4.69	#DIV/0!	5.18	0.00
4-acid	% Cu	% Cu	% Cu	% Cu	% Cu	% Cu	% Cu	% Cu	% Cu	% Cu	% Cu	% Cu	% Cu	% Cu	% Cu
CM-37-1	0.207	0.223	0.211	0.214	0.219	0.205	0.211	0.220	0.229	0.201	0.211	0.205	0.211	0.211	0.218
CM-37-2	0.207	0.213	0.211	0.216	0.221	0.215	0.208	0.220	0.231	0.196	0.204	0.206	0.208	0.205	0.221
CM-37-3	0.208	0.220	0.212	0.220	0.210	0.219	0.205	0.220	0.232	0.213	0.206	0.206	0.211	0.208	0.216
CM-37-4	0.207	0.221	0.214	0.206	0.210	0.214	0.206	0.220	0.220	0.215	0.208	0.210	0.205	0.207	0.225
CM-37-5	0.207	0.215	0.213	0.213	0.214	0.220	0.204	0.220	0.226	0.214	0.207	0.209	0.211	0.211	0.218
CM-37-6	0.205	0.227	0.207	0.218	0.211	0.207	0.210	0.220	0.228	0.222	0.208	0.207	0.204	0.206	0.223
CM-37-7	0.207	0.234	0.204	0.216	0.211	0.214	0.205	0.220	0.233	0.229	0.207	0.206	0.212	0.213	0.219
CM-37-8	0.207	0.219	0.214	0.208	0.213	0.220	0.209	0.220	0.225	0.203	0.205	0.205	0.211	0.211	0.221
CM-37-9	0.207	0.217	0.213	0.223	0.211	0.209	0.215	0.220	0.216	0.212	0.208	0.206	0.203	0.210	0.216
CM-37-10	0.208	0.215	0.221	0.220	0.217	0.219	0.206	0.220	0.235	0.215	0.206	0.207	0.208	0.211	0.218
Mean	0.207	0.220	0.212	0.215	0.214	0.214	0.208	0.220	0.227	0.212	0.207	0.207	0.208	0.209	0.220
Std. Devn.	0.0008	0.0063	0.0045	0.0054	0.0040	0.0056	0.0034	0.0000	0.0060	0.0098	0.0018	0.0016	0.0033	0.0024	0.0030
% RSD	0.39	2.88	2.12	2.49	1.86	2.59	1.64	0.00	2.63	4.63	0.88	0.79	1.60	1.17	1.35
4-acid	% Mo	% Mo	% Mo	% Mo	% Mo	% Mo	% Mo	% Mo	% Mo	% Mo	% Mo	% Mo	% Mo	% Mo	% Mo
CM-37-1	0.0260	0.0259	0.0280	0.0257	0.0271	0.0270	0.0262	0.0300	0.0274	0.0251	0.0275	0.0250	0.0245	0.0270	0.0294
CM-37-2	0.0260	0.0251	0.0280	0.0260	0.0263	0.0280	0.0269	0.0300	0.0279	0.0247	0.0267	0.0250	0.0238	0.0261	0.0291
CM-37-3	0.0260	0.0251	0.0280	0.0256	0.0257	0.0290	0.0258	0.0300	0.0285	0.0256	0.0265	0.0240	0.0240	0.0265	0.0286
CM-37-4	0.0260	0.0263	0.0270	0.0261	0.0253	0.0290	0.0272	0.0300	0.0275	0.0270	0.0269	0.0250	0.0231	0.0260	0.0276
CM-37-5	0.0270	0.0255	0.0270	0.0259	0.0253	0.0290	0.0272	0.0300	0.0282	0.0259	0.0269	0.0260	0.0232	0.0262	0.0285
CM-37-6	0.0260	0.0260	0.0270	0.0261	0.0253	0.0280	0.0274	0.0300	0.0267	0.0252	0.0274	0.0250	0.0230	0.0264	0.0281
CM-37-7	0.0260	0.0266	0.0280	0.0257	0.0250	0.0280	0.0268	0.0300	0.0284	0.0264	0.0269	0.0260	0.0223	0.0253	0.0296
CM-37-8	0.0260	0.0256	0.0280	0.0262	0.0254	0.0280	0.0276	0.0300	0.0275	0.0240	0.0276	0.0240	0.0240	0.0254	0.0280
CM-37-9	0.0260	0.0257	0.0280	0.0266	0.0260	0.0270	0.0277	0.0300	0.0260	0.0250	0.0275	0.0250	0.0226	0.0253	0.0281
CM-37-10	0.0270	0.0249	0.0290	0.0255	0.0248	0.0290	0.0270	0.0300	0.0295	0.0252	0.0269	0.0250	0.0238	0.0257	0.0281
Mean	0.026	0.026	0.028	0.026	0.026	0.028	0.027	0.030	0.028	0.025	0.027	0.025	0.023	0.026	0.029
Std. Devn.	0.0004	0.0005	0.0006	0.0003	0.0007	0.0008	0.0006	0.0000	0.0010	0.0009	0.0004	0.0007	0.0007	0.0006	0.0007
% RSD	1.61	2.13	2.28	1.27	2.67	2.80	2.22	0.00	3.54	3.38	1.42	2.67	2.98	2.18	2.32

Notes: Four acid Cu results from laboratory 9 were removed for failing the t test.
Four acid Mo results from laboratory 13 were removed for failing the t test.

