



GroundTruth Exploration Inc.

Box 70, Dawson YT, Y0B 1G0 (867) 993-5612

Geophysical Report  
on three  
Independence Creek Placer Prospecting Leases

Whitehorse Mining District

**Independence Lease No.: IW00556**

Owner: Philip Severinsen 100%  
Location: -139° 31'00" 62° 54' 08"

**Independence Lease No.: IW00557**

Owner: Luke Severinsen 100%  
Location: -139° 33'04" 62° 52' 57"

**Independence Lease No.: IW00558**

Owner: Nicholas McKay 100%  
Location: -139° 34'20" 62° 55' 12"

Prepared by: Isaac Fage  
GroundTruth Exploration Inc.

NTS Mapsheet: 115J/13, 14  
Work Done On: 15-21 October, 2016  
Report Date: July 4, 2017



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## 1 Introduction

### 1.1 Summary

A High Resolution DC Resistivity survey with coincident Ground Magnetics was conducted on the three placer leases. The resulting dataset is being used to interpret depth to bedrock, depth of overburden horizons and look for potential of magnetite black sand pay channels. Drone imagery was collected to provide topographical corrections and aid in interpretation.

The leases are located approximately 130km South of Dawson on Independence Creek and two north flowing tributaries of Independence creek (figure 1).

The property was accessed by helicopter based in Dawson City.

The surveys were conducted by GroundTruth Exploration of Dawson, YT between October 15<sup>th</sup> and 20<sup>th</sup>, 2016. The field crew was mobilized by helicopter based in Dawson City, and operated from two basecamps: "Site 1" to access lines on leases IW00557 and 558, and "Site 2: to access lines on leases IW00556.

The DC Resistivity Survey was read using a Supersting R8 resistivity meter with 84 electrodes spaced at 3m. The Ground Magnetic survey was run using at GEM 19T Proton magnetometer. Mag and profiles were run overlapping and adjacent to the DC Resistivity Survey in continuous read modes at a line spacing of 50m.

The resistivity survey was successful in profiling bedrock depth and detecting permafrost depth interval. Location of the survey area is shown on Figure 1.

### 1.2 Location and Access

The prospecting leases are located approximately 130km South of Dawson City within the Yukon River drainage system in west-central Yukon Territory. All leases are located in the Independence Creek drainage in the Yukon River watershed. Lease No. IW00556 is centered at W139°31'00" N62°54'08". Lease No. IW00557 is centered at W139°33'04" N62°52'57". Lease No. IW00558 is centered at W139°34'20" N62°55'12". They are located on NTS mapsheet 115J/13 & 14 (Figure 1). All leases are accessible in winter on the Yukon River via snowmobile, and accessible by helicopter year round.

### 1.3 Historic Regional Work

The Independence Creek tributaries have undergone prior geophysical surveys from GroundTruth Exploration Inc.



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Down river of the three leases are claims P510923-P511019, previously leases IW0437 and IW0479. In September 2016, leases IW0479 and IW00437 were also surveyed with DC resistivity and ground magnetics in addition to a ground penetrating radar survey. A total of 2 DC resistivity survey, 6 ground magnetics, and 6 GPR surveys, was completed.

In addition, GroundTruth Exploration Inc has also performed work on nearby leases on the Dan Man Creek (11km SE) and Coffee Creek (24km SE). This work includes DC resistivity, ground magnetics, and ground penetrating radar.

## 1.4 Physiology

The prospecting leases are located within the Yukon-Tanana Terrane. The landscape is composed broad valleys bordered by moderately sloped, tree covered hills ranging in elevations from 1200 to 5000 feet. The area experiences typical climatic conditions for central Yukon Territory with short, warm and dry summers and cold winters. Temperatures range from 0°C to -50°C in the winter and 0°C to +30°C in the summer.

Drainages are characterized by incised valleys with steep hill slopes. The leases are draining from headwaters that are associated with the economically significant Coffee Gold deposits.

## 1.5 Geology

The Independence Creek property is located within the Yukon Tanana Terrane (YTT), in the Tintina Gold Belt, a region noted for its placer gold endowment. The YTT represents a mid- to late Paleozoic continental arc system and a coeval back-arc basin that separated the Yukon Tanana arc from the western margin of

Laurentia between Late Devonian and Early to Middle Triassic periods (Colpron, 2006). The YTT comprises a lower assemblage of metamorphosed sedimentary and minor volcanic rocks, unconformably overlain by three distinct sequences of predominantly arc metavolcanic rocks and associated metasedimentary rocks – the Finlayson, Klinkit and Klondike assemblages.

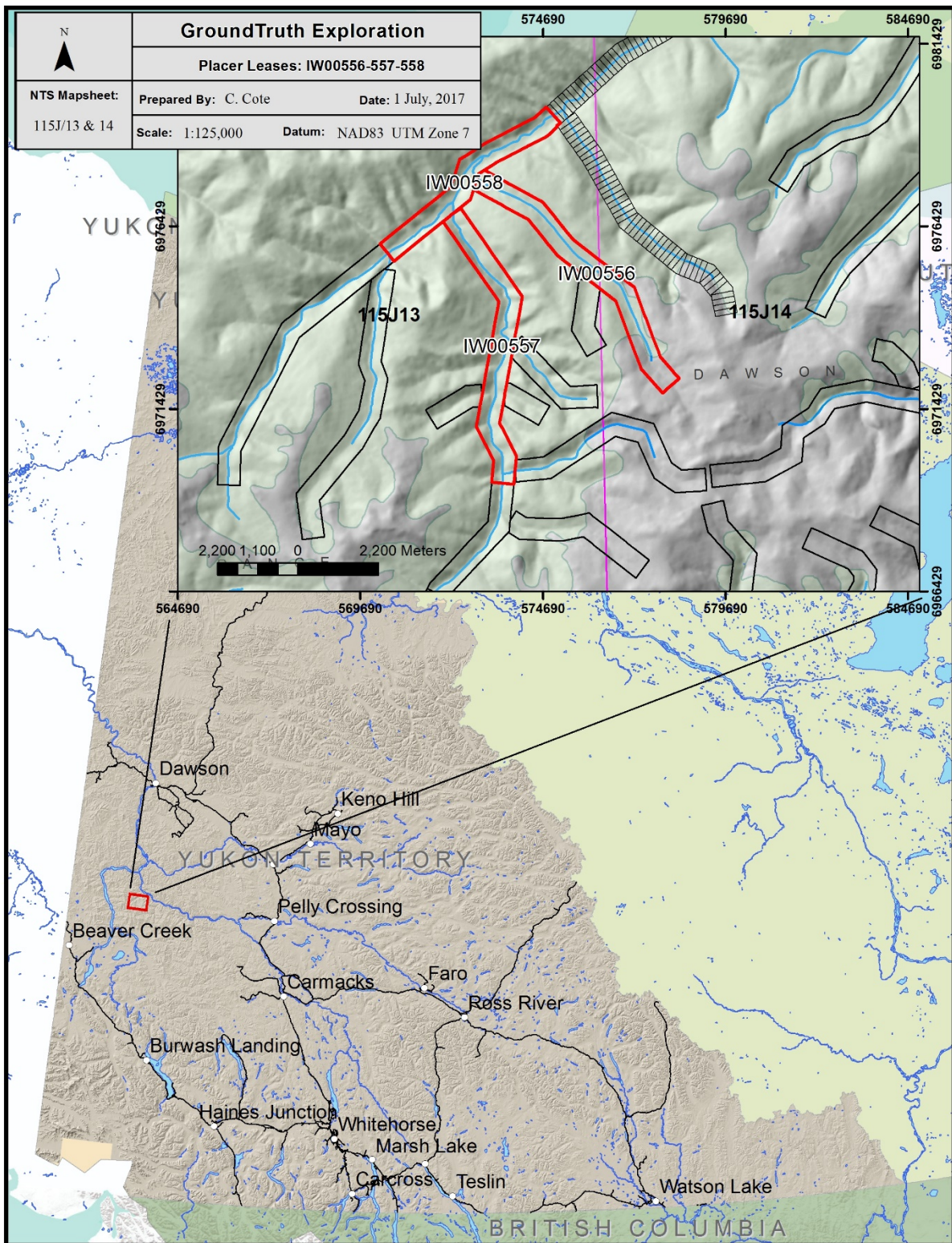


Figure 1: Location MAP

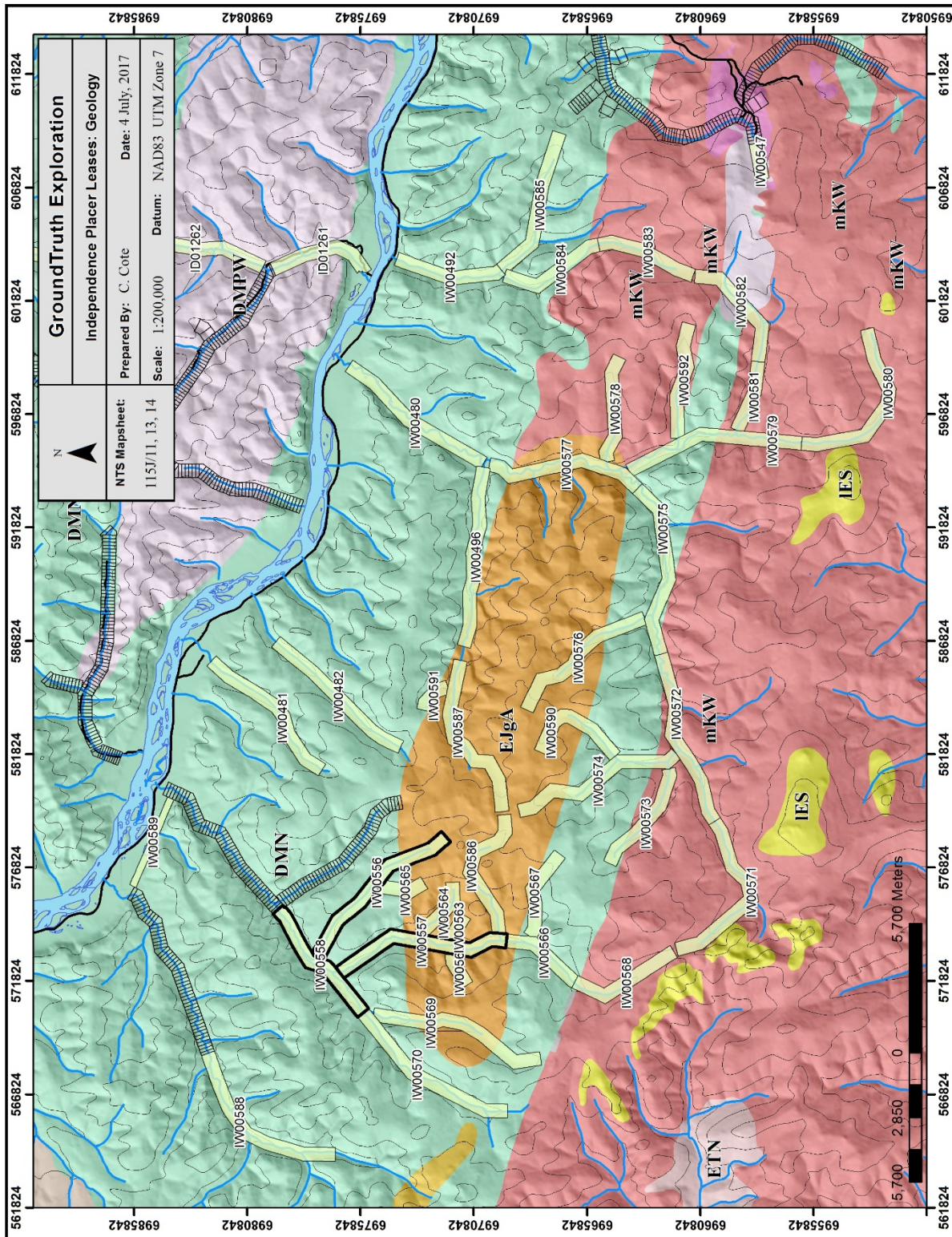


Figure 2: Regional Geology

## 1.6 Geological Legend (figure 2)

### LOWER EOCENE

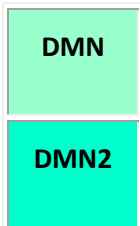


#### IES: SKUKUM

various felsic volcanic dykes, plugs, domes, laccoliths and flows (1) and (2)

1. flow banded rhyolite flows and breccia, andesite flows and breccia, tuff, pyroclastic and epiclastic rocks, granite conglomerate; rhyolite feldspar porphyry domes, plugs and laccoliths; feldspar +/- hornblende +/- quartz-phyric felsite dykes and plugs (**Skukum Gp. including Boudette Creek, Butte Creek, Cleft Mountain, Crozier Breccia, Crozier Tuff and Lava, Gault, Jones Creek, Lemieux Creek, MacCauley Creek, Mount Reid, Partridge Lake, Vesuvius and Watson River**)
2. heterogeneous intermediate to felsic, hornblende-feldspar porphyritic tuff, flow breccia; volcanoclastic mudstone, sandstone and conglomerate; aphanitic to feldspar porphyritic dacite flows and dykes; flow-banded rhyolite and felsic dykes and sills (**Mount Creedon Volcanics, some strata formerly mapped as Mt. Nansen Gp.**)

### DEVONIAN, MISSISSIPPIAN AND(?) OLDER



#### DMN: NASINA

graphitic quartzite and muscovite quartz-rich schist (1), (3)-(5), and(?) (6) with interspersed marble (2) and probable correlative successions (7) - (9)

