
UAV Aerial Photogrammetry Survey

on the

North Klondike Placer Claims

Dawson Mining District

Placer Claims: P43406 "Louise", P43685 "Karsten", P43686 "Nancy"
Owner: Brian Walter Sporter - 100%

NTS #: 115O/15, 116B/02

Latitude: 64.0025° N Longitude: -138.66 ° W

Work Performed: Oct 25, 2019
Date of Report: Feb 10, 2021
Author of Report: Allen Wywrot

Summary

During the field season of 2019, GroundTruth Exploration Inc. was hired by Brian Walter Sporter to complete an aerial drone survey on the placer prospecting lease IW00715, on a left limit tributary of Coffee Creek. The lease was imaged using an EBee fixed-wing drone which created high resolution imagery and surface topography.

The aerial drone survey was successful in detailing the channel's width and development of the site. This data is useful for future exploration as well as the planning of future workings of a placer mine.

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1.0 Introduction

The aerial drone survey, undertaken by GroundTruth Exploration Inc., of Dawson City, YT, was conducted on the placer claims P43406 “Louise”, P43685 “Karsten”, and P43686 “Nancy” located in the Dawson Mining District. The survey was carried out using an EBee fixed-wing drone resulting in high resolution imagery. The survey is intended to locate features such as pingos, erosional benches, channel merge areas and valley widths, which is all useful data for future exploration work; along with planning for future construction or logistical operations

2.0 Previous Investigations

There has been no previous work UAV survey completed on this set of claims. Groundtruth Exploration is not party to information of any other type of work completed on these three claims in the past.

3.0 Location and Access

This placer prospecting lease is located approximately 38 km east of Dawson City located within the North Klondike watershed in west-central Yukon Territory. The target is centered at latitude 64.0025° N and longitude -138.66° W, located on NTS map sheets 115O/15 and 116B/02 (Figure 1). The claims are easily accessible from the Dempster highway present 500m to the southeast.

4.0 Property

Placer Prospecting Lease tenure:

P43406 “Louise”, P43685 “Karsten”, P43686 “Nancy”

Owned by: Brian Walter Sporter – 100%

Expiry Date: 2023/11/ 01

See Figure 2 for claim map.