REFERENCE MATERIAL   CDN-CM-37

Results from round-robin assaying:

	Lab 1	Lab 2	Lab 3	Lab 4	Lab 5	Lab 6	Lab 7	Lab 8	Lab 9	Lab 10	Lab 11	Lab 12	Lab 13	Lab 14	Lab 15
Aqua regia	Ag g/t	Ag g/t	Ag g/t	Ag g/t	Ag g/t	Ag g/t	Ag g/t	Ag g/t	Ag g/t	Ag g/t	Ag g/t	Ag g/t	Ag g/t	Ag g/t	Ag g/t
CM-37-1	<2	1.10	1.20	1.09	1.20	1.10	1.00	<10	1.40	1.00	1.2	1.10	<2	1.20	1.20
CM-37-2	<2	1.10	1.10	1.07	1.20	1.30	1.00	<10	1.40	1.00	1.2	1.20	<2	1.30	1.15
CM-37-3	<2	1.00	1.20	1.12	1.10	1.10	1.10	<10	1.40	1.20	1.0	1.20	<2	1.20	1.20
CM-37-4	<2	1.10	1.20	1.10	1.20	1.20	1.10	<10	1.40	1.10	1.4	1.20	<2	1.20	1.25
CM-37-5	<2	1.10	1.20	1.12	1.30	1.20	1.10	<10	1.30	1.20	1.2	1.10	<2	1.10	1.20
CM-37-6	<2	1.10	1.10	1.18	1.20	1.30	1.00	<10	1.40	1.30	1.2	1.10	<2	1.20	1.20
CM-37-7	<2	1.10	1.10	1.12	1.20	1.20	1.00	<10	1.40	1.20	1.2	1.10	<2	1.20	1.15
CM-37-8	<2	1.10	1.20	1.12	1.20	1.20	1.00	<10	1.30	1.10	1.2	1.10	<2	1.20	1.15
CM-37-9	<2	1.10	1.10	1.19	1.30	1.20	1.10	<10	1.30	1.20	1.2	1.10	<2	1.20	1.20
CM-37-10	<2	1.10	1.20	1.12	1.20	1.30	1.00	<10	1.40	1.20	1.0	1.20	<2	1.30	1.20
Mean	#DIV/0!	1.09	1.16	1.12	1.21	1.21	1.04	#DIV/0!	1.37	1.15	1.18	1.14	#DIV/0!	1.21	1.19
Std. Devn.	#DIV/0!	0.0316	0.0516	0.0368	0.0568	0.0738	0.0516	#DIV/0!	0.0483	0.0972	0.1135	0.0516	#DIV/0!	0.0568	0.0316
% RSD	#DIV/0!	2.90	4.45	3.28	4.69	6.10	4.97	#DIV/0!	3.53	8.45	9.62	4.53	#DIV/0!	4.69	2.66
Aqua regia	% Cu	% Cu	% Cu	% Cu	% Cu	% Cu	% Cu	% Cu	% Cu	% Cu	% Cu	% Cu	% Cu	% Cu	% Cu
CM-37-1	0.207	0.222	0.229	0.221	0.209	0.206	0.214	0.21	0.211	0.193	0.219	0.207	0.209	0.215	0.220
CM-37-2	0.210	0.215	0.222	0.221	0.217	0.208	0.211	0.21	0.206	0.196	0.220	0.207	0.209	0.205	0.222
CM-37-3	0.211	0.216	0.217	0.218	0.217	0.210	0.211	0.21	0.214	0.201	0.221	0.206	0.209	0.204	0.217
CM-37-4	0.207	0.217	0.224	0.220	0.218	0.206	0.210	0.21	0.213	0.196	0.217	0.203	0.209	0.201	0.225
CM-37-5	0.209	0.221	0.222	0.228	0.219	0.209	0.213	0.21	0.214	0.199	0.222	0.206	0.208	0.214	0.227
CM-37-6	0.204	0.226	0.222	0.218	0.215	0.209	0.211	0.22	0.215	0.202	0.220	0.202	0.212	0.214	0.219
CM-37-7	0.210	0.223	0.222	0.215	0.215	0.212	0.211	0.22	0.215	0.200	0.220	0.207	0.207	0.204	0.216
CM-37-8	0.210	0.222	0.224	0.225	0.214	0.210	0.209	0.22	0.214	0.187	0.221	0.208	0.206	0.210	0.218
CM-37-9	0.207	0.220	0.217	0.214	0.219	0.212	0.211	0.22	0.213	0.200	0.221	0.207	0.204	0.206	0.221
CM-37-10	0.212	0.223	0.215	0.218	0.205	0.206	0.210	0.22	0.211	0.198	0.222	0.204	0.206	0.202	0.222
Mean	0.209	0.221	0.221	0.220	0.215	0.209	0.211	0.215	0.213	0.197	0.220	0.206	0.208	0.207	0.221
Std. Devn.	0.0024	0.0035	0.0041	0.0043	0.0045	0.0023	0.0014	0.0053	0.0027	0.0044	0.0016	0.0020	0.0022	0.0054	0.0035
