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GroundTruth Exploration

GroundTruth Exploration Inc.

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

Geophysical report

On Dominion Creek ~~1~~ 2 1/3 Mile Placer Lease: ID01274

Dawson Mining District

Lease No.: ID01274,

Owner: Jack David Bligh 100%

Prepared by: Isaac Fage

GroundTruth Exploration Inc.

RECEIVED
JUL 16 2015
MINING RECORDER
DAWSON CITY YT
Government of Yukon

Location: 63.6405° N, -138.6207° W
NTS Mapsheet: 115O/10
Surveyed on: 30 June 2015
Report Date: 10 July 2015

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Summary

GroundTruth Exploration Inc. conducted an aerial UAV survey and a continuous read Ground Penetrating Radar (GPR) survey on 1 mile placer lease ID01274 owned by Jack Bligh on Dominion Creek between June 28-30, 2015.

The UAV survey collected high resolution imagery and topographic data over the full extent of the lease. The GPR survey was run on parallel lines spaced at 100m on the upstream portion of the lease. The goal of the GPR survey was to build an interpretation of depth to bedrock. 10 GPR profiles oriented perpendicular to Dominion Creek with an average length of 400m were surveyed.

1.0 History

No data on the lease location has been identified by the client. Dominion creek and it's claims adjacent to the lease has seen significant placer activity. Evidence of mining on the area of the lease next to Dominion creek is visible on the ground and in the UAV drone imagery. The abandoned dredge on Dominion is located 400m west of the center of the lease in the Dominion Creek valley.

2.0 Survey location and description

The 1 mile bench lease is located on the 1st tier of Dominion Creek on the west side of the valley. It is located 60 km southeast of Dawson. The area is accessible by road, however Dominion Creek must be crossed to access the lease itself. The 2015 Drone and GPR survey was done on June 30, 2015. The UAV drone survey was acquired at a ground resolution of 4cm over the full lease and data quality was very good. The GPR survey was read using an UltraGPR 30MHz antenna paired with DGPS for location. All 10 planned survey lines were read, see figure 1 for drone and GPR survey location.

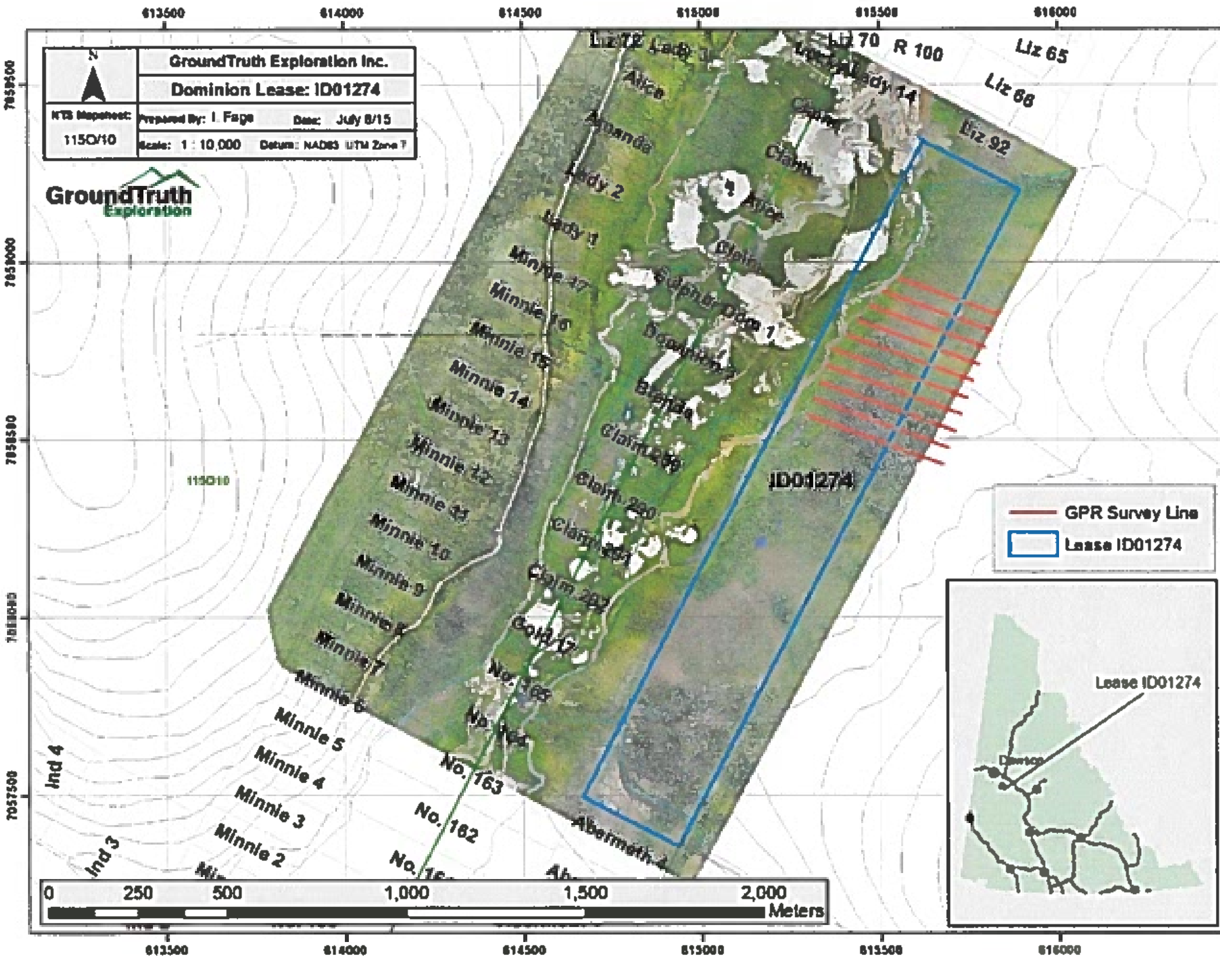

Figure 1: Location of Dominion Creek 1 mile and 2015 Drone / GPR surveys

3.0 Geology

Dominion Creek lease ID01274 is completely underlain by a granitic gneiss unit, mapped by the Yukon Geological Survey as DMqPW, see description below. Klondike schist is mapped across the creek to the West in the Indian River drainage and a quartz muscovite schist is mapped upstream on the same side of the valley as the 1 mile lease. See figure 2 below for property geology.

