YMEP Report
Hunker Creek High-Level Bench

Claim Name: Rounded Rocks
Grant #: P514192
Project Location: Hunker Creek, Dawson Mining District
NTS: 115 O15
Centre of claim: 64°00'85" N, 139°05'12" W

Submitted by:
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Date: November 17, 2020

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Executive Summary

This project sought to thoroughly explore a high-level bench deposit on the right limit of Hunker Creek. Evidence indicates that gravels were laid down during the initial high-energy stage of White Channel gravel development rather than later aggradation phases. We proposed to use a combination of electrical resistivity geophysics, auger drilling, test pitting and potentially bulk sampling to prove the resource for mining in 2020.

In 2019 electrical resistivity geophysics and sampling of test pits was conducted on the property which indicated the potential presence of a channel incised into bedrock. The focus of this year's program was to determine if this channel exists, define its boundaries and use drilling and test pitting to determine grades.

Due to access problems with one very steep hill we were unable to mobilize a drill to the property but were able to conduct a geophysics program consisting of 16 Electrical Resistivity Tomography and 16 Induced Polarization surveys. We were also able to dig three trenches to bedrock using a compact 6-ton excavator and conduct reclamation of some existing test pits on the site.

Over 500 kg of samples were collected at site and processed in Whitehorse using a variety of concentration equipment. A total of ten days were spent on site with a further ten days spent organizing logistics, mobilizing/demobilizing, processing samples and creating a three-dimensional model of the property for the report.

While no single, deep channel was discovered with the geophysics we did find that the property was once host to a large, high-energy fluvial environment that incised numerous small channels into bedrock to 1-2 m. Gravels immediately above bedrock were consistent with other White Channel pay zones, consisting of a grey coarse sand with mixed quartz cobbles and angular black schist bedrock. Gold was present in two of the trenches in both the near-bedrock and upper gravels.

Introduction

This project sought to thoroughly explore a high-level bench deposit on the right limit of Hunker Creek. The deposit appears to be White Channel Gravel and is 3-4 m deep. Gold has been panned from test pits across the property, including 50 mg+ nuggets. The property consists of a single bench claim (Rounded Rocks) that encompasses almost the entirety of the bench deposit. The bedrock elevation is identical to that of high-grade deposits in other areas of Hunker Creek, indicating that gravels were laid down during the initial high-energy stage of White Channel gravel development rather than later aggradation phases with lower gold grades. We used a combination of electrical resistivity geophysics, trenching and detailed sample processing to determine if further exploration is warranted.

Location and Access

The property is 11 km south of Dawson City, located on the right limit of Hunker Creek between Wet Gulch and 4-above Pup. It is a single bench claim covering the entire span of the flat hilltop. There is an excavator access road on the north side of the hill, a switchback ATV road on the south face of the hill and widely spaced trees suitable for foot or ATV travel on the west side. Access is via the Hunker Creek Road and North Klondike Highway.

Placer Tenure

The property consists of single claim; “Rounded Rocks” owned 100% by Kryotek Arctic Innovation Inc.

Quartz Tenure

The area is blanketed by quartz claims. Claims under the Rounded Rocks placer claim are owned by YF04419 Claim Label: Wet 5 Owner: Sylvain Montreuil - 25%, Erini Petroutsas - 25%, RST Klondike Discoveries Ltd. - 50%

(Note: Class 1 approval has been granted for this property.)

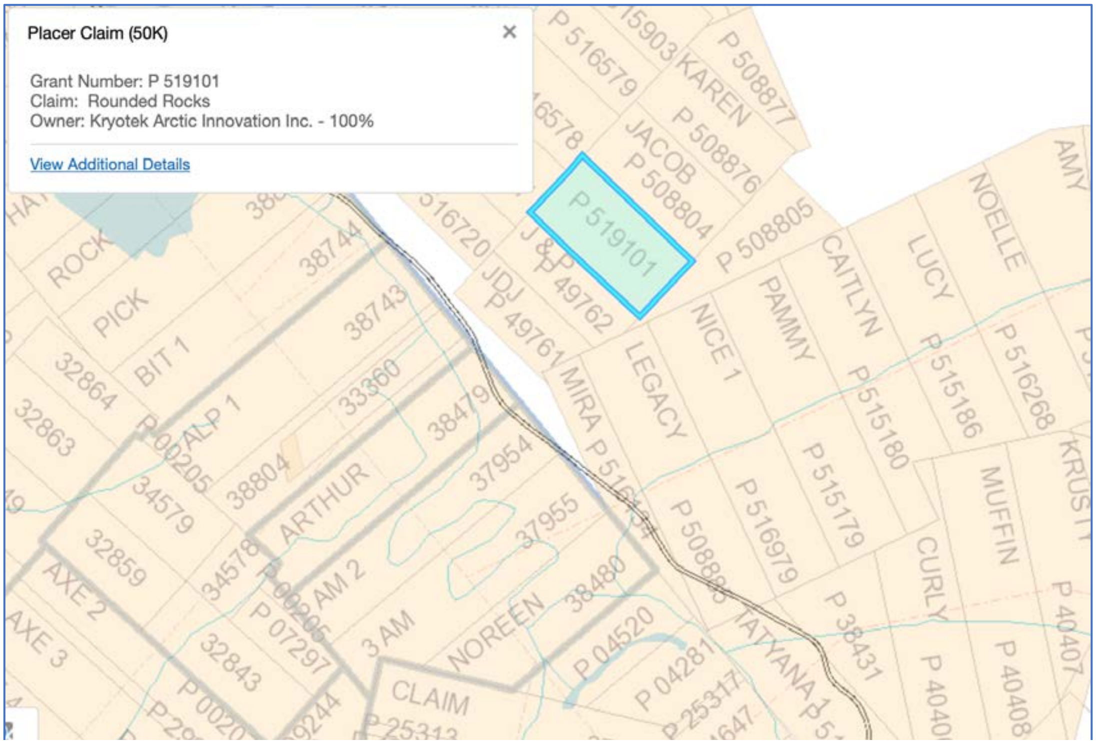


Figure 1. Location of Rounded Rocks Claim relative to Hunker Creek.

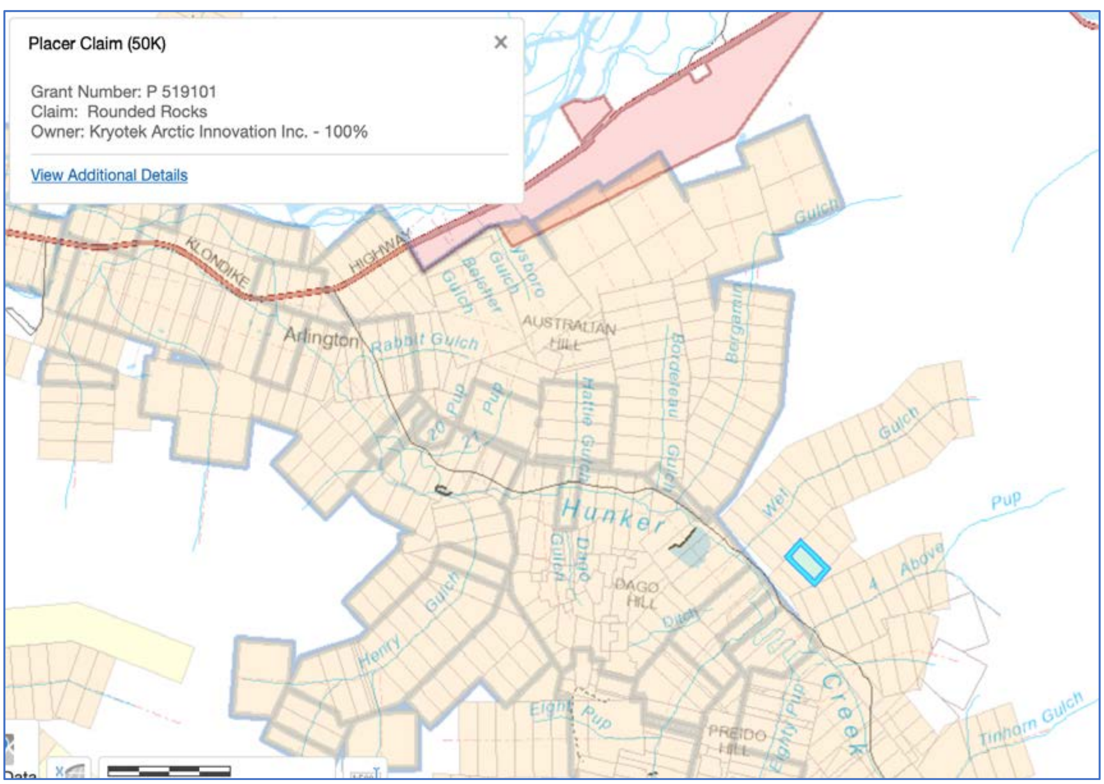


Figure 2. Location of claim relative to Klondike Valley

History of Exploration and Mining

Mining in this area began in 1897. Gold was discovered on Bonanza Creek in 1896 and exploration on surrounding creeks including Hunker Creek swiftly followed. Hand mining took place predominantly on Hunker Creek from 1897 to 1902. Dredging on Hunker Creek followed from 1902 to 1966.

Numerous modern mechanized placer mining operations have been active on Hunker Creek and its high-level benches from the early 1900s to the modern day. Large open-pit mines on the high-level White Channel bench deposits of Paradise and Priedo Hills have been particularly rich, producing grades of up to $1,500 per cubic yard. The recently documented Paradise Wash gravel is a particularly intriguing.

Churn holes were drilled by the Yukon Consolidated Gold Company in preparation for dredging. Data from these drill holes were recently compiled by the Yukon Geological Survey.
High grades were located 300 m directly downhill and downstream from the Rounded Rocks Claim.

Modern Exploration

No evidence of modern mining has been found on the claim. Test pitting by Joel Gagne was conducted in 2017. 15 test pits were excavated with a compact tracked excavator to bedrock. Gravels began at the surface beneath a thin organic layer and extended to 3-4 m depths. Older, collapsed shafts were discovered that likely dated to the early 1970s. Bedrock was decomposed Klondike schist.

Electrical resistivity tomography was used in 2019 to identify depths to bedrock on the property. This revealed what may have been a deep, significant channel incised into bedrock to depths of 8-10 m but was partially obscured by electronic data noise.

Regional Bedrock Geology

The bedrock geology under the Rounded Rocks claim is mapped as dark grey to black carbonaceous metasedimentary rocks and metachert.

Local Bedrock Geology and Mineral Occurrences

450 m uphill from the Rounded Rocks claim is an unmapped 6 km x 3 km porphyry stock of probable Eocene age. This is the Unexpected Minfile Occurrence and exhibits round quartz eyes in an aphanitic ground mass and contains traces of purple fluorite, topaz and miarolitic zeolites.

Disseminations and discontinuous stringers of fluorite are inferred to have been produced by late or post-magmatic streaming of volatiles (Mortensen et al., 1992).

The open cut on the Unexpected claim exposed a purple-stained quartz porphyry plug that assayed 1.4 g/t Au and 2.1 g/t Ag across 0.9 m. A grab sample collected in 1972 assayed 0.102 g/t Au, 1.4 g/t Ag and 4.12% F. This may have been a local source of placer gold independent of the larger White Channel deposition.

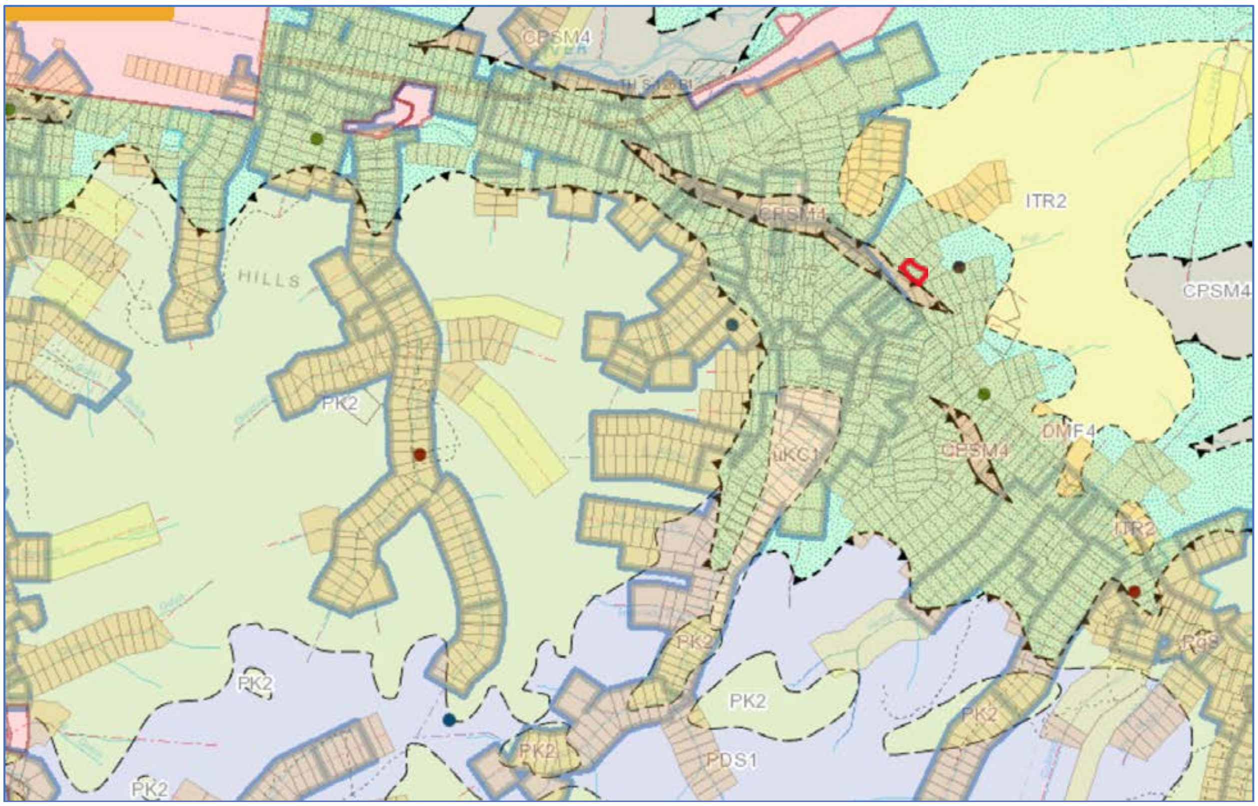


Figure 3. Bedrock Geology of Hunker Creek. Claim highlighted in red. Note Minfile occurrence to northwest.

