

# NI-43-101 TECHNICAL REPORT

## LIARD FLUORSPAR

Liard Mining Division, North Central British Columbia

NTS 094M/09

Approximate Geographic Coordinates:

126°05' W 59°32' N

NTS NAD 83 9V E664820 N6603835 (epicentre)



For: Ares Strategic Mining Inc.

Author: Toby Hughes, P. Geo.

Effective Date: 18-02-2022

**Date and Signature Page**

**NI 43-101 Technical Report, Liard Fluorspar Project, British Columbia,  
Canada.**

**Effective Date: 18<sup>th</sup> February, 2022**

A handwritten signature in black ink, appearing to read 'T. Hughes', written over a horizontal line.

Toby N.J. Hughes, P. Geo.

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## SUMMARY

At the request of Ares Strategic Mining Inc., hereafter ‘Ares’, T. Hughes, P. Geo, a professional geologist and President of Antediluvial Consulting Inc. of Vancouver, B.C., was commissioned to review the geology, mineralisation and mineral potential of the Liard Fluorspar Property, (hereafter, LFP’), adjacent and nearby properties. The report covers regional and local geology, mineralisation, exploration history, identifying its merits, proposes an appropriate exploration programme for fluorite exploration and development on the property. Verification of ownership and legal title was not undertaken.

Information in this report was in part provided by Ares, with additional information covering geological, historical, regional, environmental and infrastructure sourced by the author.

T. Hughes visited the property with R. Sanabria, Vice-President Exploration, Ares Strategic Mining, on the 1<sup>st</sup> September 2021, had access to, and personally collected and examined the samples, confirming the geology and mineralisation. Locations were measured by the author using a handheld Garmin GPS. Several of the historic showings were accessed by helicopter. A total of seven grab samples of fluorspar-mineralised rock were taken from two historic showings, Tam and Strap. The samples were sent to SGS laboratories for analysis to verify historic sampling.

The LFP, totalling 22,588 hectares (‘ha.’), is located in northern British Columbia, in the Northern Rockies Regional Municipality, 214 km from Fort Nelson airport. Access to the Property from Fort Nelson is possible via the Alaska Highway (No. 97) travelling west then north-west for 309 kilometres, turning off some five kilometres west of the Liard River bridge onto an un-marked, maintained gravel trail heading north to a regional communications tower at the top of the ridge. The most efficient access is by helicopter, from Fort Nelson, BC or Watson Lake, YT.

The project claims are currently 100% held by Ares.

The Liard fluorspar showings lie within the Liard Plateau, a portion of the Foreland Belt of the Canadian Cordillera, which is an easterly verging zone of shallow thrust faulting and décollement folding involving supracrustal rocks that were originally deposited on the western North American continental margin (Price, 1981). Physiographically, they occur in the southernmost extension of the Mackenzie Mountains.

The LFP area is underlain by Middle Devonian Dunedin Formation fossiliferous limestones and Middle-Upper Devonian to early Mississippian Besa River Formation shales. The majority of fluorite mineralisation lies within or proximal to the contact of these two formations, which is characterised by an unconformity, and/or (structural) disconformity. Fluorite is medium to coarse grained, prismatic, transparent to pale mauve to bright purple to dark grey, typically finer material, and occurs as brecciated or fracture infill or replacement in limestone or shale, though the former appears to contain higher concentrations. Finer, darker fluorite is often hosted within a strongly fractured or brecciated shale, mudstone and partially organic-rich host. Associated mineralisation is witherite, calcite, barytocalcite, barite and very sparse silica.

A number of historic grade and tonnage estimates exist for the Liard Fluorspar deposits, but none of these are NI-43-101 compliant. Two resource estimates were a 1975 report by Wright Engineers Ltd. and H.N. Halvorson Consultants Ltd. which stated "...reserves of 3,500,000 tons of ore grading 32% CaF<sub>2</sub> are estimated" and the second, published in the 1981 Conwest Exploration Co. Ltd. Annual Report, stating" ....geological reserves of about 2.6 million tons of fluorspar mineralisation averaging 30% fluorite in several deposits."

Due to the historic nature of the work, uncertainties over the method of resource and grade calculation on one or several of the historic showings, (possibly including those that are not within the LFP but included in calculations), the poor condition of drill core, and to date, inability to locate drill collars, completing a compliant mineral resource will require the implementation of a (new) comprehensive drill programme.

Such a programme would be predicated on the results from re-examination of all historic showings, detail geological mapping and systematic sampling thereon. Geophysical surveying by resistivity or IP would be beneficial in locating subsurface mineralisation and delineating potentially favourable faulting.

The fall LiDAR/('Light detection and ranging')/DEM ('Digital Elevation Model') survey which covered the entire property, was implemented and completed after the author's property visit. It covered the entire property and provides detailed information on historic showings and faulting and is an effective tool for locating overgrown showings and workings and structural features.

# **1 INTRODUCTION**

## **1.1 Issuer**

This 43-101F Technical Report has been prepared by T. Hughes, (Antediluvial Consulting Inc.), independent Qualified Person, at the request of Ares Strategic Mining, a company registered in British Columbia, Canada, address 1001 – 409 Granville St., Vancouver, B.C., V6C 1T2.

## **1.2 Terms of Reference**

At the request of Ares, the author was retained for the purposes of preparing a Technical Report on the Liard Fluorspar Property, Liard Hot Springs area. Northern British Columbia. The report's scope covers a compilation and review of previous work carried out on the property with associated results, and includes information from other parties. Also, the project setting, geology, and historical exploration are presented, with interpretations, conclusions and recommendations for future work. This report conforms to guidelines of Canadian National Instrument ("NI 43-101"), and to Form 43-101F.

### **1.2.1 Purpose**

To compile and compose an updated NI 43-101 compliant report for the purposes of presenting the project to investors and the relevant government agencies, to assist with raising financing to conduct exploration and ascertain economic viability, and to progress the project towards an operationally producing entity.

## **1.3 Source of Info**

Technical information within the report is current to the 4<sup>th</sup> February, 2022.

Antediluvial Consulting Inc. has conducted this technical assessment in accordance with the methodology and format outlined in National Instrument 43-101, companion policy NI 43-101CP and Form 43-101F1. The information, conclusions and recommendations contained herein are based largely on a review of digital and hard copy data from various government, industry and research ('third party') sources, from Ares company files, and from a site visit on the 1<sup>st</sup> September, 2021.

## **1.4 QP Details**

T. Hughes, author of this report, is an Independent Qualified Person, and is a member in good standing of an appropriate professional institution.



## **2 RELIANCE ON OTHER EXPERTS**

The author has not independently verified ownership or mineral title beyond information that was obtained directly from the BC Mineral Title Online website. The Property description presented in this Report is not intended to represent a legal or any other opinion as to title or current ownership.

### 3 PROPERTY DESCRIPTION AND LOCATION

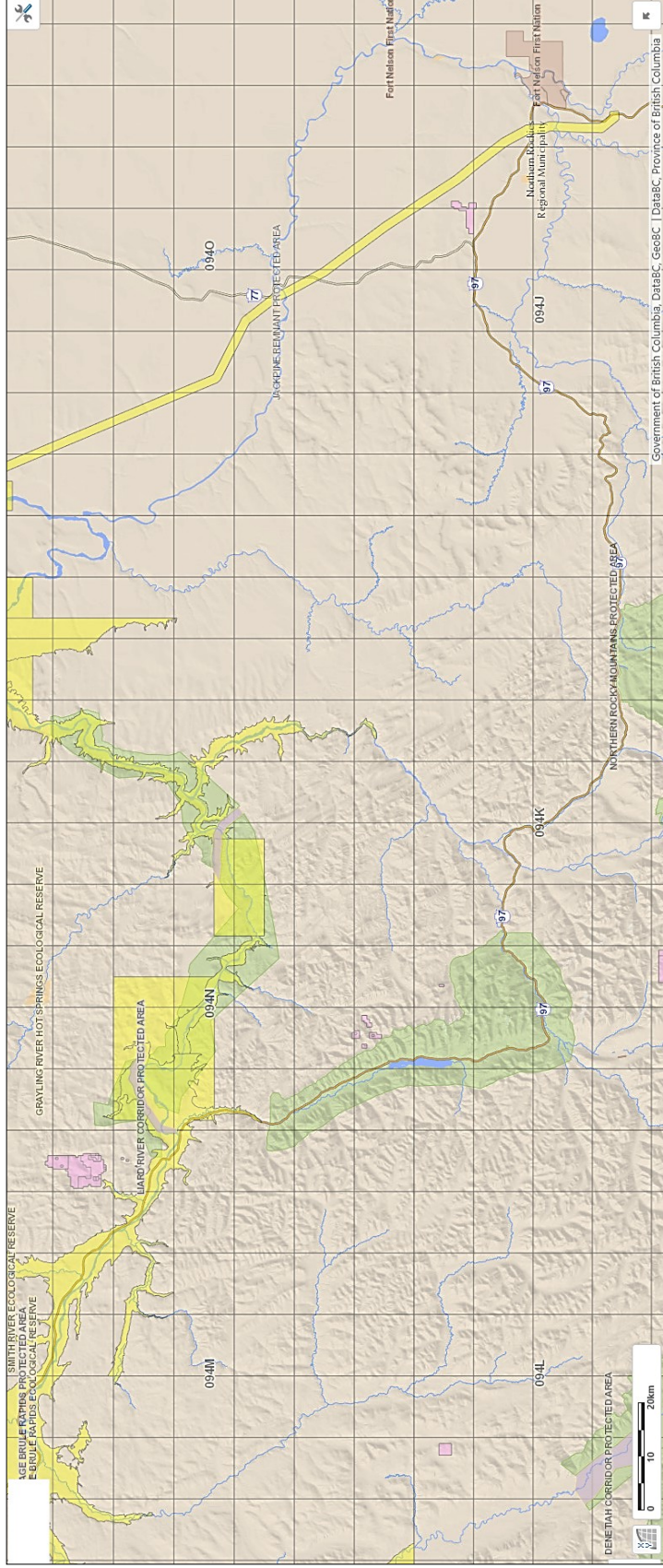
The Liard Fluorspar Project is located in the north-central portion of British Columbia (Figure 31), centred at approximately longitude 126°07' W and latitude 59°33' N, on NTS map sheet 094M/09. The centre of the project area is approximately 15 km north of the Liard Hot Springs Provincial Park, at Mile 497 on the Alaska Highway (Highway 97), approximately 200 kilometres northwest of Fort Nelson, British Columbia, and approximately 160 kilometres southeast of Watson Lake, Yukon. Known showings extend from approximately 59° 30.9' to 59° 35.7'N, and 126° 5.1' to 126° 9.5' W.

The Liard Fluorspar Project consists of 18 mineral claims, totalling 4,825 hectares. All of the mineral tenures are in the name of Ares Strategic Mining Inc. Details of each mineral tenure are summarized in Table 31, and plotted on Figures 33 and 3-4.

According to the Mineral Titles Online system, the mineral claims are all in good standing, with the first group of claims requiring renewal before March 18, 2022.

Figure 31 - Location Map, Liard Fluorspar Project





*Figure 32 - Regional Location with claims*

Liard Fluorspar property shown as contiguous pink block in the north-west

Table 331 - Mineral Tenure, Liard Fluorspar Project

Title Number	Claim Name	Owner	Title Type	Title Sub Type	Map Number	Issue Date	Good To Date	Status	Area (ha)
1059353	TAM	285034 (100%)	Mineral	Claim	094M	2018/MAR/16	2022/SEP/30	GOOD	16.4171
1067349	TAMASS RPT 3975	285034 (100%)	Mineral	Claim	094M	2019/MAR/20	2022/MAR/17	GOOD	32.828
1070990	LIARD FLUORSPAR BLOCK 1	285034 (100%)	Mineral	Claim	094M	2019/SEP/11	2022/MAR/18	GOOD	65.6624
1072778	LIARD FLUORSPAR BLOCK 2	285034 (100%)	Mineral	Claim	094M	2019/NOV/17	2022/NOV/17	GOOD	32.8389
1075294	LIARD FLUORSPAR BLOCK 3	285034 (100%)	Mineral	Claim	094M	2020/MAR/18	2022/MAR/18	GOOD	16.3857
1075304		285034 (100%)	Mineral	Claim	094M	2020/MAR/18	2022/MAR/18	GOOD	32.8349
1075309		285034 (100%)	Mineral	Claim	094M	2020/MAR/18	2022/MAR/18	GOOD	16.4235
1075317		285034 (100%)	Mineral	Claim	094M	2020/MAR/18	2022/MAR/18	GOOD	16.3896
1075376		285034 (100%)	Mineral	Claim	094N	2020/MAR/21	2022/MAR/21	GOOD	16.3248
1075377		285034 (100%)	Mineral	Claim	094N	2020/MAR/21	2022/MAR/21	GOOD	16.3306
1075378		285034 (100%)	Mineral	Claim	094N	2020/MAR/21	2022/MAR/21	GOOD	16.3455
1075583		285034 (100%)	Mineral	Claim	094M	2020/APR/03	2022/APR/03	GOOD	16.4234
1075584		285034 (100%)	Mineral	Claim	094M	2020/APR/03	2022/APR/03	GOOD	147.7402
1075585		285034 (100%)	Mineral	Claim	094M	2020/APR/03	2022/APR/03	GOOD	32.8308
1075720	SNOW	285034 (100%)	Mineral	Claim	094N	2020/APR/14	2022/APR/14	GOOD	216.2537
1083188	LIARD FLUORSPAR BLOCK 1	285034 (100%)	Mineral	Claim	094M	2021/JUN/29	2022/JUN/29	GOOD	1641.2751
1083190	LIARD BLOCK 2	285034 (100%)	Mineral	Claim	094M	2021/JUN/29	2022/JUN/29	GOOD	884.8628
1083192	LIARD BLOCK 3	285034 (100%)	Mineral	Claim	094M	2021/JUN/29	2022/JUN/29	GOOD	1607.3271

Total area: 4,825 hectares

Checked Mineral Titles Online on 17.1.22 by the author

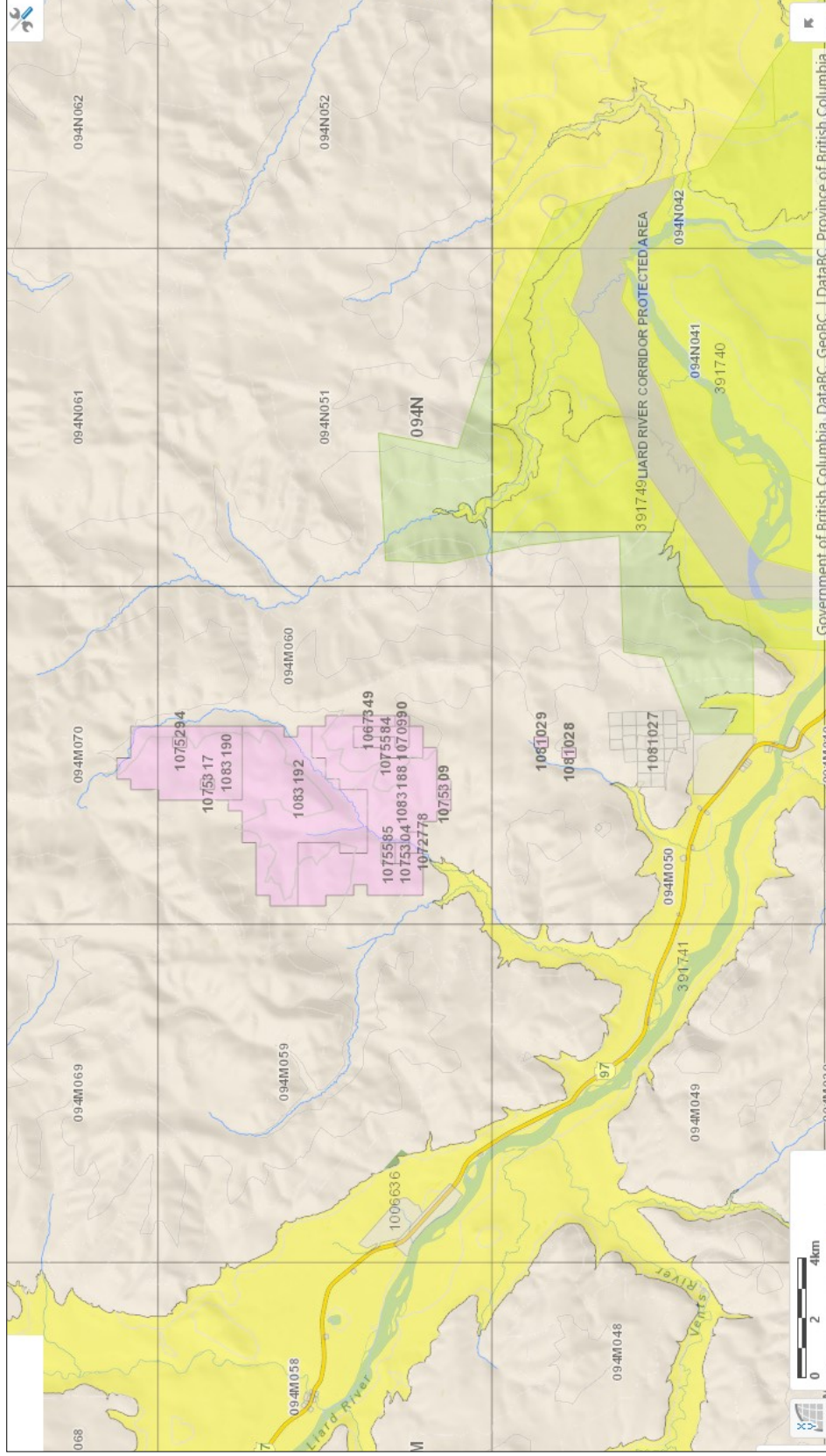
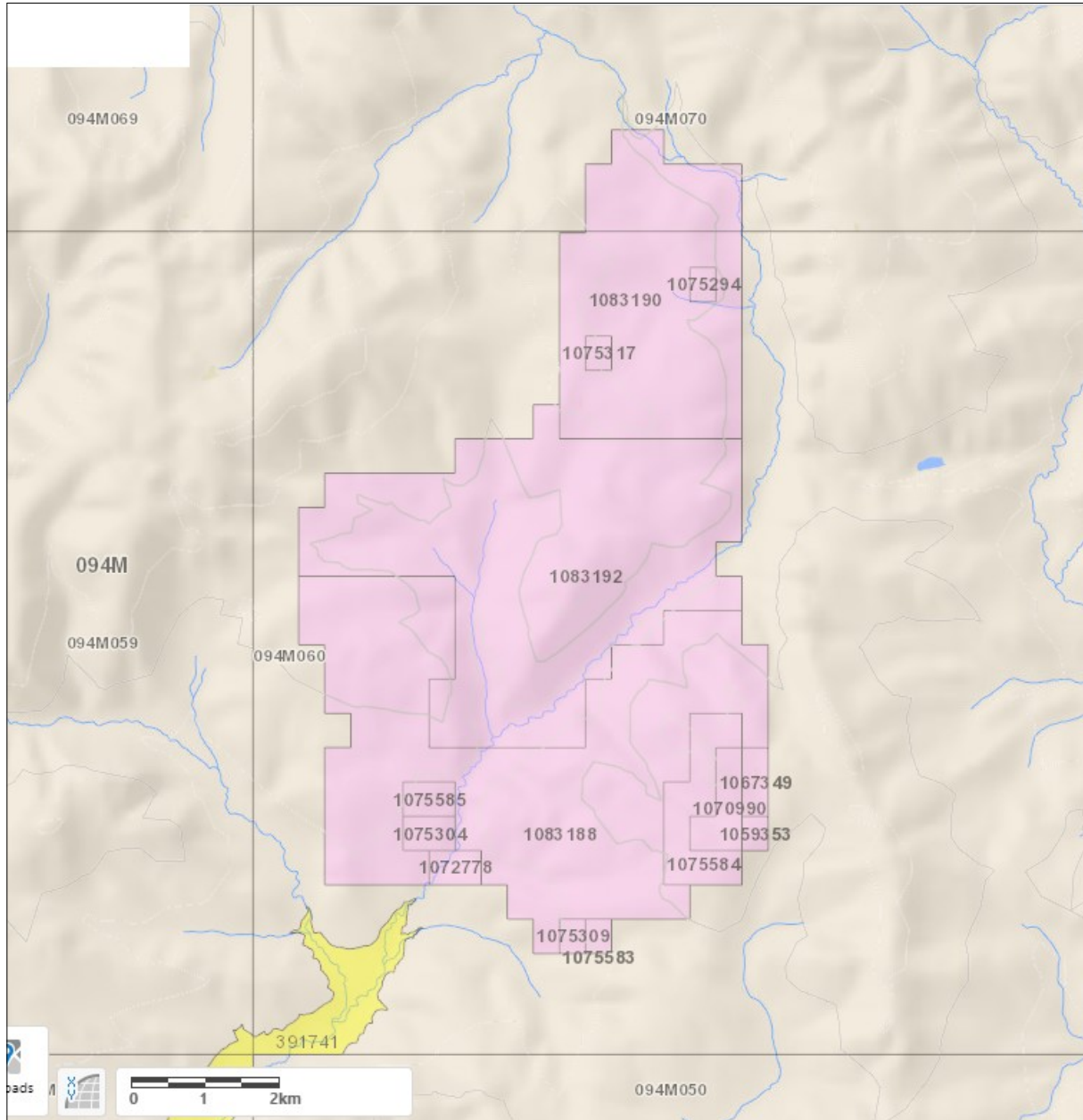


Figure 33 - Liard Fluorspar Property Claims

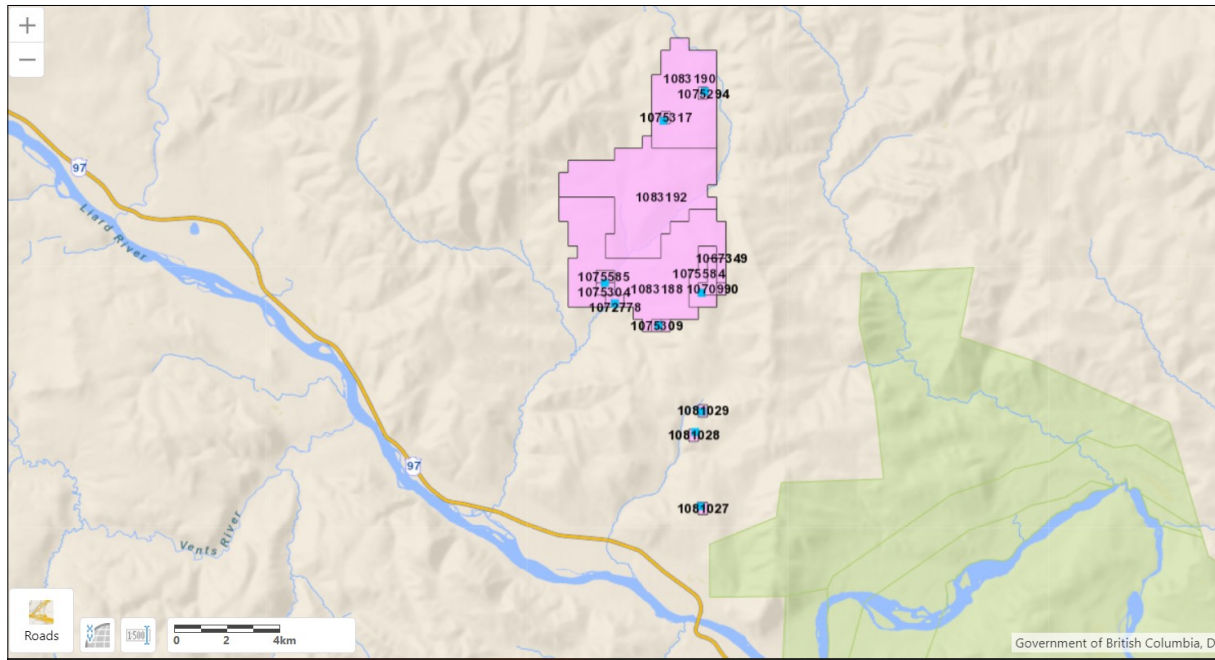
Shown as contiguous pink block. From BC Mineral Titles Online 17.1.22

Figure 34 - Claims Map, Liard Fluorspar Project



Map of Liard Fluorspar Property, from BC Mineral Titles Online, 17.1.22

Figure 35 - Liard Fluorspar Project with Occurrences



Data from iMapBC. Project area covered by the contiguous claims block

## **4 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE AND PHYSIOGRAPHY**

The LFP is located in the south of the Liard Plateau physiographic zone and north of the Rocky Mountain Foothills physiographic zone. It is approximately 210 kilometres direct, north-west from Fort Nelson airport, British Columbia, and approximately 160 kilometres south-east of Watson Lake, Yukon. The Property is located on NTS map sheet 94M/09.