1. dark grey to black, fine grained graphitic and non-graphitic quartzite, grey micaceous quartzite and quartz muscovite (+/-chlorite; +/- feldspar augen) schist, locally garnetiferous; minor graphitic stretched metaconglomerate and metagrit (**Nasina assem.**)
2. marble (**Nasina assem.**)



3. quartzite, micaceous quartzite, quartz muscovite (+/-chlorite; +/-feldspar augen) schist, and minor metaconglomerate and metagrit as in (1), but may locally include significant Nisling Assemblage
4. quartzite, micaceous quartzite, quartz muscovite (+/-chlorite; +/-feldspar augen) schist, and minor metaconglomerate and metagrit as in (1), but may locally include significant Klondike Schist Assemblage
5. black-weathering, massive, dark grey to black strongly graphitic quartzite with lesser grey micaceous quartzite and quartz mica schist; commonly shows alternating light and dark grey colour lamination **(Nasina quartzite)**
6. biotite schist or gneiss; association uncertain, may belong to Nisling Assemblage
7. medium green to yellow green muscovite-chlorite-actinolite-epidote-albite +/-biotite schist to quartz-rich schist, local albite porphyroblasts; green and yellow banded biotite+/-magnetite schist (metatuff?); micaceous quartzite; minor metachert **(Hazel)**
8. hornblende-oligoclase-quartz+/-biotite +/-actinolite mafic gneiss and schist; hornblende amphibolite; sheared metaplutonic rock with interleaved quartzite and muscovite+/- biotite+/-oligoclase+/-garnet schist; bands of quartzofeldspathic melt **(Dorsey)**
9. fine grained actinolite+chlorite-muscovite+/-epidote phyllite and schist; calcareous metavolcanic rocks; quartzite; marble; sheared felsic to intermediated metaplutonic rocks; minor calcareous green metasilstone or metatuff and sandy metacarbonate **(Ram Creek)**
10. eclogite

MID-CRETACEOUS

mKW

**mKW: WHITEHORSE SUITE**

grey, medium to coarse grained, generally equigranular granitic rocks of felsic (q), intermediate (g), locally mafic (d) and rarely syenitic (y) composition

- d. hornblende diorite, biotite-hornblende quartz diorite and mesocratic, often strongly magnetic, hypersthene-hornblende diorite, quartz diorite and gabbro (**Whitehorse Suite, Coast Intrusions**)
- g. biotite-hornblende granodiorite, hornblende quartz diorite and hornblende diorite; leucocratic, biotite hornblende granodiorite locally with sparse grey and pink potassium feldspar phenocrysts (**Whitehorse Suite, Casino granodiorite, McClintock granodiorite, Nisling Range granodiorite**)
- q. biotite quartz-monzonite, biotite granite and leucogranite, pink granophyric quartz monzonite, porphyritic biotite leucogranite, locally porphyritic (K-feldspar) hornblende monzonite to syenite, and locally porphyritic leucocratic quartz monzonite (**Mt. McIntyre Suite, Whitehorse Suite, Casino Intrusions, Mt. Ward Granite, Coffee Creek Granite**)
- y. hornblende syenite, grading to granite or granodiorite (**Whitehorse Suite**)

EARLY JURASSIC

EJgA

**EJgA: AISHIHIK SUITE**

medium- to coarse- grained, foliated biotite-hornblende granodiorite; biotite rich screens and gneiss schlieren; foliated hornblende diorite to monzodiorite with local K-feldspar megacrysts; may include unfoliated monzonite of the Long Lake Suite (**Aishihik Suite**)

## 2 DC Resistivity Survey

The DC Resistivity survey was completed using Advanced Geoscience Inc., Supersting instrument (instrument specs in appendix). The instrument is placed at a center point of the traverse; referred to as electrode #42, with 42 electrodes on either side. The Supersting gathered apparent Resistivity and Induced Polarization, using the -following arrays:

1. **Inverse Schlumberger** SI Array (with expanding AB and MN dipoles) A=3m
2. **Dipole Dipole** DD Array (with expanding AB and MN dipoles)

The traverse was surveyed with a ProMark3 DGPS units and post processed using GNSS Solutions to obtain accurate horizontal and vertical position.

Generally, Agreement between the profiles was very good and bedrock troughs are observed between the profiles.

### **Placer Lease IW004556:** (figure 3)

18-21 October, 2016

Location: 2.2m up left fork of Independence Creek from the confluence with the main Independence Creek, and the beginning of the lease.

Number of Lines:	5
Line Length:	249m
Number of electrodes:	84
Electrode Spacing:	3m
Line Spacing:	200m

### **Placer Lease IW004557:** (figure 3)

17-18 October, 2016

Location: 200m up left fork of Independence Creek from the confluence with the main Independence Creek, and the beginning of the lease.

Number of Lines:	3
Line Length:	166m
Number of electrodes:	84
Electrode Spacing:	2m
Line Spacing:	50m

### **Placer Lease IW004558:** (figure 3)

15-16 October, 2016

Location: 11.5km up Independence Creek from the confluence with the Yukon River.

Number of Lines:	2
Line Length:	249m

Number of electrodes: 84  
 Electrode Spacing: 3m  
 Line Spacing: 50m

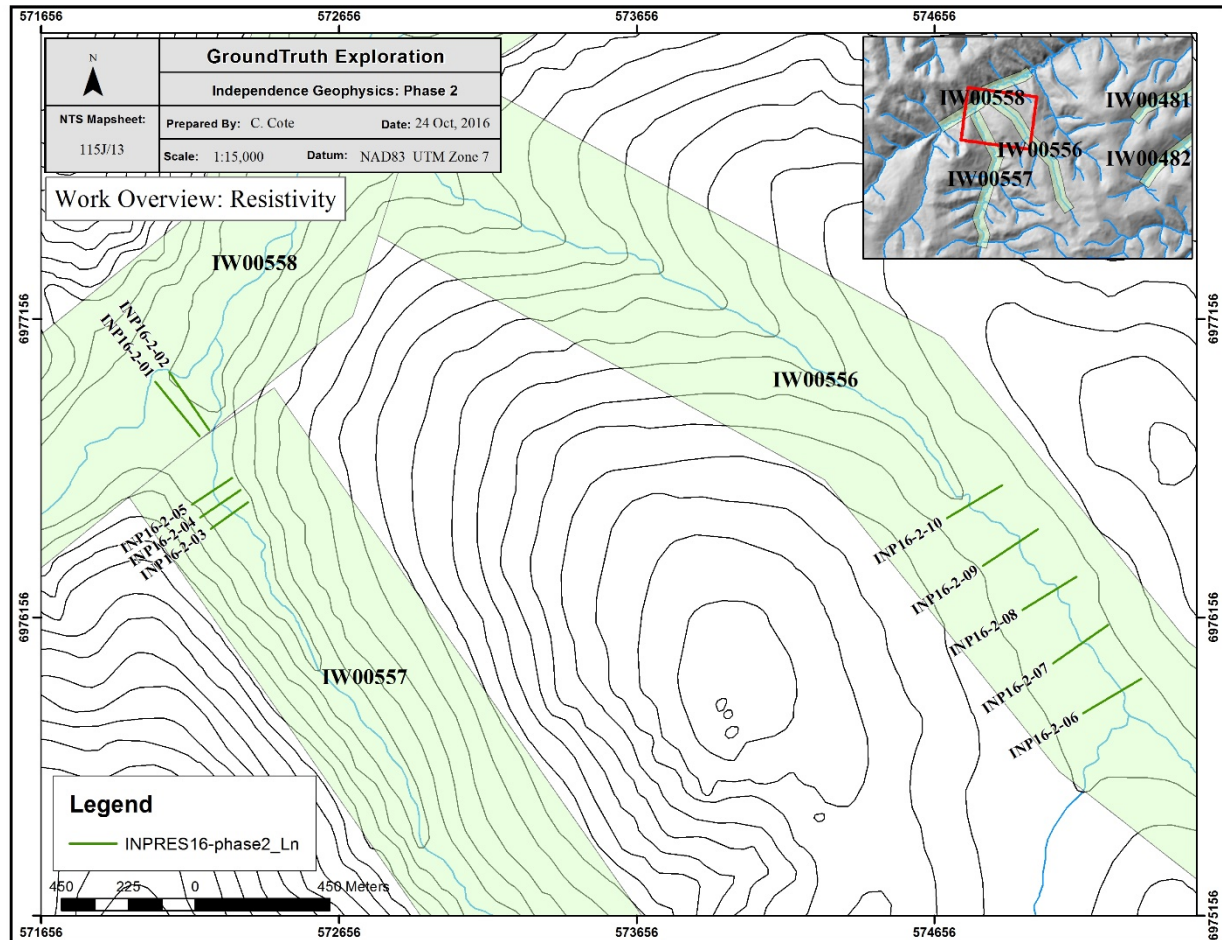


Figure 3: Resistivity Survey Overview

## 2.1 Field Survey Operating Procedures:

- A crew of 5 is deployed to run survey.
- The midpoint of a traverse is located and the line is sighted-in using a DGPS.
- Minimal brush is cut along line to sight pickets and lay cables
- Crew places electrode at 3m spacing with measuring tape
- Electrodes are hammered to a depth of 30cm (10% of electrode spacing)
- Cables are laid and attached to the electrodes
- Contact resistance test is conducted
- Calcium Chloride (25% solution) added to all electrodes >2k ohms. CRT reread.
- Extra electrodes added to high CR electrodes. CRT reread.
- With satisfactory Contact Resistance, Resistivity survey is Read.

- Operator surveys the traverse using DGPS and marks the traverse with pickets every 10 electrodes.

## 2.2 Data Processing

The collected data is downloaded in the field after every array and checked for integrity. This allows any field errors to be identified before moving the equipment. The RES data is processed daily by the lead operator using EarthImager2D software provided by Advanced Geosciences Inc. Resistivity data-misfits are removed and the cleaned data-set is inverted. The same process is done with the IP data. Terrain corrections collected using a differential GPS are applied to the inversions. The DGPS data is processed using GNSS Solutions software. A .csv is created containing the DGPS traverse points collected. All instrument raw data from the DGPS and SuperSting are archived. An ESRI shape file is created containing the traverse points collected.

## 2.3 Survey Results

### **Placer Lease IW004556:**

The DC Resistivity survey performed very well on this Lease. Figure 4 shows locations of the Resistivity Profile and surveyed electrode locations, along with location of coincident Mag surveys. Topography in the survey area is a broad, shallow valley. The survey was conducted in a fairly swampy area with minimal tree cover. The late fall timing of the survey coincides with maximum permafrost active layer thickness, typified by a very conductive, saturated surface underlain by frozen material.

The survey identified the active layer, permafrost horizon, and bedrock interface well in this site. The use of both resistivity and IP was particularly helpful for identifying these targets, however, the resistivity survey would work well as a stand-alone survey here if need be.

The saturated active layer ranges from 2 to 5m away from the creek, with a deeper thaw zone around the creek ranging from 5 to 11m. This zone is identified by a low resistivity layer juxtaposed with moderate IP response corresponding to zones of clay deposition within the surface deposits.

The frozen permafrost layer ranges in thickness from 3 to 10m. This zone is identified by a high resistivity layer juxtaposed with a low IP response.

The bedrock interface ranges in depth from 10 to 19m, with the deepest zone located in the center of the valley. This zone is identified as the boundary between vertical bedrock features and horizontal depositional resistivity features, and is also at the base of the frozen permafrost layer. Complicating factors that could be increasing the depth of interpreted bedrock would be ice rich, fractured and frozen bedrock that has the same response as the overlying material.

