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GroundTruth Exploration Inc.

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Geophysical Report

Ground Penetrating Radar and UAV Survey On the Twenty-Mile Placer Prospecting Lease

Dawson Mining District

Lease No.: Phoenix 1-49 (P46296-P46345), Joe 1-50 (P46345-P46394),
Dave 1 (P46435)

Owner: Joel Spurlock (100%)

Prepared by: Jarod Lapp, BSc, GIT

GroundTruth Exploration Inc.

Location: 63° 33'N, 140° 08'W
NTS Mapsheet: 115N09
Work Performed: March 2014
Report Date: 12 June 2015



Table of Contents

Summary	4
1.0 Location and Access	5
2.0 Claim Information	5
3.0 Physiology	5
4.0 Work History	5
5.0 Geology	9
6.0 GPR system and basic principles	9
7.0 GPR Data Processing and Analysis	11
8.0 2014 Twenty Mile GPR Survey	12
9.0 UAV Survey Procedure	12
10.0 2014 Twenty Mile UAV Survey	12
11.0 Results and interpretation	13
12.0 Conclusions and recommendations	21
13.0 References	22
14.0 Project Expenses	23
15.0 Statement of Qualifications	24
Appendix A – Statement of Expenditures	25
Appendix B – Supplemental Figures	28



Table of Figures

Figure 1 - Twenty Mile Property Location Map	7
Figure 2 - Twenty Mile Placer Claims map.....	8
Figure 3 - Twenty Mile Property Geology	10
Figure 4 – Diagram of UltraGPR 80mHz system.....	11
Figure 5 - 2014 Twenty Mile UAV orthoimagery overlain by 2014 GPR Survey Lines	14
Figure 6 - 2014 Twenty Mile UAV orthoimagery overlain by total magnetic survey data and 2014 GPR Survey Lines	15
Figure 7 - 2014 Twenty Mile GPR Stacked Sections: Lines D1A – D1H	17
Figure 8 – 2014 Twenty Mile GPR Stacked Sections: Lines D1I – D1N.....	18
Figure 9 - 2014 Twenty Mile GPR Stacked Sections: Lines D1O – D1T	19
Figure 10 - 2014 Twenty Mile GPR Stacked Sections: Lines D1U – D1Z	20

Tables

Table 1 – 2014 GPR line lengths and Interpreted maximum depth to bedrock from sections	16
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Summary

A high resolution ground penetrating radar (GPR) survey was undertaken by GroundTruth Exploration on the Twenty Mile property on 18 March 2014, on behalf of Joel Spurlock. The objective of this survey was to profile the underlying material and map the depth to the overburden-bedrock interface within the Twenty Mile Creek drainage system. Thicker gravels underlying the creek valley have the potential to form auriferous channels. The property is located 65km Southwest of Dawson City on the Twenty Mile Creek, a tributary of the lower Sixty Mile River. The GPR survey was conducted by a two man crew from GroundTruth, totalling 26 traverses and 14 line km. The GPR system was accurately positioned using a synchronized differential GPS.

This assessment report also covers a detailed aerial UAV survey undertaken by GroundTruth over the same claims on March 8, 2014. The objective of this survey was to collect high resolution orthoimagery and topographical data for the property, to aid in future exploration targeting. A total of 10.9km² were surveyed of the Twenty Mile claims, centering on the creek junction area where the GroundTruth GPR survey was to take place.

1.0 Location and Access

The Twenty Mile placer property is located within the lower Sixty Mile drainage system in central Yukon Territory. It is centered at 63° 33'N, 140° 08'W, on NTS map sheet 115N09. The property is located 65km Southwest of Dawson City on the Twenty Mile Creek, currently accessible by snowmobile in winter via the Yukon and Sixty Mile rivers, and accessed by helicopter in summer. The neighbouring Ten Mile Creek placer mine can also be accessed in the summer from Dawson City by barge on the Yukon River to the mouth of the Sixty Mile River (70km) and then by road (12km). **The location of the Twenty Mile Property is displayed in Figure 1.**

2.0 Claim Information

The Twenty Mile property consists of 100 contiguous placer claims on the Twenty Mile Creek. All of the following claims are 100% owned by Joel Spurlock. **The list below summarizes the active claims pertinent to this report. The Twenty Mile claims map is displayed in Figure 2.**

Phoenix 1-49 (P46296 - P 46345)

Joe 1-50 (P46345 - P46394)

Dave 1 (P46435)

3.0 Physiology

The Twenty Mile Creek area terrain is composed of moderately sloped, tree covered hills ranging in elevation from 1200 to 5000 ft. The area experiences typical climatic conditions for central Yukon Territory with short, warm summers and cold winters. Temperatures in the Twenty Mile area range from -20°C to -60°C in the winter and 10°C to 30°C in the summer. Average daily maximum and minimum temperatures in nearby Dawson City range from 23.1°C in July to -30.1°C in January (Environment Canada, 2015). The Twenty Mile Creek area has not previously been glaciated.

4.0 Work History

Previous exploration work on the Twenty Mile placer property is limited to three complimentary ground total magnetic field surveys performed in 2009, 2010 and 2012.

A ground total magnetic field survey was performed on the property by Ryanwood Exploration in March 2009, consisting of 181 grid lines totalling 85 line km. The 2009 survey was performed perpendicular to the Twenty Mile Creek, totalling 217,987 georeferenced magnetometer readings (Ryan, 2009).

The subsequent year a four man crew from GroundTruth Exploration performed further total magnetic field survey work on the property, continuing to the south of the 2009 survey. A total of 95 line km were



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surveyed, consisting of 285 individual lines spaced at 25m. The survey took place from March 6 to March 23, 2010. (Ryan, 2010)

An additional ground total magnetic field survey was conducted by GroundTruth Exploration with a three man crew from February to March 2012, covering ground to the south of the previous surveys. 80 line-km were gridded for the survey, consisting of 178 lines perpendicular to the creek, with a line spacing of 25m (Fage, 2012).