Physiography and Vegetation

The claim is located in the Hunker Creek Valley at an elevation of about 500 meters elevation. There is bedrock outcrop nearby, but none has been found on the claims. The terrain is a high hilltop with well-drained soils and widely spaced trees. Poplar, spruce, and willow are moderately dense. Flat and south-facing slopes are thawed to bedrock with 1 m of seasonal frost penetration. In shaded depressions some permafrost was encountered. North-facing slopes are frozen and thaws down about a meter in the summer months. Ground water collects in low-lying areas and forms small ponds above the permafrost. Black bears, grizzly bears, moose, lynx, coyotes, wolves, hawks, owls, ducks and brown bats frequent the area.

Exploration Target

The exploration target is a White Channel bench deposit located on a hill on the right limit of Hunker Creek. The property comprises a single claim (Rounded Rocks). Test pitting on the claim in 2017 by Joel Gagne revealed 3-4 m depths to bedrock, unfrozen ground and quartz-rich cobble gravels. Gold in the 50-mesh size range was recovered from all pits.

In 2018 Jim Coates and Astrid Grawehr panned 4-6 colors/pan from samples in all of the test pits. In 2018 Jeremiah Hartman dug a test pit on the north end of the property and panned several pieces of coarse gold from a small sample (see photos). These were 2-4 mm in maximum dimension.

The location, gravel type and incidence of gold have led us to believe that there may be a White Channel Gravel deposit on this hilltop that has not been mined historically or in modern times. The steep hillsides below and lack of water source on the property likely discouraged mining in the past. The unfrozen soils would have made shafting and drifting difficult. The shallow depth to bedrock and unfrozen soils make this a good exploration target.

Figure 4. Accessing claims with UTV on existing south access trail. Trench #1 in background.

Geological Description and Previous Work

History of the Area

Hunker Creek is one of the most heavily prospected and mined regions in the Klondike. High level benches along Hunker Creek have yielded some of the highest gold values in the Klondike. These benches have been mined along the left limit Hunker Creek but only in a few locations on the right limit. The right limit has been considered to be off the main paystreak and not have the same high gold grades. Historical exploration occurred during lower gold prices when the grades on the right limit may not have been economic.

Surficial Geology

The 'White Channel gravel' (WCG) found within the drainages of the Klondike district are economically important auriferous high bench gravel deposits. The gravels are within the drainages of Bonanza and Hunker Creeks, both of which flow into the Klondike River. The WCG deposits sit uncomformably on the White Channel strata, an eroded bedrock surface composed mainly of Klondike Schist of the Yukon-Tanana terrane, at heights of 10 m to 200 m above the modern creeks (Lowey, 2004).

The WCG deposits in Bonanza and Hunker Creeks are locally overlain by loess ('black muck') and colluviums (Lowther et al, 2014).

The current proposed mode of deposition for the WCG involves continuous deposition by shallow gravel-bed braided river systems in the paleo-creeks (Morison, 1985; Morison and Hein, 1987; Lowey, 2004; 2006).

The braided river system that deposited the WCG was initially a larger river system with a low aggradation rate, which produced large gravel bars (phase 1) that were largely erosive as they migrated and stacked (Lowther et al, 2014).

Placer mining activities generally concentrate on processing the lowest stratigraphic levels in the WCG and it is generally accepted that the highest gold grades are found at the bedrock contact. This observation is consistent with a prolonged erosional phase in which gold particles accumulated in bedrock imperfections, while most other clasts were swept through the system (Lowther et al, 2014).

The sedimentary architecture of the lower WCG unit suggests the concentration of gold continued within a slowly erosional system that processed a large amount of material, selectively retaining the coarse gold particles, therefore producing high gold grades. In contrast, the placers which formed above the organic-rich layer accumulated in a rapidly aggrading system, and consequently gold grades are relatively low (Lowther et al, 2014).

The initial stage (phase 1) involved downcutting and formation of a gold placer through winnowing in an aggressive fluvial regime. A second stage (phase 2) is defined by a change to an aggradational system, although gold placer formation continued within this sedimentary environment. A third stage, defined by an organic-rich mud horizon (phase 4) is interpreted as a lacustrine environment, established during a hiatus in deposition that was succeeded by a fourth stage, in which gravels aggraded rapidly in a new fluvial system (phase 4) (Lowther et al, 2014).

Previous Work on the Property

The claim was likely prospected during the 1898 gold rush and there are historical shafts that likely date from the 1970s. However, there is no visible evidence of mining. This may be due to lack of flowing water for sluicing. Test pits by Joel Gagne in 2017 have shown fine and coarse gold to be present in gravels above bedrock.

Exploration Rationale

This single claim is located on one of the few deposits of White Channel gravels on the right limit of Hunker Creek. This area was identified by McConnell as a White Channel Gravel deposit and is at the edge of the original White Channel boundary. Some of the highest grades of gold in YCGC drilling were found within 300 m of this claim in the bottom of Hunker Creek.

The bedrock elevation on this claim is exactly (500-504 m) the same as bedrock on Paradise and Preido Hills located across the Hunker Creek valley where extremely rich gold deposits have been mined. This indicates that the Rounded Rocks gravels were likely laid down during the same depositional event and timespan.

Given the elevation similarity to Preido Hill, geomorphic similarity to other thin White Channel gravel deposits, proximity to high-grade gold values and presence of both fine and coarse gold in recent test pitting we feel that this is an exploration target with good potential to yield an economic deposit. Our exploration program is focussed on defining the potential for minable reserve calculations.

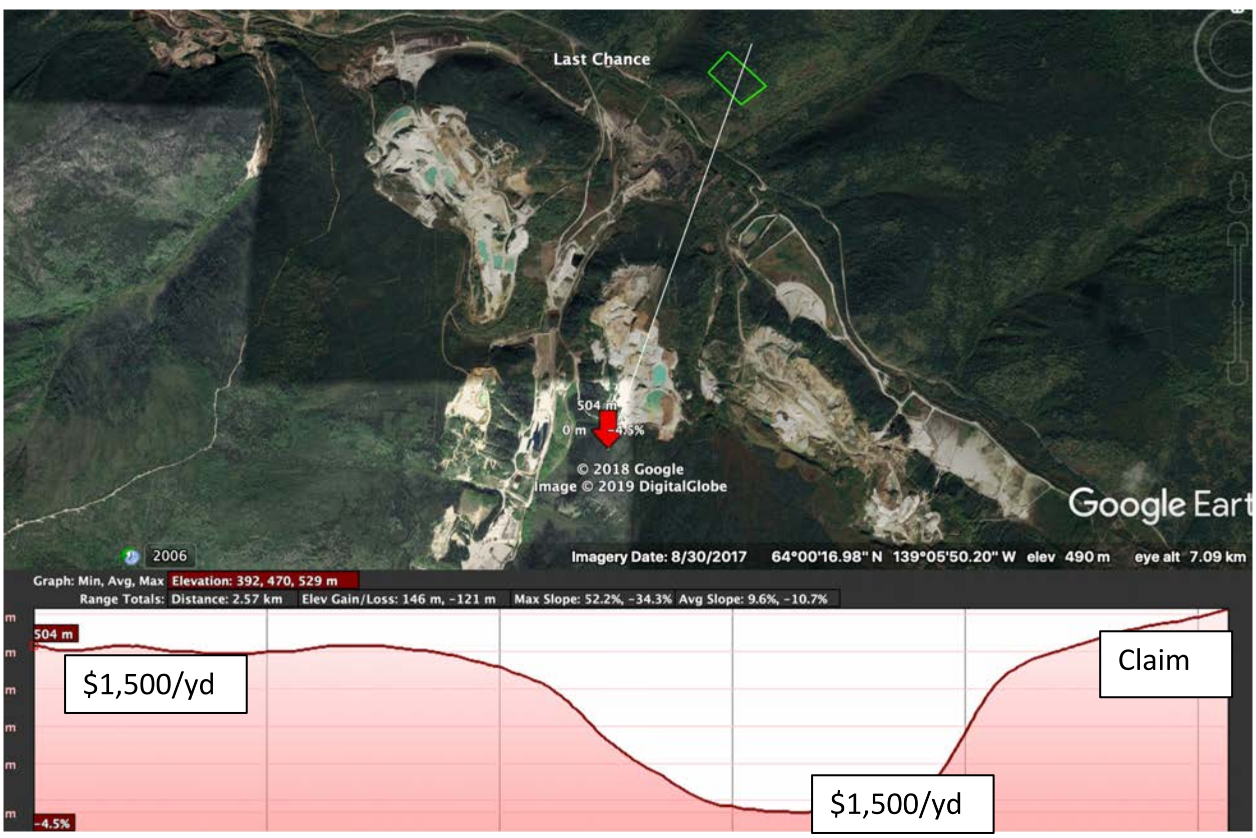


Figure 5. Elevation profile showing deposit alignment with rich deposits on Preido Hill across Hunker Creek.

Figure 6. Location of claim directly across from the mouth of Last Chance Creek. View looking northeast.

Figure 7. Oblique view looking downstream towards the Klondike River. Original White Channel boundary in red, claim in green.


Figure 8. Coarse gold panned from test pit on claim August 2018

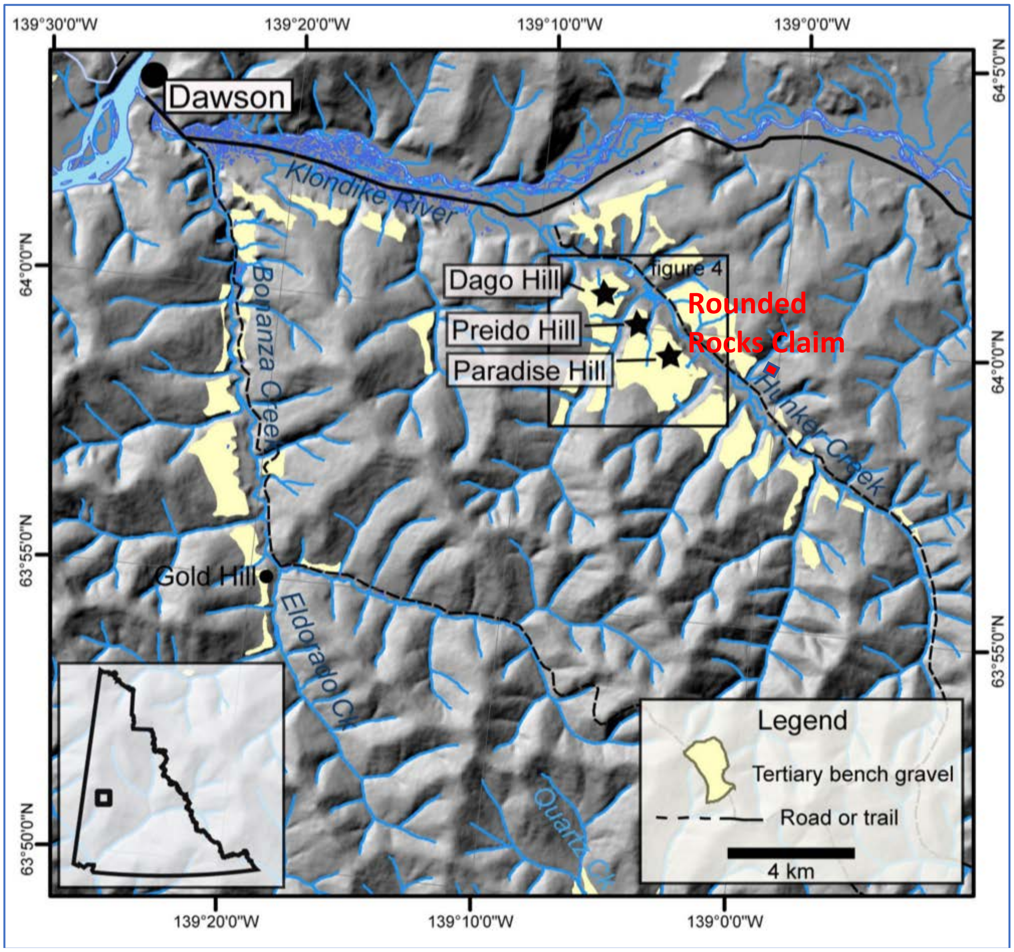


Figure 9. Map showing claim location in relation to tertiary bench gravel map of Hunker and Bonanza Creeks