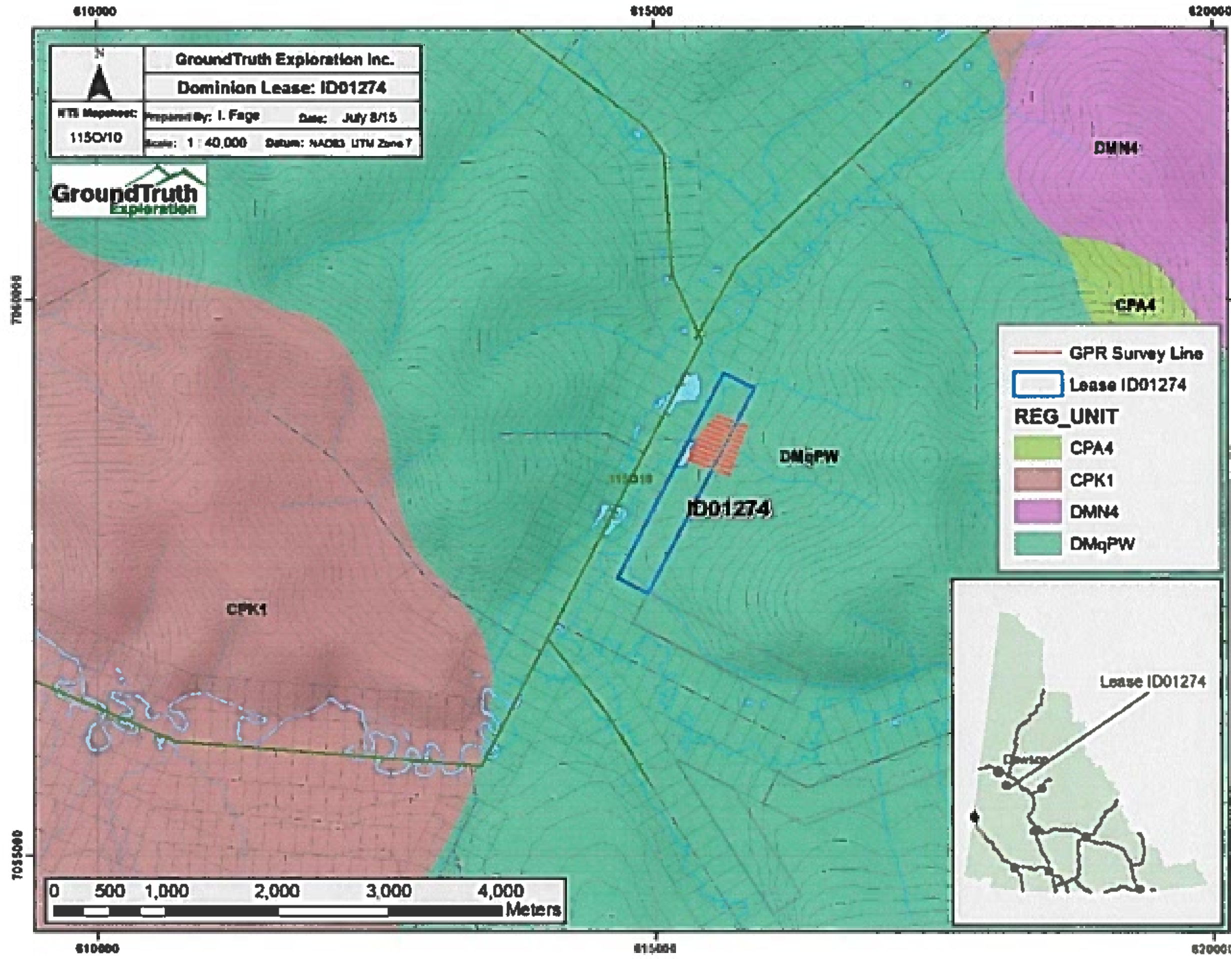

Figure 2: Bedrock Geology (Yukon Bedrock Geology 250k, www.geology.yk.ca)

Legend/Descriptions for Dominion Lease ID01274 Geology:

CPA4 - **CPA: ANVIL**

dominantly oceanic assemblage of mafic volcanics (1), ultramafics (4), chert and pelite (2), limestone (3) and gabbroic rocks (5)

4. dunite, peridotite, gabbro, pyroxenite, harzburgite and minor diorite, hornblendite and diabase; serpentinite, orange weathering quartz carbonate rock with minor green chromian muscovite, talc-carbonate schist and carbonatized ultramafic rocks

CPK1 - **CPK: KLONDIKE SCHIST**

poorly understood assemblage of metamorphosed pelitic/volcanic rocks (1) and minor marble (2), including phyllite of uncertain association (3)

1. tan to rusty and black weathering muscovitic and/or chloritic quartzite and quartz-muscovite-chlorite schist; quartz and/or feldspar augen-bearing quartz-muscovite (+/-chlorite) schist; includes augen gneiss and amphibolite **(Klondike Schist)**

DMN4 - **DMN: NASINA**

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

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

DMgPW - **DMPW: PELLY GNEISS SUITE - SOUTHWEST**

variably deformed granitic rocks of predominantly felsic (q) to intermediate composition (g) southwest of Tintina Fault

q. foliated equigranular medium-grained muscovite quartz monzonite; moderately to strongly foliated K-feldspar augen-hearing quartz monzonitic to granitic gneiss **(S. Fiftymile Batholith, Mt. Burnham Orthogneiss,)**

4.0 Survey Objective

The main objective of the survey is to build a detailed base map using UAV drone imagery to target exploration, identify location of historic workings and plan access. Inspection of vegetation in the detailed imagery is used to interpret disturbance from historic mining, and interpret near surface permafrost or gravel potential from the types of vegetation present. The GPR survey is used to build an interpretation of depth to bedrock. Areas along the lease with a delineated channel at depth represent targets for concentrated gold at bedrock. Areas with good drainage and shallow bedrock may represent targets that are posess gravels near surface and are readily accessible for testing using light equipment. The GPR radargrams are plotted in 2D sections and interpreted for bedrock contact lineaments.

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UAV system and operation

The UAV survey was conducted using an autonomous fixed wing drone. The model is an 'EBEE' manufactured by Sensefly. The UAV collects a series of photos with high overlap along flightlines at low altitude. These photos are processed in a bundle to generate extremely high resolution imagery and elevation models.

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

After each flight, the data is visually inspected and run through a quick quality assessment routine to ensure the data has been collected as planned. After the full acquisition of the data, the Operator returns back to the office 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.

Figure 3: Ebee UAV Launch and Ground Station

GPR system and operation

Ground penetrating radar(GPR) works like seismic, in that it is based on transmitting energy to the ground and measuring the time taken for the energy to be reflected back at geological targets, be they localised ore-bodies or geological interfaces/boundaries. Instead of seismic or shock waves, GPR transmits electromagnetic energy of high frequency compared to other geophysical methods. It is a very high resolution technique that is very site specific, for example it works very 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. Another important factor is that radar energy can be scattered and not captured optimally if the reflecting geology or target is not consolidated or of a certain geometry. In conducive settings GPR is a fast high resolution method, can be operated by a single person and can supplement other geophysical methods very well. Depth of penetration can be a few to hundreds of meters in electrically resistive soils and rocks. For this particular project, the "snake" UltraGPR supplied by Groundradar (see www.groundradar.com) was used. The system works together with a differential GPS (RTK-DGPS) for data positioning and a portable data logger

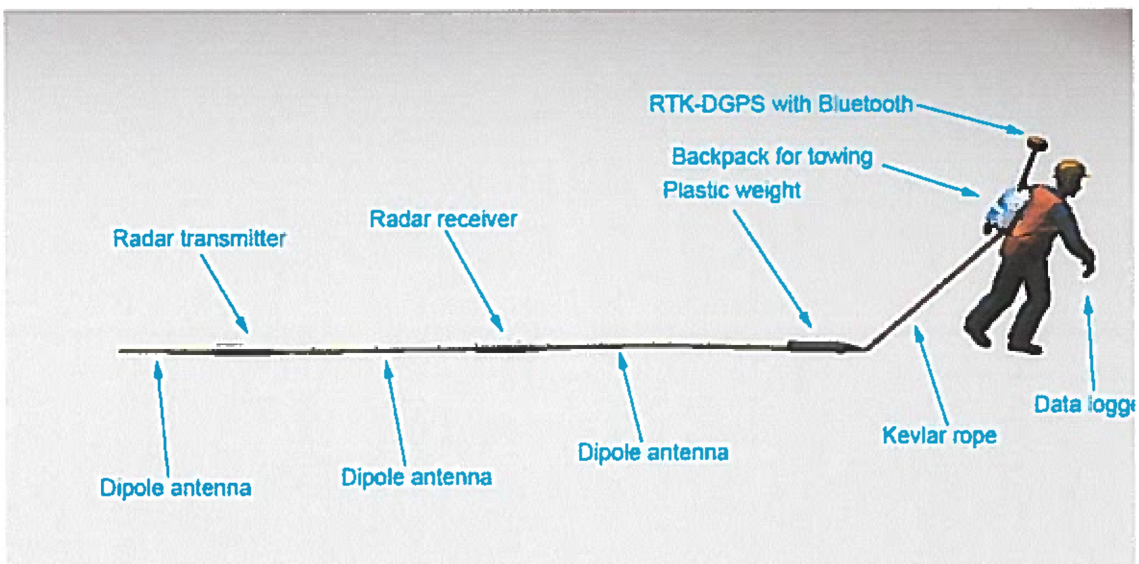

Figure 4: UltraGPR 30MHz system

5.0 Results and Interpretation

The Dominion placer lease was imaged at high resolution, 4cm/pixel. The historic limit of ground disturbance from mining is visible in the orthophoto and is traced in red on the figures below. GPR profiles were focused on the upstream portion of the 1 mile lease. Moving from upstream to downstream, the first profiles started in a topographic depression which transitioned to a rise int opography. The objective was to interpret depth to bedrock in the upstream depression and also determine potential for near surface gravels on the local rise in topography.