The objective of the 2009, 2010 and 2012 surveys was to identify potential gold bearing, magnetite rich placer channels on the property. The surveys outlined several distinct anomalous magnetic lineaments that warranted follow-up investigation (Ryan, 2009) (Fage, 2012). 2014 field work took place over the 2009 and 2010 total magnetic field survey footprints. **Total magnetic survey results centred on the 2014 GPR survey is outlined in Figure 6, overlying 2014 UAV survey orthoimagery. The extent of previous total magnetic field surveys on the Twenty Mile property are outlined in Appendix B.**

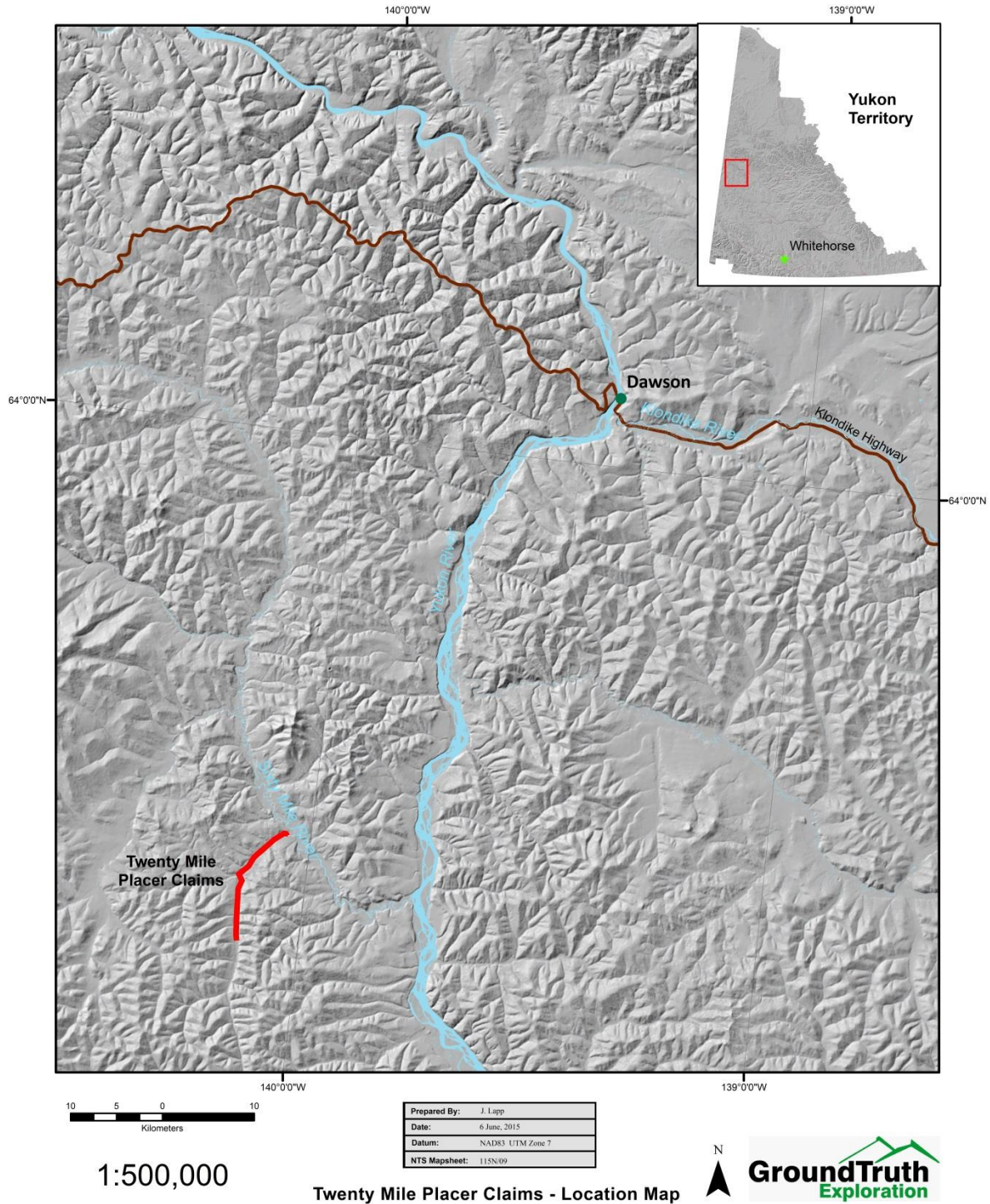


Figure 1 - Twenty Mile Property Location Map

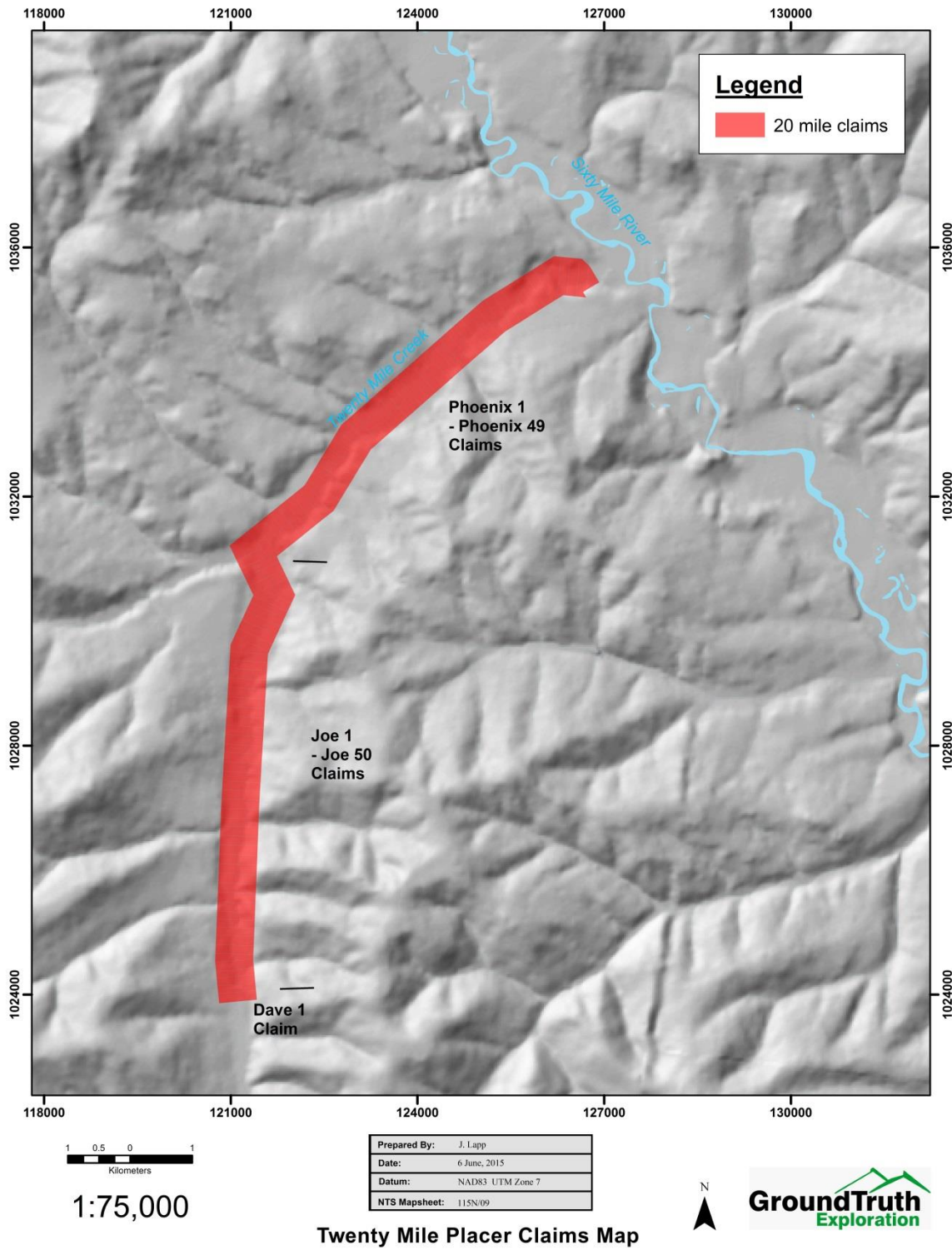


Figure 2 - Twenty Mile Placer Claims map

5.0 Geology

The Twenty Mile 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.

Locally, the Twenty Mile Property is underlain by the Upper Cretaceous Carmacks Volcanics unit from the mouth of the Twenty Mile Creek to 8km upstream. This unit is composed of rhyodacite and dacite, commonly biotite and hornblende phyrlic, dominated by lesser andesite and basalt and minor rhyolite. The upper portion of the creek is underlain by a Devonian Quartz-Mica Schist until 17 km upstream, where the stream runs along the contact between this Schist and a Devonian to Mississippian, pink to orange K-feldspar rich, granitic orthogneiss, commonly with biotite, banded to layered. **The local geology of the Twenty Mile Creek area is displayed as Figure 3.**

6.0 GPR system and basic principles

GPR transmits radio waves into the ground and measures the time taken for the waves to be reflected back from subsurface targets, such as localised ore-bodies or geological interfaces/contacts. GPR transmits electromagnetic energy of a higher frequency compared to other geophysical methods. It is a high resolution technique that produces a site specific signal. It performs well where the target is within a host rock that has a higher electrical resistivity compared to the target itself, and where there are no conductive surficial layers to absorb radar energy before reaching the target. In appropriate settings, GPR is a fast exploration method, and can be operated by a single person to supplement other geophysical methods. Depth of penetration can be up to 100m in resistive soils and rocks. For the survey performed on the Twenty Mile Property, the UltraGPR 80MHz system supplied by [Groundradar](http://www.groundradar.com) (www.groundradar.com) was used. The system works together with a differential GPS (RTK-DGPS) for data positioning and a portable data logger, connected via Bluetooth technology. **A diagram of the GPR system used on the Twenty Mile Property is displayed in Figure 4.**

