



Ministry of Energy & Mines
 Energy & Minerals Division
 Geological Survey Branch

ASSESSMENT REPORT TITLE PAGE AND SUMMARY

TYPE OF REPORT (type of survey(s)) GEOPHYSICAL 2D RESITIVITY	TOTAL COST \$22,052.64
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AUTHOR(S) PHILLIP MOLL SIGNATURE(S) 'SIGNED AND SEALED'
ARCTIC GEOPHYSICS INC.

NOTICE OF WORK NUMBER(S) / DATE(S) _____ YEAR OF WORK 2011

STATEMENT OF WORK - CASH PAYMENT EVENT NUMBERS / DATE(S)
Event Number 4894073; June 30, 2011

PROPERTY NAME COTTONWOOD

CLAIM NAME(S) (on which work was done) (Unnamed) 264751-2, 264754-5, 512030-1, 512158

COMMODITIES SOUGHT Gold (Au)

MINERAL INVENTORY MINFILE NUMBERS, IF KNOWN 093G 022; 093G 025

MINING DIVISION Cariboo NTS 093 G/01 TRIM 093G.010

LATITUDE 53° 4' 10"N LONGITUDE 122° 10' 26"W (at centre of work)

NORTHING 5880315 EASTING 555351 UTM ZONE 10N MAP DATUM NAD83

OWNER 1 Quesnel Gold Mines Inc. OWNER 2 _____

MAILING ADDRESS 2800-666 BARRARD STREET
VANCOUVER BC, V6C 2Z7

OPERATORS (who paid for work) As above

MAILING ADDRESS _____

PROPERTY GEOLOGY KEYWORDS (lithology, age, stratigraphy, structure, alteration, mineralization, size, attitude)
Placer, sedimentary, unconsolidated, residual, glacial/fluviol gravels, pre-glacial, Quesnelia Terrane, Intermontane,
Cottonwood River, Cariboo Plateau, bench, Miocene (?) age, pre-Tertiary, mafic volcanic, Upper Triassic, Lower Jurassic,
Nicola Group,

REFERENCES TO PREVIOUS ASSESSMENT WORK AND ASSESSMENT REPORT NUMBERS
16114, 17278



Geophysical Survey for Placer Prospecting at Cottonwood River

CARIBOO MINING DIVISON / QUESNEL / BC 2011

Latitude 53° 4' 10''N, Longitude 122° 10' 26''W

NTS MAPSHEET 093 G/01

ON PLACER TENURES

264751, 264752, 264754, 264755, 512030, 512031, 512158

METHODS

2D Resistivity, IP, Magnetics

FOR

QUESNEL GOLD MINES INC.

2800-666 BURRARD STREET, VANCOUVER BC, V6C 2Z7

PROVIDED BY

Arctic Geophysics Inc.

BOX 747 DAWSON CITY YT, Y0B 1G0

PHONE: 967-993-2671

**BC Geological Survey
Assessment Report
32494**

FIELD WORK

11th May – 26th June 2011

REPORT / DATE

Philipp Moll / 30th October 2011

EVENT NUMBER

4894073

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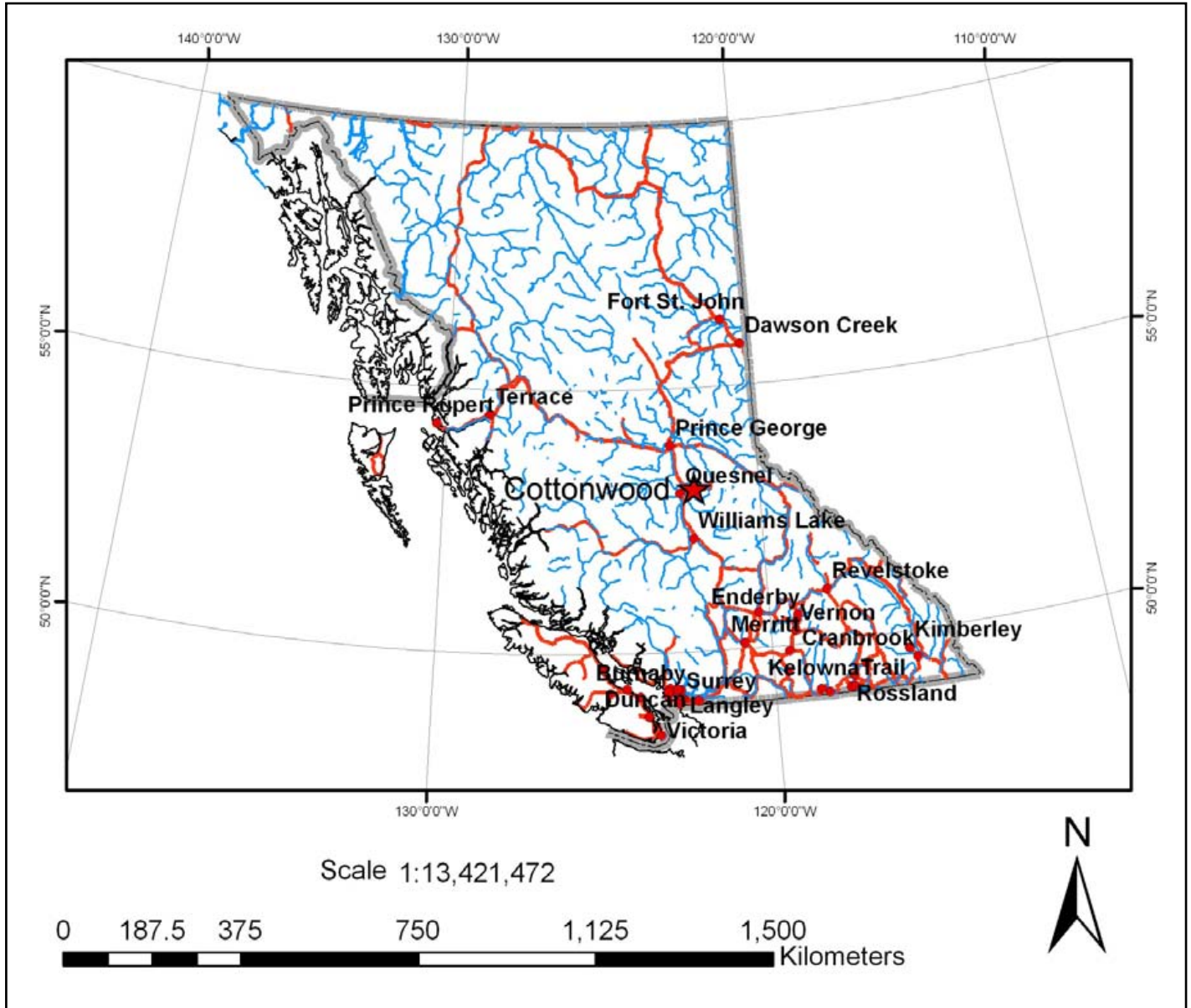
 Cottonwood 03a..... 50

 Cottonwood 03b..... 53

1. Introduction

The Quesnel area was the center of the Cariboo gold rush of the 1860s. Gold mining activities have never stopped until the present. This traditional mining area has high potential for modern industrial placer mining.

The **geology** of the Cottonwood area shows at least two glacial periods.¹ Today, the area represents a heterogeneous, complex stratigraphy: The overburden is a mosaic of pre-, inter- and post-glacial deposits potentially bearing different types of commercial gold placers.



¹ Levson M. and Timothy R. Giles: Geology of Tertiary and Quaternary Gold-Bearing Placers in the Cariboo Region, British Columbia

This geophysical survey, using **2D Resistivity/IP** and **Magnetics**, was done on the placer tenures (264751, 264752, 264754, 264755, 512030, 512031, 512158) at Cottonwood River, Quesnel area/Cariboo (Latitude 53° 4' 10''N, Longitude 122° 10' 26''W, NTS MAPSHEET 093 G/01) for **Quesnel Gold Mines Inc.**

The claims were accessed via a forest service road that branches off *Barkerville Highway* Hwy/BC-26 W 29 Km from Quesnel/BC.

A total of 5070m of measuring line was produced for each geophysical method that was employed during the survey. The measuring depth for 2D Resistivity/IP is approximately 100m.

The survey was focussed on measuring and interpreting following **subsurface characteristics**:

1. Depth and topography of bedrock
 - Paleochannels
2. Sedimentary stratification
3. Groundwater table
4. Mining/prospecting history

This first pass geophysical survey using Resistivity, IP, and Magnetics is delivering subsurface information as the foundation for a systematic advanced prospection with technological means such as trenching and drilling.

2. Crew

Survey Leader: Stefan Ostermaier
 Geophysical Prospector: Josy Strunden
 Support, Documentation: Philipp Moll

3. Fieldwork - Schedule

Date	Schedule
Mo 11 th May	Inspection of ground
Tu 12 th	Data acquisition Cottonwood Line_01
We 13 th	Data acquisition Cottonwood Line_02
Th 14 th	Data acquisition Cottonwood Line_02
Fr 15 th	Clearing the road Data acquisition Cottonwood Line_03
Sa 16 th	Data acquisition Cottonwood Line_03
Su 17 th	Data acquisition Cottonwood Line_03
Mo 18 th	Data acquisition Cottonwood Line_03
Tu 19 th	Data acquisition Cottonwood Line_03 Water got into cable connectors – no usable data
We 20 th	Equipment maintenance
Th 21 st	Data acquisition Cottonwood Line_03
Fr 22 nd	Data acquisition Cottonwood Line_03
Sa 23 rd	Computer work
Su 24 th	(Data acquisition CVG Wingdam Line)
Mo 25 th	Computer work
Tue 26 th	Computer work
27 th May - 3 rd June	Interpretation, documentation
Sa 11 th	Data acquisition Cottonwood Line_04a
Su 12 th	Computer work
Mo 13 th	Data acquisition Cottonwood_04
Mo 21 st – Su 26 th	Interpretation, documentation

4. Geophysical Methods

Resistivity is not a time domain geophysical method such as Ground Penetrating Radar or Seismic. Resistivity measures a material property. In the Resistivity model the different underground zones are material-dependently differentiated according to their electrical conductivity. Thus, Resistivity promises good chances in respect of measuring the kind and character of the subsurface materials as well as the groundwater distribution, which would be of interest for placer mining. The used equipment (see below) allows for measuring of layer interfaces in depths from 0.5m to 100m by varying the electrode spacing. – Therefore, this prospecting concept is based on the use of 2D Resistivity.

Induced Polarization (IP): IP data are simultaneously taken when measuring Resistivity, with the same equipment and line staking. So these data are automatically at hand when using Resistivity. The IP model serves as basis for the interpretation of the mineral and petrologic conditions in hardrock. Thus, IP is an industry proven standard method for the detection of primary mineral deposits. However, the IP model can also support the interpretation of the Resistivity profiles done for placer prospecting.

Magnetics is based on the characteristic of the earth's magnetic field to induce all matter, magnetic or non-magnetic, with magnetic properties (magnetic susceptibility). Rocks and other objects show a different magnetization depending on their material composition. Magnetics is a reliable method for investigating primary and secondary deposits. The measurability of gold placers depends on the ratio of the depth to the concentration of signal inducing, heavy placer minerals, especially magnetite.



Figure 1: 2D Resistivity measurement, Stefan Ostermaier, Arctic Geophysics Inc., Yukon 2009

5. Use of Geophysical Methods

5.1. Instrumentation

RESISTIVITY / IP

For this survey a lightweight, custom-built 2D RESISTIVITY and INDUCED POLARIZATION (IP) imaging system with rapid data acquisition was used. The system includes:

- “4 POINT LIGHT” EARTH RESISTIVITY METER²
- 175 ELECTRODE CONTROL MODULES³
- 175 STAINLESS STEEL ELECTRODES⁴
- 875m MULTICORE CABLE: CONNECTOR SPACING: 5m⁵

This system weighs approximately 120 kg which is about one third of regular standard equipment. It can be run with a 12V lead battery. The equipment facilitates high mobility and rapid data acquisition with a small crew.

MAGNETICS

We use a GEMSYS GSM-19 GW with differential GPS as a walking magnetometer, and a GEMSYS GSM-19 as a base station.

5.2. Data Acquisition

Resistivity/IP

The data acquisition is carried out by the automatic activation of 4-point-electrodes. Thus several thousand measurements are taken, one every 1-2 seconds. The AC transmitter current of 0.26 to 30 Hz is amplified by the electrode control modules, up to a maximum of 100mA and 400V peak to peak. The voltage measured at the receiver electrodes (M, N) is also amplified. In this geoelectrical survey the **Schlumberger-array** was used. This array is appropriate to image horizontally running layers as is needed for placer prospecting.

The 2D Resistivity/IP imaging system, used for this survey, allows measurements with a depth of up to 100m. With a depth to bedrock of more than 6m, an electrode spacing of 5m can be used for placer surveys. This allows the measuring of large profile lengths in short time with a horizontal measuring resolution of 2.5m. This quantification has proven itself to be reliable in the determination of the bedrock topography and sedimentary arrangement for placer investigation at the most environmental conditions.

² Constructed and produced by LGM (Germany)

³ Ditto

⁴ Constructed and produced by GEOANALYSIS.DE (Germany)

⁵ Ditto

The **IP** data is getting noisy below approx. 50m depth because the sender current is limited to a 100 m Amp. The noise of the IP data in greater depth can significantly be decreased by using an IP-specific data acquisition mode that is much more time consuming.⁶ Since this survey is focused on the detection of placer-geological aspects, the data acquisition was not optimized for IP.

Magnetics

Magnetic data were taken manually at the electrode locations, every 5 meter.⁷ Thus, the geoelectrical profiles and the magnetogram do spatially coincide 100%.

The mobile magnetometer was synchronized with a base station.

5.3. Processing

Resistivity/IP

The measured Resistivity/IP data were processed with the **RES2DINV** inversion program⁸.

In the resistivity profiles, the data scale of the resistivity was unified to make better comparison between the profiles.

Highly heterogeneous data patterns in the resistivity profiles representing the very various arrangement of the overburden produced by the complicated geology could have caused a higher RMS error at the inversion in a few profiles. Also, some prominent three-dimensional changes in the bedrock were detected in some profiles which may have disharmonised the geoelectrical data producing a higher RMS percentage. The higher RMS error in a few profiles might correlate with the increase of high-contrasted, vertical data boundaries in combination with the Schlumberger array used in this survey. The Schlumberger array is appropriate to measure subsurface conditions predominantly showing a horizontal zoning of the ground materials. – Nevertheless, the profiles of this series are looking quite realistic, including the ones with higher RMS percentage.

Magnetics

The magnetic data were processed with the **GemLink5.0.0** program.

The magnetic data were normalized at 56 000 n Tesla.

⁶ 1) Transition Resistivity between electrodes and ground lower than 1 Kilo Ohm; 2) More single 4point measurements to calculate the average of each data point etc.

⁷ Plastic probes were set instead of the stainless steel electrodes.

⁸ Produced by GEOTOMO SOFTWARE (Malaysia)

5.4. Interpretation

In this survey the interpretation of the Resistivity/IP models is sometimes difficult because of both the high heterogeneity and similarity of the data!

The resistivity profile is the basic source for the interpretation of placer-related subsurface aspects of overburden and bedrock. IP and Magnetics data support the analysis of this combined geophysical investigation.

6. Geology

6.1. Overburden

The survey area was glaciated by most likely two main periods both releasing potentially thick overburden consisting of glacial and pre-glacial deposits. During the last glaciations the ice flowed in western direction from the Cariboo Mountains. So old river gravel deposits, which haven't been eroded by the glaciers might have been conserved in valleys and channels running across to this direction. Thick sequences of glaciofluvial gravel were deposited in braided outwash streams. Ice damming of tributary drainages was common and produced glaciolacustrine deposits of silt and clay.⁹

Glaciofluvial and glaciolacustrine deposits might be located mainly on top of till and sometimes on bedrock.

Within a glacial deposition cycle, mostly in the upper portions of the overburden, some clay layers were potentially produced which could have reflected the influence of deformable sediments.¹⁰ This way, some deeper, older inter-glacial or pre-glacial deposits could have been protected against subsequent glacial erosion.

In the **Cottonwood** area, there seems to be some "large depositions of stream gravels in the main valleys [that] were followed by river incision. This caused the development of successively lower terraces."¹¹ (See picture below.) In the survey area, these river benches rising to the east might be covered with 10-30m of overburden. The benches could bear paleochannels up to at least 30m depth. On top of the terrace system the bedrock might be shallow, just around 10 m deep. From there, the bedrock seems to descend eastwards dropping into two larger channels running parallel to each other in northwest direction, distance 600m. The bedrock depth of

⁹ Levson M. and Timothy R. Giles: Geology of Tertiary and Quaternary Gold-Bearing Placers in the Cariboo Region, British Columbia (93A, B G, H), 199: "General Geology"

¹⁰ "Technical Review on various exploration licences held by Henning Gold Mines Inc." (Draft 9th May 2011): 5.5 Local Stratigraphy

¹¹ Levson M. and Timothy R. Giles: Geology of Tertiary and Quaternary Gold-Bearing Placers in the Cariboo Region, British Columbia (93A, B G, H), 199: "Quaternary Geology"

these channels ranges from 40 to 70 meters. Farther east the bedrock seems to stay at about 20m depth before it might step down showing a terrace system towards John Boyd Creek.



Plate 23. Horizontally bedded, pebble to cobble-sized, low-terrace gravels unconformably overlying deformed glaciolacustrine sediments along the Cottonwood River (Location 53).

Source of picture: Levson¹².

The ice flow should have run mainly parallel to the Cottonwood valley. And likely the melt water drainage did prefer this direction as well. Nevertheless, the melt water seems to have drawn a complicated multi-directional stream net draining into several water basins up the hill. This drainage system might have left a filigree mosaic of different kinds of overburden: glacial till, glaciofluvial and glaciolacustrine sediments change variously and overlap. A spatial domination of glaciolacustrine deposits is assumed.