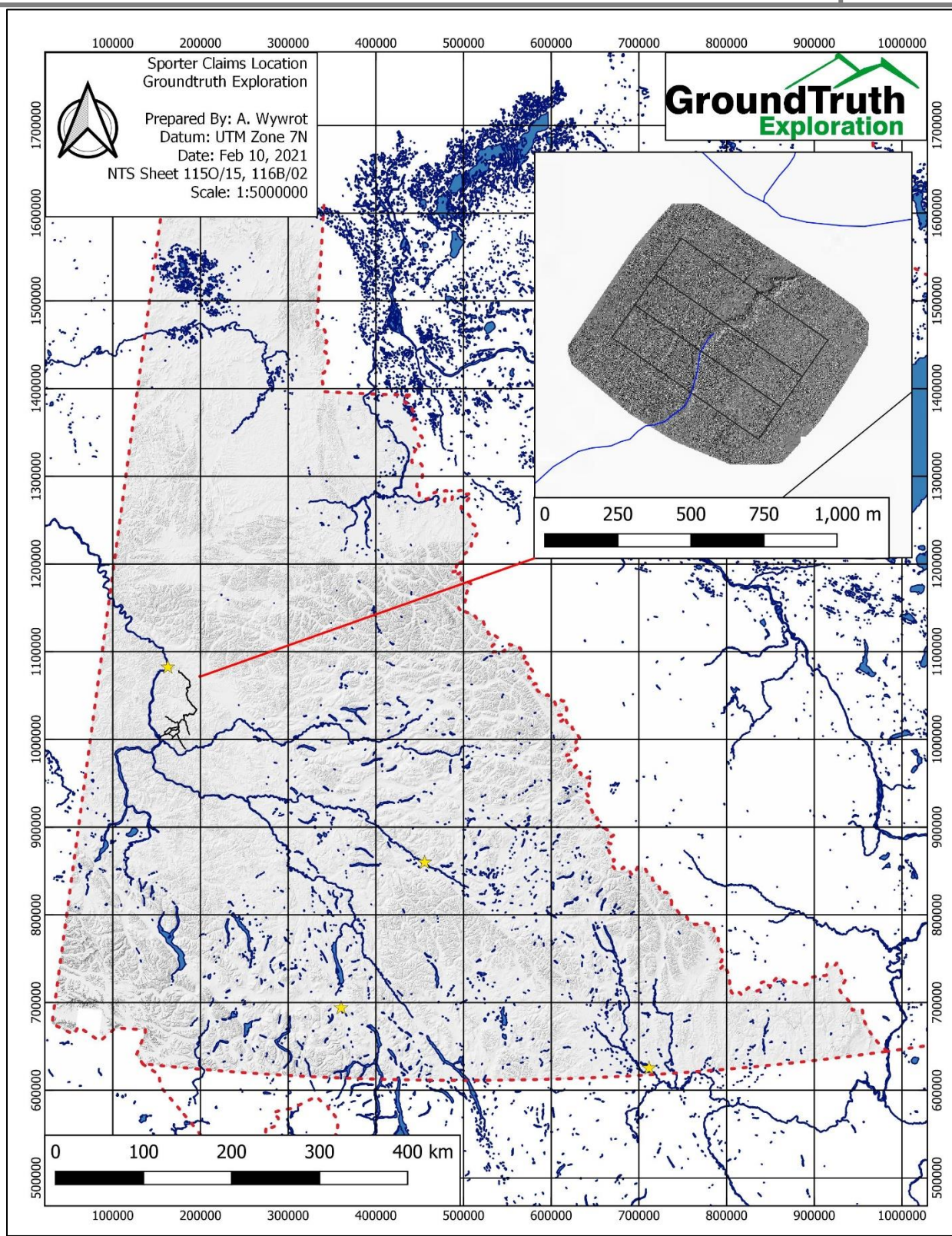


Figure 1: Property Location within the Yukon

5.0 Physiography and Climate

The landscape is composed broad valleys bordered by moderately sloped, tree covered hills ranging in elevations from 915 to 1,350 m. The property lies within Canadas discontinuous permafrost zone, therefore the valley bottoms in this area are completely filled with permafrost.

The Yukon territory has a sub-arctic continental climate with a summer mean of 10°C and a winter mean of -23°C with temperatures reaching as high as 35°C in the summer and as low as minus 55°C in the winter. Mean annual precipitation ranges from 250 to 500 mm, varying with elevation.

6.0 Geology

6.1 Regional Geology

The placer prospecting lease is situated in the Yukon-Tanana Terrane (YTT). The YTT is a late Devonian to middle Mississippian continental magmatic arc extending from northern British Columbia into west-central Yukon and eastern Alaska and is bounded to the northeast by the Tintina fault and to the south-west by the Denali fault (Colpron et al., 2006).

The YTT is composed of four main assemblages including the Snowcap, Finlayson, Klondike and Klinkit (Colpron et al. 2006) intruded by the Dawson Range Batholith (phase of the Whitehorse Suite), Prospector Mountain Plutonic Suite and Casino Plutonic Suites (Mortensen et al., 2010).

6.2 Property Geology

The entirety of these placer prospecting claims are underlain by Devonian – Carboniferous metamorphic rocks of the Finlayson Assemblage (DMF3) consisting primarily of Quartzite and occasional conglomerate. See Figure 3 for a view of property bedrock geology.

The property has not undergone glaciation, and should have typical placer grades expected in this area.