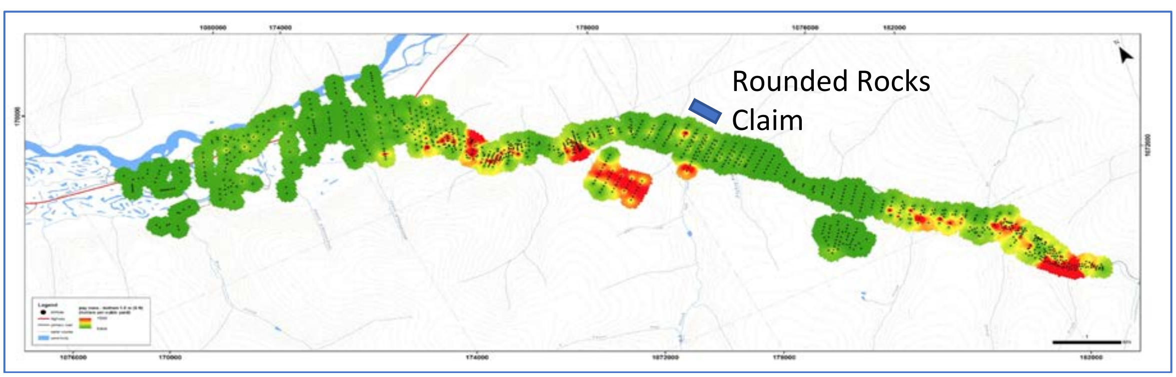


Figure 10. Claim location on Hunker Creek YCGC Dredge drilling map

Figure 11. Detail of map above showing extremely high gold grades that were identified by YCGC drilling directly downhill of the Rounded Rocks claim

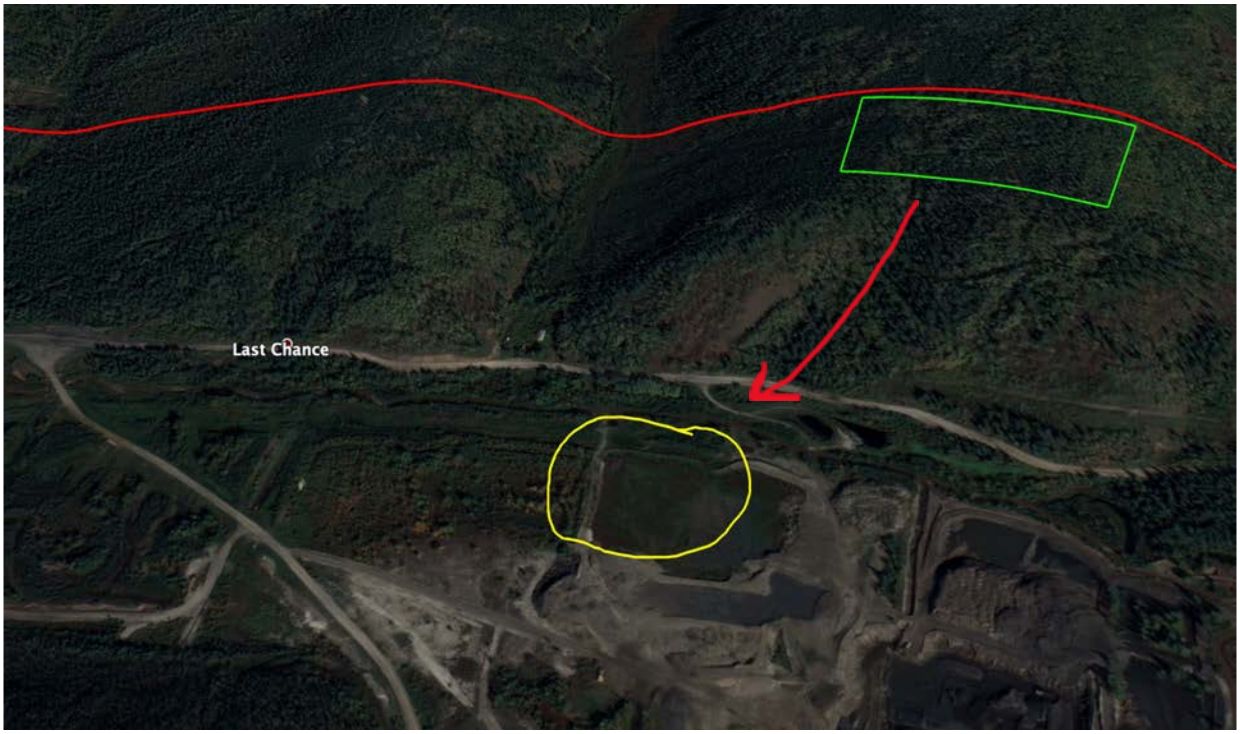


Figure 12. High grade gold in relation to Rounded Rocks Claim. Claim outlined in green. Approximate original White Channel Gravel boundary in Red. $1,500/yd grades found 300m directly downhill from the Rounded Rocks claim. Potential erosional path indicated by red arrow. Oblique view looking east.

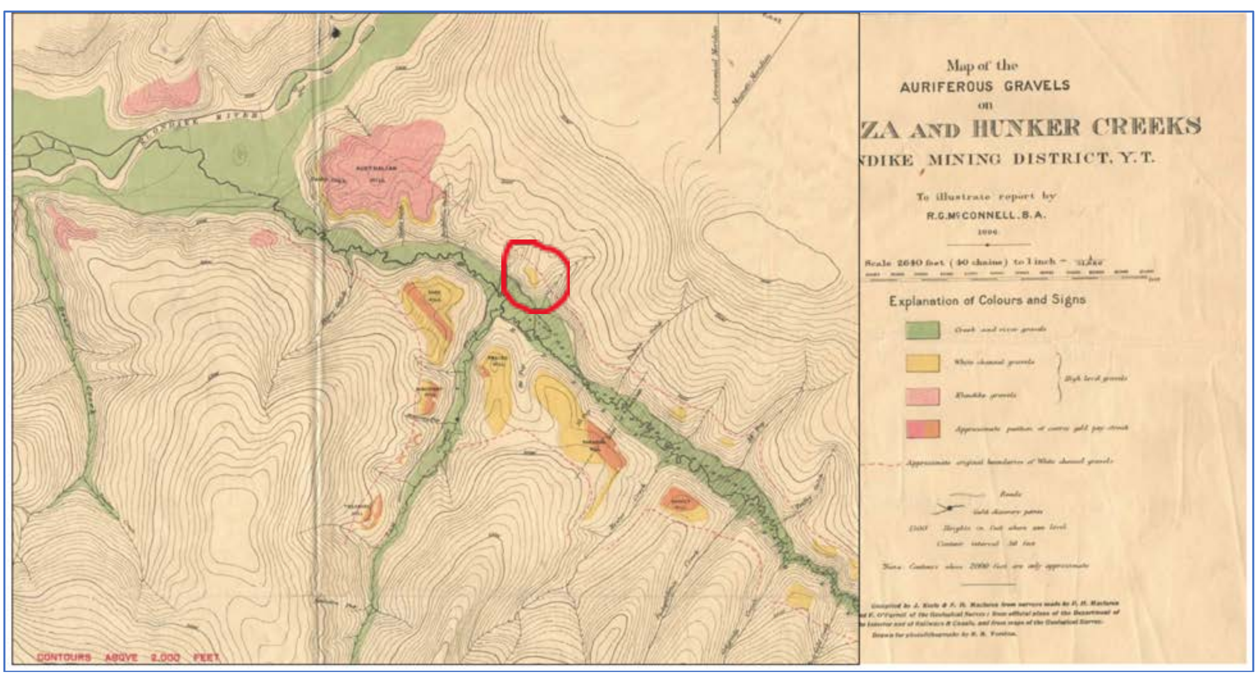


Figure 13. McConnell Map showing White Channel paystreak as well as original boundary of White Channel Gravel. Area of claim shows a pocket of White Channel gravels outlined in red.

Work Plan

The work plan focussed on determining the extent of the gravel deposits and gold grades. 2D electrical resistivity tomography has proven to be an effective technique in the area for distinguishing between bedrock and surficial gravels. We used this coupled with Induced Polarization geophysics to determine bedrock profile, especially the presence of paleochannels. A compact excavator was used to test pit and trench promising areas.

Ten days were spent on site conducting mechanical and hand trenching, surface prospecting and geophysics as well as reclaiming trenches and backfilling historical test pits that had been left open. Four days were spent mobilizing and demobilizing equipment and people to and from the site. Two days were spent widening and improving the access trail for the excavator. Four days were spent processing samples.

Electrical Resistivity Geophysics

Sixteen Lippman 4-point AC Electrical Resistivity and Induced Polarization Surveys were conducted over the areas of interest to determine depths to bedrock and define the length and width of the gravel deposit. We were interested in finding any paleochannels that have been incised into bedrock.

The Induced Polarization surveys have been shown to identify areas of magnetic black sand concentration that show higher chargeability than surrounding barren areas and add detail to the resistivity surveys. Work was conducted in August and October 2020.

Trenching

Ten trenches were originally planned but due to limited time and rapidly worsening weather conditions we were able to complete three 40 cubic meter trenches that exposed longitudinal sections of the strata. These were excavated using a Bobcat 6-ton compact excavator. The extendable boom on the excavator was used to create mini-drifts at the bottom of the trenches by undermining the excavator itself by 1-2 meters. These mini-drifts were extended by hand-digging. This allowed for a greater exposure of base-level gravels without excavating large quantities of overburden.

Gravel, sand and silt corresponding with all four phases of White Channel Gravel development were found, albeit in much thinner sections than those found in other parts of Hunker Creek.

Figure 14. Excavator beginning to dig T2.

Figure 15. Historical test pit and site of T3

Figure 16. Trench T1 showing sample bags

Figure 17. Section showing transition between clast-matrix (top) and sand matrix (lower) that correspond to the first (erosional) and second (aggradational) phases of White Channel deposition at the joint of the shovel blade and metal handle. This is superseded by an organic-rich mud lacustrine layer 1-2 m thick (third phase) and is capped by a 1m thick layer of sand and gravel (fourth phase) as per (Lowther et al, 2014)'s model.

Figure 18. Reclamation of TP2, including historical test pit left open by previous prospectors (red area).

Figures 19 and 20. Grey sands and matrix-supported gravels of the lower level, first-phase aggradational gravels at left. Grey sands were from 4-4.5m in depth and terminated in a layer of dense quartz and black angular bedrock cobbles just above the bedrock contact. At right is a photo of the second phase depositional layer from 2.5-4.5m depth. This is a hard, clast-supported gravel of quartz cobbles with 63-degree imbrication and 138-degree dip.

Figure 21. Black angular meta-chert and schist bedrock from bedrock contact at left.

Figure 22. Upper 3 m of T2 at right, showing fourth phase aggradational gravels 1 m thick above third-phase lacustrine muds 2 m thick.

Trench Pit Sections

T1

- 0.0 m: Organics. Moss, roots.
- 0.1 m: Sand and gravel. Brown, loose. (White Channel Phase 4)
- 1.2 m: Silt and clay. Tight, damp. Red. (White Channel Phase 3)
- 1.6 m: Sand. Damp. Loose. Laminated, red. (White Channel Phase 3)
- 2.3 m: Gravel. Damp. Tight, hard. Clast-supported. 63-degree clast imbrication, 138-degree dip. 5-8 cm quartz cobbles. (White Channel Phase 2)
- 4.0 m: Coarse Grey Sand. Loose. Matrix supported. Dry. 10-20 cm angular clasts. (White Channel Phase 1)
- 4.5 m: Bedrock. Angular, decomposed meta-chert and micaceous Klondike Schist. End of Hole.

T2

- 0.0 m: Organics. Moss, roots.
- 0.1 m: Gravel. Grey, loose, damp, quartz clasts. (White Channel Phase 4)
- 1.2 m: Silt and clay. Red Damp, tight. (White Channel Phase 3)
- 3.0 m: Sand: light red, loose. Damp (White Channel Phase 2)
- 4.0 m: Gravel. Red. Loose. Damp. Rusty quartz clasts, black chert bedrock. (White Channel Phase 2)
- 4.5 m: Bedrock. Angular, black chert.

T3

- 0.0 m: Organics. Moss, roots.
- 0.1 m: Silt and clay. Grey. Damp, tight. (White Channel Phase 3)
- 2.0 m: Silt: Red, loose. Damp (White Channel Phase 3)
- 3.0 m: Gravel. Red. Loose. Damp. Rusty quartz clasts, black chert bedrock. (White Channel Phase 2)
- 3.5 m: Bedrock. Black angular chert.

Sample Processing

Samples were collected linearly along the base of the trenches. These were stored in labelled 1 litre plastic bags and brought back to Whitehorse, where they were processed in a controlled environment. Each sample was saturated with water and screened to 100 mesh using pressurized water spray. Large rocks were picked out and washed individually to free any gold caught in crevices. Any nuggets would have been visually identified and removed.

Each sample was then panned using Garret gold pans. Concentrates were screened again and panned in a black Lucky Strike pan. Black sands were visually estimated on a 3-point scale with 0 being none and 3 corresponding to the highest proportion of black sand encountered on the property. Gold colors were counted.

The same procedure was followed for the 40 litre bulk samples, except that they were pre-processed using a Keene Engineering long-tom sluice with recirculating water supply prior to being panned to concentrate. Several samples were taken from pre-existing test pits on the property and processed in the same manner. The following tables present the results of the sample processing.

