ID01106

120329

# BREWERY CREEK MINE PLACER PROJECT

# LAURA CREEK

## GEOPHYSICAL SURVEY

**DAWSON MINING DISTRICT, YUKON TERRITORY**

**PROSPECTING LEASE CERTIFICATE NUMBER: ID01106**

**DESCRIPTION: UNRLT OF KLONDIKE SOUTH RIVER**

**NTS MAP SHEET: 116B01**

**UTM COORDINATES: 07N 632693 m E 7102811 m N**

**FIELD WORK COMPLETED MAY 15, 2014.**



**BY**

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**May 20 2014**

## SUMMARY

On May 15, 2014, Clayton Jones (author of this report) conducted a ground based magnetic survey over prospecting lease ID01106 located along an unnamed right limit tributary of the Klondike River (Laura Creek). The lease drains the western portion of the Brewery Creek Gold deposit and is located approximately 50 km east of Dawson City, Yukon Territory.

The Brewery Creek area has no documented placer exploration to date, however; the area geologically shows strong potential to host placer gold deposits. The area shares many characteristics to Yukon's richest placer districts (Klondike and Mayo- McQuesten) that are both located only 60 km south east and west of the Brewery Creek mine area. Like the Klondike placer district, the Brewery Creek area was not glaciated during the Pleistocene epoch (<1.8 ma) and the lode source of gold at Brewery Creek area resembles the mid-Cretaceous Tombstone intrusive suite hosted auriferous quartz veins that are responsible for the placer deposits in the Mayo-McQuesten placer district.

The property was accessed by a 1.5 km walking trail off the Brewery Creek mine access road (public road). A total of 2.5 line km of ground based magnetic survey was completed on the lease. The survey outlined a magnetic high that appears to be associated with a hillside sluff that inundated the valley floor. Based on air photo imagery, the sluffed material appears to represent a small section of a much larger bench deposit along the left limit of Laura Creek. The bench deposit is unique from the valley fill and is believed to represent glacial till or glaciofluvial outwash deposits deposited by the receding pre Reid glacier lobe that inundated the valley approximately 1.8 million years ago. A follow up program is recommended to confirm the interpreted high level bench deposits. The survey was not successful in showing linear magnetic anomalies within the valley bottom and thus was not successful for delineating a good quality shafting target.

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# 1.0 INTRODUCTION

## 1.1 GENERAL

Three placer prospecting leases were staked along tributaries draining the historic Brewery Creek gold mine during the spring of 2013 by Clayton Jones. The Leases have no documented historical placer exploration and are located in a part of the Yukon that demonstrates high potential to yield economical placer gold deposits. Some of the placer potential indicators include the area's proximity to Yukon's largest lode gold mine (Brewery Creek Mine) and its similarities in surficial and glacial geology to some of the World's richest placer districts in the World including the Klondike gold fields of Yukon Territory and Iditarod placer district of South Western Alaska, USA.

The three leases, collectively known as the "Brewery Creek mine placer Project" are all owned by family members, and Clayton Jones (author of the report) is overseeing the exploration efforts. This technical Report documents the magnetic survey that was conducted on lease ID01106 on May 15, 2014. The total cost for the program was $ 2000.00. Refer to appendix I for details of the cost associated with the program.

The purpose of the survey was to locate magnetic anomalies which might be associated to above background concentration of magnetic minerals (magnetite) that almost always occur with placer gold deposits and that may represent ancient buried creek channels.

The Lease was accessed by hiking 1.5 km from the all-weather Brewery creek mine access road. All work on the prospecting lease complied with Schedule I, Operating Conditions, of the Mining Land Use regulations (Part II of the Yukon Placer Mining Act). The report has been produced to satisfy the reporting requirements of the Yukon Mining Recorder.

## 1.2 UNITS AND CURRENCY

Metric units are used throughout this report. Tonnages are shown as tonnes (1,000 kg), linear measurements as metres ("m"), or kilometres ("km") and precious metal values as grams per tonne ("g/t") and/or parts per billion ("ppb").

Conversions:
31.1034 grams = 1 troy ounce
1 gram per tonne = 0.0292 troy ounces per ton
1.0 metric ton (1,000 kg) = tonne ("t") = 1.10231 short tons ("T")
1 part per million ("ppm") = 1000 parts per billion ("ppb")
1.0 metre ("m") = 3.28 feet
1.0 hectare ("ha") = 2.47105 acres

Currency amounts are expressed in Canadian dollars ("CDN$"), unless indicated otherwise. Geological time scale units are used throughout the report. Billions of Years ago is denoted as (Ba), Millions of years ago is denoted as (Ma), and Thousands of years ago is denoted as (Ka).

## 1.3 LEASE INFORMATION

The magnetic survey was conducted on placer lease ID01106. The lease is located in the Dawson Mining District within 1:50 000 NTS map sheet 116B01 and situated along a creek classified as a moderate-low stream in the Fish Habitat Management System for Yukon placer Mining.

Placer lease ID01106 was staked by power of attorney, Clayton Jones, and is 100% owned by Corinne Stones. The lease is situated on an unnamed right limit tributary of the Klondike River. This creek was coined "Laura Creek" by Viceroy Resources Corporation and for the purpose of the report, the creek will be referred to as Laura Creek. Lease ID01106 Post #1 is at approximate coordinates, latitude: 64 degrees, 01 minutes, 31 seconds; longitude: 138 degrees, 17 minutes, 18 seconds; Post 2 is a maximum distance of 1 mile(s) upstream from Post #1. Refer to figure 1 for the lease location map.

The prospecting lease is located within a large package of 1075 quartz claims that make up the Brewery Creek Property that is owned by American Bullion Royalty Corporation. The Brewery Creek property

contains a class 4 quartz land use permit. A portion of lease ID01106 overlaps with quartz a mining lease (surveyed quartz claims Eel 116, Ele 20, and Ele 19) and this portion of the claim was not entered during the program. Lastly a portion of lease ID01106 overlaps with a class 5 quartz mining land use permit that consists of 93 quartz claims. Refer to figure 1 for the prospecting lease map and table 1 for detailed lease information.

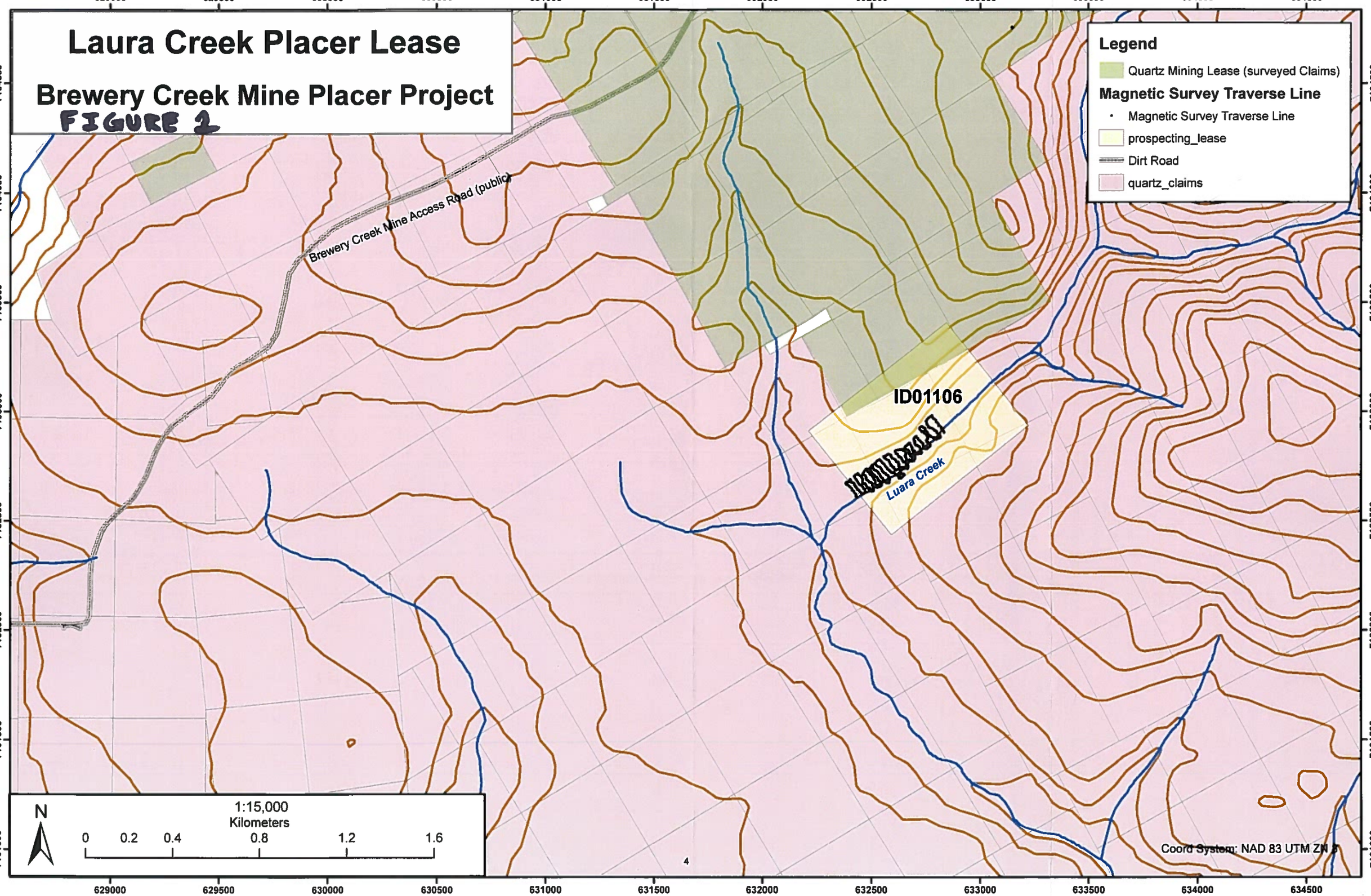
**TABLE 1: LEASE INFORMATION**

| Placer Prospecting Lease Information | | | | | | | |
|---|---|---|---|---|---|---|---|
| ***Grant Number*** | ***Owner*** | ***Staking Date*** | ***Recorded Date*** | ***Expirery Date*** | ***Mining District*** | ***Status*** | ***Length*** |
| ID01106 | Corinne Stones | 5/24/2013 | 5/27/2013 | 5/27/2015 | Dawson | Active | 1 Mile |