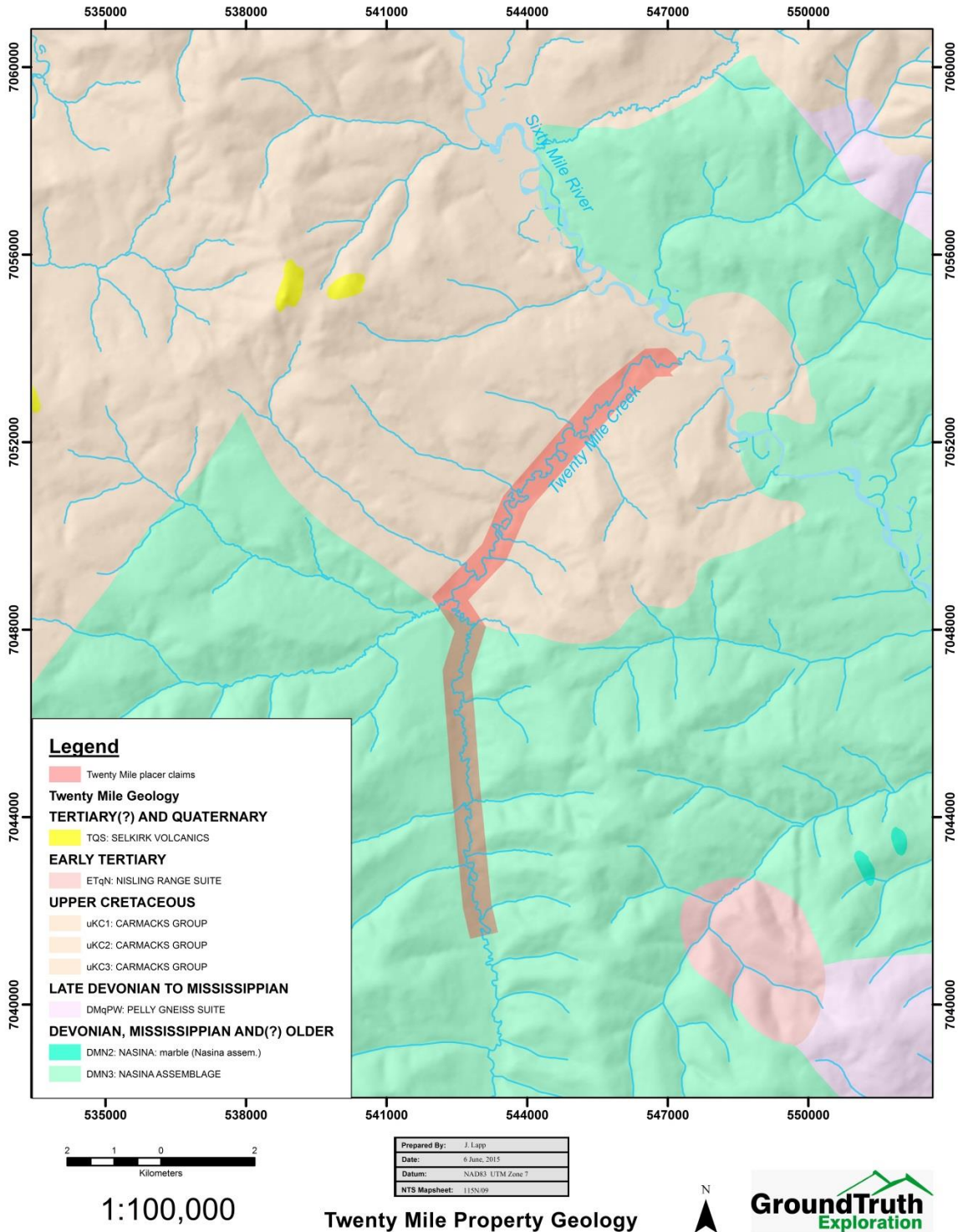


Figure 3 - Twenty Mile Property Geology

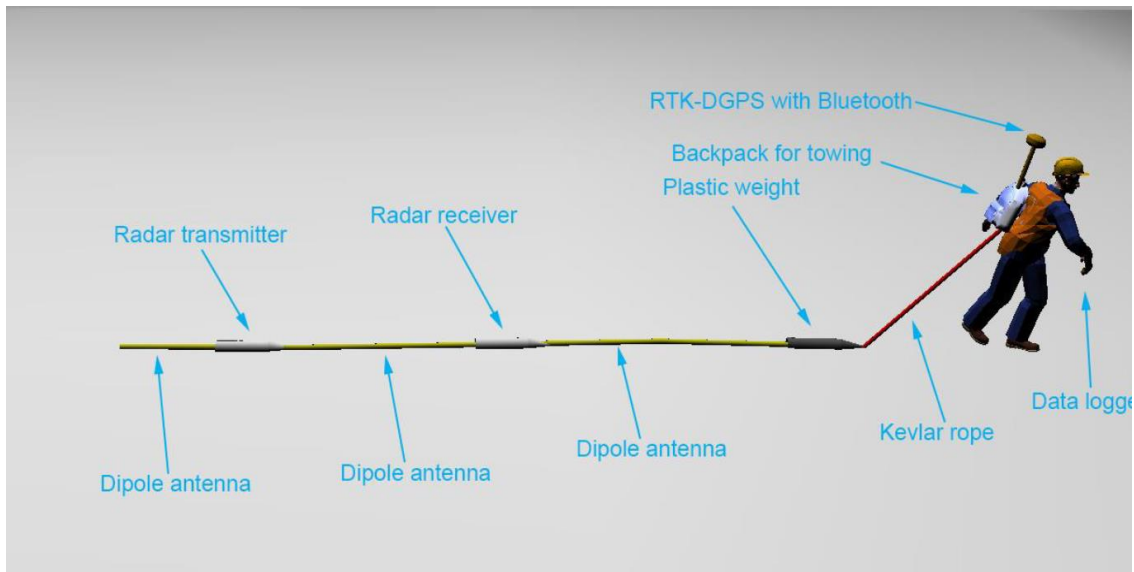


Figure 4 – Diagram of UltraGPR 80mHz system

7.0 GPR Data Processing and Analysis

The processing procedure applied to the acquired raw GPR data is as follows:

1. **Correction** for DGPS offset relative to the centre of the transmitter-receiver distance (the centre point of the GPR measurement).
2. **Spatial re-sampling** accounts for the varying speed of GPR measurements. This process interpolates individual GPR data into equidistant traces. The original recorded radar profiles are re-sampled to produce a radar trace over a given distance (typically 50cm for the 80 MHz UltraGPR).
3. **Zero time correction** compensates for jitter from trace to trace of the first arrival peak. This is caused by both ground conditions variability and antenna coupling. This correction is also assigned to the profiles to define the zero depth level.
4. **De-wow** - the transmitted signal may induce a slowly decaying low-frequency "wow" on the radar trace, dependant on electrical properties of the ground. Filtering in a frequency domain removes the effects of the signal wow, and improves resolution of geological features.
5. **Gaining** compensates for the dissipation of the GPR signal amplitude with depth.
6. **Filtering** removes signals outside the band of interest.
7. **Velocity determination and depth conversion** of two way reflection time to depth depends on the knowledge of the GPR wave velocity in the traversed media. The velocity depends on the dielectric permittivity of the media.

8.0 2014 Twenty Mile GPR Survey

The main objective of the 2014 GPR survey was to map depth to the gravel-bedrock interface and identify any buried, auriferous paleochannels existing along the Twenty Mile Creek. Alluvial gold is thought to be concentrated at the gravel-bedrock interface within the Twenty Mile Creek system. The survey layout comprised of two sections, the northern and southern lines respectively, both transecting Twenty Mile Creek. The north grid lines (D1I to D1Z) were oriented NW-SE, while the southern grid lines (D1A – D1H) ran SW-NE. The GPR system was accurately positioned using a synchronized differential GPS. No lines were cut for this survey, allowing for minimal ground disturbance. **The plan view map of the 2014 GPR survey lines overlying the UAV survey orthoimagery is displayed in Figure 5. The plan view map displaying historical magnetic survey results is included in Figure 6.**

9.0 UAV Survey Procedure

The Sensefly eBee UAV system was used by GroundTruth to collect orthoimagery of the Twenty Mile placer property. The eBee collects a series of photos with high overlap along flightlines at low altitude. These photos are processed by bundle to generate high resolution orthoimagery and digital elevation models (DEMs).

The UAV is operated by preplanning flightlines in E-motion software. Flight altitude, photo overlap, and number of flights are predetermined prior to the field survey. Once onsite, the operator uploads the mission to the UAV and hand launches the unit. The UAV is monitored visually, and its location and status are also visible on the field laptop. The UAV flies in successive 30-40 minute flights, or 'missions'. It returns to land at the operator after each flight, when the data is uploaded and battery is changed. The flight, data acquisition and landing of the UAV are autonomous. The operator monitors the status of the survey and has the capability to modify the mission or call the UAV back to launch point should the need arise.