Access to the Property from Fort Nelson is afforded via the Alaska Highway (No. 97) travelling west then north-west for 309 kilometres, turning off some five kilometres west of the Liard River bridge onto an un-marked, maintained gravel trail heading north to a regional communications tower at the top of the ridge.

Just before the tower, there is a trail heading north for at least 12 kilometres to several historic showings and the old exploration camp, near the Coral showing (see 'History'). Whilst much of the road network is visible from the air, it is partially overgrown, with timber fall, with small sections providing limited all-terrain vehicle access. Full access can be relatively easily achieved through brush work and minor chainsaw work.

Topography is uneven with locally, significant changes in slope and gradient. Overall, elevation varies from about approximately 430 metres above sea level at the Liard River, and 441 metres above sea level at the nearby Hot Springs, to 1,530 metres at the peak of Mount Halkett, less than three kilometres west of the Property. Bedrock exposures on and near the Property are typically found along steeper valleys near the top of hills, and in some instances form scarp faces, cliffs and canyons. With much of the property underlain by limestone, there are multiple karst-related features in the area and regionally.

Natural vegetation comprises white spruce and lodgepole pine with remnant stands of mature growth in a few areas. The majority of the property has been burned over, particularly in the late 1970's, resulting in expansive second growth pine and aspen.

The following meteorological information can be obtained from:  
[https://www.timeanddate.com/weather/@6053515/climate:](https://www.timeanddate.com/weather/@6053515/climate)

Hottest Month July (17 °C avg)

Coldest Month January (-23 °C avg)

Wettest Month July (86.0 mm avg)

Windiest Month May (5 km/h avg)

Annual precipitation 478.3 mm (per year)



The nearest major settlement is Fort Nelson some 305 km to the east south-east, along Hwy 97. With a small population of ca. 3,600, and limited industry and services due largely to oil and gas downturns, the main source for technical personnel and equipment is Fort St. John, nearly 390 km. south of Fort Nelson. With about 25,000 residents, it is the hub for oil and gas exploration in northern BC and southern NT.

There are a few small hamlets and lodges/outposts between Fort Nelson and Watson Lake, YT but services are very limited and seasonal. The vast majority of goods transported between Alaska, and the contiguous US states uses Hwy 97 for shipment.

A planned rail route linking Alberta and Alaska, (Fort MacMurray to Delta Junction and Valdez) has yet to receive any significant approvals. The line would pass through Watson Lake, east along the YT/NT – BC border and south-east to Fort MacMurray, essentially by-passing the Liard River region. (See <https://a2arail.com/resources/>). In July of last year, the A2A project was in receivership. Assets were frozen and new investment is being actively sought.

## 5 HISTORY

### 5.1 Exploration History

Fluorspar mineral showings were first discovered in the Liard River area in 1953 by prospectors in search of uranium mineralisation (Holland, 1955). They identified fluorite, witherite and barite in several places along the gently dipping unconformity between shales of what were then referred to as the Upper Devonian Fort Creek Formation (now called Besa River Formation) and limestones of the Middle Devonian Ramparts Formation (now called Dunedin Formation). These became the Gem showings, which are the most southerly occurrences in the area, approximately three km north of Liard Hot Springs and seven km south of the Ares LFP. In 1954, Conwest Exploration Company Limited (“Conwest”) bulldozed a road from Mile 498 on the Alaska Highway to the Gem showings, stripped the known exposures and collected and shipped a ~3.5 tonne (4 ton) bulk sample to Ottawa for metallurgical testing. Several new showings were found in the course of surveying and geological mapping on the property (Holland, 1955, Woodcock and Smitheringale, 1955).

No further work is recorded in the area until the early 1970s. In July of 1971, regional prospecting by a four-man helicopter supported crew resulted in the discovery of additional fluorspar occurrences and in September 1971 claims were staked, an access road was built, and additional showings discovered. In total, 10 additional fluorspar mineral showings were found to the north of Gem: Henry, Bar, Fire, Cliff, Coral, Camp, Nick, Tam, Strap and Tee (Woodcock, 1972a, 1972b). Henry and Bar are south of the Liard Fluorspar project, the other eight showings are on the property. Tee, the most northerly showing, is approximately 16 km north of the Gem showing, and 19 km north of the Alaska Highway (Figure 61). In 1971, many of the prospects and some general geology were briefly mapped and in September of that year, bulldozer trenching was completed at the Tam, Camp, Coral and Fire prospects and 576.4 m of BQ drilling was completed, comprising 492.9 m at Tam and the remainder on the Cliff prospect. In early 1972, a new company, Liard Fluorspar Mines Ltd. was formed to acquire the claims staked in 1971. They also acquired the Gem prospect from Conwest. In the summer of 1972, more geological mapping and diamond drilling were completed (Woodcock, 1972b). Detailed maps of the prospects from this work, show the location of surface outcrops, drill holes, trenches and access trails.

Historic work is summarized overleaf in Table 51

Table 51 – Historic Work on the Liard Area Fluorite Showings

Showing	Drilling, # of holes			Other Work	
	1971	1972	Total	Trenching	Grab sampling
Gem		17	17	Yes	
Camp				Yes	
Cliff	2	2	4		
Coral		12	12	Yes	
Fire		18	18	Yes	
Nick				Yes	
Strap					Yes
Tam	12	10	22	Yes	
Tee		3	3		

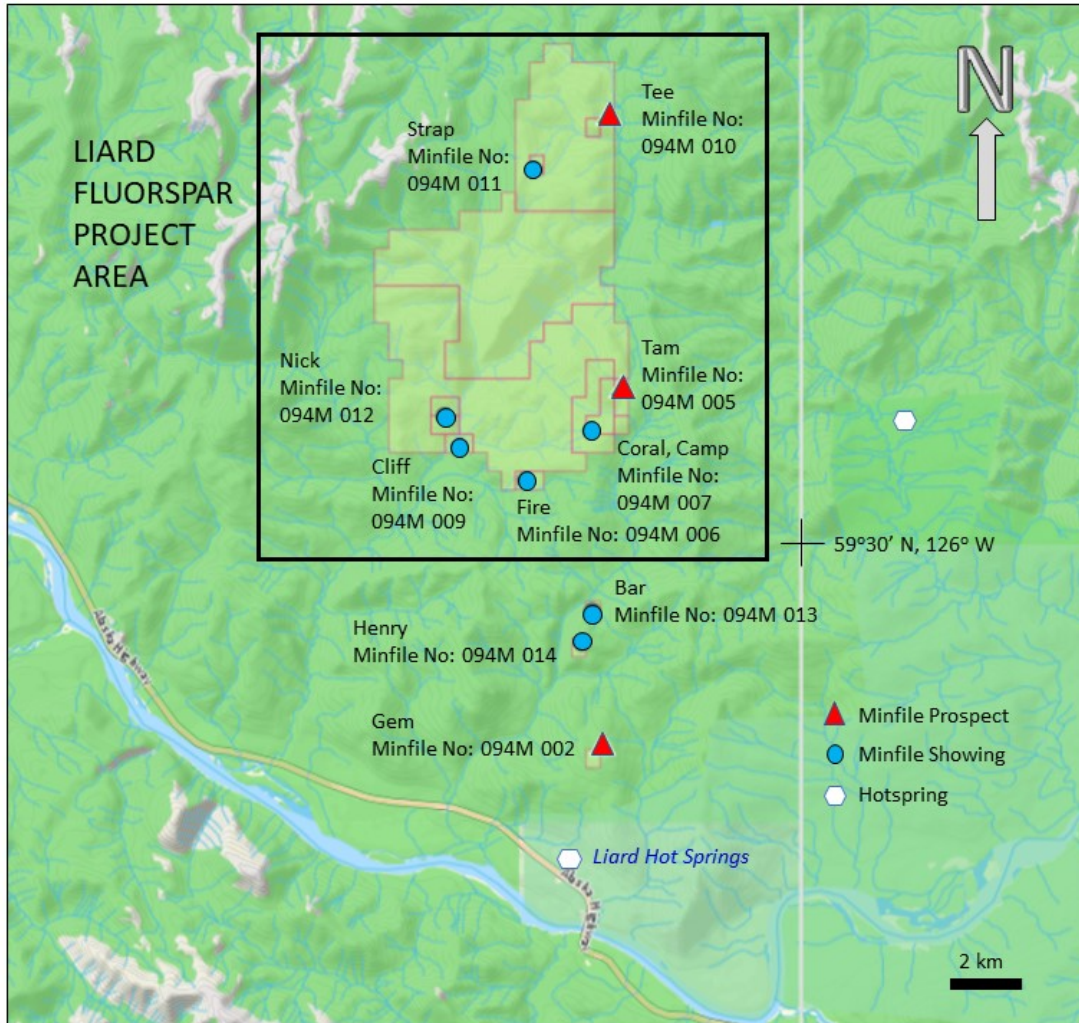
From information in Woodcock, 1972b. The GEM showing is not in the Liard Fluorspar project area.

Table 552 - Summary of Historic Work from McCallum 2013

Showing	Drill holes			1971-1972 Bulk Sample	
	1971	1972	Total		
GEM A	-	4	4		
GEM E	-	15	15		
CLIFF	2	2	4		Current Liard Fluorspar Property
CORAL	-	12	12	2	
FIRE	-	18	18	2	
TAM	12	11	23	6	
TEE	-	3	3		
CAMP	-	-	-		
TOTALS	14	65	79	10	

McCallum’s revised figures for work including bulk samples. With loss of some drill data, totals could not be verified by the Independent Qualified Person.

Figure 51 - Fluorspar showing in the Liard River area discovered in 1953 and 1971



Source: BC Minfiles

The drill core from 1971 and 1972 was stored at the camp site set up to complete this work; however, the core racks have collapsed and no markings are visible on the boxes, so it cannot be used for any verification work (Figures 52 & 5-3, below).

In 1986, the fluorspar showings were re-staked as the Thor property (Pell, 1992), but there is no record of exploration work being done at that time. In 1988, the Tam, Tee and Gem showings were visited as part of a province-wide fluorspar survey conducted by the provincial government and grab samples collected for geochemical analyses (Table 52) (Pell, 1992; Pell and Fontaine, 1988). Regional water and stream sediment samples were also collected as part of this study.

In 2012, Prima Fluorspar Corporation who had acquired the property, conducted a brief reconnaissance helicopter-supported exploration programme (McCallum, 2013). The Coral, Fire, Tam and Tee showings were visited, and 15 grab samples collected for whole-rock geochemistry (Table 62).

As part of this programme, they attempted to verify historic work and reported (McCallum, 2013):

*“The historic drill core was badly degraded and cannot be re-logged or re-sampled. Some of the historic trails were in reasonably good shape, and much of them can be refurbished without much effort. Only a few of the historic drill collars were re-located, due to the amount of vegetation grown over the clearings. The exact location of the historic channel samples could not be located, but many of the cleared outcrops where they were collected remain clear.”*

*Figure 52 - Drill core from 1970 and 1971, as seen in 2021.*



*Top: General view of the state of the cores drilled in 1970 & 1971.*

*Figure 53 - Close-up of drill core – as seen 2021*

Labels and markings are either lost or illegible



Table 553 - Historical Whole-rock Geochemical Sampling Results (Selected Oxides)

Sample	SiO <sub>2</sub>	Fe <sub>2</sub> O <sub>3</sub>	CaO	MgO	SrO	BaO	CaF <sub>2</sub>	Showing	Description	Reference
380001	15.70	0.16	40.2	0.03	0.85	24.3	51.0	TAM	Limestone Breccia	McCallum, 2013
380002	0.62	0.1	38.9	0.01	1.26	34.6	53.4	TEE	Limestone Breccia	McCallum, 2013
380003	0.27	0.05	49.4	0.01	1.00	22.1	66.6	TEE	Limestone Breccia	McCallum, 2013
380004	0.44	0.06	57.1	0.01	0.70	14.8	75.8	TEE	Limestone Breccia	McCallum, 2013
380005	0.37	0.07	30.0	0.01	2.41	38.4	41.7	TEE	Limestone Breccia	McCallum, 2013
380006	0.55	0.07	19.4	0.01	2.88	47.9	26.7	TEE	Limestone Breccia	McCallum, 2013
380007	13.90	0.12	41.6	0.02	1.82	16.8	57.3	CORAL	Shale Breccia	McCallum, 2013
380008	11.20	0.27	41.5	0.01	1.58	18.3	55.3	CORAL	Shale Breccia	McCallum, 2013
380009	6.68	0.07	38.3	0.01	2.50	24.9	49.9	CORAL	Shale Breccia	McCallum, 2013
380010	4.28	0.05	26.8	0.01	4.64	36.1	37.5	CORAL	Limestone Breccia	McCallum, 2013
380011	30.40	0.11	38.8	0.04	0.16	6.5	44.6	CORAL	Limestone Breccia	McCallum, 2013
380012	14.85	0.07	29.2	0.01	1.16	30.4	37.6	FIRE	Limestone Breccia	McCallum, 2013
380013	34.50	1.45	29.3	0.05	0.26	11.5	41.1	FIRE	Shale Breccia	McCallum, 2013
380014	0.78	0.03	29.9	0.01	1.17	37.9	44.4	FIRE	Limestone Breccia	McCallum, 2013
380015	13.35	0.07	46.1	0.01	0.63	14.3	65.6	TAM	Limestone Breccia	McCallum, 2013
LR88-2A	1.47	0.57	64.9	0.17	0.02	0.9	84.2	TAM	Pure purple fluorite chip sample	Pell, 1992
LR88-2C	0.76	0.58	24.8	0.22	0.57	43.3	24.7	TAM	Witherite-fluorite vein	Pell, 1992
LR88-2D	0.44	<0.01	5.2	0.02	0.85	61.6	7.2	TAM	Witherite vein, trace fluorite	Pell, 1992
LR88-2E	3.89	0.03	51.6	<0.01	0.11	18.6	73.6	TAM	Fluorite-rich vein/replacement	Pell, 1992
LR88-7B	1.90	0.02	24.6	<0.01	0.95	58.0	7.6	TEE	Composite vein sample	Pell, 1992
LR88-7C	1.00	0.06	42.5	<0.01	0.70	31.5	65.8	TEE	Fluorite-rich vein material	Pell, 1992
LR88-7D	0.62	0.01	63.2	<0.01	0.18	8.4	98.4	TEE	Pure purple fluorite	Pell, 1992

No further work was reported by Prima and with complications arising out of overseas acquisitions and a drop in fluorspar prices, the claims were relinquished in 2014.

In 2019, Ares acquired the property by (online) staking, with additional staking in 2020 and 2021.



## 5.2 Historic Mineral Processing and Metallurgical Testing

No record of the results from the 1955 sampling could be found.

In 1971, drill core and surface bulk samples from the Coral, Fire and Tam prospects were submitted to Lakefield Research of Lakefield, Ontario, for metallurgical test work. A total of 39 tests, including mineralogy, grinding, floatation and ore dressing studies were carried out (McCallum, 2013; Woodcock, 1972a).

As reported in McCallum (2013):

*“Specific attention made to separate samples with varying geological compositions, i.e. limestone-breccia vs shale-breccia.*

*The majority of the flotation tests used a “modified United States Bureau of Mines procedure”, also referred to as the lignin sulphonate-sodium fluoride method.*

*In general, a concentrate of greater than 93% CaF<sub>2</sub> was produced from all but one (low-grade) sample, with recoveries between 75 to 95 percent (with the exception of the low-grade sample).*

*A discrepancy in the analytical testing was noted, and the “bidtel method” of analysis gave results which were 3.5 to 4.3 percent higher than the corresponding standard distillation method analysis. The authors of the report thereby concluded that fluorspar concentrate containing 93.5% CaF<sub>2</sub> by distillation would obtain 97% CaF<sub>2</sub> by the Bidtel method, and hence qualify as acid-grade product.*

*The current author believes that the samples are representative of the expected deposits, as the historic operators selected the samples to represent varying amounts of limestone breccia and shale breccia. The assumption that the Bidtel method is more representative should be verified by modern processing and analytical work. The authors of the previous reports did not explain the reasoning behind the different grades, and what went into their assumption that the Bidtel method was more appropriate. The Bidtel analytical method was apparently still in use by some of the last producing fluorite producers (Ozark-Mahoning) in the Illinois-Kentucky district (Peng, 1996).*

*The deleterious elements in a >97% CaF<sub>2</sub> acid-grade fluorspar include up to 1.5% CaCO<sub>3</sub>, 1.0% SiO<sub>2</sub>, 0.03 - 0.1% S, 10 - 12 ppm As and 100 - 550 ppm Pb (Bide et al. 2011).*

*The historic results for those elements are included for three composite samples include between 0.44 - 1.40% CaCO<sub>3</sub> and 0.96 – 1.28% SiO<sub>2</sub>. These indicate that a product below the carbonate threshold, and a silica content that is near the threshold can be produced. The 2012 sampling revealed less than 8 ppm Pb in the grab samples, so even with concentrating; the Pb content is likely to remain low. As and S were not analyzed for, but those levels are also expected to be quite low as the mineralisation in general is very sulphur-poor.”*

This historic work has not been verified. Results are summarized in Tables 5-4 and 55.

Table 554 - Summary of Historic Metallurgical Test Results (1971)

Sample Name	Sample Type	Showing	Sample Rock Type	Sample Weight (kg)	Head Assay % CaF <sub>2</sub>	Concentrate % CaF <sub>2</sub> *	% Recovery CaF <sub>2</sub>
Bulk Sample No. 1	Outcrop/pit composite	TAM	Limestone breccia	450 - 540	60.5	94	89.5
Bulk Sample No. 2	Outcrop/pit composite	TAM	Limestone breccia	450 - 540	49.78	93.7	90.4
Bulk Sample No. 3	Outcrop/pit composite	TAM	Shale breccia	450 - 540	36.12	94.3	89.6
Bulk Sample No. 4	Outcrop/pit composite	CORAL	Limestone breccia - high grade	450 - 540	64.88	93.8	95.3
Bulk Sample No. 5	Outcrop/pit composite	FIRE	Limestone breccia - vuggy	450 - 540	42.94	94.2	87.6
Tam Prospect No. 1	Channel/trench composite	TAM	N.S.	N.S.	17.56	89.3	33.2
Tam Prospect No. 2	Channel/trench composite	TAM	N.S.	N.S.	63.44	93.7	95.4
Tam Prospect No. 3	Channel/trench composite	TAM	N.S.	N.S.	59.05	94.9	74.9
Coral Prospect No.1	Channel/trench composite	CORAL	N.S.	N.S.	53.68	95.5	55.8
Fire Prospect	Channel/trench composite	FIRE	N.S.	N.S.	50.75	93.5	89.9
Drill Core LBM Composite	Drill hole composite	TAM	Limestone breccia matrix	N.S.	33.5	93.6	83.5
Drill Core SBM Composite	Drill hole composite	TAM	Shale breccia matrix	N.S.	30.73	93.5	79.6

\* Distillation method; N.S. = Not specified

Modified from Woodcock, 1972a and McCallum, 2013.

### 5.3 Historic Grade and Tonnage Estimates

A number of historic grade and tonnage estimates exist for the Liard Fluorspar deposits, none of these are NI-43-101 compliant, and are included here simply for reference. McCallum (2013) concluded:

*“The original drill logs and assays for the 79 drill holes have not been preserved in the public archives; and the search for these records in the private domain continues. This, in combination with the poor condition of the drill-core and the inability to re-locate the historic drill collars requires that the company will need to conduct its own drilling campaign in order to build a current resource estimate.”*

The current author concurs with the above statement. In addition, it is not always clear which showings are included in the historic resource estimates, and some may include showings that are not included in the current Ares Fluorspar project area. New work will be necessary to evaluate this project.

