

**YMEP22-052 FINAL REPORT**

**LIGHTNING/DUNCAN CREEK PROPERTY**

By

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Geoplacer Exploration Ltd.

For

Duncan Creek Golddusters Ltd.

Location of property: 63°53'00"N; 135°21'07"W

NTS map sheet: 105M/14

Mining District: Mayo

Date: January 19, 2023

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## Executive Summary

The following is the final report on exploration conducted under YMEP grant YMEP22-052 on the Lightning/Duncan Creek property owned by Duncan Creek Golddusters Ltd.

Duncan Creek is a right limit tributary of the Mayo River, located in central Yukon approximately 42 km by road north of Mayo, Yukon. Access to the claims is gained by the Silver Trail from the village of Mayo to the Duncan Creek Road south turnoff (16 km) and a further 20 km to where the leases cross the Duncan Creek Road.

Historical exploration and mining activity has shown that most of the alluvial, glaciofluvial and glacial sediments in the Duncan/Lightning/Upper Duncan drainages are placer gold-bearing.

Pre-glacial and interglacial gravel deposits are often the richest placers in any glaciated area, although they may be variably buried and reworked by subsequent glacial processes. In these instances, the derived glacial and glaciofluvial sediments may become the main gold-bearing pay material of interest to explorers and miners.

Within the project area, evidence suggests that there are buried interglacial placer deposits, as well as placer gold-bearing alpine till, which may have derived economic gold grades from both pre-existing alluvial deposits and local gold bearing bedrock sources.

Placer exploration targets include: 1) Placer gold-bearing alpine till (McConnell, Reid and/or Gladstone), 2) Pre-McConnell interglacial alluvial deposits, 3) Pre- or early McConnell periglacial alluvial fan deposits, 4) McConnell or older (e.g. Reid) glaciofluvial gravel, 5) Modern alluvial valley deposits.

The 2022 program consisted of prospecting lease staking (3 miles), 900 metres of resistivity geophysical surveys and 1792 cubic yards of bulk sampling.

The resistivity surveys provided Duncan Creek Golddusters Ltd. with encouraging results regarding overall depth to bedrock and the presence of distinct channels in the bedrock profiles. Previously, it was believed the depth to bedrock in this area was up to 30 metres (100 feet). However, the resistivity surveys which transected the Lightning/Duncan Creek valley appear to indicate maximum bedrock depths of 15 to 18 metres (50-60 feet).

The bulk sample program was successful in demonstrating economic placer gold values within the surface gravels in the valley, which ranged from 0.299 to 0.699 g/m<sup>3</sup> (0.007 to 0.017 oz/yd<sup>3</sup>) in the small (0.100 m<sup>3</sup>) samples, to 0.320 g/m<sup>3</sup> (0.008 oz/yd<sup>3</sup>) in the large (1369 m<sup>3</sup>) sample.

Further testing and larger bulk samples are recommended. The resistivity drill targets should be drilled using either a R/C (Reverse Circulation) or Sonic drill (6-inch or larger size), as auger drilling may be problematic in the boulder-rich and clay-rich terrain.

The locale of the initial large bulk sample should be extended and deepened, expanding into a full scale mining operation should results continue to be economic.

An ongoing exploration program which includes additional geophysical surveys in concert with targeted drilling and excavator test-pitting is recommended to determine the extent and grade of the placer gold deposit on the remainder of the property.

## **Introduction**

The following is the final report on exploration conducted under YMEP grant YMEP22-052 on the Lightning/Duncan Creek property owned by Duncan Creek Golddusters Ltd.

## **Location and Access**

Duncan Creek is a right limit tributary of the Mayo River, located in central Yukon approximately 42 km by road north of Mayo, Yukon (Figure 1). Access to the property is gained by the Silver Trail from the village of Mayo to the Duncan Creek Road south turnoff (17 km) and a further 34 km to the middle of the claim group at the confluence of Duncan Creek with Lightning Creek.

The centre of the property is 63°53'00"N and 135°21'07"W, on NTS map sheet 105M/14, in the Mayo Mining District (Figure 2).



Figure 1 - General Location of Lightning/Duncan Creek Project, Yukon.

## Placer Tenure

Table 1 shows the status for the 89 placer claims on the Lightning/Duncan Creek placer property as of January 14, 2023.

Table 1 – Placer Claim Status, Lightning/Duncan Creek, January 14, 2023.

STATUS	GRANT NUMBER	CLAIM NAME	OWNER NAME	STAKING DATE	RECORDED DATE	EXPIRY DATE
Active	P 42470	Elaine	Frank Taylor - 100%	1995-10-01	1995-10-10	2023-12-28
Active	P 42575	Elaine 1	Frank Taylor - 100%	1996-10-09	1996-10-10	2023-12-28
Active	P 42576	Elaine 2	Frank Taylor - 100%	1996-10-09	1996-10-10	2023-12-28
Active	P 42577	Elaine 3	Frank Taylor - 100%	1996-10-09	1996-10-10	2023-12-28
Active	P 42578	Elaine 4	Frank Taylor - 100%	1996-10-09	1996-10-10	2023-12-28
Active	P 42579	Elaine 5	Frank Taylor - 100%	1996-10-09	1996-10-10	2023-12-28
Active	P 42580	Elaine 6	Frank Taylor - 100%	1996-10-09	1996-10-10	2023-12-28
Active	P 42637	Spirit 1	Frank Taylor - 100%	1996-10-20	1996-10-25	2023-12-28
Active	P 42638	Spirit 2	Frank Taylor - 100%	1996-10-20	1996-10-25	2023-12-28
Active	P 42639	Spirit 3	Frank Taylor - 100%	1996-10-20	1996-10-25	2023-12-28
Active	P 42640	Spirit 4	Frank Taylor - 100%	1996-10-20	1996-10-25	2023-12-28
Active	P 42641	Spirit 5	Frank Taylor - 100%	1996-10-20	1996-10-25	2023-12-28
Active	P 42642	Spirit 6	Frank Taylor - 100%	1996-10-20	1996-10-25	2023-12-28
Active	P 42643	Spirit 7	Frank Taylor - 100%	1996-10-20	1996-10-25	2023-12-28
Active	P 42644	Spirit 8	Frank Taylor - 100%	1996-10-20	1996-10-25	2023-12-28
Active	P 42645	Spirit 9	Frank Taylor - 100%	1996-10-20	1996-10-25	2023-12-28
Active	P 42646	Bruces 1	Frank Taylor - 100%	1996-10-21	1996-10-25	2023-12-28
Active	P 42647	Bruces 2	Frank Taylor - 100%	1996-10-21	1996-10-25	2023-12-28
Active	P 42648	Bruces 3	Frank Taylor - 100%	1996-10-21	1996-10-25	2023-12-28
Active	P 42649	Bruces 4	Frank Taylor - 100%	1996-10-21	1996-10-25	2023-12-28
Active	P 42650	Bruces 5	Frank Taylor - 100%	1996-10-21	1996-10-25	2023-12-28
Active	P 42651	Bruces 6	Frank Taylor - 100%	1996-10-21	1996-10-25	2023-12-28
Active	P 42652	Bruces 7	Frank Taylor - 100%	1996-10-21	1996-10-25	2023-12-28
Active	P 42653	Bruces 8	Frank Taylor - 100%	1996-10-21	1996-10-25	2023-12-28
Active	P 42654	Bruces 9	Frank Taylor - 100%	1996-10-21	1996-10-25	2023-12-28
Active	P 42655	Bruces 10	Frank Taylor - 100%	1996-10-21	1996-10-25	2023-12-28
Active	P 42914	Colour	Frank Taylor - 100%	1998-10-22	1998-10-23	2023-12-28
Active	P 42915	Nite	Frank Taylor - 100%	1998-10-22	1998-10-23	2023-12-28
Active	P 513803	Shopping 1	Frank Taylor - 100%	2017-05-11	2017-05-18	2025-05-18
Active	P 513804	Shopping 2	Frank Taylor - 100%	2017-05-11	2017-05-18	2025-05-18
Active	P 513805	Shopping 3	Frank Taylor - 100%	2017-05-11	2017-05-18	2025-05-18
Active	P 513809	Shopping 4	Frank Taylor - 100%	2017-05-23	2017-06-01	2023-06-01
Active	P 513810	Shopping 5	Frank Taylor - 100%	2017-05-23	2017-06-01	2023-06-01
Active	P 524386	Tier 1 1	Frank Taylor - 100%	2018-05-11	2018-05-18	2024-05-18
Active	P 524387	Tier 1 2	Frank Taylor - 100%	2018-05-11	2018-05-18	2024-05-18
Active	P 524388	Tier 1 3	Frank Taylor - 100%	2018-05-11	2018-05-18	2024-05-18
Active	P 524389	Tier 1 4	Frank Taylor - 100%	2018-05-11	2018-05-18	2024-05-18