% RSD	1.15	1.59	1.86	1.94	2.11	1.10	0.69	2.45	1.25	2.24	0.74	0.97	1.07	2.59	1.57
Aqua regia	% Mo	% Mo	% Mo	% Mo	% Mo	% Mo	% Mo	% Mo	% Mo	% Mo	% Mo	% Mo	% Mo	% Mo	% Mo
CM-37-1	0.0260	0.0267	0.0269	0.0187	0.0196	0.0280	0.0235	0.02	0.0230	0.0247	0.0276	0.0250	0.0253	0.0223	0.0286
CM-37-2	0.0260	0.0261	0.0263	0.0180	0.0201	0.0280	0.0238	0.02	0.0232	0.0244	0.0274	0.0250	0.0257	0.0231	0.0301
CM-37-3	0.0260	0.0257	0.0261	0.0185	0.0198	0.0280	0.0231	0.02	0.0234	0.0240	0.0276	0.0260	0.0261	0.0235	0.0300
CM-37-4	0.0260	0.0247	0.0260	0.0181	0.0202	0.0270	0.0241	0.02	0.0235	0.0266	0.0272	0.0260	0.0256	0.0226	0.0296
CM-37-5	0.0250	0.0267	0.0260	0.0185	0.0212	0.0280	0.0248	0.02	0.0235	0.0252	0.0272	0.0250	0.0255	0.0226	0.0289
CM-37-6	0.0260	0.0266	0.0254	0.0184	0.0199	0.0290	0.0238	0.02	0.0230	0.0250	0.0276	0.0260	0.0268	0.0240	0.0278
CM-37-7	0.0260	0.0269	0.0263	0.0180	0.0208	0.0270	0.0235	0.02	0.0229	0.0242	0.0274	0.0250	0.0259	0.0227	0.0287
CM-37-8	0.0260	0.0269	0.0263	0.0186	0.0205	0.0280	0.0228	0.02	0.0233	0.0252	0.0286	0.0260	0.0262	0.0237	0.0280
CM-37-9	0.0260	0.0273	0.0258	0.0185	0.0206	0.0280	0.0233	0.02	0.0232	0.0245	0.0276	0.0250	0.0263	0.0228	0.0286
CM-37-10	0.0260	0.0267	0.0263	0.0190	0.0205	0.0280	0.0244	0.02	0.0238	0.0244	0.0278	0.0250	0.0253	0.0236	0.0285
Mean	0.026	0.026	0.026	0.018	0.020	0.028	0.024	0.020	0.023	0.025	0.028	0.025	0.026	0.023	0.029
Std. Devn.	0.0003	0.0008	0.0004	0.0003	0.0005	0.0006	0.0006	0.0000	0.0003	0.0007	0.0004	0.0005	0.0005	0.0006	0.0008
% RSD	1.22	2.84	1.50	1.82	2.42	2.03	2.55	0.00	1.19	3.01	1.45	2.03	1.87	2.49	2.72

Notes: Aqua regia Ag results from laboratories 7 and 9 were removed for failing the t test.
Aqua regia Mo results from laboratories 4 and 5 were removed for failing the t test.

REFERENCE MATERIAL   CDN-CM-37

Participating Laboratories:
(not in same order as listed in table of results)

Acme Analytical Laboratories Ltd., Vancouver, BC, Canada
Activation Laboratories, Ancaster, Ontario, Canada
Activation Laboratories, Thunder Bay, Ontario, Canada
AGAT, Mississauga, Ontario, canada
ALS Chemex, North Vancouver, B.C., Canada
ALS, Loughrea, Ireland
American Assay Laboratories Inc., Sparks, Nevada, USA
Certimin S.A., Lima, Peru
Intertek – Genalysis, Perth, Australia
Met-Solve Analytical Services Ltd., Langley, BC, Canada
SGS, Lima, Peru
SGS, Vancouver, BC, Canada
Skyline Assayers & Laboratories, Arizona, USA
TSL Laboratories Ltd., Saskatoon, SK, Canada
Ultra Trace Pty. Ltd., Australia

Certified by

Duncan Sanderson, Certified Assayer of B.C.

Geochemist

Dr. Barry Smee, Ph.D., P. Geo.