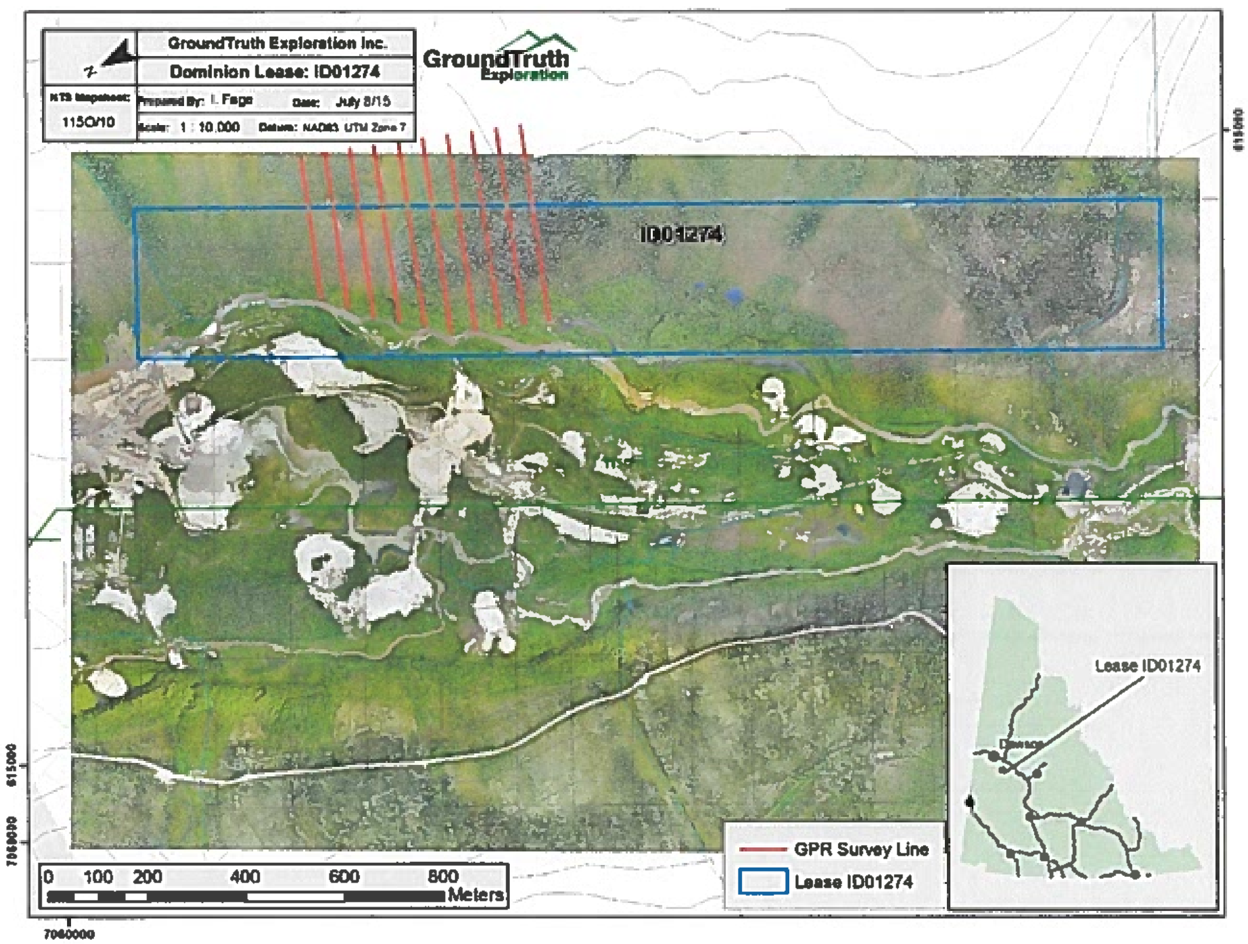

Figure 5: Survey Extent

This survey also proved useful for examining the historic mining activity on the lease and adjacent to the lease in the valley. The imagery shows heavy activity on the lease in the upstream portion while downstream, the lease moves away from the creek valley and remains untouched.

Figure 6 – Upstream

Interpreted historic activity limit is traced in red. Significant mining was done on the lease in the creek valley. Upslope of the mining, the ground is interpreded to be covered in permafrost due to the vegetation present – sphagnum moss and black spruce. GPR sections will assist to interpret the depth to bedrock below the permafrost. There may be thawed ground on the right hand portion of this figure where poplar trees are present.