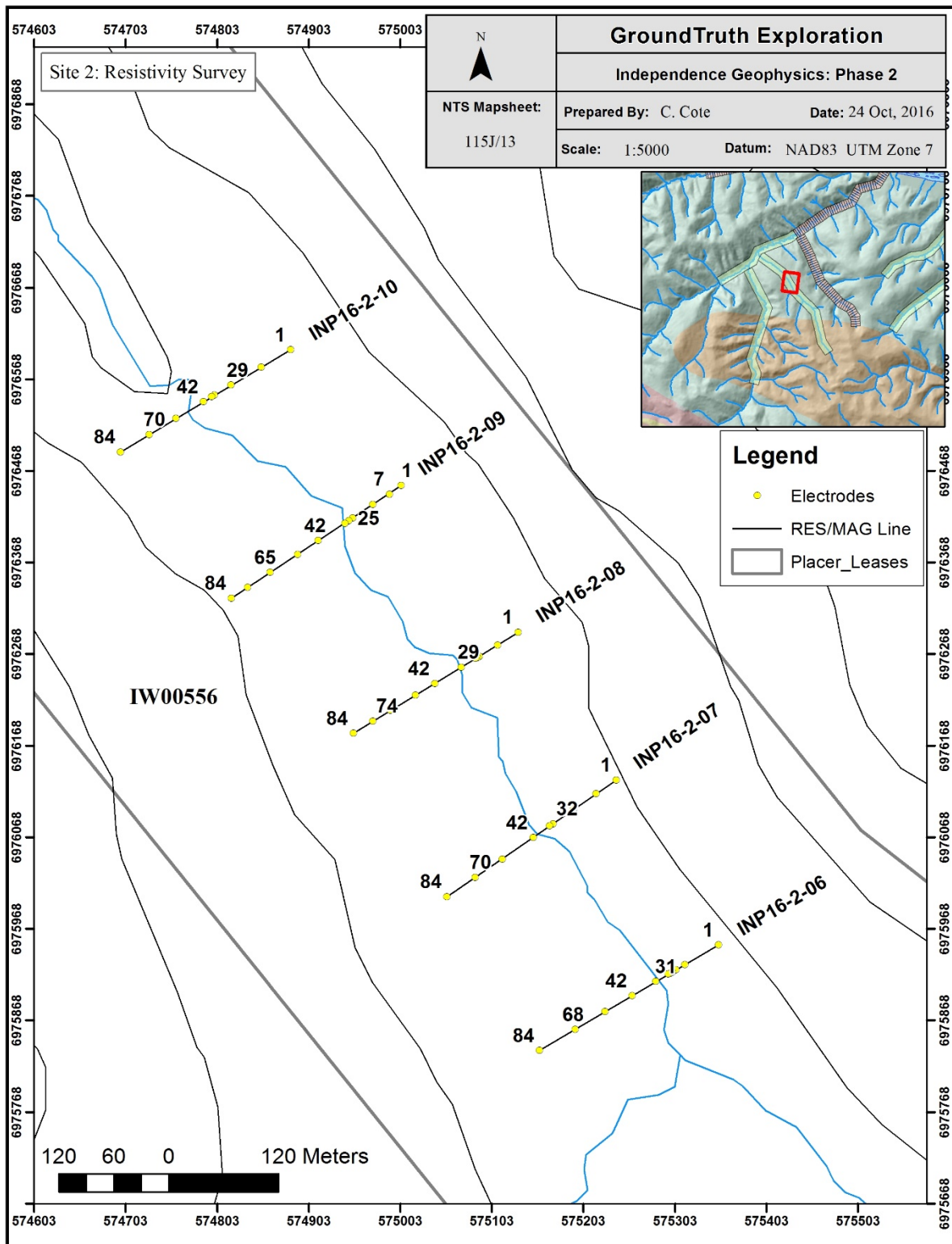


Figure 4: Resistivity overview, lease 556

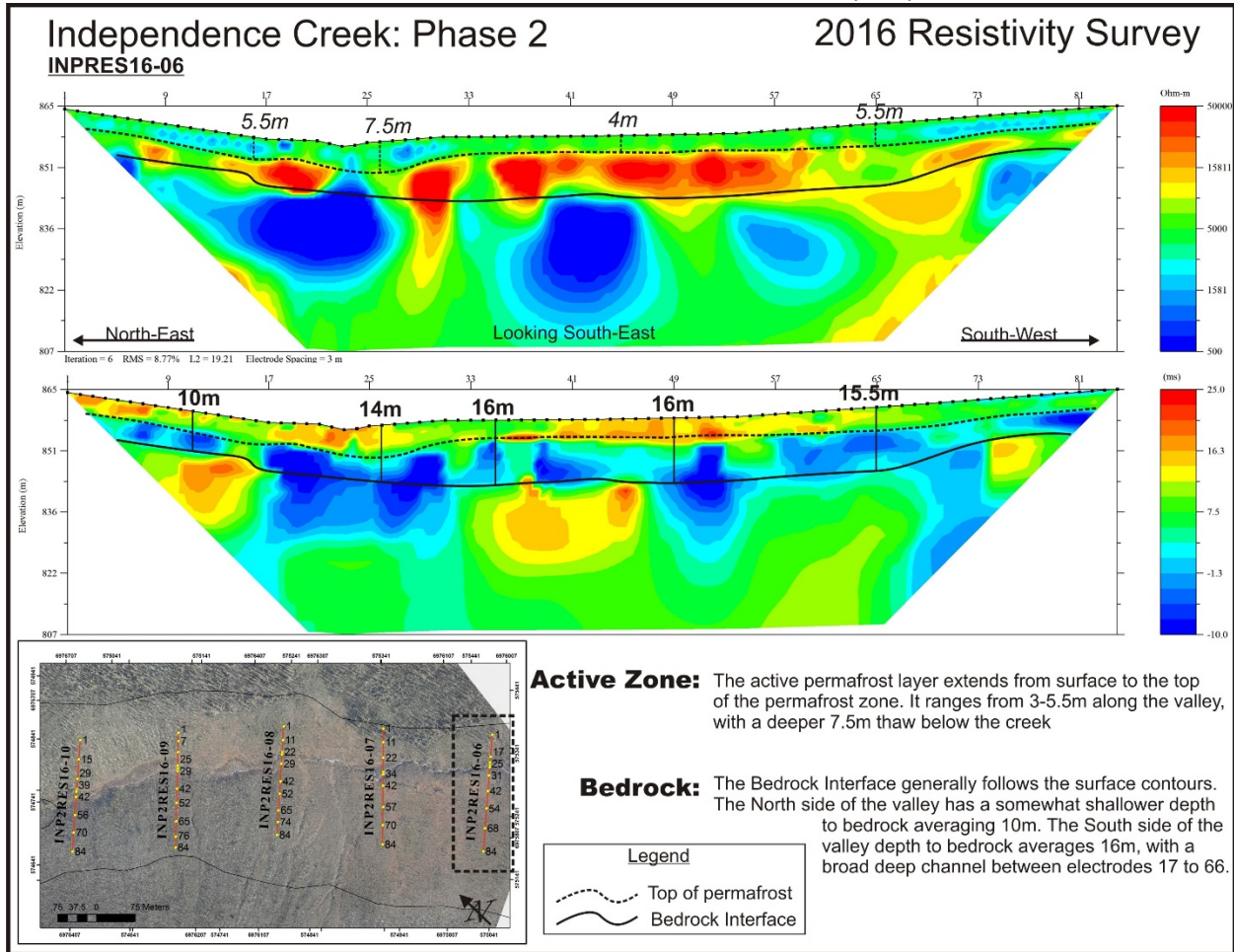


Figure 5: INPRES16-06 Profile and Interp

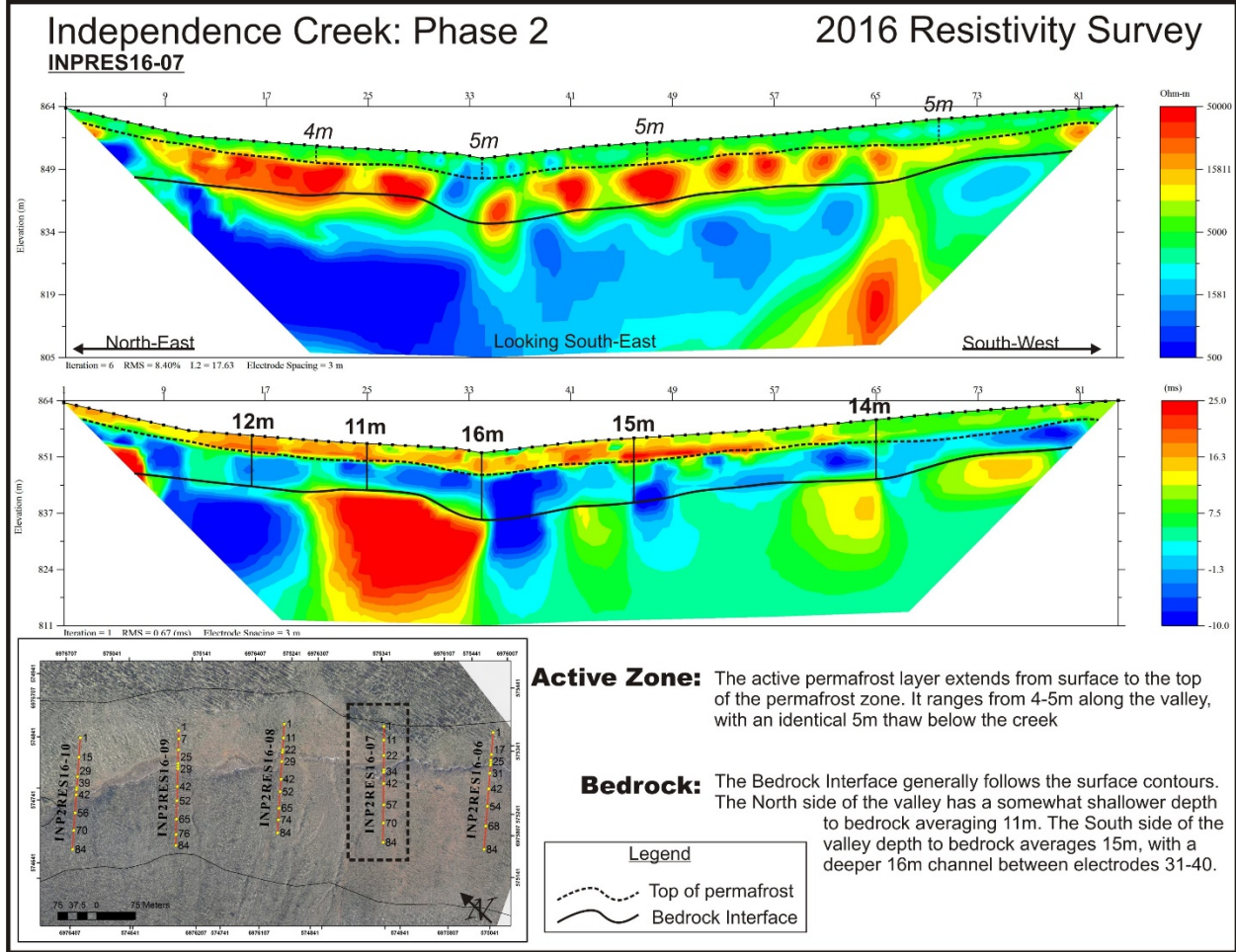


Figure 6: INPRES16-07 Profile and Interp



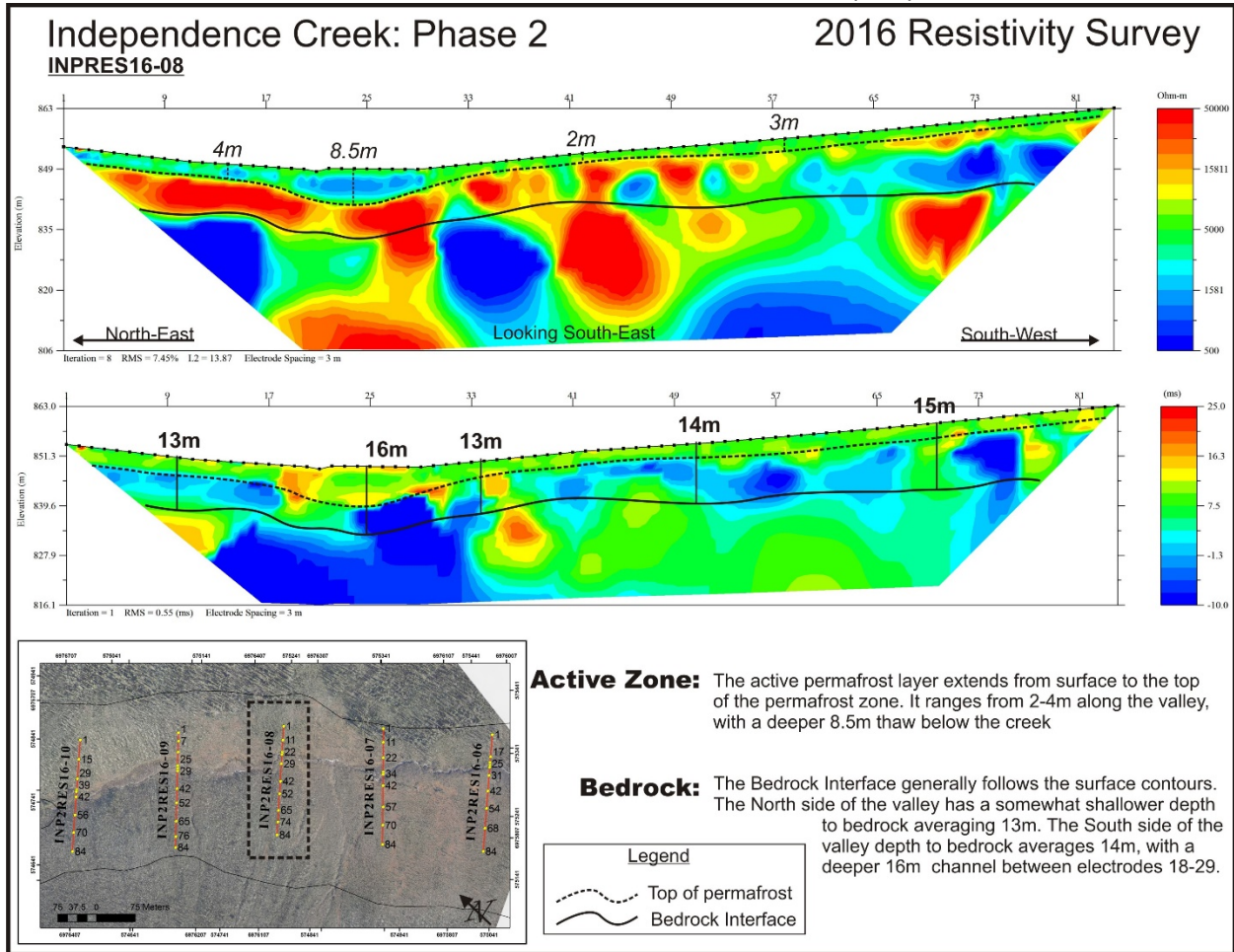


Figure 7: INPRES16-08 Profile and Interp

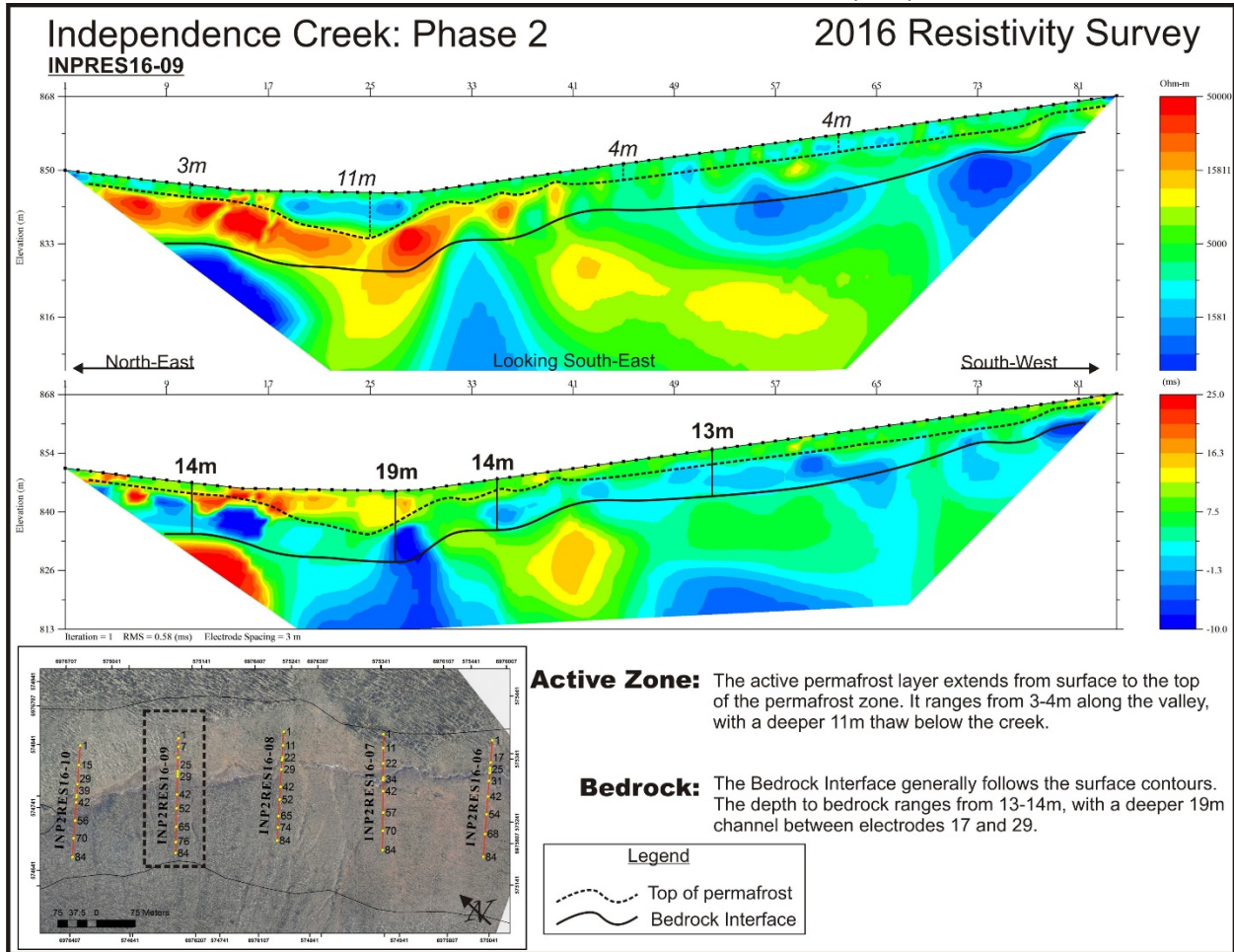


Figure 8: INPRES16-09 Profile and Interp

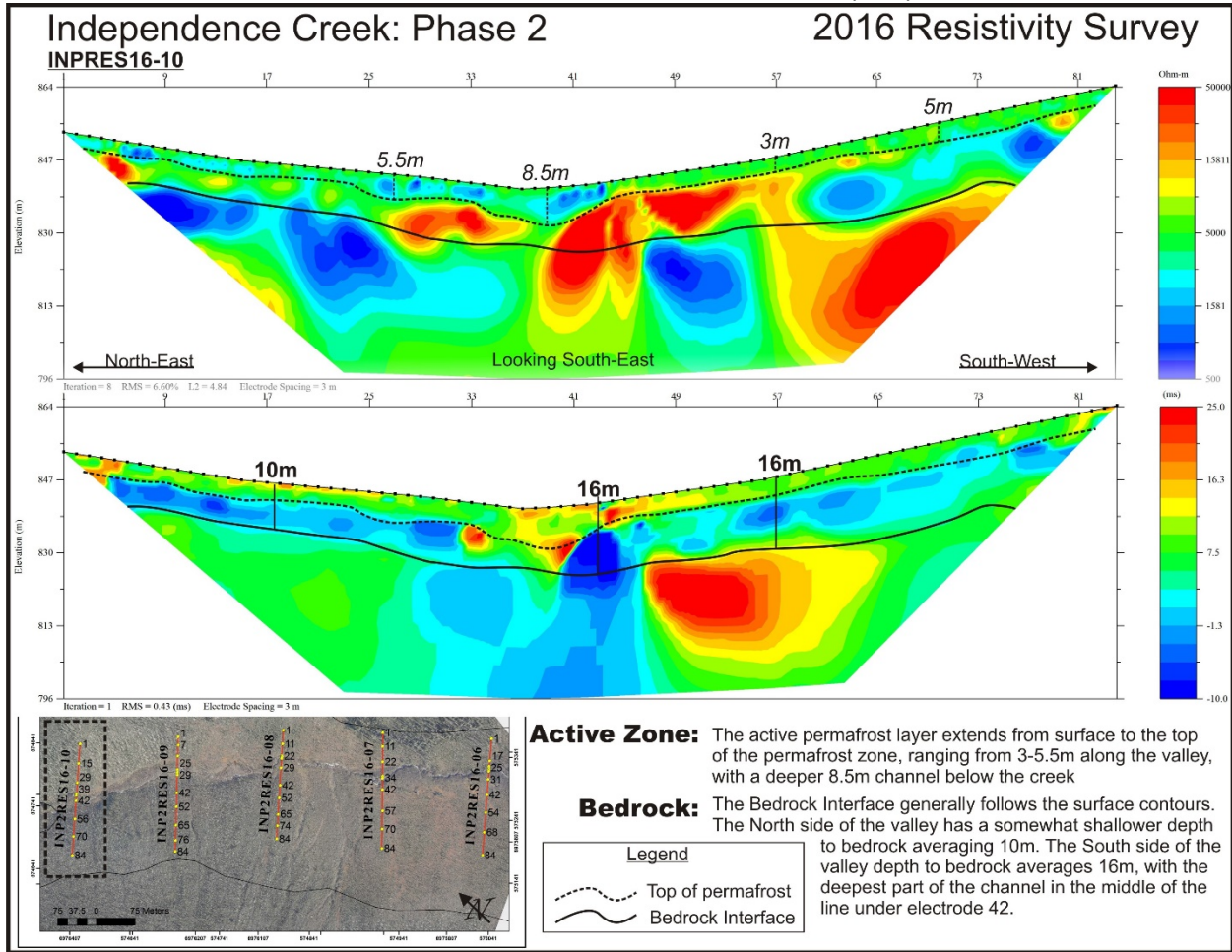


Figure 9: INPRES16-10 Profile and Interp

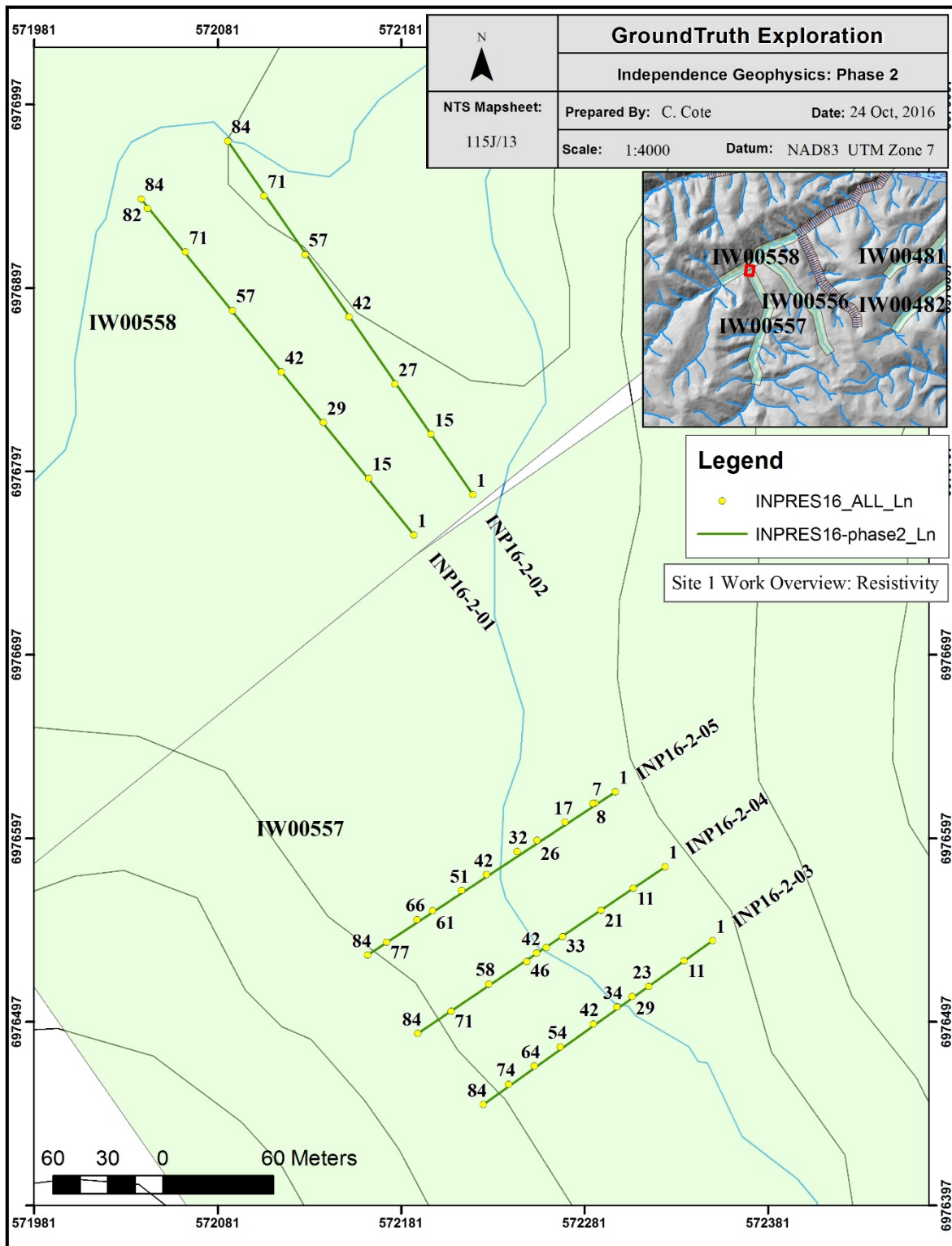


Figure 10: Resistivity profiles at site 1

## Placer Lease IW004557:

Figure 10 shows locations of the Resistivity Profile and surveyed electrode locations, along with location of coincident Mag surveys. Topography in the survey area narrow, deep, north-westerly running valley. The survey was conducted in zone of thick sphagnum moss and black spruce indicative of persistent permafrost. The late fall timing of the survey coincides with maximum permafrost active layer thickness, typified by a very conductive, saturated surface underlain by frozen material.

The survey identified the active layer, permafrost horizon, and bedrock interface well in this site. The use of both resistivity and IP was particularly helpful for identifying these targets, however, the resistivity survey would work well as a stand-alone survey here if need be.