STATUS	GRANT NUMBER	CLAIM NAME	OWNER NAME	STAKING DATE	RECORDED DATE	EXPIRY DATE
Active	P 524390	Tier 1 5	Frank Taylor - 100%	2018-05-11	2018-05-18	2024-05-18
Active	P 524391	Tier 1 6	Frank Taylor - 100%	2018-05-11	2018-05-18	2024-05-18
Active	P 524392	Tier 1 7	Frank Taylor - 100%	2018-05-11	2018-05-18	2024-05-18
Active	P 524393	Tier 1 8	Frank Taylor - 100%	2018-05-13	2018-05-18	2024-05-18
Active	P 524394	Tier 1 9	Frank Taylor - 100%	2018-05-13	2018-05-18	2024-05-18
Active	P 524395	Tier 1 10	Frank Taylor - 100%	2018-05-13	2018-05-18	2024-05-18
Active	P 524396	Tier 1 11	Frank Taylor - 100%	2018-05-13	2018-05-18	2024-05-18
Active	P 524397	Tier 1 12	Frank Taylor - 100%	2018-05-13	2018-05-18	2024-05-18
Active	P 524398	T 1 1	Frank Taylor - 100%	2018-05-14	2018-05-18	2025-05-18
Active	P 524399	T 1 2	Frank Taylor - 100%	2018-05-14	2018-05-18	2025-05-18
Active	P 524400	T 1 3	Frank Taylor - 100%	2018-05-14	2018-05-18	2025-05-18
Active	P 524401	T 1 4	Frank Taylor - 100%	2018-05-14	2018-05-18	2025-05-18
Active	P 524402	T 1 5	Frank Taylor - 100%	2018-05-14	2018-05-18	2025-05-18
Active	P 524403	T 1 6	Frank Taylor - 100%	2018-05-14	2018-05-18	2025-05-18
Active	P 524404	T 1 7	Frank Taylor - 100%	2018-05-14	2018-05-18	2025-05-18
Active	P 524405	T 1 8	Frank Taylor - 100%	2018-05-14	2018-05-18	2025-05-18
Active	P 524406	T 1 9	Frank Taylor - 100%	2018-05-14	2018-05-18	2025-05-18
Active	P 524407	T 1 10	Frank Taylor - 100%	2018-05-14	2018-05-18	2025-05-18
Active	P 524408	T 1 11	Frank Taylor - 100%	2018-05-14	2018-05-18	2025-05-18
Active	P 524409	T 2 1	Frank Taylor - 100%	2018-05-15	2018-05-18	2024-05-18
Active	P 524410	T 2 2	Frank Taylor - 100%	2018-05-15	2018-05-18	2024-05-18
Active	P 524411	T 2 3	Frank Taylor - 100%	2018-05-15	2018-05-18	2024-05-18
Active	P 524412	T 2 4	Frank Taylor - 100%	2018-05-15	2018-05-18	2024-05-18
Active	P 524413	T 2 5	Frank Taylor - 100%	2018-05-15	2018-05-18	2024-05-18
Active	P 524414	T 2 6	Frank Taylor - 100%	2018-05-15	2018-05-18	2024-05-18
Active	P 524415	T 2 7	Frank Taylor - 100%	2018-05-15	2018-05-18	2024-05-18
Active	P 524416	T 2 8	Frank Taylor - 100%	2018-05-15	2018-05-18	2024-05-18
Active	P 524417	T 2 9	Frank Taylor - 100%	2018-05-15	2018-05-18	2024-05-18
Active	P 524418	T 2 10	Frank Taylor - 100%	2018-05-15	2018-05-18	2024-05-18
Active	P 524419	T 2 11	Frank Taylor - 100%	2018-05-15	2018-05-18	2024-05-18
Active	P 525302	Todd 1	Frank Taylor - 100%	2021-05-06	2021-05-10	2025-05-10
Active	P 525303	Todd 2	Frank Taylor - 100%	2021-05-06	2021-05-10	2025-05-10
Active	P 525304	Todd 3	Frank Taylor - 100%	2021-05-06	2021-05-10	2025-05-10
Active	P 525305	Todd 4	Frank Taylor - 100%	2021-05-06	2021-05-10	2025-05-10
Active	P 525306	Todd 5	Frank Taylor - 100%	2021-05-06	2021-05-10	2025-05-10
Active	P 525307	Todd 6	Frank Taylor - 100%	2021-05-06	2021-05-10	2025-05-10
Active	P 525308	Todd 7	Frank Taylor - 100%	2021-05-06	2021-05-10	2025-05-10
Active	P 525309	Todd 8	Frank Taylor - 100%	2021-05-06	2021-05-10	2025-05-10
Active	P 525310	Todd 9	Frank Taylor - 100%	2021-05-06	2021-05-10	2025-05-10
Active	P 525311	Todd 10	Frank Taylor - 100%	2021-05-06	2021-05-10	2025-05-10
Active	P 525312	Todd 11	Frank Taylor - 100%	2021-05-06	2021-05-10	2025-05-10

STATUS	GRANT NUMBER	CLAIM NAME	OWNER NAME	STAKING DATE	RECORDED DATE	EXPIRY DATE
Active	P 525313	Mai 1	Frank Taylor - 100%	2021-05-05	2021-05-10	2024-05-10
Active	P 525314	Mai 2	Frank Taylor - 100%	2021-05-05	2021-05-10	2024-05-10
Active	P 525315	Mai 3	Frank Taylor - 100%	2021-05-05	2021-05-10	2024-05-10
Active	P 525316	Mai 4	Frank Taylor - 100%	2021-05-05	2021-05-10	2024-05-10
Active	P 525317	Mai 5	Frank Taylor - 100%	2021-05-05	2021-05-10	2024-05-10
Active	P 525318	Mai 6	Frank Taylor - 100%	2021-05-05	2021-05-10	2024-05-10
Active	P 525319	Joan 1	Frank Taylor - 100%	2021-05-05	2021-05-10	2024-05-10
Active	P 525320	Joan 2	Frank Taylor - 100%	2021-05-05	2021-05-10	2024-05-10
Active	P 525321	Joan 3	Frank Taylor - 100%	2021-05-05	2021-05-10	2024-05-10
Active	P 525322	Joan 4	Frank Taylor - 100%	2021-05-05	2021-05-10	2024-05-10
Active	P 525323	Joan 5	Frank Taylor - 100%	2021-05-05	2021-05-10	2024-05-10

STATUS	GRANT NUMBER	LENGTH	OWNER NAME	STAKING DATE	RECORDED DATE	EXPIRY DATE
Active	IM00482	3 MILES	Duncan Creek Golddusters Ltd. - 100%	2022-08-08	2022-08-19	2023-08-19

## Placer Permitting

Most of the placer claims in the property fall within Water License PM18-058 and Placer Land Use Permit LP01291, which are both valid until January 9, 2029. An amendment has been filed to include the Todd 1-11 claims into the Class 4 water license. A Class 1 permit is in place on Prospecting Lease IM00482.

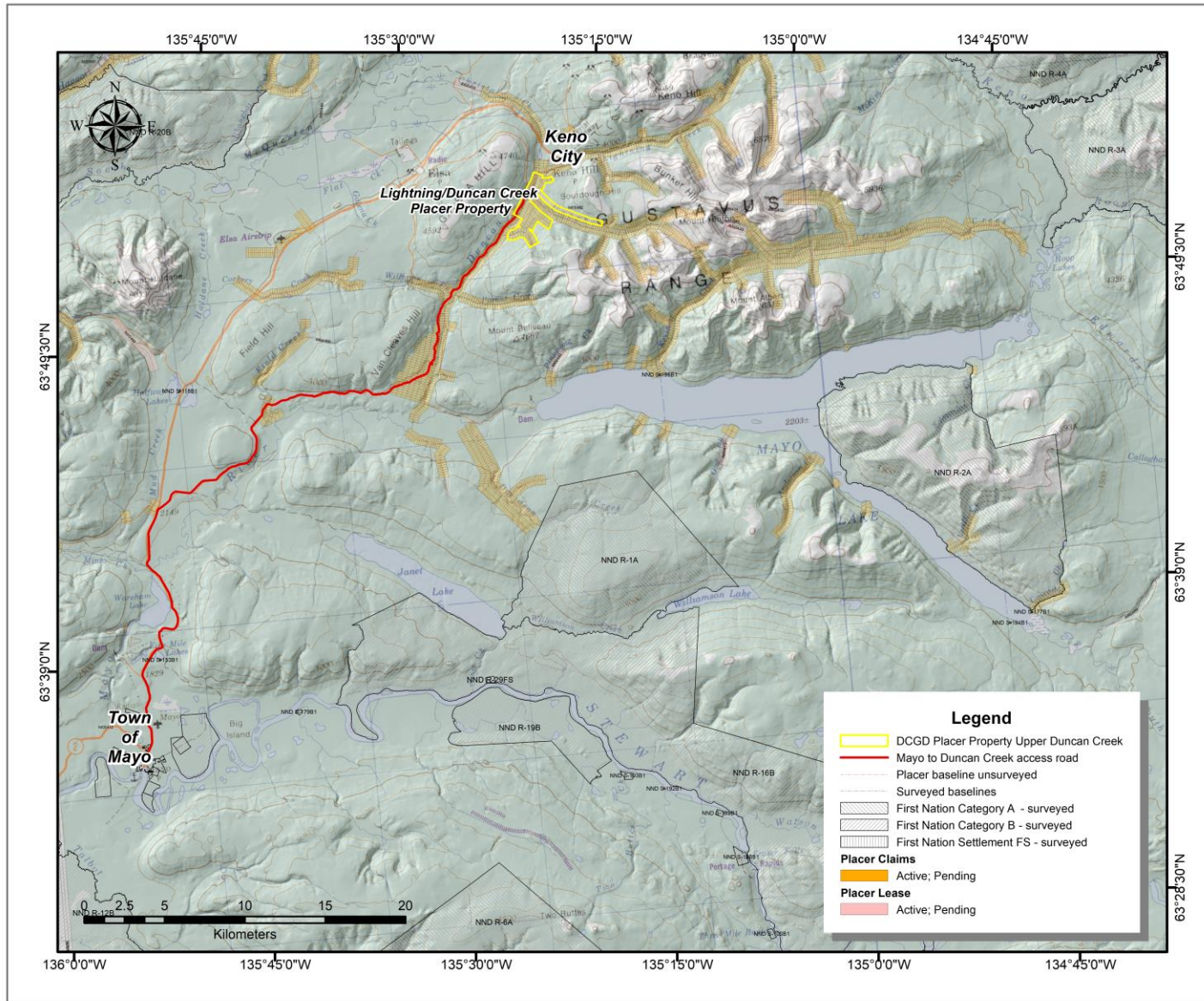


Figure 2 – Location of Lightning/Duncan Creek placer claims and nearby Mayo region placer tenures.