Because of the multi-periodical glacial history of Cottonwood, a high variety of sedimentary properties was discovered at open pits near the survey area: The layer thickness ranges from a couple centimeters to several meters. The sediment layers can be dominated by particles of all sizes such as clay-silt-sand-pebbles-gravels-cobbles-boulders. The deposits show all conditions from well sorted to highly diamict. The sediment particles present a large variety of rock types.

¹² Levson M. and Timothy R. Giles: Geology of Tertiary and Quaternary Gold-Bearing Placers in the Cariboo Region, British Columbia (93A, B G, H): Low-Level Terraces

And the shape of the gravels and clasts ranges from moderately well rounded to well rounded. The ground materials can be weakly weathered to strongly oxidized (iron oxides in particular).¹³

In the resistivity profiles, the overburden is showing very homogenous to highly heterogeneous data predominantly in a low range (10-100 Ohm meter). The spatial arrangement of the data pattern is typical for a glaciated area having a complex multi-periodic transport history.

6.2. Bedrock

The bedrock is quite heterogeneous as seen in the bedrock Geology Maps (below). Sedimentary rocks might largely dominate the survey area. That's why vertical changes in the bedrock type seem to be common. Horizontal changes in the bedrock indicate possible bedrock alterations sometimes correlating with the hypothetical fault "Chiaz". (See bedrock Map below). Metamorphic rocks can be highly metamorphosed. Igneous rocks might be rare.

The bedrock types, suggested by the bedrock maps, are sorted into three groups based on the resistivity data measured in this survey.

Expected bedrock types

Bedrock group	I.	II.	III.
Resistivity	low	moderate	high
Data range [Ohm meter]	5 - 35	100 - 1 000	20 000
Conductivity	high	moderate	low
Possible bedrock types			
Bedrock Map Levson ¹⁴	shale, siltstone,	volcanic volcanoclastic interbeds, sandstone	mafic volcanic rocks ?
Bedrock Map BC Digital ¹⁵	sedimentary rocks undivided, (Nicola Group) volcanoclastic rocks	ditto coarse clastic sedimentary rocks, conglomerate	granite intrusive rocks

¹³ Ditto

¹⁴ Levson M. and Timothy R. Giles: Geology of Tertiary and Quaternary Gold-Bearing Placers in the Cariboo Region, British Columbia (93A, B G, H): Figure 11 (see below).

¹⁵ "BC Digital Geology Maps" Version 1.0.2005

Bedrock Geology Map (Levson)¹⁶

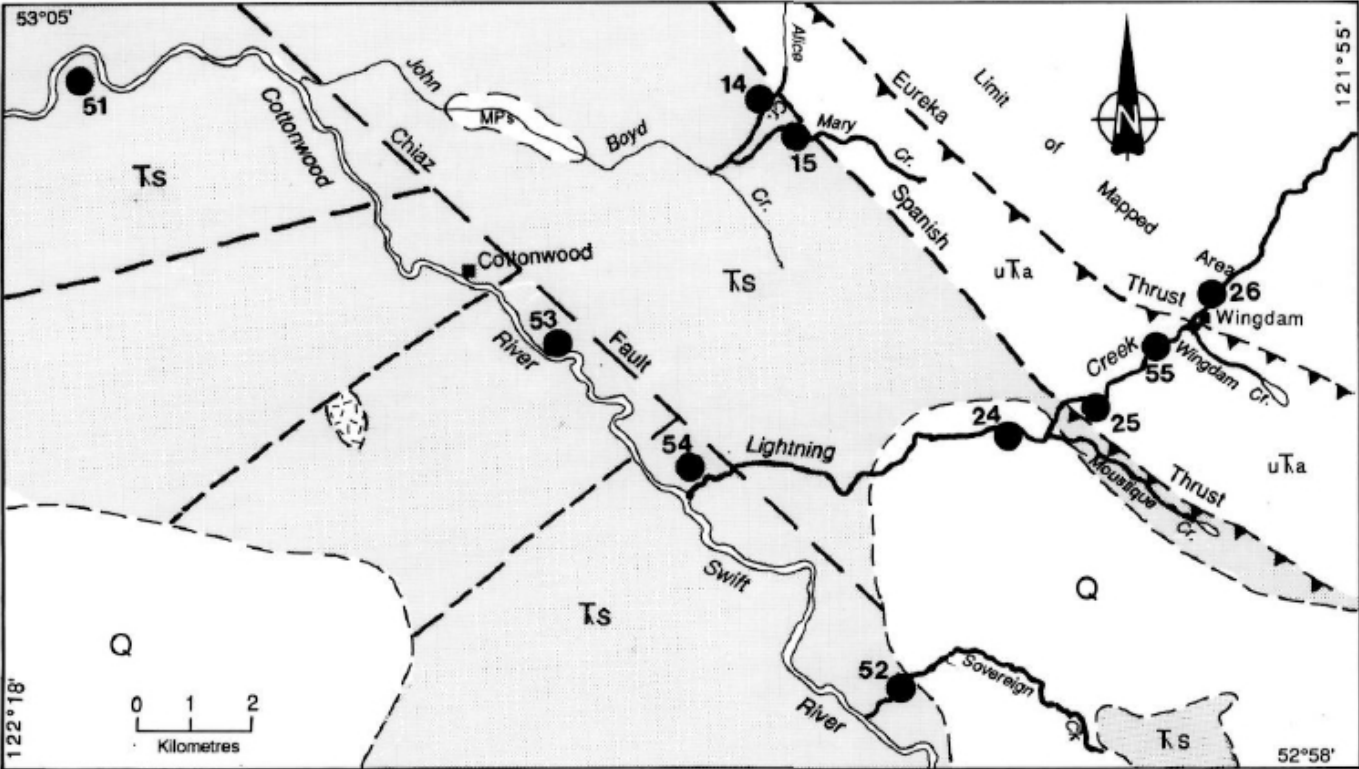


Figure 11. Bedrock geology, placer producing streams (heavy lines) and detailed study sites (solid circles) in the Cottonwood and Wingdam areas.

¹⁶ Levson M. and Timothy R. Giles: Geology of Tertiary and Quaternary Gold-Bearing Placers in the Cariboo Region, British Columbia (93A, B G, H): Figure 11

QUATERNARY

Q Diamicton, gravel, sand, silt and clay

TERTIARY

Mvb Miocene vesicular olivine basalt

MPs Sandstone, shale, conglomerate, diatomite, lignite

Es Eocene sandstone, mudstone and minor conglomerate

CRETACEOUS

Kgd Hornblende granodiorite and quartz monzonite

JURASSIC

UJcg Cobble conglomerate, mudstone and sandstone

Js Siltstone and sandstone, massive to well bedded, commonly pyritic

Jb Amygdaloidal, analcite-bearing, olivine basalt breccia and flows

IJvs Volcanic breccia, tuff and tuffaceous siltstone and sandstone

SYENITE, monzonite and diorite; minor ultramafics, gabbro

TRIASSIC

UTa Phyllite, argillite, quartzite, schist, minor greenstone

UTvs Basaltic breccia, flows and pillow lava; minor sandstone and tuff

Ts Sandstone, siltstone and shale; mafic volcanic and volcaniclastic interbeds

--- Geological Contact

--- Fault (Known or Inferred)

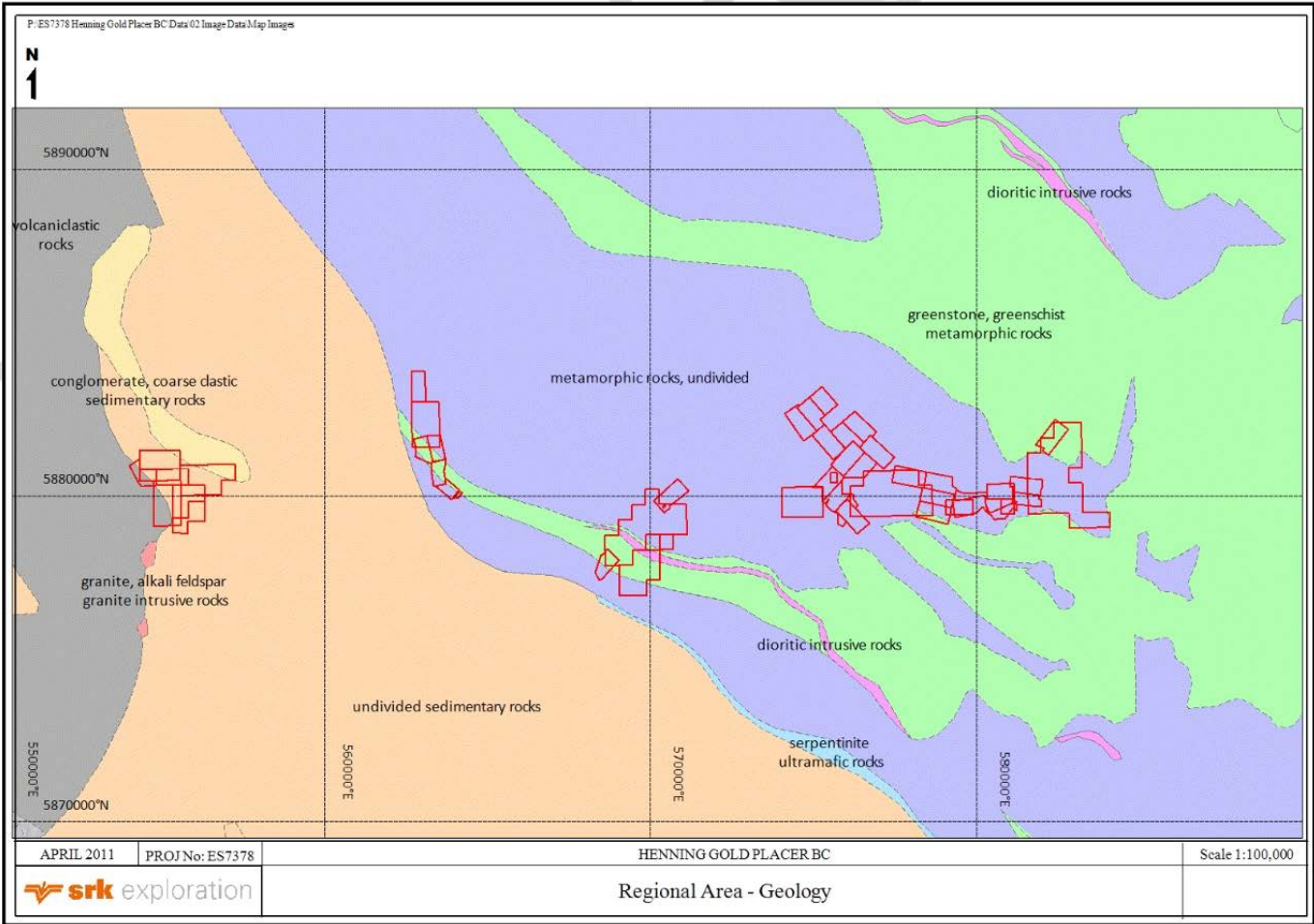
▲▲▲ Thrust Fault

● Placer Sites Visited

Source:

Bailey, D.G. (compiler) 1990. Geology of the Central Quesnel Belt, British Columbia; *B.C. Ministry of Energy, Mines and Petroleum Resources, Geological Survey Branch, Open File 1990-31; 1:100 000.*

Bedrock Geology Map (BC Digital)¹⁷



¹⁷ Technical Review on various exploration licences held by Henning Gold Mines Inc. (Draft 9th May 2011): 5.4. Local Geology: Quesnel; 5.4. Local Geology, Figure 5-16

7. Geophysical Considerations

In the survey area the **overburden** mainly consisting of glacial till, glaciofluvial and glaciolacustrine deposits contain relatively high amounts of finer sediments such clay, silt, even in greater depth. Thus its resistivity can be low. Saturated silt can have penetrated into the space between larger sediment particles; this material is called “slum”.¹⁸ The conductivity of the slum is usually quite homogeneous. Thus, deposits of different type and age are sometimes hard to differentiate.

The Resistivity pattern in the profiles potentially indicates glaciofluvial and glaciolacustrine deposits on top of till, as well as glacial till on top of possible river gravel or bedrock. Clay layers or clay-rich layers acting as water barriers can reveal the layer borders in the sedimentary progression indicating a glacial period. Clay-rich layers could also indicate overlying “inter-glacial and post-glacial stream-channel placers in the Cottonwood River area [which] have been mined in recent years at Mary and Alice creeks.”¹⁹ Layers characterized by clay are sometimes running uneven which “seals” sedimentary zones against each other producing resistivity alterations running horizontally and inclined! Uneven groundwater horizons are assumed to be common in the Resistivity profiles.

The interpretation of the Resistivity profiles is mainly focused on the differentiation of layers with different nature, age and origin: 1) glacial *till* being diamict mostly producing heterogeneous resistivity data; 2) *glaciofluvial and glaciolacustrine deposits* usually being well layered normally produce more homogeneous resistivity data; glaciolacustrine might show lower resistivity data since their sediments are finer.

The interpretations try to differentiate between fine and coarser sediments as well as between sediments which are higher water saturated or less, respectively consolidated (or even cemented) or un-consolidated sediments. In some cases the resistivity models shows a very heterogeneous to bizarre data pattern which might realistically image complex subsurface conditions.

Zones with different resistivity potentially indicate different layers of ground material - as defined above. However, strong saturation with groundwater can make those layers indistinguishable. A well conducting layer below a lower conducting layer is sometimes just indicating a groundwater boundary. But a lower conducting layer below a better conducting layer might indicate two different ground materials at a higher chance. This scenario could also

¹⁸ D.O. Donovan et alii: “Technical Review on various exploration licences held by Henning Gold Mines Inc.” (Draft 9th May 2011) 5.4. Local Geology

¹⁹ Ditto: “Abandoned, Gravel-Bed Paleotrunk-Valley Deposits”

indicate a clay layer (“false bedrock”) embedded in the overburden as being a possible base for placers.

Changes of the resistivity indicate different **bedrock** types or weathered bedrock zones. Rock erosion produces porosity which allows for the penetration of water. The rock becomes higher conductive. Frequently, the water “trapped” in rocks is rich in solvated minerals which increase the conductivity even more. Especially at fault lines and thrusts the resistivity is elevated usually showing heterogeneous resistivity data.

Outside from the hypothetical granitic intrusions at Cottonwood, the **ground materials** (sediments, sedimentary rocks, volcanic rocks and clastic rocks) show resistivity data within ranges which does not implicate a strict correlation between ground material and resistivity data. Reasons for this are changing amounts of weathering/saturation and changing mineral compositions. The interfaces between rocks and sediments as well as between rocks and rocks are mostly both running in horizontal direction. And changing water saturation increases the heterogeneity of the data. These aspects do sometimes require an ambivalent interpretation of the resistivity profiles in the Cottonwood survey area. This ambivalence can effectively be terminated by drilling. Drilling will clear the very high information content of this geophysical survey.

8. Profile image

In the **Resistivity profile** the interpreted layer interfaces are marked with a black line. The profiles show ground-layers approximately 15% thicker than they are in reality. The thickening of the model layers is caused by the inversion software. The **correction factor** of 0.85 for the determination of the true layer thickness has been established by the Arctic Geophysics Inc. team on the basis of numerous geoelectrical profiles verified by drilling, trenching, and mining done by our customers.²⁰

The **graphical markings** showing the interpreted layer interfaces in the profiles (using a black line) are done accordingly to the data structure in the profile itself. This means: the layers there will also show up approximately 15% thicker than they are expected in reality. At the measuring sticks in the profile image as well as in the interpretation text, the layer thicknesses and depths have been recalculated to the expected real values.

Usually, the **IP profile** shows the interfaces/features seen in the Resistivity profile moderately displaced to another position, horizontally and vertically.

9. Line Arrangement

The **line locations** were discussed by the crews of SRK Explorations²¹ and Arctic Geophysics and were decided by William Kellaway of SRK. The orientation of the lines was decided to be mostly in west-east direction to pick up paleochannels running northerly or southerly. Northerly or southerly running old, pre-glacial streambeds might show a lower glacial erosion of the auriferous deposits.²²

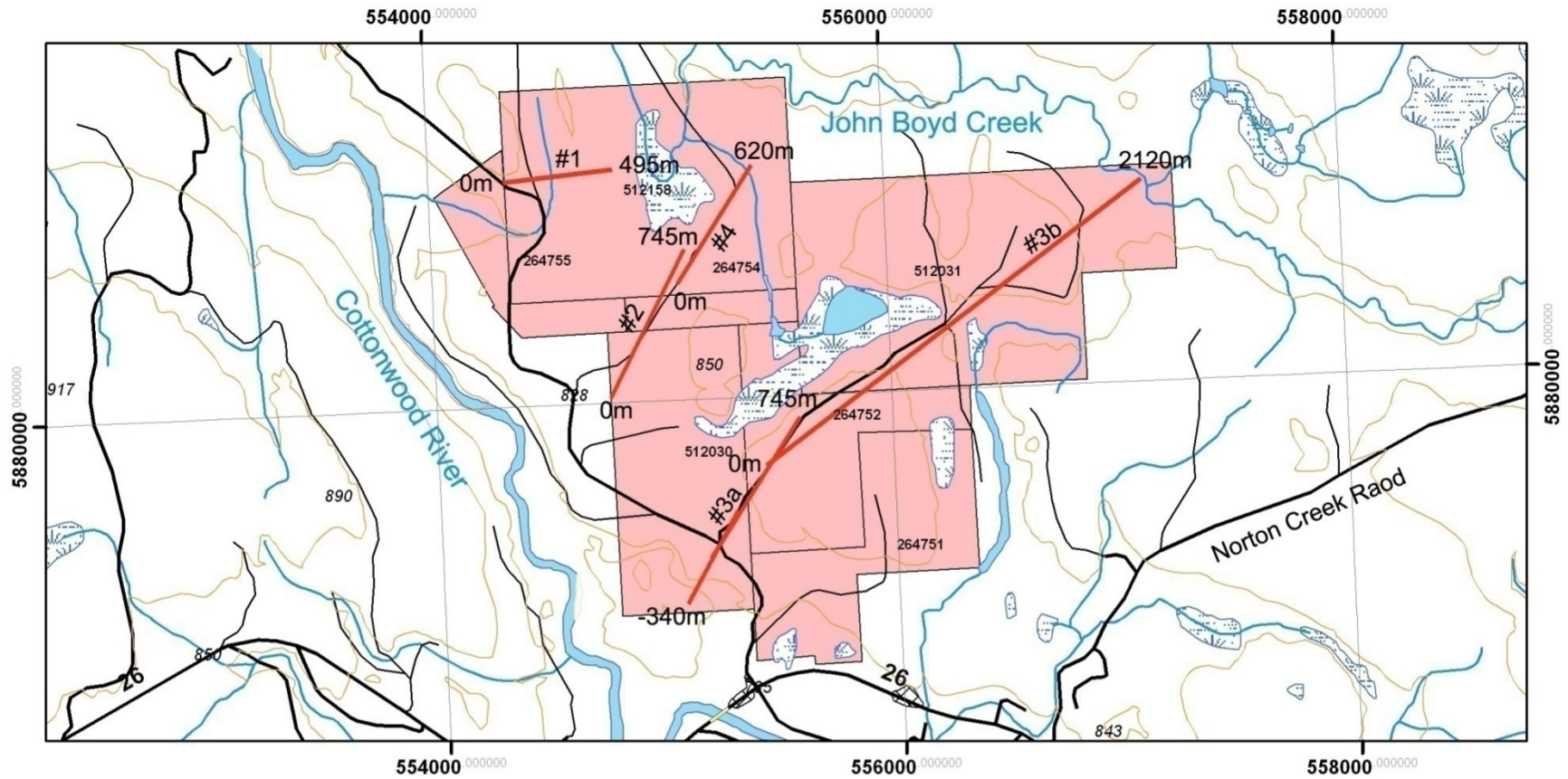
All existing **infrastructure** was taken into consideration when deciding the line locations.