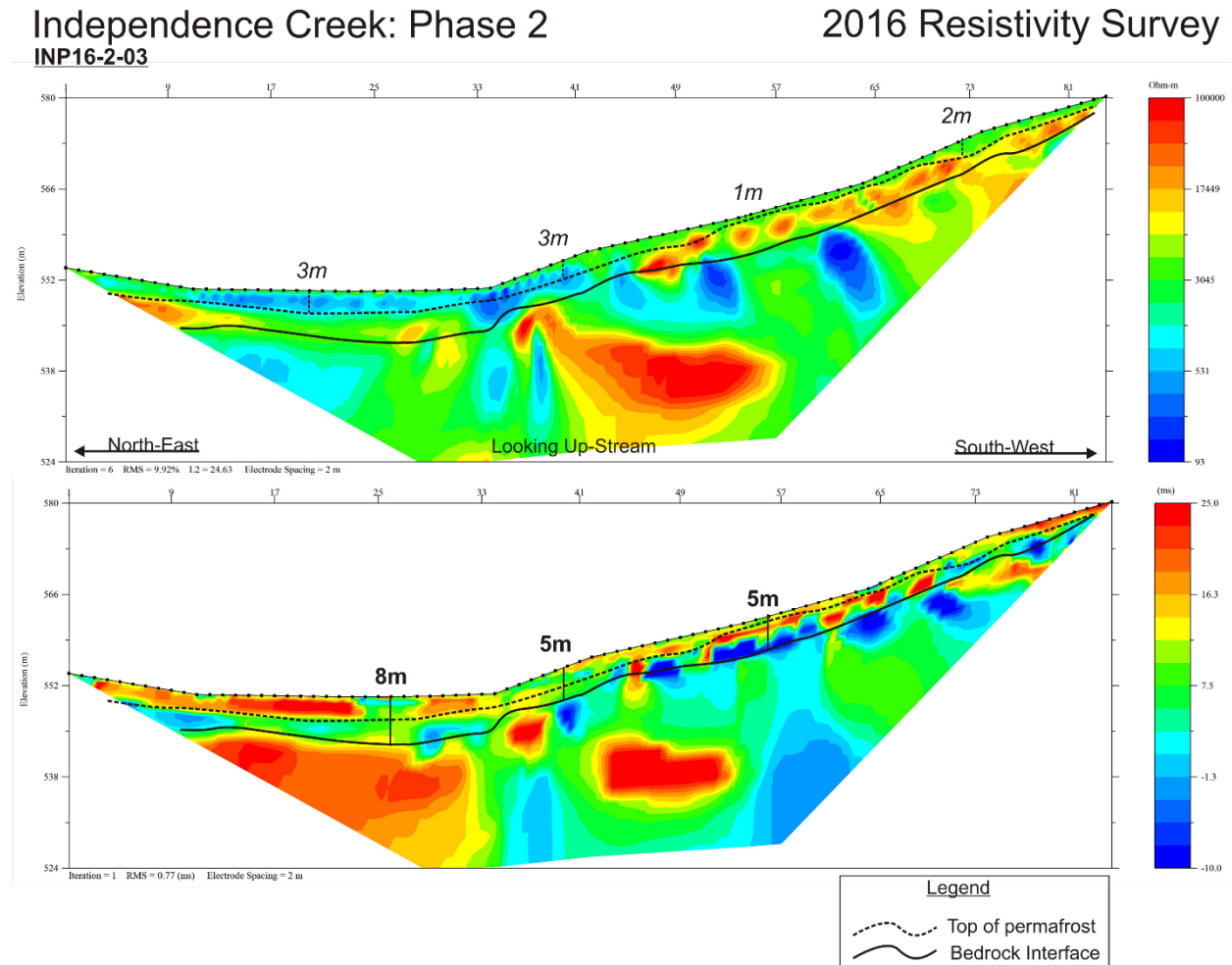


Figure 11: INP16-2-03 Interpretation

Independence Creek: Phase 2

2016 Resistivity Survey

INP16-2-04

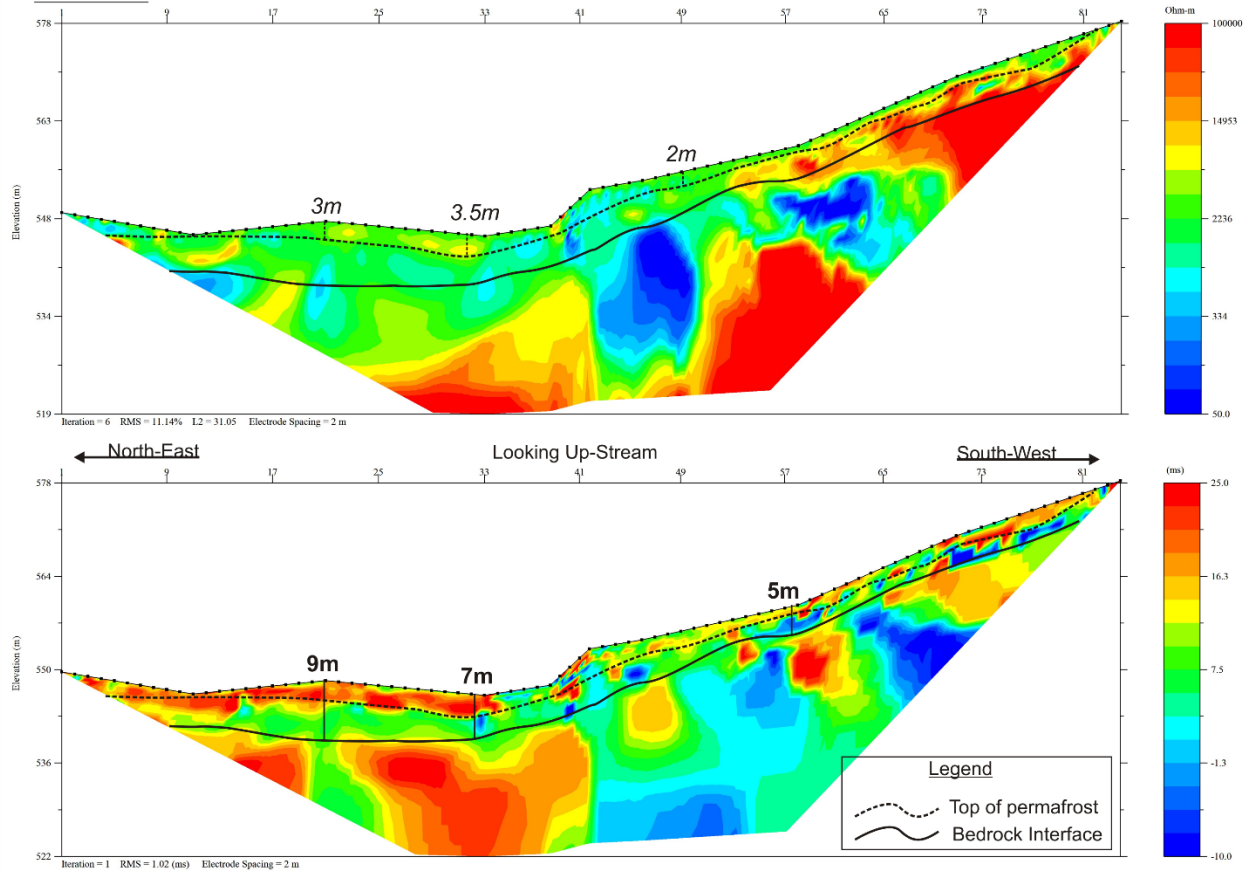


Figure 12: INP16-2-04 Interpretation

The saturated active layer ranges from 1 to 3.5m. This zone is identified by a low resistivity layer juxtaposed with moderate IP response corresponding to zones of clay deposition within the surface deposits.

The frozen permafrost layer ranges in thickness from 2 to 6m. This zone is identified by a high resistivity layer juxtaposed with a low IP response. It is fairly uniform in thickness throughout the area.

The bedrock interface ranges in depth from 5 to 9m at a fairly constant depth across the valley. This zone is identified as the boundary between vertical bedrock features and horizontal depositional resistivity features, and is also at the base of the frozen permafrost layer.

Complicating factors that could be increasing the depth of interpreted bedrock would be ice rich, fractured and frozen bedrock that has the same response as the overlying material.

## Independence Creek: Phase 2 INP16-2-05

## 2016 Resistivity Survey

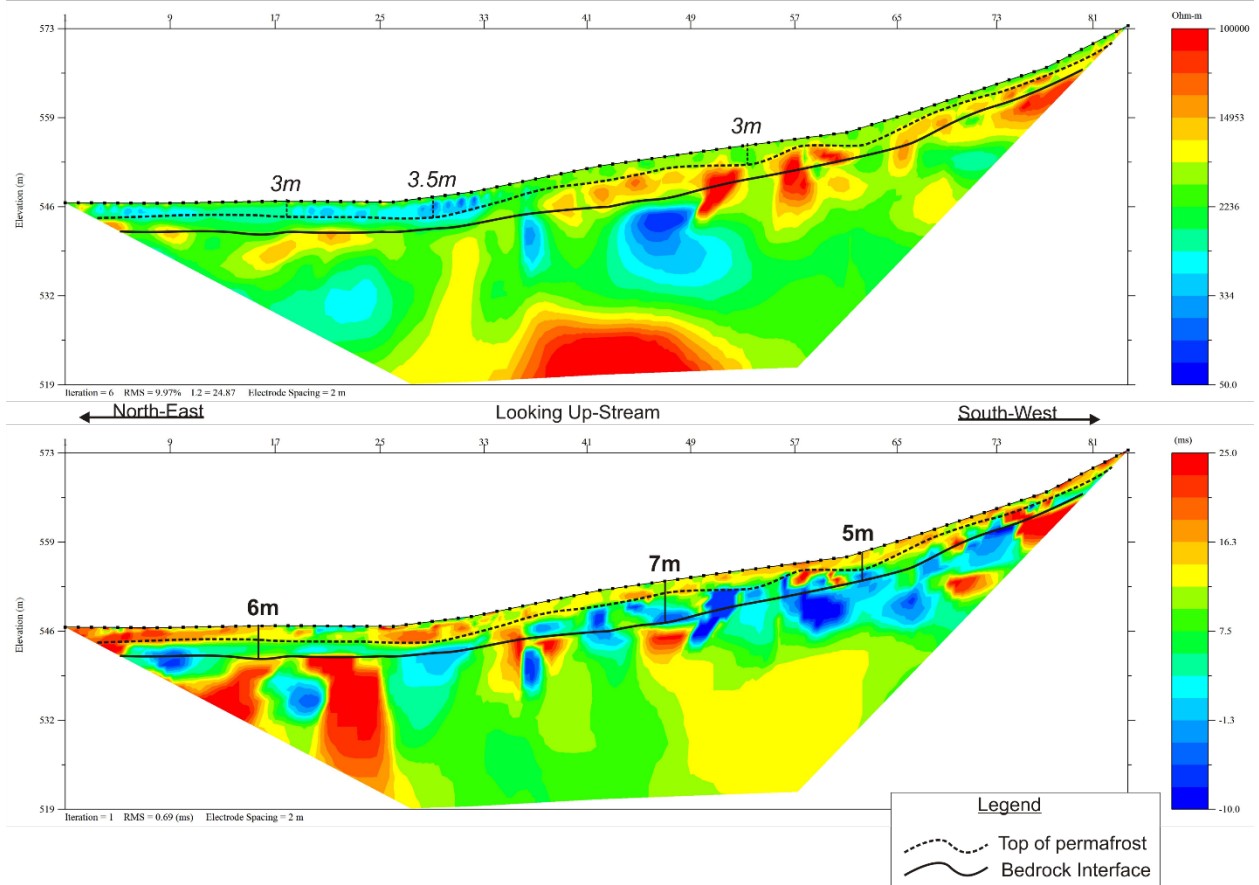


Figure 13: INP16-2-05 Interpretation

## Placer Lease IW004558:

Figure 10 shows locations of the Resistivity Profile and surveyed electrode locations, along with location of coincident Mag surveys. Topography in the survey area is a broad, deep valley with steep sides. The survey was conducted along the bottom of the valley just upstream of the confluence of the two tributaries of Independence creek. The late fall timing of the survey coincides with maximum permafrost active layer thickness, typified by a very conductive, saturated surface underlain by frozen material.

The survey identified the active layer, permafrost horizon, and bedrock interface well in this site. The use of both resistivity and IP was particularly helpful for identifying these targets, however, the resistivity survey would work well as a stand-alone survey here if need be.

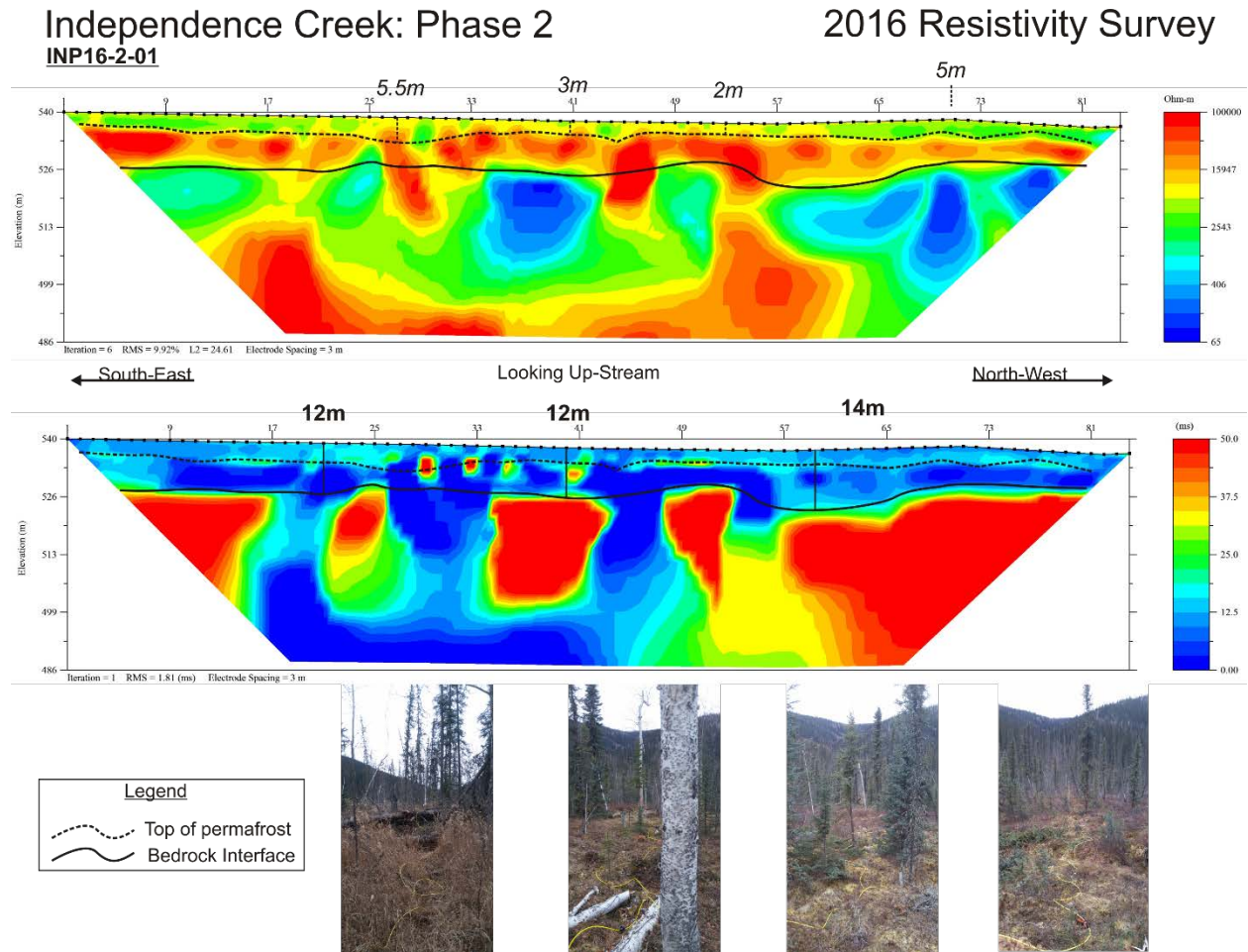


Figure 14: INP16-2-01 interp



The saturated active layer ranges from 2 to 5m along the length of the profiles. This zone is identified by a low resistivity layer juxtaposed with moderate IP response corresponding to zones of clay deposition within the surface deposits.