## Placer Exploration and Mining History

The discovery of placer gold in the Mayo district began on the Stewart River in 1883, when a party of prospectors worked from the mouth of the Stewart River to the McQuesten River (Mayo Historical Society, 1990). Between 1885 and 1886, it is estimated that up to 14,500 fine ounces (451 kg) was recovered by hand (Mayo Historical Society, 1990).

In 1892, Ray Stewart discovered gold on the McQuesten River, and in 1895 placer gold was noted on Haggart Creek. Discovery claims were recorded on Johnson and Haggart Creeks in 1898.

In the same year, gold was discovered on Duncan Creek in the area just downstream of the canyon, where Upper Duncan Creek joins Duncan Creek. Most of the hand-mining in the early days took place at this location and farther upstream on Upper Duncan Creek (LeBarge, 2007).

The discovery of placer gold on Duncan Creek in 1898 is credited to Mr. Gustavus Gustavus and his two sons (Mayo Historical Society, 1990). These three were very secretive, and to help conceal the location of their ground they decided not to stake or record claims over it. They began to arouse curiosity and one day a party of four prospectors - Colin Hamilton, Duncan Patterson, Allan McIntosh and Jacob Davidson went looking for their ground. After a long search, the Scotsmen found the Swedes' workings. On the 15th of September 1901, they located a Discovery Claim in the canyon on what was named Duncan Creek. This claim was staked during the absence of the Swedes and included the ground already worked by them. The Gustavusens', finding their ground legally staked, soon left the country.

By the end of 1902 Duncan Creek was staked from the headwaters to the mouth. Numerous cabins were built and preparations were made to develop the ground. The government constructed a wagon road from the mouth of the Mayo River to Duncan Creek. Two town-sites were located: one at Mayo River and one at Gordon Landing on the bank of the Stewart River.

During 1902, at Claim #104 Below Discovery (approx. 4.3 miles (7 km) below the canyon) a shaft was sunk a depth of 138 ft. (42 metres) without hitting bedrock. Other attempts were made in the area and numerous shafts reached 108 ft. (33 metres) in depth without reaching bedrock, mostly due to flooding by ground water. During 1903, at Claim #53 Below Discovery, a shaft sunk on the left limit hit bedrock at 105 ft. (32 metres). Drifting towards the creek was started, but just as the drift began to hit good pay, the groundwater became more than the pump could handle and the drift was abandoned. Total clean-up for this operation was \$1200.

The busiest year on Upper Duncan Creek was 1903, with \$30,000 produced from the canyon claims. Much work was also done in 1904, with \$15,000 being produced from the canyon. Lower Duncan Creek produced very little during the early years, mostly due to excessive ground water.

During the period 1913-1916, J. A. Walsh, W. L. Bramley and J. Adair did considerable developmental work as well as some mining on Lower Duncan Creek, and some prospecting was done on the benches. By 1915, nine men were working; five on Upper Duncan, one near the forks (canyon) and three on Lower Duncan. By 1932 only one operation existed, on Upper Duncan Creek.

In 1940-41 Mr. C.E. Fisher mined ground worth 50 cents per yard above the bridge, and Mr. Ellis Johnson worked Claim #54 Above Discovery reporting "good prospects" on bedrock at 92 feet (28 metres). The locations of these operations are undocumented, but they may be on Upper Duncan Creek.

By the end of the 1950's, interest was renewed on Duncan Creek. Fred Taylor began testing a one-mile lease on lower Duncan Creek, and several United Keno Hill Mine employees started small operations in the canyon.

During 1965-1966 Mr. and Mrs. Heinz prospected and test-mined two one-mile leases on Upper Duncan Creek, producing 50 ounces.

In the 1960's, drilling by United Keno Hill Mines showed gravels to be about 167 ft. (51 metres) thick one mile (1.6 km) below Lightning and about 98 ft. (30 metres) thick 2 miles (3 km) below the confluence of Lightning and Duncan creeks. Some gold values were reported.

Between 1975 and 1977, Frank Taylor and J. Brooks (working as Duncan Creek Goldbusters Ltd.) worked the left limit of lower Duncan Creek 1.5 miles (2.5 km) from the mouth.

Between 1978 and 1982, six operations were active at various locations along Duncan Creek and Upper Duncan Creek, including C. French and N. Bunka, D. Flick and G. Gervais, M. Alexander, Frank Taylor and Nugget Drilling. Nugget Drilling's activity in 1982 was on Upper Duncan Creek above the canyon, possibly in a pre-glacial channel south of the current Upper Duncan Creek.

Four operations were active between 1983 and 1984, including N. Bunka, C. Deeks and E. Jarvis; D. Flick and G. Gervais; and Frank Taylor. Between 1985 and 1990, Frank Taylor and his family mined on lower Duncan Creek.

From 1989 to 1990, Sasha Mining mined on lower Duncan Creek. In 1996, Bruce Rittel hand-trenched on a terrace along Duncan Creek near the confluence with Lightning Creek.

Bardusan Placers Ltd. mined a cut on Upper Duncan Creek just above the canyon between 1996 and 1997.

Mr. Zemenchik did a small exploratory mining cut on Upper Duncan Creek in the vicinity of a right limit alluvial fan between 1998 and 2000.

Between 2001 and 2002, some claims located immediately below the waterfalls were leased to Larry Arnevik and Ricker Anderson by Joe Raab. Two cuts were completed in 2001. The narrow channel and tight, steep canyon walls made these claims a challenge to mine.

Mr. Mel Zeiler conducted testing operations on lower Duncan Creek from 2003 to 2005 and in 2007 and 2008.

Duncan Creek Goldbusters Ltd. began mining on lower Duncan Creek in 1977, and they mined until 2018. From 2019-2021, Rally Mining Ltd. (Rick Ness) mined the lower Duncan Creek claims under option from Duncan Creek Goldbusters (van Loon and Bond, 2021).

Duncan Creek is one of the most continuously mined creeks in the Mayo Mining District. Over 42,000 crude ounces have been documented from various sources including both historical records (LeBarge et. al., 2002) and Yukon Government Placer Gold Royalty Records. Recent production from royalty records are given in Table 2. This table shows that over 180,000 crude ounces have been recorded in the Mayo Mining District between 1978 and 2019.

Table 2 - Placer gold production from reported gold royalties, Mayo Mining District. Figures are in crude (raw) ounces.

STREAM or RIVER	Tributary to	2015	2016	2017	2018	2019	1978-2019
<b>Anderson</b>	Mayo Lake						938
<b>Bear (Van Bibber)</b>	McQuesten						1448
<b>Bennett</b>	Minto		2.88				3
<b>Carlson</b>	Minto						105
<b>Davidson</b>	Mayo River	912.53	147.63		103.17	60.74	4921
<b>Dawn</b>	Mayo Lake		20.77				36
<b>Dirksen</b>	Mayo Lake						31
<b>Dublin Gulch</b>	Haggart						13099
<b>Duncan</b>	Mayo River	413.44	253.41	400.28	77.85	506.26	36089
<b>Empire</b>	No Gold						1012
<b>Fifteen</b>	Haggart			1.1			1
<b>Gem</b>	Sprague						428
<b>Goodman</b>	South McQuesten						37
<b>Granite Creek</b>	Mayo Lake	1249.16	1902.14	1418.13	1052.51	3277.56	8900
<b>Haggart</b>	South McQuesten	3.79			18.88		24528
<b>Hight</b>	Minto	95.86	154.56	61.25	37		40769
<b>Hope Gulch</b>	Lightning						8
<b>Jarvis</b>	Minto						17
<b>Johnson</b>	McQuesten		71.95	350	208.98	289.36	6357
<b>Ledge</b>	Mayo Lake						5815
<b>Lightning</b>	Duncan	0.83					11624
<b>McQuesten</b>	Stewart	9.24					114
<b>Minto</b>	Mayo River	199.42	594.05	406.22	474.65	753.46	3775
<b>Morrison</b>	Seattle			3.29	71.65	30.86	122
<b>Murphy's Pup</b>	South McQuesten		3.18	13.8	26.72		202
<b>Owl</b>	Mayo Lake				12.18		3654
<b>Ross</b>	South McQuesten				3.5	28.88	32
<b>Russell</b>	Macmillan						287
<b>Seattle</b>	McQuesten	83.6	136.11	217.73		22.22	668
<b>Secret</b>	Swede	41.52	4.11		45.79	72.69	836
<b>Steep</b>	Mayo Lake						709
<b>Stewart</b>	Yukon						872
<b>Swede</b>	Haggart		28.53		12.24	1.69	4389
<b>Thunder</b>	Lightning	508.06	547.28	333.58	332.84	333.26	6553
<b>Upper Duncan</b>	Duncan		109.02	105.42		107.88	322
<b>Vancouver</b>	McQuesten		13.95	16.09		124.07	1082
<b>Various Mayo Creeks</b>			7.92	111.93			1709
<b>Total Mayo District</b>		3517.45	3997.49	3438.82	2477.96	5608.93	<b>181492</b>

## Local Bedrock Geology and Mineral Occurrences

The Roop Lakes batholith, which outcrops east of the project area, is a late Cretaceous granite, quartz monzonite and granodiorite intrusion of the Tombstone Suite. It is widely-held to be the probable heat source for epi- and meso-thermal veins of the Elsa-Keno Hill mining camp (Roots, 1997a, 1997b).