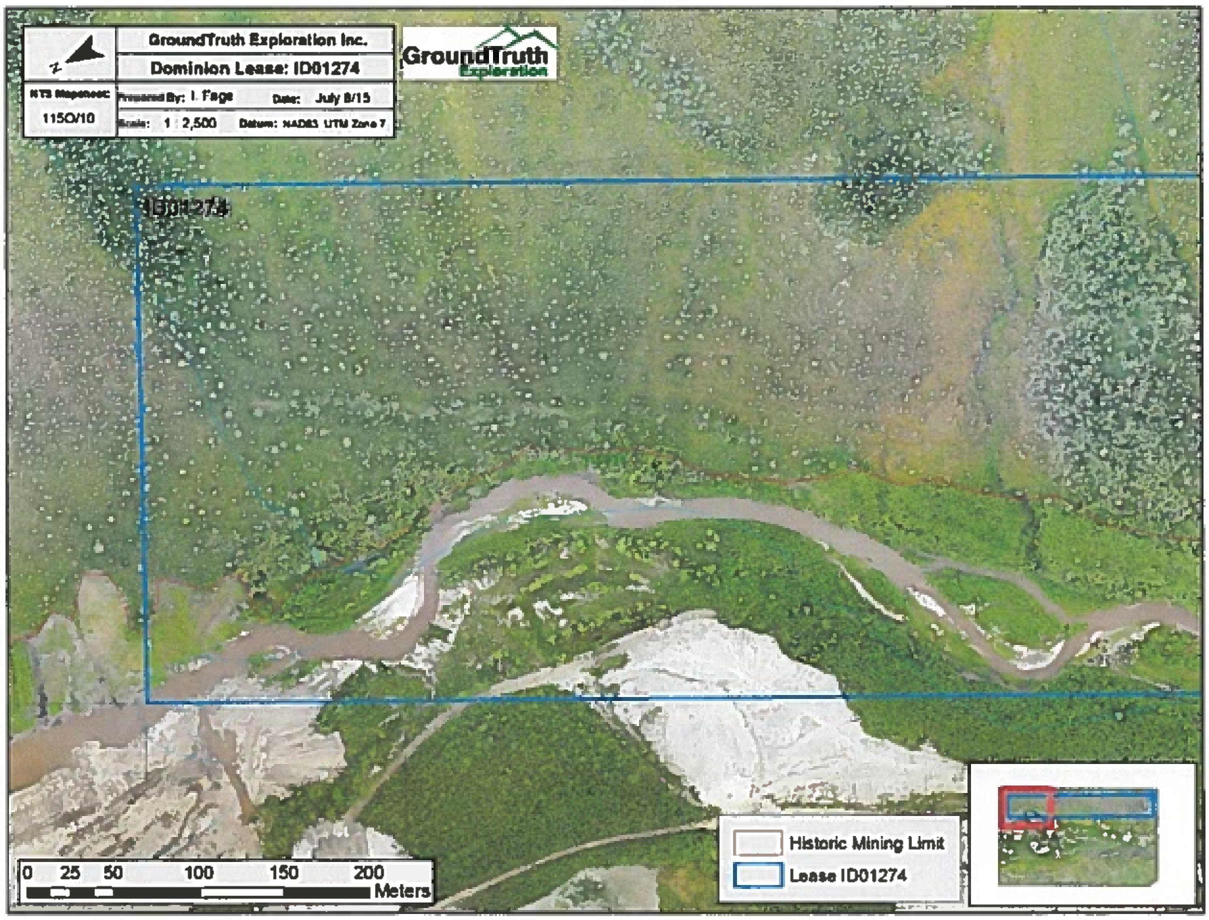

Figure 6: Upstream Drone Imagery

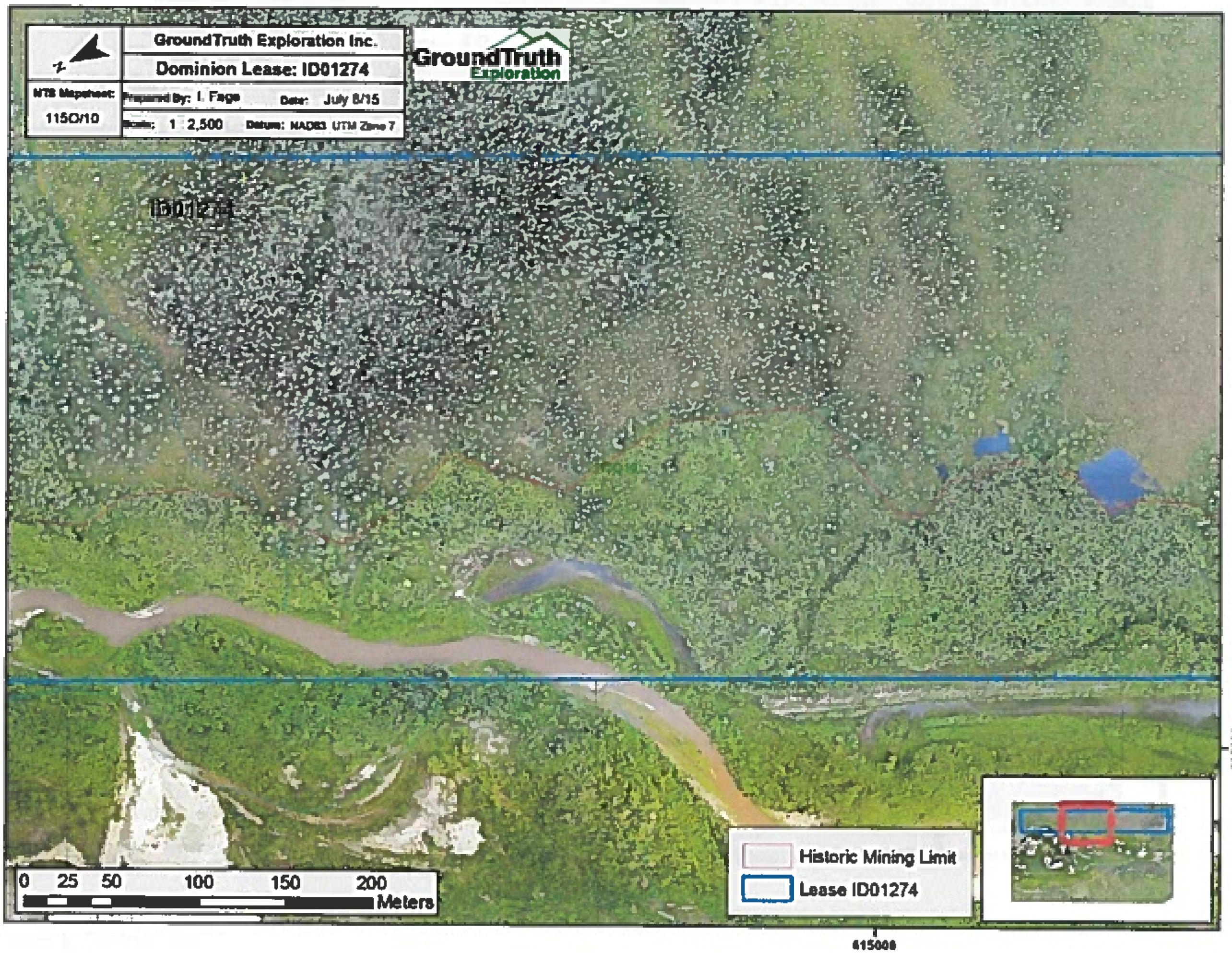

Figure 7: Central Lease

Figure 7 – Central lease 1

Interpreted mining activity extends well into the lease where regrowth is visible in the imagery. Poplars present on the left are indicating well drained thawed ground on the slope. The right hand side of the figure shows poorly drained ground with ponds visible and flat topography. Potential for placer gravels is inferred here due to the adjacent mining in the flat valley bottom. Upslope of the ponds, permafrost is interpreted to be present from moss/black spruce in the imagery.

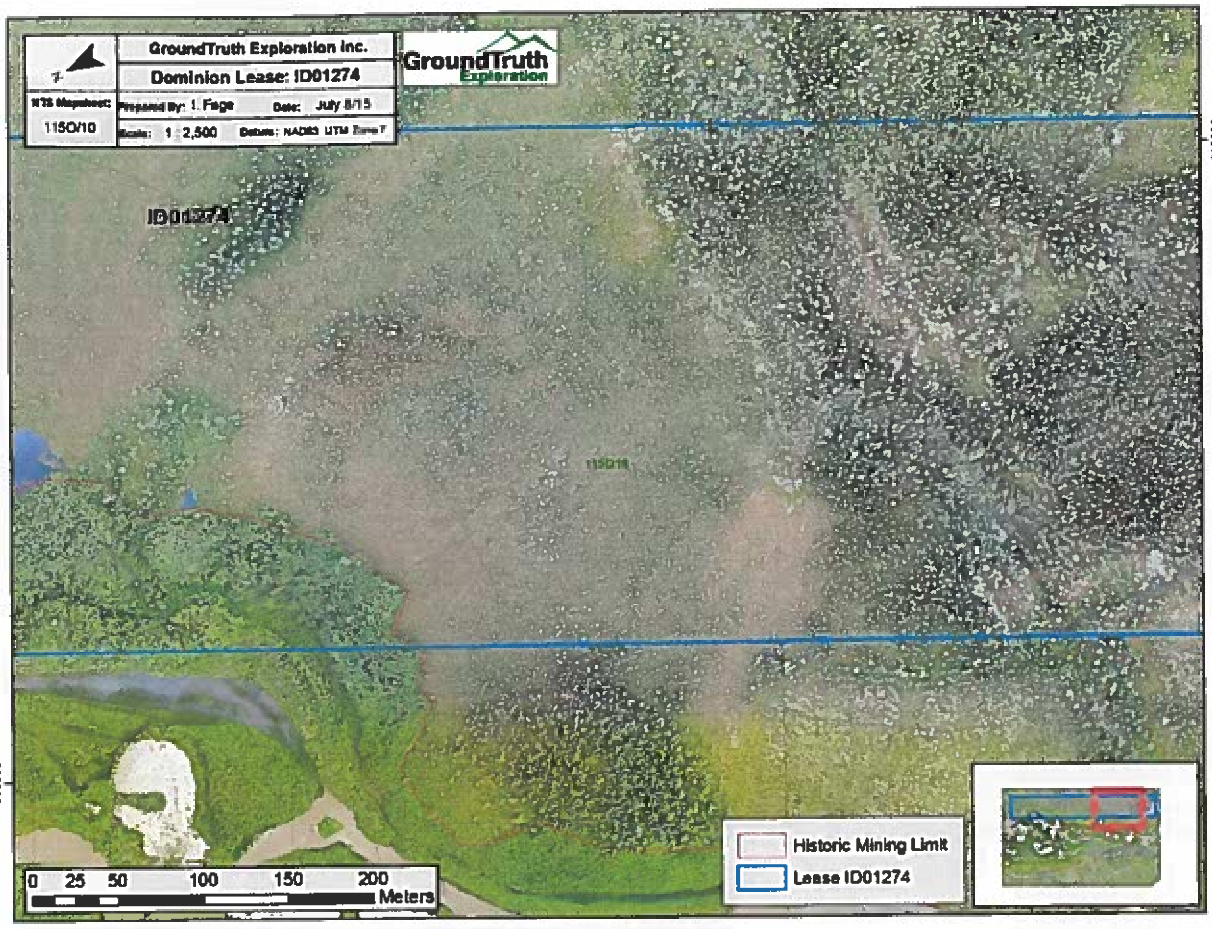

Figure 8: Central Lease 2

Figure 8 – Central lease 2

The limit of historic mining moves off the lease in this inset. Mining was restricted to the valley bottom and higher topography is present as the lease moves downstream here. The ground is well drained and not frozen with poplars and spruce as the dominant vegetation on the right.