The frozen permafrost layer ranges in thickness from 3 to 10m. This zone is identified by a high resistivity layer juxtaposed with a low IP response.

The bedrock interface ranges in depth from 10 to 14m, with a fairly steady depth along the length of the profiles. This zone is identified as the boundary between vertical bedrock features and horizontal depositional resistivity features, and is also at the base of the frozen permafrost layer. Complicating factors that could be increasing the depth of interpreted bedrock would be ice rich, fractured and frozen bedrock that has the same response as the overlying material.

## Independence Creek: Phase 2 INP16-2-02

## 2016 Resistivity Survey

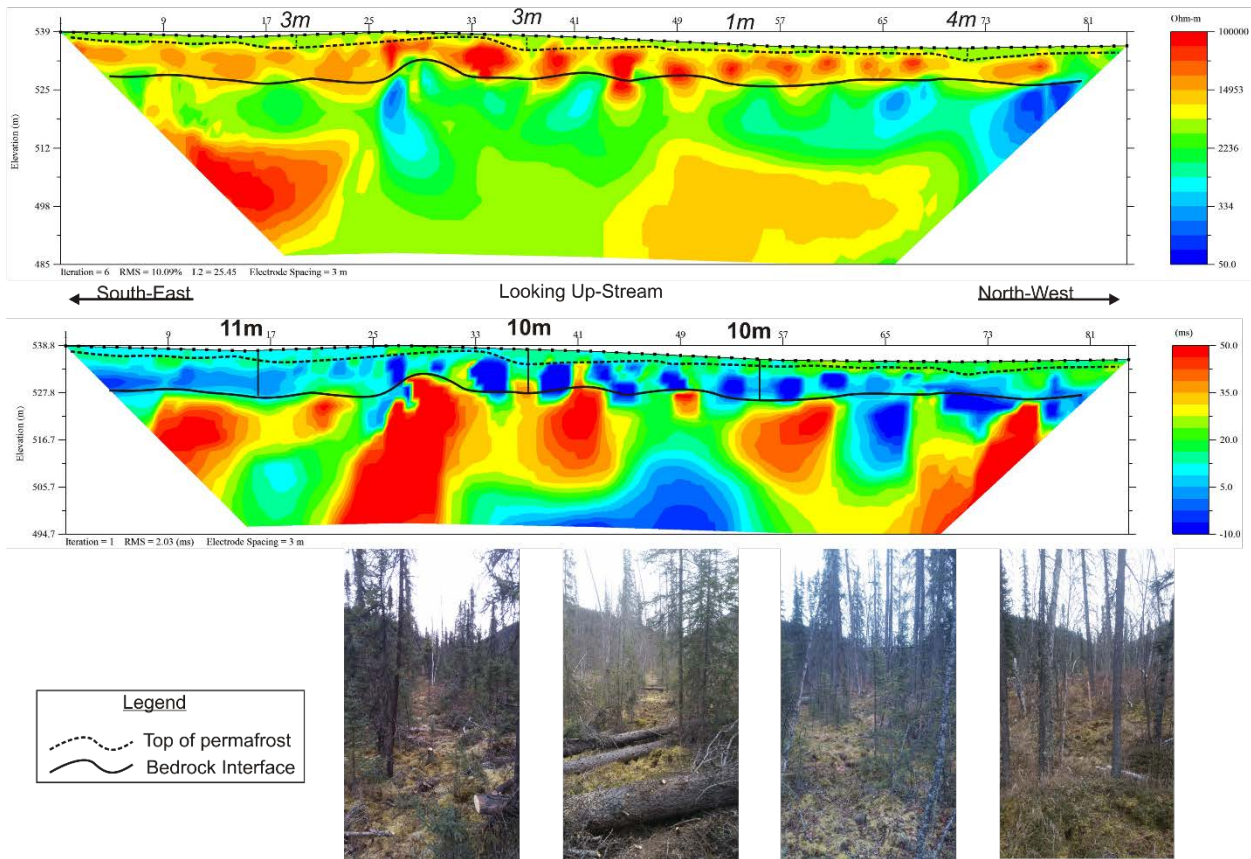


Figure 15: INP16-02-02 Interp

### 3 Magnetic Survey

#### 3.1 Survey Summary

The magnetic survey was designed to cover all the same lines of the resistivity survey, as well as extend up and down the valley to expand the survey area and reduce edge effect.

Total traverse meterage per lease:

Lease 556: 1925 Line-m:

Lease 557: 875 Line-m:

Lease 558: 1100 Line-m:

The MAG features evident in figures 16 and 17 appear to have a strong bedrock control and do not show prospective placer channels rich in magnetite as was hoped. They do help to confirm some bedrock features, increasing the confidence in the RES/IP survey bedrock interpretation.

#### 3.2 Magnetic Field Theory Applied to Placer Exploration

In a placer setting, magnetite derived from bedrock weathering is concentrated in the main channel of a creek or river where the water flow has the highest velocity and the greatest turbulence. Thus, minerals with high specific gravity (magnetite, ilmenite, gold, etc.) are preferentially concentrated in this region of the stream as material with lower specific gravity is winnowed from the sediment. High concentrations of "black sand" (magnetite, ilmenite, chromite) are often recorded in auriferous pay streaks where the stream bed has remained relatively immobile for some period, permitting hydraulic concentration to build up a significant volume of these materials. The materials comprising black sand are magnetically susceptible. Magnetite has a very high magnetic susceptibility of  $1200-19200 \times 10^{-3}$  SI units, ilmenite ranges from  $300-3500 \times 10^{-3}$  SI units, and chromite measures from  $3-1100 \times 10^{-3}$  SI units. Average magnetic susceptibilities for sedimentary, igneous (excluding ultramafic) and metamorphic rocks are: 0-10, 3-160 and 0-70  $\times 10^{-3}$  SI units respectively. Fluvial sediments register magnetic susceptibility in the range of 0-2  $\times 10^{-3}$  SI units. There is consequently a significant susceptibility contrast between gravels enriched with black sand and average gravels/ underlying bedrock.

#### 3.3 Personnel and Equipment

The Total Field Ground survey is typically conducted with one operator only. No grid is required as all magnetic readings are read with corresponding GPS location. The operator is responsible for efficient operation of survey and ensuring optimal data quality. The operator downloads, corrects with base and plots all data nightly to ensure ongoing consistency throughout the survey.

The following equipment was used for the completion of the survey:



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Magnetometer Field Unit: GEM Systems GSM-19T Proton Magnetometer

Base Station: GEM Systems GSM-19T Proton Magnetometer

Processing: Laptop computer

Software: GEM Link software for mag upload/download  
Mapinfo-Discover for diurnal correction/plotting

## 3.4 Operating Procedure

The survey is completed in the field according to the following procedure:

Field Magnetometer Observation Frequency: 1 reading per second.

Base Station Magnetometer: Set to record an observation every 5 seconds for the duration of the survey.

- Operator uploads survey grid endpoints to Field magnetometer unit
- The base station is established in an accessible location that will not be disturbed on or near the survey site.
- Base station site is marked with a picket and location recorded for future use.
- Operator runs survey with internal GPS recording position and navigates survey lines using internal mag GPS.
- At end of day each survey day, Operator downloads Field and Base magnetometers, processes diurnal corrections and plots survey to assess data quality.

## 3.5 Data Processing

The Total Field Magnetic survey data is georeferenced to NAD83 UTM projected coordinates using the internal GPS in the field magnetometer. Base and rover magnetometers are synchronized to GPS time prior to each survey day. An appropriate reference field is chosen based on International Geomagnetic Reference Field (IGRF) calculations. Temporal geomagnetic variation is removed by linear interpolation using the base station data. Corrected data is screened for noisy or erroneous values and is then plotted.

### Standard data output:

Magnetic: RAW data from base and field magnetometer (.csv)  
CORRECTED Total Field Mag data files projected to XYZ locations (.tab format)  
CORRECTED Total Field Mag figures of gridded data( .jpg and geotiff format)