Most of the mineral occurrences in the Keno Hill mining camp are polymetallic veins, consisting of silver, lead and zinc with various amounts of accessory gold. The host rock is mainly the Carboniferous Keno Hill Quartzite, however some veins are hosted in carbonaceous phyllite, felsic meta-tuff and metaclastic rocks of the Devonian Earn Group. A few mineralized polymetallic veins are hosted in the metaclastic rocks of the Late Proterozoic to Cambrian Hyland Group.

Figure 3 shows the bedrock geology of the project area, after Roots (1997a, 1997b); and Yukon Geological Survey (2021). The northern area of the claims is mapped as CT1, CT2, and CT4 (Tsichu formation, aka Keno Hill quartzite), and this is separated by a thrust fault on the southern extent where unit PCH1 (Hyland Group sandstone, grit, psammite, conglomerate) outcrops.

Although there are numerous silver and gold deposits of the Keno Hill district in the hills surrounding the project area, the closest mineral occurrence is Minfile #105M 022 (Fisher Creek), which is a gold-silver vein hosted within the Keno Hill quartzite.

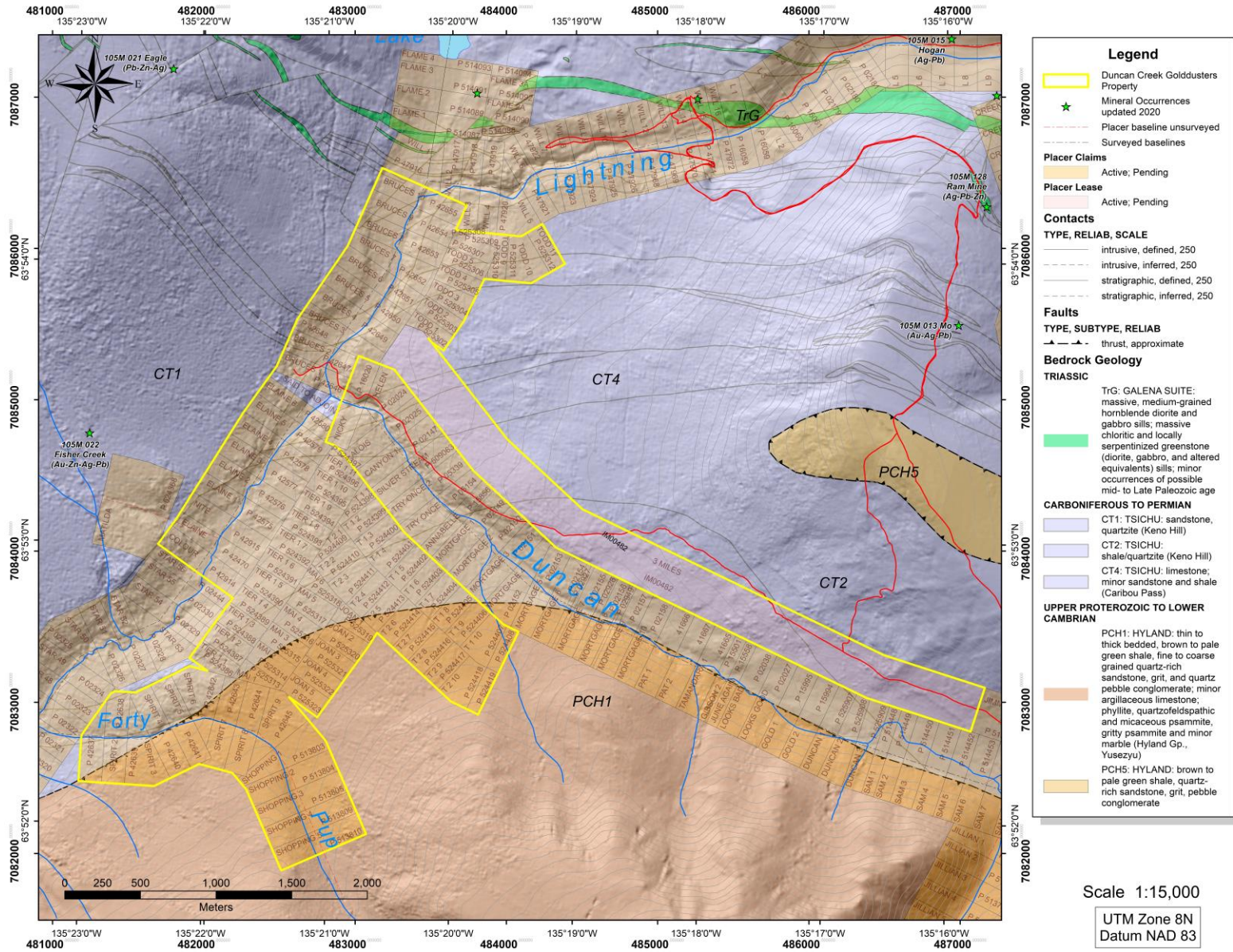


Figure 3 - Bedrock Geology of Lightning/Duncan Creek, after Yukon Geological Survey (2022).

## Quaternary History and Surficial Geology

In the Mayo area, a minimum of four regional glaciations and two interglacial periods have influenced the deposition and erosion of sediments over the last 2.5 million years (Duk-Rodkin et. al., 2010; LeBarge et. al., 2002; Bond, 1999, 1997; Jackson et al., 2001). Glaciations include the pre-Reid (multiple early to mid-Pleistocene glaciations), Reid (130,000 years), and McConnell (14,000 -29,600 years). Warm, interglacial periods are indicated by relict paleosols such as the pre-Reid Wounded Moose paleosol (Tarnocai and Schweger, 1991) and the Reid Diversion Creek paleosol (Bond and Lipovsky, 2010).

During their maximum extent, pre-Reid ice sheets completely covered the Mayo/Keno Hill area. Undifferentiated pre-Reid surficial materials (moraine, glaciofluvial and glaciolacustrine deposits) are thick in the lowlands of Klondike Plateau and Tintina Trench, especially in areas proximal to the terminus of the pre-Reid glaciations. Evidence of the pre-Reid glaciations in the Mayo area has been overprinted by subsequent glaciations, and mainly consists of glacial erratics in the alpine areas above the limits of the subsequent Reid and McConnell glaciations (LeBarge, 2002).

During the Reid glaciation, glacial ice advanced from cirques formed in topographic highs such as Mount Hinton and Mt. Haldane, and coalesced with Cordilleran ice lobes which were advancing up-valley into the alpine areas. This resulted in a complex overlap assemblage comprised of both local alpine glacial sediments, and more regionally-derived glacial sediments.

During the most recent (McConnell) glaciation, ice sheets again advanced from cirques in mountainous centres, however their advance was much less extensive than during previous glaciations. In most cases, McConnell ice advanced only short distances down-valley from their origins in the valley heads, depositing terminal moraines in the upper reaches of many valleys.

Figure 4 shows the glacial limits and ice-flow directions for the Reid and McConnell glaciations in the Mayo area, after Bond (1999). This map shows that while the Reid glacial ice advanced down Duncan Creek and coalesced with the Reid regional ice advance heading up Duncan Creek, the McConnell glacier advanced only a short distance from the Mayo River upstream to the lower reaches of Duncan Creek, and an even lesser distance from the upper reaches of the Lightning Creek downstream along the main stem of Duncan Creek valley. This resulted in a gap along the main valley of Duncan Creek which would have been ice-free during the McConnell glaciation.

Figure 5 (after Bond, 1998) shows that the project area lies mostly outside of the McConnell ice sheet, except for the northernmost (upstream) few claims. However, glaciofluvial gravel was deposited downstream of the McConnell Ice sheet, shown as unit GMt. The entire property was glaciated during the Reid glaciation, and remnant moraine deposits (Unit TRb) and glaciofluvial deposits (Unit GRt) are present at higher elevations. Slopes are dominated by colluvial deposits (Units Ca and Cv) while the lowermost points of valleys are covered in alluvial plains (Unit Ap) with side-valley alluvial fans (Unit Af).

An interesting, likely periglacial alluvial fan of pre-McConnell age (Unit ApMf), is mapped between Forty Pup and the broad terrace south of the confluence of Duncan Creek and Upper Duncan Creek, as well as across the valley on the right limit of Duncan Creek.

## Placer Geology and Stratigraphic Setting

Early exploration in the area upstream of the canyon shows that bedrock on the southern (left) limit is deeply buried, with some shafts sunk 80-102 feet to bedrock. However, some early workers reached bedrock within 30 feet (LeBarge, 2007).

In 1982, Nugget Drilling Ltd. was mining on Upper Duncan Creek, upstream of the canyon above the confluence with Lightning Creek. They exposed a section described as 3 to 6.5 feet of colluvium and organic detritus overlying 40 to 60 feet of frozen, laminated clay-like black muck, and 10 to 20 feet of partially decomposed, possibly pre-glacial gravel. The operators at the site believed the deposits were part of an old channel of upper Duncan Creek, which was situated south of the present creek (LeBarge, 2007).

Between 1995 and 1997, Hans and Claus Barchen mined an area on the left limit of Upper Duncan Creek above the canyon in the same vicinity. Their mining cut was described (LeBarge, 2007) as thawed, sandy gravel with some silt beds, with 60% of the gravel smaller than 2 inches and some large boulders near the bedrock contact.

Some mining sections in the same area that were described by Yukon Government research crews in 1996 and 1997 (LeBarge et. al., 2002) were interpreted to be periglacial (early or pre-McConnell) alluvial fan sediments overlying pre-McConnell interglacial fluvial gravels on bedrock. This was supported by radiocarbon dates in fine organic sediments of 31,580 to 33,190 years B.P. (before present). Other exposures were interpreted to be Reid-age glaciofluvial and glacial sediments (on bedrock) overlain by interglacial alluvial sediments, McConnell glaciolacustrine sediments and glacial till, and modern colluvium.

