AW47600
120452

Higher Ground Exploration Services

Placer Assessment Report

Aerial Drone Survey

Mount Lorne, Kookatsoon Lake Area, Yukon

NTS Map sheets 105D10

Location: Latitude of 60°32'59"N, and Longitude 134°51'31"W

Mining District: Whitehorse

Yukon Territory

By Nicolai and Tanja Goeppel on Behalf of Ron Berdahl

August 26, 2021

Aerial drone survey conducted August 24, 2021 on the following placer claim:

ASPEN

Abstract

In August 2021 an aerial drone survey was carried out on the placer claims ASPEN in the Mount Lorne, Kookatsoon Lake area, held by Ron Berdahl. The aerial drone survey covered a total of 0.05 square kilometers of the placer claim ASPEN. The total costs for the survey was $1,181.25.

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Introduction

The Aspen claim is situated roughly 18 km southeast of Whitehorse, Yukon, and is owned by Ron S. Berdahl of Whitehorse. The following is an aerial drone survey placer assessment report on the placer claims ASPEN in the Whitwhorse Mining District, Yukon.

Location and Access

The placer claim ASPEN is located within the Whitehorse Mining District, Yukon Territory. The property is centered around latitude of 60°32'59"N, and longitude 134°51'31"W, of NTS Map sheet 105D10. The claim is located 18 km south of Whitehorse on the Klondike and 1 km east of the Klondike highway. The property can be accessed by 4x4 road off of Klondike Highway.

History

The Aspen Claim was originally staked in 1997 to cover a possible depositional environment along a paleo river that ran southerly through what is now known as the Carcross Valley. The claim is located just "downstream" of a small unnamed creek that drains a known gold showing (NIP). Several generations of hard rock claims have covered the site. These are related to a geopyhsics survey conducted by Hudson Bay in the 1970's (?) and malachite float discovered in the area in the 1990's by Berdahl.

Geology

On a regional scale, the Aspen claim is located within the northern end of the Intermontane Belt, an accretionary feature produced by the subduction of the Intermontane Island Arc beneath the western margin of North America in Middle Jurassic time. Within this belt, it is located in the Whitehorse Trough, which comprises sedimentary and volcanic units of the Upper Triassic Lewes River Group, Lower to Middle Jurassic Laberge Group and the Upper Jurassic to Lower Cretaceous Tantalus Formation, intruded by a series of Middle to Late Cretaceous and Eocene plutonic suites.

The location of the Aspen claim puts it at the southern end of the Whitehorse Copper Belt, a northwest-southest copper-bearing skarn to the west of Whitehorse, hosted in the carbonates and clastics of the Lewes River Group and the clastics of the Laberge Group. It is also approximately 8 km to the northwest of the Mt. Lorne pluton, which is associated with Au mineralization at both the NIP (Yukon MINFILE # 105D 066) and COMBS (#105D 112) showings.

Quaternary glaciation and fluvial processes have defined the physical topography of the Carcross Valley, which surrounds the Aspen claim. The claim is entirely overlain by associated deposits, presumably derived from surrounding units of the Whitehorse Trough. The nearest bedrock outcrops to the Aspen claims suggest that is it underlain by the clastics of Lewes River Group.