Trench Sample Processing Results

Name	T1	T1	T1	T1	T1	T1
Latitude	64.0147670	64.0147670	64.0147670	64.0147670	64.0147670	64.0147670
Longitude	139.0848650	139.0848650	139.0848650	139.0848650	139.0848650	139.0848650
Depth	0	2	2.5	3	4	4
Volume	1	1	1	1	1	1
Color	Grey	Red	Red	Red	Grey	Grey
Phase	4	3	3	3	2	2
Soil	Sand	Silt	Sand	Sand	Sand/gravel	Sand/gravel
Gold	0	0	0	0	0	0
Black Sand	1	0	0	1	2	2

Name	T1	T1	T1	T1	T1
Latitude	64.0147670	64.0147670	64.0147670	64.0147670	64.0147670
Longitude	139.0848650	139.0848650	139.0848650	139.0848650	139.0848650
Depth	4.5	4.5	4.5	5	5
Volume	1	1	1	1	20
Color	Grey	Grey	Grey	Grey	Grey
Phase	1	1	1	1	1
Soil	Sand/gravel	Sand/gravel	Sand/gravel	Sand/gravel	Sand/gravel
Gold	0	0	0	1	10
Black Sand	2	2	3	3	3

Tables 1 and 2. Trenching Results Pit 1

Name	T2	T2	T2	T2
Latitude	64.014937	64.014937	64.014937	64.014937
Longitude	139.084958	139.084958	139.084958	139.084958
Depth	1	2	3	3
Volume	1	1	1	1
Color	Grey	Red	Red	Red
Phase	4	4	2	2
Soil	Sand	Sand	Sand	Sand
Gold	0	0	0	1
Black Sand	3	2	3	3

Name	T2	T2	T2	T2	T2
Latitude	64.014937	64.014937	64.014937	64.014937	64.014937
Longitude	139.084958	139.084958	139.084958	139.084958	139.084958
Depth	3	4	4	4.5	4.5
Volume	1	1	1	1	20
Color	Red	Grey	Grey	Grey	Grey
Phase	2	1	1	1	1
Soil	Sand	Gravel	Gravel	Gravel	Gravel
Gold	3	4	0	0	10
Black Sand	3	3	3	3	3

Tables 3 and 4. Trenching Results Pit 2

Name	T3	T3
Latitude	64.014504	64.014504
Longitude	139.085694	139.085694
Depth	1	3
Volume	1	1
Color	Grey	Red
Phase	4	3
Soil	Sand	Sand
Gold	0	0
Black Sand	1	3

Table 5. Trenching Results Pit 3

Name	T5	T6	T7
Latitude	64.015644	64.015600	64.015766
Longitude	139.086604	139.086765	139.086675
Depth	1	1	2
Volume	1	1	1
Color	Yellow	Yellow	Yellow
Phase	4	4	4
Soil	Gravel, quartz	Gravel, quartz	Gravel, quartz
Gold	0	0	0
Black Sand	1	1	3

Table 6. Historical Pit Samples

Trenching Conclusions

All four phases of White Channel Gravel history were found in Trench #1, including the grey Phase 1 sands and gravels most associated with the initial aggradational phase and high gold values. This phase of gravel was missing in the other two trenches. Depth to bedrock was 3.5-4.5 m in all pits. In general, a layer of sand and gravel 1.2 m deep (Phase 4) overlay a red silt 2 m thick (Phase 3), which then overlaid a gravel layer (Phase 2). Below this Trench 1 was the grey sand layer (Ph1) above fractured and decomposed bedrock.

Both Trench 2 and 3 only showed Phases 2-4, with no evidence of the grey sand and clear depositional upper horizon that characterize Phase 1 gravels. However, both of these pits showed the Phase 3 lacustrine silt deposits and very thin layers of Phase 2 gravels directly over bedrock.

Testing of samples showed that there was incidence of gold occurrence. We were not able to establish grades with only three trenches. Gold was fine, flakey and occurred in conjunction with black sand deposits. Sampling linearly along the base of trenches with a large number of 1 litre samples did now show consistent gold grades within the trench. Auger drilling would be suitable on this property. Future work with an auger drill and a large number of holes would likely be sufficient to provide grade control.

Geophysics

Geophysics lines were chosen to take advantage of existing trails and openings in the forest. This eliminated the head to clear additional lines and reduced environmental impact.

Geophysics Locations	Start		End	
RR2	64.0144430	138.0853470	64.0147670	139.0848650
RR3	64.0147390	139.0849580	64.0149370	139.0846370
RR4	64.0147050	139.0849950	64.0149490	139.0856940
RR5	64.0147300	139.0849720	64.0145040	139.0845230
RR6	64.0152170	139.0843560	64.0155550	139.0845430
RR7	64.0155000	139.0845980	64.0158810	139.0850730
RR8	64.0158140	139.0850740	64.0161490	139.0853140
RR9	64.0162090	139.0853540	64.0160150	139.0857230
RR10	64.0148060	139.0855020	64.0150120	139.0860510
RR11	64.0147160	139.0858070	64.0149490	139.0856940
RR12	64.0149010	139.0857170	64.0150090	139.0851720
RR13	64.0150090	139.0851720	64.0152130	139.0854010
RR14	64.0151840	139.0853150	64.0153580	139.0858190
RR15	64.0152050	139.0854650	64.0156450	139.0849120
RR16	64.0148430	139.0858480	64.0144430	138.0853470
RR17 (no results)	64.0148440	139.0858210	64.0150250	139.0862090

Table 7. GPS Locations of Geophysics Surveys

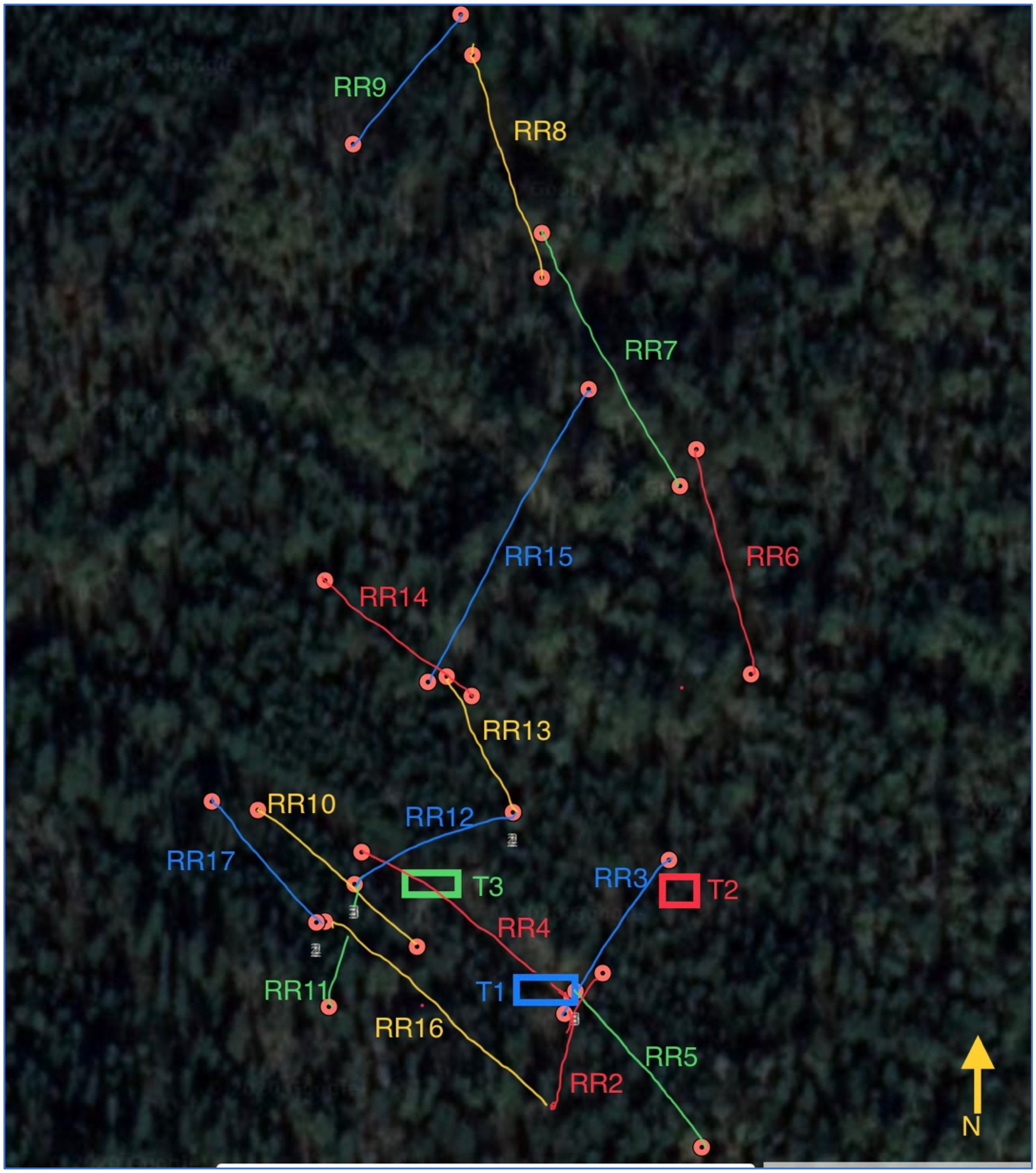
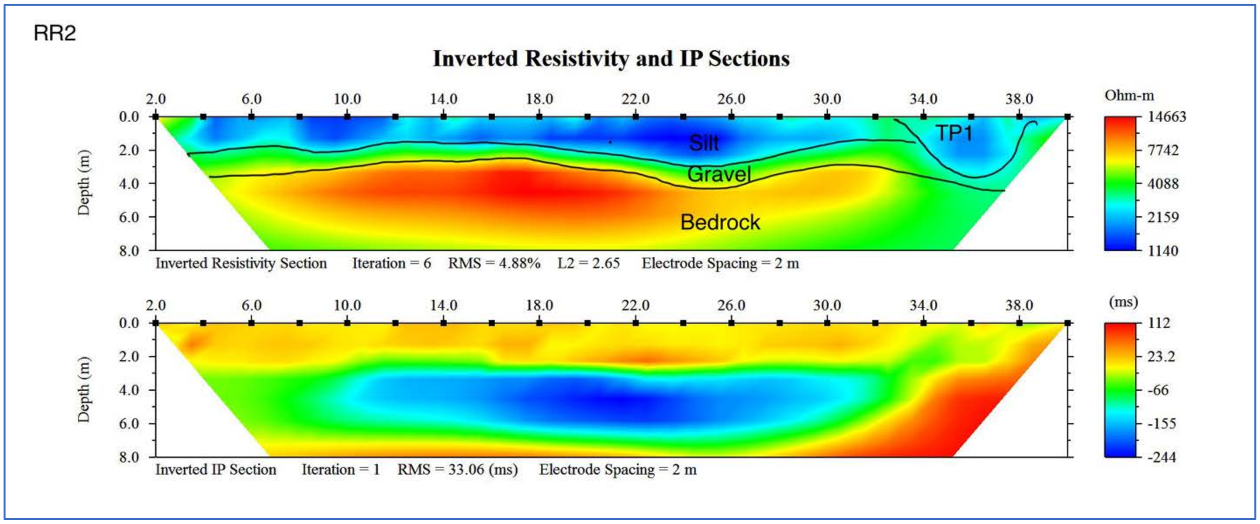
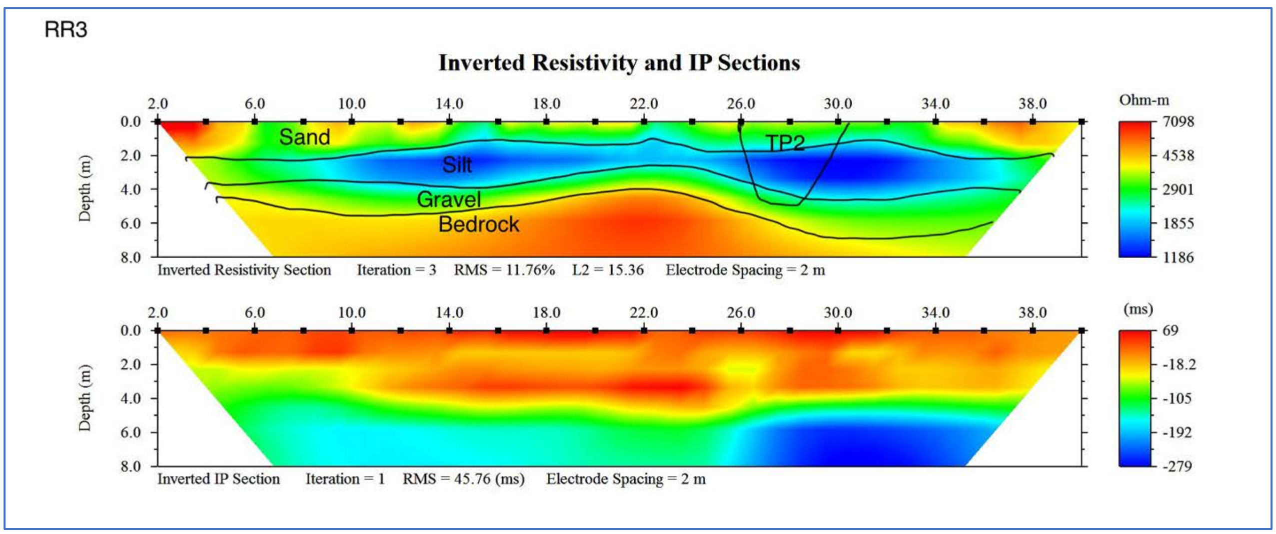