After each flight, the data is visually inspected and run through a quick QA/QC process to ensure it has been collected as planned. After the full acquisition of the data, the operator returns from the field and runs full orthorectification processing to build the final orthomosaic and elevation model. Final products for this survey have been generated in Postflight Terra 3D.

10.0 2014 Twenty Mile UAV Survey

GroundTruth Exploration conducted a detailed aerial UAV survey on the Twenty Mile Property on March 8, 2014. The objective of this survey was to provide high resolution air photo imagery and collect topographical data for the property to aid in future exploration targeting within the Twenty Mile drainage system. A total of 10.9km² were surveyed on the property, centering on the area to be covered

by the 2014 GPR survey. **The plan view map of the 2014 GPR survey lines overlying the UAV survey orthoimagery is displayed in Figure 4.**

11.0 Results and interpretation

The 2014 GPR survey on the Twenty Mile placer claims was conducted by a two man crew from GroundTruth, totalling 26 traverses and 14 line km. **The produced GPR radargram cross sections are displayed in Figures 7-10. GPR Line lengths and interpreted maximum depths to bedrock per line can be found in table 1.**

The GPR radargrams show a clear signal character change in the upper and lower sections, indicated by solid black lines, interpreted as the depth to the overburden-bedrock interface. The radargrams have been symbolized using a Red-Green-Blue colour ramp to highlight reflectors and the primary transition zone. The uppermost layer is interpreted as surficial sediments consisting of organic permafrost overlying gravels. The layer below the black line is interpreted as bedrock. Results between sections are very consistent, showing that the data is repeatable. GPR is not clearly discriminating the organic permafrost-gravels interface. It is also possible that there is a weathered section within the bedrock profile that may need to be accounted for in the depth interpretations.

The maximum bedrock depth in the valley bottom is interpreted to average between 30-49 ft (9-15m). Lines **D1A** and **D1R** showed the deepest interpreted depths, at 49ft (15m). Four potential troughs or channels were identified within the radargram sections. **The identified channels lie between lines D1E and D1H, lines D1K – D1M, lines D1Q-D1S and lines D1Y-D1Z.** The interpreted channels are circled on the radargram sections found in Figures 7-10. **The channels are also highlighted in plan view in Figure 6.**

The 2014 GroundTruth UAV survey consisted of a total of 10.9km² of orthoimagery of the Twenty Mile placer claims.