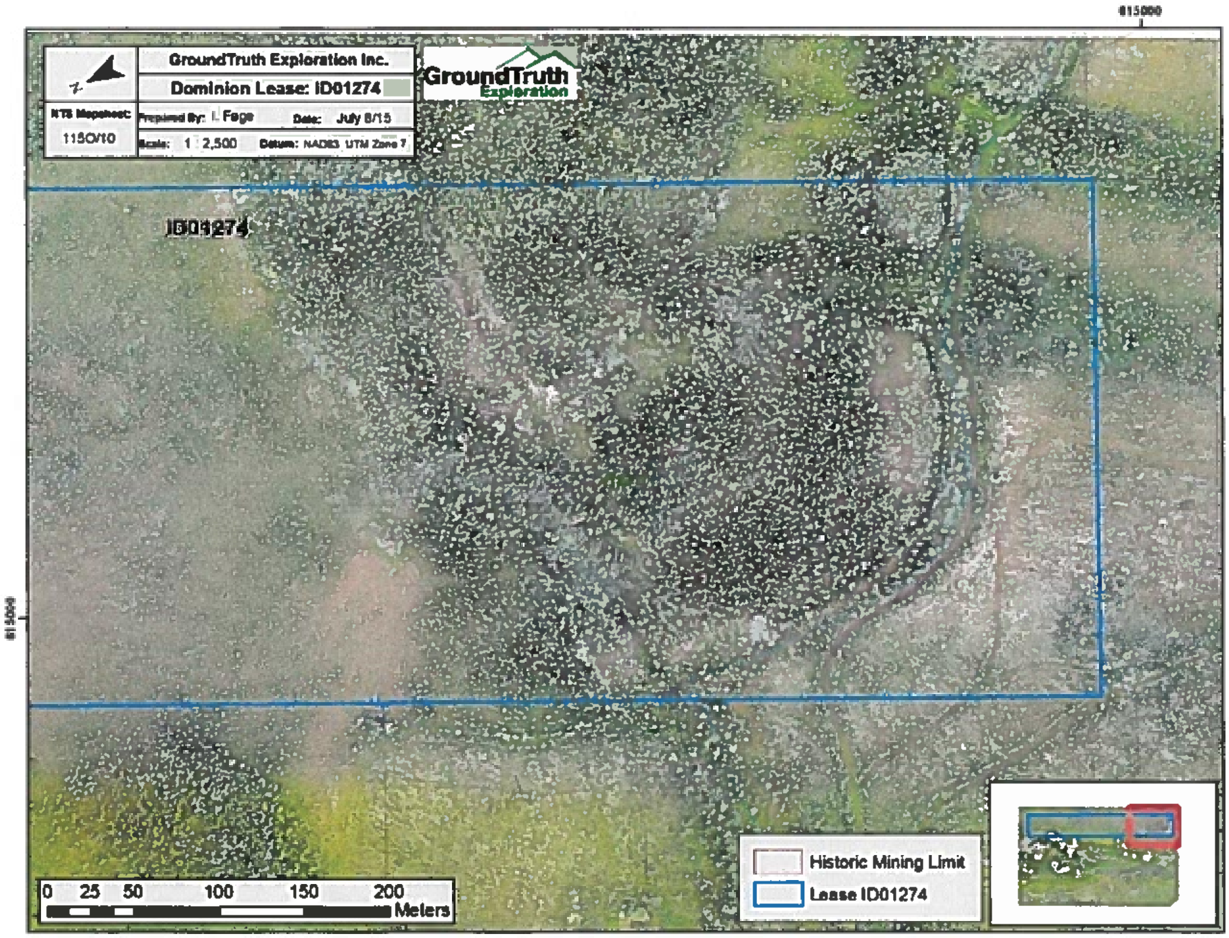

Figure 9: Downstream Limit

Figure 9 – Downstream limit

The downstream limit of the 1 mile lease has a minor drainage cutting through it as shown in the image. Terrain is a mix of permafrost and thawed ground here. Historic trails are visible along the drainage cutting through the lease.

Ground Penetrating Radar Survey:

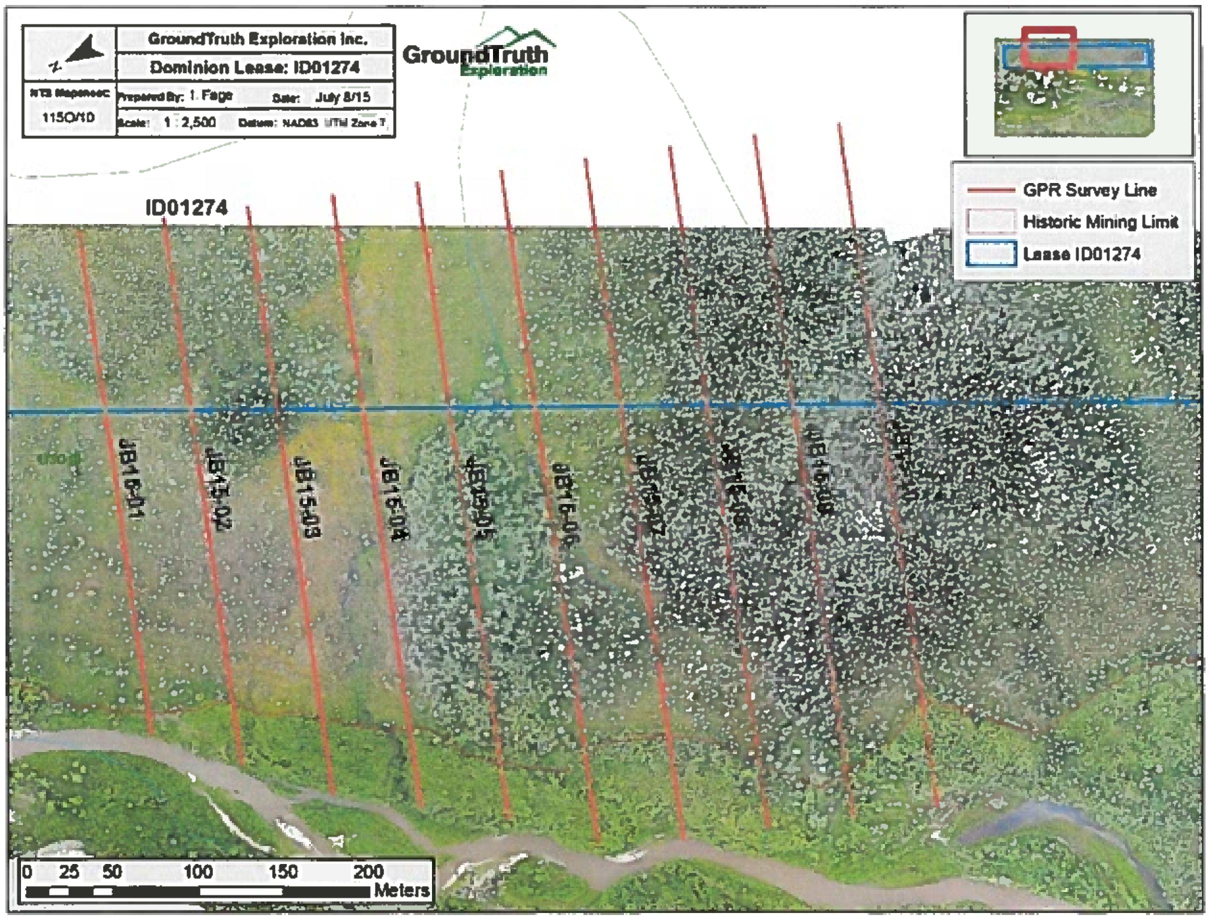

Figure 10: Locator Map of GPR Profiles

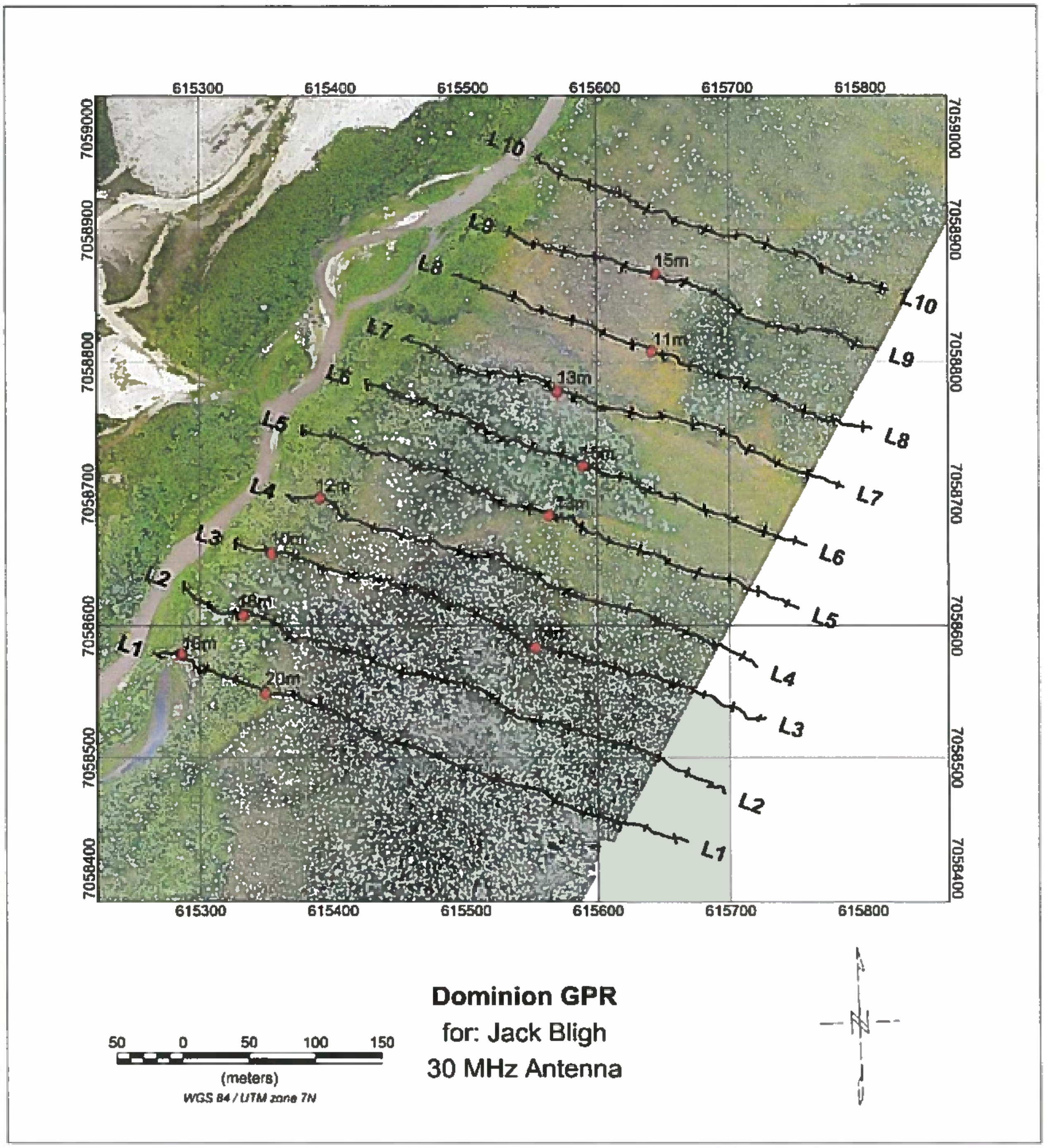

Figure 11: Plan Map of GPR Traverses over drone imagery

Line/traverse	Interpreted maximum depth to basement in valley bottom (meters/feet)
2015 Line 1	10m
2015 Line 2	16m
2015 Line 3	10m
2015 Line 4	12m
2015 Line 5	13m
2015 Line 6	15m
2015 Line 7	13m
2015 Line 8	11m
2015 Line 9	15m