McCallum (2013) summarized the historic resource estimates as follows:

***“TAM showing***

*Source: Federal Minfile 094M9 FSP 1, National Mineral Inventory; Energy, Mines and Resources Canada*

[http://www.em.gov.bc.ca/dl/PropertyFile/NMI/094M9\\_Fsp1.pdf](http://www.em.gov.bc.ca/dl/PropertyFile/NMI/094M9_Fsp1.pdf)

*Quote: “Work on the Tam showing in 1971 included geological mapping, trenching, stripping, and 1,891 feet of diamond drilling in 14 holes on Tam 2, 4, and West 55, 57. This drilling indicated a potential of over 500,000 tons averaging 36.7% CaF<sub>2</sub>. (Ref. Jorex Limited, Filing Statement, May 1972).”*

*Metric: 454,000 tonnes of 36.7% CaF<sub>2</sub>*

*Original Date: 1972*

*Comment: The original filing statement cannot be found, but the nature of the estimate seems reasonable based on other detailed descriptions of the showing. The “indicated potential” should not be confused with the indicated resource classification terminology, and it is more akin to the current “exploration potential”.*

**Liard Fluorspar Property, 1975**

*Source: Forecast of Development in the Mineral Sector of the Northeast Region of BC, By Wright Engineers Ltd. and H.N. Halvorson Consultants Ltd.*

*Quote: “The orebody consists of a series of pods which would be mined by open pit methods. Reserves of 3,500,000 tons of ore grading 32% CaF<sub>2</sub> are estimated.”*

*Metric: 3.2 million tonnes of 32% CaF<sub>2</sub>*

*Original Date: 1975*

*Comment: There is no indication of exactly which deposits the estimate includes, and may include some tonnage from the GEM showings, which is not the subject of this report or the current Liard Fluorspar Property.*

*The source mentions an evaluation by Conwest Exploration, where references to mining rates, milling techniques, capital cost estimates, mining and transport costs as a part of this evaluation. This evaluation is presumably the feasibility studies associated with the reserve estimate. This feasibility report has not been located, so the current author cannot comment on its relevance.*

**Liard Fluorspar Property, 1981**

*Source: Conwest Exploration Company Limited; Annual Report, December 31, 1981, Federal Corporate Files*

*Quote: “Exploration during the early 1970’s established geological reserves of about 2.6 million tons of fluorspar mineralisation averaging 30% fluorite in several deposits”*

*Metric: 2.4 million tonnes of 30% CaF<sub>2</sub>*

*Original Date: 1981*

*Comment: Again, there is no indication of exactly which deposits the estimate include. The source of the estimate uses the term “reserves”, and although there are no details as to the nature of the estimate, the previous report from Wright Engineers refers to feasibility studies on the project.”*

McCallum (2013) concluded:

*“The drill core from the 1971 and 1972 drilling is poorly degraded due to exposure, so no verification sampling can be made on the historic drilling. Due to the advances in analytical procedures for fluorite, some of the historic fluorite results may be over or under-reported. So even if the company is able to obtain the historic drilling results, a current mineral resource estimate cannot be completed.”*

In an unpublished internal document (Liard Fluorspar Mines Ltd., 1983), tonnage and grade estimates were presented for the individual showings (Table 64). These are not NI-43-101 compliant, but give some indication of the relative size and significance of the showings, as understood at that time.

Table 555 - Tonnage and Grade Estimates for Individual Showings, 1983

<b>Showings on the Liard Fluorspar Project</b>				
<b>Showing</b>	<b>Tons</b>	<b>~Tonnes</b>	<b>Grade (%CaF<sub>2</sub>)</b>	<b>Classification*</b>
TEE	470,000	426,375	52.0	Inferred
TAM	2,039,000	1,849,750	31.5	Indicated
CAMP	19,200	17,425	20.0	Inferred
CORAL	589,000	534,325	36.6	Indicated
CORAL	588,000	533,425	22.6	Indicated
CLIFF	90,000	81,650	35.0	Inferred
FIRE	160,400	145,500	37.0	Indicated
NICK	64,800	58,775	10.0	Inferred
STRAP	-	-	-	-
<b>Total excluding NICK</b>	<b>3,955,600</b>	<b>3,588,450</b>	<b>33.5</b>	
* These classifications are not NI-43-101 compliant				
<b>Showings to the south of the Liard Fluorspar Project area</b>				
<b>Showing</b>	<b>Tons</b>	<b>~Tonnes</b>	<b>Grade (%CaF<sub>2</sub>)</b>	<b>Classification*</b>
BAR	140,000	127,000	39.0	Inferred
HENRY	100,000	90,725	35.0	Inferred
GEM A	74,000	67,125	22.0	Inferred
GEM B	50,000	45,350	20.0	Inferred
GEM D	30,000	27,225	20.0	Inferred
GEM E	531,246	481,925	38.1	Indicated
GEM E	223,000	202,300	14.1	Indicated
<b>Total excluding GEM E low grade</b>	<b>925,246</b>	<b>839,350</b>	<b>29.0</b>	
* These classifications are not NI-43-101 compliant				

It is clear that the historic work suggests the area has potential, but this will have to be confirmed.

## 6 GEOLOGICAL SETTING AND MINERALISATION

### 6.1 Regional Geology

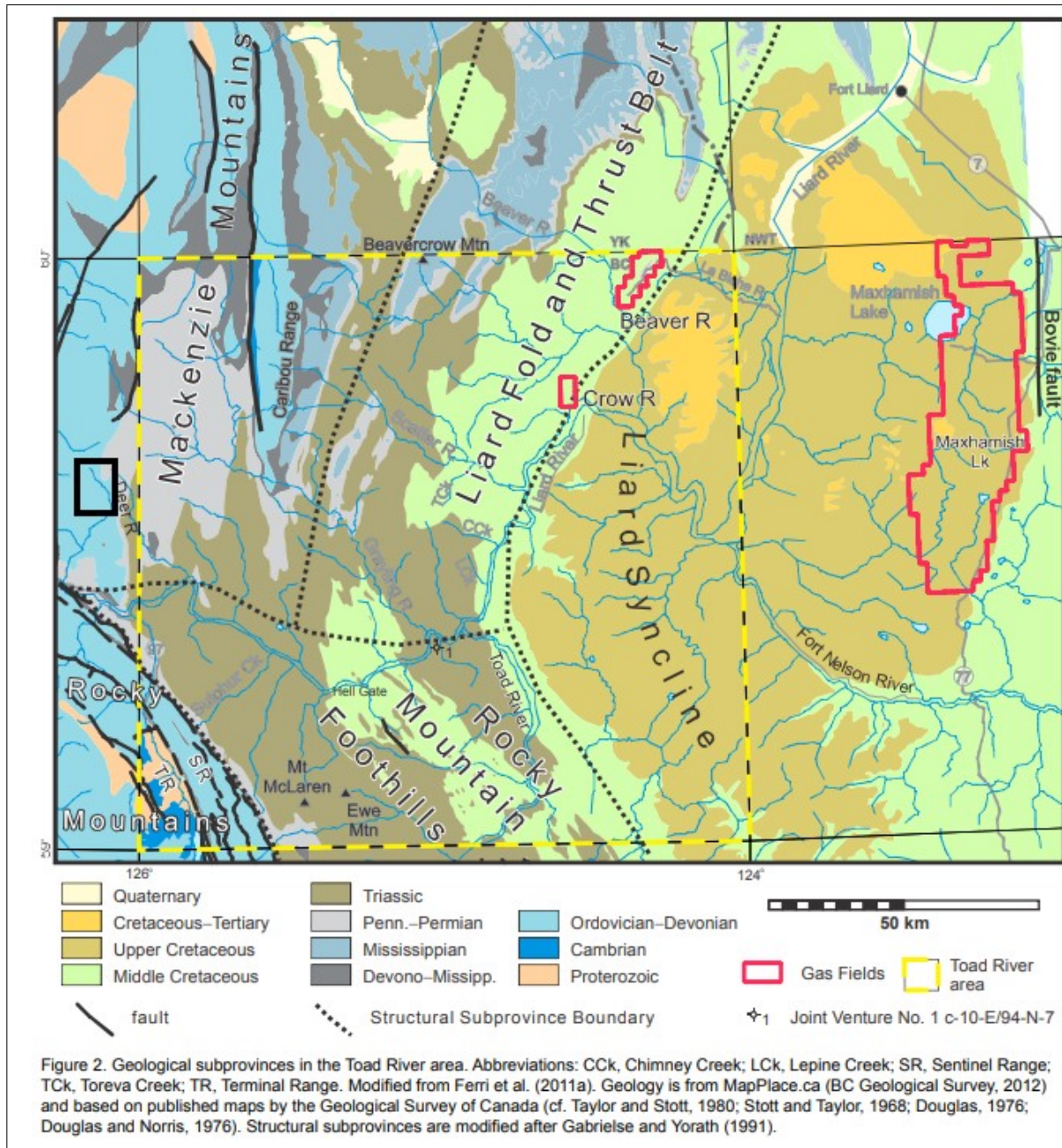
The Liard fluorspar showings occur within the Foreland Belt of the Canadian Cordillera, which is an easterly verging zone of shallow thrust faulting and décollement folding, involving supracrustal rocks that were originally deposited on the western North American continental margin (Price, 1981). They occur in the southernmost extension of the Mackenzie Mountains, which are dominated by north-south trending structures, and are north of the Rocky Mountains, which are characterised by northwest-southeast trending structures (Figure 61).

The area was mapped in 1961 at a scale of 1:253,440 by Gabrielse (1963).

To the east of the project area, Triassic (Mesozoic) strata of the Ludington, Toad and Grayling formations are exposed; these rocks were deposited in the Liard Basin, a sub-basin of the Western Canada Sedimentary Basin (McMechan et al., 2012). Palaeozoic strata crop out at surface elsewhere in the region and become increasing older, as one moves west and southwest across the area (Figure 61). The Palaeozoic strata are a mix of coarse- and fine-grained clastic sediments and carbonate rocks (Figure 62) and were deposited along the passive margin of North America. Rift-related clastic-dominated Cambrian and Ordovician strata of the Mount Roosevelt Formation (or equivalent) and Kechika Group are the oldest in the region, cropping out approximately 30 km to the south of the project area. These are unconformably overlain by a carbonate-dominated platform succession (Nonda, Muncho-McConnell, Wokkpash, Stone and Dunedin formations) that were deposited from the Silurian through to the Middle Devonian. The carbonate strata are overlain by a clastic-dominated upper Palaeozoic succession (the middle to upper Devonian, Mississippian and Pennsylvanian Besa River and Kindle formations) that records local block faulting and extension (McMechan et al., 2012).

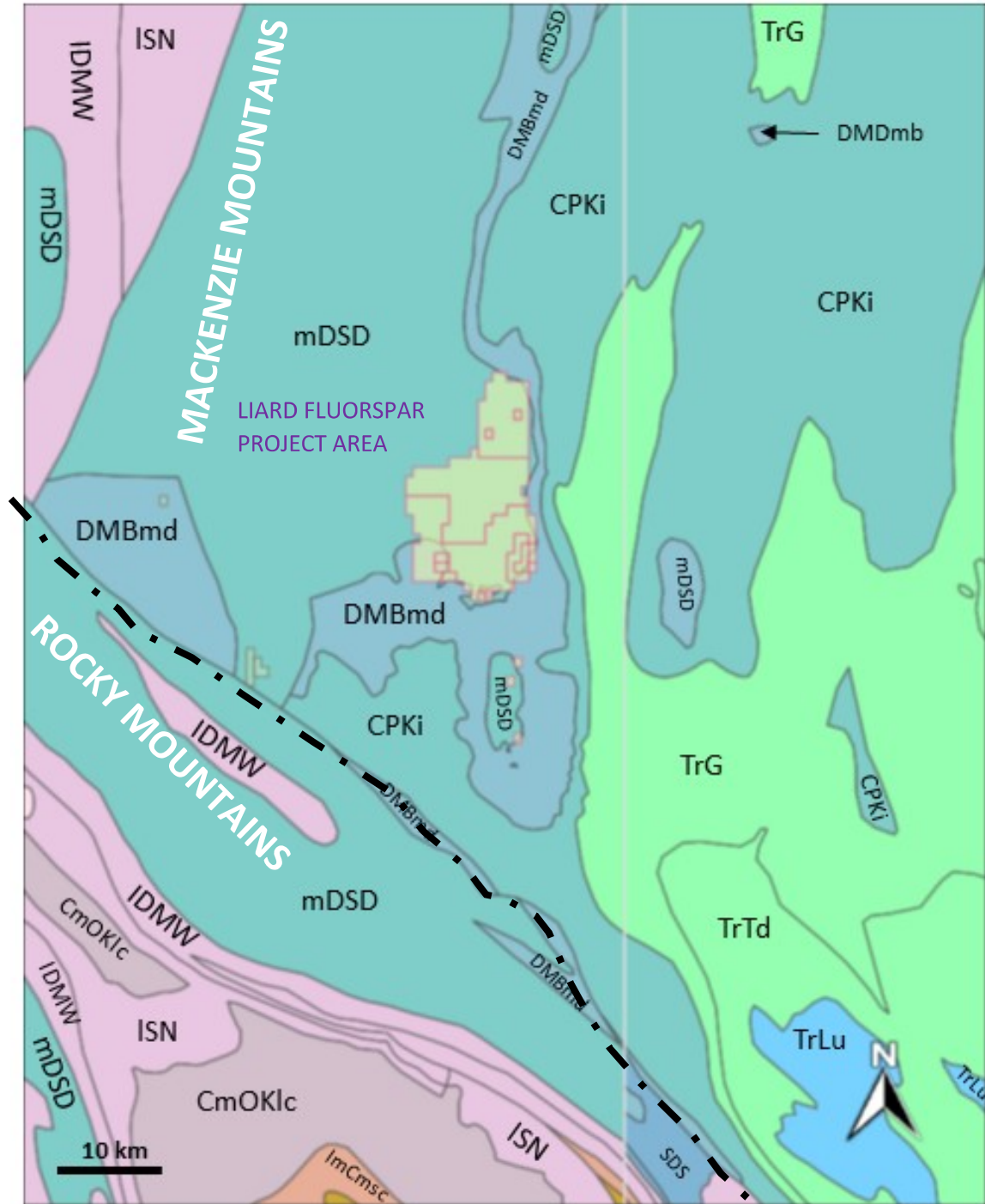
The structural style of the Mackenzie Mountains is dominated by broad anticlines that are cored by Neoproterozoic strata, with Palaeozoic strata preserved in the narrow synclines (Gordey et al., 2011). Deformation occurred during the Cretaceous to early Cenozoic east-west compressional event associated with subduction and terrane accretion at the western margin of North America (Enkelmann et al., 2019 and references therein) that resulted in formation of the Canadian Cordillera.

Figure 61 - Regional geology, LFP & Liard Basin



Above, from McMechan et al., 2012. LFP area within the black rectangle.

Figure 62 - Geological Map, Liard Fluorspar Project Area



Map generated from BC MapPlace (<http://apps.empr.gov.bc.ca/pub/mapplace/mp2>). Legend: TrLu - Triassic Ludington Formation, TrTd - Triassic Toad Formation. TrG - Triassic Grayling Formation, CPKi - Carboniferous to Permian Kindle Formation. DMDmb - Devonian to Mississippian Besa River Formation. mDSD - Middle Devonian Dunedin and Stone Formations, IDMW - Lower Devonian Muncho-McConnell and Wokkpush Formations, ISN - Lower Silurian Nonda Formation. CmOKlc - Cambrian to Ordovician Kechika Group, ImCmSc - Lower to Middle Cambrian strata, undivided. The heavy black dashed line is a major fault and separates the Rocky Mountains from the Mackenzie Mountains to the north.

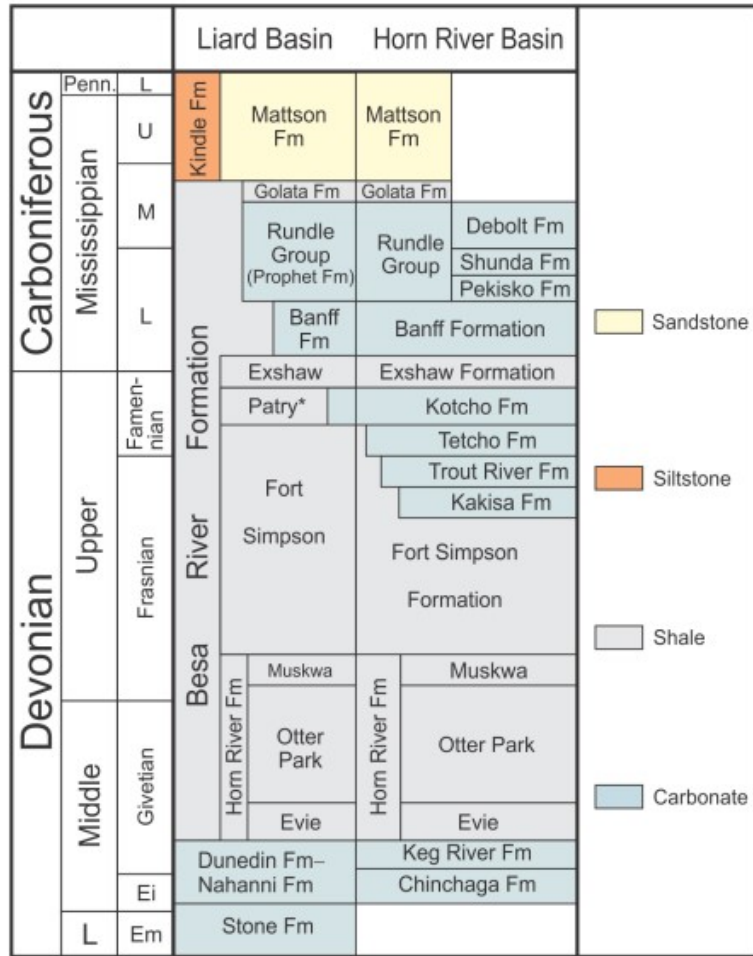
Figure 63 - Palaeozoic Stratigraphy, Liard Fluorspar Project Area

AGE		FORMATION	MAP CODE, LITHOLOGY
Permian		Tika Formation, Fantastique Formation	
Carboniferous	Pennsylvanian	Besa River Formation	CPKi Coarse clastic sedimentary rocks
	Mississippian		
Devonian	Upper Devonian	Dunedin Formation	DMDmb Mudstone, fine clastic sedimentary rocks
	Middle Devonian	Stone Formation	mDSD Limestone, marble, calcareous sedimentary rocks
		Wokkpash Formation	
	Lower Devonian	Muncho-McConnell Formation	IDMW Dolomitic carbonate rocks
Silurian		Nonda Formation	ISN Limestone, marble, calcareous sedimentary rocks
Ordovician		Kechika Group	CmOKlc Limestone, slate, siltstone, argillite
Cambrian		Mount Roosevelt Formation	ImCmsc Coarse clastic sedimentary rocks

Stratigraphic column modified from McCallum, 2013. Map codes and lithology information from BC MapPlace (<http://apps.empr.gov.bc.ca/pub/mapplace/mp2>). Data is from Woodcock's time and has been superseded by:



Figure 64 - Liard-Horn River basins stratigraphy

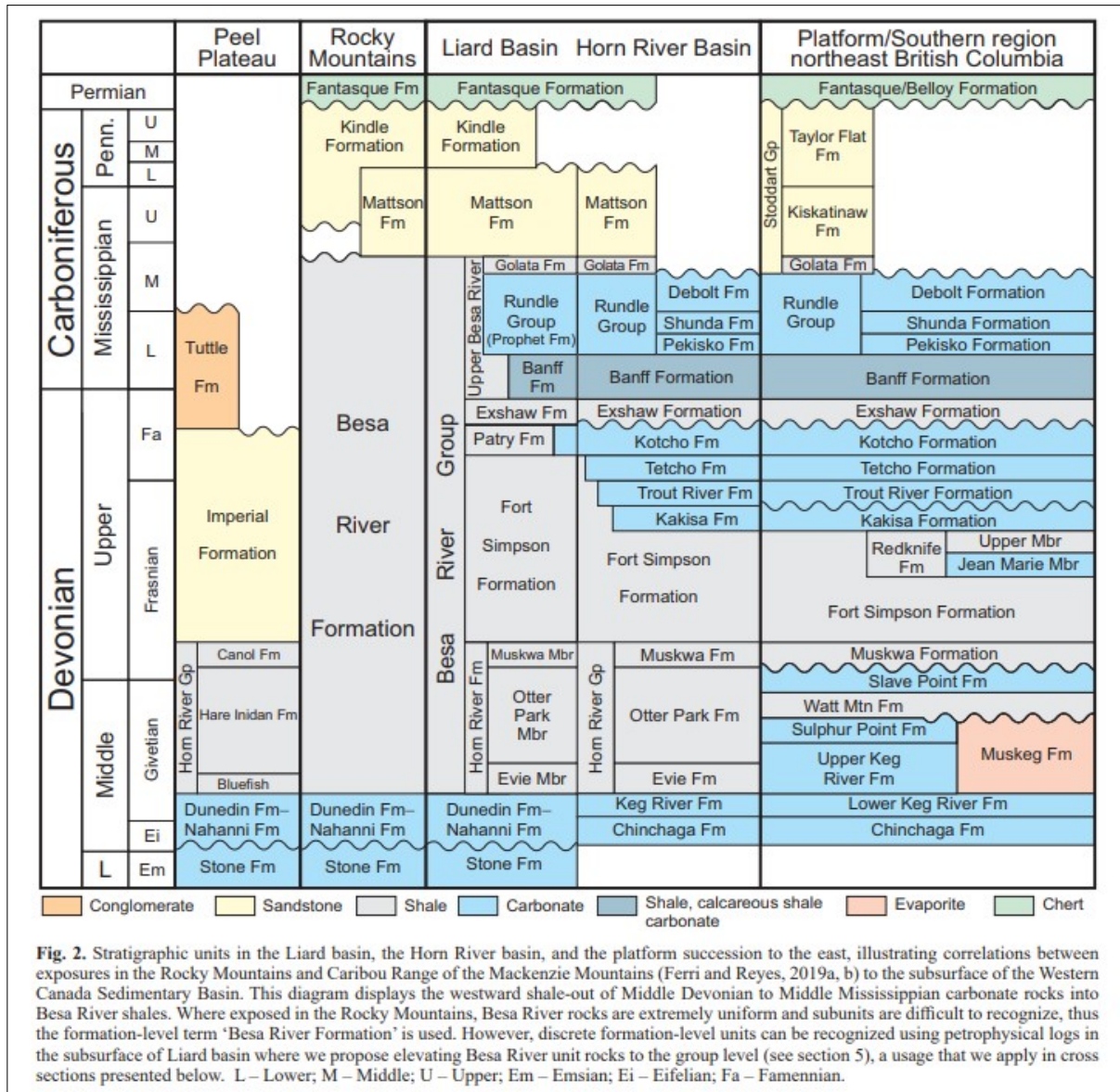


**Figure 1.1.** Mid-Late Paleozoic stratigraphic chart for northeast British Columbia showing relationships between lithostratigraphic units within the platformal and basinal successions of Liard and Horn River basins. Note that the Besa River can be elevated to a group in the eastern part of the study area but not in the western outcrop belt of the Rocky Mountains where the succession appears monotonous. L – Lower; M – Middle; U – Upper; Em – Emsian; Ei – Eifelian; Fa – Famennian. \*Patry is an informal unit of member (Ferri et al., 2015) or formation rank (Ferri and Reyes, 2019)

Note: Ferri et al., 2011, place the Besa River Formation, Liard and Horn River basins, within mid-Devonian to Middle Mississippian age ranges. Similarly, by McMechan et al., 2012 in their study of the more proximal Toad River stratigraphy. Their map coverage extends west onto the LFP.