Recent work by Steinke et. al. (2022) has shown that some of the earlier alpine tills mapped in the area may be younger than previously thought, corresponding to the Gladstone glacial till (MIS 4 – 57,000 to 71,000 years B.P.) first described in southern Yukon by Cronmiller et. al. (2019). It is possible that several landforms mapped in the area by Bond (1998) as Reid till (MIS 6 – 130,000 to 191,000 years B.P.) are actually the younger Gladstone till.

Based on this previous work, the stratigraphy in the project area is a complex mixture consisting of one or more older alpine tills (Reid - MIS 6, and/or Gladstone - MIS 4), overlain and dissected by Reid and/or Gladstone glaciofluvial outwash, interglacial pre-McConnell fluvial gravels, periglacial early McConnell alluvial fan sediments, McConnell glaciofluvial outwash, recent fluvial-alluvial sediments and modern colluvium.

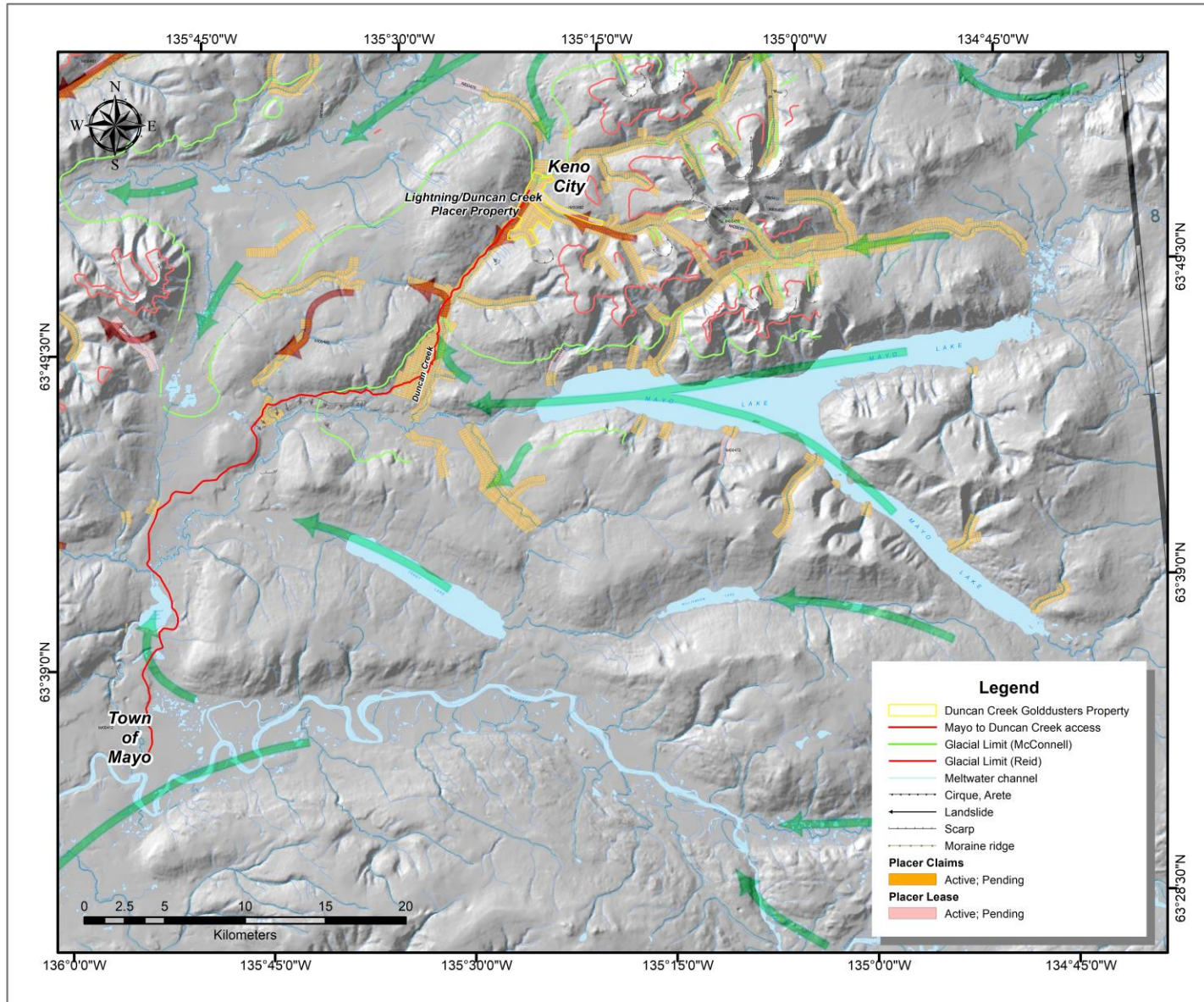


Figure 4 – Glacial limits and flow directions, Mayo Area, after Bond (1999).

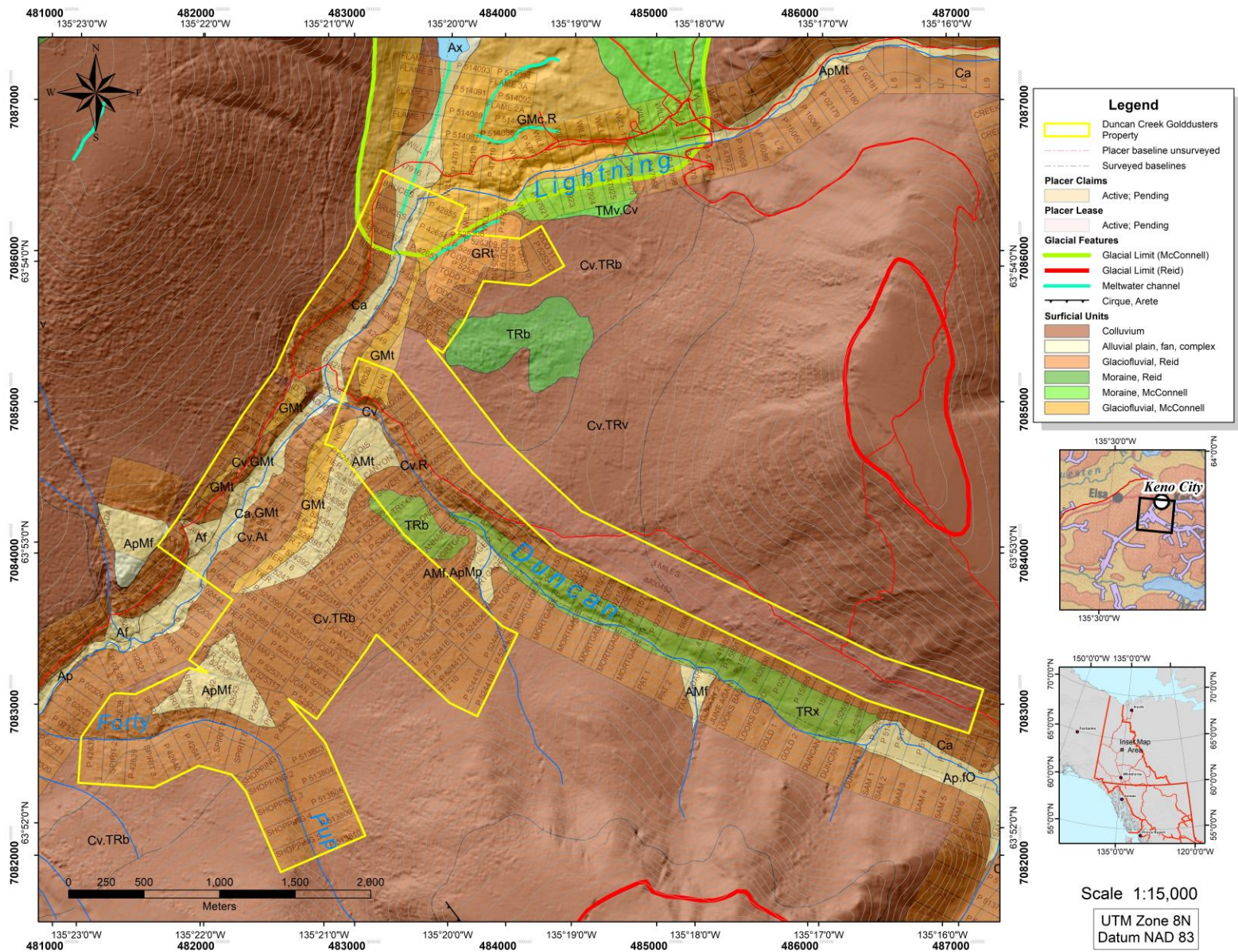


Figure 5 - Surficial geology, Lightning/Duncan Creek, after Bond (1998) and Yukon Geological Survey, 2022.

## Rationale for Exploration

Historical exploration and mining activity has shown that most of the alluvial, glaciofluvial and glacial sediments in the Lightning/Duncan/Upper Duncan drainages are placer gold-bearing. Some of these deposits are economic for placer gold, and their gold grades are related to several factors including the amount of fluvial reworking, their proximity to original bedrock gold sources and the mechanisms of burial and preservation.

Pre-glacial and interglacial gravel deposits are often the richest placers in any glaciated area, although they may be variably buried and reworked by subsequent glacial processes. In these instances, the derived glacial and glaciofluvial sediments may become the main gold-bearing pay material of interest to explorers and miners.

Within the project area, evidence suggests that there are buried interglacial placer deposits, as well as placer gold-bearing alpine till, which may have derived economic gold grades from both pre-existing alluvial deposits and local gold bearing bedrock sources.

In the area above the canyon, the original pre-glacial (or interglacial) stream channel of Upper Duncan Creek may have flowed south of the current stream course. In fact, parts of it may have been exposed and mined by both the earliest and more recent placer miners.