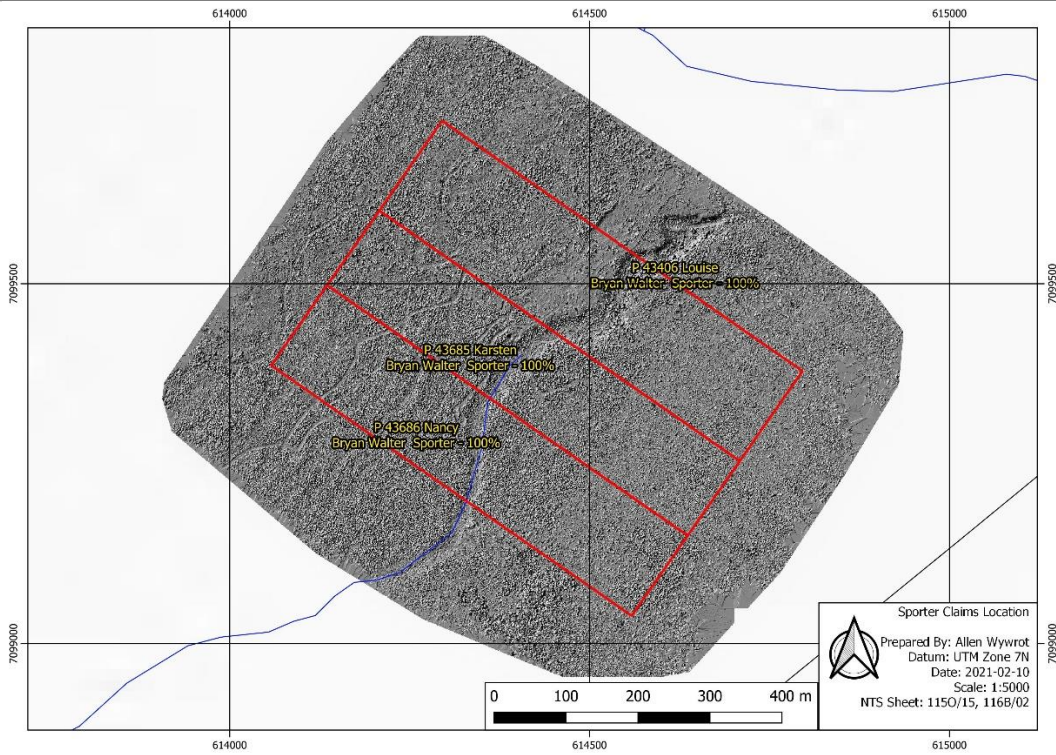


Figure 2: Mining Claim Details

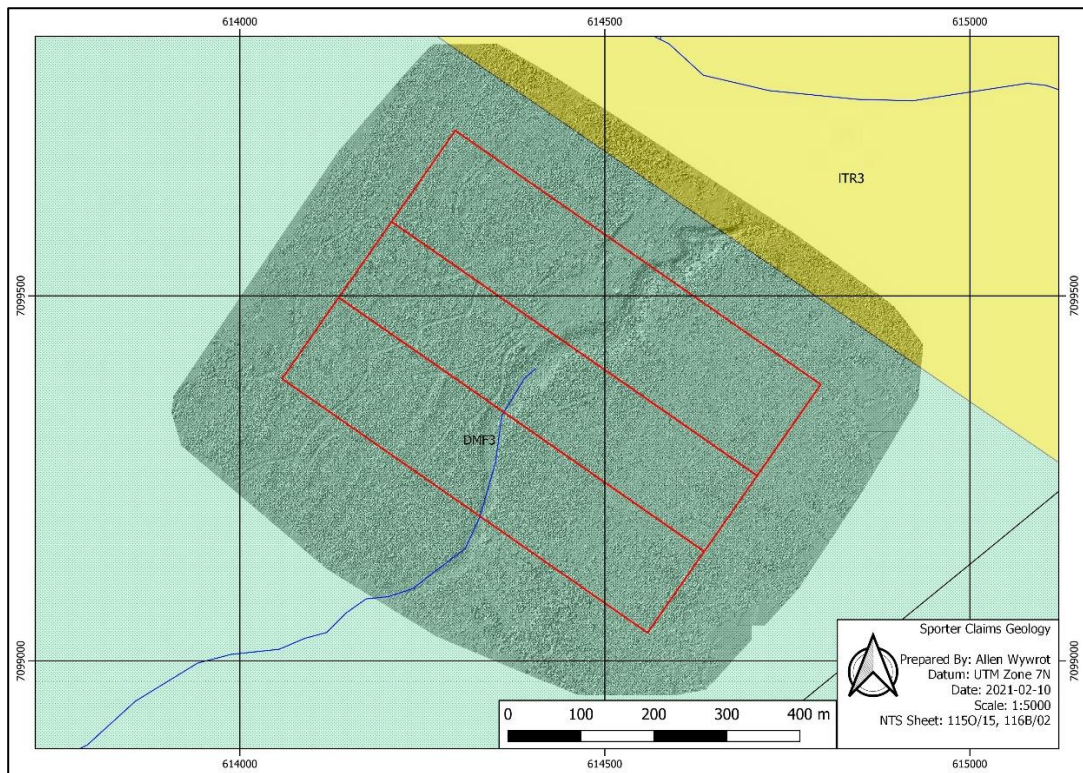


Figure 3: Bedrock Geology

7.0 UAV Aerial Photogrammetry

7.1 Work Performed

The UAV survey consisted of a quarter day survey performed on Oct 25, 2019. A lead UAV operator and assistant UAV operator (spotter) were employed to run the survey. Only one flight was required to cover the claims.