# Laura Creek Placer Lease

## Brewery Creek Mine Placer Project

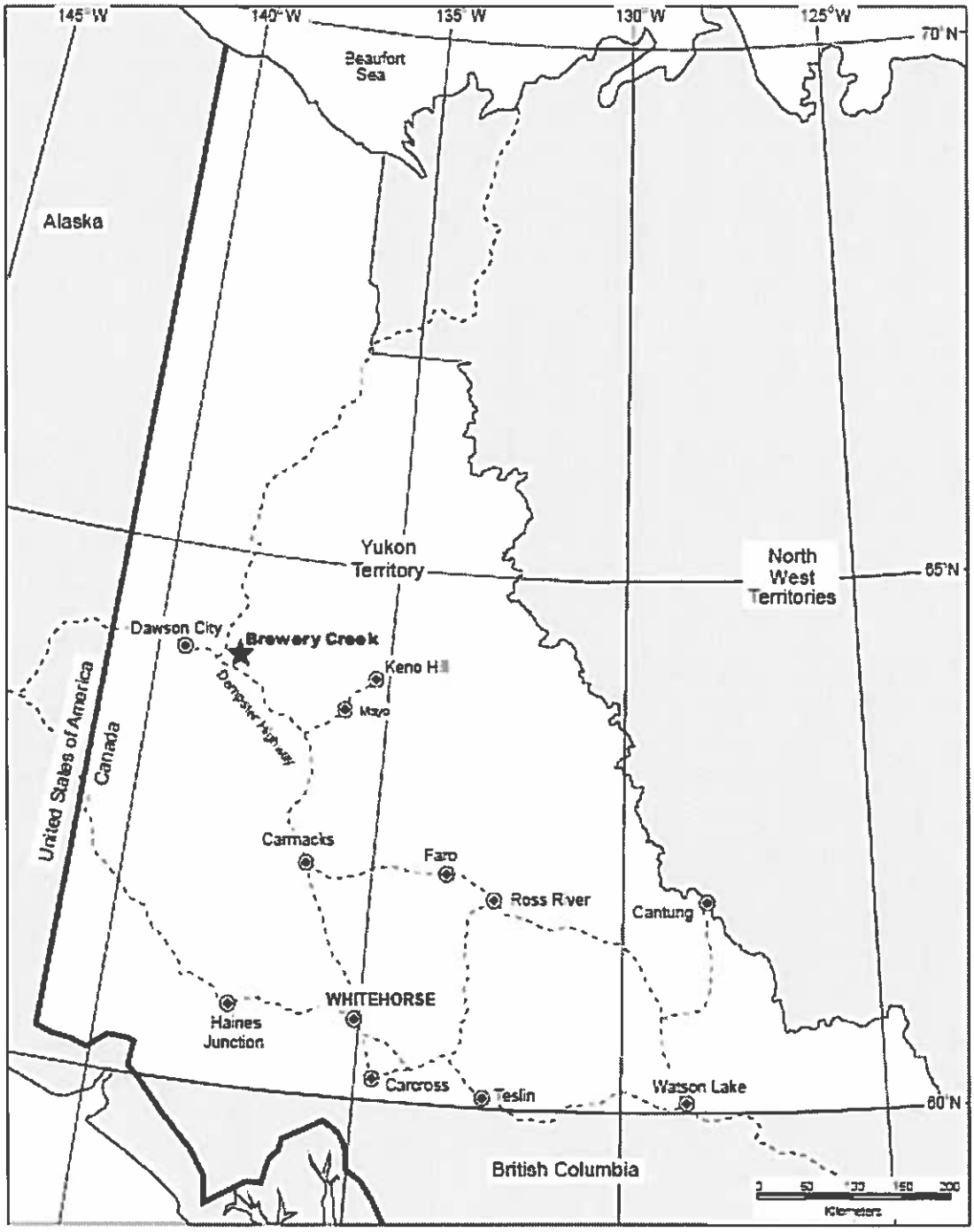
FIGURE 2



## 2.0 LOCATION AND ACCESS

The lease is centered at approximately UTM 07N 632693 m E 7102811 m N on NTS 1: 50 000 map sheet 116B01. The Lease is located approximately 55 kilometers east of Dawson City, Yukon and drains the western extension of the Brewery Creek Mine that was operated by Viceroy Resources Corporation from 1996 to 2002. Refer to figure 2 for the property location map. The area can be accessed from Dawson City, Yukon by taking Highway 7 (Klondike Hwy.) and Highway 5 (Dempster Hwy.) and the Ditch Rd (Brewery Creek Mine access road). The Brewery Creek mine area lies between the two richest placer districts in the Yukon Territory (Klondike and Mayo-McQuesten). Refer to figure 3 for location in relation to placer mining districts.

**FIGURE 2: LOCATION MAP** *(modified from Lindsey, 2006)*



## 3.0 HISTORY

The Brewery Creek area is located between Yukon's richest historical and currently producing placer districts. The Klondike gold fields are located 40 km west of the leases and have produced over 20 million ounces of gold since its discovery in 1896 and remains the top producing placer district in the Yukon with over 33 337 ounces of gold produced in 2011 (Bond, 2012). The Klondike placer district includes the Fortymile, Sixtymile, Klondike, Indian, Moosehorn, and Lower Stewart placer areas; refer to figure 3 for a map showing Yukon's placer districts. The majority of this area was unglaciated or slightly glaciated during the Quaternary time period (> 1.8 ma to present), as is the Brewery Creek area, and is believed to be a contributing factor for such rich gold sources. Some of the creeks in the Klondike goldfields were fifteen times richer in gold than those in California, and richer still than those in South Africa. For example, in just two years, $18 million (at 2013 prices) worth of gold was brought up from just one claim on the Eldorado Creek (Wiki).

The Mayo – McQuesten placer mining district is the second most productive placer district in the Yukon and is situated only 50 km south east of the Brewery Creek area. This district includes Clear Creek placer area and the Dublin Gulch placer deposit near the town of Mayo, Yukon Territory. This placer district differs from the Klondike district and Brewery Creek area, as it was subjected to various degrees of glaciation during the Quaternary time period; however the source of gold resembles Brewery Creek's mid cretaceous intrusion related quartz vein hosted gold, compared to the Klondike's quartz veins in Palaeozoic meta-sediments (Klondike schist).

The Yukon was travelled by fur traders since the 1850's and prospectors by the early 1870's. In 1872 three men came to the Yukon to test for gold possibilities; their names were Leroy Napoleon McQuesten, Alfred Mayo, and Aurther Harper (Coates et al, 2005). These men all participated in the 1849 Gold rush in California and followed the gold north up the western continental mountains along the Fraser River to Northern BC and eventually into the Yukon Territory. The three men worked for trading companies and set up trade networks that later greatly helped the early miners. Fort Reliance was built just 6 miles downstream from the confluence of the Klondike and Yukon rivers, which later turned out to be the heart of the richest gold fields in the world. McQuesten discovered placer gold in the Sixty mile as early as 1878, however he decided it was not rich enough for further investigating (Coates et al,

2005). The Sixtymile Creek turned out to be a significant historic and current placer producing area in the Yukon. Gold was also reported to be found in bar placers on the Stewart River and tributaries in the mid 1880's (Coates et al, 2005). By this time the number of people searching for gold in the Yukon increased and in 1885 there was an estimated 200 white men living in the Yukon (Coates et al, 2005).

The first rich placer gold was found in 1886 in the Fortymile River. This was the Yukon's first gold rush and took place from 1885 – 87 with an estimated 500 men living year round near Fortymile Creek (Coates et al, 2005). In 1896, 10 years after the discovery at Forty mile, the rich placer creeks of the Klondike region was discovered and an estimated 100 000 people immigrated to Dawson City in 1897. As the Klondike gold rushed settled and all the easily accessible paying ground was staked up, prospectors continued their search elsewhere in the Yukon. The continued search resulted in the placer gold discovery in Clear Creek (Mayo-McQuesten district) in 1900 and has produced more than 129 000 crude ounces of gold since 1941 (Allen et al, 1999).

It is suspected that the Brewery Creek area has been subject to placer gold exploration however due to minimal results, low gold prices, and close proximity to known productive placer districts, no further work was ever conducted. This brief Yukon placer history shows how the great discovery of gold in 1896 did not occur easily. Placer gold deposits are difficult to find and people do not just stumble over them while out for a walk. In order for people to find gold, they must be looking for it. The early prospectors believed the auriferous western mountain chain that hosted the California, Nevada, and Fraser gold rushes must continue north and those who pushed north were rewarded. Since the first discovery of gold in north central Yukon it took an additional 20 years to locate the great Klondike gold deposits, even despite being in a heavy trafficked area. The Klondike gold fields have continued to be expanded since discovery and new areas of placer gold are still being found every year.