²⁰ Program settings in RES2DINV for modifying the layer thickness do frequently not work well for our use and could falsify the profile. That's why this mode was not used.












²¹ William Kellaway and Richard Oseland

²² Levson M. and Timothy R. Giles: Geology of Tertiary and Quaternary Gold-Bearing Placers in the Cariboo Region, British Columbia (93A, B G, H), 199: "Abandoned, Gravel-Bed Paleotrunk-Valley Deposits"

10. Survey Map



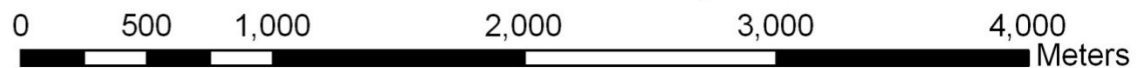
Legend

- | | | |
|--|--|---|
|  Measuring line |  Contour line |  Wetland |
|  Main road |  Watercourse |  Waterbody |
|  Secondary road |  Cut line |  Mining area |
|  Trail | |  Claims |

Survey Detail Cottonwood Claim Group NTS 093G/01

Universa Transverse Mercator Zone 10
North American Datum 1983

1:30,000



11. Interpretation of the Profiles

Preliminary Note

The interpretation of the geoelectrical profiles show 5m to possibly over 100m of overburden on top of bedrock.

Basic Consideration

The Cottonwood profile series is difficult to interpret because the stratigraphy is disturbed by the glacier, and the bedrock, most likely strongly dominated by different sedimentary rocks, is layered, same as the overburden. The interpretation is based on a three-layer structure.

The topmost layer, defined as **Layer 1**, indicates overburden in all profiles. The likely two glacial cycles in the area's history might have left a changing pattern of glacial till, glaciofluvial and glaciolacustrine sediments. The overburden is interpreted in detail at the descriptions of the profiles.

Layer 2 is interpreted ambivalent. It could be overburden or bedrock. The interpretation version which appears first in the text is considered to be more likely.

Layer 3 is interpreted as bedrock. Basically, two different types of bedrock are assumed in the survey area:

First, some red, moderately conducting bedrock type (100-1000 Ohm meter). It has low chargeability. Possible rocks would be sandstone associated with classic rocks.

Second, some blue, high conducting bedrock type (5-35 Ohm meter) showing higher chargeability. Likely this rock type is represented by shale/siltstone.

Cottonwood_01

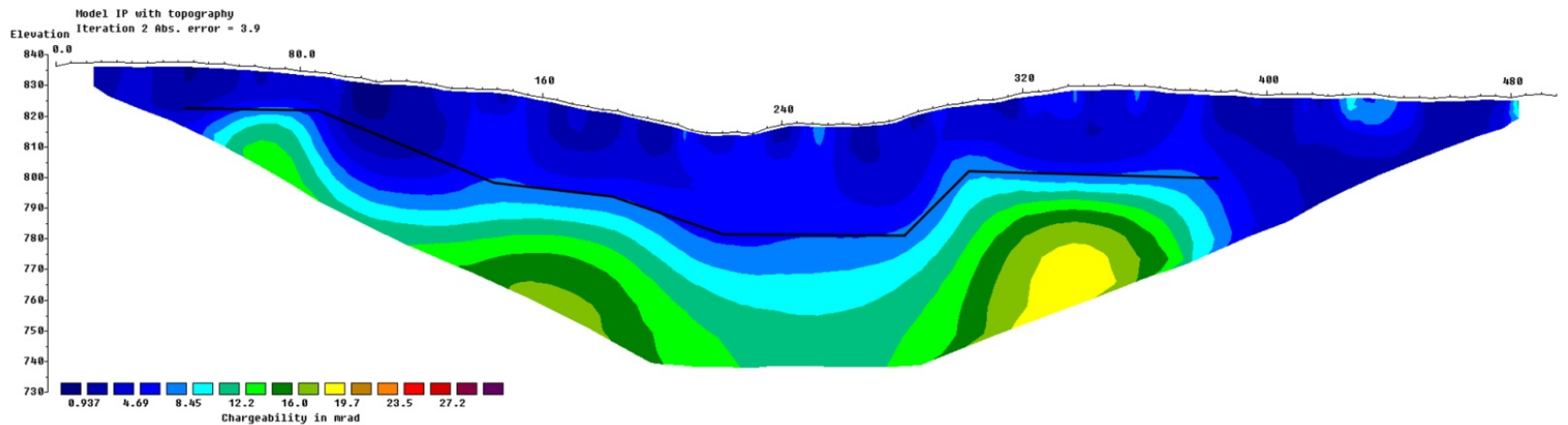
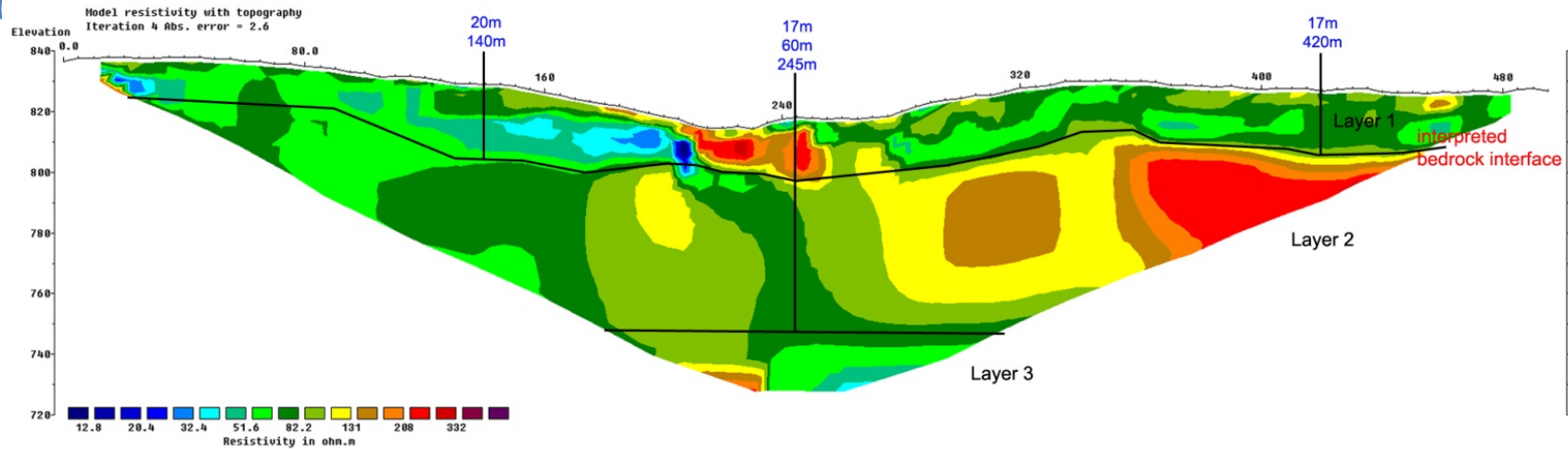
2D Resistivity/IP, Schlumberger array
 100 Electrodes: spacing 5m, Horizontal resolution 2.5m
 Horizontal and vertical measure in [meter], Iteration error in [%]
 Vertical exaggeration in model section display = 1.00

Data acquisition: Stefan Ostermaier, Josy Strunden, 12th May 2011
 Processing: Philipp Moll, 12th May 2011
 Profile shows the ground-layers approx. 15% thicker than in reality.
 Comments to this/these profile/s are [interpretation](#).

Arctic Geophysics Inc.

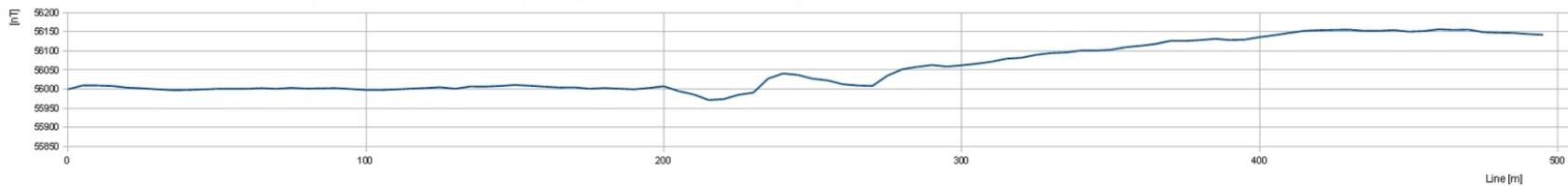


Geophysical Surveys • Prospecting • Consulting



Cottonwood_01 - Total Field Magnetics

Datum point every 5m, Data acquisition: 12th May 2011, Stefan Ostermaier, Processing: 23th May 2011, Stefan Ostermaier, Arctic Geophysics Inc.



Interpretation

Layer 1

This is a well conducting double layer.

At 30-100m, the overburden is quite homogeneous. Based on the data this section could show glaciolacustrine sediments.

Around 160m, the overburden is well layered: The turquoise unit on top of bedrock might indicate the groundwater horizon. The overburden in this section might consist of glaciofluvial gravels and/or glaciolacustrine sediments. At 140m the hypothetical depth to bedrock is 20m.

The blue body at 205m might be a water reservoir fed from the left side and possibly sealed by clay-rich material.

At 210-240m some naturally (less likely technogenically) washed gravels (red) could be located.

The slight magnetic peak around 245m could indicate an alluvial placer containing magnetite.²³

At 240m the hypothetical depth to bedrock is 17m.

²³ Cottonwood workings did state: "The gold was fine-grained with a substantial quantity of black sand" "Technical Review on various exploration licences held by Henning Gold Mines Inc." (Draft 9th May 2011), 5.7.2. Cottonwood.

Definition: Black sand "contains many heavy materials including hematite, magnetite, [...] iron, iron pyrite, silvanites, lead carbonates, sphalerite, chromite, and sheelite, to name the most common. There are many combinations of these as well as many others in small amounts specific to an area and too numerous to list. Suffice it to say, they are all black or grey in color and so are known collectively as black sand."

http://www.hookedongold.com/black_sand_what_is_it.htm (7th June 2011)

Beyond 250m, the resistivity data of the deposits are still relatively homogeneous. The bi-layer might indicate higher humidity in the lower part. This overburden is interpreted as glaciofluvial gravels and/or glaciolacustrine sediments as well. At 420m, the hypothetical depth to bedrock is 17m. There, the bedrock interface looks slightly channel-shaped.

Layer 2

This is a moderately conducting layer showing a horizontal transition of the resistivity.

This layer is interpreted as bedrock.

The transition of resistivity data from left to right (60 - 300 Ohm meter) could indicate a bedrock alteration. A bedrock change is also assumed in profile_03aa at 120m. A fault line could run through these points. A fault named Chiaz is shown on the bedrock map of Levson running right across the survey area north-westerly.²⁴ The BC digital geological map shows a bedrock boundary nearby. The possible fault could also cross profile_02 at 160m where the blue, high conducting bedrock seems to be interrupted.

The range of the resistivity fits with the moderately conducting bedrock group (100-1000 Ohm meter), see above.

²⁴ Levson M. and Timothy R. Giles: Geology of Tertiary and Quaternary Gold-Bearing Placers in the Cariboo Region, British Columbia (93A, B G, H): Figure 5.21 Bedrock Geology Map. In the younger Map "BC Digital Geology Maps" Version 1.0.2005 this fault doesn't exist.

The high conducting, IP-active bedrock around 70 Ohm meter on the left side (green) could be the same rock type like the hypothetical bedrock in profile_03aa: likely a sedimentary rock. The moderately conducting, IP-insensitive bedrock with 100-250 Ohm on the right side (red) could be the same rock type as in profiles (_02, _04²⁵), _03a, _03b (Layer 2): likely a composition of different sedimentary rocks also including clastic rocks.

The IP model roughly repeats the interpreted bedrock interface in the resistivity profile. The chargeability is decreasing to the left and at the alteration zone the data drop which again suggests a possible bedrock change.

The magnetic data indicate a bedrock alteration as well. Also at profile_03aa the moderately conducting bedrock (red) shows higher magnetic data than the well conducting bedrock (green).

Layer 3

This layer shows a sharp vertical resistivity contrast.

This layer might indicate the beginning of the high conducting bedrock (blue) in the depth – also imaged in profiles _02, _04, _03b.

²⁵ In these profiles Layer 2 is interpreted ambivalent.

Cottonwood_02

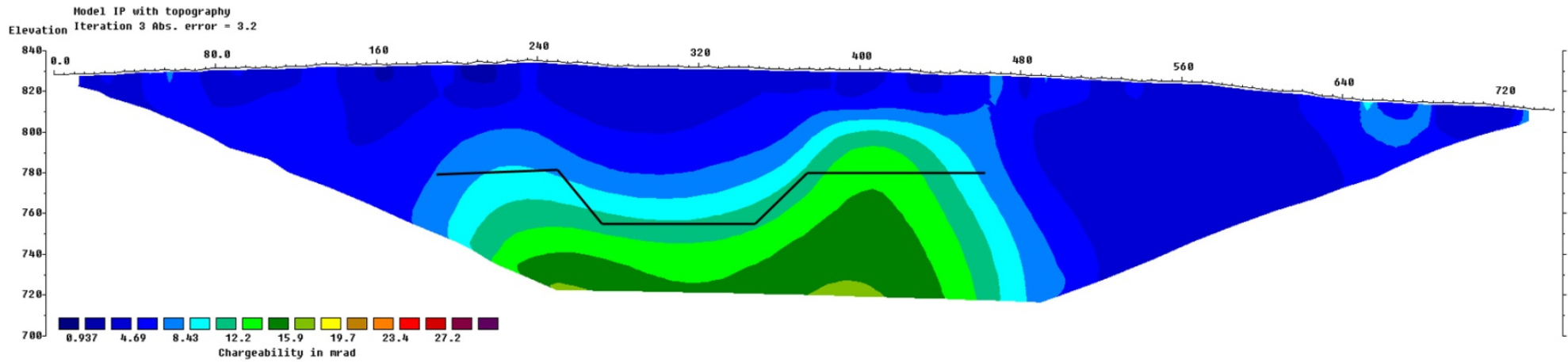
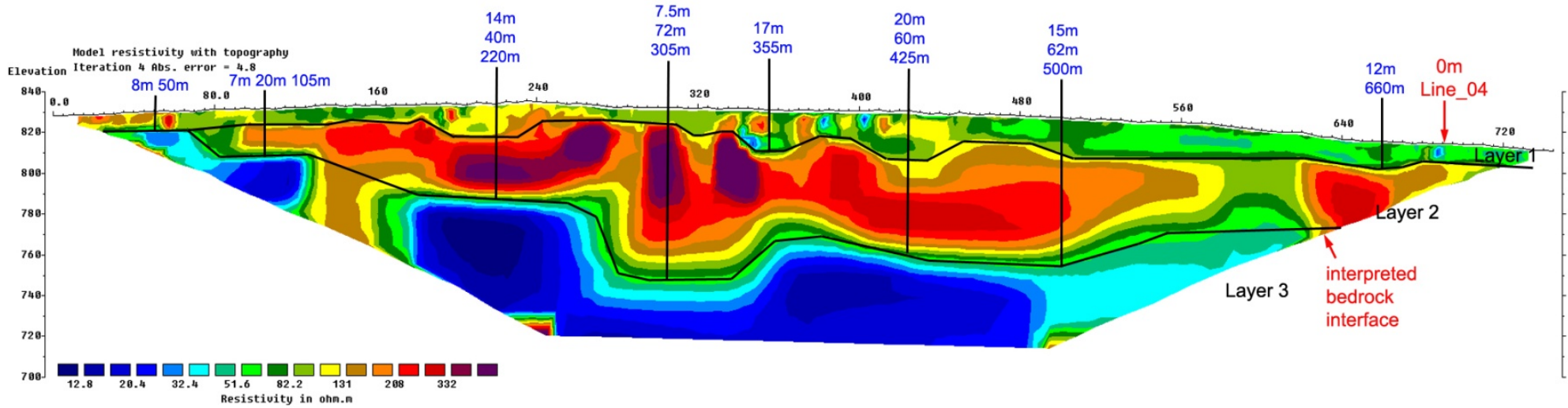
2D Resistivity/IP, Schlumberger array
 150 Electrodes: spacing 5m, Horizontal resolution 2.5m
 Horizontal and vertical measure in [meter], Iteration error in [%]
 Vertical exaggeration in model section display = 1.00

Data acquisition: Stefan Ostermaier, Josy Strunden, 13th-14th May 2011
 Processing: Philipp Moll, 15th May 2011
 Profile shows the ground-layers approx. 15% thicker than in reality.
 Comments to this/these profile/s are interpretation.