However, modern exploration using state of the art methods has not been conducted in this area to date. Thus, placer exploration targets include:

- 1) Placer gold-bearing alpine till (McConnell, Reid and/or Gladstone),
- 2) Pre-McConnell interglacial alluvial deposits,
- 3) Pre- or early McConnell periglacial alluvial fan deposits,
- 4) McConnell or older (e.g. Reid) glaciofluvial gravel,
- 5) Modern alluvial valley deposits.

The 2022 placer exploration program is detailed in the section following.

## 2022 Placer Exploration Program

### Overview

The 2022 program consisted of prospecting lease staking (3 miles), 900 metres of resistivity geophysical surveys and 1792 cubic yards of bulk sampling.

### Placer Lease Staking

One 3-Mile Prospecting Lease IM00482 was staked by Duncan Creek Goldbusters Ltd. on the first tier, right-limit bench of Upper Duncan Creek, on August 8, 2022. This lease is in good standing until August 19, 2023.

### Resistivity Surveys

#### *Introduction*

Three resistivity lines totalling 900 line-metres were surveyed and interpreted by William LeBarge of Geoplacer Exploration Ltd. The surveys were conducted between May 5, 2022 and September 1, 2022. Field assistance was provided by Don Duncan and Troy Taylor.

#### *Methodology*

The Lippmann 4-Point Light Resistivity System was used to conduct the survey. The resistivity technique injects an electrical current into the subsurface through stainless steel spikes and then measures the remaining voltage at various distances away from the injection point. Ground materials have different resistances to the current, and give data points in a cross section of the subsurface. With the data points, a tomogram or pseudo section can be created representing changes of resistivity in the ground. Data was collected using Geotest software, while the inversion and data filtering was completed with RES2DINV software. Data points with poor contact resistance were exterminated and noisy data was filtered statistically with root mean squared data trimming. Two-dimensional tomograms were produced using least squares damped inversion parameters to display the resistivity properties and to display potential contacts.

The two-dimensional images were used for preliminary interpretations of bedrock structure. The images were interpreted by William LeBarge.

General principles and assumptions of electrical resistivity are:

1. Low resistivity can indicate thawed and water saturated areas, as well as fine-grained material.
2. Very high resistivity values can be due to ice rich material and frozen or highly disturbed ground.
3. Dry gravels, cobbles and boulders generally have high resistivity values.
4. The contrasts between values is more important in determining contacts than the absolute values found with resistivity data.

#### *Limitations and Disclaimer*

The interpreted sections provide an estimate of the conditions beneath the surface to the depths conducted and are within the accuracy of the system and methods. The data becomes more uncertain with depth and are more accurate toward the surface and is further complicated if there is permafrost present in the region. The materials are interpreted based upon local geology observed, as well as geologic knowledge of the area. Certain materials may be similar in composition and result in uncertain results. The accuracy of the information presented is not guaranteed and all mine development is the client's responsibility. William LeBarge of Geoplacer Exploration Ltd. accepts no liability for any use or application of these data by any and all authorized or unauthorized parties.

## Results

The resistivity survey conducted at the beginning of May (RES22-NITE-01) encountered very poor ground conditions including snow, ice, running water from melting ice, and remnant winter frost. These highly variable surface conditions resulted in a high statistical error in the survey, which we were not able to completely remove through processing. However, the data is useable to some extent, although with an appropriate level of caution.

The two surveys completed later in the summer provided reasonable quality data. It must be noted, however, that in all the surveys, boundaries between low, moderate and high resistivity values may be partially a reflection of varying groundwater and frost conditions, rather than strictly lithological boundaries.

The geographic coordinates of the endpoints of the surveyed lines are shown in Table 3. The interpreted profiles are shown as Figures 6 to 8, and the lines are plotted on Figure 9.

Table 3 – 2022 resistivity survey line endpoint coordinates, grant number and length, Upper Duncan Creek Lease IM00482.

Survey Name	Grant Number	Start Point		End Point		Length (m)	Date Surveyed
		Latitude	Longitude	Latitude	Longitude		
RES22-NITE-01	P 42915	63.885324	-135.364195	63.883476	-135.357767	400	May 5, 2022
RES22-UPPER DUNCAN-01	IM00482	63.883906	-135.310185	63.883883	-135.316284	300	Aug 31, 2022
RES22-BRUCES1-01	P 42626	63.89344	-135.348592	63.893618	-135.351847	200	Sept 1, 2022

Resistivity profile RES22-NITE-01 was surveyed from west to east on Duncan Creek, downstream of the confluence with Lightning Creek. Figure 6 shows that the profile is interpreted as 5 to 10 metres of dry and water saturated gravel, overlying a layer of sand and silt on top of a quartzite bedrock which may be faulted. Bedrock is interpreted to be 10 to 18 metres from surface.

Resistivity line RES22-BRUCES1-01 was surveyed on Lightning Creek just upstream of its confluence with Duncan Creek. Figure 7 shows that the profile is interpreted to have 5 to 10 metres of variably wet to dry gravel, sand and silt overlying a quartzite and graphitic schist bedrock. Bedrock is interpreted to be 10 to 12 metres from surface. The graphitic schist causes wide variations in conductivity which obscures the bedrock contact.

Resistivity line RES22-UPPER DUNCAN-01 was surveyed on the north slope (right limit) of Upper Duncan Creek, from east to west. In the field, rounded boulders were noted at the surface along the survey line, along with fine sediments of silt and sand. Figure 8 shows that subsurface units are interpreted as 5 to 10 metres of variably wet to dry gravel, sand and silt overlying a quartzite bedrock which is structurally disrupted by faulting. Bedrock is interpreted as between 10 and 12 metres from surface.

A total of 9 drill targets were chosen on the 2022 resistivity survey lines. These are given in Table 4.

W

RES22-NITE-01 dd modified \* non-conventional or general array

E

### View looking upstream

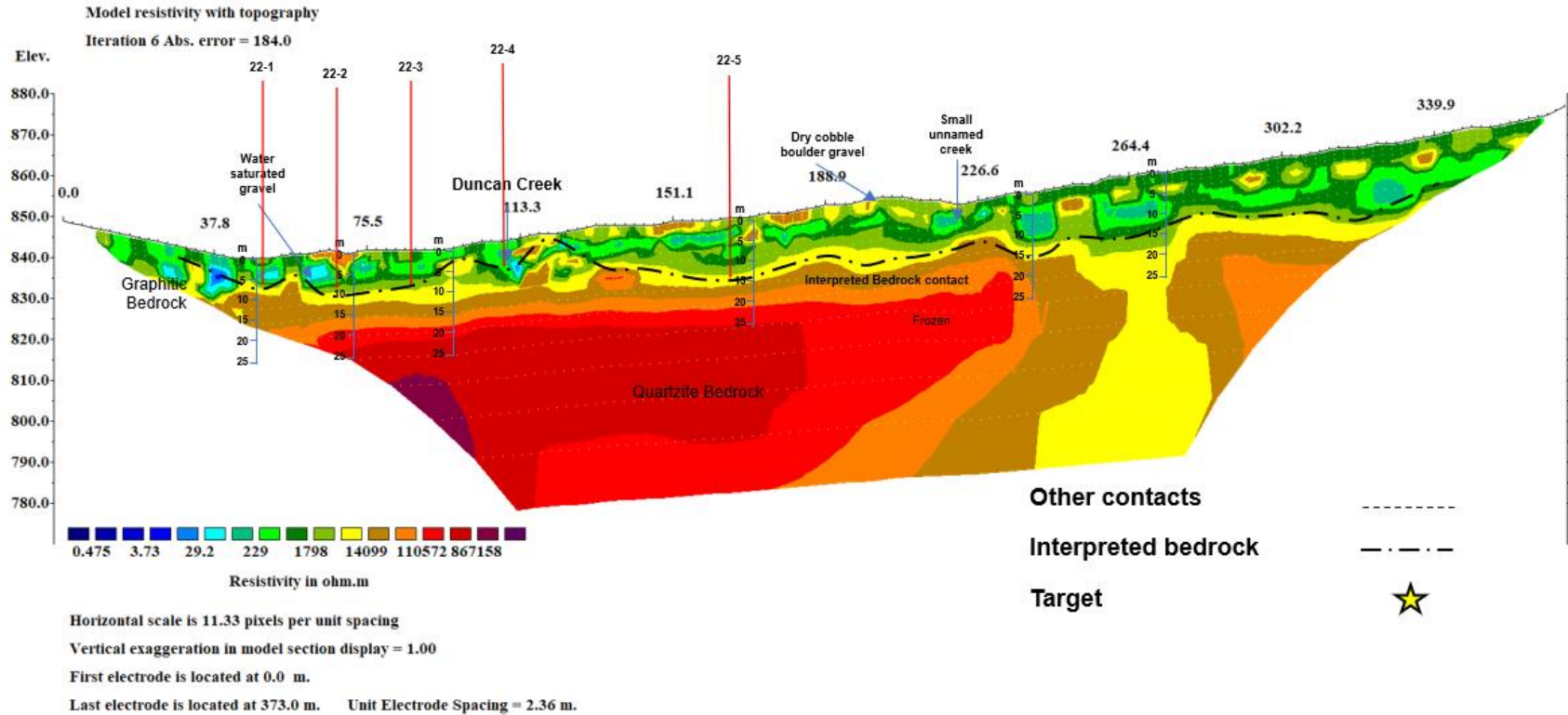


Figure 6 – Resistivity profile RES22-NITE-01 was surveyed downstream of the confluence with Lightning Creek. The profile is interpreted to show 5 to 10 metres of dry and water saturated gravel, overlying a layer of sand and silt on top of a quartzite bedrock which may be faulted. Bedrock is interpreted to be 10 to 18 metres from surface. Five drill targets have been chosen on the profile.