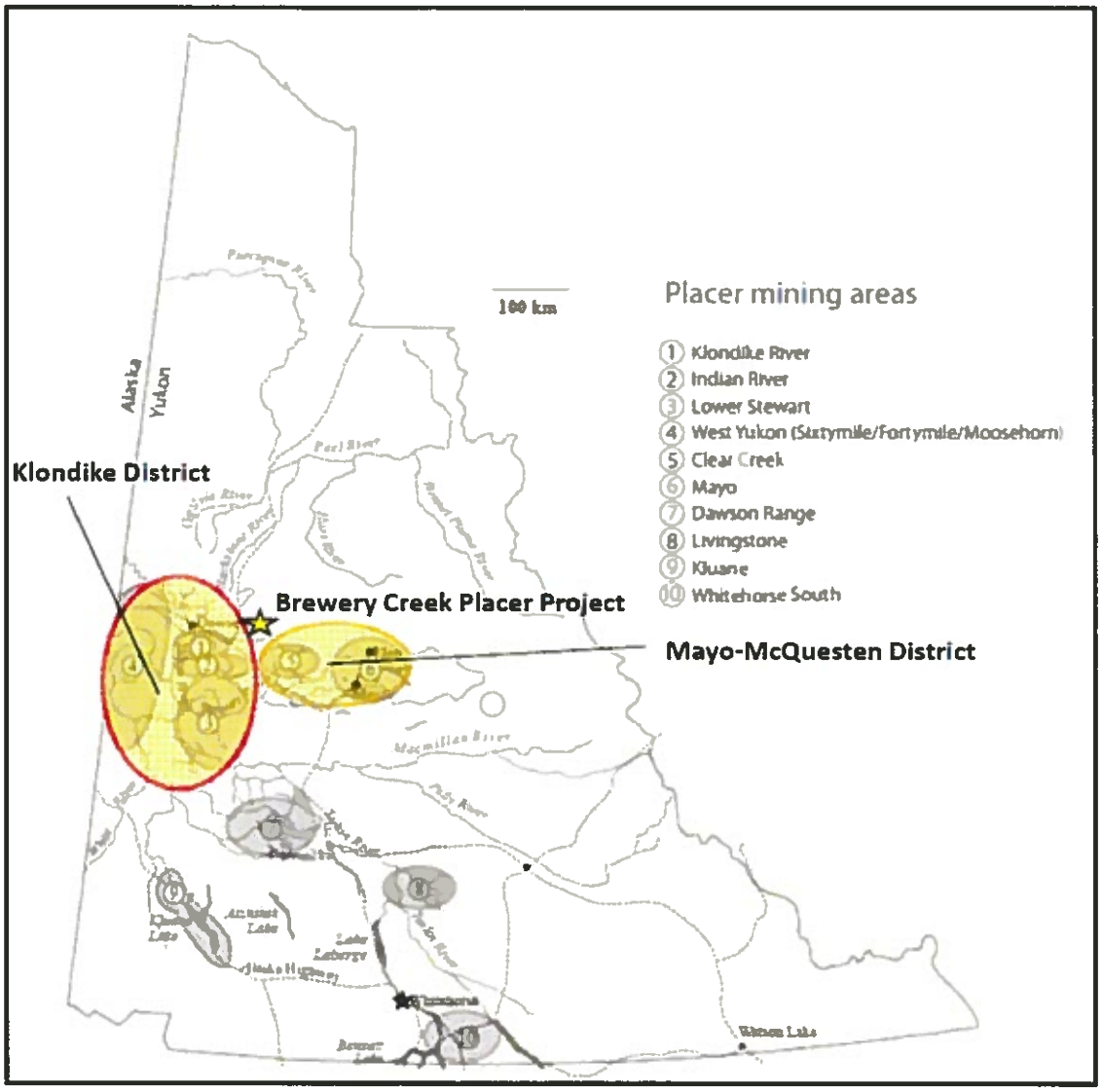
The area the prospecting lease covers has been subjected to significant historical hard rock exploration in the past 25 years. Anomalous gold concentrations were first discovered in stream sediment samples conducted by the Geological Survey of Canada (GSC) in the mid 1980's. The hard rock source of gold was later discovered by Noranda Exploration in 1987 and was subsequently mined by Viceroy Resources Corp. from 1996 to 2002 (YGS, 2008). The Brewery Creek mine recovered 266 537 oz of gold from near surface oxide deposits and

Americas Bullion Royalty Corporation (ABRC), now owner of the deposit, has demonstrated the deposit contains an Indicated oxide resource total of 577,000 troy ounces of contained gold in 14,152,000 tonnes of material at 1.27 g/t Au and Inferred oxide resource total of 279,000 troy ounces of contained gold in 9,309,000 tonnes of material at 0.93 g/t Au (Husle, 2012). To date the Brewery Creek property has been explored for shallow oxide gold deposit as it is much easier to extract the gold from the oxide ore compared to deeper seated sulphide ore. Sulphide ore at depth has seen limited exploration to date and has strong potential to host a large low grade bulk tonnage gold deposit similar to the 45 million oz gold Donlin Creek deposit in south western Alaska, USA. Despite the limited sulphide ore exploration, ABRC has demonstrated an Indicated sulphide resources total 142,000 troy ounces of contained gold in 3,459,000 tonnes of material at 1.28 g/t Au (ABRC website).

The gold contained in the Brewery Creek deposit is hosted in Cretaceous (65 – 100 ma) porphyritic intrusive and surrounding meta-sediments and is structurally controlled by a thrust fault. A total of 8 main oxide deposits were located along a 12 km east west mineralized corridor. The placer leases drain the Pacific, Blue, Moosehead, Canadian, Foster, and Kokanee open pits of the western extension of the mineralized corridor. Refer to figure 4 for placer lease locations in proximity to the mined hard rock deposits and current resource areas.

The gold mineralization at Brewery Creek consists primarily of micron sized particles contained within fine disseminated arsenopyrite and pyrite grains. This is not a standard lode source for placer deposits, however many course placer gold deposits throughout Yukon and Alaska are located near low grade, bulk tonnage gold deposits or no hard rock gold source at all. The best example of this phenomenon is the numerous placer gold deposits that surround the low grade bulk tonnage Donlin Creek gold deposit in the Iditarod placer district in Alaska, USA. The Donlin Creek gold deposit shares very similar geological and mineralogical characteristics to that of the Brewery Creek gold mine. The gold at the Donlin Creek hard rock deposit is also micron size and contained in fine pyrite and arsenopyrite grains. Recent Research has shown that organic microbes in supergene conditions can cause gold dispersion and secondary precipitation of gold potentially aiding in the coursing of gold grain, forming gold nuggets (Reith 2006, Reith 2010).

**FIGURE 3: PLACER MINING DISTRICTS** *shows Yukon's placer mining districts in relation to the prospecting lease. (modified from Bond, 2012)*



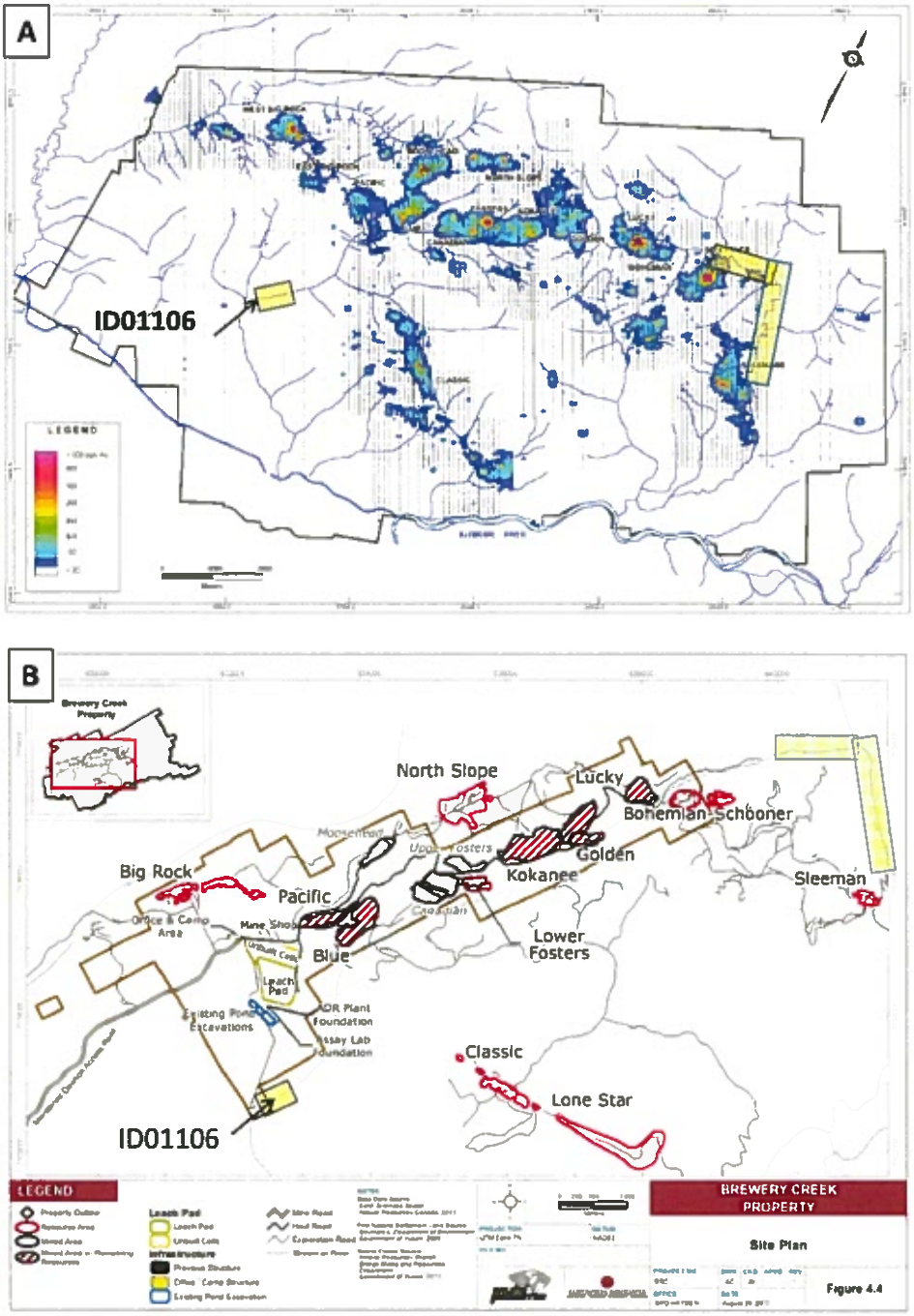



**FIGURE 4:** *A.)* – Regional soil geochemistry of Brewery Creek area. *B.)* – Historic open pit locations and current resources areas. The placer leases are denoted as light yellow rectangular boxes. (maps modified from Hulse, 2012)