Arctic Geophysics Inc.

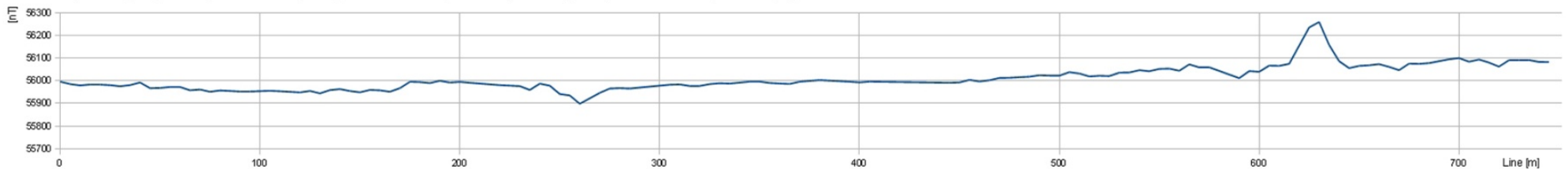


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Cottonwood_02 – Total Field Magnetics

Datum point every 5m; Data acquisition: 14th May 2011, Stefan Ostermaier; Processing: 25th May 2011, Stefan Ostermaier, Arctic Geophysics Inc.



Interpretation

Layer 1

This is a well conducting layer with horizontally changing resistivity.

At 0-450m the overburden looks “patchy” in some sections. It could be till or glaciofluvial/glaciolacustrine sediments which have been secondarily disordered. However, some glaciofluvial or glaciolacustrine units could have been conserved in the channels. The material inside of the channels seems to bear more humidity or saturation in the depth. Some channels (in till or bedrock) were detected around 220m (14m deep); 355m (17m); and 425m (20m).

After 450m, the overburden shows relatively low, homogeneous resistivity data. The deposit seems to be some finer grained sediment. The data shape according to the geological context would be typical for a glaciolacustrine deposit again. The decline topography confirms this interpretation. At possible channel at 660m, 12m deep, coincides with a magnetic high which could indicate a placer deposit. Glaciofluvial and glaciolacustrine sediments can appear in close neighborhood and can spatially overlap. In this glacial area, stationary melt water could have become mobile and the other way around.

Layer 2

This unit shows a moderately conducting, horizontally interrupted ground layer.

This layer could be overburden or bedrock.

The red, moderately conducting layer could be a huge deposit of glacial till. This possibility would be suggested by 1) the shape of the blue bedrock underneath which seems to be mainly formed by a glacier (see below), and 2) the unordered data structure of the material itself (resistivity).

Alternatively, Layer 2 could be an arrangement of different sedimentary rocks consisting of possibly larger amounts of clastic rocks besides sandstone etc.. Such a material could be responsible for the bizarre pattern of the resistivity.

Layer 3

This homogeneous layer has high conductivity.

This layer is interpreted to be some homogeneously high conducting bedrock (5-35 Ohm meter) showing systematically higher chargeability in all profiles of this series. It could be shale or siltstone. The cascaded, straight interfaces look pretty much to be the result of glacial abrasion. The U-shaped channel could have been formed by a pre-glacial stream bearing original river gravels on the bottom. Or the channel could be deepened by glacial abrasion and/or post-glacial melt water drainage. This scenario would implicate the existence of some overburden dominated by till. The interface between Layer 2 and Layer 3 might be 40m deep at 220m; 72m at 305m (channel); 60m at 425m; 62m at 500m.

Cottonwood_04

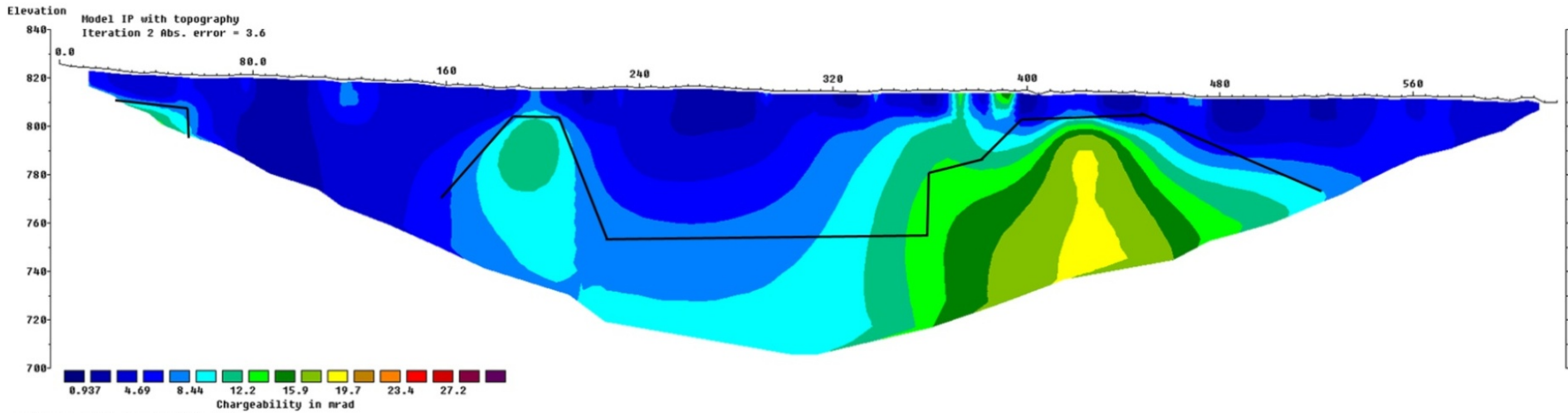
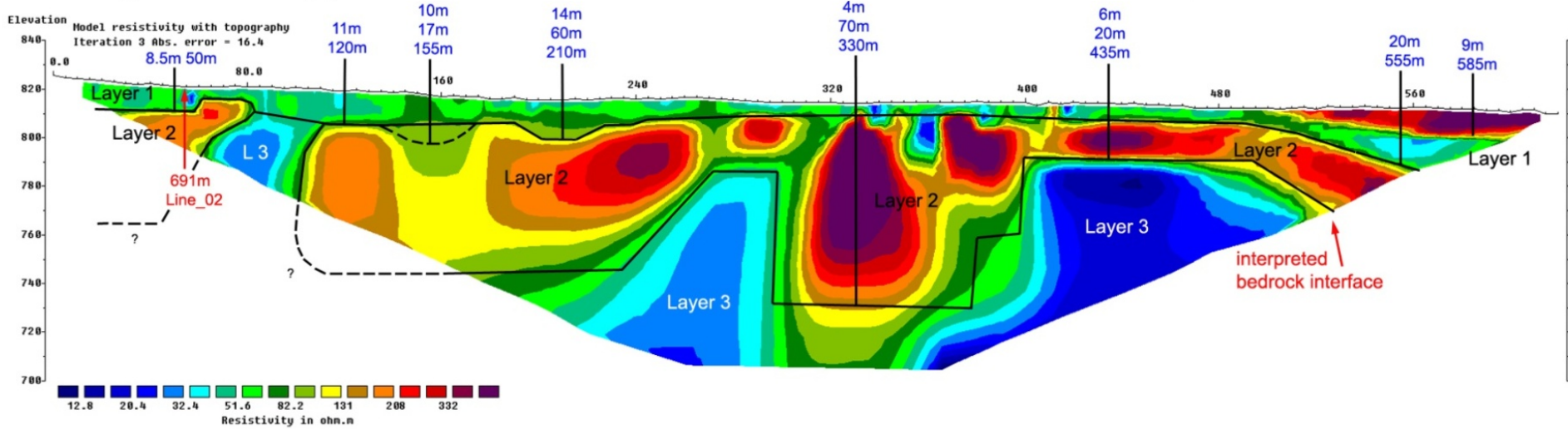
2D Resistivity/IP, Schlumberger array
 125 Electrodes: spacing 5m, Horizontal resolution 2.5m
 Horizontal and vertical measure in [meter], Iteration error in [%]
 Vertical exaggeration in model section display = 1.00

Data acquisition: Stefan Ostermaier, Josy Strunden, 13th June 2011
 Processing: Philipp Moll, 14th June 2011
 Profile shows the ground-layers approx. 15% thicker than in reality.
 Comments to this/these profile/s are [interpretation](#).

Arctic Geophysics Inc.

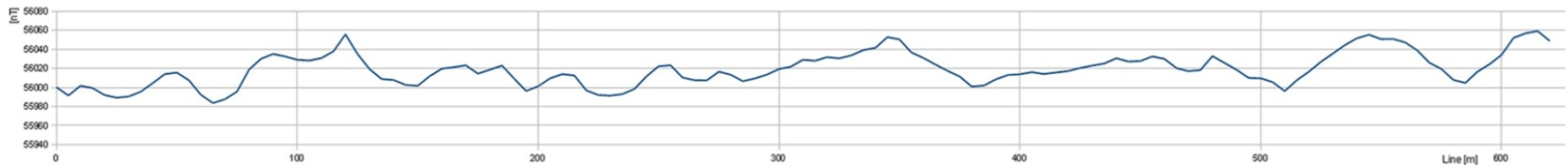


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Cottonwood_04 - Total Field Magnetics

Datum point every 5m; Data acquisition: 13th June 2011, Stefan Ostermaier; Processing: 14th June 2011, Stefan Ostermaier, Arctic Geophysics Inc.



Note:

This profile shows a high iteration error (16.4%). Alternative program setting didn't compensate it. The data acquisition could have been influenced by stronger side influences caused by asymmetrically conducting ground along the measuring line. In this profile, the arrangement of the data zones might be rougher but not wrong since this profile matches the arrangement of neighbour profile_02.

Interpretation

Profile_04 runs almost parallel to profile_02 in a distance of roughly 60m. The overlapping is 54m (accuracy 7m). A right-angled line starting at 0m in profile_04 crosses line_02 at 655m.

Layer 1

This is a relatively homogeneous, well conducting layer changing into a bi-layer.

At 0-500m the topmost layer suggests the continuation of possible glaciolacustrine sediments interpreted in profile_02. Glaciolacustrine deposition could have been a result of ice damming²⁶ of tributary drainages of Cottonwood River and John Boyd Creek. A glaciofluvial channel (in till or bedrock) could be located at 210m (14m deep); it coincides with a slight magnetic

²⁶ Levson M. and Timothy R. Giles: Geology of Tertiary and Quaternary Gold-Bearing Placers in the Cariboo Region, British Columbia (93A, B G, H): Quaternary Geology

high which could indicate a placer.²⁷ Other depressions of Layer 1 which show some magnetic highs are at 50m (8.5m deep); 350m (70m deep); and at the edge of the profile.

After 500m, Layer 2 drops and the overlying overburden of Layer 1 changes into a bi-layer. Here the deposits of the little stream, seen in the survey map (which might have been larger in former times) could have increased the alluvial overburden in this section. This layering looks very similar to the river benches of the Cottonwood River most likely detected in profile_03aa (left side). The chances might be high that in profiles_04 the beginning of the bench system of John Boyd Creek was measured. Analogously to the Cottonwood River, some terrace gravels overlying some glaciolacustrine sediments along the stream could be indicated by the resistivity profile.

Layer 2 and 3

Layer 2 is moderately conducting with some low conducting insular zones.

Layer 3 shows a high conducting, homogeneous data matrix.

Layer 2 and 3 are showing the same character as in profile_02. Layer 2 points to a large deposition of glacial till and could alternatively be bedrock.

²⁷ A correlation between placers and magnetic highs are estimated to be vague in this profile. In this profile the magnetogram shows unusually high variability of the data – other than at neighbour profile_02. The magnetic function could be caused by unknown influences, which could have produced the possibly rougher resistivity data set as well. This is just an assumption. However, the magnetic data are not basically disclaimed to be correlative with placers and other mineral features in the subsurface.

Layer 3, representing the blue, high conducting zones, systematically showing higher chargeability, could be shale or siltstone bedrock. The IP model roughly images this rock zone again.

Layer 3 shows a bedrock depression (70m deep at 330m) same deep and carrying same looking material as in profiles_02. As mentioned above, these depressions could be channels produced by an old pre-glacial stream and/or historical ice flow followed by melt water drainage. If this was the case, these subsurface conditions might have been created within the last two glaciations (before 51 000 and after 40 000 years ago).²⁸ If the red layer would be some combined sedimentary bedrock, its age would be lots of million years.

The glacial and post glacial transport might have run across the profiles in north-western direction meaning parallel to the Cottonwood River.²⁹ So the two prominent channels discussed in profiles_02 and_04 seem to appear also in other profiles: The channel in profile_02 at 320m is most likely the continuation of the channel in profile03a at 350m. And the channel in profile_04 at 340m is most likely the continuation of the channel in profile

03b at 560m. The distance between the two channels is 640m and 700m! And there could be one more channel in between these two channels, suggested by profile_04 around 180m and profile_03a around 560m. The assumption of possibly three parallel-running channels along the valley, produced by glacial transport, would implicate that Layer 2 in profiles_02, _04, and _03aa is not bedrock but overburden, of course. This consideration would be supported by following additional aspects: First, Layer 2 in profiles_02, _04, and _03aa is showing some relatively heterogeneous resistivity data. Second, the channels cut into the red, moderate conducting material (profiles_03a and _03b) are less deepened than the channels in the blue, high conducting bedrock (profiles_02 and _04)! This would be typical since higher conducting bedrock is usually softer.

Alternatively, Layer 2 in profile_04 could be an arrangement of different sedimentary rocks consisting of possibly larger amounts of clastic rocks besides sandstone etc.. Such a material could be responsible for the bizarre pattern of the resistivity in Layer 2.

²⁸ Levson M. and Timothy R. Giles: Geology of Tertiary and Quaternary Gold-Bearing Placers in the Cariboo Region, British Columbia (93A, B G, H): Quaternary Geology

²⁹ The main direction of the ice should have been westerly. Ice flow between 270 and 360 degree might have happened at some areas (Levson). Larger valleys like Cottonwood River might have led the ice masses in its own direction.

Levson M. and Timothy R. Giles: Geology of Tertiary and Quaternary Gold-Bearing Placers in the Cariboo Region, British Columbia (93A, B G, H): Quaternary Geology

Cottonwood_03aa

2D Resistivity/IP, Schlumberger array
 125 Electrodes: spacing 5m, Horizontal resolution 2.5m
 Horizontal and vertical measure in [meter], Iteration error in [%]
 Vertical exaggeration in model section display = 1.00

Data acquisition: Stefan Ostermaier, Josy Strunden, 11th June 2011
 Processing: Philipp Moll, 14th June 2011
 Profile shows the ground-layers approx. 15% thicker than in reality.
 Comments to this/these profile/s are interpretation.