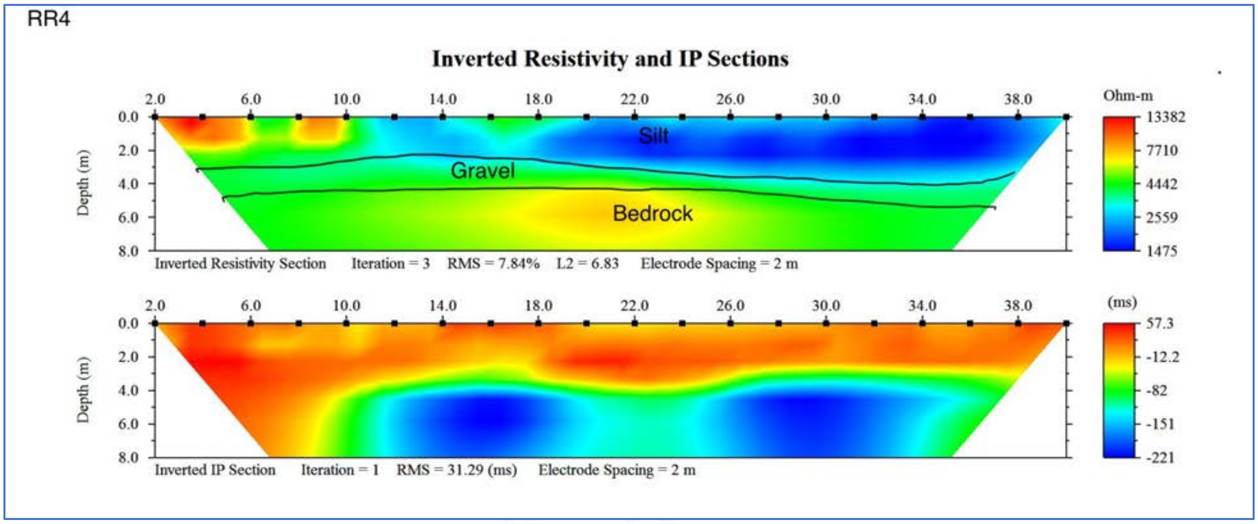
Figure 23. Map of trench and geophysics surveys



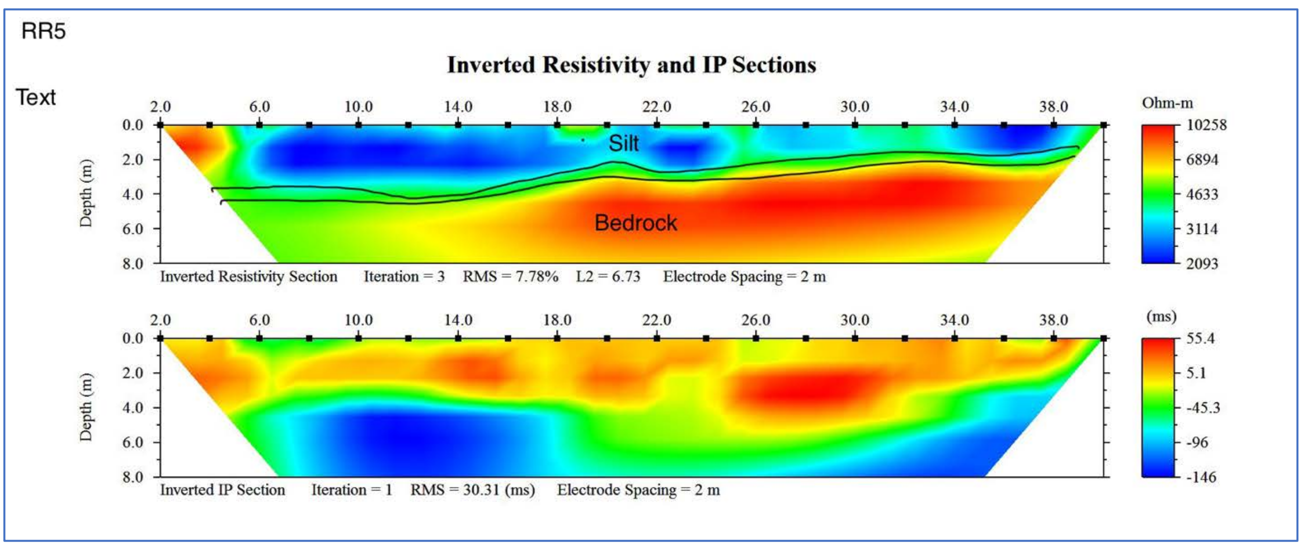
This survey starts near the southern claim boundary and extends to TP1. TP1 allowed us to determine that the blue, low-resistance region near the surface is a red, saturated silt that extends to 2 m depth, the green layer immediately below is a matrix-supported sandy gravel that transitions into a decomposed schist bedrock at roughly 4 m depth. TP1 can be seen as an isolated blue area at 34 m on the horizontal scale.



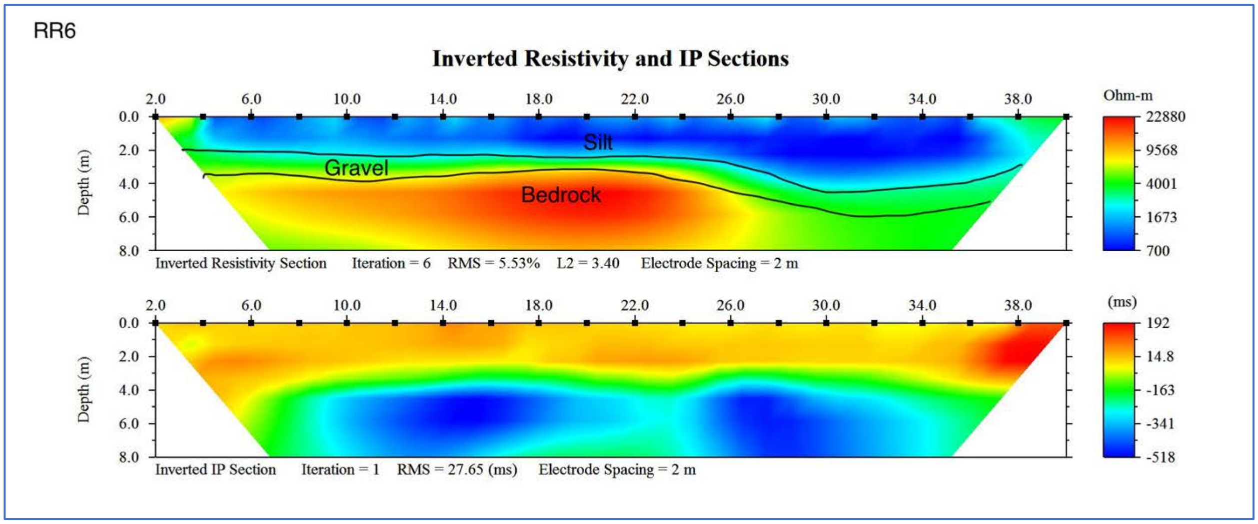
This survey begins at the end of RR2 and extends northwards over TP2. High resistance red zones near surface are a dry, clast-supported Phase 4 gravel overlaying red, silty Phase 3 clay (blue). Beneath the clay/silt is a layer of sand which transitions into a grey sandy gravel (green, Phase 2, possibly Phase 1). This is mixed with bedrock at 3-4 m depths (red).



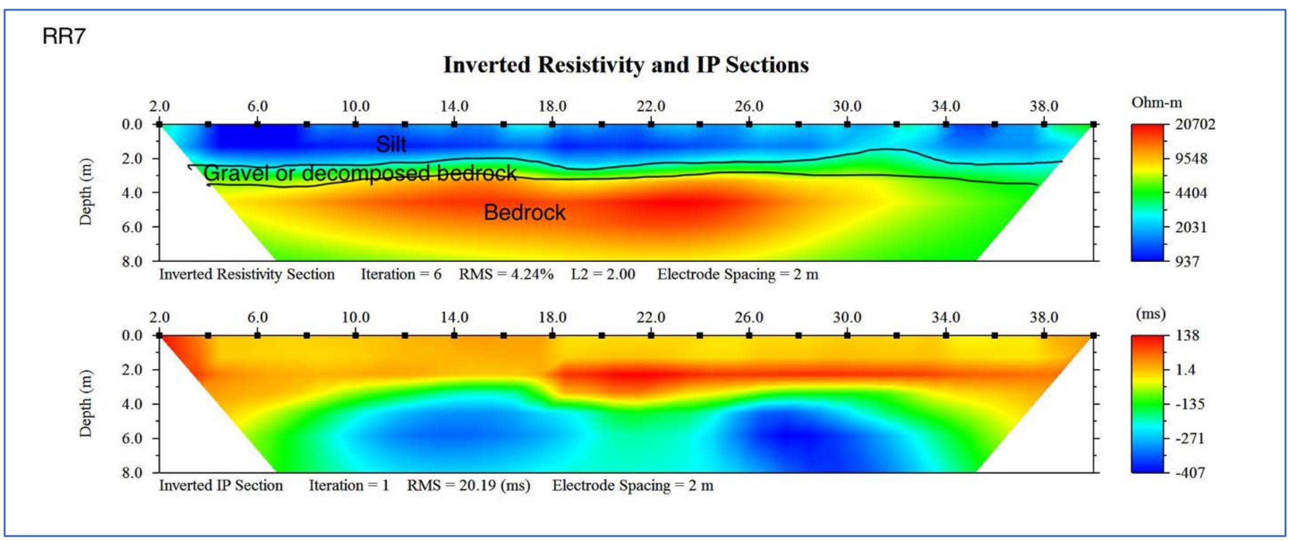
This survey runs perpendicular to RR3 and begins where RR3 ends. It extends along a trail that runs longitudinally through the claim. In this survey bedrock appears to be 2-3 m deep, relatively flat-lying and covered with a layer of Phase 3 silt. There is the possibility of Phase 1/2 gravels (green) between the silt and bedrock.



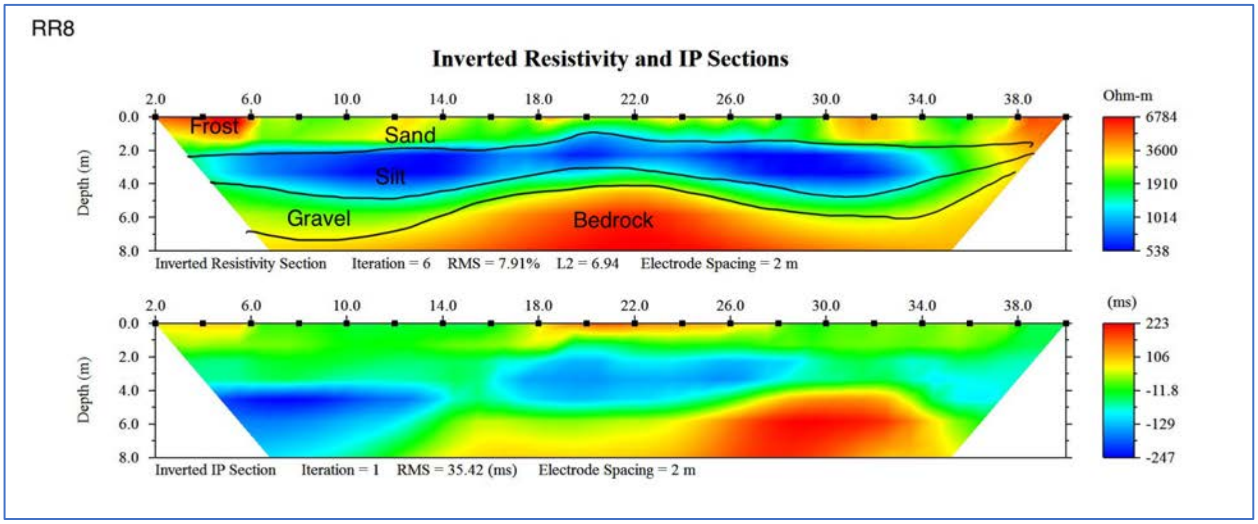
This survey is an extension of RR4, and shows bedrock rising from 4 m depths to 2 m depths near the east end of the survey. The blue near-surface material is likely Phase 3 lacustrine silts mixed with colluvium lying directly on bedrock. A thin green layer directly above bedrock may be Phase 2 gravels.



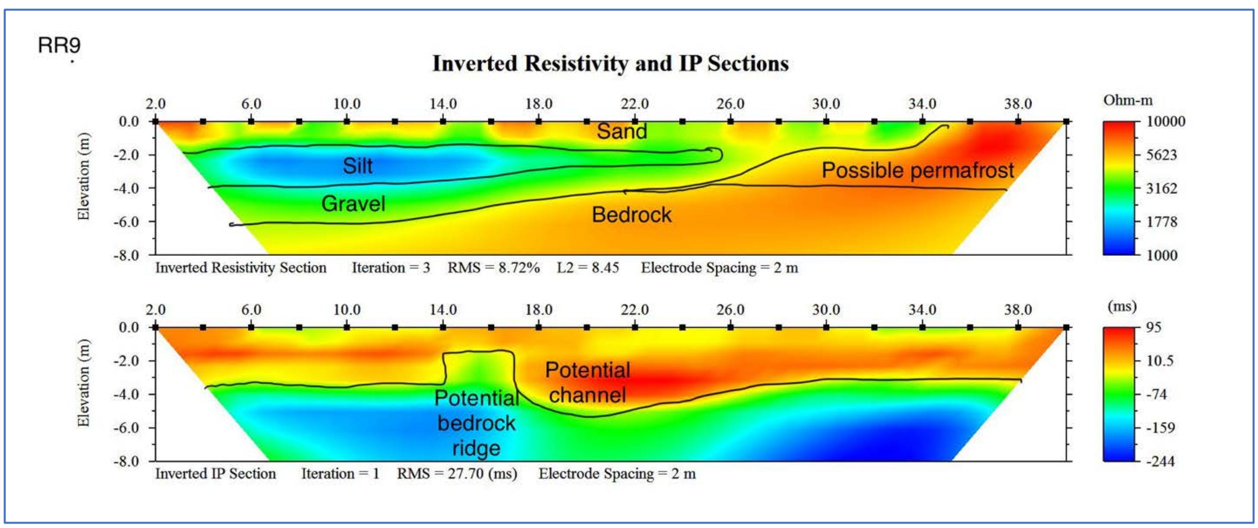
This survey shows a flat-lying bedrock contact at 2m depth. There may be a thin 0.5 m thick sand or gravel layer immediately above bedrock. Historical test pits in the area appear to show a mix of colluvium and Phase 3 lacustrine silts.