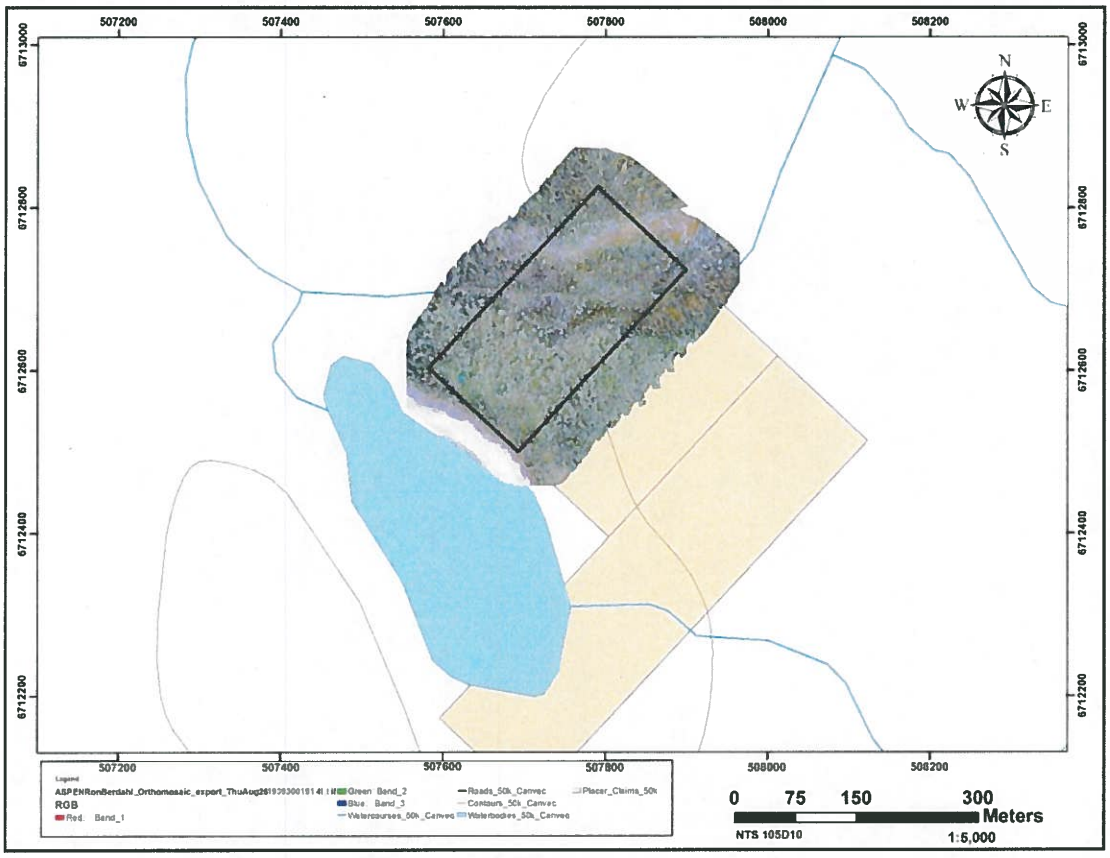
2021 Aerial Drone Survey

Drone Survey

On August 24, 2021 an aerial drone survey was carried out on placer claims ASPEN in the Mount Lorne, Kookatsoon Lake area, held by Ron Berdahl. The aerial drone survey covered a total of 0.05 square kilometers of the placer claim ASPEN. The total costs for the survey was $1,181.25.

The survey captured high resolution orthophotos and digital elevation model (DEM) and the results produced a georeferenced orthomosaic / DEM and 3D model. The drone is a DJI Mavic 2 Pro and is fitted with a 4K Hasselblad high resolution camera. The program was planned using Drone Deploy and Drone Harmony to integrate a terrain awareness for the autonomous survey. Drone Deploy was also used for post processing.