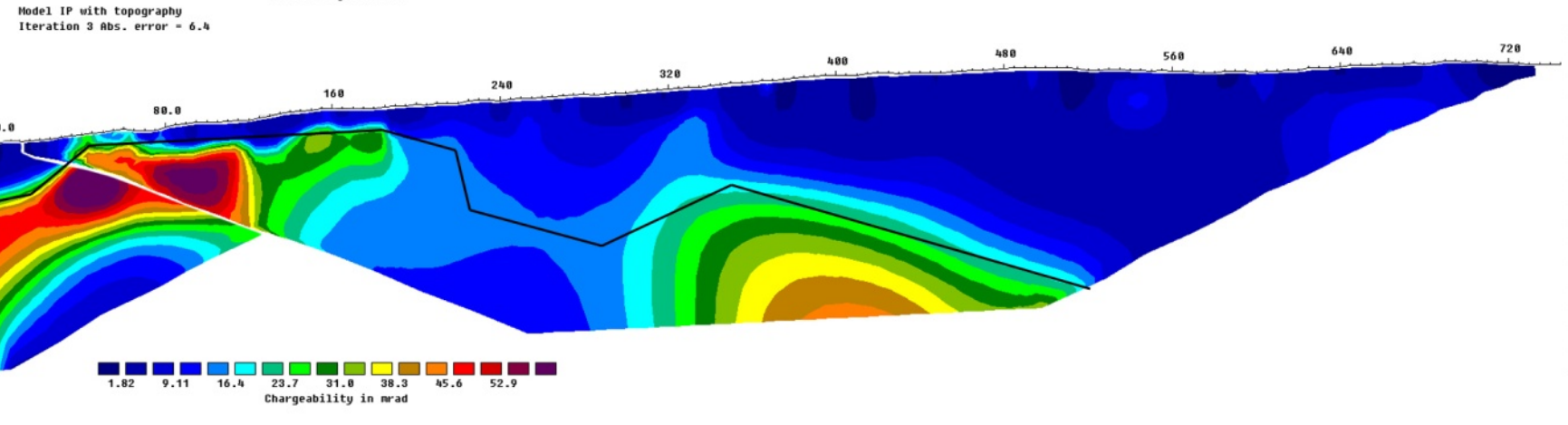
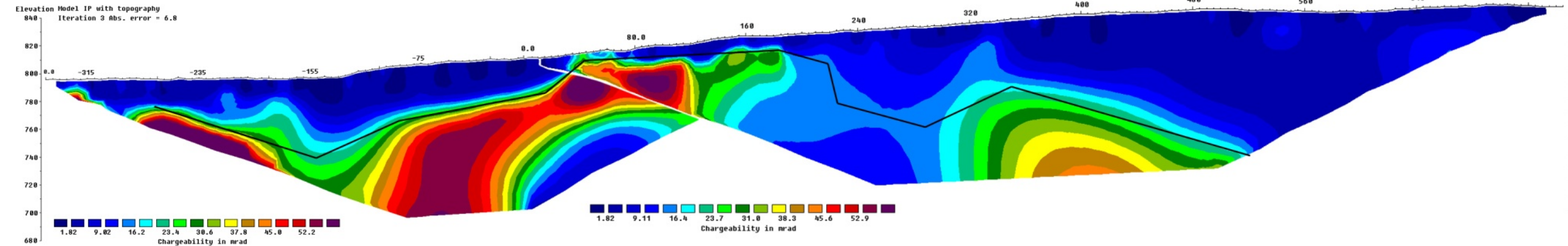
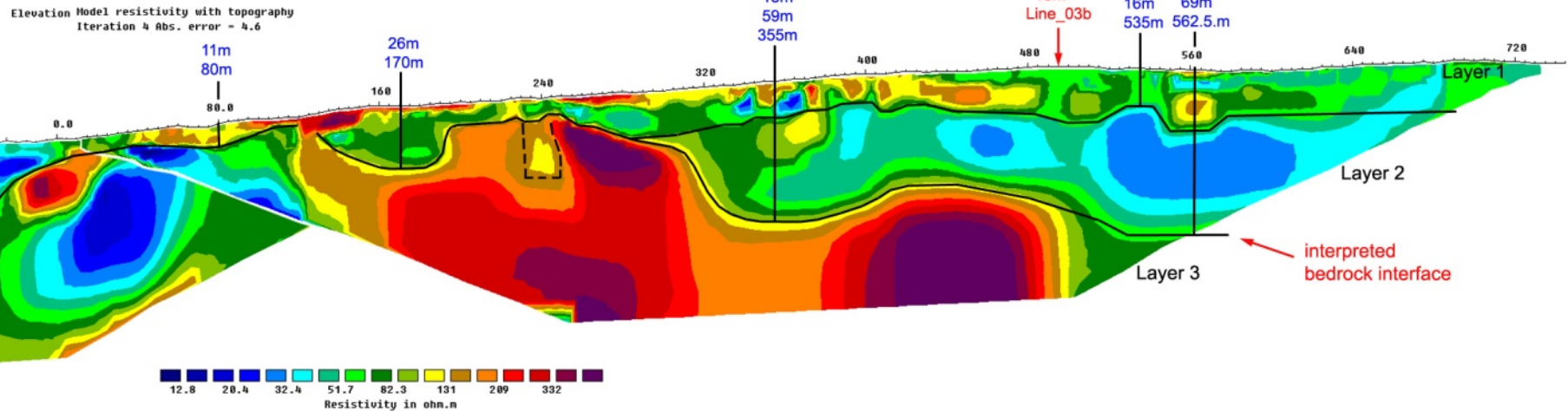
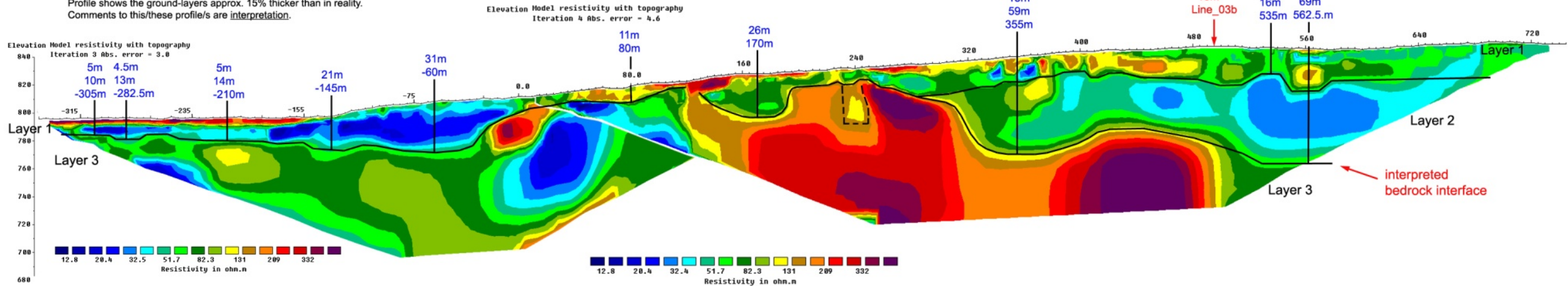
Cottonwood_03a

2D Resistivity/IP, Schlumberger array
 150 Electrodes: spacing 5m, Horizontal resolution 2.5m
 Horizontal and vertical measure in [meter], Iteration error in [%]
 Vertical exaggeration in model section display = 1.00

Data acquisition: Stefan Ostermaier, Josy Strunden, 22nd May 2011
 Processing: Philipp Moll, 23rd May 2011
 Profile shows the ground-layers approx. 15% thicker than in reality.
 Comments to this/these profile/s are interpretation.

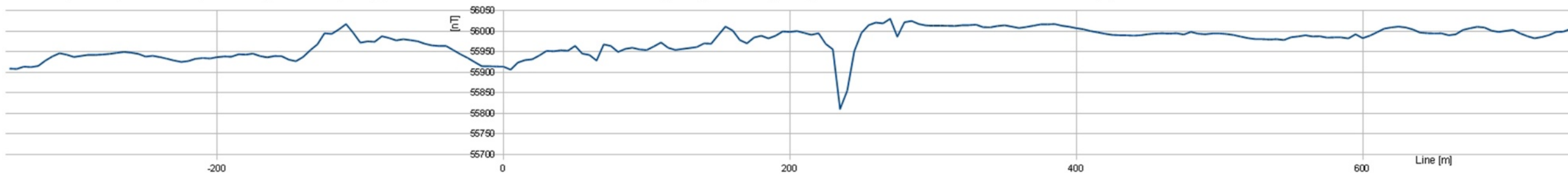
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Cottonwood_03aa + 03a - Total Field Magnetics

Datum point every 5m; Data acquisition: Line_03a 22th May, Line_03aa 11th June 2011, Stefan Ostermaier; Processing: Line_03a 23th May, Line_03aa 14th June 2011, Stefan Ostermaier, Arctic Geophysics Inc.



Points of Intersection of Resistivity/IP Profiles

Line	Profile Meter	GPS Coordinates UTM Zone 10 WGS 1984
03a	495	555446 - 5879699
03b	10	555444 - 5879701

Note

These two profiles are based on independently taken data sets, with an interval of 20 days. The two data sets were not melded together because of following reasons. 1) The water situation in the ground must have changed in the meantime which have changed the data in the overlapping zone of the older profile. 2) The overlapping zone would have to have been significantly longer to fill the delta on the bottom between the two profiles with data. Such a long line was impossible in a day because of difficult working conditions in this section (swamp).

Interpretation

Layer 01

Over its long distance the conducting behavior of the layer shows quite different sections.

At -345m to -155m the topmost layer is a double layer. This section likely represents the scenario seen on the photo at plate 23 (see above): Some “horizontally bedded, low-terrace gravels unconformably overlying deformed glaciolacustrine sediments

along the Cottonwood River”³⁰. The possible gravel unit (red), being approx. 5m deep, seems to be poor in fine sediments (matrix) which might have been washed out; this causes low conductivity. The hypothetical glaciolacustrine sediments show low, homogeneous resistivity and are a nice example for the interpretation of the same/similar material at other placers in the survey area. The bedrock could start at 10-14m. A possible channel is located at -282m (13m deep).

At -155m to 0m two channels in bedrock might be located: A small one at -145m (21m deep), and a larger one at -60m (31m deep). The overburden of the channels is quite saturated which could cover the interfaces of possible sub-layers. Possible glaciofluvial and glaciolacustrine sediments cannot be differentiated in this overburden. In this section magnetic data are higher indicating possible placers.

The red body at 0m could be a fragment of the red, moderately conducting sedimentary bedrock to the right.

Around 80m a small terrace or channel could be measured. The material underneath (blue) is high conductive. This could be some weathered bedrock filled with stationary water which significantly increases the conductivity. Weathering seems to be plausible at this location because of the bedrock alteration which could indicate a fault line (see above).

³⁰ Levson M. and Timothy R. Giles: Geology of Tertiary and Quaternary Gold-Bearing Placers in the Cariboo Region, British Columbia (93A, B G, H): Low-Level Terraces

The hypothetical bedrock depression at 170m could be a zone eroded by weathering as well. It would contain less water, but could be filled with sediments. Nevertheless, this bedrock depression could alternatively be an alluvial channel, of course. However, its shape and its location close to the hypothetical bedrock alteration seem to make an alluvial channel less likely.

After 240m, Layer 1 is quite disordered. This material is interpreted as glacial till showing changing saturation.

The channel at 560m (26m deep) would likely be in till – not in bedrock. A seal effect produced by denser sediments (possibly supported by clay) is assumed. No magnetic signal at this channel was measured, possibly because of too much depth.

After 570m, the topmost overburden looks glaciolacustrine. Thickness around 16m.

Layer 2

It is a well conducting layer showing relatively homogeneous data.

This layer, as mentioned above, is like some overburden. The homogeneity of the low resistivity data could refer to a domination of glaciolacustrine sediments. Above the large channel at 355m (59m deep) the overburden could consist of glaciofluvial gravels on top of glaciolacustrine sediments. This channel does not coincide with higher magnetic data: Possible heavy placer minerals would likely not show up in the magnetogram since they would lay too deep.

Less likely, Layer 2 could be some sedimentary bedrock. The imagination of bedrock is just suggested by the possible continuation of Layer 2 (blue) into the blue bedrock zone profile_03b. However, some high conducting bedrock might start in profile_03a, Layer 3, at 480m already. So the blue bedrock in profile_03b might be the continuation of Layer 3 in profile_03a, not of Layer 2.

Layer 03

A lower conducting layer with a low change of data is changing into a moderately conducting layer with relatively homogeneous resistivity data.

The green, well conducting bedrock at -345 to 120m (70-100 Ohm meter) might be the same sedimentary bedrock type as seen on the left side of profile_01. Since this bedrock is not IP-active, it should not belong to the group of shale/siltstone/claystone.

The red, moderately zone was interpreted as bedrock. However the existence of a large deposition of glacial till would not be impossible (see above)

The plausible interpretation of the green and red material to be bedrock (Layer 3) is slightly weakened because a deep drill hole, estimated to be at least 50 m deep, was observed in the field at 240m!³¹ And the red data zone around the drill hole is looking very similar to the red material in profile_02 (Layer 2) which was interpreted as overburden (favored interpretation). The

³¹ The crew did see a steel culvert in the ground which must have affected the abnormal magnetic low point. The crew did roughly check the depth of the hole by dropping in a stone.

imagination of a huge pile of till besides the river would not be against the principles of the local glacial geology.

Cottonwood_03b

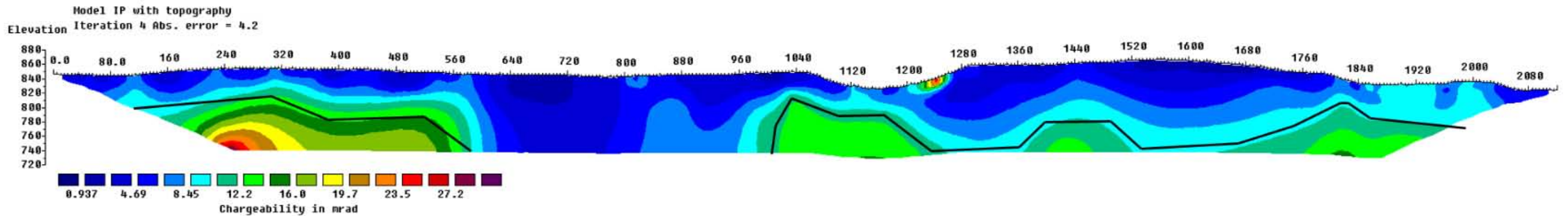
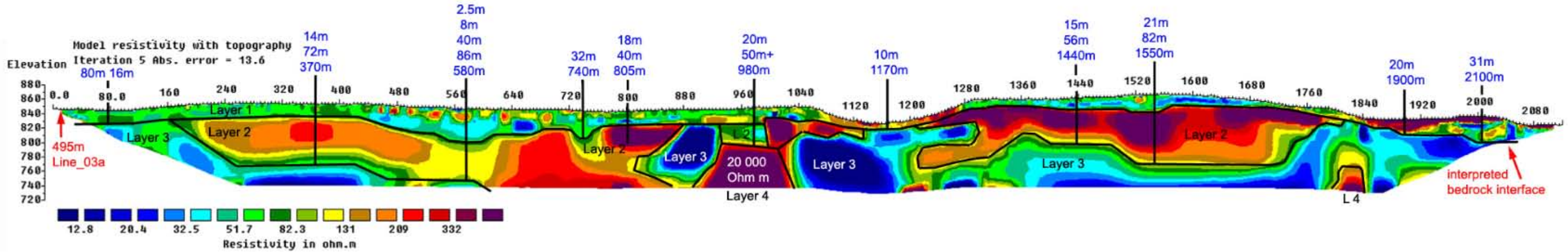
2D Resistivity/IP, Schlumberger array
 425 Electrodes: spacing 5m, Horizontal resolution 2.5m
 Horizontal and vertical measure in [meter], Iteration error in [%]
 Vertical exaggeration in model section display = 1.00

Data acquisition: Stefan Ostermaier, Josy Strunden, 15th-18th, 21st May 2011
 Processing: Philipp Moll, 30th May 2011
 Profile shows the ground-layers approx. 15% thicker than in reality.
 Comments to this/these profile/s are interpretation.

Arctic Geophysics Inc.

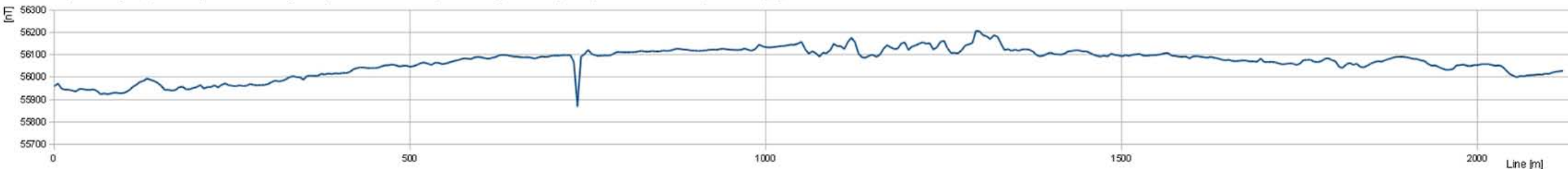


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Cottonwood_03b – Total Field Magnetics

Datum point every 5m; Data acquisition: 22th May 2011, Stefan Ostermaier; Processing: 25th May 2011, Stefan Ostermaier, Arctic Geophysics Inc.



Note

The iteration error is larger at this profile compared to the other ones of this series (13,6%). Interpretation: It is a very large data set: errors are adding up. Plus, the Schlumberger array was used which is the right one to image some layering. However, the area around the red body at 960m is presenting vertical data boundaries which are extremely high contrasted: Two big bodies with 5 Ohm meter in the core are flanking a 20 000 Ohm meter zone (Layer 4). Especially this pattern might increase the complexity of the data set for the inversion process which might make it harder to calculate the data into a block arrangement showing the least possible discrepancy. - Despite the 13% iteration error this profile should be realistic. We sometimes got profiles having this error level which did fit with the character of the profile series and were confirmed by drilling or trenching.

This profile image has a lack of pixels because the RES2DINV inversion program is doing screen shots only and cannot produce images having more pixels than the monitor provides. So this very large picture has lower quality.

The topographical depression around 1150m is associated with the topography of the small former lake extending southwards (see Survey Map above).

The enormous magnetic low at 725m is most likely produced by a buried steel rope seen on the surface. The magnetic peak around 1300m might be caused by iron scrap lain around.

Interpretation

Layer 1

Over its long distance the conducting behaviour of the layer shows quite different sections.

At 0-440m, the topmost layer, around 16m thick, seems to be the continuation of the glaciolacustrine sediments interpreted at the right side of neighbour profile_03a. In both profiles the resistivity is relatively homogeneous and around 60 Ohm meter.

At 440-880m, the overburden is multi-layered showing a “bubbly” structure. Around the channel at 580m, the overburden looks pretty similar to the overburden around the channel at 355m in profile_03a. The bubbly pattern in the upper part is again interpreted as till containing different moisture and likely different materials. The track of the roughly equidistant, red little bodies could represent clasts or even zones with boulders (?). In the depth the well conducting homogeneous layer (turquoise) is likely some glaciolacustrine sediment being moister than the deposit to the left. Gravel layers do likely exist in this section, but they might be not measured because they could be too thin, or their data are too similar.³² In middle of the channel, at 580m, the layer interfaces of the overburden might measure 2.5m, 8m, and 40m (bedrock).

A small, 32m deep channel could be located at 740m. The deeper portion of its overburden looks well ordered as being a sign for possible alluvial deposition.

³² More sub-layers would likely be detectable in this channel using lower electrode spacing at the geoelectrical data acquisition.

At 880-960m, the overburden looks well bi-layered. An alluvial type of deposition would be likely. Depth: 20m.

At 960-1080m, the disturbed resistivity refers to till containing different moisture and likely different materials.

At 1080-1280m, in the trough, the resistivity goes up because of likely washed gravels.

At 1280-1410m, the data point to glaciolacustrine sediments.

At 1410-1580m, a bi-layered structure appears at the channel. Glaciolacustrine and glaciofluvial sediments could be associated to create a small post-glacial, alluvial layer system. Depth of the channel: 21m at 1550m.

At 1580-1680m, glaciolacustrine sediments up to 15m thick are assumed.

At 1680-1840m, the glacial deposit could be colluvially influenced.

At 1840-1120m, the overburden might thicken on top of possible bedrock benches. The violet material on top could be again washes gravels. The resistivity pattern looks disordered after 2000m which could be fringe effect. The bedrock could be 20 and 31m deep at the benches.

The magnetic data hardly indicate some deposits of heavy placer minerals along the measuring line. However, not all placer deposits are rich in magnetite. Around the above-ground

channel, the magnetic curve is quite changeable. There could be some spread placer deposits – not too likely.

Layer 2, 3 and 4

This layer is a thick, moderately conducting, horizontally disturbed data zone.