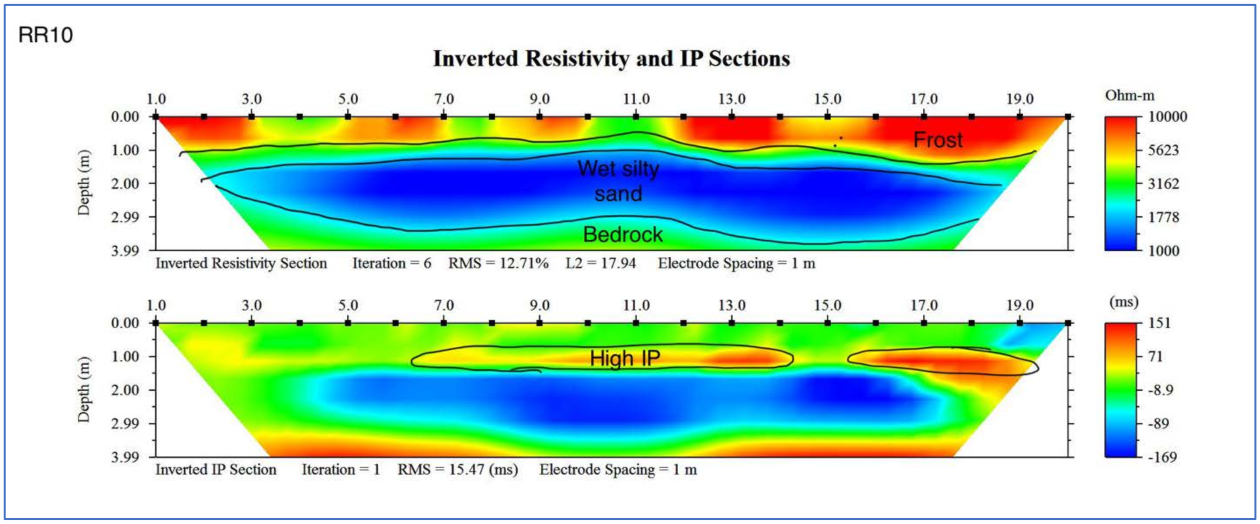
This survey extends along the east edge of the claim, immediately above the break of slope leading down to Wet Gulch. 2 m of Phase 3 silt (blue) appears to overlay 0.5 m of Phase 1 or 2 gravels above bedrock at 2.5 m depths.



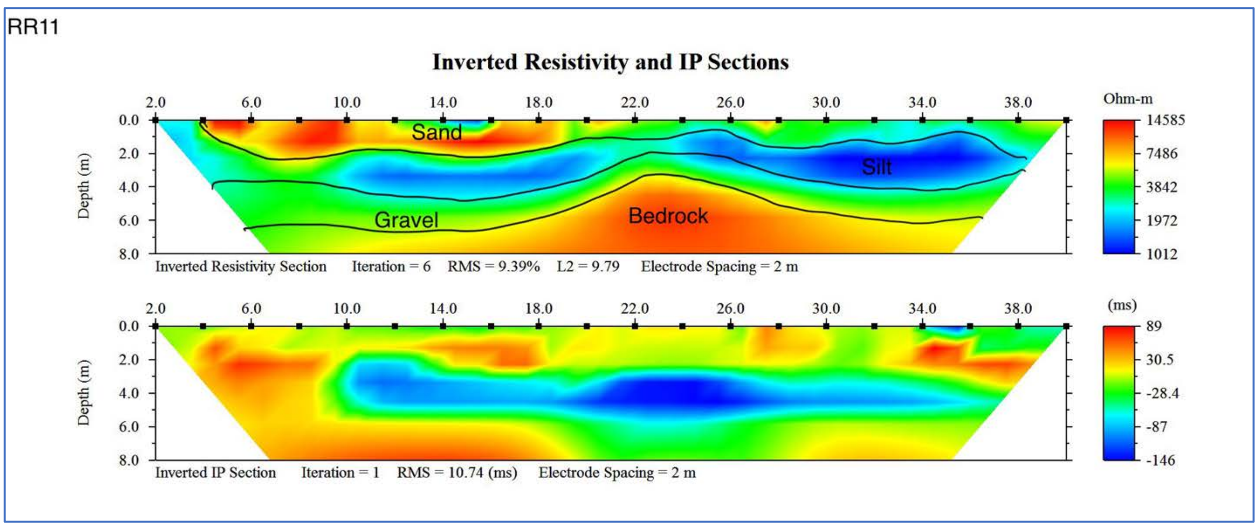
This survey shows two distinct channels incised into bedrock centred at 10 and 30 m on the horizontal scale. These channels may be up to 6 m in depth with Phase 4 fluvial sands and gravels (red, green, yellow) on the surface overlying Phase 3 silt (blue) at 2m depth, which overlays Phase 1 or 2 gravels (green) at 4 m depth and possible bedrock at 6 m depth. An interesting feature of the IP image shows what appears to be a fault or contact between two different types of bedrock.



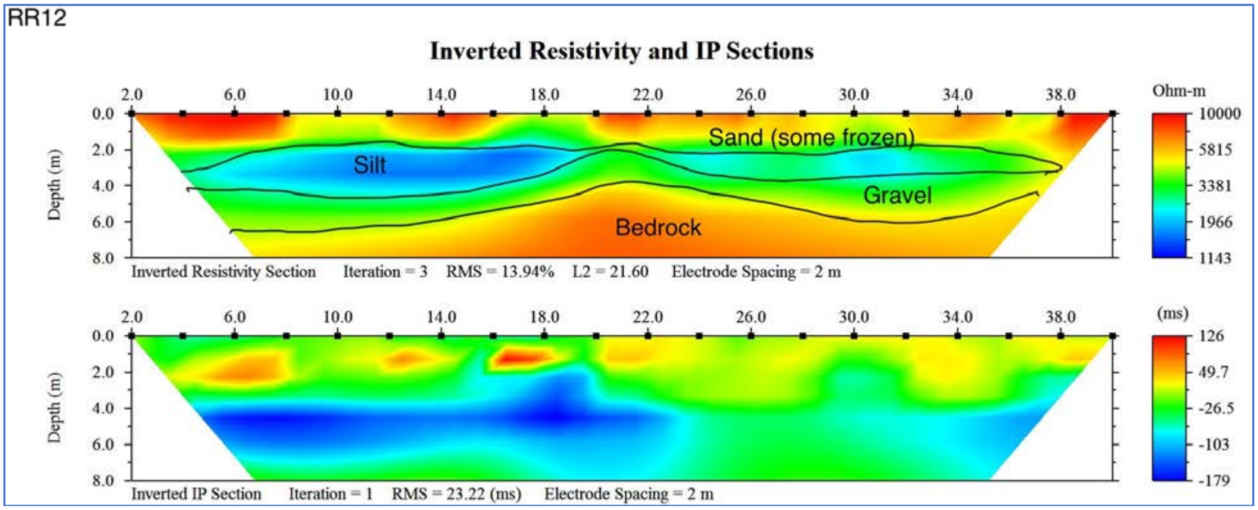
This survey runs from north to south along the extreme east end of the claim, parallel to Wet Gulch. The resistivity image shows a near-surface 1.5 m thick Phase 4 layer of sand and gravel (red and yellow). This overlays a layer of Phase 3 silt (blue) 2-4 m below surface and Phase 1/2 gravels 1-2 m thick over bedrock. High (red) resistivity from 34-40 m on the horizontal scale is likely permafrost. The IP image shows interesting bedrock features including a resistive ridge and depressed bedrock surface adjacent (labelled on image). This aligns with a contact feature directly below the bedrock ridge. The bedrock contact feature is very similar to that seen in RR8, indicating that there may be a contact or fault running between the two.



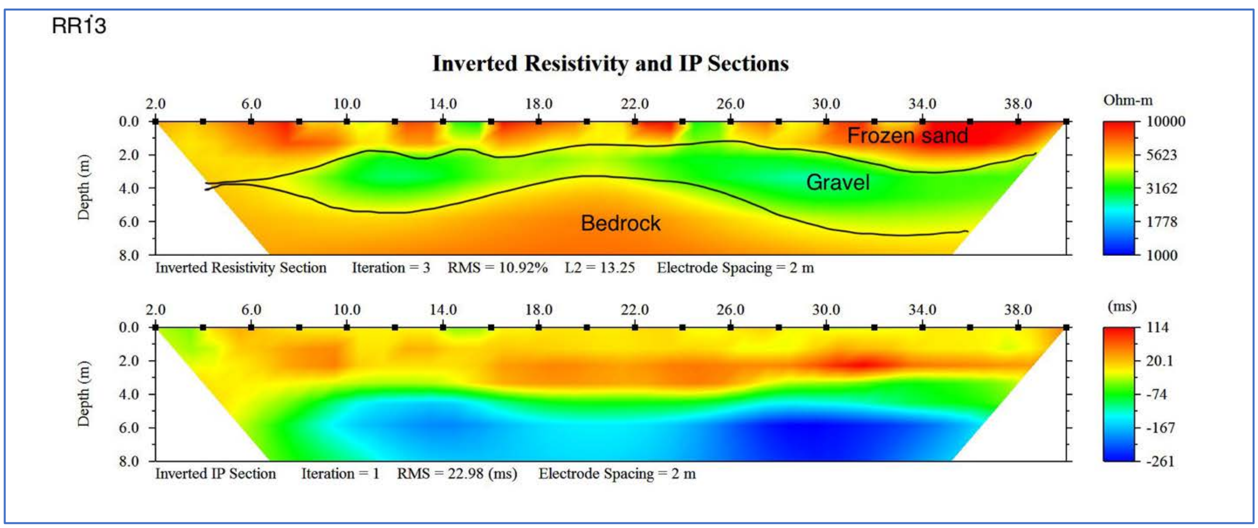
This survey shows bedrock climbing steeply towards the end of the survey. This may be a false impression as it appeared that there was permafrost present that may have occluded the high resistance bedrock signal. The induced polarization image below may provide a better indication of bedrock surface. This includes a bedrock ridge (a) and depression (b) that could be a highly resistant quartz vein and adjacent erosion along channel. Bedrock appears to be 4 m deep.



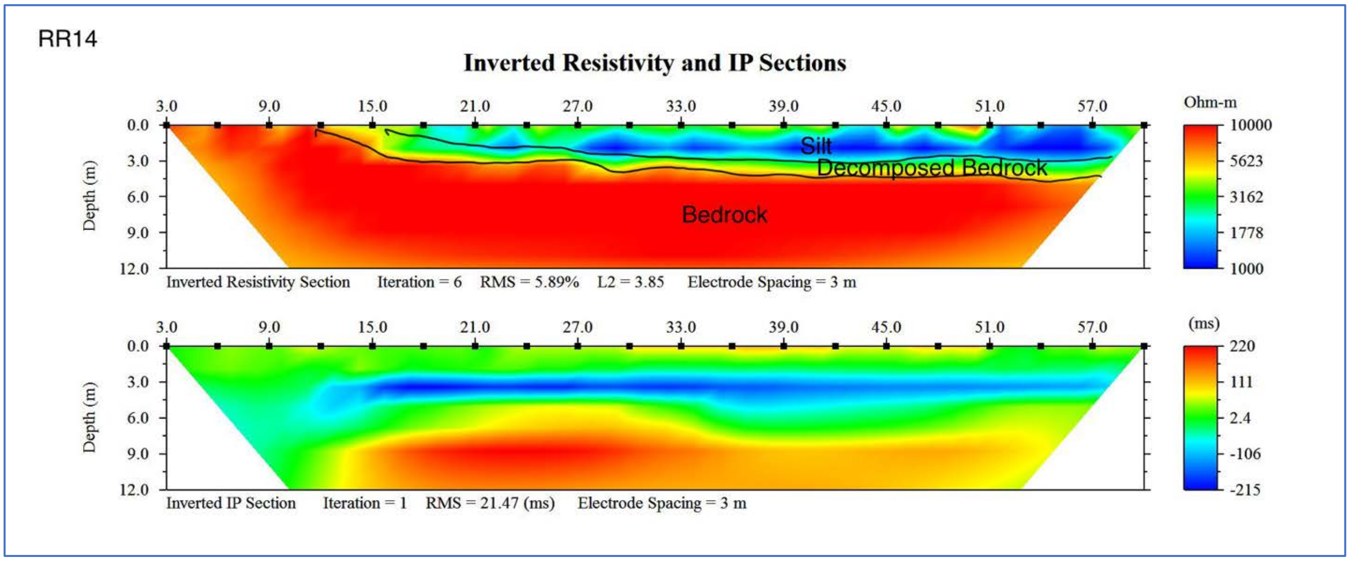
This survey runs RR16 to RR12, crossing RR4. The resistivity image shows the four layers seen elsewhere that correspond with the White Channel development phases. Near the surface is a Phase 4 (red) zone of dry sand. Below this is a Phase 3 silt zone. Above bedrock (red) is a Phase 2 gravel layer (green). A potential very thin Phase 1 pay zone may be present between the lower gravel and bedrock. Test pitting T3 near 38 m on the horizontal scale showed bedrock at 3 m depth with a thin gravel layer 0.5 m thick between the silt and bedrock.