In a more regional context, Ferri et al., 2021 produced the following stratigraphy, shown overleaf. The LFP would be located between the Rocky Mountains and Liard Basin stratigraphic columns.

Figure 65 - Regional Stratigraphy, 2021



## 6.2 Project Area Geology

The Liard Fluorspar project area is underlain by Middle Devonian Dunedin Formation fossiliferous limestones and Middle to Upper Devonian to early Mississippian Besa River siltstones and shales (Taylor and MacKenzie, 1970). *Gabrielse (1963) originally mapped the area but did not assign formation names to any of the units.*

The Dunedin Formation is described (Taylor and MacKenzie, 1970) as:

*“a uniform sequence of argillaceous, in places siliceous and dolomitic, dark-grey bedded limestones that overlies light-coloured dolomites of the Stone Formation, and is overlain by Besa River shales. Dolomite is present in the lowermost strata in parts of this Formation. These lower dolomites are argillaceous, finely crystalline and thinly bedded and the commonly contain dark shale partings, thin, laterally restricted intercalations of shale and scattered sandstone lenses. Dolomite also occurs throughout the Formation as small euhedral crystals sporadically associated with the rock fractures, as partial or complete replacement of fossil remains, in vugs, or as diffuse patches and mottlings in some of the more argillaceous beds. The upper two-thirds of the sequence consist of thick-bedded to massive, finely crystalline dark-grey limestone and interbedded granular limestone. In places the upper strata are conspicuously siliceous, particularly in the upper 100-foot interval where lenses and nodules of black chert are common. The upper 30 feet of the limestone are siliceous and argillaceous and a dark-grey-black colour and very fossiliferous, particularly on the upper surface where many coral colonies are present. There are many remains of brachiopods, gastropods, and crinoids, and scattered chert nodules at the base of this 30-foot unit.”*

Woodcock (1972b) notes:

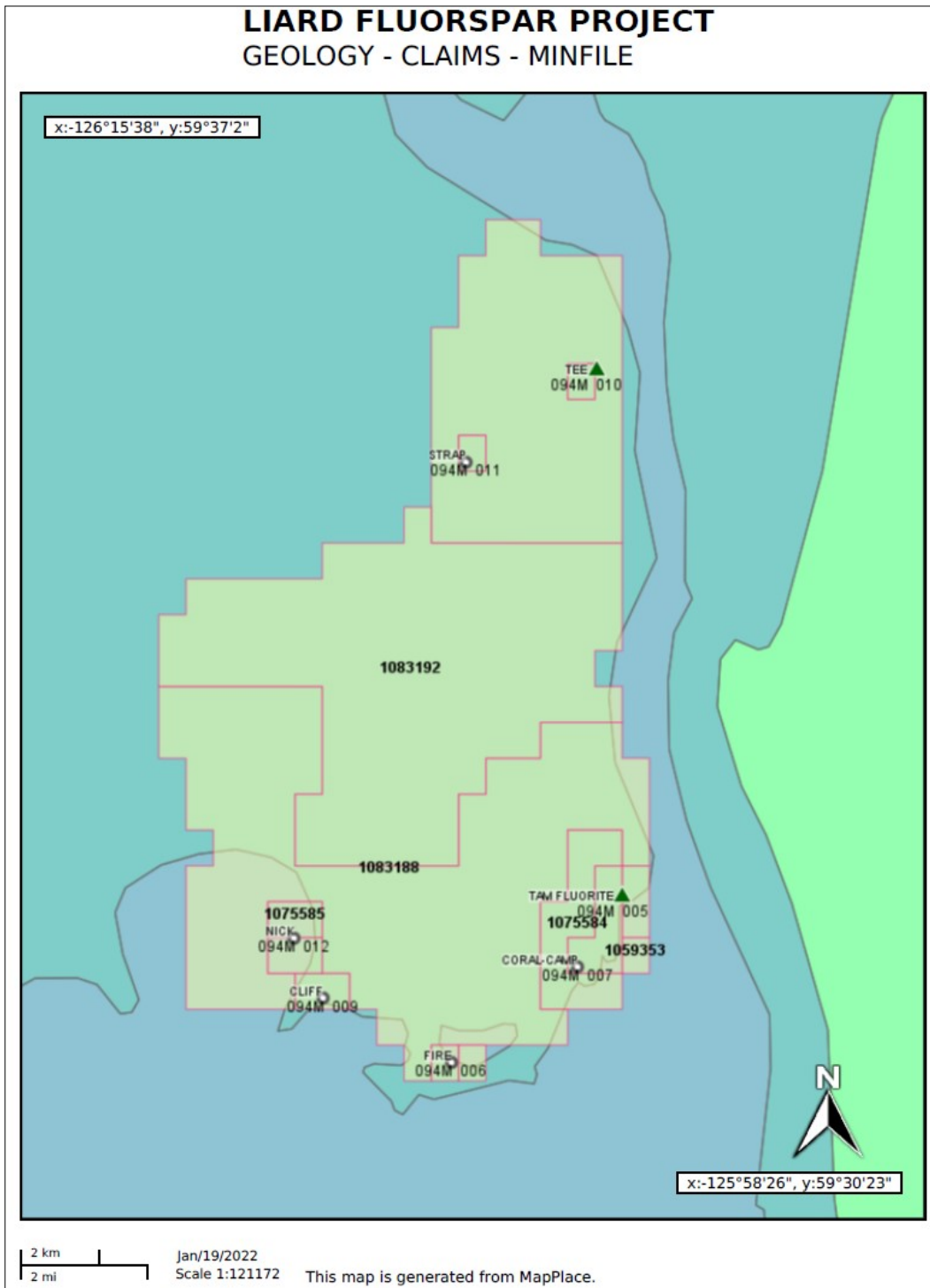
*“In the vicinity of the Liard Hot Springs, mapping has shown that the contact area between the Dunedin Limestone and the overly Besa River Shales is characterized by many coral colonies.”*

Overlying the Dunedin Formation is a thick sequence of black shale, siltstone, minor calcareous siltstone/shale, sandstone and minor thin buff dolomitic layers that is considered to belong to the Besa River Formation (Pell, 1992; Woodcock, 1972b). Woodcock (1972b) states:

*“There is some doubt as to the nature of the shale-limestone contact in the prospect area. Along the eastern mountain front south of Summit Lake and in the mountain range northeast of Summit Lake (Mile 392 Alaska Highway) the contact appears quite conformable with no conspicuous irregularities to denote an erosional disconformity. However, in the vicinity of the fluorspar prospects north of Liard Hot Springs, outcrops are scarce. Surface mapping done in previous years sowed great irregularities in the position of the contact and thus indicated a possible disconformity. Subsequent diamond drilling has shown that a large portion of this irregularity is due to tectonic disturbance – mainly caused by thrusting, with consequent folds and thrust faults.”*

In the project area, the Dunedin Formation is exposed in the core of a broad, open antiform with a north-south-trending, south-plunging axis (McCallum, 2021; Pell, 1992). Strata in the area are gently dipping and have been disturbed by localized faulting and brecciation (McCallum, 2013).

Figure 66 - Liard Fluorspar Project Minfile Locations



### 6.3 Mineralisation

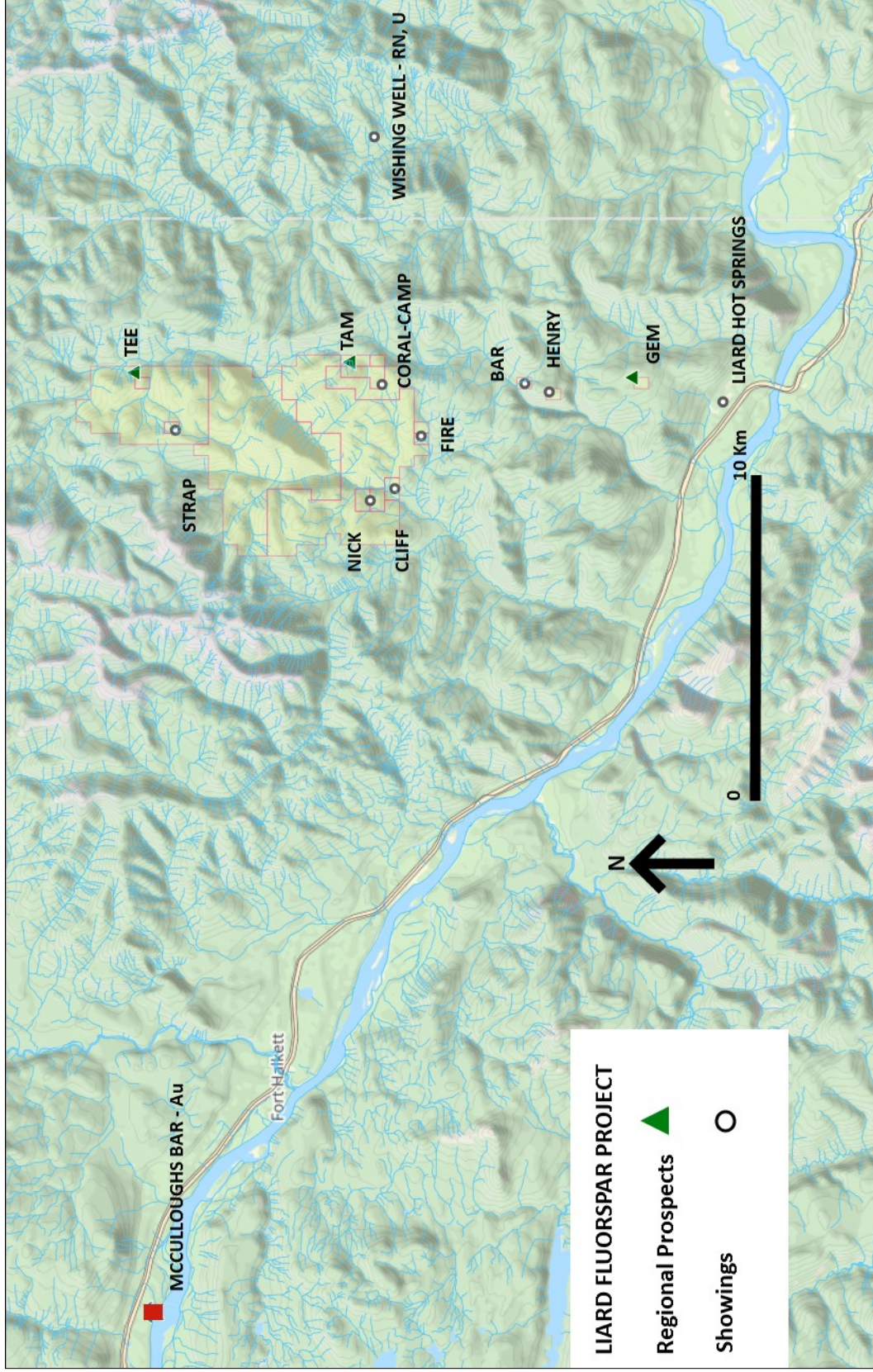
Mineralisation in the Liard fluorspar showings consists predominantly of fluorite ( $\text{CaF}_2$ ) and witherite ( $\text{BaCO}_3$ ) and occurs at, or near, the contact between the Besa River shales and underlying Dunedin Formation limestones. In most of the showings, the majority of the mineralisation occurs in the limestone; however, in some cases, minor amounts of fluorite and witherite are found in the shales overlying mineralised limestone, or, rarely, confined to the shales. Mineralisation commonly occurs as infillings and replacements in limestone- or shale-breccias, or as veins or fracture fillings in the surrounding limestones and shales (Pell, 1992; Woodcock, 1972a; Woodcock and Smitheringale, 1955). Various styles of breccia have been reported, including crackle breccia, mosaic breccia and chaotic breccia (McCallum, 2013).

In addition to fluorite and witherite, mineralised zones also contain barytocalcite ( $\text{BaCa}(\text{CO}_3)_2$ ), minor barite ( $\text{BaSO}_4$ ) and quartz (McCammon, 1972; Pell, 1992; Woodcock, 1972b). The fluorite can be fine-grained and dark grey to black, or coarse-grained in various shades of purple, mauve, grey or, rarely colourless or pale green. Coloured varieties are bleached pale to white on weathered surfaces. The fine-grained dark grey to black fluorite has a granular texture and is associated with fine-grained carbon. The barium minerals are generally fine-to coarse-grained and grey to white in colour (McCammon, 1972). Calcite, powdery hydrocarbons and  $\text{H}_2\text{S}$  gas are sometimes present but, along with some of the silica, are thought to be part of the original carbonate and shale sequence and not related to the mineralising event (Woodcock, 1972b).

Eight showings are present in the current Liard Fluorspar project area: TEE, STRAP, TAM, CORAL, CAMP, FIRE, CLIFF and NICK. Four other showings, TEASER, BAR, HENRY and GEM occur south of the current project area. The main showings in the Liard Fluorspar project area have been mapped and described in detail by Woodcock (1972a, 1972b); some are also described by McCammon (1972). Information from these reports is outlined below. Results of the historic sampling have not been verified, cannot be considered NI-43-101 compliant, and are included here for reference only. All the major showings are documented in the British Columbia Geological Survey Mineral Inventory (“Minfile”)

<https://www2.gov.bc.ca/gov/content/industry/mineral-exploration-mining/british-columbia-geological-survey/mineralinventory>). TEASER is only documented in McCammon (1972).

Figure 67 - Regional Prospects & Showings



### 6.3.1 TEE (Minfile # 094M 010)

Tee is the most northerly of the known showings in the Liard Fluorspar project area (Figure 51) and is approximately 18.5 km north of Liard Hot Springs. Mineralised exposures are found on the northeast-facing slopes west of Teeter Creek and on south-facing slopes north of a small tributary of Teeter Creek. In the early 1970's an access road was constructed to TEE and some core drilling completed. Four zones, designated A to D, were defined. TEE is described by Woodcock (1972b) as follows:

*“The mineralisation is generally at the contact of the Dunedin limestone with the overlying Besa River shale. This contact has a general overall dip of about 25° easterly; however numerous little detailed irregularities change this dip locally and also make for discontinuities in thickness of mineralisation. Generally the shale and some of the limestone are brecciated in the vicinity of the mineralisation.*

*To facilitate the description, four areas of mineralisation labelled zones “A” to “D” inclusive are indicated on the map.*

*Zone A, the most northwesterly one exposed, consists of remnants of highly mineralised limestone surrounded by and presumably resting on areas of barren limestone. A few shale remnants in the eastern part of this zone indicated that the zone was originally at the limestone-shale contact. The mineralisation in this zone is somewhat unique for the Liard Fluorspar area in that most of the fluorite is colourless. Mineralisation of this zone has been mapped over an area of about 50,000 square feet (4,645 sq. metres). The high grade exposure in the southwest part of the zone has an exposed thickness of up to 15 feet (~5 m).*

*Zone B is exposed on the sharp ridge that occurs on the interfluvium between Teeter Creek and the above-mentioned subsidiary stream from the west. The mineralisation in this place is also at the contact of the shale and limestone with considerable replacement of shale breccia and limestone breccia. The steep cliffs at the west end of the exposure show that the main “ore” zone is underlain by fractured limestone containing abundant veins and lenses of fluorite. The exposures of good grade mineralisation at the west end of zone B are over a vertical interval of 60 feet (~18). The mineralised area extends easterly down the steep hillside (approximately 30°), for a distance of 700 feet (213 m) with an average width of about 200 feet (61 m). Some prominent east-west fracturing or faulting is exposed in places and this might indicate some additional east-west control of this zone. If such is the case, then the position of greatest thickness would also have an east-west strike. The position of the postulated greatest thickness is unknown. It could occur anywhere within the exposed part of Zone B; it could have occurred to the south of Zone B and have been removed by erosion, or it may have never existed!*

*Zone C includes the mineralisation that occurs in the vicinity of some limestone cliffs trending 330° azimuth across the property. Most of this mineralisation is exposed along the face of the cliff in discontinuous lenses. Shale remnants are also found along these limestone cliffs. The strike of these limestone cliffs is essentially parallel to the valley side*

*and also almost parallel to the strike of the limestone-shale contact. Presumably it is the major regional strike in this part of the Teeter Creek Valley. The exact structure along these cliffs is not evident. However there is some suggestion that the limestone has been thrust from the west over shale and shale breccia. The amount of exposed mineralisation is not significant in the overall ore reserve picture.*

*Zone D includes an area of exposures of shale and shale breccia lying downslope to the east of the limestone cliffs of Zone C. Some of these exposures are mineralised with barium carbonates and/or fluorspar. The exposures of shale and shale breccia occur over an area 250 x 300 feet (76 x 91 m).”*

Three holes, #62, #63 and #64, were drilled into Zone D at TEE. Holes #62 and # 64 did not intersect mineralisation. Hole #63, an angled hole (dip not stated), encountered 18.3 m (60 feet) of mineralisation that reportedly ran 8.8% CaF<sub>2</sub> (Woodcock, 1972b). At that time, no trenching or bulk sampling was completed at TEE.

### **6.3.2 STRAP (Minfile # 094M 011)**

The STRAP showing is approximately 1.8 km west-southwest of TEE, and approximately 17.5 km north of Liard Hot Springs (Figure 61). It occurs near the crest of gently rolling limestone hills (Figure 8-8) and is one of the few showings that did not have a road built to it and the only work reported was surface grab sampling.

STRAP is described by Woodcock (1972b) as follows:

*“Most of the rocks in this area are barren, flat-lying limestones. The mineralised exposures occur along a zone which trends 330° azimuth. The mineralisation has been followed intermittently for 600 feet (183 m). However, the northern exposures are in areas of overburden and the total length and total width of the zone are not known. The maximum exposed width is 40 feet (12 m).*

*Mineralisation is fluorite and barium minerals, mainly barite. A chip panel sample on the southernmost exposure over an area of 20 feet x 25 feet (6 x 7.5 m) assayed 28.6% CaF<sub>2</sub>. In addition to the exposures of fluorite and barium minerals, there is one exposure, 40 feet (12 m) long, consisting of massive limonite, mainly goethite.”*

STRAP is accessible by helicopter after clearing the site of new growth pine. The fluorite mineralisation is evident at surface. See Chapter 8, ‘EXPLORATION’ (Figure 8-8).

### **6.3.3 TAM (Minfile # 094M 005)**

The TAM showing is exposed on steep east- and south-facing slopes near the head of Mould Creek, approximately seven km south of TEE and 12 km north of Liard Hot Springs (Figure 61). In the early 1970’s an access road was constructed to TAM. TAM is described by Woodcock (1972b) as follows:



*“Mineralisation occurs at the contact between the limestone and the overlying Besa River shales; a contact which generally dips easterly. In the zone of mineralisation the limestone and the shale at the contact are brecciated. The shale breccia, in many places, consists of chaotic angular blocks. The mineralisation occurs in the breccia and in fractures in the overlying shale and underlying limestone.*

*The mineralised zone, which is of variable thickness, generally also dips easterly and it pinches rapidly to the east where there is no shale breccia. Along the west side, the limestone-shale contact is eroded; and the west boundary of “ore” is quite sharp against barren limestone.*

*The mineralisation extends along the hillside in a northerly direction for 900 feet (274 m) as indicated by surface exposures and diamond drillholes. It is still open to the north. Widths vary from a minimum of 160 feet (49 m) to a maximum of 550 feet (168 m).”*

*“The best mineralisation occurs in the limestone breccia and in places the rock is almost completely replaced by fluorite plus barium minerals (witherite, barytocalcite, barite). A few siliceous bands may be cherty layers left from the original limestones. Calcite also occurs a few limestone remnants. The fluorite is generally purple to black. The black variety appears to have more impurities (e.g. fine-grained quartz) than does the purple variety.”*

Mineralisation, with both coarse grained purple, and finer grained black fluorite is common in surface outcrops at Tam (Figure 8-3).

A significant amount of work was done at TAM, including diamond drilling, trenching and bulk sampling (Woodcock, 1972a; 1972b; McCammon, 1972; McCallum, 2013) (Table 61, Table 63, Table 71, Figure 76, Figure 77). Channel samples were collected from three trenches. Trench #1 reported averaged 17.56% CaF<sub>2</sub> over 57.9m, and included two higher grade intervals: 15.2 m averaging ~35.6 % CaF<sub>2</sub>, from 0 to 15.2 m; and 8.8 m averaging ~31.7% CaF<sub>2</sub>, from 45.4 to 54.3 m along the trench. Trench # 2 averaged 63.44% CaF<sub>2</sub> across 10.7 m and Trench # 3 averaged 59.05% CaF<sub>2</sub> across 12.2 m. Three bulk samples, Bulk Sample #1, #2 and #3, weighing ~450 to 540 kg (1000 – 1200 pounds) each were collected from TAM and reportedly returned grades of 60.50%, 49.78% and 36.12% CaF<sub>2</sub>, respectively (Woodcock, 1972a). Results from some of the 1971 drilling were reported in McCammon (1972) and restated in McCallum (2013); high-grade intervals of 53% CaF<sub>2</sub> over 12.2 m and 48% CaF<sub>2</sub> over 27.1 m were reported in two holes.

Below, a 70's view of the Tam prospect, showing the extent of drill and bulldozer roads. Much of the access today is partially overgrown but can be re-habilitated relatively easily. This area and the property in general was burnt over, with extensive new growth of mainly pine and minor spruce and poplar.