Layer 2 indicates the red, moderately conducting, IP-inactive bedrock interpreted in profiles_01, _02, _04, _03a. This hypothetical bedrock is underlain by the blue, high conducting, IP-active bedrock (Layer 3) detected in profiles_01, _02, _04. These bedrock types might be some sedimentary rocks, suggested by the bedrock BC Digital Bedrock Map (see above).³³

It would be not impossible that Layer 2 could be overburden. This possibility would be suggested by profiles_02 and _04: At these profiles some red, moderately conducting overburden is interpreted on top of blue, well conducting bedrock (favoured interpretation). If the red resistivity zone would be overburden, the bedrock would be over 100m deep around 700m. And around 1600m there would be a paleochannel, 82m deep, likely being pre-glacial, possibly bearing original river gravel on the bottom.

At 960m, a single, very low conducting bedrock body (truncated pyramid, violet) (Layer 4) is seen on the bottom of the profile.

³³ Technical Review on various exploration licences held by Henning Gold Mines Inc.“ (Draft 9th May 2011): 5.4. Local Geology: Quesnel; 5.4. Local Geology, Figure 5-16

This rock body shows around 20 000 Ohm meter.³⁴ This rock can be interpreted as an intrusive mass which did hit through the two other bedrock layers. Large rock fragments of the red bedrock could have been pressed upwards, now located at 800m and 1000m (violet). The two blue, high conducting rock bodies flanking the hypothetical intrusion seem to have been transported upwards from the depth. It might be less likely that this high conductivity could have been produced by contact metamorphism. Another intrusion could be located at 1820m in the profile. Both intrusions could be granitic, see Bedrock Geology Map (BC Digital) above.

³⁴ The 20 000 Ohm meter data level is shown in an inversion model not using any settings to modify the data range (normal iteration mode). At the model seen in this documentation the "limit range" setting was used to calculate this profile. Thus, the rock body did show around 5000 Ohm meter. Then the inversion model was imaged using the uniform resistivity scale. The finer resistivity scale shows the low data zones more differentiated.

13. Qualifications

Philipp Moll

Box 747, Dawson City, Yukon, Y0B 1G0



Phone: 001-867-993 3671 (Canada)

01149 (0)781 970 5893 (Germany)

Email: philipp.moll@arctic-geophysics.com

Certificate of Qualifications

I, Philipp Moll, currently residing at "Am Holderstock 7, 77652 Offenburg, Germany, do hereby certify that:

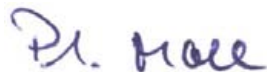
1. I have studied Geology at the University of Freiburg, Germany.
2. I have visited of geophysical field courses at the University of Karlsruhe in Germany.
3. I have been working for Arctic Geophysics Inc. since June 2007 (foundation). For this company I have carried out geophysical field surveys using 2D Resistivity, Induced Polarization, and Magnetics: Data acquisition, processing, interpretation, documentation.
4. I have done geophysical surveying for mining exploration in the Yukon since 2005, and geological prospecting for precious metals and minerals in the Yukon, NWTs, and Alaska since 1989
5. I have written the following publications/reports:
 - A) Numerous Assessment Reports about geophysical surveys done for Yukon mining companies, filed at Yukon Mining Recorder, Dawson City and Whitehorse, Yukon.
 - B) Publication about a geophysical survey (45 field days) for the Yukon Government: Yukon Geological Survey:
<http://www.geology.gov.yk.ca/recent.html> Open Files:
Moll, P., & Ostermaier, S., 2010. 2D Resistivity/IP Data Release for Placer Mining and shallow Quartz Mining - Yukon 2010. Yukon Geological Survey Miscellaneous Report MR-4. [PDF Report](#) [10.3 MB ] & [Data Profiles](#), 45.4 MB ]

14. Confirmation

I have prepared, along with Fran Macpherson, this report entitled 2D Resistivity Survey on the Mary Property for assessment credit, and reviewed the data contained in the report titled: "Geophysical Survey for Placer Prospecting at Mary Creek". The survey was carried out by Arctic Geophysics Inc.

Offenburg, Germany, 30th October, 2011

"Signed and Sealed" Philipp Moll



Philipp Moll

Literature

Location-specific

Bauer S., Kästner M. Fact Finding Mission and Preliminary Report (2010),

Cohen, H. Feasibility Study for HMMC (1980)

CVG Underground plan, L. Sinclair, 8th May 2011

D.O. Donovan et alii: "Technical Review on various exploration licences held by Henning Gold Mines Inc." (Draft 9th May 2011) about Quesnel Mining area

Levson M. and Timothy R. Giles: Geology of Tertiary and Quaternary Gold-Bearing Placers in the Cariboo Region, British Columbia (93A, B G, H). 1993

Roed M. A., Geology of the Handy Claims (1987)

Roed M. A., Preglacial Auriferous Mud Fows of Mary Creek and the Coldspring Volcanic Center, Quesnel Trough, British Columbia (1987)

Tremaine, C. W. Feasibility Study: Wingdam Property (1963)

Literature – Background

Chesterman W. Ch. and Lowe K.E. Field Guide to Rocks and Minerals - North America, Chanticleer Press Inc. New York 2007

Evans A.M. Erzlagerstättenkunde, Ferdinand Enke Verlag Stuttgart (1992)

Griffiths, D.H.,Turnbull, J. and Olayinka,A.I. Two dimensional resistivity mapping with a computer-controlled array, First Break 8: 121-129 (1990)

Griffiths, D.H. and Barker, R.D. Two-dimensional resistivity imaging and modeling in areas of complex geology. Journal of Applied Geophysics 29 : 211 - 226. (1993)

Keller, G.V.and Frischknecht, F.C. Electrical methods in geophysical prospecting. Oxford: Pergamon Press Inc. (1966)

Loke M.H. and Barker R.D. Rapid least-squares inversion of apparent resistivity pseudosections by a quasi-Newton method. Geophysical Prospecting 44: 131-152 (1996)

Ostensoe Eric A. "Report on the Gladstone Creek, Placer Gold Property, Kluane Area" (Feb 1984), for: CATEAR RESOURCES LTD.

Press F., Siever R., Grotzinger J., Thomas H.J. Understanding Earth, W.H. Freeman and Company, New York (2004)

Robb L. Introducing to Ore-Forming Processes, Backwell Science Ltd., 2005

Maps

"BC Digital Geology Maps" Version 1.0.2005

Massey, N.W.D., MacIntyre, D.G., Desjardins, P.J. and Cooney, R.T., 2005: Digital Geology Map of British

Columbia: Whole Province, B.C. Ministry of Energy and Mines, Geofile 2005-1, scale 1:250,000

Web Sources

http://www.hookedongold.com/black_sand_what_is_it.htm (7th June 2011)

Appendix

Rock type	Resistivity range (Ωm)
Granite porphyry	4.5×10^3 (wet) – 1.3×10^6 (dry)
Feldspar porphyry	4×10^3 (wet)
Syenite	10^2 – 10^6
Diorite porphyry	1.9×10^3 (wet) – 2.8×10^4 (dry)
Porphyrite	10 – 5×10^4 (wet) – 3.3×10^3 (dry)
Carbonatized porphyry	2.5×10^3 (wet) – 6×10^4 (dry)
Quartz diorite	2×10^4 – 2×10^6 (wet) – 1.8×10^5 (dry)
Porphyry (various)	60 – 10^4
Dacite	2×10^4 (wet)
Andesite	4.5×10^4 (wet) – 1.7×10^2 (dry)
Diabase (various)	20 – 5×10^7
Lavas	10^2 – 5×10^4
Gabbro	10^3 – 10^6
Basalt	10 – 1.3×10^7 (dry)
Olivine norite	10^3 – 6×10^4 (wet)
Peridotite	3×10^3 (wet) – 6.5×10^3 (dry)
Hornfels	8×10^3 (wet) – 6×10^7 (dry)
Schists	
(calcareous and mica)	20 – 10^4
Tuffs	2×10^3 (wet) – 10^5 (dry)
Graphite schist	10 – 10^2
Slates (various)	6×10^2 – 4×10^7
Gneiss (various)	6.8×10^4 (wet) – 3×10^6 (dry)
Marble	10^2 – 2.5×10^8 (dry)
Skarn	2.5×10^2 (wet) – 2.5×10^8 (dry)
Quartzites	
(various)	10 – 2×10^8
Consolidated shales	20 – 2×10^3
Argillites	10 – 8×10^2
Conglomerates	2×10^3 – 10^4
Sandstones	1 – 6.4×10^8
Limestones	50 – 10^7
Dolomite	3.5×10^2 – 5×10^3
Unconsolidated wet clay	20
Marls	3–70
Clays	1–100
Oil sands	4–800

Type	Susceptibility $\times 10^3$ (SI)	
	Range	Average
<i>Sedimentary</i>		
Dolomite	0–0.9	0.1
Limestones	0–3	0.3
Sandstones	0–20	0.4
Shales	0.01–15	0.6
Av. 48 sedimentary	0–18	0.9
<i>Metamorphic</i>		
Amphibolite		0.7
Schist	0.3–3	1.4
Phyllite		1.5
Gneiss	0.1–25	
Quartzite		4
Serpentine	3–17	
Slate	0–35	6
Av. 61 metamorphic	0–70	4.2
<i>Igneous</i>		
Granite	0–50	2.5
Rhyolite	0.2–35	
Diorite	1–35	17
Augite-syenite	30–40	
Olivine-diabase		25
Diabase	1–160	55
Porphyry	0.3–200	60
Gabbro	1–90	70
Basalts	0.2–175	70
Diorite	0.6–120	85
Pyroxenite		125
Peridotite	90–200	150
Andesite		160
Av. acidic igneous	0–80	8
Av. basic igneous	0.5–97	25
<i>Minerals</i>		
Graphite		0.1
Quartz		–0.01
Rock salt		–0.01
Anhydrite, gypsum		–0.01
Calcite	–0.001–	–0.01
Coal		0.02
Clays		0.2
Chalcopyrite		0.4
Sphalerite		0.7
Cassiterite		0.9
Siderite	1–4	
Pyrite	0.05–5	1.5
Limonite		2.5
Arsenopyrite		3
Hematite	0.5–35	6.5
Chromite	3–110	7
Franklinite		430
Pyrrhotite	1–6000	1500
Ilmenite	300–3500	1800
Magnetite	1200–19200	6000

Telford et al. (1990)

List of Costs

2011 Statement of Costs

Cottonwood Geophysical Program

Project Conducted from May 11 to June 26 2011

Date	Item	Contractor	Description	Days	Km	Item Cost	Total
11.May.11	Geophysical Lines	Arctic Geophysics Inc.	Inspection of Ground	1,0		\$500,00	\$500,00
12. - 19.05.2011	Geophysical Lines	Arctic Geophysics Inc.	Field Crew (2 people)	8,0		\$1.050,00	\$8.400,00
21-22.05.2011	Geophysical Lines	Arctic Geophysics Inc.	Field Crew (2 people)	2,0		\$1.050,00	\$2.100,00
11.Jun.11	Geophysical Lines	Arctic Geophysics Inc.	Field Crew (2 people)	1,0		\$1.050,00	\$1.050,00
13.Jun.11	Geophysical Lines	Arctic Geophysics Inc.	Field Crew (2 people)	1,0		\$1.050,00	\$1.050,00
	Motel Charges	Troll Resort Ltd. (Arctic)	Accommodation				\$1.433,60
	Motel Charges	Talisman Inn (Arctic)	Accommodation				\$929,04
	Transportation	Arctic Geophysics Inc.	Vehicle	15,0		\$50,00	\$750,00
			Kilometers		600,0	\$0,65	\$390,00

Sub-Total

\$16.602,64

Report			
Data	Arctic Geophysics Inc.	Data processing, interpretation	\$4.500,00
Report	Arctic Geophysics Inc.	Report Preparation	\$900,00
Report	Arctic Geophysics Inc.	Printing, binding, shipping	\$50,00

Sub-Total

\$5.450,00

Total Value of Work

\$22.052,64

Total Person Days = 24

GPS Data

Cottonwood 01

Electrode No.	Location in Profile [m]	GPS Coordinates UTM Zone 10 WGS 1984	GPS Accuracy [m]	Post
1	0	554329 5880982	5	*
2	5	554335 5880980	5	
3	10	554341 5880978	5	
4	15	554346 5880980	5	
5	20	554349 5880981	5	
6	25	554354 5880982	5	
7	30	554359 5880981	5	
8	35	554364 5880980	5	
9	40	554367 5880981	5	
10	45	554373 5880982	5	
11	50	554378 5880980	5	
12	55	554384 5880982	5	
13	60	554390 5880983	5	
14	65	554395 5880982	5	
15	70	554399 5880982	5	
16	75	554405 5880982	5	
17	80	554407 5880983	5	
18	85	554412 5880986	5	
19	90	554417 5880987	5	
20	95	554422 5880988	5	
21	100	554427 5880989	5	
22	105	554432 5880988	5	
23	110	554439 5880989	5	
24	115	554440 5880992	5	
25	120	554445 5880994	5	*
26	125	554452 5880994	5	
27	130	554459 5880993	5	
28	135	554463 5880991	5	
29	140	554467 5880991	5	

Electrode No.	Location in Profile [m]	GPS Coordinates UTM Zone 10 WGS 1984	GPS Accuracy [m]	Post
30	145	554470 5880994	5	
31	150	554475 5880993	5	
32	155	554483 5880993	5	
33	160	554490 5880991	5	
34	165	554495 5880991	5	
35	170	554497 5880994	5	
36	175	554502 5880994	5	
37	180	554509 5880993	5	
38	185	554515 5880993	5	
39	190	554517 5880994	5	
40	195	554520 5880995	5	
41	200	554526 5880994	5	
42	205	554532 5880993	5	
43	210	554535 5880994	5	
44	215	554538 5880996	5	
45	220	554543 5880995	5	
46	225	554550 5880994	5	
47	230	554555 5880995	5	
48	235	554560 5880994	5	
49	240	554563 5880996	5	
50	245	554570 5880996	5	*
51	250	554575 5880997	5	
52	255	554577 5881001	5	
53	260	554585 5881000	5	
54	265	554591 5881000	5	
55	270	554594 5881002	5	
56	275	554595 5881004	5	
57	280	554602 5881004	5	
58	285	554608 5881002	5	

Electrode No.	Location in Profile [m]	GPS Coordinates UTM Zone 10 WGS 1984	GPS Accuracy [m]	Post
59	290	554611 5881006	5	
60	295	554615 5881006	5	
61	300	554622 5881005	5	
62	305	554625 5881004	5	
63	310	554631 5881004	5	
64	315	554634 5881005	5	
65	320	554641 5881005	5	
66	325	554645 5881007	5	
67	330	554650 5881006	5	
68	335	554657 5881006	5	
69	340	554660 5881004	5	
70	345	554664 5881005	5	
71	350	554673 5881005	5	
72	355	554678 5881003	5	
73	360	554682 5881004	5	
74	365	554686 5881007	5	
75	370	554691 5881007	5	*
76	375	554696 5881007	5	
77	380	554700 5881008	5	
78	385	554706 5881009	5	
79	390	554711 5881008	5	
80	395	554716 5881007	5	

Electrode No.	Location in Profile [m]	GPS Coordinates UTM Zone 10 WGS 1984	GPS Accuracy [m]	Post
81	400	554721 5881008	5	
82	405	554724 5881010	5	
83	410	554730 5881008	5	
84	415	554734 5881011	5	
85	420	554737 5881011	5	
86	425	554741 5881012	5	
87	430	554747 5881014	5	
88	435	554752 5881014	5	
89	440	554759 5881015	5	
90	445	554762 5881016	5	
91	450	554768 5881016	5	
92	455	554771 5881018	5	
93	460	554775 5881018	5	
94	465	554783 5881016	5	
95	470	554788 5881017	5	
96	475	554792 5881017	5	
97	480	554796 5881018	5	
98	485	554800 5881019	5	
99	490	554806 5881019	5	
100	495	554812 5881019	5	*

Cottonwood 02

Electrode No.	Location in Profile [m]	GPS Coordinates UTM Zone 10 WGS 1984	GPS Accuracy [m]	Post
1	0	554763 5880019	5	*
2	5	554767 5880022	5	
3	10	554769 5880030	5	

Electrode No.	Location in Profile [m]	GPS Coordinates UTM Zone 10 WGS 1984	GPS Accuracy [m]	Post
4	15	554772 5880034	5	
5	20	554773 5880038	5	
6	25	554774 5880036	5	

Electrode No.	Location in Profile [m]	GPS Coordinates UTM Zone 10 WGS 1984	GPS Accuracy [m]	Post
7	30	554778 5880049	5	
8	35	554784 5880050	5	
9	40	554783 5880053	5	
10	45	554786 5880056	5	
11	50	554791 5880058	5	
12	55	554791 5880064	5	
13	60	554800 5880076	5	
14	65	554799 5880073	5	
15	70	554803 5880076	5	
16	75	554802 5880082	5	
17	80	554807 5880088	5	
18	85	554812 5880092	5	
19	90	554817 5880104	5	
20	95	554818 5880099	5	
22	105	554820 5880103	5	
23	110	554821 5880108	5	
25	120	554829 5880116	5	*
26	125	554832 5880124	5	
27	130	554833 5880122	5	
28	135	554829 5880095	5	
29	140	554840 5880135	5	
30	145	554840 5880131	5	
31	150	554845 5880143	5	
32	155	554846 5880149	5	
33	160	554851 5880151	5	
34	165	554852 5880152	5	
35	170	554853 5880150	5	
36	175	554858 5880163	5	
37	180	554862 5880177	5	
38	185	554867 5880177	5	

Electrode No.	Location in Profile [m]	GPS Coordinates UTM Zone 10 WGS 1984	GPS Accuracy [m]	Post
39	190	554865 5880173	5	
40	195	554866 5880171	5	
41	200	554871 5880179	5	
42	205	554872 5880182	5	
45	220	554879 5880198	5	
46	225	554883 5880204	5	
47	230	554883 5880206	5	
48	235	554886 5880211	5	
49	240	554888 5880212	5	
50	245	554893 5880218	5	*
51	250	554892 5880223	5	
52	255	554897 5880228	5	
53	260	554899 5880231	5	
55	270	554903 5880241	5	
56	275	554906 5880244	5	
57	280	554897 5880228	5	
58	285	554897 5880227	5	
62	305	554921 5880271	5	
63	310	554922 5880275	5	
64	315	554923 5880279	5	
65	320	554925 5880284	5	
66	325	554927 5880289	5	
67	330	554929 5880293	5	
68	335	554932 5880300	5	
70	345	554935 5880308	5	
71	350	554936 5880312	5	
72	355	554939 5880317	5	
73	360	554942 5880321	5	
74	365	554942 5880324	5	
75	370	554944 5880328	5	*