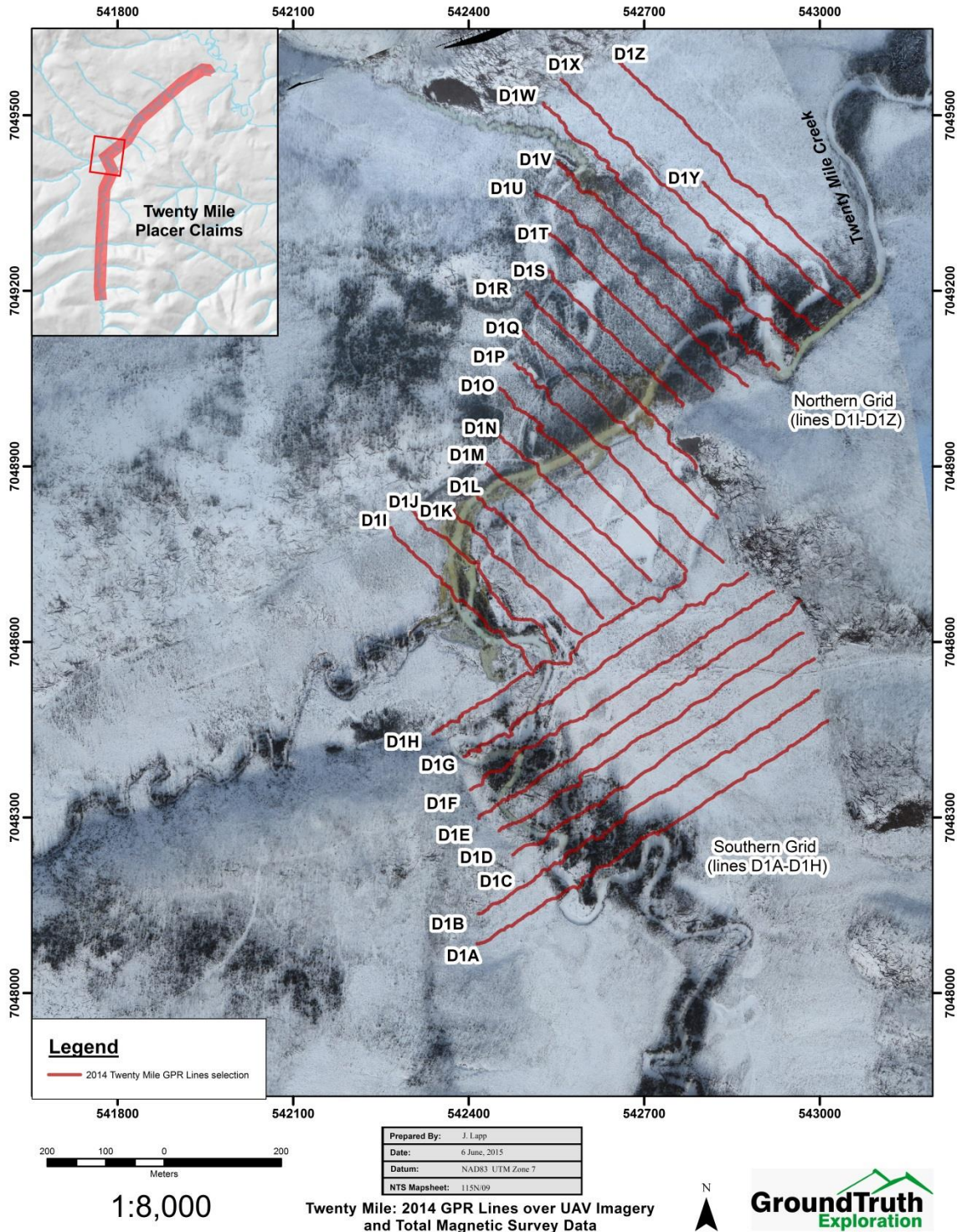


Figure 5 - 2014 Twenty Mile UAV orthoimagery overlain by 2014 GPR Survey Lines

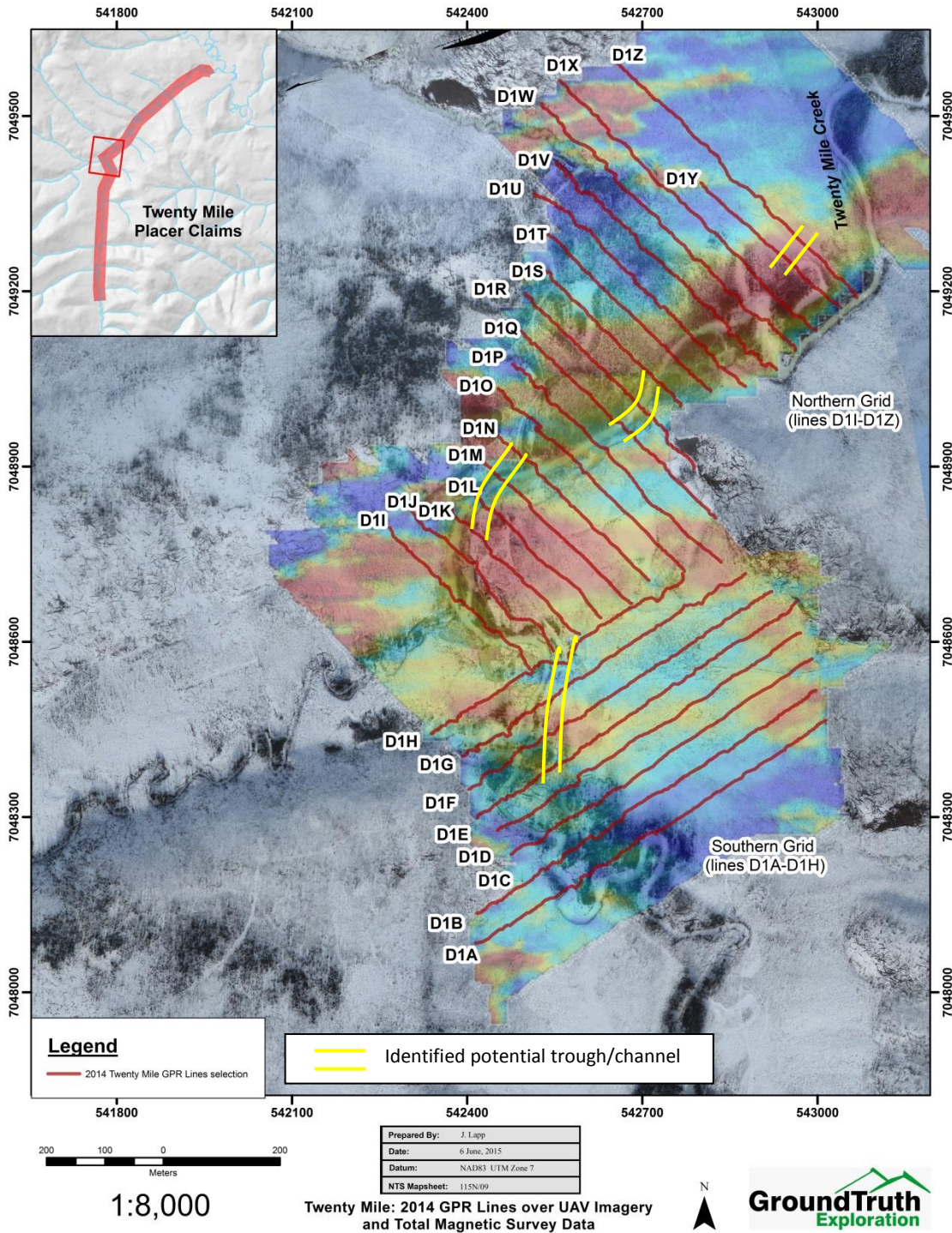


Figure 6 - 2014 Twenty Mile UAV orthoimagery overlain by total magnetic survey data and 2014 GPR Survey Lines

Table 1 – 2014 GPR line lengths and Interpreted maximum depth to bedrock from sections

Line ID	Length of line (m)	Interpreted maximum depth to bedrock in valley (m)	Interpreted maximum depth to bedrock in valley (ft)
D1A	738	15	49
D1B	793	14	46
D1C	658	11	36
D1D	663	13	43
D1E	715	14	46
D1F	666	12	39
D1G	650	10	33
D1H	583	12	40
D1I	384	11	36
D1J	394	13	43
D1K	329	15	49
D1L	321	12	39
D1M	395	14	46
D1N	379	10	33
D1O	492	9	30
D1P	533	11	36
D1Q	494	10	33
D1R	447	15	49
D1S	357	12	39
D1T	411	12	39
D1U	581	13	43
D1V	642	12	39
D1W	720	13	43
D1X	688	12	39
D1Y	337	14	46
D1Z	635	12	39