The Drone survey lines and spatial resolution are approved by client prior to survey, and are designed in accordance with June 1, 2019 Transport Canada RPAS regulations. Typical flight time is approximately 45 minutes per flight, less if the operations area is experiencing high winds.

7.2 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 with other aircraft in the area.

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

UAV Drone:	Ebee PLUS UAV 'Drone' w/ internal GPS and radio
Camera:	S.O.D.A. 24MP custom EBee camera
Base Station:	Panasonic Toughbook laptop with radio link
Power Generation:	1000watt Honda generator
Radios:	VHF radio with aircraft frequencies
Processing:	Laptop computer with adequate RAM and GPU
Software:	Emotion software for flight planning/monitoring Postflight Pix4D for image Orthorectification Globalmapper for manual correction/cropping

7.3 UAV Survey Operating Procedures

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 and at regular intervals during the survey, operator calls out on Aircraft frequencies to notify Drone survey in progress.
- Operator Hand launches aircraft and flies survey as planned with number of required flights and maintains visual contact with the UAV
- Data is downloaded from drone after each flight and inspected for quality.
- After survey, all imagery and drone data files are Orthorectified using Postflight Pix4D software package.

7.4 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 Pix4D software. The initial orthorectified image product is generated by an automated process. This image is then cropped in Globalmapper or other GIS software to remove bad edges and areas that lack sufficient image coverage to be useful to the client. 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)