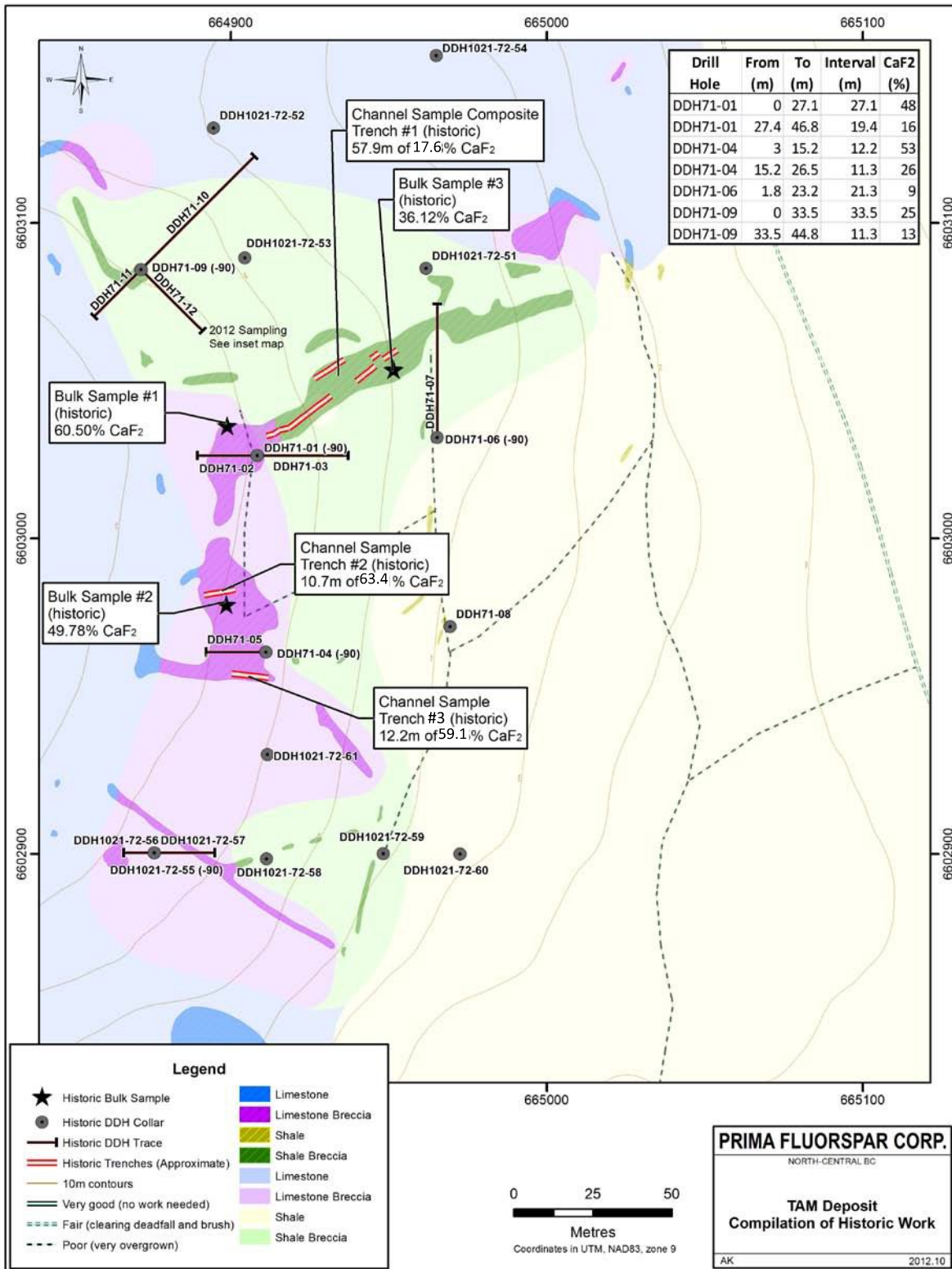
*Figure 68 - View of Tam, 1972 GSC\_Tam PF507315 file*



Compare with fig. 8-1, ff which shows the upper exposure of fluorspar on the hillside and vegetative re-growth.

The old camp is located just south of this lake.

Figure 69 - TAM Deposit, Compilation of Historic Work



From McCallum, 2013 (with modifications). Locations have not been verified. Trench and bulk sample grades are from Table 1, Progress Report #3, in Woodcock, 1972a. Drill results modified from McCammon, 1972.

Table 661 - Summary of Results of Historic Trenching Work Completed at TAM

Trench	Sample #	From (feet)	To (feet)	From (m)	To (m)	Length (m)	% CaF <sub>2</sub>	Reference
Trench # 1	17001	0	10	0.0	3.0	3.0	56	Woodcock, 1972a
Trench # 1	17002	10	20	3.0	6.1	3.0	31	Woodcock, 1972a
Trench # 1	17003	20	30	6.1	9.1	3.0	43	Woodcock, 1972a
Trench # 1	17004	30	40	9.1	12.2	3.0	13	Woodcock, 1972a
Trench # 1	17005	40	50	12.2	15.2	3.0	35	Woodcock, 1972a
Trench # 1	17006	50	60	15.2	18.3	3.0	3.3	Woodcock, 1972a
Trench # 1	17007	60	70	18.3	21.3	3.0	6	Woodcock, 1972a
Trench # 1	17008	70	80	21.3	24.4	3.0	12	Woodcock, 1972a
Trench # 1	17009	80	90	24.4	27.4	3.0	18	Woodcock, 1972a
Trench # 1	17010	90	100	27.4	30.5	3.0	2.9	Woodcock, 1972a
Trench # 1	17011	100	110	30.5	33.5	3.0	3.1	Woodcock, 1972a
Trench # 1	17012	110	120	33.5	36.6	3.0	0.9	Woodcock, 1972a
Trench # 1	17013	120	130	36.6	39.6	3.0	0.29	Woodcock, 1972a
Trench # 1	17014	130	140	39.6	42.7	3.0	3.3	Woodcock, 1972a
Trench # 1	17015	140	149	42.7	45.4	2.7	9	Woodcock, 1972a
Trench # 1	17016	149	158	45.4	48.2	2.7	25	Woodcock, 1972a
Trench # 1	17017	158	164	48.2	50.0	1.8	14	Woodcock, 1972a
Trench # 1	17018	164	170	50.0	51.8	1.8	27	Woodcock, 1972a
Trench # 1	17019	170	178	51.8	54.3	2.4	56	Woodcock, 1972a
Trench # 1	17020	178	190	54.3	57.9	3.7	4.9	Woodcock, 1972a
Trench #2	17021	0	10	0.0	3.0	3.0	62	Woodcock, 1972a
Trench #2	17022	10	20	3.0	6.1	3.0	62	Woodcock, 1972a
Trench #2	17023	20	30	6.1	9.1	3.0	74	Woodcock, 1972a
Trench #2	17024	30	35	9.1	10.7	1.5	74	Woodcock, 1972a
Trench #3	17051	80	90	24.4	27.4	3.0	56	Woodcock, 1972a
Trench #3	17052	90	100	27.4	30.5	3.0	58	Woodcock, 1972a
Trench #3	17053	100	110	30.5	33.5	3.0	56	Woodcock, 1972a
Trench #3	17054	110	120	33.5	36.6	3.0	60	Woodcock, 1972a

**6.3.4 CAMP (Minfile # 094M 007)**

The CAMP showing is historically recorded as located on the northeast slopes of a small hill approximately 300m east-southeast of a pond where the historic drill camp was situated. The showing is approximately 600m downslope and to the south-southeast of TAM, and approximately 11 km north of Liard Hot Springs (Figure 61). In the early 1970's an access road was built to this prospect and some bulldozer stripping was done. In Minfile it is grouped with the nearby CORAL showing, due to physical proximity and similarities in geology. CAMP is described by Woodcock (1972b) as follows:

*“The mineralisation is again at the limestone-shale contact. The hill to the west and northwest is underlain by limestone and the lower area to the southeast underlain by shale. The mineralised shale breccia occurs over an area about 150 feet (~46 m) in diameter. The underlying limestone is also well mineralised in places close to the exposure of the mineralised shale breccia.”*

Woodcock (1972b) also notes that the overburden in the area is thick but that there “*abundant fluorite-bearing float (generally shale breccia) occurs throughout the till in this area*”.

### **6.3.5 CORAL (Minfile #094M 007)**

The CORAL showing is on the gentle slopes on a small limestone hill, just over one km to the southwest of TAM and about 900 m west-southwest of the CAMP showing. In the early 1970's, a spur road from the main access road was built across the mineralised zone. CORAL is described by Woodcock (1972b) as follows:

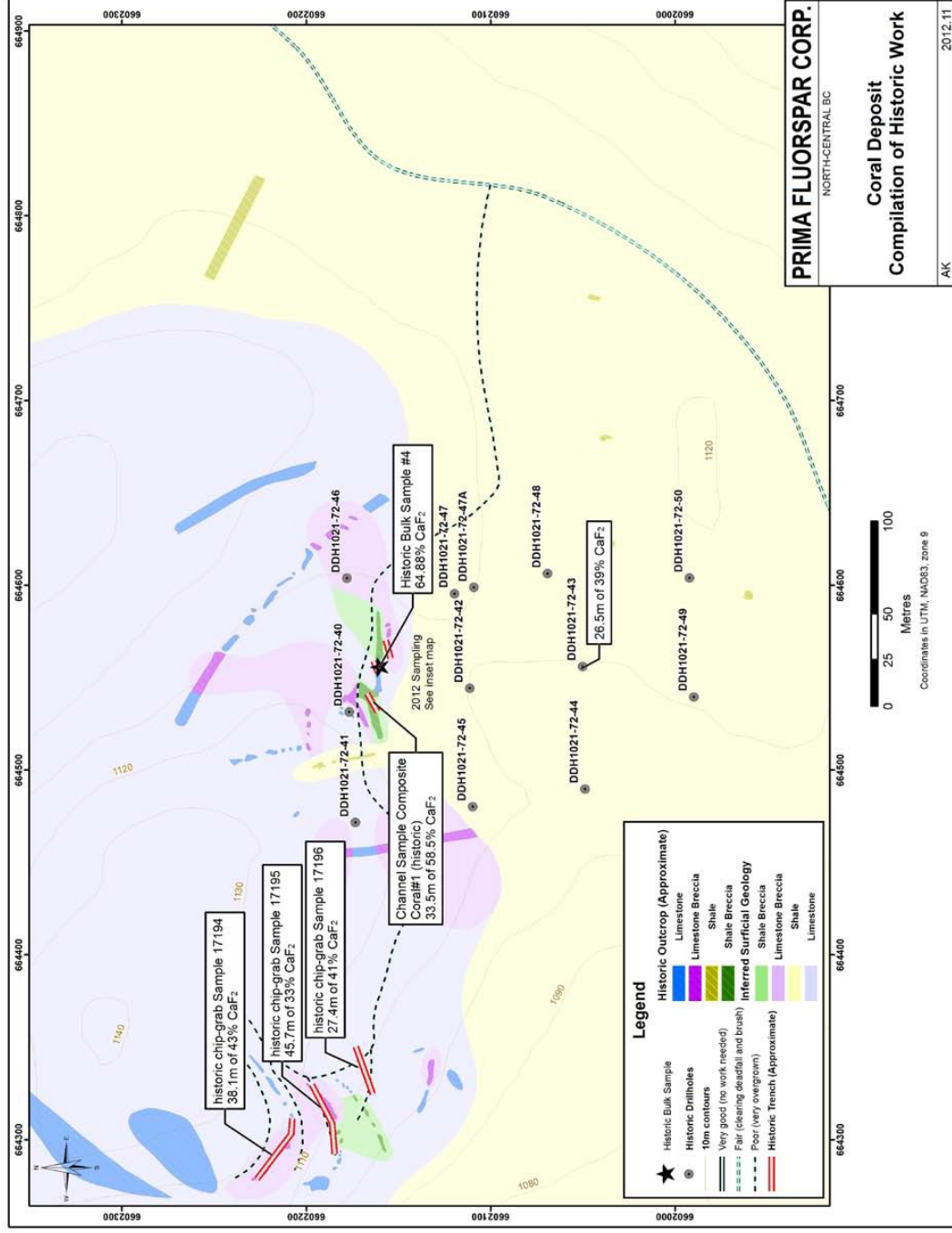
*“The fluorspar mineralisation is at the limestone-shale contact. This contact dips gently southward from the mineralised exposures. In most cases there is some brecciation of the shale and/or the limestone along this contact and considerable intersections of both the limestone breccia and shale breccia have been logged in the core. However the exposures do not have the chaotic breccia of the large blocks that are visible at the Tam prospect. Whether or not such chaotic breccia occurs in the core is not evident from the data. Much of the breccia that has been logged as such is broken rock some of which consists of remnant shale fragments in a replacement matrix, without the chaotic orientation of the blocks.*

*The largest exposure of mineralisation occurs at the west end of the prospect on the Tam 24 claim. This mineralisation is exposed over a length of 300 feet (~91m) (in a northwesterly direction) and a width of 150 feet (~46m). However the appearance of this mineralisation in the trenches is that it is a skin or remnant left on top of the limestone formation and that it has very little vertical extent.”*

Woodcock (1972b) also noted that “*mineralisation is exposed in trenches over an east-west distance of 600 feet (183m) and a north-south distance of about 200 feet (61m)*”. In the mineralised zones, variable amounts of fluorite and witherite, with minor barite and barytocalcite occur in irregular patches (McCammon, 1972).

A significant amount of work was done at CORAL, including diamond drilling, trenching and bulk sampling (Woodcock, 1972a; 1972b; McCammon, 1972; McCallum, 2013) (Table 61, Table 63, Figure 74, Table 72). Chip/grab samples were collected from 3 trenches: Sample 17194 returned 43 % CaF<sub>2</sub> over 38.1 m; Sample 17195 returned 33% CaF<sub>2</sub> over 45.7 m; and Sample 17196 returned 41% CaF<sub>2</sub> over 27.4 m (Woodcock, 1972a). A composite channel sample (Coral #1), averaged 53.68% CaF<sub>2</sub> over 33.5 m (Woodcock, 1972a), and included a high-grade zone, averaging 78.7% CaF<sub>2</sub> over 18.3 m (Table 72). A historic bulk sample (Bulk Sample #4), weighing ~450 to 540 kg, returned 64.88% CaF<sub>2</sub> (Woodcock, 1972a). A number of core holes were drilled, and the best results reported were from hole 72-43, which returned 39% CaF<sub>2</sub> over 26.5 m (Woodcock, 1972b).

Figure 610 - CORAL Showing, Compilation of Historic Work



From McCallum, 2013, modified from Woodcock, 1972a. Locations have not been verified. Trench and bulk sample grades are from Woodcock, 1972a, drill results from Woodcock, 1972b.

Table 62 - Summary of Historic Channel Sampling at CORAL

Summary of Channel Sampling of Historic Trenches								
Trench	Sample #	From (feet)	To (feet)	From (m)	To (m)	Length (m)	% CaF <sub>2</sub>	Reference
Coral #1	17055	0	10	0.0	3.0	3.0	88	Woodcock, 1972a
Coral #1	17056	10	20	3.0	6.1	3.0	88	Woodcock, 1972a
Coral #1	17057	20	30	6.1	9.1	3.0	80	Woodcock, 1972a
Coral #1	17058	30	40	9.1	12.2	3.0	60	Woodcock, 1972a
Coral #1	17059	40	50	12.2	15.2	3.0	78	Woodcock, 1972a
Coral #1	17060	50	60	15.2	18.3	3.0	78	Woodcock, 1972a
Coral #1	17061	60	70	18.3	21.3	3.0	37	Woodcock, 1972a
Coral #1	17062	70	80	21.3	24.4	3.0	60	Woodcock, 1972a
Coral #1	17063	80	90	24.4	27.4	3.0	47	Woodcock, 1972a
Coral #1	17064	90	100	27.4	30.5	3.0	20	Woodcock, 1972a
Coral #1	17065	100	110	30.5	33.5	3.0	7.6	Woodcock, 1972a

### 6.3.6 FIRE (Minfile # 094M 006)

The FIRE showing is located in the southern part of the Liard Fluorspar Project area, on gentle south-westerly facing slopes, north of a small east-west tributary of Teeter Creek, approximately 10 km north of Liard Hot Springs (Figure 67). In the early 1970's an east-west access road was built from the main access road to FIRE. According to Woodcock (1972b):

*“In this area the limestones are generally flat-lying remnants of overlying shales are widespread. In places, this overlying shale appears to be brecciated and also mineralised with fluorspar and barium minerals.*

*At the southeast end of the prospect, a narrow, highly mineralised zone extends at azimuth 330° for 900 feet (274 m). It has exposed widths between 100 feet (30.5 m) and 200 feet (61 m). Diamond drilling has shown that most of the fluorspar mineralisation occurs in the shale breccia with some underlying limestone breccia. The thickness of the mineralised zones are generally less than 50 feet (~15 m).”*

McCammon (1972) described one mineralised zone as:

*“The bluff across the road northwest of hole 20 consists of mineralised argillite breccia containing black and purple fluorite, barite, minor clay and limonite, and considerable loose carbon. Many vugs are present and some contain small, well-formed barite crystals.”*

Drilling and trenching work was completed at FIRE, with channel samples and a bulk sample collected from the trenches (Table 63), (Woodcock, 1972a, 1972b; McCammon, 1972). Woodcock (1972a) reports the results of semicontinuous channel sample trenching at FIRE, returned 50.75% CaF<sub>2</sub> over 70 feet (21.3 m, Table 63) and a bulk sample (Bulk Sample No. 5) weighing ~ 450 to 540 kg returned 42.94% CaF<sub>2</sub> (Table 63). Eighteen holes were drilled at FIRE;



Woodcock (1972b) reports the best hole, 72-37, located at the northwest end of the Fire showing, contained a zone of mineralised limestone breccia that returned 37% CaF<sub>2</sub> across 65 feet (19.8 m).

Summary of Channel Sampling of Historic Trenches								
Trench	Sample #	From (feet)	To (feet)	From (m)	To (m)	Length (m)	% CaF <sub>2</sub>	Reference
Fire	17067	0	10	0.0	3.0	3.0	60	Woodcock, 1972a
Fire	17068	10	20	3.0	6.1	3.0	64	Woodcock, 1972a
Fire	17069	20	30	6.1	9.1	3.0	62	Woodcock, 1972a
Fire	17070	30	40	9.1	12.2	3.0	55	Woodcock, 1972a
Fire	17071	40	50	12.2	15.2	3.0	55	Woodcock, 1972a
Fire	17072	50	60	15.2	18.3	3.0	62	Woodcock, 1972a
Fire	17073	60	70	18.3	21.3	3.0	47	Woodcock, 1972a

Table 63 - Summary of historic channel sampling at FIRE

From Woodcock, 1972a

### 6.3.7 CLIFF (Minfile # 094M 009)

The CLIFF showing is approximately 11 km north-northwest of Liard Hot Springs and almost two km west-northwest of FIRE (Figure 67), located near the crest of a hill east of Teeter Creek. An access road to CLIFF, extending from FIRE, was completed in the early 1970's. CLIFF is described by Woodcock (1972b) as follows:

*“This linear zone of mineralisation is exposed along the face of some low limestone cliffs over a north-south length of 500 feet (152m), and up to 100 feet (30.5m) wide. On the east it is bounded by an upper bench of flat-lying barren limestone. On the west it is separated from another hill of flat-lying barren limestones by an overburden-covered north south pass.*

*The fluorspar mineralisation is unusual for this mining camp in that horizontal banding occurs in the main exposure. Also much of the fluorite is colourless, although purple varieties also occur. The banded “ore” is quite silicious and has been mapped as impure quartzite. Possibly some siliceous zones were present in the limestone. However the silica could have been added during the introduction of fluorspar.*

*Just south of the mineralised exposures, shale debris and one shale outcrop have been noted. A drillhole in this south area intersected a very thin layer of fluorite mineralisation at the contact of the shale and the underlying limestone.”*

Four holes were drilled at CLIFF (Table 53); one, hole 72-39, is reported to have intersected 15.2 m of 39.6% CaF<sub>2</sub> (Woodcock, 1972b, Map 16; McCallum, 2013).

### 6.3.8 NICK (Minfile # 094M 012)

The NICK showing is approximately 12 km north-northwest of Liard Hot Springs and approximately one km north-northwest of the CLIFF showing (Figure 6-7). It occurs on the northwest and southeast flanks of a small circular hill, in an area of thick forest cover, west of Teeter Creek. In the early 1970's, an access road was constructed from CLIFF and some bulldozer stripping was done. NICK is described by Woodcock (1972b) as follows:

*“Exposures along the sides of the hill and in trenches consist of shale, generally barren, and a shale breccia which is generally mineralised.*

*Mineralisation consists of fluorspar and barium minerals within the “shale breccia” and within sparse fractures within the shale.”*

### **6.3.9 Mineralisation External to the Liard Fluorspar Project Area**

Four showings, TEASER, BAR, HENRY and GEM occur south of the current project area. BAR and HENRY are described in Woodcock (1972b); GEM is described by Woodcock (1972b) and McCammon (1972). TEASER is only documented in McCammon (1972). Readers are referred to these works for details on the showings.

## 7 DEPOSIT TYPES

Fluorspar deposits occur in a wide variety of geological environments (Hayes et al., 2017; Magotra et al., 2017 and references therein). They can broadly be grouped into seven classes, reflecting a great variation of fluid temperatures and compositions, resulting from highly varied tectonic and magmatic settings (Figure 71).