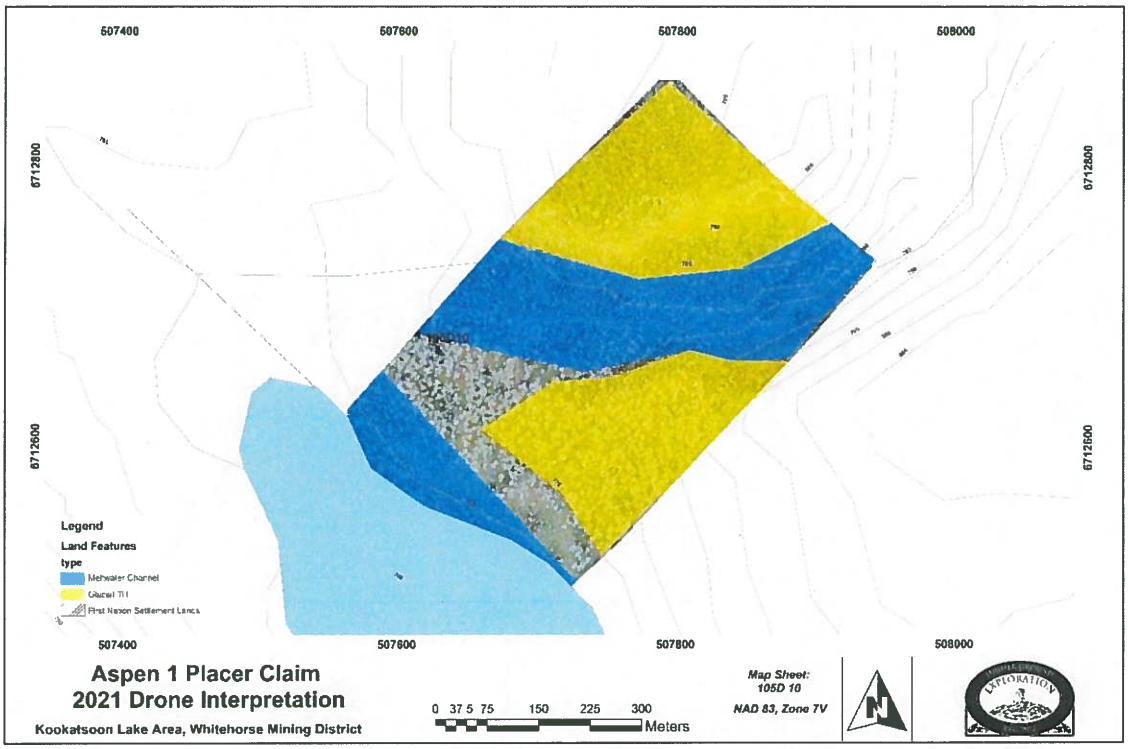
The survey altitude was 110m and flown at a resolution of 2.85 cm per pixel for orthophotos and 11.40 cm per pixel for the digital elevation model.



Map Details Summary

The Aspen claim is located south of Whitehorse, Yukon. The Cordilleran ice sheet has advanced at least 6 times over southern Yukon during the last 2.5 million years; the last ice sheet retreated approximately 10,000 yrs ago. Quaternary glaciation has modified the pre-glacial physiography through base-level adjustments and erosion of summits and valleys. Ice flow during the last glacial maximum was independent of the underlying topography and flowed in a general north to northwest trajectory. Only as deglaciation thinned the ice sheet, the underlaying topography effected the ice movements. Landforms such as eskers and ice-marginal meltwater channels modified the landscape. Large volumes of meltwater were generated by the retreating glaciers causing both depositional and erosional landforms to develop. In the project area this is characterised through melt water channels that scar the landscape and thick sequences of glacial lacustrine sediment that is deposited in the Whitehorse trough.

Two prominent melt water channels cut through the middle of the claim and at its southern edge. These channels have incised through the overlaying glacial till and concentrated any heavy minerals present and are the primary exploration target in the area. Such melt water channel may intersect older gold bearing glacial-fluvial or fluvial gravels; and / or enriched glacial features such as eskers or moraines.