## 4.0 GEOLOGICAL SETTING

### 4.1 Glacial Geology

There has been several glacial advances in the Yukon during the Pleistocene (1.8 ma – 10 ka) and these be can divided in to three episodes commonly known as the Pre Reid, Reid, and McConnell, in order of oldest to most recent (La Barge, 2006). Refer to figure 5a depicting the glacial extent of the glacial episodes in the Yukon.

The Pre Reid glacial episode occurred in the early Pleistocene, approximately 2.6 ma to 200 ka (La Barge, 2006). The Pre Reid was the most extensive episode, advancing up the Tintina Trench as far as Dawson City, Yukon. Glacial outwash and gravels (known as the Klondike gravels) from the Pre Reid glacier covered portions of the famous gold rich White Channel gravel's in the Hunker and Bonanza Creeks of the Klondike gold fields. The Reid Glaciation episode included multiple glacial advances that persisted from 200 to 20 ka (La Barge, 2006). The Reid glaciation was less extensive than the Pre Reid glaciation. The most recent McConnell glaciation was the least extensive and occurred between 20 and 10 ka (La Barge, 2006). The glacial deposits of the McConnell glaciation are easily observed in air photos and in the field as they have been subjected to limited colluvial and alluvial processes over the past 10 ka.

Lease ID01106 is situated at the fringe of un glaciated terrain and the maximum extent of the Pre Reid glaciation. Refer to figure 5b for property scale glacial geology. The unglaciated terrain in the Yukon is responsible for the majority of the placer production as gold rich paleo-placers are preserved from scouring effects of ice sheets and melt water. The Klondike, Fortymile, Sixtymile, Indian, and Moosehorn placer districts are all located in unglaciated or mildly glaciated terrain and in 2006 accounted for approximately 85% of Yukon's placer gold production (Lowey, 2004).

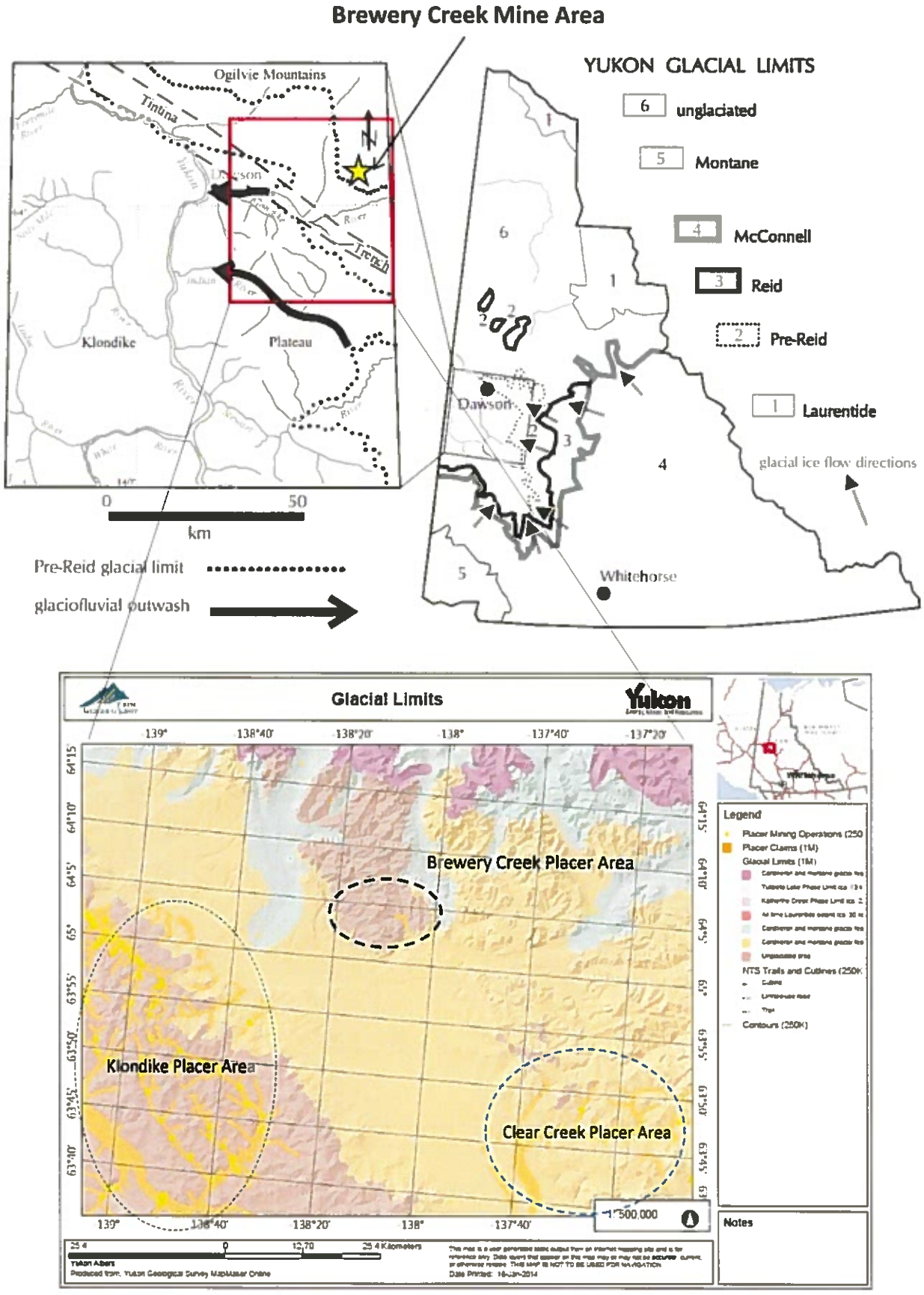



FIGURE 5: Yukon Wide Glacial Limits map (modified from Lowey,2004) and Brewery Creek area glacial limits map (produced from YGS map maker online)

## 4.2 Surficial Geology and Physiography

The lease underlies Quaternary sediment and is capped with a thick organic and colluvium blanket. The valley bottom contains an organic cover and shallow test pits and soil creep show thickness is greater than 2 meters. In a few localities landslides have inundated the valley bottom with foreign sediments and is presumed to be glacial fluvial or till from the pre Reid glacier.

The valley bottom of lease ID01106 is relatively narrow (50 – 100 meters across) with steep dipping valley walls. There is sporadic outcropping along the valley walls. Refer to figure 6 for air photo image and figure 7 for surficial geology map.

The vegetation on the leases consists of thick buck, patches of mature evergreen forest near the center valley bottom, and marshy bare patches of thick mosses throughout. See figure 8 for a photograph showing vegetation along Laura Creek (lease ID01106).

**FIGURE 6: AIR PHOTO** *shows lease ID01106 projected on google earth. Note: the yellow dotted lines show the inferred paelo bench and the black circle highlights a sluff of the bench that was recorded as a magnetic high in the survey.*