The Liard fluorspar deposits are predominantly carbonate-hosted and would be most closely associated with the Class 4 (Mississippi Valley-type, “MVT”) deposits in the scheme of Hayes et al. (2017). Magotra et al. (2017) describes fluorite deposits associated with sedimentary rocks and MVT deposits as:

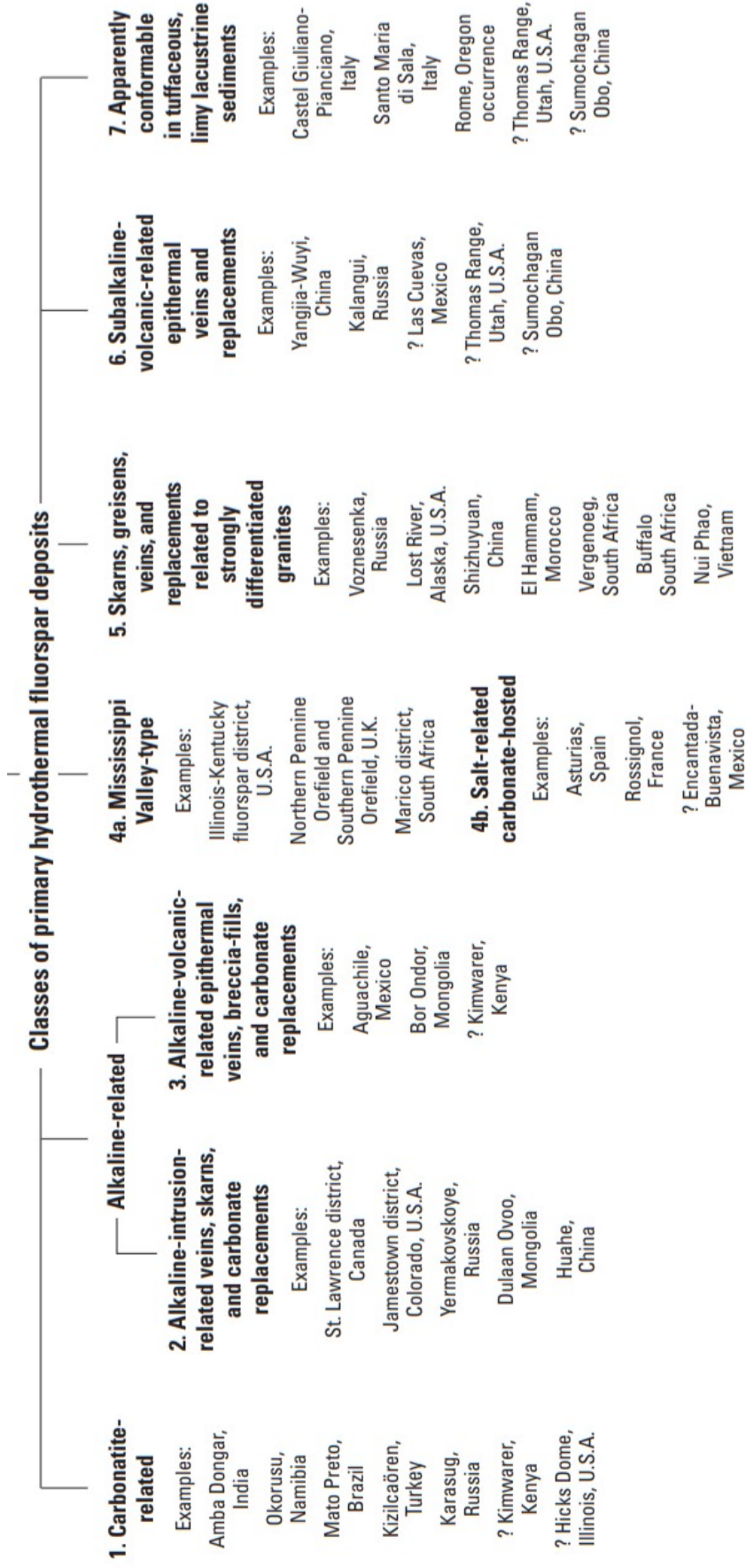
*“These types of epigenetic fluorite deposits are very common and are suggested to be formed by the diagenetic fluids. These deposits are characterised by very low temperature of formation (100°C - 150°C) and mostly occur as open space fillings, collapse and solution breccias and/or replacement within the carbonate and sedimentary host rock.*

*Fluorite mineralisation of hydrothermal origin in limestone occurs when temperature conditions are suitable for the crystallization of fluorite. The hot water highly enriched in fluorine with dissolved chemicals deep under the earth rises towards the surface over the time period. Fluorite deposit of Illinois is of this type where the water flowed through northeast-trending faults and fractures in limestones laid down in the Mississippian period, about 330 million years ago. When the hot brines reached the calcium-rich Mississippian rocks, the temperature and other conditions were just right for crystallizing fluorite along the walls of the faults and in flat-lying (zones) parallel to the beds of limestone. These host rocks (were) dissolved and were replaced with fluorite. Fluorite deposit associated with sedimentary rocks includes deposits at Jabalpur district, Madhya Pradesh (India), Pennines deposits (England), La Azul deposit in Taxco district, Purisima Mine, Coahuila, (Mexico), eastern Harz Mountains (Germany), Northwestern Sicily.*

*The fluid inclusion data of the fluorite of this type indicate that these deposits normally show homogenization temperature mostly ranging between 100°C to 150°C. The salinity of the inclusions within the fluorite of this category widely ranges between 12 wt% eq NaCl to 22 wt% eq NaCl (Brjsoui et al., 2013; Xu et al., 2012; Souissi et al, 2010)..*

*The rare earth element (‘REE’) content of the fluorite associated with carbonate sedimentary rocks show varied concentration. Overall it has much lower concentration of light REEs (“LREEs”) than the fluorite associated with magmatic rocks with slight negative Ce anomaly. Heavy REEs (‘HREEs’) in fluorite hosted in sedimentary rocks shows a moderate to low negative anomaly for Yb.”*

Figure 71 - Fluorspar Deposit Types



From Hayes et al., 2017.



## 9 EXPLORATION

The author could not locate information on any exploration conducted between 2012 and the 2021 property visit. In 2021, on the Tam occurrence, there was evidence of quite recent (less than one year old), sampling of the fluorspar, with selected grabs taken using apparently discarded or forgotten hammer and chisel (see ff).

On the 1<sup>st</sup> September 2021, the author visited the property, accompanied by R. Sanabria, Vice President, Exploration for Ares Strategic Mining Inc. A helicopter was chartered from Qwest Helicopters in Fort Nelson, with a direct flight to the property.

The property examination entailed a preliminary study of the local geology and mineralised occurrences where conditions were suitable (safe) for landing, a check on the condition of the drill core from historic drilling, and an aerial examination of several showings and old access roads. Details are provided below.

### *TAM*

*Figure 81 - Approach to Tam from the south, taken 2021*



*Figure 82 - Aerial view of northern part of Tam, taken in 2021*



One of several shallow trenches and channel sample sites can be seen in the clearing

Despite forest growth after stripping and the major regional forest, Tam mineralisation is well exposed over an area covering at least 150 metres north-south and 25 metres east-west. Several shallow trenches and channel sampled areas are also preserved with considerable exposed outcrop and rubble over much of this area. Historic reports indicated mineralisation was traced over 900 feet (274 metres), and widths from 160 feet (50 metres) to a maximum of 550 feet (167 metres). This requires further ground investigation.

Surface fluorite mineralisation is weathered pale grey to almost white, but when broken, the fluorite is pale mauve, purple, to dark grey-purple. It appears near or at the contact between the Dunedin limestone and the Besa River shale. The mechanically exposed area covers a limestone-shale contact defined by brecciated to variably fractured mineralised limestone and shale, with the latter hosting not inconsiderable organic material. The limestone also contains organics within the brecciated contact zone, but in lesser amounts. The mineralised zone dips moderately to the east.

Both major lithologies contain varying amounts of fluorite, quartz, barite, witherite, calcite and baryto-calcite. Very minor, fine-grained pyrite was noted in historic reports, but the author only observed trace, very localised amounts. Fluorite appears strongly prismatic coarse, dark to medium-purple, to paler, mauve, less translucent, and thirdly, darker, finer with clearly more impurities. material. Highest concentrations of fluorite appear to be in the limestone breccia, where it and barite mineralisation replaces the host. Fluorite mineralisation occurs in a number of forms, including minor to complete replacement, vein-type, fracture infill, irregular-massive to poddy, layered, crustiform or as matrix-material. Outside of the breccia zone, it may appear as threads or disseminations.

Overall, barite and possibly quartz mineralisation appear more concentrated in the breccia zone especially in limestone-rich areas. Chert layering was noted by the author.

Organic material is generally present as fine-grained material in shale, and as rare threads or inclusions in fluorite-rich mineralisation.

Brecciation takes several forms, from irregular, 'chaotic', to raft-like, crackle and mosaic. Below are examples of the fluorite mineralisation and related brecciation and alteration.



*Figure 83 - Surface mineralisation at Tam*



Above, examples of fluorite-baryte-witherite mineralisation.

*Figure 84 - Tam mineralisation & textures*



A total of five grab samples were taken at five separate locales over the Tam showing. The samples represent examples of fluorite mineralisation at or near the limestone-shale contact, considered the best locale for fluorite mineralisation and may not be wholly representative of the entire fluorite mineralisation at Tam, so caution is advised. See Ch. 10 for more information.

## TEE

*Figure 85 - Tee Showings viewed from the air in 2021 – looking NE*



The ?-main Tee showing in the centre-right of the image (bright, open area) is probably Woodcock's Zone B. Based on correlation with historic geology and sample maps, other Tee showings are probably located to the west (left), at slightly higher elevation, and below, in cliff faces, this. Below, the eastern Tee showing, looking west, (2021 image). The area was not ground checked due to poor landing conditions.

*Figure 86 - Zone B - Tee showing*



Figure 87 -



Historic excavation can be seen in the upper centre-left. Image taken in 2021

## **STRAP**

Located on the east side of a small hill, trending approximately 330°, and historically traced intermittently for some 180 metres and with a maximum exposed width of 13 metres, the exposure examined during the property visit had been stripped over a width of nearly eight metres.

There is extensive, moderate to strong fluorite-barite replacement of the limestone host. The host limestone appears fractured, shallow to moderately-dipping, and retains localised, minor

sedimentary layering overprinted by irregular, brecciating to replacement fluorite-barite-witherite. Like Tam, freshly exposed surfaces may display significant fluorite mineralisation.

*Figure 88 - Mineralisation at Strap*



*Figure 89 - Strap host*



The relationship to any contact with the Besa River shale is uncertain, but Woodcock did indicate it is in proximity to the mineralisation. However, this has yet to be verified.

*Figure 810 - Carbonate (Ba-Ca) replacement*





Two grab samples of fluorite mineralisation style were taken at Strap. They are not necessarily indicative of the entire mineralisation at the showing and caution is advised. See Ch. 10 for more information.

## **FIRE**

An aerial reconnaissance to check on access to other showings included a fly-by of what is concluded to be the Fire showing, UTM E662965 N6600770 (Google Earth)/Minfile UTM E6600864 N662845. The location is clearly shown on the 2021 aerial photography taken during the LiDAR survey (see below).

*Figure 812 - Fire Occurrence*



What was interpreted to be pale grey-mauve weathered fluorspar appears in the centre-right, near the top of the large exposure. Limited open space, slope and proximity to trees negated a surface check.

## **CAMP SITE**

The old camp site is just south of a small lake south-east of the Tam showing, and despite some vegetation re-growth, is still visible from the air, as are several trails leading west to the Coral showing(s), where at least two shallow trenches and spoil heaps, and the main access road leading north and south are visible from the air.

Several buildings are either collapsed or in imminent danger of such occurring. The drill core racks have collapsed and core cannot be re-logged (see figs. 5-2 and 5-3), but fluorite mineralisation can be seen in many drill core pieces.

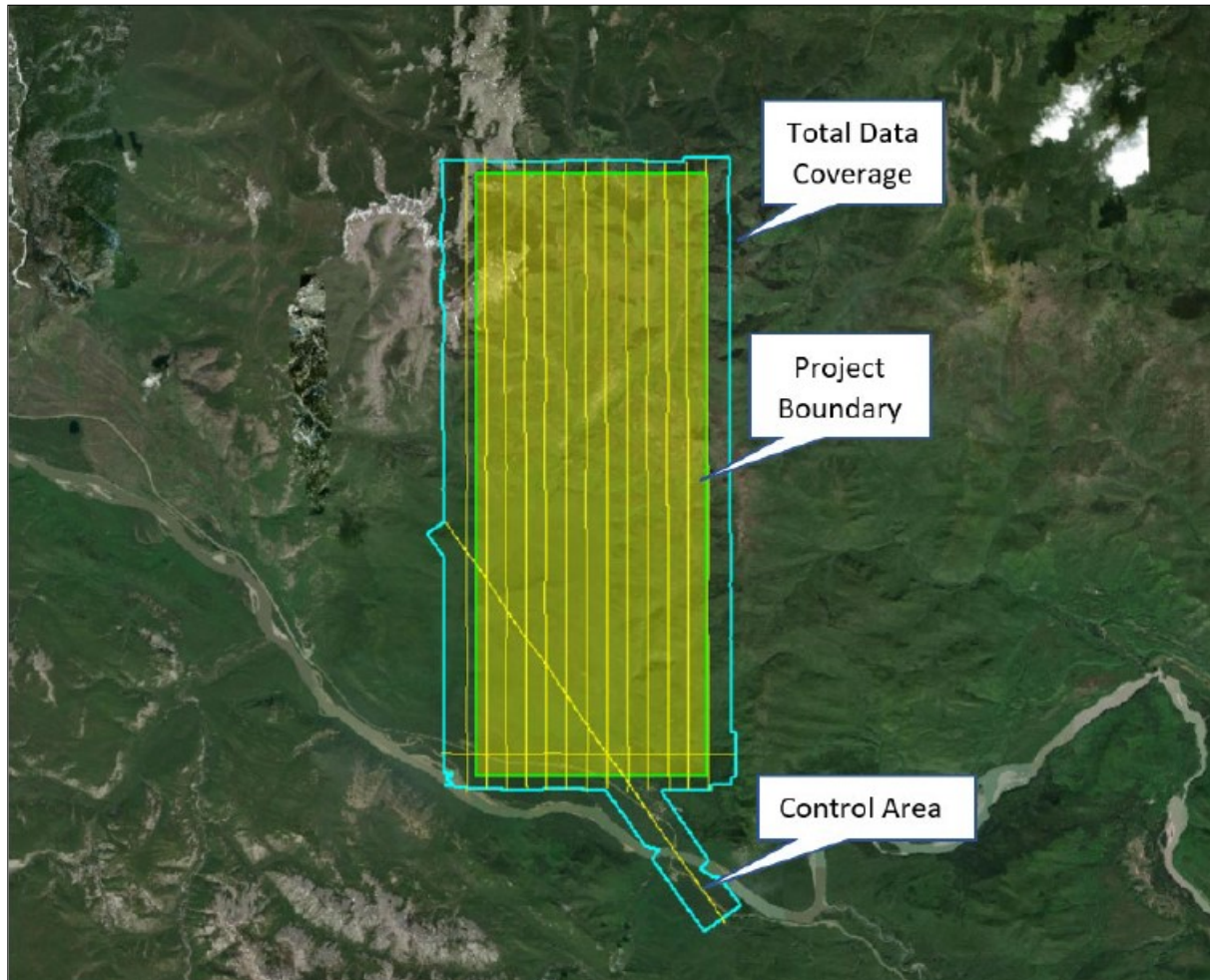


## 2021 Ares Exploration

McElhanney Ltd. of Vancouver, BC was contracted to perform a LiDAR (‘Light detection and ranging’) survey over and adjacent to the Liard Fluorspar Project property. The site was flown on the 7<sup>th</sup> September, 2021.

The area flown is shown below, taken from their 2022 report:

*Figure 813 - LiDAR Survey coverage*



McElhanney utilized a Teledyne Optech Galaxy T2000 system for LiDAR Capture with the system mounted on a Piper Navajo fixed wing aircraft. Digital air photo was simultaneously captured using a Phase-1 iXu-RS1000 medium format camera. Product specifications are available at: <https://www.teledyneoptech.com/en/products/airborne-surbey/galaxy>.

A total of fifteen north-south flight lines including one tie-line were flown for a total of 296 line-kilometres, excluding turns. A control flight line was also completed (see prev. image).

From the McElhanney 2022 report:

### “Point Density

The survey was designed to collect LiDAR data at a nominal design density of 8 pulses/m<sup>2</sup>. Bare-earth (ground) point density and mean spacing varies with canopy closure, understory density and topographic features. The mean density of the point cloud (all points) was measured at 16.9 pts/m<sup>2</sup> and the bare-earth point density was measured at 2.6 pts/m<sup>2</sup>. The mean bare earth point spacing was measured at 0.6 metres.

### Calibration

#### System: Teledyne Optech Galaxy T2000

#### LiDAR Calibration flight:

Calibration Date: 2021-07-24

The LiDAR system calibration was flown over Abbotsford, BC. A total of 11 flight lines were flown at 1000m and 2000m AGL in an overlapping 2x2 grid pattern. GPS and IMU data were processed using POSPac Applanix software v.8.6 using single base differential processing. The base station used was a Leica SmartNet station located within the calibration flight block. Laser data was extracted and processed using Optech LMS v.4.4. Thirty control points were used, and the absolute accuracy of the LiDAR data collected during the calibration flight was assessed at 0.052m RMSE.

### Quality Control

The LiDAR data consistencies have been checked between the flight lines using Terrascan software.

### Comparison of Bare Earth LiDAR Data with Control Data

The vertical accuracy of LiDAR is as follows:

$$RMSE_z = \text{Sqrt}[\sum (Z_{Lidar(i)} - Z_{check(i)})^2 / n] = 0.03 \text{ m (relative to 2016 LiDAR data).}$$

where the “check” refers to the ground truthing. In this project a total of 228 check points were used along a section of paved highway near the bridge at the southern end of the project area. The horizontal fit of 2021 data with 2016 data was visually assessed at better than 40cm. As the 2021 LiDAR data was checked against and then adjusted to 2016 bare-earth LiDAR points rather than RTK ground control points, absolute accuracy cannot be reported, and accuracy is therefore reported as being relative to the 2016 data. The accuracy of 2016 data is reported as 0.15m RMSE.

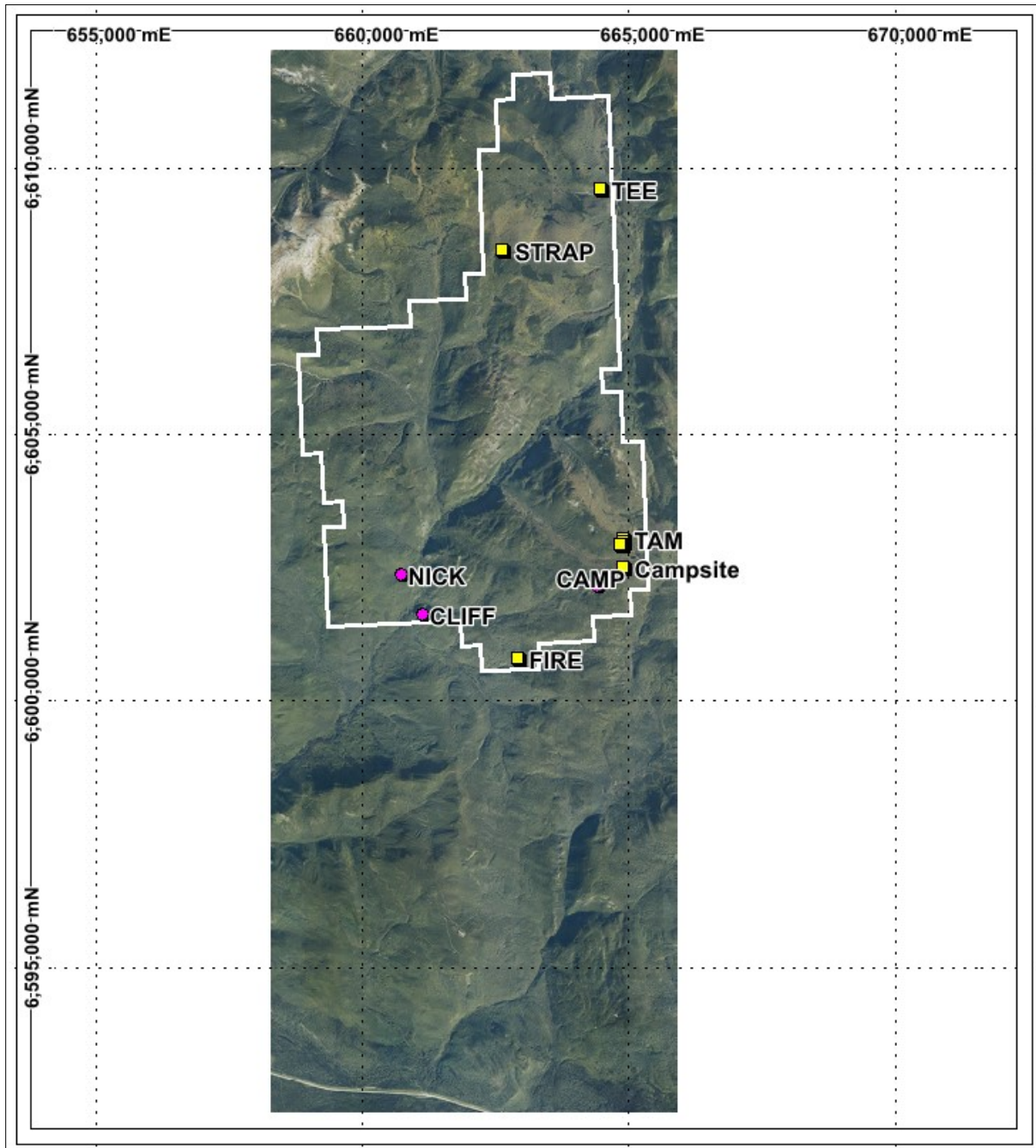
Orthophoto was processed using Leica Hxmap and Pix4D software and controlled with refined Exterior Orientation and LiDAR intensity points. Ground control points were derived from LiDAR where features were discernible in both LiDAR data and airphoto. The spatial accuracy results for orthophoto are reported as relative to LiDAR data. Our target for orthophoto spatial

accuracy was to match the horizontal position of LiDAR data to within two image pixels, reported as RMS X and Y error in metres. As pixel size is 0.2m, the RMS X error value of 0.167m and the RMS Y error value of 0.194m indicated that this was achieved.”

Recommendations made by McElhanney were as follows:

“The 0.03m accuracy stated in the Quality Control section was determined after adjusting 2021 LiDAR data to match the vertical position of 2016 LiDAR data along the highway near the bridge at the southern end of the project area (see Figure 1). The accuracy of the 2016 data is reported as 0.15m RMSE. As 2021 data is reported relative to other LiDAR data rather than RTK ground control points, the accuracy reported for 2021 data is a relative accuracy value, not an absolute accuracy value. If 2021 LiDAR data is to be used for detailed engineering or design work or if an absolute accuracy value must be known for other work we recommend that a minimum of 100 RTK ground control points be established along the paved highway in the immediate vicinity of the bridge and that several points for horizontal checks also be collected at the corners of concrete structures at the ends of the bridge. 2021 data can then be compared to new ground control and an absolute accuracy value can be reported. Repaving or other road work done between September 7, 2021, and the time new ground control is collected may affect final LiDAR absolute accuracy.”