**E**

RES22-BRUCES1-01 schlum \* non-conventional or general array

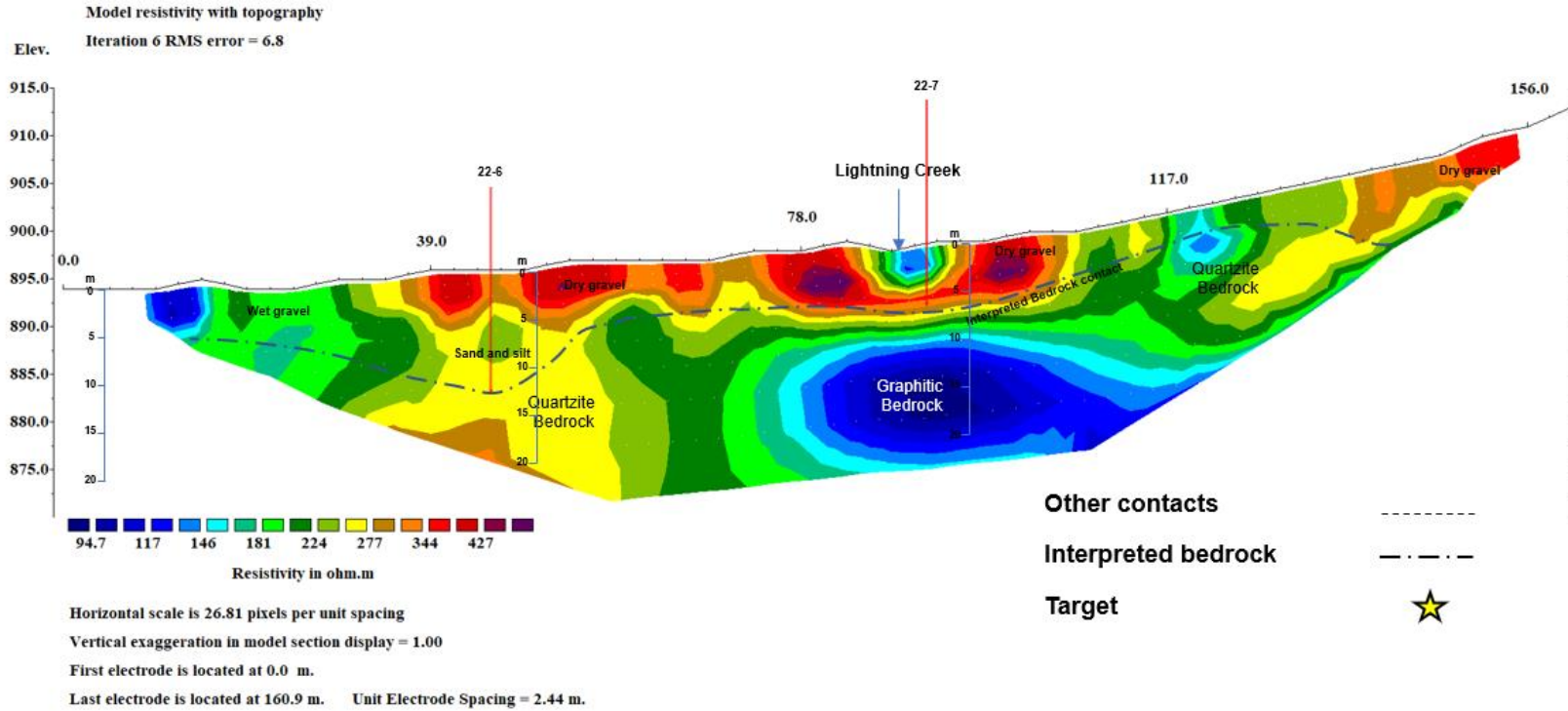
**W****View looking downstream**

Figure 7 – Resistivity line RES22-BRUCES1-01 was surveyed on Lightning Creek just upstream of its confluence with Duncan Creek. The profile is interpreted to show 5 to 10 metres of variably wet to dry gravel, sand and silt overlying a quartzite and graphitic schist bedrock. Bedrock is interpreted to be 10 to 12 metres from surface. The graphitic schist causes wide variations in conductivity which obscures the bedrock contact. Two drill targets are shown.

E

RES22-UPPER DUNCAN-01 dd \* non-conventional or general array

W

### View looking south

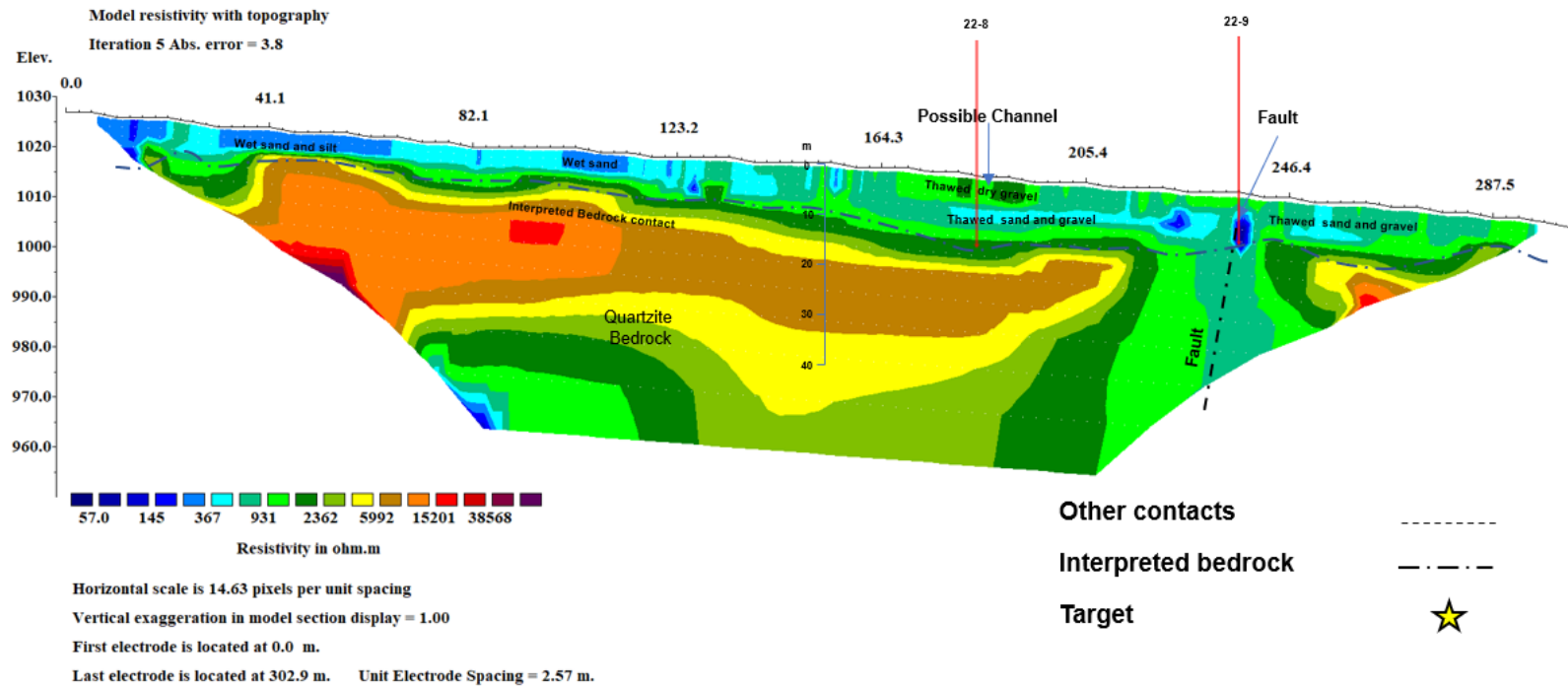


Figure 8 – View looking south at resistivity line RES22-UPPER DUNCAN-01 on Upper Duncan Creek. The profile is interpreted to show 5 to 10 metres of thawed, variably wet to dry gravel, sand and silt overlying a quartzite bedrock which is structurally disrupted by faulting. Bedrock lies 10 to 12 metres from surface. Two drill targets are shown.