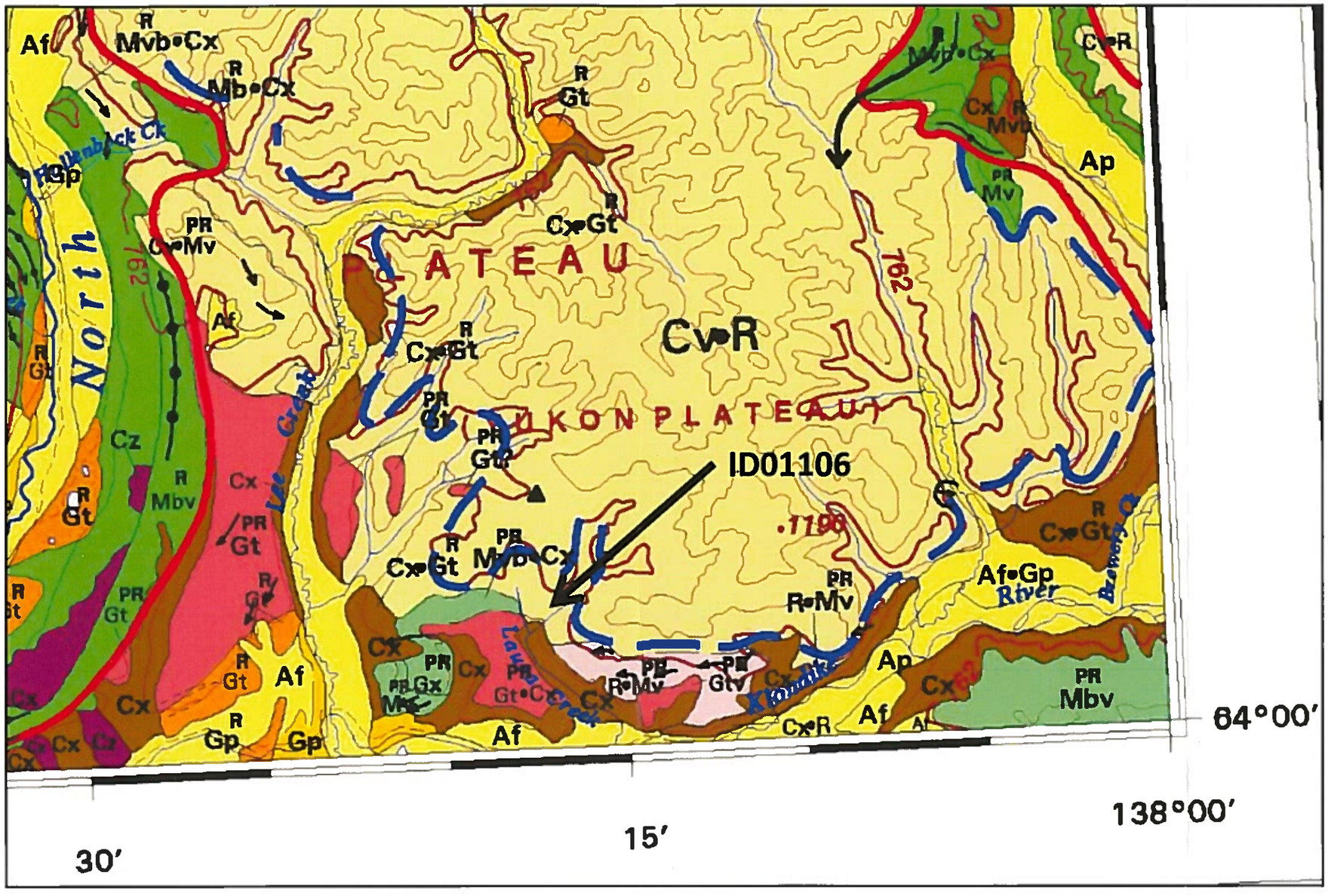
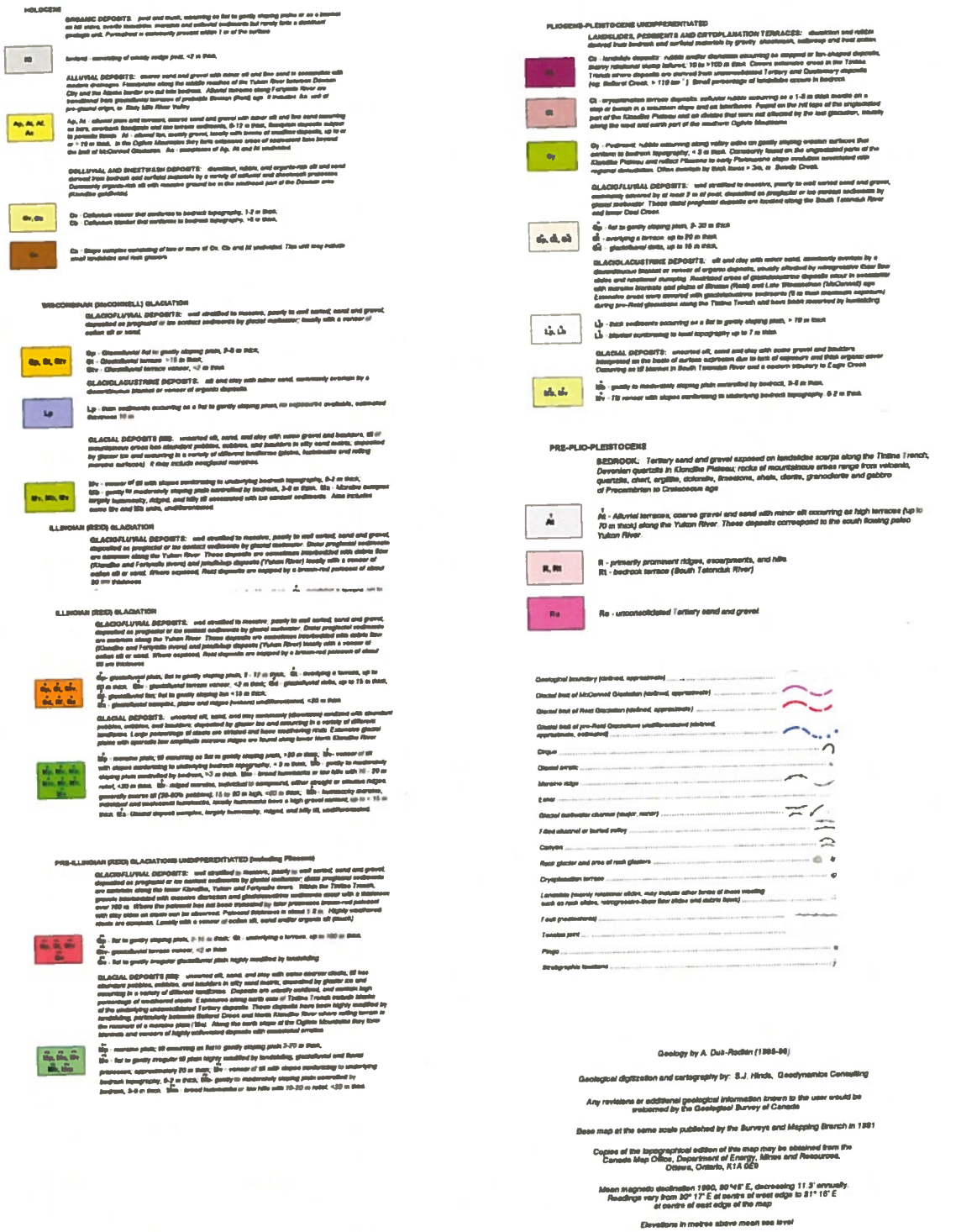



FIGURE 7: SURFICAL GEOLOGY MAP

See Figure 7b for Legend, modified from Duk – Rodkin, 1998.

# FIGURE 7B: SURFICAL GEOLOGY LEGEND




Geology by A. Duk-Rodkin (1986-96)

Geological digitization and cartography by: S.J. Hinds, Geodynamics Consulting

Any revisions or additional geological information known to the user would be welcomed by the Geological Survey of Canada

Base map at the same scale published by the Surveys and Mapping Branch in 1981

Copies of the topographical edition of this map may be obtained from the Canada Map Office, Department of Energy, Mines and Resources, Ottawa, Ontario, K1A 0E9

Mean magnetic declination 1990, 30° 48' E, decreasing 11.3' annually. Readings vary from 30° 17' E at centre of west edge to 31° 16' E at centre of east edge of the map

Elevations in metres above mean sea level

**FIGURE 8: PHOTOGRAPH** *shows the valley bottom of Laura Creek (Lease ID01106).*

## 4.3 BEDROCK GEOLOGY

The leases are located in the Selwyn Basin Stratigraphic package. The Selwyn Basin is located within the mineral rich Tintina Gold Belt. The Tintina gold belt is a 400 km wide mineral rich province spanning 2000 km from Fair Banks, Alaska to Watson Lake, Yukon Territory and hosts world class gold deposits such as the 45 million oz Donlin Creek, 5 million oz Fort Knox deposits in Alaska USA and the 4 million oz Dublin Gulch deposit of Yukon Territory. The miogeocline is a westward thickening, then tapering, sedimentary prism that accumulated on the westerly sloping Precambrian basement of Ancestral North America from late Proterozoic to mid-Jurassic time (Héon, 2003). Deposition of the Earn Group during lower Devonian to mid Mississippian time marks the subsidence of the entire miogeocline (transgression) and local uplift and faulting caused by localized secondary basins. In Jurassic and Early Cretaceous time the miogeocline was deformed by northeast-directed compression caused by plate convergence and the accretion of pericratonic terranes onto North America, which lead to complex thrust faulting and the development of northwest regional scale folds. Widespread Early to mid-Cretaceous granitic magmatism intruded the deformed rocks of the miogeocline. Spatially, the Selwyn Basin is bound to the north by the Dawson Fault; it grades into platformal facies to the east (Mackenzie Platform) and southwest (Cassiar Platform); may be bound by a Mesozoic thrust fault separating it from the Yukon- Tanana Terrane in the Anvil district; and is offset to the southwest by the Tintina Fault (Héon, 2003).

The lease drains Ordovician - Mississippian sediments primarily consisting of the Road River and Earn group. The Laura Creek drainage represents a major thrust fault separating the Devonian Earn Group sediments and Silurian to Devonian Road River Group. The Road River Group consists of black shale, chert and limestone. This group is composed of two formations: the basal, dark-weathering Duo Lake Formation and the overlying tan to orange-weathering Steel Formation. The Earn Group is the remnants of a regional marine transgression event. This group can be divided into two units separated by an unconformity: the Lower to Middle Devonian Portrait Lake chert and shale unit and the overlying Upper Devonian to Mississippian

coarse clastic Prevost Formation. These sedimentary packages are intruded by mid Cretaceous felsic sills and dykes that intruded along a mid-cretaceous thrust fault.