Figure 814 - Aerial orthophoto with occurrences

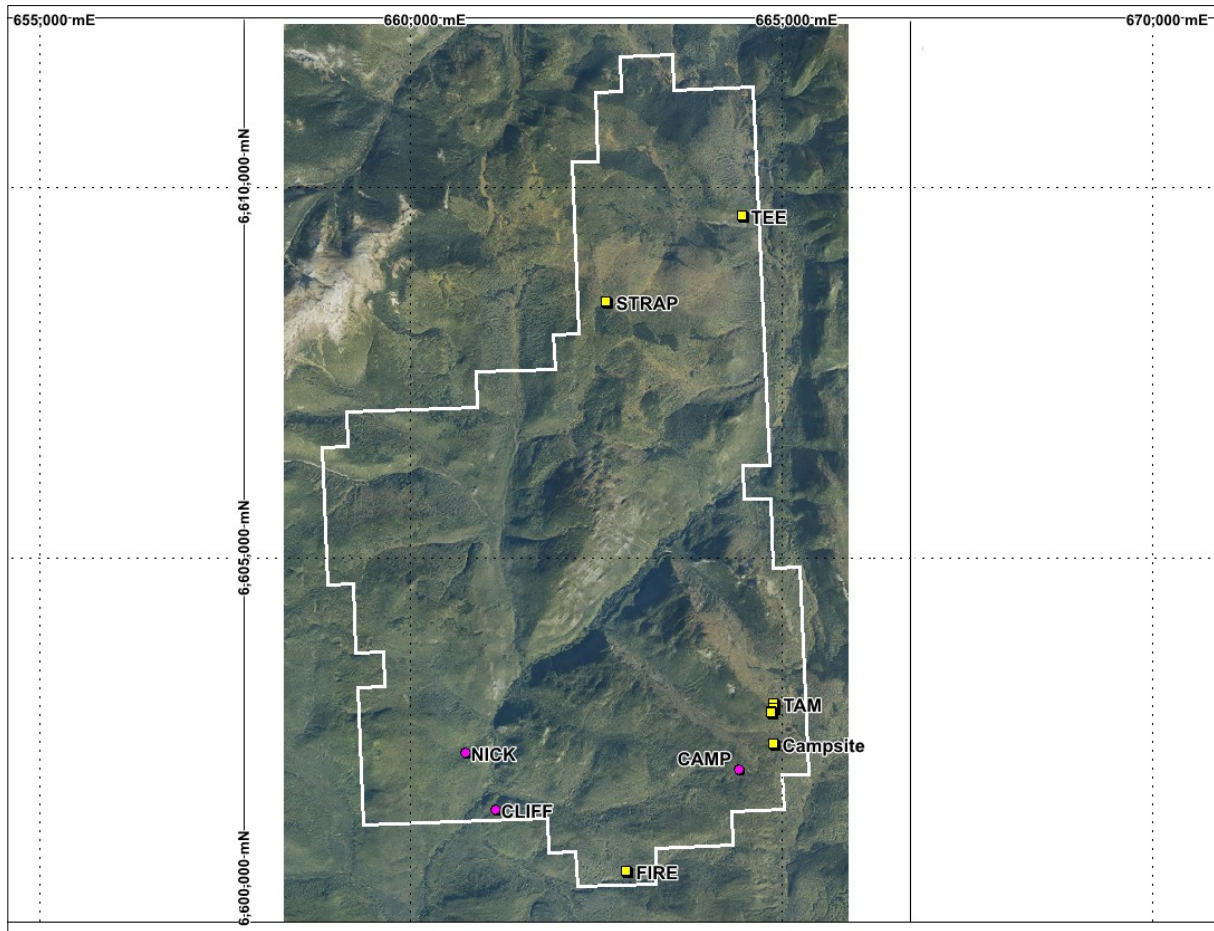


1:100,000 aerial image, from 2021 LiDAR survey at 80 cm resolution.

Claim outline in white (from BC EMPR iMapBC kml file)

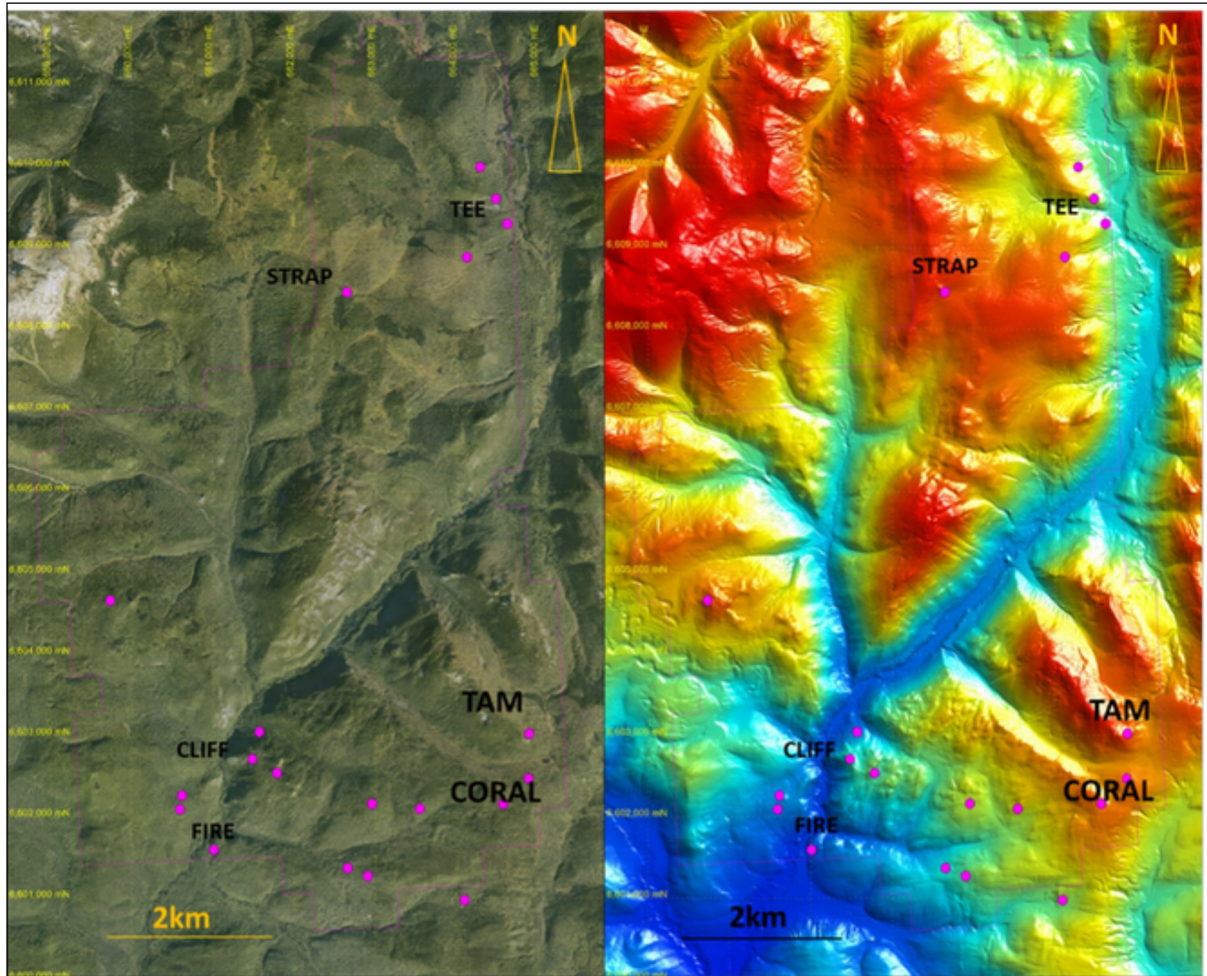
Red dots are Minfile locations for occurrences, yellow squares are LiDAR GPS locations for occurrences. Road in the far south is the Alaska Highway.

Figure 815 - Aerial orthophoto over Property



1:60,000 scale, with 80 cm resolution

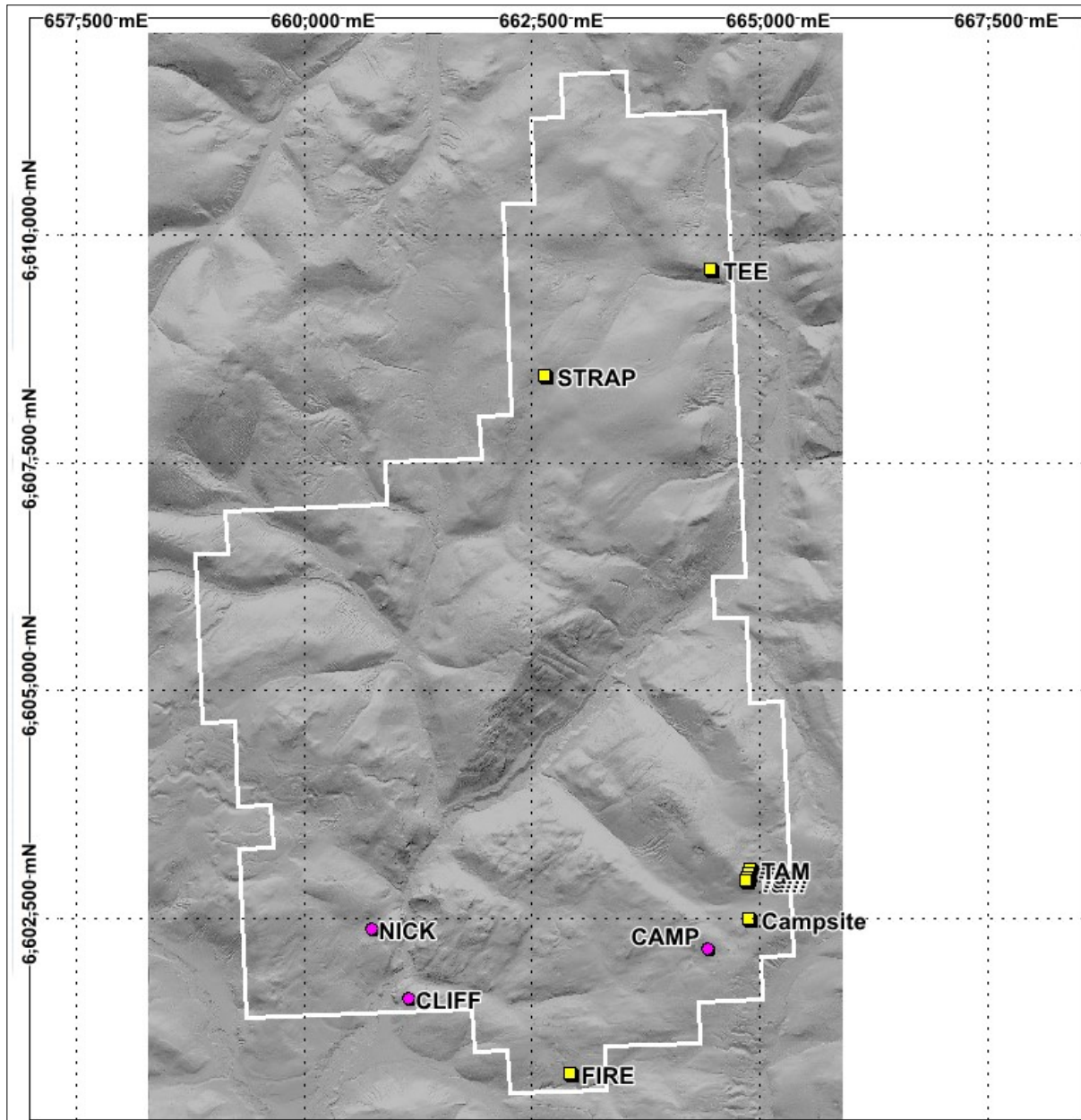
Figure 816 - Orthophoto and terrain DEM



Orthophoto and terrain Digital Elevation Model (DEM) covering the Liard Fluorite Project and indication of historic (MinFile) fluorspar showings (purple dots). From Ares files.

Historic showing locations as shown are from BC MinFile data, and unverified except for Tam, Tee, Strap and Fire which have updated, 2021 GPS locations presented above, fig. 8-10.

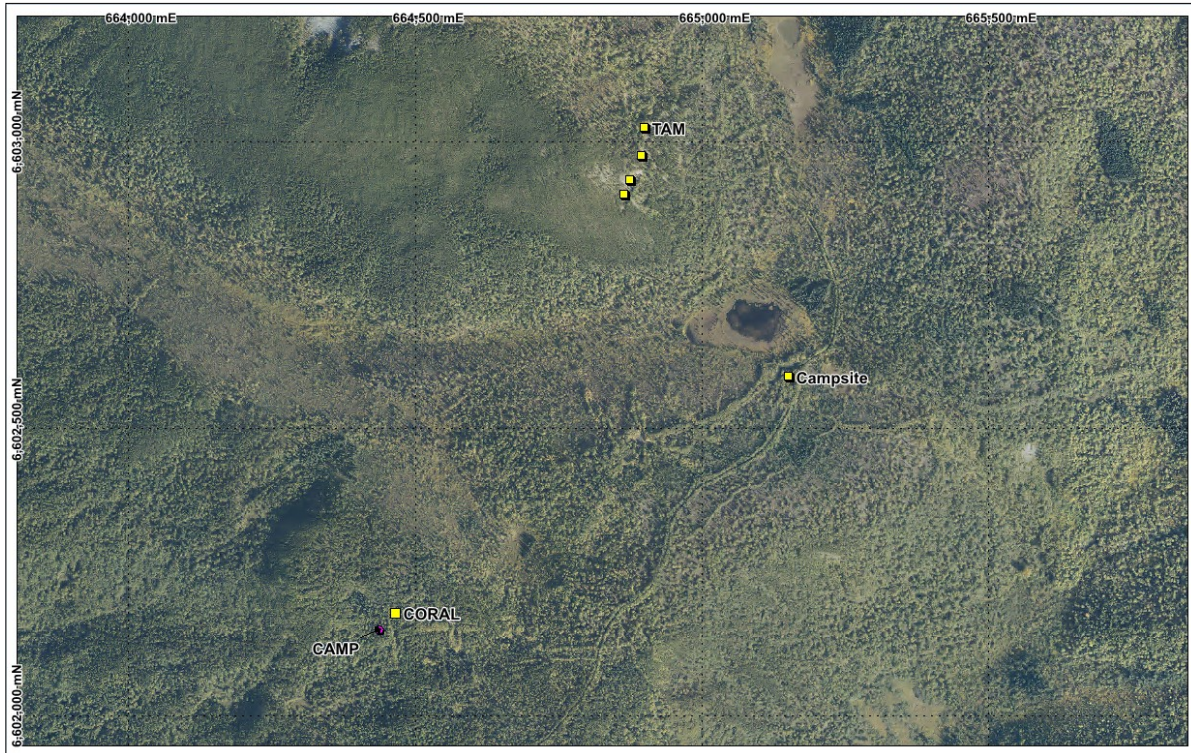
Figure 817 - Greyscale DEM over property with showings



Below, Fall, 2021 data (post-property visit), showing the extent of the Tam, and Coral-Camp showings workings and main access road north and south of the old camp. The 2021 DEM data provides very accurate locations of historic work in these areas, with clear delineation of excavation on the east slope of Tam, north-west – south-east trenching west of the old camp and

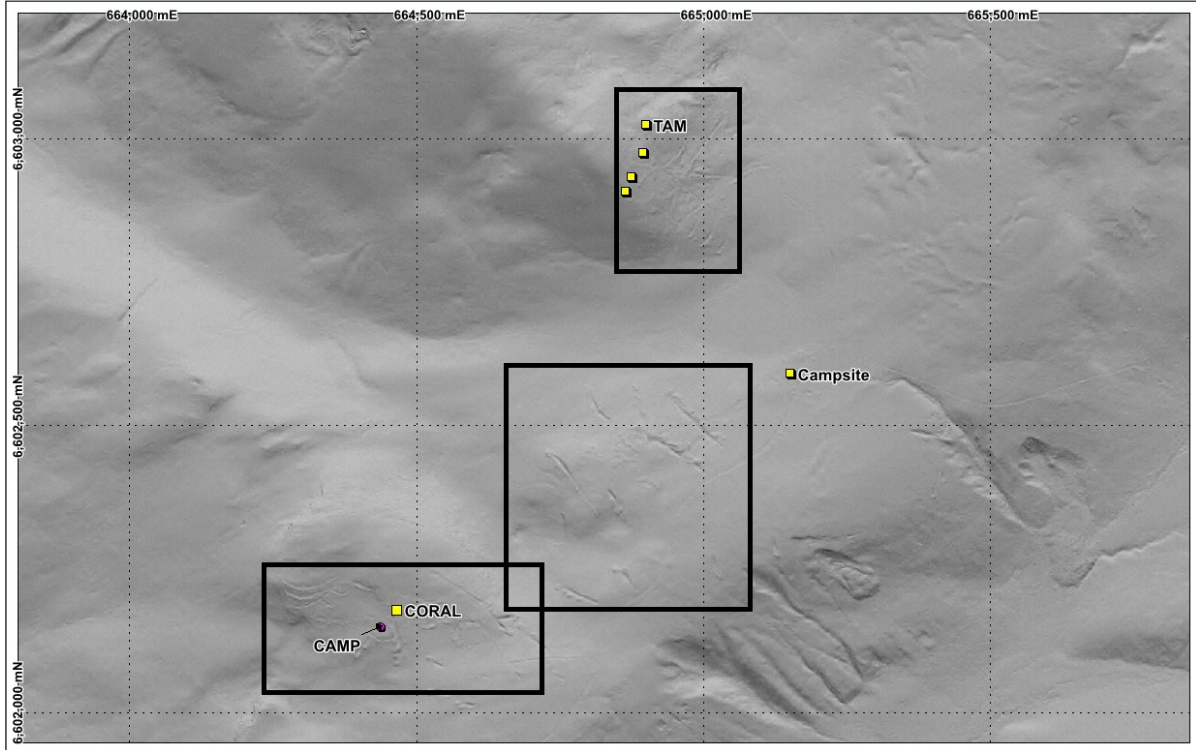
various exploration sites around the Minfile ‘Camp’ showing location shown in magenta. Several showings were poorly visible or invisible from the air during the 2021 property visit.

*Figure 818 - 2021 Aerial image - TAM & Coral-Camp historic showings*



*Figure 819 - 2021 DEM with TAM & Coral Camp historic showings*





## 10 DRILLING

No recent drilling has been done at the Liard Fluorspar project. Historic work is discussed in Section 5.

## 11 SAMPLE PREPARATION, ANALYSES AND SECURITY

As part of the September property examination, a total of seven grab samples were taken from the Tam and Strap showings, (five and two, respectively). They should not be considered representative of or verify historic grades from either site or across the property, rather, provide an indication of overall chemistry and the presence of fluorite. Sample Locations are as follows:

*Table 101 - 2021 Sample Locations*

Sample ID	Location	Easting NAD 83	Northing Zone 9
025217	TAM	664897	6602978
025218	TAM	664902	6603022
025219	TAM	664900	6603018
025220	TAM	664876	6602930
025221	TAM	664880	6602933
025222	STRAP	662648	6608452
025223	STRAP	662652	6608450

The samples were sent to the SGS Canada Laboratory in Burnaby, B.C. for caustic soda fusion ICP multi-element analysis using methods GE\_FUS91A50, GE\_ICP91A50 and GE\_IMS91A50. SGS Canada Minerals Burnaby conforms to the requirements of ISO/IEC17025 for specific tests as listed on their scope of accreditation found at <https://www.scc.ca/en/search/laboratories/sgs>.

*Table 102 - ICP analysis*

SAMPLE	WT KG	GE ICP91A50	GE ICP91A50	GE ICP91A50	GE ICP91A50	GE ICP91A50	GE ICP91A50	GE ICP91A50	GE ICP91A50	GE ICP91A50	GE ICP91A50	GE ICP91A50	GE ICP91A50
DESCRIPTION	kg	%	ppm	ppm	%	ppm	ppm	%	%	ppm	%	ppm	ppm
52517	2.03	0.02	>10000	<5	>25.0	<10	<10	0.04	<0.1	<10	<0.01	<10	10
52518	1.19	0.04	>10000	<5	18.2	<10	<10	0.06	<0.1	<10	<0.01	<10	19 <5
52519	2.3	0.03	>10000	<5	>25.0	<10	<10	0.02	<0.1	<10	<0.01	<10	<5
52520	1.53	0.02	>10000	<5	>25.0	<10	<10	0.05	<0.1	<10	<0.01	74	8
52521	2.05	0.09	>10000	<5	>25.0	<10	<10	0.14	<0.1	14	<0.01	18	10
52522	2.06	<0.01	>10000	<5	>25.0	<10	<10	0.01	<0.1	<10	<0.01	<10	<5
52523	2.09	0.03	>10000	<5	23.9	<10	<10	0.03	<0.1	13	<0.01	33	14
REP-052521		0.09	>10000	<5	>25.0	17	<10	0.15	<0.1	13	<0.01	18	18
BLK-BLANK		<0.01	15	<5	<0.1	<10	<10	<0.01	<0.1	<10	<0.01	<10	<5
STD-OREAS 681		8.17	423	<5	6.4	2154	274	7.72	1.4	14	5.4	1337	489

GE ICP91A50	GE ICP91A50	GE ICP91A50	GE ICP91A50	GE ICP91A50	GE ICP91A50	GE ICP91A50	GE ICP91A50	GE IMS91A50	GE IMS91A50	GE IMS91A50	GE IMS91A50	GE IMS91A50	GE IMS91A50	GE IMS91A50
P	Sc	Si	Sr	Ti	V	Zn	Ag	As	Bi	Cd	Ce	Co	Cs	
%	ppm	%	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	
<0.01	<5		1.2 >5000	<0.01	<5		12 <1	<5	<0.1	<0.2		1.1	0.8 <0.1	
<0.01	<5		3.3 >5000	<0.01	<5		12 <1	<5	<0.1		0.6	0.1	0.6 <0.1	
<0.01	<5		1.7	3199	<0.01	<5		11 <1	<5	<0.1	<0.2	0.7 <0.5	<0.1	
<0.01	<5		3	997	<0.01	<5		47 <1	<5	<0.1	<0.2	1.2	1.3 <0.1	
<0.01	<5		9	3098	<0.01	<5		15 <1	<5	<0.1	<0.2	1.5	0.7 <0.1	
<0.01	<5		0.7 >5000	<0.01	<5		6 <1	<5	<0.1	<0.2		0.5	0.5 <0.1	
<0.01	<5		1.7 >5000	<0.01	<5		47 <1	<5	<0.1		0.5	0.7	0.7 <0.1	
<0.01	<5		9	3188	<0.01	<5		15 <1	<5	<0.1	<0.2	1.6	0.9 <0.1	
<0.01	<5	<0.1	<10	<0.01	<5	<5	<1	<5	<0.1	<0.2	<0.1	<0.5	<0.1	
0.15	27	24.1	498	0.6	250	100	<1	<5	<0.1	<0.2	43.2	54.1	4.1	