## 3.6 Magnetic Survey Results

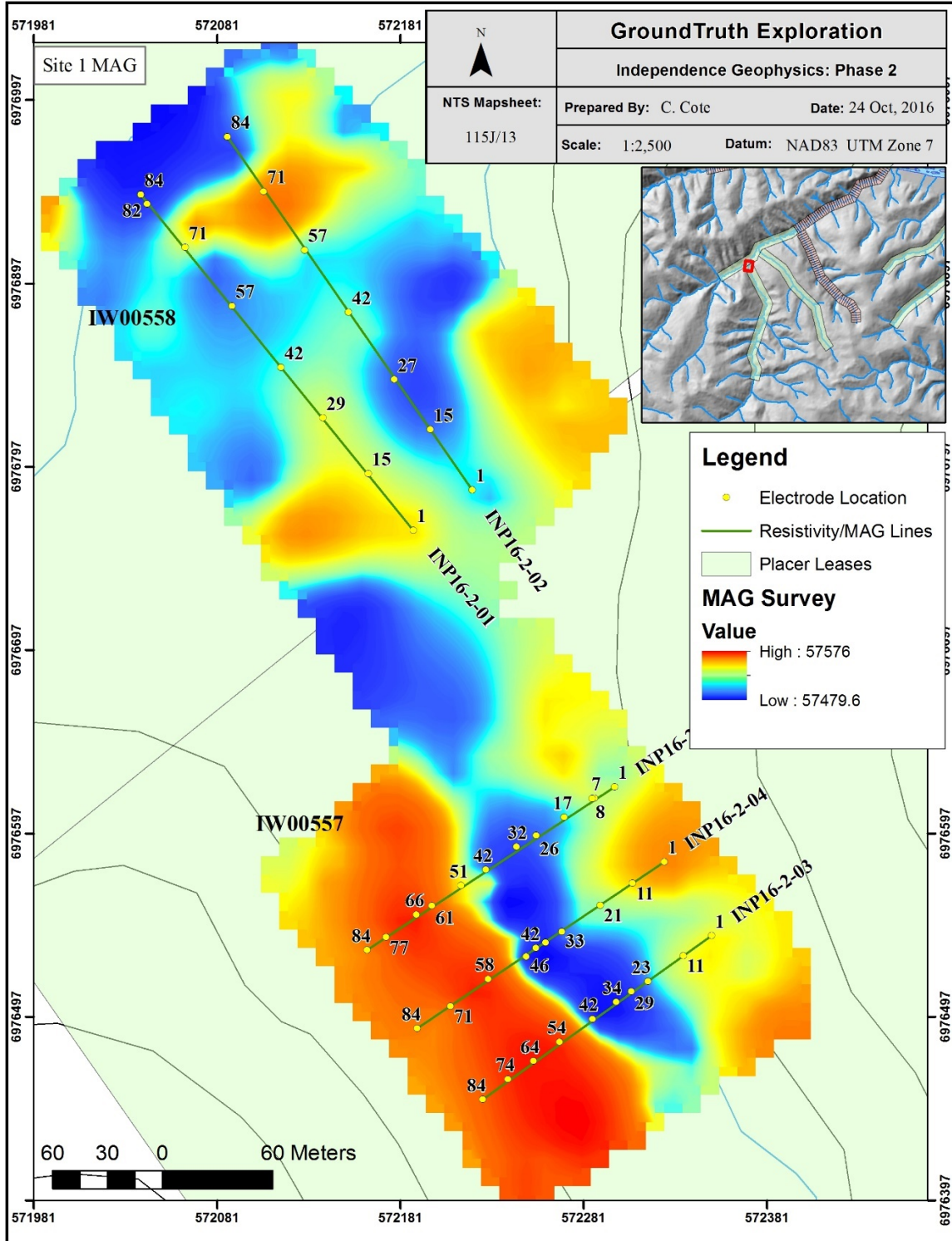


Figure 16: MAG Survey over Leases IW00557 and 558

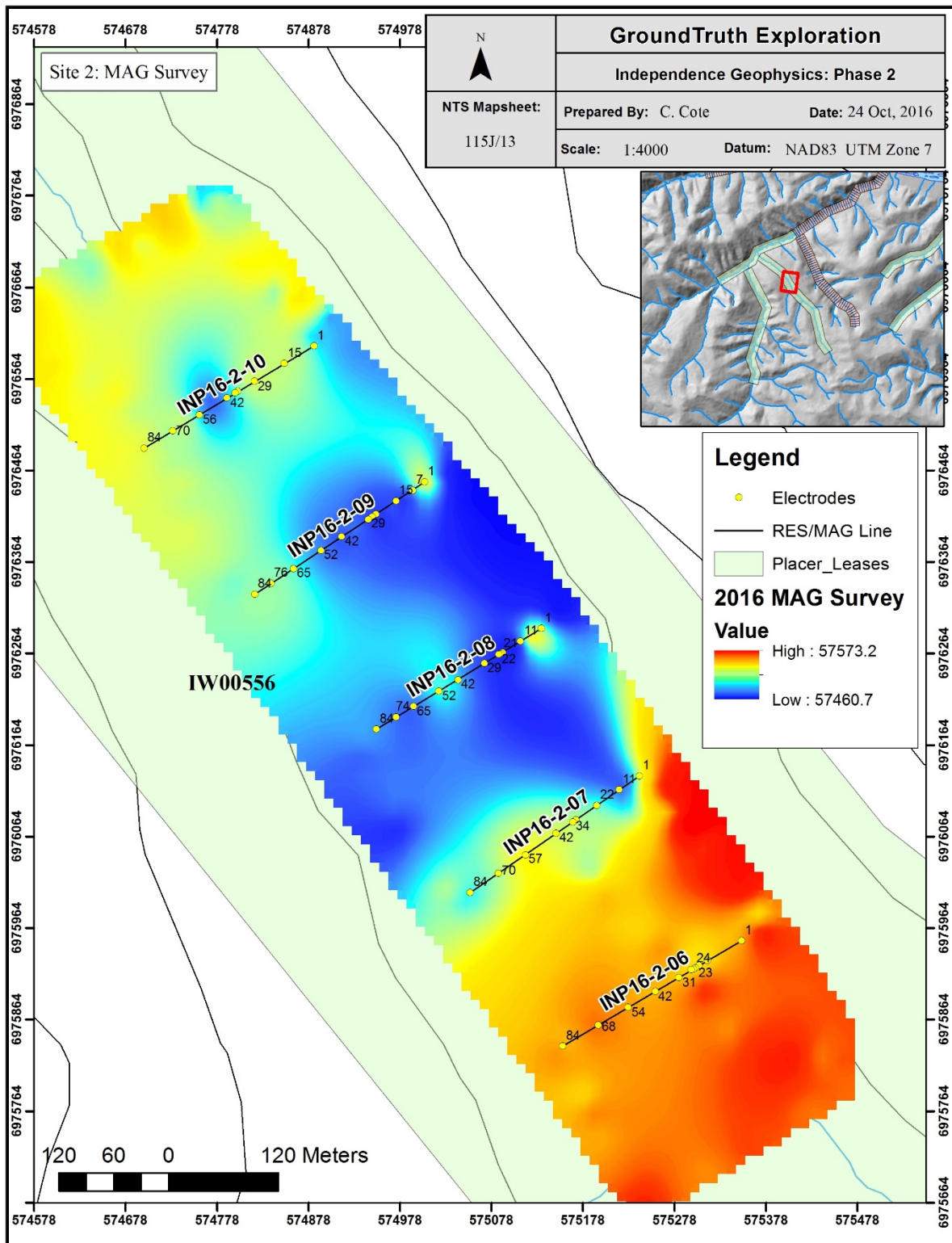


Figure 17: MAG Survey over Leases IW00556

## 4 Drone Survey

The unmanned aerial vehicle (UAV) high resolution imagery/elevation survey was performed over a period of three days. A total of 3 flights was run to cover the area. The survey was staffed with a lead UAV operator and assistant UAV operator (spotter).

The Drone survey lines and spatial resolution are approved by client prior to survey. Standard spatial resolution is set between 4 and 10cm/pixel and must be in accordance with Transport Canada UAV operating permit regulations. Typical flight time is approximately 35 minutes per flight and the operator plans accordingly with available time on ground to determine the number of flights possible per day.

### 4.1 Personnel and Equipment

The Drone survey is typically conducted by one trained operator and one spotter. The lead operator is responsible for coordinating efficient operation of survey and ensuring optimal data quality, the spotter is responsible for maintaining visual contact with the drone, monitoring the radio, and looking for flight path conflicts.

The following equipment is used for the completion of the survey:

UAV Drone:	Ebee UAV 'Drone' with internal GPS and radio link
Camera:	Cannon 16 megapixel camera
Base Station:	Panasonic Toughbook laptop with radio link
Power Generation:	1000watt Honda generator (for battery charging)
GPS units:	2x Promark3 GPS receivers (if GCPs are collected)
Radios:	VHF radio with aircraft frequencies
Processing:	Laptop computer with adequate RAM
Software:	Emotion software for flight planning/monitoring Postflight Terra3D for image Orthorectification



## 4.2 Operating Procedure

The survey is completed in the field according to the following procedure:

- Survey is planned using Emotion software prior to departing for field.
- Spatial resolution, footprint, number of planned flights and launch location is determined.
- Operator arrives onsite and sets up base station, UAV unit and ensures adequate launch and landing path is available.
- Prior to launch, operator calls out on Aircraft frequencies to notify Drone survey in progress. Through duration of survey, operator calls out every 5 minutes to notify aircraft of survey in progress.
- Operator Hand launches aircraft and flies survey as planned with number of required flights.
- Data is downloaded from drone after each flight and inspected for quality.
- After survey, all imagery and drone data files are Orthorectified using Postflight Terra 3D software package.

## 4.3 Data Processing

The collected data is downloaded in the field after every flight and checked for integrity. This allows any low quality imagery to be identified and resurveyed while onsite. The drone imagery data is processed every evening by the lead operator in the field using Postflight Terra 3D software provided by Sensefly. The initial orthorectified image product is generated by an automated process. This image is then cleaned up manually within the Postflight software by visually checking for low quality portions of the image and selecting another overlapping image for that location. The final cleaned image and DEM product is the result of this manual QC process. The final Image and DEM are georeferenced to NAD83 UTM projection. A final QC report is generated automatically with the final cleaned product.

### Standard data output:

Imagery:	Georeferenced Orthoimage (.geotiff format)
Digital Elevation Model:	Gridded Elevation model (geotiff format)
Automated Quality Report:	Report with survey statistics (.pdf format)

## 4.4 Discussion and Interpretation

The UAV survey is useful for interpreting the geophysical surveys to know in detail what the ground conditions are. Locations of permafrost, drainage and slope have a significant impact on geophysical surveys such as resistivity and GPR data. The imagery/topography allows us to get an accurate measurement of true valley floor width and margins from creek drainage. Future



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access and planning of exploration work locations will be planned from this dataset. Figures show the imagery and topographic model and the level of detail which the local topography is imaged. Basic targeting interpretations are made on the topographic model figures. It is interpreted that generally the North and East facing slope on the lease has best prospectivity for buried placer gravels. The South and West facing slope generally appears to be deeply incised and bedrock being near surface. There is an area at the top end of the lease where the valley broadens significantly and could host a significant volume of placer gravels and should be tested.