The majority of Brewery Creek Gold is hosted in quartz monzonite dykes and sills of the Tombstone Suite that range from 5 to 100 m wide (Dimment, 1999). The gold exists as very fine (micron size) particles within fine disseminated arsenopyrite and pyrite mineral grains. This type of gold mineralization and deposit style is known as an intrusion related gold deposit (IRGS). The Donlin Creek Gold Deposit in Alaska, USA, is also an intrusion related gold deposit and share many similar characteristics to that of Brewery Creek. Donlin Creek contains 34 million oz gold at average grade of 2.1 g/t Au (nova gold website). The creeks and rivers draining the Donlin Creek deposit contain numerous placer gold deposits that include the Crooked Creek, Lewis Gulch, and Snow Gulch placer operations.

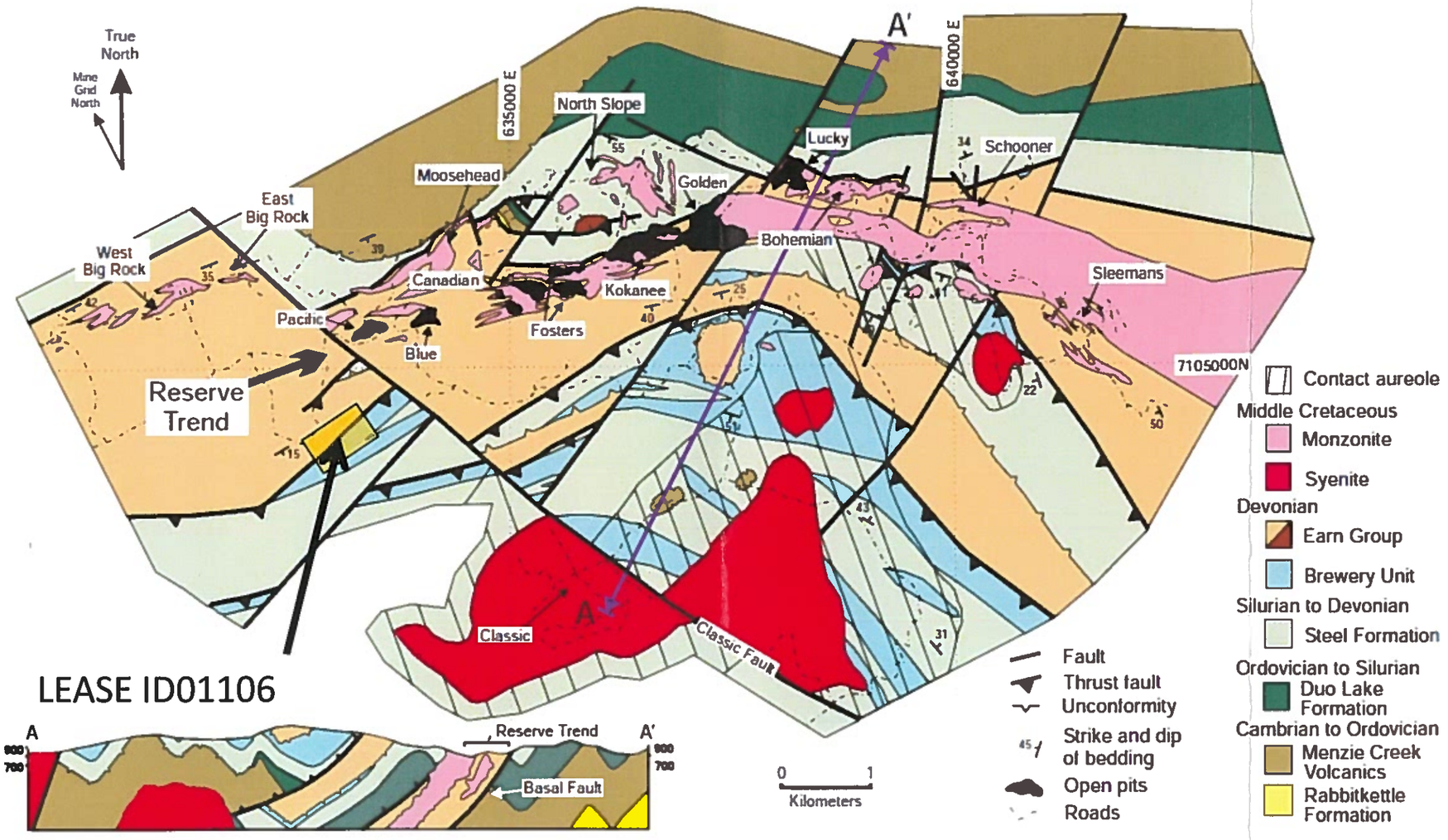



FIGURE 9: BEDROCK GEOLOGY
Note the yellow rectangle is the approximate location of lease ID01106

## 5.0 FIELD PROCEDURE

The survey took place on May 15, 2014. The property was accessed by a combination of the all-weather Brewery Creek mine access road and 1.5 km walk into the lease (ID01106). The crew (Clayton Jones) was based out of Dawson City, Yukon Territory.

The magnetic survey was conducted using a backpack mounted Gem Systems GSM-19 Overhauser ground magnetometer. The GSM-19 Overhauser is a super charged proton magnetometer that has a resolution of 0.01 nT and absolute accuracy of 0.1 nT. The magnetometer contains an intergraded Garmin GPS that records time and waypoint locations. Clayton Jones walked the predefined grid using the backpack mounted magnetometer and time stamped magnetic field readings were continuously taken every 0.5 seconds. A stationary base station (GSM-19 Overhuaser magnetometer) was setup in the field and operated during the ground magnetic survey. The base station records the magnetic field measurements every 5 seconds for the duration of the ground magnetic survey. Using both the raw data from the base station and the ground rover, a diurnal correction was done in the office using GEMlink systems software. The diurnal correction removes the daily changes in the magnetic field caused by the solar outputs and helps to highlight only the changes in the magnetic field caused by changes in the underlying geology and in this case, elevated concentrations of magnetite.

An irregular shaped grid covering approximately 5 ha was walked with lines spaced approximately 25 m apart for a total of approximately 2.5 line km. The survey lines were walked perpendicular to the centre valley bottom for each lease and survey segments ranged from 50 – 100 meters depending on the width of the valley bottom. No base line was cut out so survey lines are not perfectly straight due to vegetation obstacles; minor changes in line direction and increased jostling of the magnetometer sensor can cause minor changes in the magnetic field (<5nT), however this did not appear to present a problem in the survey. Refer to figure 1 for the survey traverse lines.

The corrected data was analysed by Clayton Jones in the office. All statistical outliers were manually removed from the spreadsheets and the data was then plotted using ESRI

(Environment Institute Research Institute) Arc GIS (Geographical Information System) 10.0 mapping software. The plan view map produced (figure 11) was created by plotting the total magnetic field (TMI) values. The magnetic values were classified by natural jenks calculated by ESRI.

## 6.0 APPLICATION OF MAGNETIC THEORY

The purpose of the survey is to locate magnetic anomalies which might be associated to above background concentration of magnetic minerals (magnetite) that almost always occur in elevated concentrations with placer gold deposits and that may represent ancient buried paleo channels. The magnetic mineral magnetite is relatively heavy compared to other minerals and tends to concentrate with the heavy element gold in the gravels along creek beds.

There are many different causes for magnetic anomalies so it is important to understand that only a few of these will be important for placer prospecting. One cannot derive test location based solely on magnetic anomalies but rather with a combination of suitable topography and geology for placer deposits. For example, changes in topography, thickness of overburden, and changes in bedrock geology will result in changes in the magnetic field. The anomalies captured in the survey need to be compared to the underlying geology and topography and only then anomalies can, by process of elimination, be used to determine priority shafting targets for placer testing.

Figure 10a shows an example of an ideal magnetic signature one would expect over a very strong near surface paleo placer rich in magnetite. Typical anomalous values one would expect for placer deposits ranges from 20 – 500 nT (Lee et al, 1981). There are other more indirect ways to using the magnetic signature to find placer targets. For example, large granite boulders (known to contain elevated magnetite concentration) deposited in large scale ancient channels over low magnetic susceptible bedrock surfaces, can sometimes result in an erratic, closely

spaced, up and down magnetic signature, and can be an indirect way of interpreting paleo channels, and thus potential for hosting placer gold (Lee et al, 1981). Refer to figure 10c for an example of a magnetic signature displaying this type of anomaly. Another indirect approach can be observed through the magnetic signature in relation to changes in overburden depth. The change in overburden depth will result in a stronger or weaker magnetic signal, assuming bedrock magnetic susceptibility is uniform across the valley bottom. A profile that contains a more subdued magnetic anomaly could represent deep over burden as a result of a deeply incised and filled paleo channel into bedrock (Lee et al, 1981). Refer to figure 10b, for an example diagram illustration of this phenomenon.