Interpreted maximum depth to bedrock from section figures

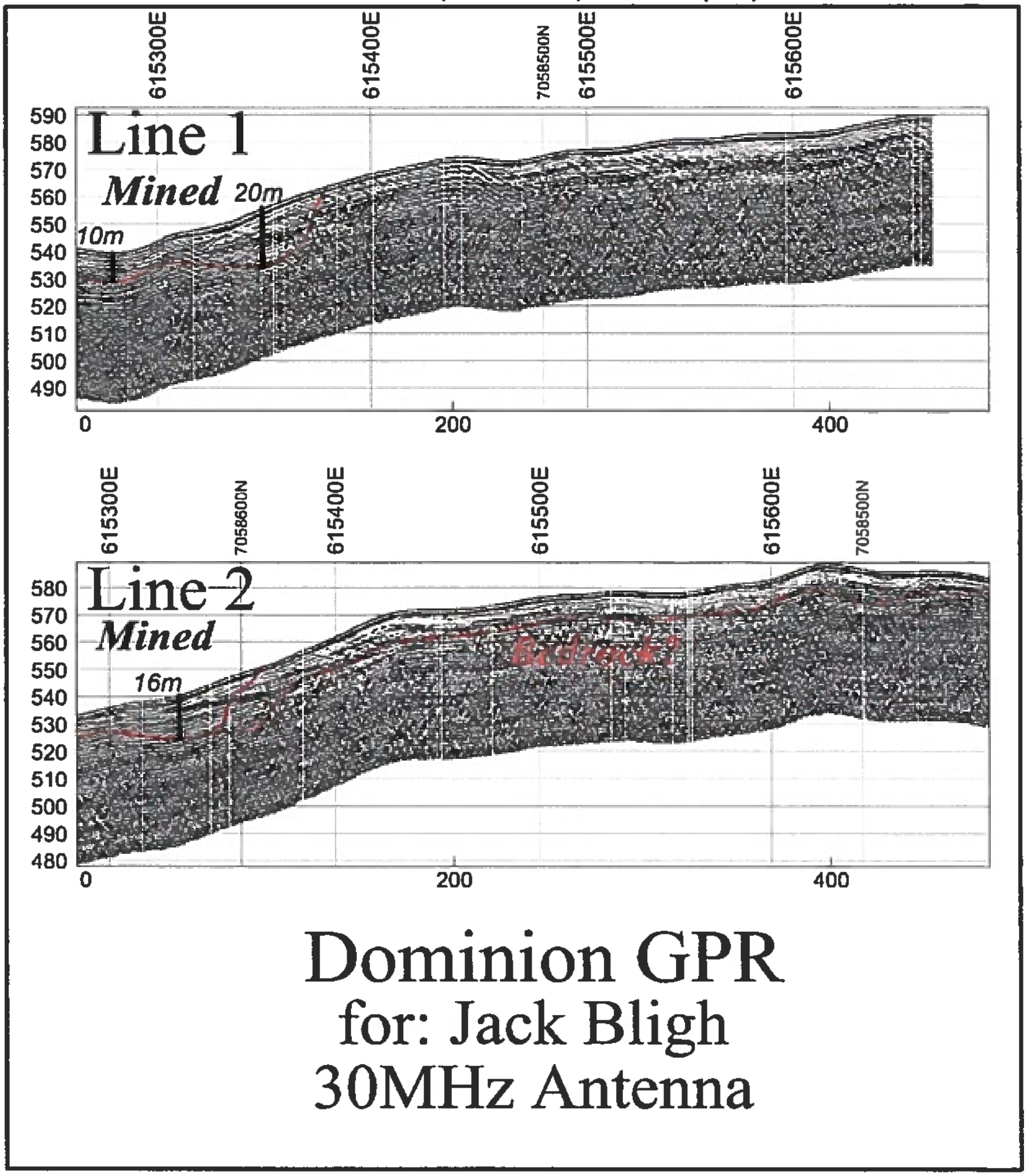

Figure 12: GPR Radargrams with interpretation for Lines 1 and 2

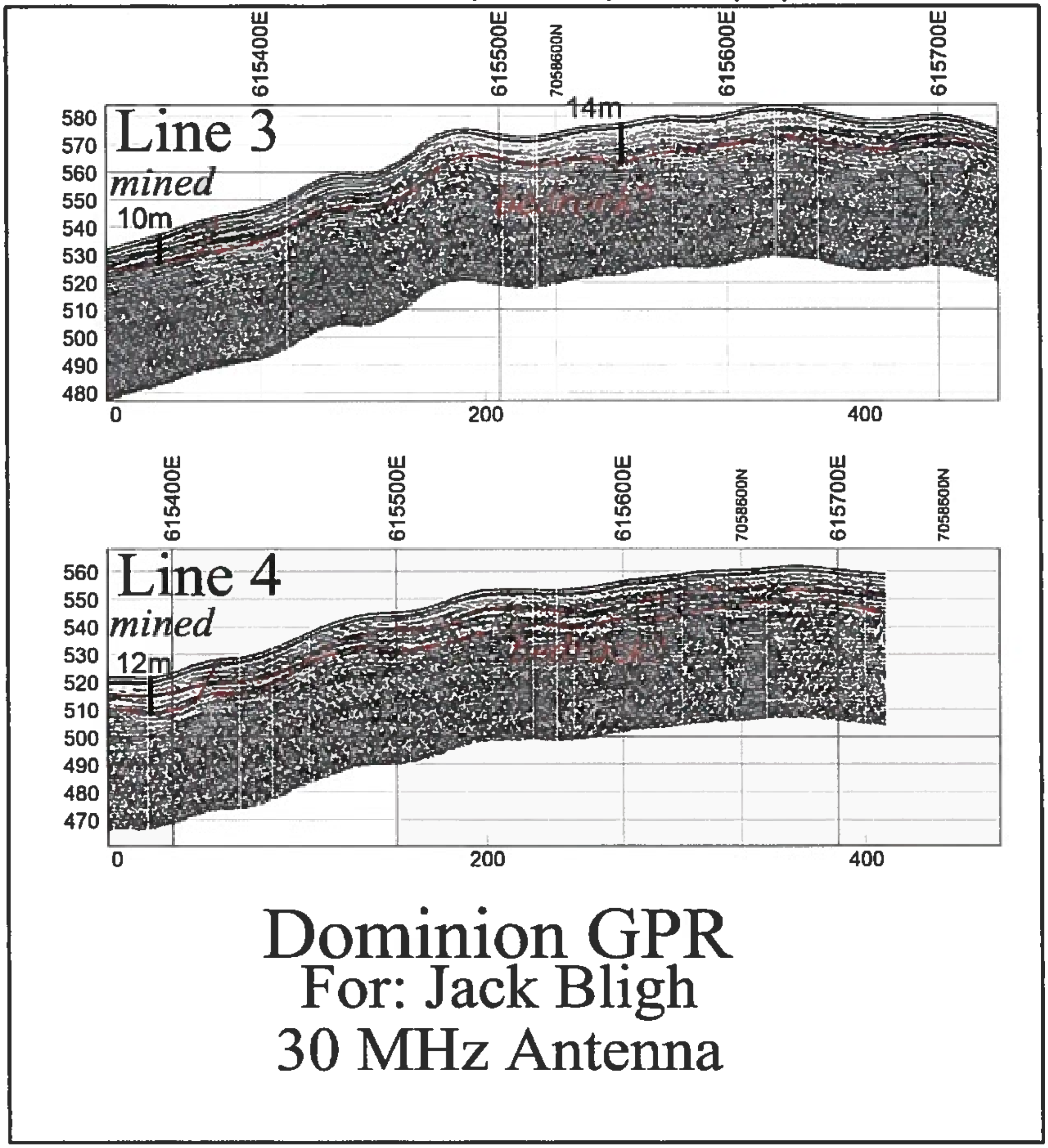

Figure 13: GPR Radargrams with interpretation for Lines 3 and 4

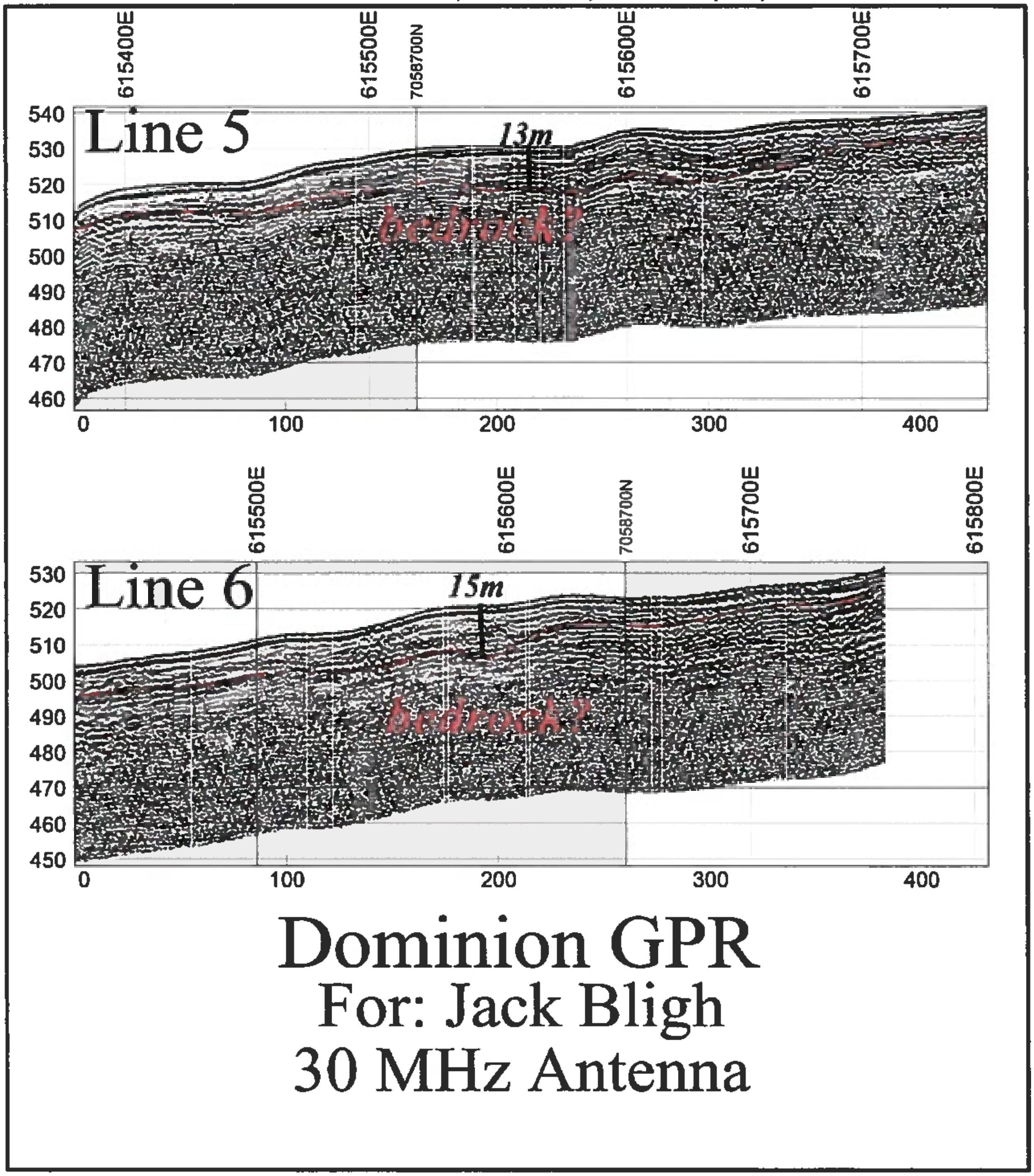

Figure 14: GPR Radargrams with interpretation for Lines 5 and 6

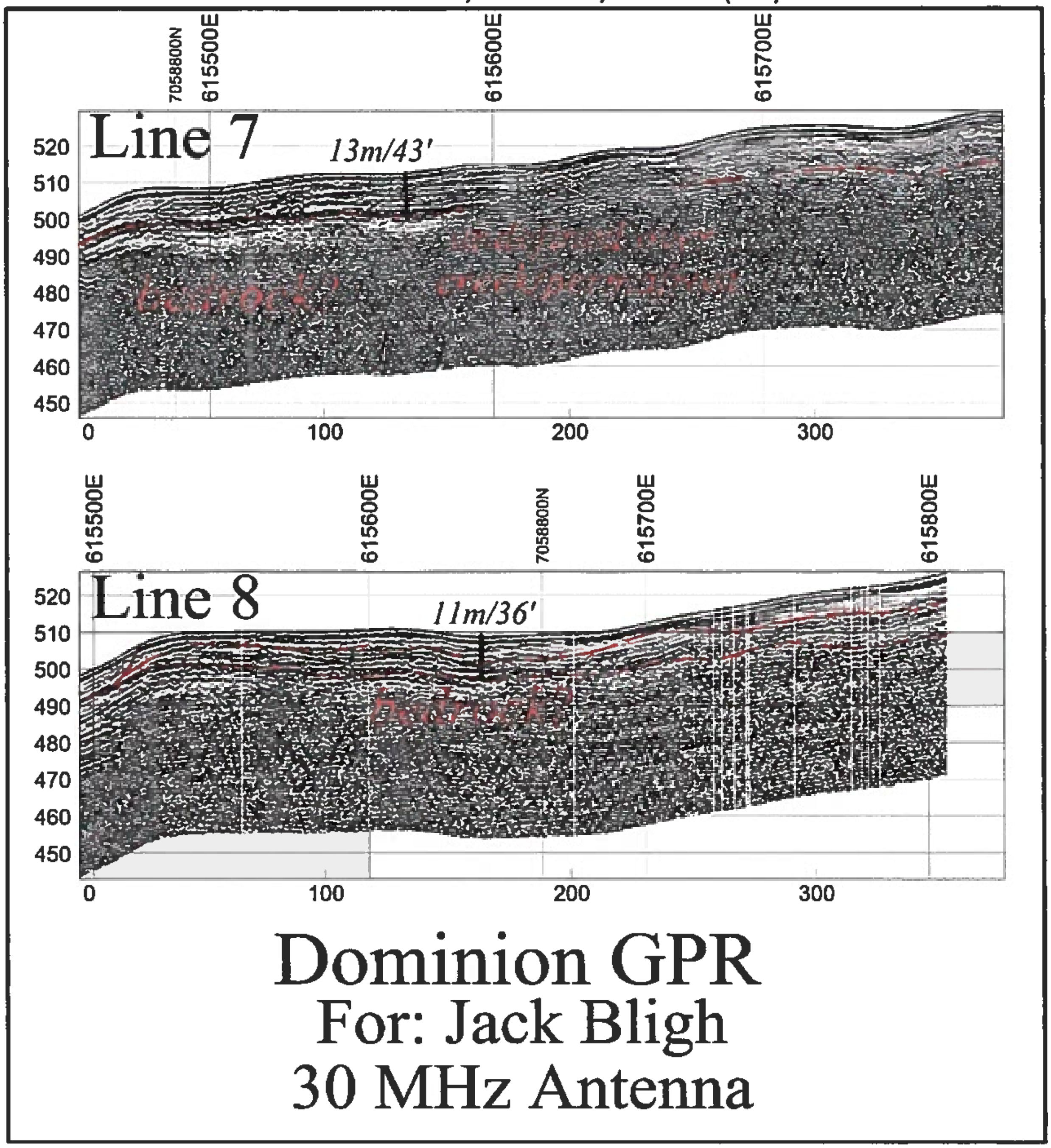

Figure 15: GPR Radargrams with interpretation for Lines 7 and 8

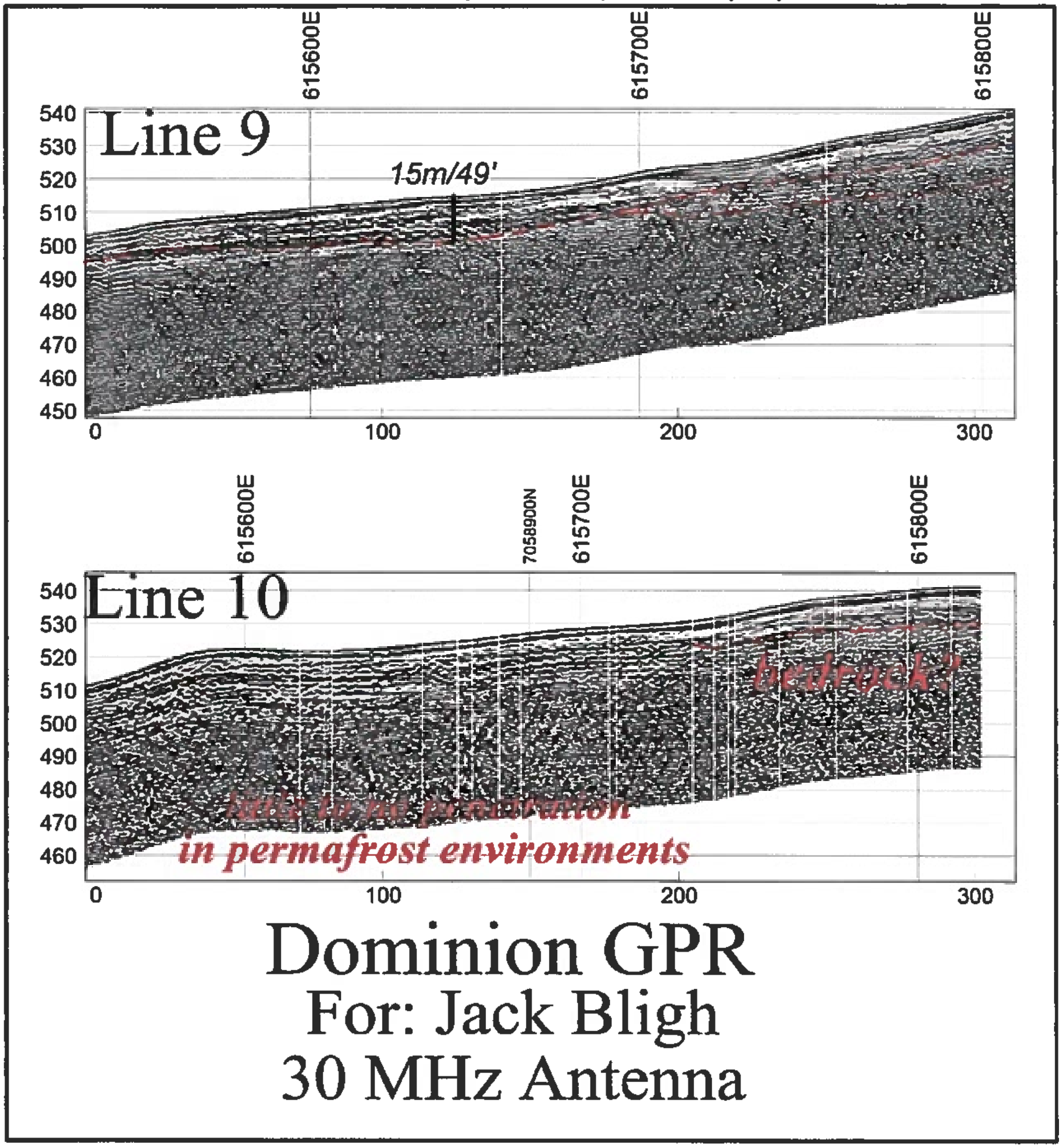

Figure 16: GPR Radargrams with interpretation for Lines 9 and 10

6.0 Conclusions and recommendations

Drone – Imagery was useful to determine location and extent of historic mining and interpreted ground conditions for location of permafrost and thawed ground. This information should be used to target future exploration efforts and plan access to the lease.

GPR - The collected GPR survey data is clean, however penetration rates are variable along lines depending on the material being traversed. Deeper penetration is associated more with unfrozen ground, while wet permafrost has shallower penetration depths. This may be a result of clay lenses present within the permafrost zones.

The survey identifies the previously mined ground quite well on Lines 1-4, indicating depths to bedrock from 10-16m (figures 12-13). Where possible, bedrock was followed from here for the remaining of the profile (lines 2-4).

Interpreted bedrock depths are estimated where possible with a dotted red line. Solid red lines indicate areas of previous disturbances. All units are in meters.

In order to make the most of this survey, some evidence must be collected in the field. An ideal dataset would consist of some pits or drillholes to bedrock along the profiles. This knowledge would allow us to not only calibrate the GPR velocity to give us accurate depths, but allow us to confirm our interpretation and interpolate it along the rest of the profile and study site.

7.0 Project Expenses

Drone and Ground Penetrating Radar Survey by GroundTruth Exploration Inc.,

June 30, 2015

GroundTruth Exploration – ½ day GPR Survey (Operator and Unit): $500
GroundRadar - Processing of 10 Profiles at $100/profile: $1000

GroundTruth Exploration – Small footprint Drone Survey: $500

Total Expenses: $2,000.00

8.0 Statement of Qualifications

I, Isaac Fage have been president of GroundTruth Exploration in Dawson City since May 2010. I have overseen the collection of 300,000 + soil samples 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 Minneapolis Creek placer lease.

Dated this 14th day of July, 2015 in Dawson, YT.

Respectfully submitted

Isaac Fage