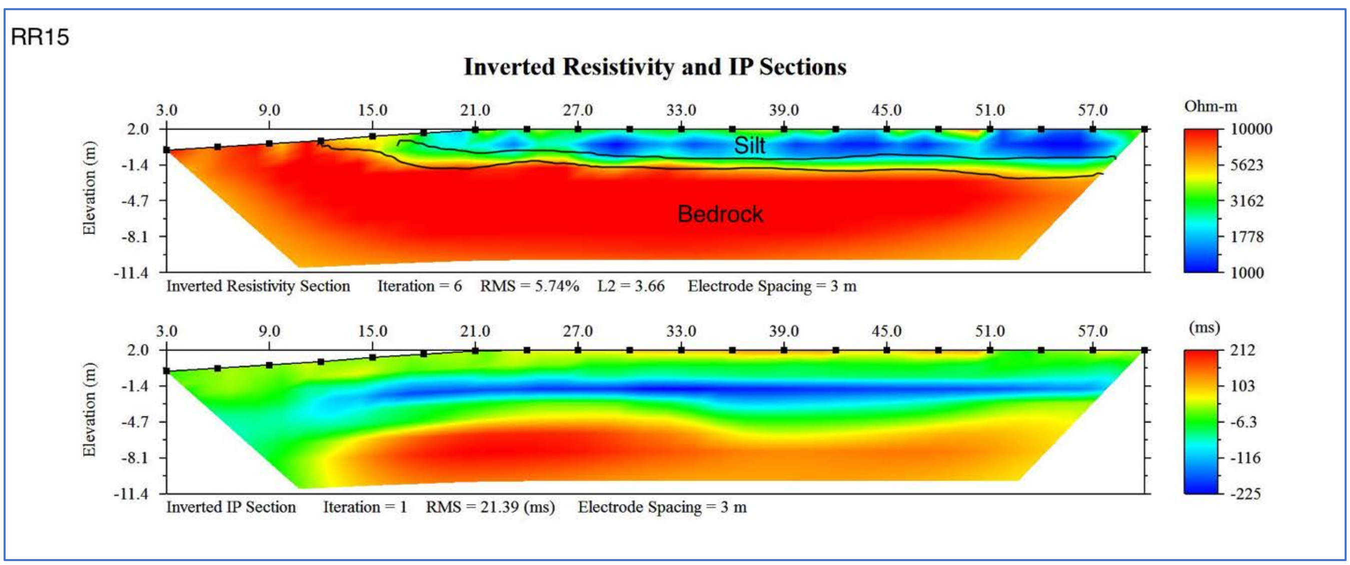
This survey runs south to north through the centre of the area of investigation, starting at the end of RR11 and terminating at the beginning of RR13. Trench 3 is near the center point of the survey. The survey shows a near-surface dry sand and gravel (phase 4) layer (red) with possible permafrost to 2 m depths. Beneath this is the Phase 3 silt layer (blue), overlying Phase 1 and 2 sands and gravels (green), then bedrock (orange-red) at 3-4 m depths. The induced polarization shows several high IP zones that appear to be at the base of the Phase 4 layer.



This survey runs from the end of RR12 to the confluence of RR14 and RR15. In the resistivity section bedrock (orange) appears to be 4-6 m in depth, deepening at the end. A layer of sand or gravel 2-3 m in thickness (green) underlies a extremely high resistance surface layer (red) that may be very dry or frozen sand. This is likely a Phase 4 deposit at the very edge of the ancient White Channel river channel. The IP image shows a much more even bedrock surface at 4 m depths. The IP image also shows a layer of very high IP just above the bedrock contact. This may be a zone of heavy mineral enrichment and is a good target for future test pitting.

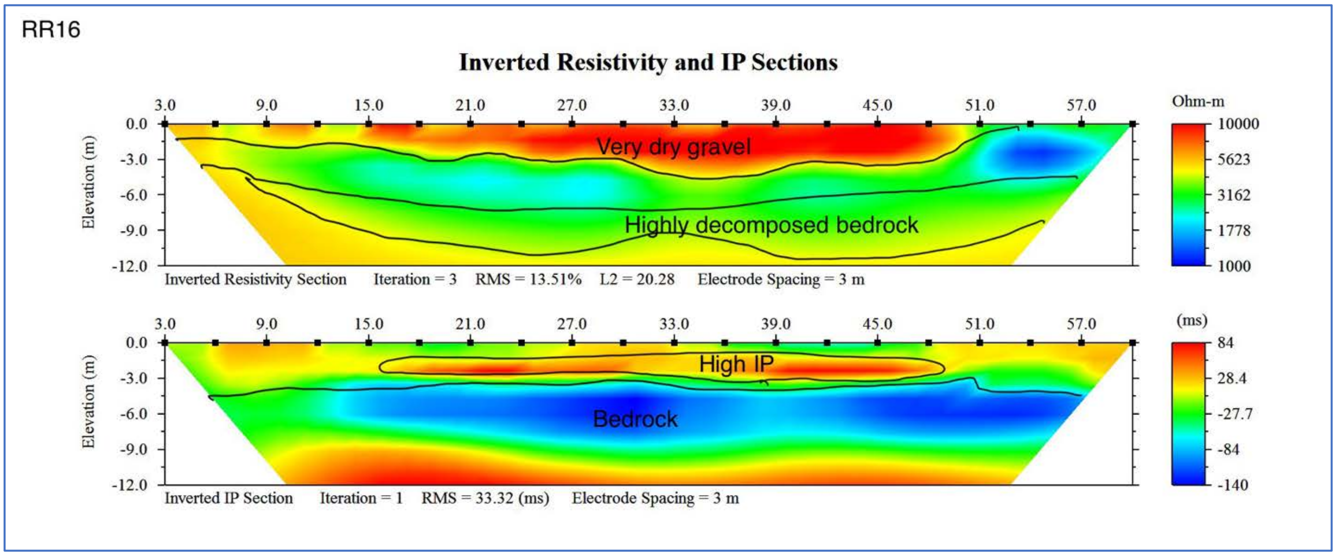


This survey runs from the end of RR13 towards the east end of the claim. It is similar to RR15 and shows a flat-lying bedrock (red) contact at roughly 4 m depth. Isolated pockets of near-surface Phase 4 (green and red) sands 1 m thick overly Phase 3 lacustrine silt (blue) 2 m thick. Below this is 1 m of Phase 1/2 sand or gravel (green).



This survey runs from the confluence of RR13 and 14 and extends uphill towards RR7. It shows high resistance bedrock that appears to be significantly more competent than that at the southern end of the property. The resistivity image at top shows bedrock very near to the surface at the start of the survey (likely not the case in reality, this may have been machine error with he equipment), deepening to roughly 4 m deep at the north end, where it meets RR7. The IP image seems to confirm this, showing a bedrock surface the gently undulates at 2-4 m depths.

The resistivity shows silt and clay near the surface which is likely the lacustrine (Phase 3) unit. A slightly higher resistivity layer (green) between the silt (blue) and bedrock (red) may be a Phase 2 gravel layer, but a Phase 1 pay layer is unlikely in this location. Gravel observed near the surface may be interpreted as Phase 4 deposition that shows as a light green layer near-surface.



This survey ran along the southern edge of the claim line from east to west. The area is dry with aspen forest and exposed gravel on the ground surface. Bedrock in an old trench appeared to be 5 m in depth – see photo to the right. The resistivity image at top shows dry Phase 4 gravel near the surface, then highly decomposed bedrock deeper with an intervening layer of damper sand or gravel, possibly dry silt. The IP image at bottom is clearer and shows bedrock at 4-5 m depth. However, the IP image also shows a high IP zone near the top of bedrock in a Phase 1 erosional environment. This is likely a deposit of black sand and other heavy minerals. We were unable to test pit this survey due to time restrictions, but this appears to be one of the most promising targets.

Figure 24. Old trench near end of survey RR16

3D Geophysics

16 geophysics surveys were combined in three dimensions using U-Make software. Material transitions on each image were delineated and the software connected these lines to create three-dimensional bedrock and phase (1,2,3,4) surfaces. This is an experimental technique that shows promise for understanding not only placer but other surficial material distributions. While the best use of the technique is in a three-dimensional computer environment the following screenshots illustrate geological continuities between surveys. This can provide insights into the conditions between individual tomograms.

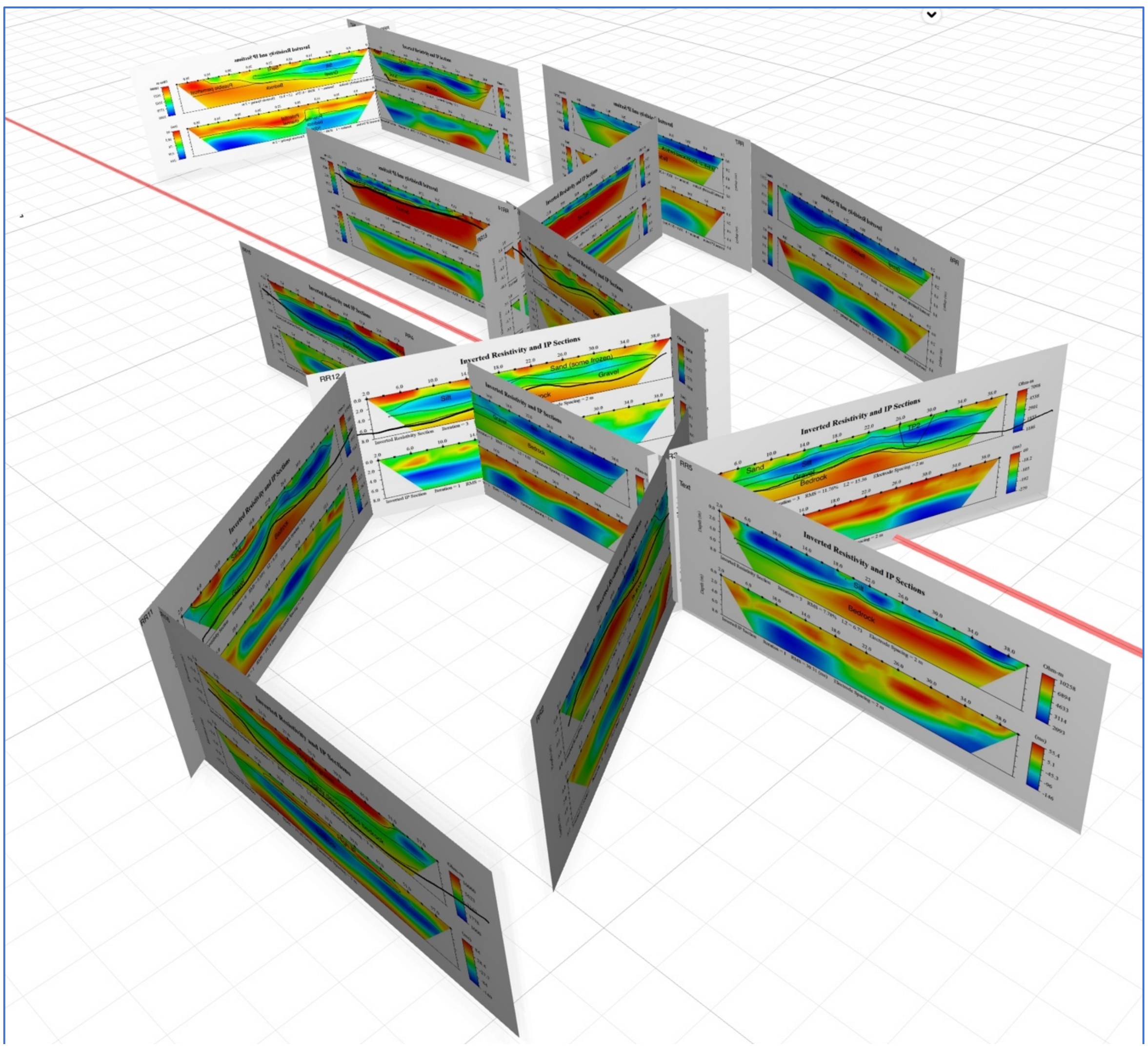


Figure 25. High-angle view of all geophysics images as seen from the SouthWest with RR2 and RR5 in foreground.

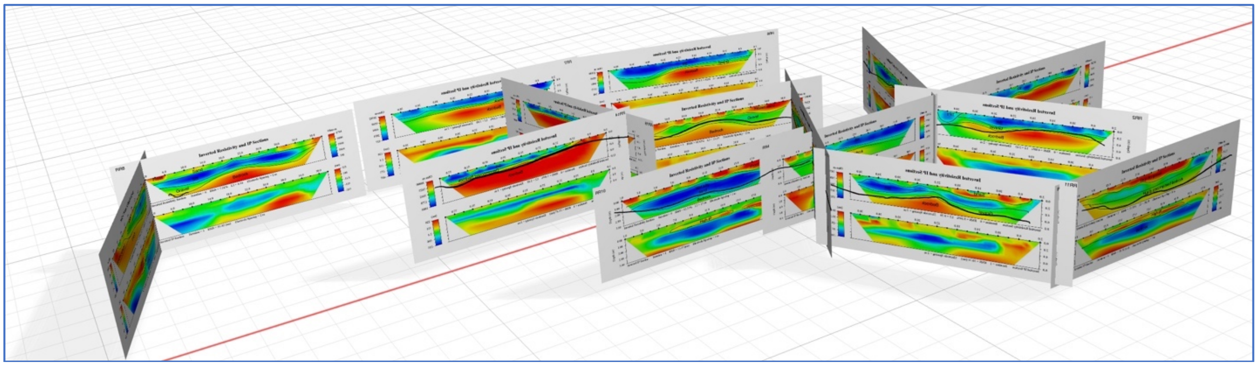


Figure 26. Overview of geophysics surveys looking from the southeast.