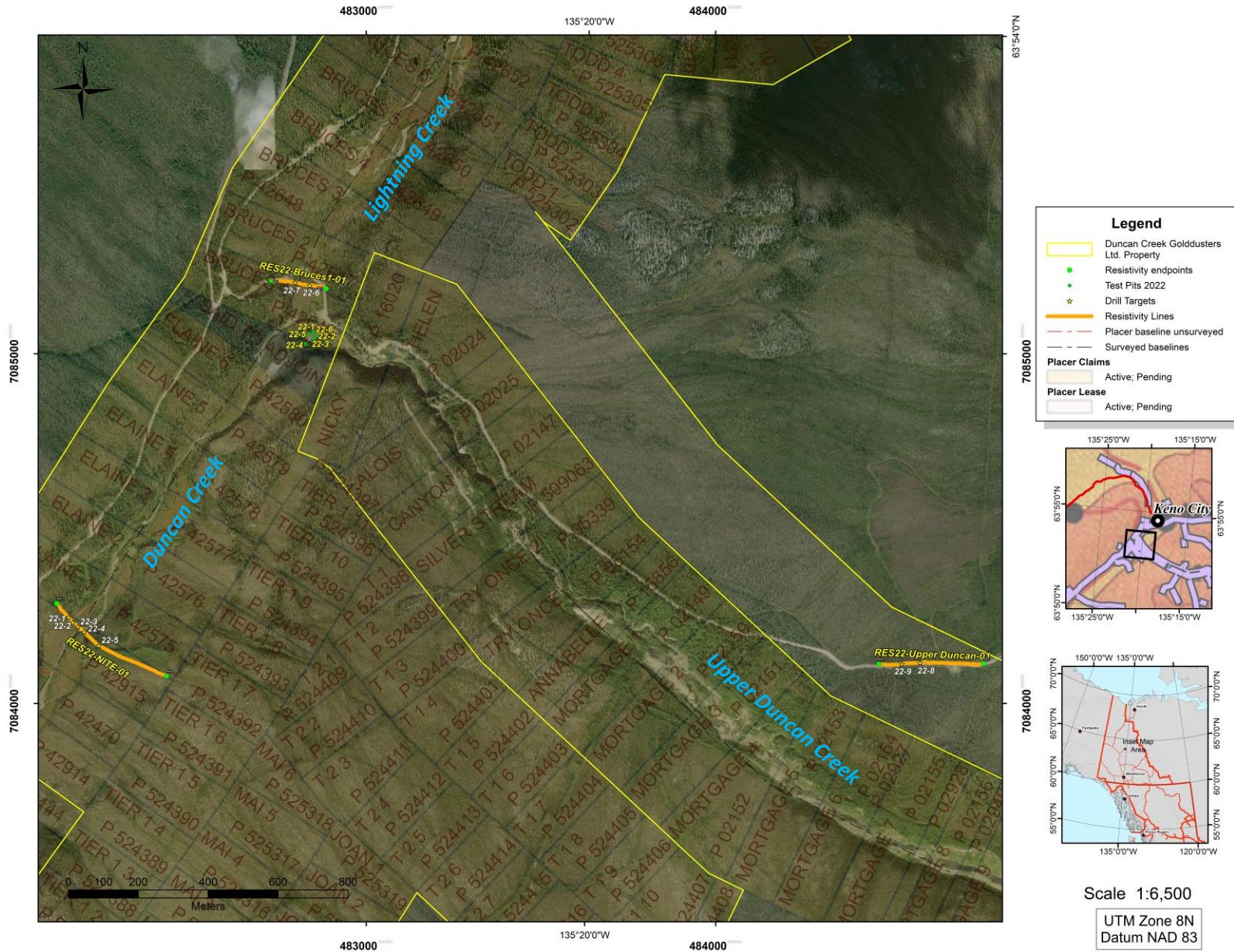


Figure 9 – Satellite photo of Lightning Creek and Upper Duncan Creek showing the location of the 2022 resistivity surveys, bulk samples and drill targets.

Table 4 - Drill Targets from 2022 Resistivity Surveys, Lightning/Duncan Creek.

Resistivity Line	Grant Number	Target Name	Latitude	Longitude	Depth of target (m)
RES22-NITE-01	P 42915	22-1	63.884967	-135.363473	7
RES22-NITE-01	P 42915	22-2	63.884834	-135.363225	7
RES22-NITE-01	P 42915	22-3	63.884729	-135.362935	10
RES22-NITE-01	P 42915	22-4	63.884596	-135.362569	7
RES22-NITE-01	P 42915	22-5	63.884244	-135.36171	15
RES22-BRUCES1-01	P 42646	22-6	63.893518	-135.34954	12
RES22-BRUCES1-01	P 42646	22-7	63.89359	-135.350392	7
RES22-UPPER DUNCAN-01	IM00482	22-8	63.883914	-135.313864	15
RES22-UPPER DUNCAN-01	IM00482	22-9	63.883885	-135.31492	10

## Bulk Sampling

As a result of the favourable depths indicated by the initial resistivity surveys, a decision was made to carry out a bulk sampling program in the area of the confluence of Lightning Creek and Duncan Creek. These are shown on Figure 9, and the test pit logs are contained in Appendix A.

The surface gravels were tested with a CAT 330DL excavator at depths from 0 to 12 feet (Figure 10). The first five bulk samples (22-1 to 22-5) were from creek gravels located on Bruces 1 claim. The gravels were water saturated when excavated, therefore, the wet gravel was stockpiled and allowed to drain. The gravel was identified with labels as to depth from surface and coarse gravel was stockpiled separately from fine grained material. The samples were collected from the stockpiles by hand with 20 litre buckets. The sample size was the same for each of the 5 samples and calculated by converting the volume in liters to cubic yards:  $20 \text{ litres}/764.6 = 0.0262 \text{ cubic yds/bucket} \times 5 \text{ buckets} = 0.131 \text{ cubic yards per sample}$ .

The buckets of sample were washed in a small trommel and long tom. A 2" Honda water pump supplied water to the trommel. Concentrates from the long tom were panned and the gold weight was recorded.

Due to the positive results of bulk samples (22-1 to 22-5), a much larger bulk sample (22-6) was excavated from the same area. The volume of this bulk sample is 1791 cubic yards and was calculated by measuring the dimensions of the test hole. Bulk sample 22-6 was processed using an oscillating screen deck and sluice runs. The gravels were stockpiled near the sluice plant and fed with a CAT 316 excavator (see Figure 11).

The placer gold values in the bulk sampling program ranged from 0.299 to 0.699 g/m<sup>3</sup> (0.007 to 0.017 oz/yd<sup>3</sup>) in the small (0.100 m<sup>3</sup>) samples, to 0.320 g/m<sup>3</sup> (0.008 oz/yd<sup>3</sup>) in the large (1369 m<sup>3</sup>) sample.

The bulk sample coordinates and details are given in Table 5.

Table 5 – Results of bulk samples, Lightning/Duncan Creek, 2022

Test Pit	Volume (m <sup>3</sup> )	Volume (yd <sup>3</sup> )	Gold weight (g)	Grade oz/yd <sup>3</sup>	Grade g/m <sup>3</sup>	Latitude	Longitude
22-1	0.100	0.131	0.03	0.0074	0.2995	63.892337	-135.349307
22-2	0.100	0.131	0.055	0.0135	0.5491	63.89223	-135.349122
22-3	0.100	0.131	0.05	0.0123	0.4992	63.892148	-135.349305
22-4	0.100	0.131	0.07	0.0172	0.6989	63.892022	-135.349771
22-5	0.100	0.131	0.06	0.0147	0.5991	63.892264	-135.349591
22-6	1369	1791	435	0.008	0.3180	63.892301	-135.349306



Figure 10 - The surface gravels were tested with a CAT 330DL excavator at depths from 0 to 12 feet. The first five bulk samples (22-1 to 22-5) were from creek gravels located on the Bruces 1 claim.



Figure 11 – Bulk sample 22-6 (1791 cubic yards) was processed from near-surface gravels near the confluence of Lightning and Upper Duncan Creeks, using an oscillating screen deck and sluice runs. The gravels were stockpiled near the sluice plant and fed with a CAT 316 excavator.

## Conclusions and Recommendations

The resistivity surveys provided Duncan Creek Golddusters Ltd. with encouraging results regarding overall depth to bedrock and the presence of distinct channels in the bedrock profiles. Previously, it was believed the depth to bedrock in this area was up to 30 metres (100 feet). However, the resistivity surveys which transected the Lightning/Duncan Creek valley appear to indicate maximum bedrock depths of 15 to 18 metres (50-60 feet).

The bulk sample program was successful in demonstrating economic placer gold values within the surface gravels in the valley, which ranged from 0.284 to 0.692 g/m<sup>3</sup> (0.007 to 0.017 oz/yd<sup>3</sup>) in the small (0.100 m<sup>3</sup>) samples, to 0.325 g/m<sup>3</sup> (0.008 oz/yd<sup>3</sup>) in the large (1369 m<sup>3</sup>) sample.

Further testing and larger bulk samples are recommended. The resistivity drill targets should be drilled using either a R/C (Reverse Circulation) or Sonic drill (6-inch or larger size), as auger drilling may be problematic in the boulder-rich and clay-rich terrain.

The locale of the initial large bulk sample should be extended and deepened, expanding into a full scale mining operation should results continue to be economic.

An ongoing exploration program which includes additional geophysical surveys in concert with targeted drilling and excavator test-pitting is recommended to determine the extent and grade of the placer gold deposit on the remainder of the property.

## Statement of Qualifications

### William LeBarge

I, William LeBarge, of 13 Tigereye Crescent, Whitehorse, Yukon, Canada, DO HEREBY CERTIFY THAT:

1. I am a Consulting Geologist with current address at 13 Tigereye Crescent, Whitehorse, Yukon, Canada, Y1A 6G6.
2. I am a graduate of the University of Alberta (B.Sc., 1985, Geology) and the University of Calgary (M.Sc., 1993, Geology – Sedimentology)
3. I am a Practicing Member in Good Standing (#37932) of the Association of Professional Engineers and Geoscientists of British Columbia (APEGBC).
4. I have practiced my Profession as a Geologist continuously since 1985.
5. I am President and sole shareholder of Geoplacer Exploration Ltd., a Yukon Registered Company.

Dated this 17<sup>th</sup> day of January, 2023

William LeBarge, P. Geo.

A handwritten signature in blue ink that reads "William LeBarge". The signature is written in a cursive, flowing style.

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**Duncan/Lightning Creek**

**Test Hole Log**

Claim Name: Bruces 1  
 Sample Name: 22-4  
 Date: Sept. 6, 2022

NAD 1983 UTM Zone 8N  
 Location: 482826 7085029  
 Date processed: Sept. 7-8, 2022  
 Processed by: Troy and Frank Taylor

From (ft)	To (ft)	Sample Volume (yd3)	Sample Volume (m3)	Gold Weight (mg)	Gold Weight (Toz)	Grade oz/yd3	Grade g/m3	Lithology Description
0	3							sand, pebbles
3	5							black organics, silt, sand
5	14	0.131	0.100157	70	0.002251	0.0172	0.6989	cobble, boulders, sand (rocks are well rounded), water at 6'
14	16							silt, sand unit with some cobble and boulders