Electrode No.	Location in Profile [m]	GPS Coordinates UTM Zone 10 WGS 1984	GPS Accuracy [m]	Post
77	380	554945 5880337	5	
80	395	554955 5880355	5	
81	400	554959 5880352	5	
82	405	554967 5880404	5	
90	445	554982 5880396	5	
91	450	554983 5880395	5	
92	455	554992 5880416	5	
93	460	554986 5880408	5	
94	465	554988 5880412	5	
95	470	555000 5880414	5	
96	475	554993 5880418	5	
97	480	554997 5880424	5	
98	485	554998 5880429	5	
99	490	555000 5880433	5	
100	495	555003 5880433	5	*
101	500	555006 5880444	5	
102	505	555012 5880444	5	
103	510	555013 5880447	5	
104	515	555013 5880450	5	
105	520	555020 5880463	5	
106	525	555020 5880463	5	
107	530	555021 5880467	5	
108	535	555025 5880472	5	
109	540	555026 5880475	5	
110	545	555042 5880481	5	
111	550	555034 5880486	5	
112	555	555033 5880489	5	
113	560	555036 5880492	5	
114	565	555039 5880494	5	
115	570	555042 5880501	5	

Electrode No.	Location in Profile [m]	GPS Coordinates UTM Zone 10 WGS 1984	GPS Accuracy [m]	Post
116	575	555044 5880507	5	
119	590	555053 5880514	5	
120	595	555054 5880525	5	
121	600	555057 5880529	5	
122	605	555058 5880533	5	
123	610	555058 5880536	5	
124	615	555065 5880541	5	
126	625	555068 5880551	5	
127	630	555069 5880551	5	
128	635	555073 5880560	5	
129	640	555075 5880557	5	
130	645	555080 5880563	5	
131	650	555082 5880567	5	
132	655	555081 5880570	5	
133	660	555083 5880574	5	
134	665	555080 5880566	5	
135	670	555087 5880596	5	
136	675	555091 5880592	5	
137	680	555092 5880597	5	
138	685	555101 5880608	5	
140	695	555101 5880615	5	
141	700	555103 5880617	5	
142	705	555104 5880626	5	
143	710	555100 5880623	5	
144	715	555100 5880630	5	
145	720	555089 5880599	5	
146	725	555120 5880638	5	
147	730	555105 5880643	5	
148	735	555112 5880650	5	
149	740	555114 5880655	5	

150	745	555112 5880657	5	*
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Cottonwood 04

Electrode No.	Location in Profile [m]	GPS Coordinates UTM Zone 10 WGS 1984	GPS Accuracy [m]	Post
1	0	555078 5880509	5	*
2	5	555081 5880512	5	
3	10	555083 5880516	5	
4	15	555085 5880521	5	
5	20	555088 5880525	5	
6	25	555092 5880528	5	
7	30	555094 5880533	5	
8	35	555098 5880537	5	
9	40	555101 5880541	5	
10	45	555104 5880544	5	
11	50	555107 5880548	5	
12	55	555109 5880551	5	
13	60	555111 5880554	5	
14	65	555115 5880561	5	
15	70	555118 5880565	5	
16	75	555121 5880569	5	
17	80	555124 5880574	5	
18	85	555126 5880578	5	
19	90	555128 5880583	5	
20	95	555131 5880588	5	
21	100	555133 5880592	5	
22	105	555135 5880597	5	
23	110	555137 5880601	5	
24	115	555137 5880604	5	
25	120	555137 5880606	5	*
26	125	555139 5880607	5	
27	130	555143 5880612	5	
28	135	555146 5880616	5	
29	140	555150 5880624	5	
30	145	555154 5880628	5	
31	150	555158 5880630	5	
32	155	555159 5880637	5	
33	160	555159 5880640	5	
34	165	555164 5880643	5	

Electrode No.	Location in Profile [m]	GPS Coordinates UTM Zone 10 WGS 1984	GPS Accuracy [m]	Post
35	170	555166 5880644	5	
36	175	555171 5880648	5	
37	180	555172 5880651	5	
38	185	555179 5880654	5	
39	190	555185 5880661	5	
40	195	555186 5880667	5	
41	200	555188 5880672	5	
42	205	555191 5880677	5	
43	210	555194 5880680	5	
44	215	555198 5880684	5	
45	220	555201 5880688	5	
46	225	555204 5880692	5	
47	230	555206 5880695	5	
48	235	555209 5880699	5	
49	240	555211 5880704	5	
50	245	555215 5880708	5	*
51	250	555216 5880713	5	
52	255	555219 5880718	5	
53	260	555221 5880720	5	
54	265	555227 5880729	5	
55	270	555229 5880730	5	
56	275	555231 5880733	5	
57	280	555235 5880738	5	
58	285	555238 5880737	5	
59	290	555241 5880740	5	
60	295	555241 5880749	5	
61	300	555243 5880753	5	
62	305	555246 5880757	5	
63	310	555247 5880760	5	
64	315	555252 5880765	5	
65	320	555256 5880768	5	
66	325	555256 5880769	5	
67	330	555261 5880774	5	
68	335	555262 5880779	5	

Electrode No.	Location in Profile [m]	GPS Coordinates UTM Zone 10 WGS 1984	GPS Accuracy [m]	Post
69	340	555265 5880784	5	
70	345	555271 5880786	5	
71	350	555273 5880790	5	
72	355	555276 5880795	5	
73	360	555280 5880799	5	
74	365	555280 5880803	5	
75	370	555276 5880804	5	*
76	375	555287 5880813	5	
77	380	555289 5880815	5	
78	385	555292 5880820	5	
79	390	555294 5880822	5	
80	395	555299 5880826	5	
81	400	555299 5880830	5	
82	405	555302 5880833	5	
83	410	555306 5880839	5	
84	415	555309 5880845	5	
85	420	555312 5880850	5	
86	425	555317 5880852	5	
87	430	555316 5880856	5	
88	435	555321 5880860	5	
89	440	555325 5880864	5	
90	445	555327 5880868	5	
91	450	555328 5880872	5	
92	455	555334 5880874	5	
93	460	555333 5880879	5	
94	465	555337 5880882	5	
95	470	555346 5880886	5	
96	475	555342 5880891	5	
97	480	555344 5880895	5	

Electrode No.	Location in Profile [m]	GPS Coordinates UTM Zone 10 WGS 1984	GPS Accuracy [m]	Post
98	485	555350 5880902	5	
99	490	555346 5880907	5	
100	495	555345 5880913	5	*
101	500	555350 5880915	5	
102	505	555357 5880918	5	
103	510	555357 5880916	5	
104	515	555365 5880922	5	
105	520	555366 5880931	5	
106	525	555367 5880934	5	
107	530	555368 5880936	5	
108	535	555372 5880940	5	
109	540	555378 5880947	5	
110	545	555380 5880952	5	
111	550	555384 5880956	5	
112	555	555393 5880957	5	
113	560	555390 5880962	5	
114	565	555396 5880967	5	
115	570	555396 5880969	5	
116	575	555400 5880972	5	
117	580	555402 5880979	5	
118	585	555405 5880985	5	
119	590	555407 5880986	5	
120	595	555409 5880990	5	
121	600	555411 5880996	5	
122	605	555414 5880998	5	
123	610	555418 5881002	5	
124	615	555420 5881007	5	
125	620	555423 5881013	5	*

Cottonwood 03aa

Electrode No.	Location in raw Profile [m]	Location in combined Profile [m]	GPS Coordinates UTM Zone 10 WGS 1984	GPS Accuracy [m]	Post
1	0	-345	555301 5879506	5	*
2	5	-340	555297 5879502	5	

Electrode No.	Location in raw Profile [m]	Location in combined Profile [m]	GPS Coordinates UTM Zone 10 WGS 1984	GPS Accuracy [m]	Post
3	10	-335	555297 5879488	5	
4	15	-330	555291 5879483	5	

Electro de No.	Locati on in raw Profile [m]	Locatio n in combin ed Profile [m]	GPS Coordinates UTM Zone 10 WGS 1984	GPS Accura cy [m]	Pos t
5	20	-325	555292 5879481	5	
6	25	-320	555286 5879481	5	
7	30	-315	555287 5879472	5	
8	35	-310	555284 5879463	5	
9	40	-305	555283 5879466	5	
10	45	-300	555274 5879445	5	
11	50	-295	555273 5879458	5	
12	55	-290	555276 5879446	5	
13	60	-285	555274 5879446	5	
14	65	-280	555267 5879442	5	
15	70	-275	555263 5879439	5	
16	75	-270	555260 5879437	5	
17	80	-265	555254 5879432	5	
18	85	-260	555251 5879436	5	
19	90	-255	555247 5879430	5	
20	95	-250	555244 5879427	5	
21	100	-245	555241 5879421	5	
22	105	-240	555241 5879416	5	
23	110	-235	555239 5879412	5	
24	115	-230	555237 5879410	5	
25	120	-225	555233 5879404	5	*
26	125	-220	555233 5879398	5	
27	130	-215	555230 5879393	5	
28	135	-210	555227 5879391	5	
29	140	-205	555223 5879388	5	
30	145	-200	555220 5879383	5	
31	150	-195	555219 5879380	5	
32	155	-190	555216 5879374	5	
33	160	-185	555211 5879369	5	
34	165	-180	555212 5879365	5	

Electro de No.	Locati on in raw Profile [m]	Locatio n in combin ed Profile [m]	GPS Coordinates UTM Zone 10 WGS 1984	GPS Accura cy [m]	Pos t
35	170	-175	555209 5879362	5	
36	175	-170	555205 5879357	5	
37	180	-165	555200 5879353	5	
38	185	-160	555198 5879347	5	
39	190	-155	555196 5879343	5	
40	195	-150	555193 5879341	5	
41	200	-145	555192 5879336	5	
42	205	-140	555190 5879335	5	
43	210	-135	555187 5879330	5	
44	215	-130	555182 5879327	5	
45	220	-125	555183 5879320	5	
46	225	-120	555182 5879320	5	
47	230	-115	555179 5879309	5	
48	235	-110	555174 5879310	5	
49	240	-105	555171 5879304	5	
50	245	-100	555168 5879301	5	*
51	250	-95	555165 5879295	5	
52	255	-90	555162 5879290	5	
53	260	-85	555163 5879289	5	
54	265	-80	555160 5879288	5	
55	270	-75	555157 5879281	5	
56	275	-70	555153 5879277	5	
57	280	-65	555155 5879270	5	
58	285	-60	555151 5879269	5	
59	290	-55	555150 5879265	5	
60	295	-50	555144 5879258	5	
61	300	-45	555142 5879253	5	
62	305	-40	555140 5879248	5	
63	310	-35	555136 5879246	5	
64	315	-30	555133 5879243	5	

Electro de No.	Locati on in raw Profile [m]	Locatio n in combin ed Profile [m]	GPS Coordinates UTM Zone 10 WGS 1984	GPS Accura cy [m]	Pos t
65	320	-25	555132 5879239	5	
66	325	-20	555131 5879234	5	
67	330	-15	555128 5879229	5	
68	335	-10	555126 5879223	5	
69	340	-5	555127 5879217	5	
70	345	0	555125 5879214	5	
71	350		555122 5879209	5	
72	355		555119 5879206	5	
73	360		555117 5879202	5	
74	365		555111 5879197	5	
75	370		555112 5879193	5	*
76	375		555107 5879187	5	
77	380		555105 5879180	5	
78	385		555104 5879176	5	
79	390		555102 5879170	5	
80	395		555099 5879167	5	
81	400		555095 5879165	5	
82	405		555094 5879161	5	
83	410		555094 5879154	5	
84	415		555093 5879150	5	
85	420		555089 5879147	5	
86	425		555085 5879142	5	
87	430		555084 5879138	5	
88	435		555082 5879132	5	
89	440		555080 5879127	5	
90	445		555075 5879120	5	
91	450		555075 5879115	5	
92	455		555067 5879119	5	

Electro de No.	Locati on in raw Profile [m]	Locatio n in combin ed Profile [m]	GPS Coordinates UTM Zone 10 WGS 1984	GPS Accura cy [m]	Pos t
93	460		555066 5879108	5	
94	465		555071 5879109	5	
95	470		555067 5879106	5	
96	475		555066 5879100	5	
97	480		555062 5879097	5	
98	485		555062 5879090	5	
99	490		555059 5879084	5	
100	495		555055 5879083	5	*
101	500		555053 5879078	5	
102	505		555050 5879076	5	
103	510		555046 5879072	5	
104	515		555045 5879068	5	
105	520		555043 5879061	5	
106	525		555038 5879058	5	
107	530		555040 5879052	5	
108	535		555037 5879049	5	
109	540		555035 5879045	5	
110	545		555030 5879040	5	
111	550		555031 5879037	5	
112	555		555029 5879035	5	
113	560		555025 5879033	5	
114	565		555022 5879029	5	
115	570		555020 5879020	5	
116	575		555017 5879016	5	
117	580		555016 5879010	5	
118	585		555012 5879007	5	

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Electrode No.	Location in Profile [m]	GPS Coordinates UTM Zone 10 WGS 1984	GPS Accuracy [m]	Post
1	0	555176 5879303	5	*
2	5	555179 5879307	5	
3	10	555182 5879311	5	
4	15	555184 5879313	5	
5	20	555186 5879317	5	
6	25	555190 5879321	5	
7	30	555192 5879326	5	
8	35	555195 5879328	5	
9	40	555199 5879334	5	
10	45	555201 5879336	5	
11	50	555204 5879341	5	
12	55	555206 5879345	5	
13	60	555208 5879351	5	
14	65	555212 5879354	5	
15	70	555212 5879354	5	
16	75	555218 5879362	5	
17	80	555220 5879365	5	
18	85	555221 5879369	5	
19	90	555223 5879374	5	
20	95	555227 5879378	5	
21	100	555230 5879381	5	
22	105	555233 5879385	5	
23	110	555235 5879389	5	
24	115	555237 5879392	5	
25	120	555237 5879393	5	*
26	125	555239 5879397	5	
27	130	555241 5879403	5	
28	135	555243 5879407	5	
29	140	555246 5879411	5	
30	145	555248 5879415	5	
31	150	555250	5	

Electrode No.	Location in Profile [m]	GPS Coordinates UTM Zone 10 WGS 1984	GPS Accuracy [m]	Post
		5879420		
32	155	555252 5879425	5	
33	160	555255 5879429	5	
34	165	555257 5879433	5	
35	170	555259 5879439	5	
36	175	555263 5879443	5	
37	180	555267 5879446	5	
38	185	555270 5879449	5	
39	190	555274 5879453	5	
40	195	555277 5879457	5	
41	200	555280 5879460	5	
42	205	555283 5879464	5	
43	210	555285 5879468	5	
44	215	555288 5879472	5	
45	220	555290 5879477	5	
46	225	555293 5879482	5	
47	230	555295 5879485	5	
48	235	555297 5879489	5	
49	240	555300 5879493	5	
50	245	555303 5879497	5	*
51	250	555306 5879499	5	
52	255	555305 5879509	5	
53	260	555308 5879512	5	
54	265	555310 5879517	5	
55	270	555312 5879521	5	
56	275	555315 5879524	5	
57	280	555317 5879528	5	
58	285	555319 5879532	5	
59	290	555321 5879535	5	
60	295	555324 5879539	5	
61	300	555326 5879543	5	

Electrode No.	Location in Profile [m]	GPS Coordinates UTM Zone 10 WGS 1984	GPS Accuracy [m]	Post
62	305	555329 5879547	5	
63	310	555331 5879550	5	
64	315	555333 5879554	5	
65	320	555336 5879558	5	
66	325	555339 5879562	5	
67	330	555343 5879567	5	
68	335	555346 5879571	5	
69	340	555349 5879576	5	
70	345	555351 5879581	5	
71	350	555355 5879586	5	
72	355	555358 5879589	5	
73	360	555362 5879594	5	
74	365	555366 5879598	5	
75	370	555370 5879603	5	*
76	375	555372 5879607	5	
77	380	555375 5879611	5	
78	385	555379 5879615	5	
79	390	555382 5879620	5	
80	395	555386 5879623	5	
81	400	555389 5879626	5	
82	405	555393 5879630	5	
83	410	555395 5879633	5	
84	415	555398 5879638	5	
85	420	555401 5879641	5	
86	425	555403 5879645	5	
87	430	555406 5879648	5	
88	435	555408 5879653	5	
89	440	555410 5879657	5	
90	445	555414 5879662	5	
91	450	555418 5879665	5	
92	455	555421	5	

Electrode No.	Location in Profile [m]	GPS Coordinates UTM Zone 10 WGS 1984	GPS Accuracy [m]	Post
		5879669		
93	460	555425 5879672	5	
94	465	555429 5879677	5	
95	470	555431 5879680	5	
96	475	555434 5879684	5	
97	480	555437 5879687	5	
98	485	555440 5879691	5	
99	490	555443 5879695	5	
100	495	555446 5879699	5	*
101	500	555448 5879702	5	
102	505	555451 5879706	5	
103	510	555453 5879710	5	
104	515	555456 5879714	5	
105	520	555458 5879719	5	
106	525	555461 5879723	5	
107	530	555464 5879727	5	
108	535	555467 5879731	5	
109	540	555470 5879735	5	
110	545	555472 5879739	5	
111	550	555475 5879742	5	
112	555	555479 5879748	5	
113	560	555480 5879746	5	
114	565	555483 5879752	5	
115	570	555486 5879754	5	
116	575	555488 5879762	5	
117	580	555491 5879767	5	
118	585	555498 5879771	5	
119	590	555500 5879772	5	
120	595	555503 5879772	5	
121	600	555508 5879778	5	
122	605	555509 5879788	5	