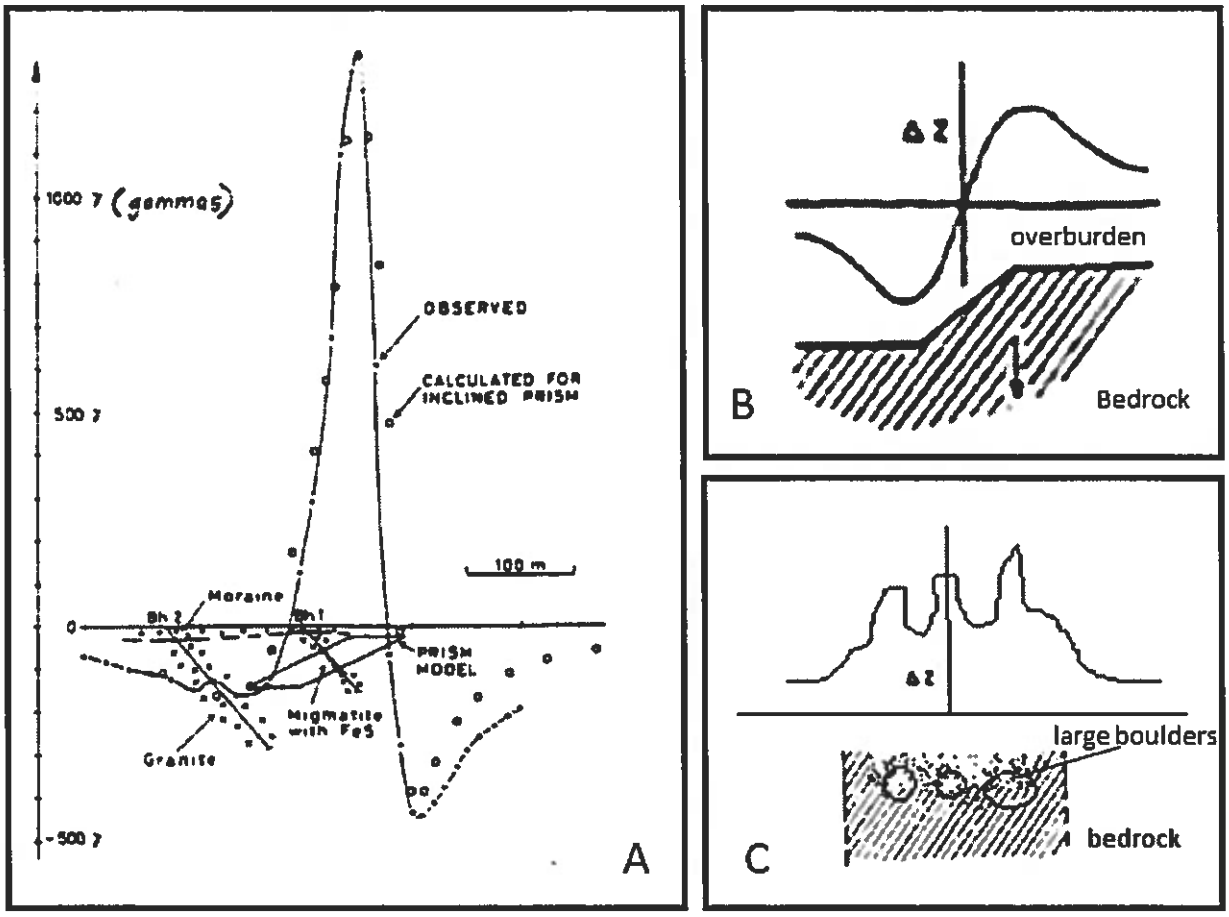
There are three main determining factors whether or not the magnetic survey technique will work; these factors include: the amount of magnetite associated with the paleo placer gravel, depth of placer gravels, and nature of underlying bedrock (Anderson). The lease appears to model a relatively suitable area for the magnetic survey. Nearly all placer gold deposits in the Yukon are enriched in magnetite, and panned concentrate from Laura Creek show strong magnetite influence. This ground based magnetic survey technique generally works better with deeper deposits, hence deeper overburden, as the overburden tends to mask the interference from the underlying bedrock thus improving the signal to noise ratio (Anderson). Laura Creek demonstrates high probability for deep overburden along the valley bottom. The ideal bedrock is uniform meta-sediment with minor igneous intrusion that provides a uniform background magnetic susceptibility and will not mask the signals from the gravels (Anderson). Lease ID01106 lies along a regionally mapped thrust fault which may interfere with signals generated from the overlying gravels and potentially cause interpretation problems.

Despite the confidence level of the 2013 magnetic survey, this technique is a relatively inexpensive first pass exploration tool that helps increase the probability of successfully

hitting placer gold deposits in future programs. This method will always prove to be more efficient for first pass testing rather than blindly digging test pits, especially in an area with deep overburden and wide valley bottoms where the cost and time to dig a shaft to bedrock is amplified, and success of hitting gold in the first few shafts is a must in order to warrant further exploration.

The most difficult task for interpreting the magnetic data for placer deposits is to recognize anomalies that are created by bedrock and topographical features alone, and thus eliminating these false magnetic anomalies as testing target locations. Changes in topography can strongly affect the magnetic field and often cause false magnetic anomalies. This topographical effect should always be kept in mind when interpreting and deriving targets from the magnetic data. The magnetic readings tend to increase at the toe of a hill and depend on the slope of the hill, magnetic susceptibility of bedrock, and overburden depths (Lee et al, 1981).

**FIGURE 10: MAGNETIC THEORY DIAGRAMS** ***A.)*** *shows an ideal profile (magnetic signature) over a magnetite rich placer deposit.* ***B.)*** *shows a magnetic signature one could expect over a buried paleo channel that deeply incised into the bedrock.* ***C.)*** *shows an example of a magnetic signature capturing magnetite susceptible boulders in a buried paleo channel.*



# Laura Creek Placer Lease

## TMI MAP

FIGURE 11

ID01106

632500

633000

7103000

7103000

Luara Creek

**Legend**

**Magnetic Survey Traverse Line**

**magnetic field (nT)**

- 58207.030001 - 58247.310000
- 58183.650001 - 58207.030000
- 58164.620001 - 58183.650000
- 58149.030001 - 58164.620000
- 58134.470001 - 58149.030000
- 58119.620001 - 58134.470000
- 58103.750001 - 58119.620000
- 58089.520001 - 58103.750000
- 58075.040001 - 58089.520000
- 58049.540000 - 58075.040000

prospecting_lease

Dirt Road

N

1:2,000

Meters

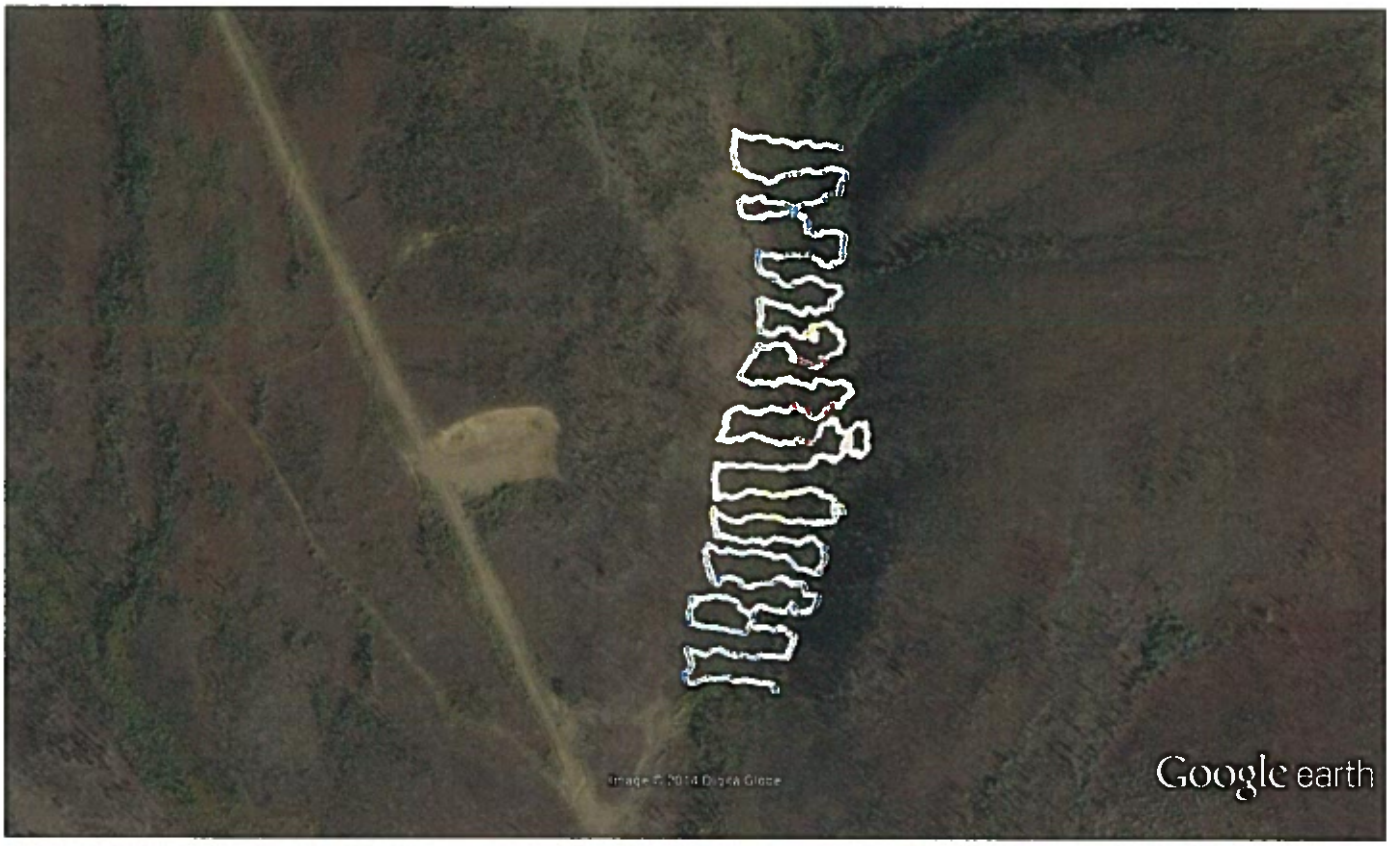
0 25 50 100 150 200

Coord System: NAD 83 UTM ZN 8

## 7.0 INTERPRETATION & CONCLUSION

The TMI plan view map illustrating the results of the ground based magnetic survey was produced and is shown in figure 11. The surveyed area has a magnetic intensity range of 158 nT. There is relatively uniform magnetic high that overlaps perfectly with what appears to be a sluff of material from the adjacent left limit hillside. Refer to figure 12 for the total magnetic field overlaid geo-rectified to a google earth image of the lease area. It is assumed the magnetic high slufffed material consists of different (foreign) sediments (presumably rich with the magnetite mineral) compared to that of the dominant valley bottom sediments. Refer to figure 6 illustrating the location of the inferred bench deposit along the left limit of Laura Creek. The bench material may represent glacial till and or outwash deposits that formed along the edge of the pre Reid glacier lobe that inundated the Laura Creek valley.