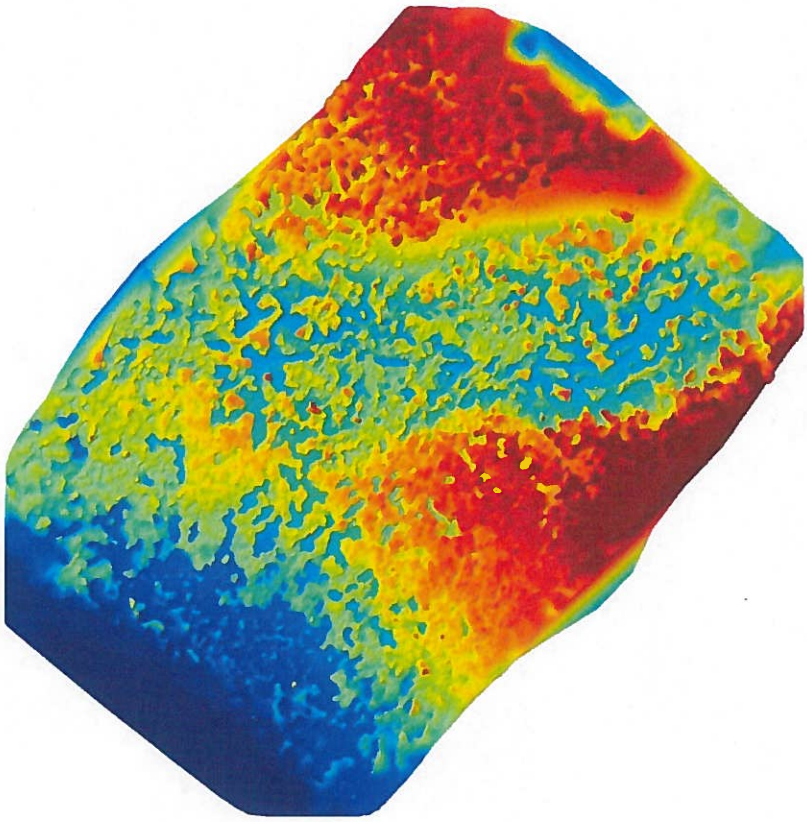
Map Details Summary

Project Name	Mt. Lorne - ASPEN - Ron Berdahl
Photogrammetry Engine	DroneDeploy Proprietary
Date Of Capture	Aug 24, 2021
Date Processed	Aug 26, 2021
GSD Orthomosaic (GSD DEM)	2.85cm/px (DEM 11.40cm/px)
Area Bounds (Coverage)	453570.03m^2 (22%)
Image Sensors	Hasselblad - L1D-20c
Average GPS Trust	10.00m

Quality & Accuracy Summary

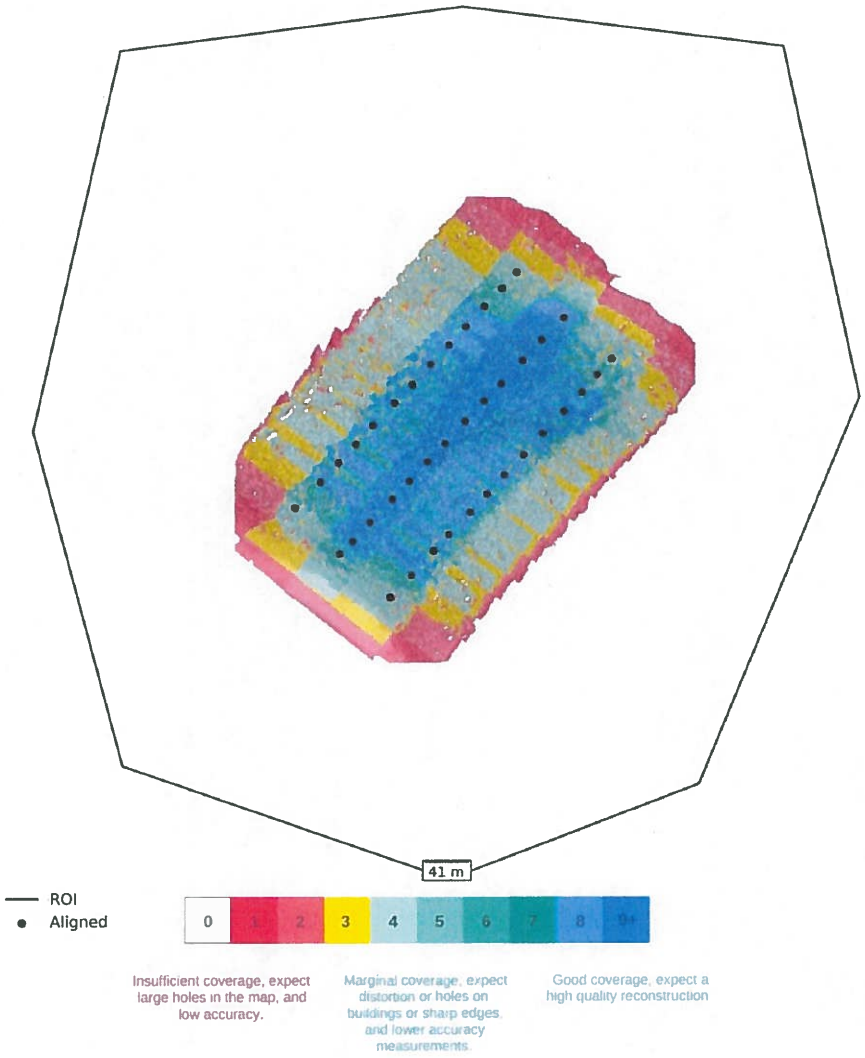
Image Quality		High texture images
Median Shutter Speed		Low shutter speed 1/30 - motion blur likely.
Images Uploaded (Aligned %)		39 (100%)
Camera Optimization		Focal length varied from reference value by 12.89%.