Electrode No.	Location in Profile [m]	GPS Coordinates UTM Zone 10 WGS 1984	GPS Accuracy [m]	Post
123	610	555516 5879795	5	
124	615	555520 5879798	5	
125	620	555515 5879792	5	*
126	625	555525 5879803	5	
127	630	555526 5879807	5	
128	635	555530 5879812	5	
129	640	555533 5879816	5	
130	645	555537 5879819	5	
131	650	555539 5879823	5	
132	655	555543 5879828	5	
133	660	555546 5879832	5	
134	665	555550 5879837	5	
135	670	555553 5879841	5	
136	675	555556 5879845	5	
137	680	555558 5879849	5	
138	685	555561	5	

Electrode No.	Location in Profile [m]	GPS Coordinates UTM Zone 10 WGS 1984	GPS Accuracy [m]	Post
		5879853		
139	690	555566 5879860	5	
140	695	555567 5879862	5	
141	700	555568 5879864	5	
142	705	555568 5879867	5	
143	710	555573 5879876	5	
144	715	555577 5879881	5	
145	720	555579 5879883	5	
146	725	555581 5879886	5	
147	730	555585 5879890	5	
148	735	555586 5879894	5	
149	740	555589 5879901	5	
150	745	555592 5879905	5	*

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Electrode No.	Location in Profile [m]	GPS Coordinates UTM Zone 10 WGS 1984	GPS Accuracy [m]	Post
1	0	555437 5879697	5	*
2	5	555440 5879699	5	
3	10	555444 5879701	5	
4	15	555447 5879703	5	
5	20	555452 5879706	5	
6	25	555458 5879710	5	
7	30	555463 5879713	5	
8	35	555469 5879717	5	
9	40	555473 5879720	5	
10	45	555476 5879723	5	
11	50	555479 5879725	5	
12	55	555483 5879728	5	
13	60	555486 5879732	5	
14	65	555490 5879734	5	

Electrode No.	Location in Profile [m]	GPS Coordinates UTM Zone 10 WGS 1984	GPS Accuracy [m]	Post
15	70	555494 5879737	5	
16	75	555498 5879741	5	
17	80	555502 5879745	5	
18	85	555504 5879748	5	
19	90	555509 5879752	5	
20	95	555513 5879754	5	
21	100	555520 5879757	5	
22	105	555523 5879760	5	
23	110	555528 5879761	5	
24	115	555531 5879764	5	
25	120	555537 5879768	5	*
26	125	555541 5879769	5	
27	130	555546 5879773	5	
28	135	555549 5879776	5	

Electrode No.	Location in Profile [m]	GPS Coordinates UTM Zone 10 WGS 1984	GPS Accuracy [m]	Post
29	140	555552 5879778	5	
30	145	555555 5879780	5	
31	150	555559 5879784	5	
32	155	555563 5879788	5	
33	160	555567 5879792	5	
34	165	555572 5879795	5	
35	170	555577 5879799	5	
36	175	555580 5879801	5	
37	180	555584 5879802	5	
38	185	555587 5879805	5	
39	190	555592 5879810	5	
40	195	555596 5879812	5	
41	200	555601 5879815	5	
42	205	555605 5879818	5	
43	210	555607 5879820	5	
44	215	555610 5879824	5	
45	220	555613 5879826	5	
46	225	555617 5879830	5	
47	230	555622 5879832	5	
48	235	555626 5879835	5	
49	240	555630 5879837	5	
50	245	555634 5879840	5	*
51	250	555639 5879843	5	
52	255	555644 5879846	5	
53	260	555648 5879848	5	
54	265	555653 5879851	5	
55	270	555657 5879853	5	
56	275	555661 5879856	5	
57	280	555666 5879858	5	
58	285	555671 5879862	5	
59	290	555675 5879864	5	
60	295	555681 5879868	5	
61	300	555685 5879869	5	
62	305	555688 5879871	5	
63	310	555693 5879872	5	
64	315	555695 5879875	5	
65	320	555700 5879879	5	
66	325	555704 5879879	5	
67	330	555708 5879879	5	
68	335	555711 5879882	5	
69	340	555715 5879885	5	
70	345	555719 5879888	5	

Electrode No.	Location in Profile [m]	GPS Coordinates UTM Zone 10 WGS 1984	GPS Accuracy [m]	Post
71	350	555722 5879889	5	
72	355	555726 5879891	5	
73	360	555731 5879893	5	
74	365	555737 5879894	5	
75	370	555740 5879897	5	*
76	375	555743 5879898	5	
77	380	555743 5879898	5	
78	385	555743 5879896	5	
79	390	555746 5879903	5	
80	395	555750 5879904	5	
81	400	555753 5879904	5	
82	405	555762 5879915	5	
83	410	555761 5879909	5	
84	415	555763 5879912	5	
85	420	555770 5879925	5	
86	425	555775 5879931	5	
87	430	555773 5879916	5	
88	435	555777 5879923	5	
89	440	555786 5879932	5	
90	445	555790 5879935	5	
91	450	555795 5879944	5	
92	455	555800 5879944	5	
93	460	555803 5879942	5	
94	465	555808 5879948	5	
95	470	555811 5879952	5	
96	475	555811 5879953	5	
97	480	555815 5879956	5	
98	485	555818 5879959	5	
99	490	555820 5879965	5	
100	495	555829 5879976	5	*
101	500	555832 5879978	5	
102	505	555831 5879974	5	
103	510	555838 5879976	5	
104	515	555836 5879977	5	
105	520	555842 5879971	5	
106	525	555851 5879991	5	
107	530	555854 5879993	5	
108	535	555859 5879994	5	
109	540	555865 5879997	5	
110	545	555868 5879997	5	
111	550	555870 5879999	5	
112	555	555874 5880001	5	

Electrode No.	Location in Profile [m]	GPS Coordinates UTM Zone 10 WGS 1984	GPS Accuracy [m]	Post
113	560	555879 5880004	5	
114	565	555886 5880014	5	
115	570	555890 5880017	5	
116	575	555893 5880018	5	
117	580	555899 5880019	5	
118	585	555903 5880014	5	
119	590	555908 5880017	5	
120	595	555912 5880026	5	
121	600	555917 5880030	5	
122	605	555920 5880030	5	
123	610	555925 5880034	5	
124	615	555927 5880036	5	
125	620	555936 5880046	5	*
126	625	555940 5880046	5	
127	630	555940 5880045	5	
128	635	555945 5880046	5	
129	640	555948 5880051	5	
130	645	555952 5880055	5	
131	650	555956 5880059	5	
132	655	555960 5880058	5	
133	660	555962 5880064	5	
134	665	555966 5880068	5	
135	670	555970 5880070	5	
136	675	555973 5880075	5	
137	680	555978 5880077	5	
138	685	555983 5880081	5	
139	690	555986 5880082	5	
140	695	555990 5880086	5	
141	700	555993 5880087	5	
142	705	555998 5880089	5	
143	710	556003 5880093	5	
144	715	556006 5880094	5	
145	720	556010 5880098	5	
146	725	556012 5880101	5	
147	730	556019 5880107	5	
148	735	556022 5880112	5	
149	740	556029 5880117	5	
150	745	556030 5880119	5	*
151	750	556039 5880116	5	
152	755	556039 5880116	5	
153	760	556041 5880120	5	
154	765	556043 5880124	5	

Electrode No.	Location in Profile [m]	GPS Coordinates UTM Zone 10 WGS 1984	GPS Accuracy [m]	Post
155	770	556046 5880127	5	
156	775	556051 5880131	5	
157	780	556054 5880134	5	
158	785	556059 5880138	5	
159	790	556063 5880137	5	
160	795	556068 5880139	5	
161	800	556076 5880143	5	
162	805	556084 5880148	5	
163	810	556087 5880151	5	
164	815	556087 5880150	5	
165	820	556089 5880153	5	
166	825	556094 5880156	5	
167	830	556097 5880156	5	
168	835	556100 5880161	5	
169	840	556107 5880167	5	
170	845	556113 5880169	5	
171	850	556116 5880164	5	
172	855	556119 5880171	5	
173	860	556126 5880172	5	
174	865	556131 5880173	5	
175	870	556139 5880172	5	*
176	875	556143 5880180	5	
177	880	556143 5880179	5	
178	885	556148 5880183	5	
179	890	556148 5880193	5	
180	895	556151 5880197	5	
181	900	556155 5880200	5	
182	905	556159 5880195	5	
183	910	556167 5880196	5	
184	915	556170 5880200	5	
185	920	556173 5880202	5	
186	925	556176 5880207	5	
187	930	556186 5880220	5	
188	935	556186 5880212	5	
189	940	556191 5880209	5	
190	945	556200 5880204	5	
191	950	556198 5880224	5	
192	955	556202 5880224	5	
193	960	556205 5880229	5	
194	965	556207 5880234	5	
195	970	556215 5880235	5	
196	975	556219 5880235	5	

Electrode No.	Location in Profile [m]	GPS Coordinates UTM Zone 10 WGS 1984	GPS Accuracy [m]	Post
197	980	556224 5880241	5	
198	985	556225 5880247	5	
199	990	556229 5880248	5	
200	995	556233 5880252	5	*
201	1000	556242 5880254	5	
202	1005	556246 5880256	5	
203	1010	556250 5880259	5	
204	1015	556255 5880262	5	
205	1020	556260 5880266	5	
206	1025	556260 5880267	5	
207	1030	556260 5880269	5	
208	1035	556270 5880274	5	
209	1040	556274 5880273	5	
210	1045	556278 5880277	5	
211	1050	556279 5880278	5	
212	1055	556288 5880279	5	
213	1060	556291 5880279	5	
214	1065	556295 5880280	5	
215	1070	556298 5880287	5	
216	1075	556303 5880292	5	
217	1080	556306 5880295	5	
218	1085	556309 5880299	5	
219	1090	556311 5880297	5	
220	1095	556317 5880301	5	
221	1100	556320 5880304	5	
222	1105	556323 5880308	5	
223	1110	556330 5880312	5	
224	1115	556335 5880317	5	
225	1120	556339 5880318	5	*
226	1125	556341 5880321	5	
227	1130	556344 5880324	5	
228	1135	556349 5880323	5	
229	1140	556353 5880327	5	
230	1145	556354 5880328	5	
231	1150	556358 5880327	5	
232	1155	556368 5880333	5	
233	1160	556372 5880335	5	
234	1165	556375 5880341	5	
235	1170	556378 5880342	5	
236	1175	556381 5880341	5	
237	1180	556387 5880343	5	
238	1185	556389 5880348	5	

Electrode No.	Location in Profile [m]	GPS Coordinates UTM Zone 10 WGS 1984	GPS Accuracy [m]	Post
239	1190	556392 5880346	5	
240	1195	556396 5880357	5	
241	1200	556401 5880357	5	
242	1205	556405 5880360	5	
243	1210	556414 5880359	5	
244	1215	556416 5880370	5	
245	1220	556416 5880370	5	
246	1225	556421 5880369	5	
247	1230	556422 5880369	5	
248	1235	556420 5880374	5	
249	1240	556427 5880381	5	
250	1245	556430 5880383	5	*
251	1250	556439 5880381	5	
252	1255	556444 5880384	5	
253	1260	556442 5880384	5	
254	1265	556442 5880386	5	
255	1270	556451 5880390	5	
256	1275	556459 5880394	5	
257	1280	556461 5880398	5	
258	1285	556463 5880402	5	
259	1290	556470 5880405	5	
260	1295	556474 5880409	5	
261	1300	556476 5880413	5	
262	1305	556482 5880415	5	
263	1310	556484 5880417	5	
264	1315	556491 5880412	5	
265	1320	556498 5880422	5	
266	1325	556501 5880428	5	
267	1330	556503 5880433	5	
268	1335	556511 5880433	5	
269	1340	556514 5880427	5	
270	1345	556515 5880429	5	
271	1350	556524 5880439	5	
272	1355	556528 5880436	5	
273	1360	556536 5880433	5	
274	1365	556535 5880442	5	
275	1370	556539 5880447	5	*
276	1375	556542 5880453	5	
277	1380	556546 5880455	5	
278	1385	556549 5880462	5	
279	1390	556553 5880464	5	
280	1395	556557 5880466	5	

Electrode No.	Location in Profile [m]	GPS Coordinates UTM Zone 10 WGS 1984	GPS Accuracy [m]	Post
281	1400	556560 5880468	5	
282	1405	556565 5880470	5	
283	1410	556568 5880474	5	
284	1415	556571 5880477	5	
285	1420	556575 5880479	5	
286	1425	556579 5880481	5	
287	1430	556583 5880484	5	
288	1435	556587 5880487	5	
289	1440	556591 5880491	5	
290	1445	556596 5880492	5	
291	1450	556600 5880495	5	
292	1455	556603 5880498	5	
293	1460	556607 5880501	5	
294	1465	556610 5880504	5	
295	1470	556615 5880507	5	
296	1475	556619 5880511	5	
297	1480	556623 5880513	5	
298	1485	556627 5880516	5	
299	1490	556630 5880519	5	
300	1495	556634 5880523	5	*
301	1500	556647 5880527	5	
302	1505	556651 5880530	5	
303	1510	556654 5880533	5	
304	1515	556659 5880536	5	
305	1520	556662 5880539	5	
306	1525	556665 5880541	5	
307	1530	556669 5880546	5	
308	1535	556675 5880550	5	
309	1540	556680 5880552	5	
310	1545	556684 5880555	5	
311	1550	556688 5880557	5	
312	1555	556690 5880559	5	
313	1560	556695 5880562	5	
314	1565	556698 5880565	5	
315	1570	556702 5880567	5	
316	1575	556706 5880571	5	
317	1580	556711 5880575	5	
318	1585	556715 5880578	5	
319	1590	556719 5880581	5	
320	1595	556723 5880585	5	
321	1600	556726 5880588	5	
322	1605	556730 5880590	5	

Electrode No.	Location in Profile [m]	GPS Coordinates UTM Zone 10 WGS 1984	GPS Accuracy [m]	Post
323	1610	556734 5880592	5	
324	1615	556738 5880595	5	
325	1620	556739 5880595	5	*
326	1625	556744 5880597	5	
327	1630	556748 5880598	5	
328	1635	556754 5880605	5	
329	1640	556758 5880608	5	
330	1645	556761 5880611	5	
331	1650	556764 5880613	5	
332	1655	556767 5880618	5	
333	1660	556772 5880622	5	
334	1665	556776 5880624	5	
335	1670	556778 5880626	5	
336	1675	556781 5880629	5	
337	1680	556785 5880632	5	
338	1685	556789 5880634	5	
339	1690	556792 5880637	5	
340	1695	556796 5880640	5	
341	1700	556799 5880644	5	
342	1705	556803 5880648	5	
343	1710	556807 5880651	5	
344	1715	556812 5880656	5	
345	1720	556814 5880660	5	
346	1725	556818 5880663	5	
347	1730	556821 5880664	5	
348	1735	556826 5880667	5	
349	1740	556830 5880670	5	
350	1745	556835 5880672	5	*
351	1750	556838 5880675	5	
352	1755	556843 5880679	5	
353	1760	556845 5880684	5	
354	1765	556848 5880688	5	
355	1770	556853 5880693	5	
356	1775	556859 5880689	5	
357	1780	556863 5880692	5	
358	1785	556867 5880693	5	
359	1790	556870 5880695	5	
360	1795	556876 5880698	5	
361	1800	556878 5880701	5	
362	1805	556882 5880704	5	
363	1810	556885 5880708	5	
364	1815	556888 5880711	5	

Electrode No.	Location in Profile [m]	GPS Coordinates UTM Zone 10 WGS 1984	GPS Accuracy [m]	Post
365	1820	556893 5880713	5	
366	1825	556898 5880716	5	
367	1830	556902 5880720	5	
368	1835	556905 5880723	5	
369	1840	556909 5880726	5	
370	1845	556912 5880728	5	
371	1850	556916 5880727	5	
372	1855	556921 5880730	5	
373	1860	556925 5880731	5	
374	1865	556928 5880734	5	
375	1870	556934 5880737	5	*
376	1875	556939 5880743	5	
377	1880	556943 5880745	5	
378	1885	556946 5880748	5	
379	1890	556952 5880751	5	
380	1895	556956 5880753	5	
381	1900	556958 5880755	5	
382	1905	556962 5880759	5	
383	1910	556964 5880763	5	
384	1915	556969 5880768	5	
385	1920	556973 5880770	5	
386	1925	556978 5880773	5	
387	1930	556984 5880776	5	
388	1935	556989 5880779	5	
389	1940	556993 5880782	5	
390	1945	556997 5880784	5	
391	1950	557001 5880787	5	
392	1955	557003 5880789	5	
393	1960	557006 5880791	5	
394	1965	557009 5880793	5	
395	1970	557013 5880796	5	

Electrode No.	Location in Profile [m]	GPS Coordinates UTM Zone 10 WGS 1984	GPS Accuracy [m]	Post
396	1975	557017 5880798	5	
397	1980	557021 5880800	5	
398	1985	557025 5880802	5	
399	1990	557029 5880804	5	
400	1995	557033 5880805	5	*
401	2000	557036 5880810	5	
402	2005	557039 5880812	5	
403	2010	557043 5880813	5	
404	2015	557051 5880819	5	
405	2020	557054 5880822	5	
406	2025	557057 5880826	5	
407	2030	557060 5880828	5	
408	2035	557064 5880831	5	
409	2040	557067 5880834	5	
410	2045	557070 5880837	5	
411	2050	557072 5880839	5	
412	2055	557077 5880842	5	
413	2060	557082 5880846	5	
414	2065	557088 5880849	5	
415	2070	557091 5880854	5	
416	2075	557095 5880855	5	
417	2080	557099 5880857	5	
418	2085	557104 5880858	5	
419	2090	557108 5880861	5	
420	2095	557111 5880863	5	
421	2100	557114 5880867	5	
422	2105	557119 5880873	5	
423	2110	557123 5880876	5	
424	2115	557128 5880880	5	
425	2120	557131 5880883	5	*