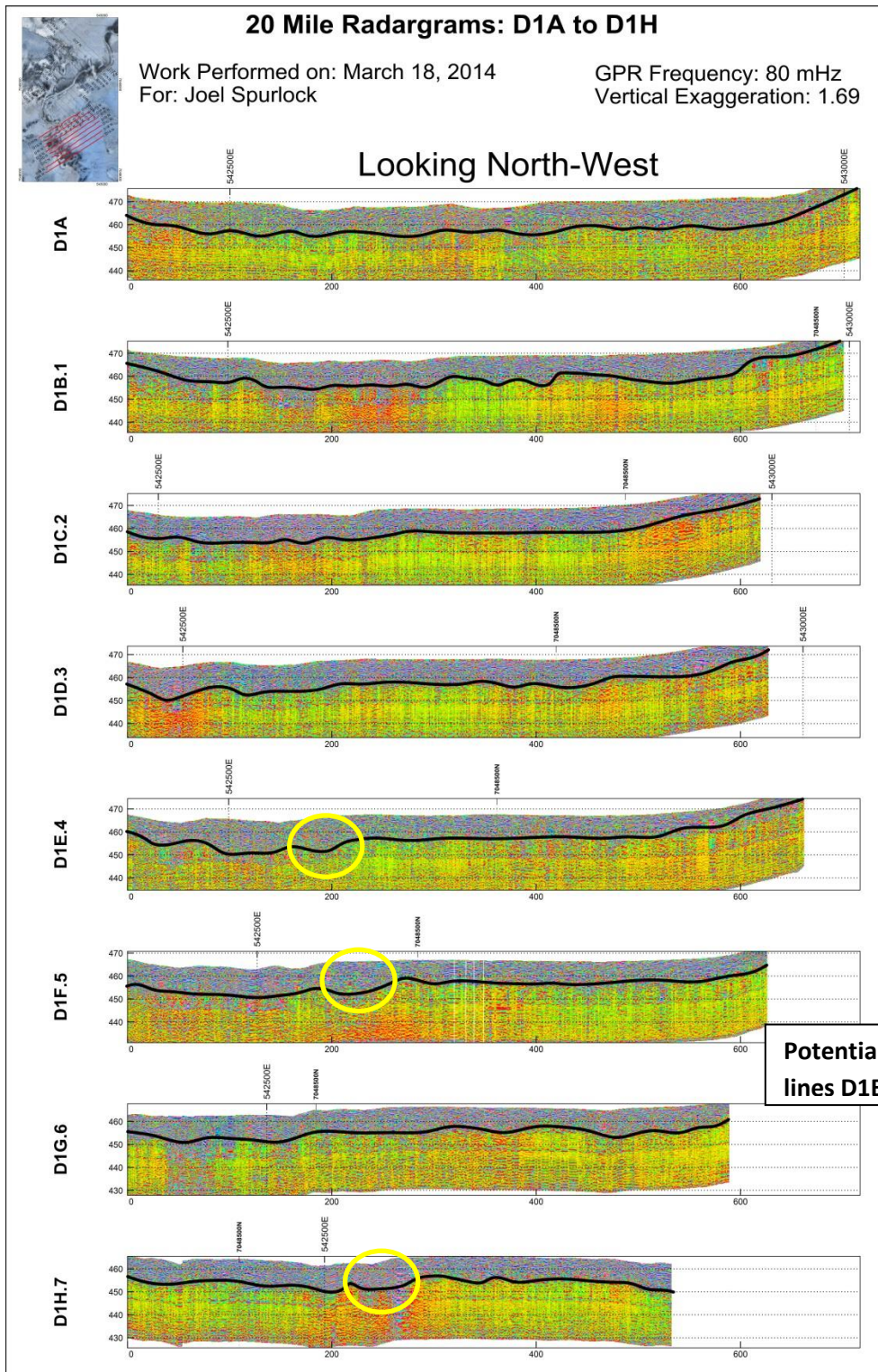


Figure 7 - 2014 Twenty Mile GPR Stacked Sections: Lines D1A – D1H

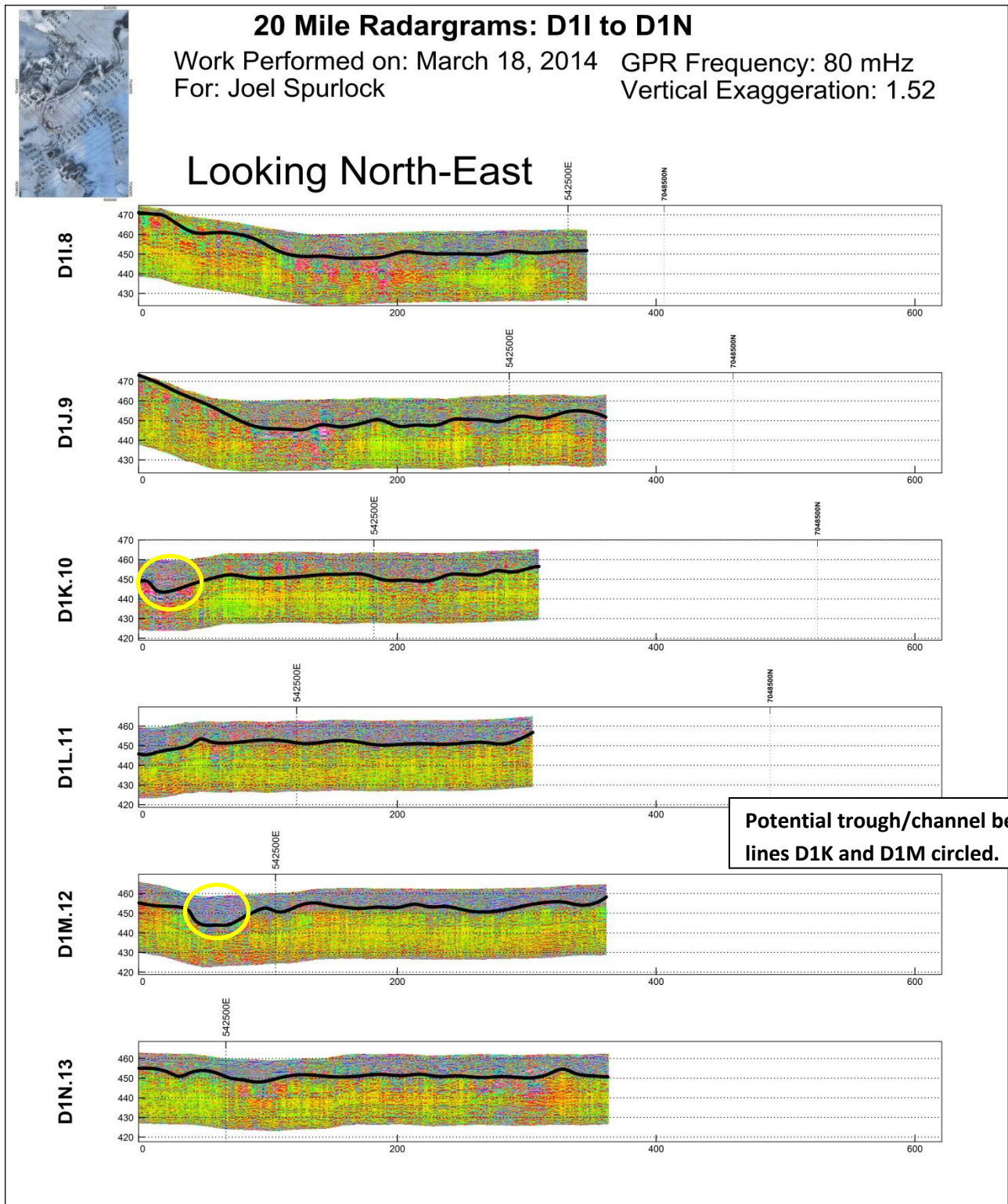


Figure 8 – 2014 Twenty Mile GPR Stacked Sections: Lines D1I – D1N

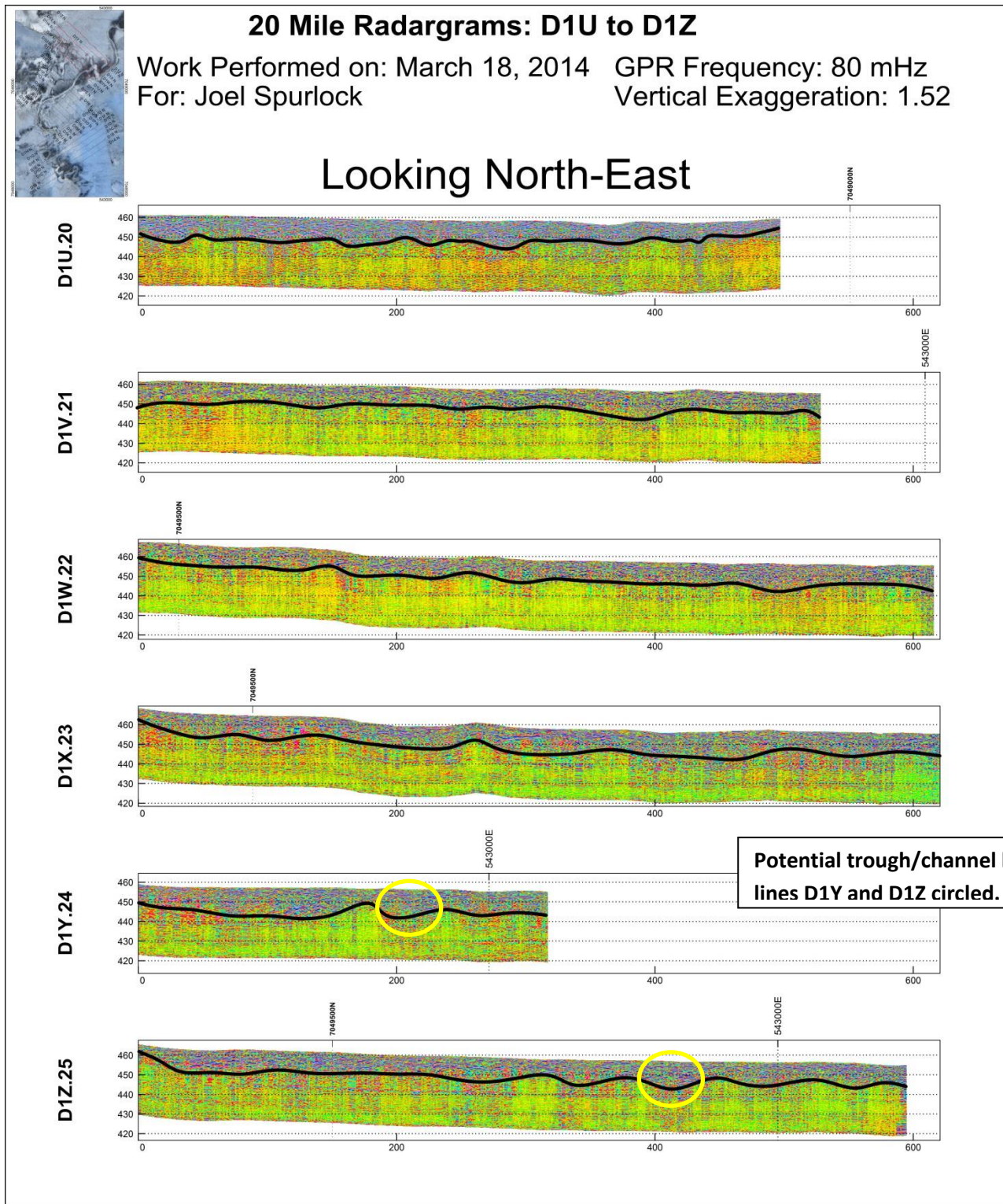


Figure 10 - 2014 Twenty Mile GPR Stacked Sections: Lines D1U – D1Z



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12.0 Conclusions and recommendations

The relative trends of bedrock depth and topography are of good confidence, though absolute depths may vary due to assumed GPR velocity used to generate GPR pulse two way time to depth. Potentially low impact drilling such as reverse circulation (RC), rotary air blast (RAB) or geo-probe drilling is recommended to test the true depth to bedrock interface and further delineate the four buried, potentially auriferous channels or reefs identified by the 2014 GPR survey.

The UAV orthoimagery will be useful for the planning of future exploration efforts on this lease. The detailed inspection of the surface cover provided information on where near surface gravels may exist as potential placer targets. Terrain covered by denser vegetation on the Twenty Mile claims could denote better drainage and the presence of near surface gravels.

13.0 References

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14.0 Project Expenses

GPR Survey by GroundTruth Exploration Inc., April 4, 2014

UAV Drone Survey on Twentymile Creek, 13km² @ 6cm ground resolution: \$2,000.00

Ground Penetrating Radar Survey, 25 line km @ \$300/line km: \$7,500.00

GroundRadar – Data Processing at \$190/ line km: \$4,750.00

GroundTruth Exploration – Bedrock Model and Interpretations/plots: \$x

Work filing and Assessment Report: \$1,000

Total Expenses: \$20,054.38

Official certificates of expenditures can be found in Appendix A of this report.



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15.0 Statement of Qualifications

I, Jarod Lapp, have worked as Geologist for GroundTruth Exploration in Dawson City since May 2015. I previously worked for the company as an Exploration Technician in 2011. I am a registered Geoscientist-In-training (GIT) with the Association of Professional Engineers and Geoscientists of British Columbia (APEG-BC), member number 175242. I have worked continuously in Mineral Exploration in British Columbia and the Yukon Territory since 2011. I hold a Bachelor of Science degree in Geosciences (2010) from the University of Victoria in Victoria, British Columbia.

Dated this 22nd day of June, 2015 in Dawson, YT.

Respectfully submitted,

Jarod Lapp



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Appendix A – Statement of Expenditures



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Appendix B – Supplemental Historical Figures