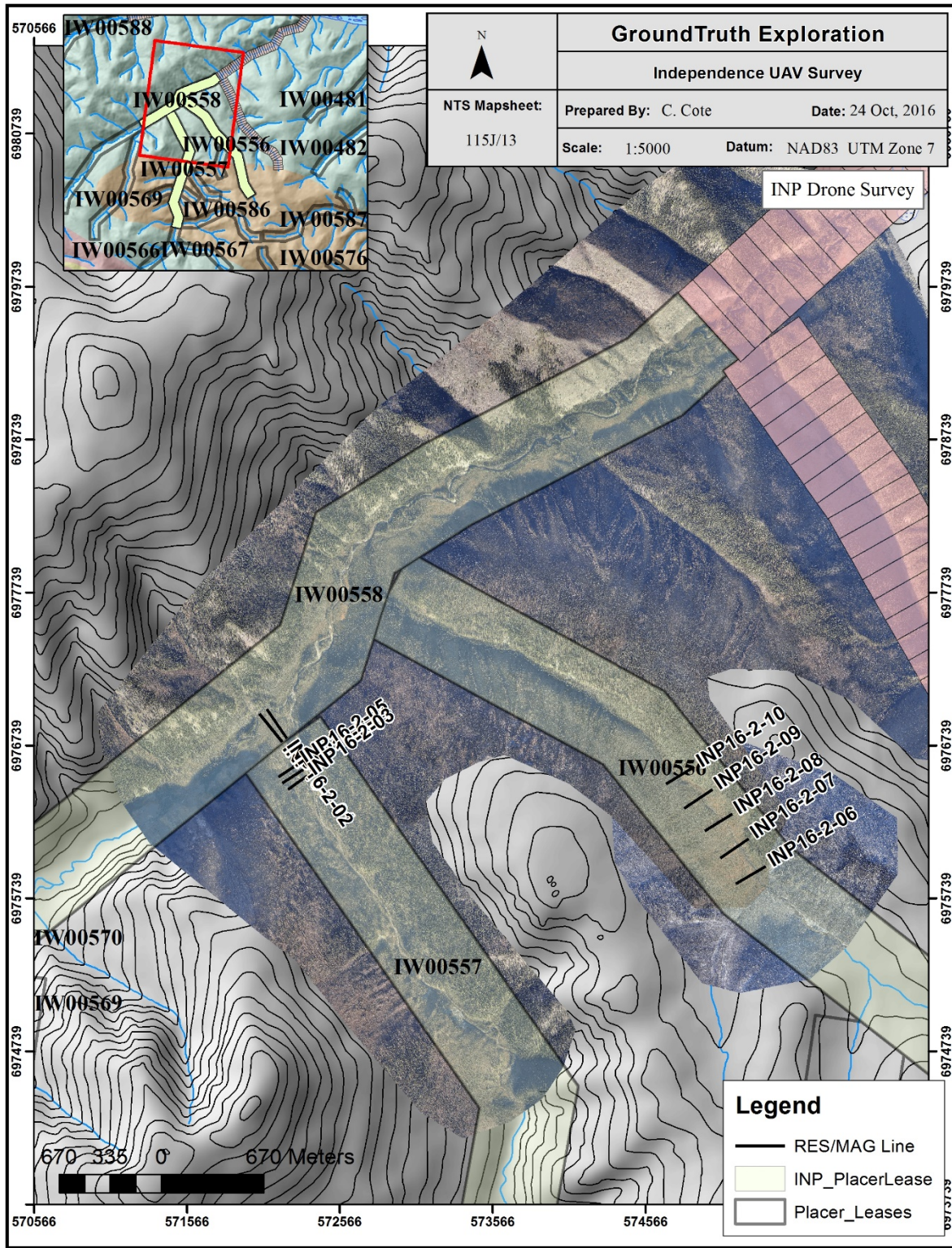


Figure 18: Drone Imagery over Leases

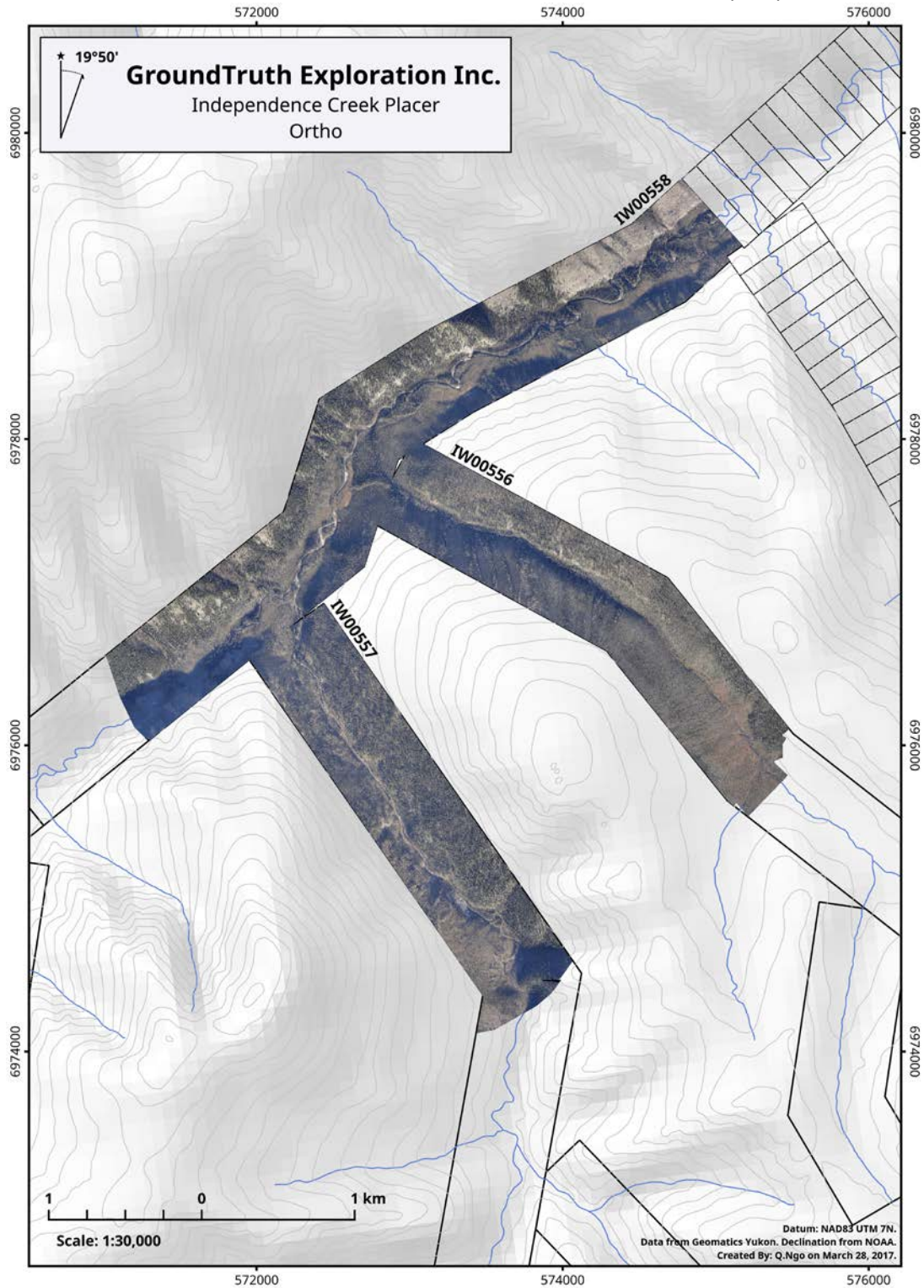


Figure 19: UAV Orthoimagery

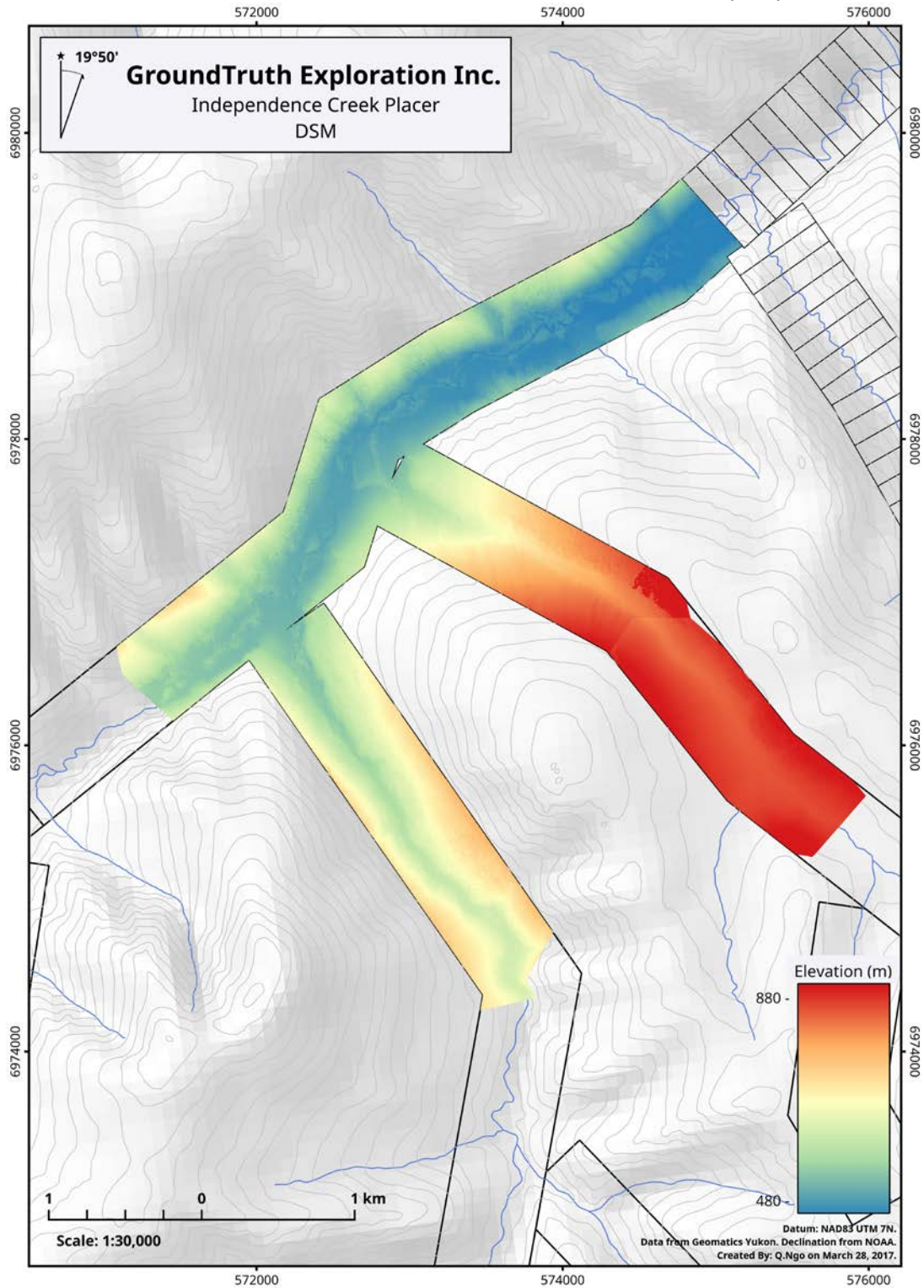


Figure 20: UAV Digital Elevation Model



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## 5 Project Expenses

Invoice per lease below:

Overview:				
DC Resistivity and UAV Survey on Placer Lease: IW00558				
Survey Date: October 15-16/16				
DC Resistivity and UAV Drone Surveys:	Chargeout	Units	Costs	
<b>DC Resistivity Wages</b>				
1 Geophysical Operator	\$ 550.00	1	\$ 550.00	
1 Assistant Operator/DGPS Surveyor	\$ 440.00	1	\$ 440.00	
Field Assistant(s)	\$ 385.00	2	\$ 770.00	\$ 1,760.00
<b>IP-Res Survey Equipment</b>				
IP/Resistivity Meter: Superstring 8 Channel meter w/cables, 84 electrodes	\$ 600.00	1	\$ 600.00	
Additional Cables/Switchboxes for 168 electrode survey configuration	\$ 300.00	0	\$ -	
Precision GPS: Ashtech Promark 100 differential GPS	\$ 50.00	1	\$ 50.00	
Field Laptop/Software for nightly download	\$ 50.00	1	\$ 50.00	
Data Processing in the field (per hr)	\$ 60.00	1	\$ 60.00	
Iridium Sat Phone (per day)	\$ 35.00	1	\$ 35.00	
Chainsaw for helipads/camp (per day)	\$ 50.00	2	\$ 100.00	
Radios (per man-day)	\$ 5.00	5	\$ 25.00	
Handheld data logger/GPS/Camera/inReach (per man-day)	\$ 25.00	1	\$ 25.00	\$ 945.00
<b>Consumable Supplies</b>				
Stainless Electrodes: wear & tear: 2 per profile, \$6 ea *2 profiles/day	\$ 24.00	1	\$ 24.00	
Calcium Chloride: 4kg per profile, \$2/kg*2 profiles/day	\$ 16.00	1	\$ 16.00	
Pickets, 9 per profile, \$1/picket*2 profiles/day	\$ 10.00	1	\$ 10.00	
Spray paint: 1/2 can per profile, \$10/can*2 profiles/day	\$ 10.00	1	\$ 10.00	\$ 60.00
<b>UAV Drone Survey Wages</b>				
1 Geophysical Operator	\$ 500.00	1	\$ 500.00	
1 Assistant Operator/DGPS Surveyor	\$ 400.00	1	\$ 400.00	\$ 900.00
<b>UAV Drone Survey Equipment</b>				
Sensefly Ebee UAV with Base Station	\$ 500.00	1	\$ 500.00	
Imagery Processing and Finals (\$100/flight)	\$ 100.00	8	\$ 800.00	\$ 1,300.00
<b>Interpretation and Reporting:</b>				
Assessment Report (\$75/hr)	\$ 75.00	8	\$ 600.00	\$ 600.00
<b>DC Resistivity and UAV Drone Survey Total:</b>				<b>\$ 5,565.00</b>

Overview:				
DC Resistivity and UAV Survey on Placer Lease: IW00557				
Survey Date: October 17-18/16				
DC Resistivity and UAV Drone Surveys:	Chargeout	Units	Costs	
<b>DC Resistivity Wages</b>				
1 Geophysical Operator	\$ 550.00	1	\$ 550.00	
1 Assistant Operator/DGPS Surveyor	\$ 440.00	1	\$ 440.00	
Field Assistant(s)	\$ 385.00	2	\$ 770.00	\$ 1,760.00
<b>IP-Res Survey Equipment</b>				
IP/Resistivity Meter: Superstring 8 Channel meter w/cables, 84 electrodes	\$ 600.00	1	\$ 600.00	
Additional Cables/Switchboxes for 168 electrode survey configuration	\$ 300.00	0	\$ -	
Precision GPS: Ashtech Promark 100 differential GPS	\$ 50.00	1	\$ 50.00	
Field Laptop/Software for nightly download	\$ 50.00	1	\$ 50.00	
Data Processing in the field (per hr)	\$ 60.00	1	\$ 60.00	
Iridium Sat Phone (per day)	\$ 35.00	1	\$ 35.00	
Chainsaw for helipads/camp (per day)	\$ 50.00	2	\$ 100.00	
Radios (per man-day)	\$ 5.00	5	\$ 25.00	
Handheld data logger/GPS/Camera/inReach (per man-day)	\$ 25.00	1	\$ 25.00	\$ 945.00
<b>Consumable Supplies</b>				
Stainless Electrodes: wear & tear: 2 per profile, \$6 ea *2 profiles/day	\$ 24.00	1	\$ 24.00	
Calcium Chloride: 4kg per profile, \$2/kg*2 profiles/day	\$ 16.00	1	\$ 16.00	
Pickets, 9 per profile, \$1/picket*2 profiles/day	\$ 10.00	1	\$ 10.00	
Spray paint: 1/2 can per profile, \$10/can*2 profiles/day	\$ 10.00	1	\$ 10.00	\$ 60.00
<b>UAV Drone Survey Wages</b>				
1 Geophysical Operator	\$ 500.00	1	\$ 500.00	
1 Assistant Operator/DGPS Surveyor	\$ 400.00	1	\$ 400.00	\$ 900.00
<b>UAV Drone Survey Equipment</b>				
Sensefly Ebee UAV with Base Station	\$ 500.00	1	\$ 500.00	
Imagery Processing and Finals (\$100/flight)	\$ 100.00	8	\$ 800.00	\$ 1,300.00
<b>Interpretation and Reporting:</b>				
Assessment Report (\$75/hr)	\$ 75.00	8	\$ 600.00	\$ 600.00
<b>DC Resistivity and UAV Drone Survey Total:</b>				<b>\$ 5,565.00</b>



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<b>Overview:</b>					
DC Resistivity and UAV Survey on Placer Lease: IW00556					
Survey Date: October 18-21/16					
<b>DC Resistivity and UAV Drone Surveys:</b>		<b>Chargeout</b>	<b>Units</b>	<b>Costs</b>	
<b>DC Resistivity Wages</b>					
1 Geophysical Operator	\$ 550.00	2	\$	1,100.00	
1 Assistant Operator/DGPS Surveyor	\$ 440.00	2	\$	880.00	
Field Assistant(s)	\$ 385.00	4	\$	1,540.00	\$ 3,520.00
<b>IP-Res Survey Equipment</b>					
IP/Resistivity Meter: Supersting 8 Channel meter w/cables, 84 electrodes	\$ 600.00	2	\$	1,200.00	
Additional Cables/Switchboxes for 168 electrode survey configuration	\$ 300.00	0	\$	-	
Precision GPS: Ashtech Promark 100 differential GPS	\$ 50.00	2	\$	100.00	
Field Laptop/Software for nightly download	\$ 50.00	2	\$	100.00	
Data Processing in the field (per hr)	\$ 60.00	2	\$	120.00	
Iridium Sat Phone (per day)	\$ 35.00	2	\$	70.00	
Chainsaw for helipads/camp (per day)	\$ 50.00	4	\$	200.00	
Radlos (per man-day)	\$ 5.00	8	\$	40.00	
Handheld data logger/GPS/Camera/InReach (per man-day)	\$ 25.00	2	\$	50.00	\$ 1,880.00
<b>Consumable Supplies</b>					
Stainless Electrodes: wear & tear- 2 per profile, \$6 ea *2 profiles/day	\$ 24.00	2	\$	48.00	
Calcium Chloride: 4kg per profile, \$2/kg*2 profiles/day	\$ 16.00	2	\$	32.00	
Pickets, 9 per profile, \$1/picket*2 profiles/day	\$ 10.00	2	\$	20.00	
Spray paint: 1/2 can per profile, \$10/can*2 profiles/day	\$ 10.00	2	\$	20.00	\$ 120.00
<b>UAV Drone Survey Wages</b>					
1 Geophysical Operator	\$ 500.00	1	\$	500.00	
1 Assistant Operator/DGPS Surveyor	\$ 400.00	1	\$	400.00	\$ 900.00
<b>UAV Drone Survey Equipment</b>					
Sensefly Ebee UAV with Base Station	\$ 500.00	1	\$	500.00	
Imagery Processing and Finals (\$100/flight)	\$ 100.00	8	\$	800.00	\$ 1,300.00
<b>Interpretation and Reporting:</b>					
Assessment Report (\$75/hr)	\$ 75.00	8	\$	600.00	\$ 600.00
<b>DC Resistivity and UAV Drone Survey Total: \$ 8,320.00</b>					

## 6 Statement of Qualifications

I, Isaac Fage have been president of GroundTruth Exploration in Dawson City since May 2010. I have overseen the collection of 400,000 + soil samples, numerous geophysical, UAV drone and drill programs across numerous projects in Yukon Territory. I have worked continuously in Mineral Exploration since 2004. I hold an advanced diploma in Remote Sensing from the Centre of Geographic Sciences in Lawrencetown, Nova Scotia.

I have overseen the survey work described in this report on the Independence Creek placer leases.

Dated this 4th day of July, 2017 in Dawson, YT.

Respectfully submitted

A handwritten signature in black ink, appearing to be "IF", written in a cursive style.

Isaac Fage

## 7 Conclusions and recommendations

The surveys conducted are producing a coherent interpretation of the subsurface. DC Resistivity has been determined as an effective tool to map overburden interfaces and depth to bedrock.

The MAG survey did help to confirm bedrock features identified in the RES/IP survey, however further processing to reveal shallow targets may still be useful to search for concentrated magnetite depositions.

The drone was a valuable tool for planning the field work and the DEM it provided was useful for tying together the surveys. The imagery was also useful for interpreting the RES/IP survey by providing context to the surface features.

Follow-up drilling with a heliportable, track mounted drill is recommended to both confirm and refine the interpretations presented here, and to test for the presence of placer gold.

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- \*\*Additional review of various published scientific and reporting papers on the geology and mineral deposits of the region for indirect reference.