Preview



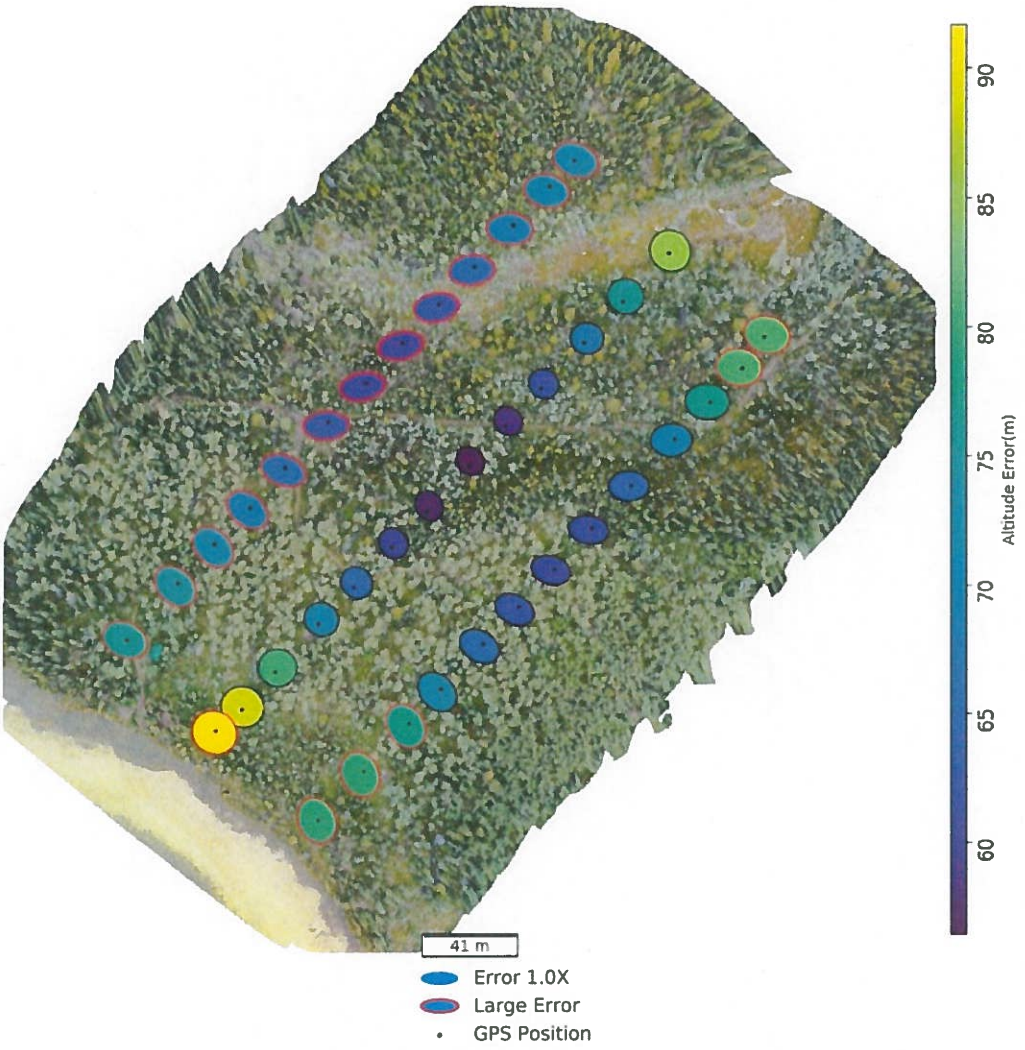
Data Quality Review

Orthomosaic Coverage



Sensor(s) Used		Hasselblad - L1D-20c
Image Count (by sensor)		39
Image Resolution		5472x3648 (~20MP)
Orthomosaic coverage (% of area of interest)		22.62
Average Orthomosaic Image Density within Structured Area		5 images/pixel
Median Shutter Speed		Low shutter speed 1/30 - motion blur likely.