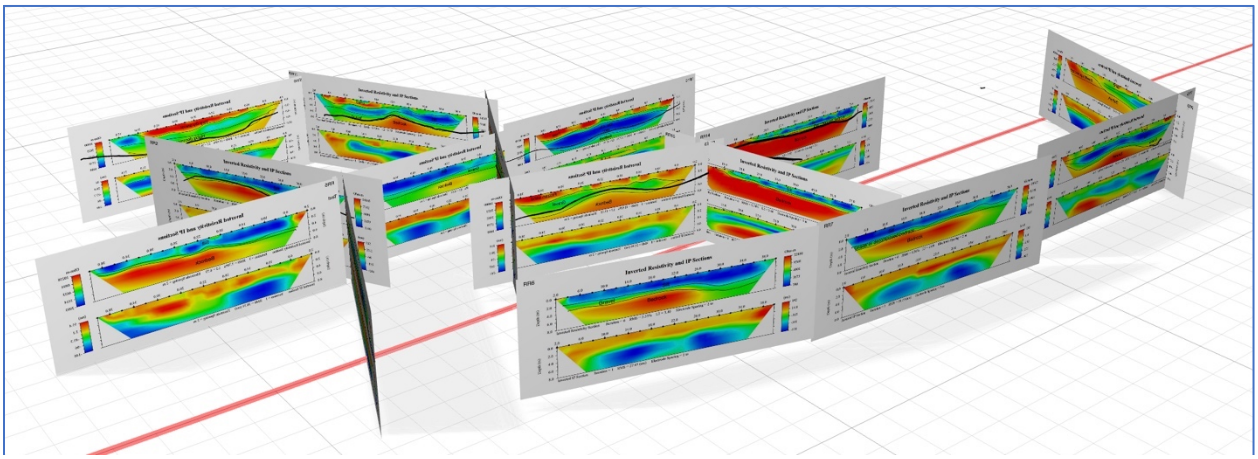


Figure 27. Overview of geophysics surveys looking from the north at RR 6,7,8 showing continuous bedrock /silt contact.

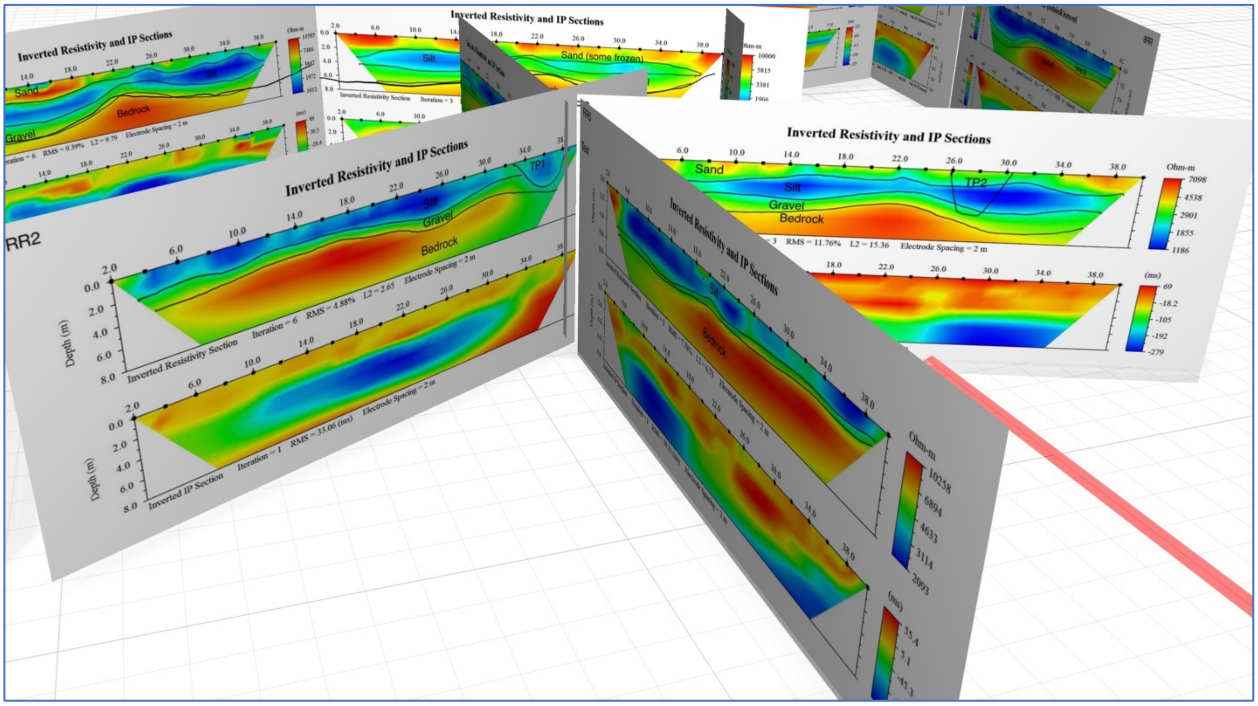


Figure 28. Detail of confluence of RR2, 3, 4, 5 at Trench #1 , extending to Trench #2 showing consistencies in depth to bedrock as well as layers of gravel, silt and bedrock.

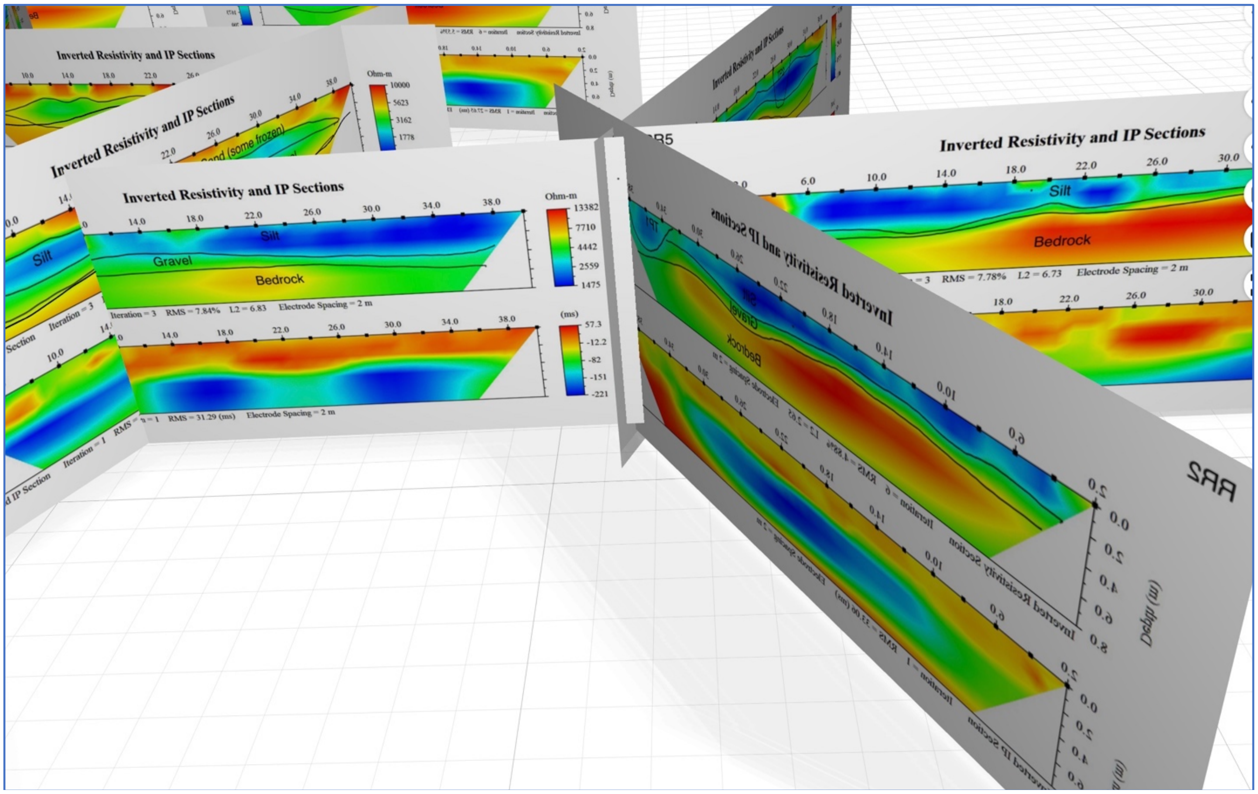


Figure 29. Detail of confluence of RR2, 3, 4, 5 at Trench #1 from another angle (looking from the south) showing consistencies in depth to bedrock as well as layers of gravel, silt and bedrock.

Conclusions

Fluvial Geomorphology

This project sought to determine if the four phases of White Channel fluvial deposition could be distinguished on the property. These distinct phases are (1) Initial erosional system with gold concentration in sand and gravel, (2) Depositional gravel with much lower gold concentration, (3) lacustrine silt, sand and clay with little or no gold, (4) Later depositional gravels laid down on top of Phase 3 silts with little gold. At least one trench encountered Phase 1 coarse grey sands, indicating the potential for high grade White Channel gold deposits.

Geophysics

The geophysics was largely successful in identifying the four phases, as well as delineating bedrock contacts. Induced Polarization surveys often added more detail to the bedrock contacts as well as identifying zones of high magnetic heavy mineral concentration. 3D display techniques can add additional insights for determining geologic conditions in the spaces between surveys.

Trenching

Three trenches we excavated to bedrock using a compact excavator. Ten trenches were planned but a sudden snowfall and temperature drop forced the program to end sooner than planned in order to safely demobilize the excavator. Three additional pre-existing trenches were sampled as well. These trenches produced over 500 kg of samples and allowed for direct observation of the geological strata. Gold was found in near bedrock (Phase 1), sand (Phase 3) and surface gravels (Phase 4) with the greatest concentration in Phase 1 gravels. While the trenches themselves were not sufficient to prove the resource or determine a grade suitable for mining they encourage further exploration.

Several additional test pitting or drilling targets were identified using geophysics. These include some channels showing potential for Phase 1 gravels and the fault zone that crosses RR8 and RR9. An auger drill program would be ideal for systematic exploration of the property. The compact sands and gravels would drill easily, and the sides of the boreholes would stand up during drilling and prevent sample loss. A 6” drill would be ideal for these ground conditions but would require road building to access the property.

Personnel

- Jim Coates – Senior Geomorphologist and Geophysicist
- Astrid Grawehr – Field Technician, Geophysics Assistant and Excavator Operator

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Appendix A

Geophysics Overview

Resistivity and Induced Polarization Geophysics will be used for this area as the electrical properties of gravel, schist bedrock and mineralized fault systems are distinct and easily definable. A Lippmann 4-point Resistivity System will be used. This system allows up to 40 m of depth penetration. This system has been used by Kryotek for mineral exploration and subsurface definition in 2013 at the Casino property, Dawson goldfields area, Burwash Landing, Whitehorse area, Mt Nansen, Norman Wells and Fairbanks, Alaska.

Data will be collected and inverted using AGI Earth Imager 2D software. Noisy data points and electrodes with poor contact resistance will be removed and data will be filtered for spikes or depressions in resistivity. The software will produce two-dimensional tomograms using a smoothed, least squares damped and robust inversion parameters. Preliminary interpretations will be conducted on the processed data.

DC Electrical Resistivity Tomography

This technique injects a direct electrical current into the ground surface, and then measures the voltage that remains at a number of distances from the injection point. As different soils have different resistances to electrical current, a tomogram (subsurface diagram) of resistivity can be produced.

Induced Polarization Tomography

This technique is conducted simultaneously with the DC electrical resistivity. As the electrical current is injected into the ground, a charge is retained in soil and rock materials and then decays as a function of time. This differs according to the electrical properties of the ground materials and can be useful in differentiating subsurface material types and boundaries.

Earth Imager 2D Software

Earth Imager 2D software (Advanced Geosciences Inc.) was used to invert and process the geophysics data. This software produces two-dimensional tomograms of resistivity data. The images will be processed using both smoothed and robust inversion parameters in order to clarify transitions between material types as well as resistivity properties of those materials.

Appendix B
Statement of Qualifications

James Coates

I, James Coates of 2180 2nd Avenue, Whitehorse, Yukon, Canada DO HEREBY CERTIFY THAT:

1. I am a Consulting Geomorphologist with current address at 2180 2nd Avenue, Whitehorse, Yukon, Canada, Y1A 6C4.
2. I am a graduate of the University of Calgary (B.Sc., 2004, Geography) and the University of Ottawa (M.Sc., 2008, Geography)
3. I have practiced my Profession as a Geomorphologist continuously since 2008.
4. I am President and co-owner of Kryotek Arctic Innovation Inc., a Yukon Registered Company.

Astrid Grawehr

I, Astrid Grawehr of 2180 2nd Avenue, Whitehorse, Yukon, Canada DO HEREBY CERTIFY THAT:

1. I am a practicing geoscience technician with approximately 3,000 hours of field experience.
2. I am a geophysics technician with over 1,000 hours of field time conducting resistivity/IP surveys.
3. I am a graduate of Bishop's University (B.A. Geography, 2008).
4. I am Director of Operations and co-owner of Kryotek Arctic Innovation Inc., a Yukon Registered Company.