7.5 Results

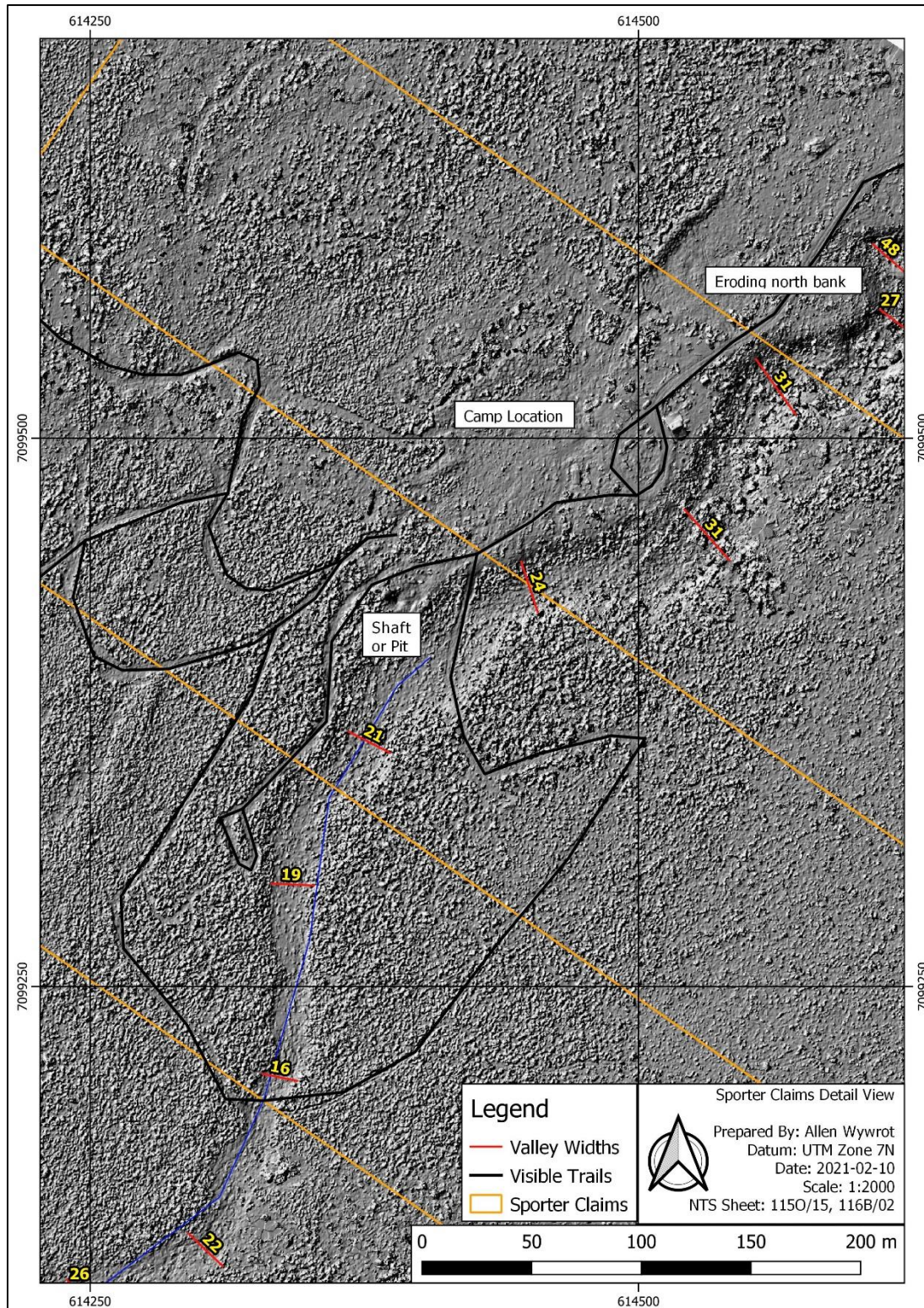


Figure 4: Elevation Model of the claims derived from UAV imagery. Not much of interest is visible geologically or topographically, but trails, pits, and campsites are easily visible through this method.

8.0 Discussion

The UAV Drone survey was successful in imaging the claims. This imagery will be useful for planning placer mining in this area. Not particularly noteworthy geological features were observed due to the flat terrain present in the area.

9.0 Recommendations

As Groundtruth does not know the client's previous exploration undertaken in this area, we cannot make any recommendations beyond regularly scheduled UAV flights to keep track of placer gravel stockpiles and tailings management should mining continue on these claims.

10.0 Statement of Expenditures

UAV Survey for High Res imagery and topography on Sporter placer claims



Overview:		
UAV Survey for High Res imagery and topography on Sporter claims, North Klondike drainage on Oct 25, 2019. Data delivered via google drive upload link.		
Survey Cost Breakdown:		
Drone Survey Cost Breakdown:		Total
2.5hr UAV Survey with crew of 2 and all UAV Survey Equipment	\$ 500.00	\$ 500.00
Data Management and Processing Services		
Imagery Processing - 1 flight @ \$100/flight	\$ 100.00	\$ 200.00

Total Invoice	\$ 600.00 -
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11.0 Statement of Qualification

I, Allen Wywrot, resident of Thunder Bay, Ontario, do hereby certify that:

1. I graduated from Lakehead University with a Honours Bachelor of Science in Geology in 2015, and acquired an Advanced Diploma in Geographic Sciences from the Centre of Geographic Sciences in 2017.
2. I am a Geoscientist-In-Training registered in good standing with the Professional Geoscientists of Ontario.
3. I am the holder of an Advanced RPAS license, and am qualified to fly UAVs within Canada.
4. I have been an employee of GroundTruth Exploration Inc. since May of 2018.

Dated this 10th day of February, 2021.

Respectfully submitted,

Allen Wywrot

12.0 References

Mineral Titles: Yukon Mining Recorder, Mining Claims Database – www.yukonminingrecorder.ca

Topographic data: Natural Resources Canada, The Atlas of Canada - Toporama- <http://atlas.gc.ca/toporama/en/index.html>

Property Geology: Yukon Mining Recorder, Mining Map Viewer - <http://mapservices.gov.yk.ca/Mining/Load.htm>

Regional Geology: Gordey, S.P. and Makepeace, A.J. (comp.) 1999: Yukon bedrock geology in Yukon digital geology, S.P. Gordey and A.J. Makepeace (comp.); Geological Survey of Canada Open File D3826 and Exploration and Geological Services Division, Yukon, Indian and Northern Affairs Canada, Open File 1999-1(D)

Colpron, M., Nelson, J. L., and Murphy, D. C., 2006. A tectonostratigraphic framework for the pericratonic terranes of the Northern Cordillera: Canadian and Alaskan Cordillera: Geologic Association of Canada, p. 1 – 23.

Mortensen, J. K., and Hart, C. J. R., 2010. Late and Post-Accretionary Magmatism and Metallogeny in the Northern Cordillera, Yukon and Eastern Alaska. Geological Society of America Annual Meeting, Denver, 31 October to 3 November 2010.

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