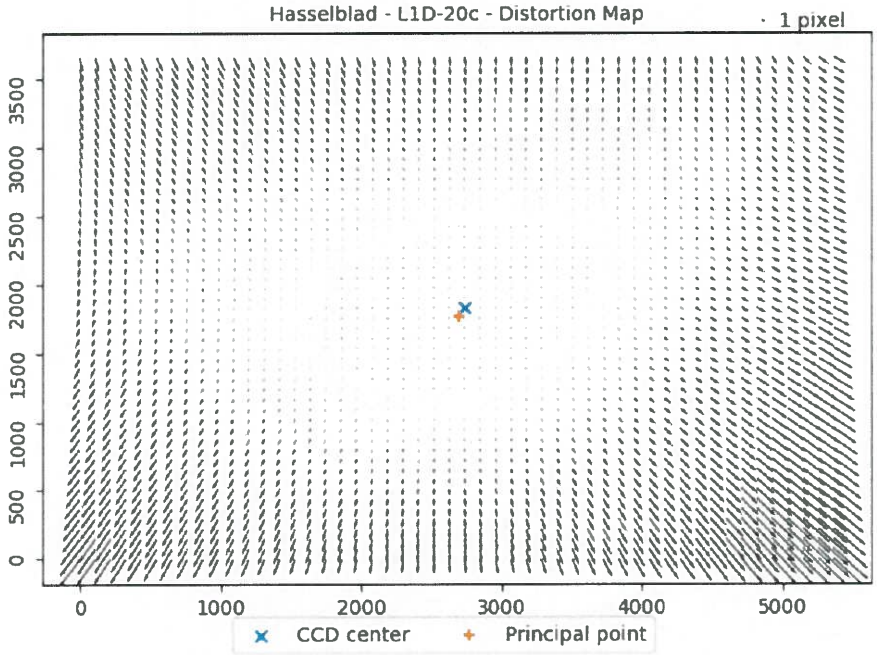
Structure From Motion



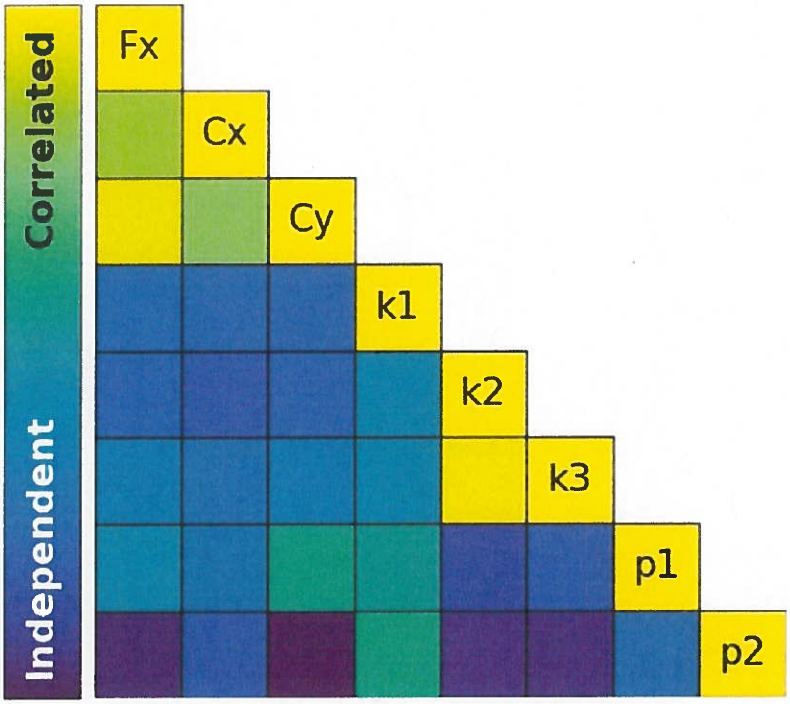
Aligned Cameras		100% 39/39
RMSE of Camera GPS Location		X 1.11m Y 1.45m Z 1.28m RMSE 1.29m

Camera Calibration

Camera Optimization	Focal length varied from reference value by 12.89%.