The magnetic survey was not successful in delineating linear magnetic anomalies along the valley bottom that could be associated to paleo channels containing placer deposits. However, the survey was successful in demonstrating potential for large scale paleo bench deposits along the left limit. The magnetic signature of the sluffed material demonstrates contains elevated magnetic minerals such as magnetite, which is often found with gold. The linear left limit bench deposit observed in the air photo and brought to attention by the magnetic survey, may also represent glacial fluvial or till deposits formed by a glacial lobe of the pre Reid glaciation that is presumed to have inundated a portion of the Laura Creek valley approximately 1.5 million years ago. This lobe of ice is believed to be relatively minor with a maximum height estimated to be less than 100 m above the present day Laura creek valley bottom. The smaller scale ice lobe would have reduce glacier scouring effects along the valley bottom and the melt water produced may have helped to re concentrate placer gold that accumulated in the Laura creek drainage prior to the pre Reid glaciation.




Google earth

feet 1000
meters 500

FIGURE 12

## 8.0 RECOMMENDATIONS

The inferred paleo bench material along the left limit should be investigated to confirm the presence of bench material, as well as the composition of the bench material. Despite the ground magnetic survey not delineating a good quality shafting target; a shaft remains the only way to confirm the presence of auriferous gravel along the valley bottom of Laura Creek. The presence of potential magnetic rich bench deposits along Laura creek further strengthens the idea gold rich gravels may exist along the valley bottom. A single shafting target should be conducted mid valley over the magnetic high sluffed material. In the event the bench material is auriferous than fluvial re concentration of gold from the bench sluff could have happened along the Laura Creek valley bottom. In addition, the sluff has diverted the present day creek to the right limit of valley and the elevated mound provides a perfect location for a shaft as it will prevent water from entering the shaft during construction.

Respectfully submitted,

Clayton Jones

Clayton Jones
B.Sc., (Geology)
May 20, 2014

## 9.0 REFERENCES


**Héon, D. (2003).** Selwyn Basin Metallogeny, retrieved from http://www.geology.gov.yk.ca/metallogeny/selwyn/intro.html#selwynbasin May 21, 2012.

**Israel, S.**, Colpron, M., Roots, C., Fraser, T., Overview of Yukon Geology, retrieved from http://www.geology.gov.yk.ca/pdf/Bedrock_Full_Overview.pdf November 1, 2013

**Lindsay, M., (2006).** The Structural and Hydrothermal Evolution of Intrusion-Related Gold Mineralisation at Brewery Creek Mine, Yukon, Canada. PhD thesis Submitted to the James Cook University, North Queensland, Australia. Murphy, D.C., 1997: Geology of the McQuesten River Region, Northern McQuesten and Mayo Map Areas, Yukon Territory (115P/14, 15, 16; 105M/13, 14). Exploration and Geological Services Division, Yukon Region. Bulletin 6. 95p. + maps.

**Bond, J.D., 2012.** Yukon Placer Mining Overview 2011. *In*: Yukon Exploration and Geology Overview 2011, K.E. MacFarlane, (ed.), Yukon Geological Survey, p. 75-78.

**Wikipedia**, Klondike Gold Rush, retrieved from http://en.wikipedia.org/wiki/Klondike_Gold_Rush February 23, 2014

**K.S. Coates** and W.R. Morrison, Land of the Midnight Sun: A History of the Yukon (Montreal: McGill-Queen's University Press, 2005), 49-56

**Allen, T.L.**, Hart, C.J.R. and Marsh, E.E., 1999. Placer gold and associated heavy minerals of the Clear Creek drainage, central Yukon: Past to present. *In:* Yukon Exploration and Geology 1998, C.F. Roots and D.S. Emonds (eds.), Exploration and Geological Services Division, Yukon, Indian and Northern Affairs Canada, p. 197-214.

**Donald Hulse**, M. Claiborne Newton, Michael J. Lechner, James F. Barr, Joe Keane, NI 43-101 Technical Report on Resources, Brewery Creek Project, Yukon, Canada, prepared by Gustavson Associates for American Bullion Royalty Corporation.

**Yukon Geological Survey** , Yukon Gold, retrieved from http://www.geology.gov.yk.ca/pdf/gold.pdf February 23, 2014

**Yukon Geological Survey**, Brewery Creek Property, retrieved from http://miningyukon.com/Documents/Why%20Yukon/Mineral%20Property%20Profiles/Brewery%20Creek%20Property.pdf February 23, 2014

**American Bullion Resources Corporation**, Brewery Creek Property, retrieved from http://www.aubullion.com/Brewery-Creek.html February 23, 2013

**Reith Frank**, Fairbrother Lintern, Nolze Gert, Wilhelmi Oliver, Clode Peta L., Gregg Adrienne L., Parsons John, Wakelin Steven Alan, Pring Allan, Hough Robert, Southam Gordon, Brugger Joel (2010) Nanoparticle factories: Biofilms hold the key to gold dispersion and nugget formation, Geology, 2010; 38(9):843-846, Geological Society of America, 0091-7613

**Hough, R. M.**; Noble, R. R. F.; Hitchen, G. J.; Hart, R.; Reddy, S. M.; Saunders, M.; Clode, P.; Vaughan, D.; Lowe, J.; Gray, D. J.; Anand, R. R.; Butt, C. R. M.; Verrall, M. (2008). Geology, 2008; 36(7): 571-574,

**Reith Frank**, Rogers Stephen Lloyd, McPhail, D. C., Webb Daryl Raymond (2006), Biomineralization of gold: Biofilms on bacterioform gold, Science, 2006; 313(5784):233-236, American Association for the Advancement of Science, 0036-8075

**LeBarge, W.P.** 1996a. Placer Deposits of the Yukon: Overview and Potential for New Discoveries, *In*: LeBarge
W.P. (ed.), 1996. Yukon Quaternary Geology Volume 1, Exploration and Geological Services Division, Northern
Affairs Program, Yukon Region, p. 1-12.

**Lowey, G.W.**, 2004. Placer geology of the Stewart River (115N&O) and part of the Dawson (116B&C) map areas, west-central Yukon, Canada. Yukon Geological Survey, 275 p.

**Diment, R.** and Craig, S., 1999. Brewery Creek gold deposit, central Yukon. *In:* Yukon Exploration and Geology 1998,
C.F. Roots and D.S. Emond (eds.), Exploration and Geological Services Division, Yukon, Indian and Northern Affairs
Canada, p. 225-230.

**ESSRI**, Surface Interpolation with Spatial Analysis, retrieved from http://www.esri.com/news/arcuser/0704/files/interpolating.pdf February 23, 2014

**Anderson Erik**, Geometrics, Exploration of Placer Gold Deposits By Geomagnetic Surveys, retrieved from ftp://geom.geometrics.com/pub/mag/Literature/M-TR2.pdf February 23, 2014

**G. C. Lee** and R. A. Granger, 1981 Yukon assessment report 120028, Golden Empire Mines Limited, Wilson Creek Area, Magnetometer Survey.

**Duk-Rodkin**, A., 1998 Surficial Geology, Dawson Yukon Territory, Geological Survey of Canada, open file 3288, scale: 1:250 000

## 10.0 STATEMENT OF QUALIFICATION OF AUTHOR[S]

I, Clayton Jones, of:

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V0N 2W5

Do hereby certify that:

1. I am a mineral exploration geologist with over 5 years of experience working in the Yukon and British Columbia.

2. I am a graduate of the University of British Columbia Okanagan (UBCO), with a degree in geology (B.Sc., 2011) and have been involved in geology and mineral exploration continuously since 2009.

3. I am a registered geologist in good standing with the Association of Professional Geologists and Engineers of British Columbia (APEGBC) and hold the title "geologist in training".

4. I am a member of The Association for Mineral Exploration British Columbia, AME BC.

5. I am the author of this report on the Brewery Creek Mine Placer Project, located in the Dawson, Mining District, Yukon. The report is based on my personal examination of the ground on May 15, 2014.

Clayton Jones, B.Sc.

May 20, 2014

# APPENDIX I

## Costs

| COSTS ASSOCIATED WITH THE GEOPHYSICAL SURVEY ON LUARA CREEK | | | | |
|---|---|---|---|---|
| *(Lease ID01106)* *Conducted MAY 15, 2014* | | | | |
| ITEM | DESCRIPTION | COST/ITEM ($) | QUANTITY | TOTAL ($) |
| GEOLOGIST WAGE | Clayton Jones, Magnetic Survey in Field | 400/day | 1 | 400 |
| MAG UNIT RENTAL | Gem Systems GSM-19 Overhauser ground magnetometer -rental from Druid Exploration Inc. of Dawson City | 200/day | 2 | 400 |
| GEOPHYSICAL REPORT | Magnetic Interpolation and Technical report compilation, completed by Clayton Jones | 500 | 1 | 500 |
| TOTAL COSTS | | | | $ 1300 |

2 days @ $250/day