	Fx	Cx	Cy	k1	k2	k3	p1	p2
Value	4942.03	2697.89	1769.67	0.00695658	-0.0170016	0.0305246	-0.00228359	0.00058081
Error	70.5904	2.92968	3.98372	11.7856	23.9687	40.6817	0.584466	0.365787

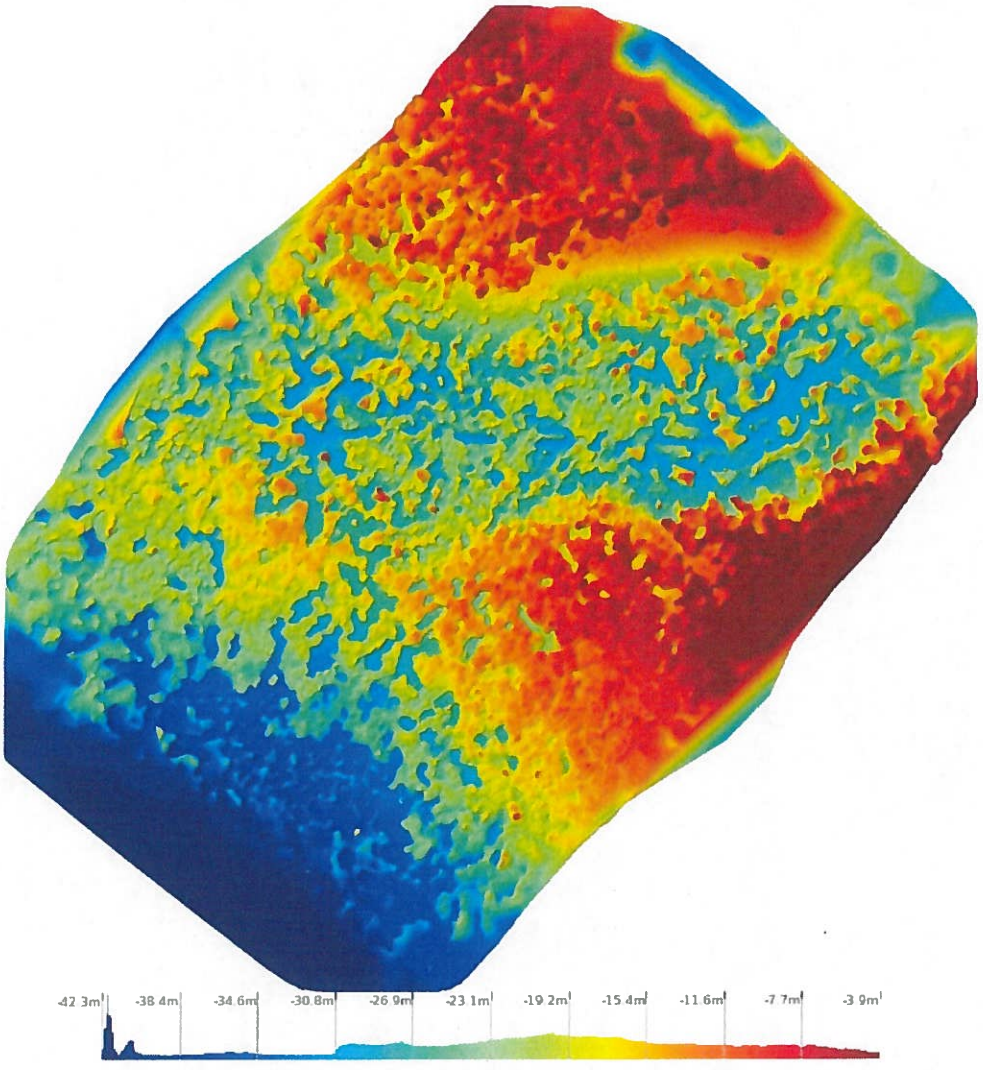


Densification And Meshing

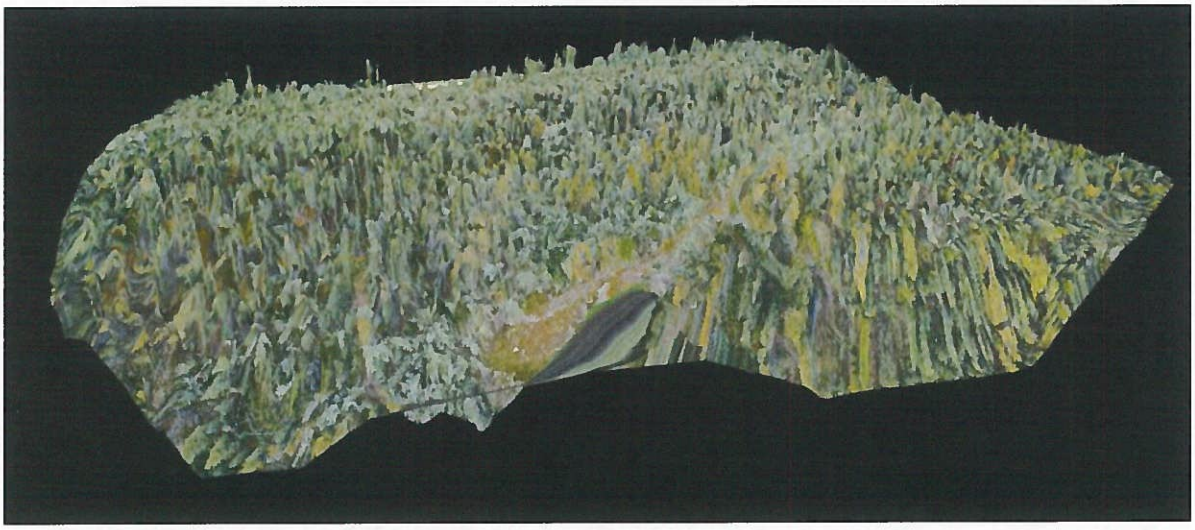
Processing Mode Quality		High
Nadir Images		100% Include oblique or horizontal images to improve reconstructions of man-made structures.
Oblique images		0%
Horizontal images		0%
Total Points		2.1 million
Point Cloud Density		20.70 points/m^2
Mesh Triangles		777563

Digital Elevation Model

Mode	Generated from Mesh
DEM GSD	DEM 11.40cm/px
Relative/Absolute	Relative Altitude vs Drone takeoff



3D Model



Expenditures

The total expenditures for the 2021 aerial drone survey on ASPEN placer claim was $1,181.25.

Conclusion and Recommendations

The 2021 drone survey on the Aspen 1 claim was successful in identifying boundaries and area of two significant meltwater channels that cut the property, through the center and at the southern margin. The larger more prominent one is occupied by a pond or small lake and therefore limited to exploration. The central channel warrants testing as it easily accessible and could be determined with minimal costs. Immediately downstream, the two channels intersect with increased gradient and is recommended area to explore.

Statement of Qualifications

I, Nicolai Goeppel, of the city of Whitehorse, Yukon, certify that:

1. I have completed an Earth Sciences B.Sc. at Memorial University of St. John's, Newfoundland in 2014
2. I have worked in the mineral exploration industry in the Yukon, Newfoundland, and British Columbia since 2009
3. I have been involved in the placer industry my entire life and engaged in placer gold exploration in the Yukon and BC since 2009
4. Owner and founder of Higher Ground Exploration Services since 2015

I, Tanja Goeppel, of the city of Whitehorse, Yukon, certify that:

1. I have completed the Prospector course at the Chamber of Mines
2. I have worked in the mineral exploration industry in the Yukon and British Columbia since 2015
3. Working with Higher Ground Exploration since 2015