GE IMS91A50	GE IMS91A50	GE IMS91A50	GE IMS91A50	GE IMS91A50	GE IMS91A50	GE IMS91A50	GE IMS91A50	GE IMS91A50	GE IMS91A50	GE IMS91A50	GE IMS91A50	GE IMS91A50	GE IMS91A50	GE IMS91A50			
Dy	Er	Eu	Ga	Gd	Ge	Hf	Ho	In	La	Lu	Mo	Nb	Nd				
ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm				
0.87	0.47	NR	<1		0.77	<1		1	0.18	<0.2		2.7	0.07	<2	<1		2
0.51	0.37	NR	<1		0.45	<1	<1		0.14	<0.2		0.5	<0.05	<2	<1		0.6
0.6	0.34	NR	<1		0.51	<1	<1		0.15	<0.2		2	<0.05	<2	<1		1.5
1.03	0.63	NR	<1		1	<1	<1		0.24	<0.2		1.5	<0.05	<2		1	1.6
0.78	0.43	NR	<1		0.8	<1	<1		0.18	<0.2		2	<0.05	<2	<1		1.9
0.81	0.46	NR	<1		0.82	<1		1	0.17	<0.2		3	0.07	<2	<1		2
0.6	0.37	NR	<1		0.58	<1		1	0.13	<0.2		3.4	0.07	<2	<1		1.9
0.77	0.39	NR	<1		0.71	<1	<1		0.17	<0.2		2.1	<0.05	<2	<1		1.8
<0.05	<0.05	<0.05	<1	<0.05	<1	<1	<1	<0.05	<0.2	<0.1	<0.05	<2	<1	<1	<0.1		<0.1
3.46	2	1.44	18	4.34	2	2	2	0.71	<0.2	20.4	0.3	<2	<1	6	22.8		

GE IMS91A50	GE IMS91A50	GE IMS91A50	GE IMS91A50	GE IMS91A50	GE IMS91A50	GE IMS91A50	GE IMS91A50	GE IMS91A50	GE IMS91A50	GE IMS91A50	GE IMS91A50	GE IMS91A50	GE IMS91A50	GE IMS91A50	GE IMS91A50	GE IMS91A50	GE IMS91A50	
Pb	Pr	Rb	Sb	Sm	Sn	Ta	Tb	Th	Tl	Tm	U	W	Y	Yb	Zr			
ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm			
<5		0.23	0.6	0.1	1.1	<1	<0.5		0.13	0.2	<0.5		0.06	2.62	<1	19.2	0.2	14.1
<5		0.16	0.7	0.1	0.5	<1	<0.5		0.11	0.5	<0.5	<0.05		1.51	<1	13.4	0.2	1.3
<5		0.25	<0.2	0.2	0.9	<1	<0.5		0.09	0.2	<0.5	<0.05		7.23	<1	14.6	0.1	1.9
<5		0.24	0.6	0.2	0.8	<1	<0.5		0.16	0.1	<0.5		0.06	10.51	<1	20.6	0.3	3.2
<5		0.26	1	0.3	0.8	<1	<0.5		0.13	0.1	<0.5	<0.05		1.8	<1	14.9	0.2	2.2
<5		0.15	0.4	<0.1	1.5	<1	<0.5		0.13	0.1	<0.5	<0.05		0.98	<1	20.5	0.2	2.7
<5		0.2	0.5	<0.1	1.2	<1	<0.5		0.09	<0.1	<0.5	<0.05		2.02	<1	15.1	0.2	1.4
<5		0.28	0.9	0.3	0.9	<1	<0.5		0.14	0.2	<0.5	<0.05		1.78	<1	15.3	0.2	2.6
<5	<0.05		0.2	<0.1	<0.1	<1	<0.5	<0.05	<0.1	<0.5	<0.05	<0.05	<0.05	<1	<0.5	<0.1	<0.5	
10	5.43	78.8	0.2	4.9	2	<0.5	0.59	6.2	<0.5	0.28	1.45	1	17.4	1.9	80.8			

Table 103 - Whole rock analysis

A split of the pulp from every sample was sent to the Lakefield SGS laboratory for whole rock analysis including fluorine. The analytical method was borate fusion XRF.

Batch ID	CA02192-NOV21																
Date Received	04/11/2021																
Date Finalised	29/11/2021																
Report Status	Final																
Element	SiO2	Al2O3	Fe2O3	MgO	CaO	Na2O	K2O	TiO2	P2O5	MnO	Cr2O3	V2O5	LOI	Sum	F	Weight	
Unit Symbol	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	g	
Method	Borate Fusion XRF															Received weight including original packaging	
Lower Detection Limit	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0	5	0.1	0.01
Upper Detection Limit																	
025217	2.42	0.09	0.02	<0.01	47.8	0.17	<0.01	0.06	0.02	<0.01	<0.01	0.02	7.01	57.6	32.8	255	
025218	7.08	0.13	0.03	<0.01	26.4	0.27	<0.01	0.10	0.01	<0.01	<0.01	0.05	2.05	36.1	17.9	243	
025219	4.47	0.10	<0.01	<0.01	39.4	0.24	<0.01	0.08	0.01	<0.01	<0.01	0.04	14.6	58.9	22.1	257	
025220	4.43	0.06	0.05	<0.01	56.7	0.10	<0.01	0.03	0.02	<0.01	<0.01	0.01	4.12	65.5	36.7	243	
025221	20.8	0.18	0.12	<0.01	41.2	0.13	0.02	0.05	0.01	<0.01	<0.01	0.02	6.06	68.5	27.8	231	
025222	1.44	0.07	<0.01	<0.01	39.8	0.24	<0.01	0.08	<0.01	<0.01	<0.01	0.04	8.80	50.4	27.5	264	
025223	4.02	0.13	0.01	<0.01	32.5	0.26	<0.01	0.09	0.01	<0.01	<0.01	0.05	17.3	54.3	22.4	248	
Pulp Duplicates																	
025220	4.44	0.07	0.06	<0.01	56.7	0.08	<0.01	0.03	0.02	<0.01	<0.01	0.01	4.11	65.5	36.8	---	
Preparation Repeats																	
Reference Materials																	

QA/QC methods associated with the analysis are provided on their website.

## 12 DATA VERIFICATION

T. Hughes visited the property on the 1<sup>st</sup> September, had access to, and personally collected and examined the samples, confirming the geology and mineralisation. Locations were measured by the author using a hand held Garmin GPS.

T. Hughes considers The SGS laboratories in Burnaby, B.C. and Lakefield, Ontario to be professionally managed and operated under the highest quality standards. SGS Minerals is ISO 17025 accredited in North America.

The author emphasizes the limitations of the QA/QC procedures used in the 2021 sampling by not inserting standard reference materials or blank samples in the sample stream sent for analysis, but for the purposes of preliminary geochemical sampling and the preliminary stage of the identified targets, the QA/QC procedures are acceptable, especially in view of the QA/QC procedures followed by SGS. The author recommends that blanks, standard reference materials and duplicate samples are submitted for assay in future sampling campaigns.

Samples taken during the property visit are essentially of an exploratory nature, and provide preliminary findings on the prospectivity of the property. Results from the 2021 sampling verify the presence of the target mineral fluorspar on two of the historic showings.

It is the author's opinion that the geological data collected by him is adequate for the purpose of this report.

## **13 MINERAL PROCESSING AND METALLURGICAL TESTING**

No recent mineral processing or metallurgical testing has been conducted. Historic work is summarized in Section 6.2 Historic Mineral Processing and Metallurgical Testing.

## **14 MINERAL RESOURCE ESTIMATES**

No recent NI-43-101 compliant mineral resource estimates exist. Historic work is summarized in Section 6.3 Historic Grade and Tonnage Estimates.

## **15 MINERAL RESERVE ESTIMATES**

This section is not applicable to this report.

## **16 MINING METHODS**

This section is not applicable to this report.

## **17 RECOVERY METHODS**

This section is not applicable to this report.

## **18 PROJECT INFRASTRUCTURE**

This section is not applicable to this report.

## **19 MARKET STUDIES AND CONTRACTS**

N/A

## **20 ENVIRONMENTAL STUDIES, PERMITTING AND SOCIAL OR COMMUNITY IMPACT**

The author has been informed by James Walker, President of Areas Strategic Mining that no environmental studies, permitting of any kind or studies involving social or community impact have been carried out.

## **21 ECONOMIC ANALYSIS**

The author has been informed by James Walker, President of Areas Strategic Mining that no economic analysis has been carried out.

## **22 ADJACENT PROPERTIES**

At time of writing, there are no known adjacent properties with recent or active exploration.

As mentioned in Ch. 6.3.9. there are four showings, TEASER, BAR, HENRY and GEM which occur south of the current project area. BAR and HENRY are described in Woodcock (1972b); GEM is described by Woodcock (1972b) and McCammon (1972). TEASER is only documented in McCammon (1972). Readers are referred to these works for details on the showings.

## **23 OTHER RELEVANT DATA AND INFORMATION**

The author knows of no other information that would be directly relevant to the Project.

## **24 INTERPRETATION AND CONCLUSIONS**

The Independent Qualified Person visited the Liard property, and verified two well-developed fluorspar mineralised showings.

The Property is an underexplored exploration project with good potential for the discovery of a large mineralised system indicated by the extent of mineralisation, historic showings, and the results from exploration programmes completed by previous operators.

For nearly all known showings, there appears to be a strong spatial relationship between fluorspar mineralisation and the Dunedin-Besa River formations contact. At this stage, structural controls are less well defined, but recommended work (below) would improve the understanding of such. Fitzgerald and Braun (1965) indicated “Striking changes in fold style are present across the formation and between it and other units. Although shales of the Besa River are commonly deformed by a mechanism of close cleavage folding, underlying Middle Devonian carbonates have open folds that are probably of the flexural-slip type.

“Internally the formation displays well-developed axial-plane cleavage and a similar fold style. Dependent on the lithologic character of overlying strata, these structures may be replaced progressively upward by concentric folds in the case of shales interbedded with limestone or sandstone, or by an abrupt change to a concentric fold style where overlying beds are massive limestones. In many exposures a pronounced zone of structural separation may be observed or inferred to exist within the Besa River Formation.” Any major change in fold geometry at the Besa-Dunedin boundary could result in the formation of potentially economic ‘traps’ for fluorspar-mineralisation.

The Fall LiDAR/DEM survey results provides valuable and detailed information on the extent of historic workings and significantly aids their definition, particularly as several are now partially overgrown. Structural interpretation using the data will be most useful.

All drilling is of an historic nature, and implementation of a new programme requires significant surface work, combining detailed mapping and systematic sampling to establish and verify workings and possibly drill sites, and developing a robust GIS database.

Geophysical surveying by resistivity or IP would be beneficial in locating subsurface mineralisation and delineating potentially favourable faulting. Simple VLF-EM can also be effective as would be the use of a portable XRF (X-ray fluorescence) machine.

As stated above, the vast majority of the property remains underexplored and a better understanding of the geology would be achieved in part by a property-wide reconnaissance mapping and prospecting programme. It is quite possible that new showings can be found.

## **25 RECOMMENDATIONS**

The following exploration is recommended

## **Phase I**

Structural analysis using the DEM data which may show faults and folding pertinent to physical controls on mineralisation.

Either establish a base at the Liard Hot Springs resort or an on-property camp, both of which would require helicopter support. For the first 1-2 months, trail restoration would necessitate using the resort as at least a temporary base of operations.

Using the LiDAR/DEM data, flag old routes to all showings and assess them for upgrading to permit at least ATV access on all.

Permitting for this work should commence as soon as possible due to the extent of the roads and trails.

Field check old workings and accurately locate using GPS. Amend/correct historic data as where/when necessary. Collate all surface and drill information into a digital format.

The road north from the communications tower should be re-established to permit ATV access to the old camp and TAM. Old roads to other historic showings could also be cleaned out, based on results from mapping and sampling. Road widening to provide larger vehicular access, e.g. bulldozer or backhoe would be predicated on positive findings.

Obtain a work permit for trail or road re-construction to the old camp site and TAM as soon as possible.

Strip and map all the known historic showings to provide accurate modern geological data. Tie in data to historical records to produce a more accurate geology of the historic showings, and extent of past work.

## **Phase II**

Based on the historical work, it is possible Tam will form the priority target. Geophysical surveying is recommended prior to implementing a drill programme with the aim to obtain an indicated resource meeting current industry and regulatory requirements.

Drilling on other targets would be predicated on results from Tam, including metallurgical work thereon.



## 26 REFERENCES

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094M 007 – CORAL-CAMP

094M 009 - CLIFF

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## **27 CERTIFICATE OF QUALIFIED PERSON**

I, Toby N.J. Hughes, P. Geo., Vancouver, BC, do hereby certify that:

I have a B.Sc. Hons. Degree, Geology, from The University, Dundee, Scotland (1980).

I am registered with the Association of Professional Geoscientists of Ontario (APGO)

I have practiced my profession continuously for over forty years since graduation.

The author holds no direct interest in Ares Strategic Mining Corp.

I have read the definition of “qualified person” set out in National Instrument 43-101 (“NI 43-101”) and certify that by reason of my education, affiliation with professional associations (as defined in NI 43-101), and past relevant work experience, I fulfil the requirements to be a “qualified person” for the purposes of NI 43-101.

I am responsible for this report, titled “Technical Report on the Liard Fluorspar Project”, and have visited the property on the 1<sup>st</sup> September, 2021.

I have had no prior involvement in the property.

As of the date of the certificate, to the best of my knowledge, information and belief, the technical report contains all scientific information to be disclosed to make the Technical Report not misleading.

I am independent of the issuer and applying all the tests in section 1.5 of NI 43-101 as it pertains to the mineral titles comprising the Liard Fluorspar property.

I have read National Instrument 43-101 and Form 43-101F, and this Technical Report has been prepared in compliance with said instrument and form.

I make this Technical Report titled “2022 Technical Report Liard Fluorspar” effective 18<sup>th</sup> February, 2022

Toby Hughes, P. Geo.

# **APPENDIX**

## **Certificates of Analysis**



**ANALYSIS REPORT BBM21-13723**

To ARES STRATEGIC MINING INC  
RAUL SANABRIA  
UNIT 1001-409 GRANVILLE ST  
VANCOUVER V6C 1T2  
BC  
CANADA

Order Number	PO#	Date Received	14-Oct-2021
Project	LIARD FLUORITE	Date Analysed	27-Oct-2021 - 07-Nov-2021
Submission Number	*BBY* Liard Fluorite / 7 Rocks	Date Completed	08-Nov-2021
Number of Samples	7	SGS Order Number	BBM21-13723

<b>Methods Summary</b>		
<u>Number of Sample</u>	<u>Method Code</u>	<u>Description</u>
7	G_WGH_KG	Weight of samples received
7	G_PRP	Combined Sample Preparation
7	GE_FUS91A50	Na2O2/NaOH Fusion, 500°C, HNO3, ICPAES, 0.1g-50ml, Glassy Carbon cruci
7	GE_ICP91A50	Na2O2/NaOH Fusion, 500°C, HNO3, ICPAES, 0.1g-50ml, Glassy Carbon cruci
7	GE_IMS91A50	Na2O2/NaOH Fusion, ICP-MS, Glassy Carbon crucibles

Comments

Analytical interferences for Eu in GE\_IMS91A50 is in effect due to Ba in scheme GE\_ICP91A50.

Authorised Signatory

John Chiang  
Laboratory Operations Manager



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**WARNING:** The sample(s) to which the findings recorded herein (the "Findings") relate was(were) drawn and / or provided by the Client or by a third party acting at the Client's direction. The Findings constitute no warranty of the sample's representativeness of any goods and strictly relate to the sample(s). The Company accepts no liability with regard to the origin or source from which the sample(s) is/are said to be extracted. The findings report on the samples provided by the client and are not intended for commercial or contractual settlement purposes.

- not analysed | -- element not determined | I.S. insufficient sample | L.N.R. listed not received



Order Number PO#  
Project LIARD FLUORITE  
Submission Number \*BBY\* Liard Fluorite / 7 Rocks  
Number of Samples 7

**ANALYSIS REPORT BBM21-13723**

Element Method	WTKG G_WGH_KG	@Al GE_ICP91A50	@Ba GE_ICP91A50	@Be GE_ICP91A50	@Ca GE_ICP91A50	@Cr GE_ICP91A50
Lower Limit	0.01	0.01	10	5	0.1	10
Upper Limit	-	25	10,000	2,500	25	50,000
Unit	kg	%	ppm m / m	ppm m / m	%	ppm m / m
052517	2.03	0.02	>10000	<5	>25.0	<10
052518	1.19	0.04	>10000	<5	18.2	<10
052519	2.30	0.03	>10000	<5	>25.0	<10
052520	1.53	0.02	>10000	<5	>25.0	<10
052521	2.05	0.09	>10000	<5	>25.0	<10
052522	2.06	<0.01	>10000	<5	>25.0	<10
052523	2.09	0.03	>10000	<5	23.9	<10
*Rep 052521	-	0.09	>10000	<5	>25.0	17
*Blk BLANK	-	<0.01	15	<5	<0.1	<10
*Std OREAS 681	-	8.17	423	<5	6.4	2154

Element Method	@Cu GE_ICP91A50	@Fe GE_ICP91A50	@K GE_ICP91A50	@Li GE_ICP91A50	@Mg GE_ICP91A50	@Mn GE_ICP91A50
Lower Limit	10	0.01	0.1	10	0.01	10
Upper Limit	10,000	25	25	50,000	25	100,000
Unit	ppm m / m	%	%	ppm m / m	%	ppm m / m
052517	<10	0.04	<0.1	<10	<0.01	<10
052518	<10	0.06	<0.1	<10	<0.01	19
052519	<10	0.02	<0.1	<10	<0.01	<10
052520	<10	0.05	<0.1	<10	<0.01	74
052521	<10	0.14	<0.1	14	<0.01	18
052522	<10	0.01	<0.1	<10	<0.01	<10
052523	<10	0.03	<0.1	13	<0.01	33
*Rep 052521	<10	0.15	<0.1	13	<0.01	18
*Blk BLANK	<10	<0.01	<0.1	<10	<0.01	<10
*Std OREAS 681	274	7.72	1.4	14	5.40	1337

- not analysed | -- element not determined | I.S. insufficient sample | L.N.R. listed not received



Order Number PO#  
Project LIARD FLUORITE  
Submission Number \*BBY\* Liard Fluorite / 7 Rocks  
Number of Samples 7

**ANALYSIS REPORT BBM21-13723**

Element	@Ni	@P	@Sc	@Si	@Sr	@Ti
Method	GE_ICP91A50	GE_ICP91A50	GE_ICP91A50	GE_ICP91A50	GE_ICP91A50	GE_ICP91A50
Lower Limit	5	0.01	5	0.1	10	0.01
Upper Limit	10,000	25	50,000	30	5,000	25
Unit	ppm m / m	%	ppm m / m	%	ppm m / m	%
052517	10	<0.01	<5	1.2	>5000	<0.01
052518	<5	<0.01	<5	3.3	>5000	<0.01
052519	<5	<0.01	<5	1.7	3199	<0.01
052520	8	<0.01	<5	3.0	997	<0.01
052521	10	<0.01	<5	9.0	3098	<0.01
052522	<5	<0.01	<5	0.7	>5000	<0.01
052523	14	<0.01	<5	1.7	>5000	<0.01
*Rep 052521	18	<0.01	<5	9.0	3188	<0.01
*Blk BLANK	<5	<0.01	<5	<0.1	<10	<0.01
*Std OREAS 681	489	0.15	27	24.1	498	0.60

Element	@V	@Zn	@Ag	@As	@Bi	@Cd
Method	GE_ICP91A50	GE_ICP91A50	GE_IMS91A50	GE_IMS91A50	GE_IMS91A50	GE_IMS91A50
Lower Limit	5	5	1	5	0.1	0.2
Upper Limit	10,000	10,000	200	10,000	1,000	10,000
Unit	ppm m / m	ppm m / m	ppm m / m	ppm m / m	ppm m / m	ppm m / m
052517	<5	12	<1	<5	<0.1	<0.2
052518	<5	12	<1	<5	<0.1	0.6
052519	<5	11	<1	<5	<0.1	<0.2
052520	<5	47	<1	<5	<0.1	<0.2
052521	<5	15	<1	<5	<0.1	<0.2
052522	<5	6	<1	<5	<0.1	<0.2
052523	<5	47	<1	<5	<0.1	0.5
*Rep 052521	<5	15	<1	<5	<0.1	<0.2
*Blk BLANK	<5	<5	<1	<5	<0.1	<0.2
*Std OREAS 681	250	100	<1	<5	<0.1	<0.2

- not analysed | -- element not determined | I.S. insufficient sample | L.N.R. listed not received





Order Number PO#  
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Submission Number \*BBY\* Liard Fluorite / 7 Rocks  
Number of Samples 7

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Element	@Ce	@Co	@Cs	@Dy	@Er	@Eu
Method	GE_IMS91A50	GE_IMS91A50	GE_IMS91A50	GE_IMS91A50	GE_IMS91A50	GE_IMS91A50
Lower Limit	0.1	0.5	0.1	0.05	0.05	0.05
Upper Limit	10,000	10,000	10,000	1,000	1,000	1,000
Unit	ppm m / m	ppm m / m	ppm m / m	ppm m / m	ppm m / m	ppm m / m
052517	1.1	0.8	<0.1	0.87	0.47	NR
052518	0.1	0.6	<0.1	0.51	0.37	NR
052519	0.7	<0.5	<0.1	0.60	0.34	NR
052520	1.2	1.3	<0.1	1.03	0.63	NR
052521	1.5	0.7	<0.1	0.78	0.43	NR
052522	0.5	0.5	<0.1	0.81	0.46	NR
052523	0.7	0.7	<0.1	0.60	0.37	NR
*Rep 052521	1.6	0.9	<0.1	0.77	0.39	NR
*Blk BLANK	<0.1	<0.5	<0.1	<0.05	<0.05	<0.05
*Std OREAS 681	43.2	54.1	4.1	3.46	2.00	1.44

Element	@Ga	@Gd	@Ge	@Hf	@Ho	@In
Method	GE_IMS91A50	GE_IMS91A50	GE_IMS91A50	GE_IMS91A50	GE_IMS91A50	GE_IMS91A50
Lower Limit	1	0.05	1	1	0.05	0.2
Upper Limit	1,000	1,000	1,000	10,000	1,000	1,000
Unit	ppm m / m	ppm m / m	ppm m / m	ppm m / m	ppm m / m	ppm m / m
052517	<1	0.77	<1	1	0.18	<0.2
052518	<1	0.45	<1	<1	0.14	<0.2
052519	<1	0.51	<1	<1	0.15	<0.2
052520	<1	1.00	<1	<1	0.24	<0.2
052521	<1	0.80	<1	<1	0.18	<0.2
052522	<1	0.82	<1	1	0.17	<0.2
052523	<1	0.58	<1	1	0.13	<0.2
*Rep 052521	<1	0.71	<1	<1	0.17	<0.2
*Blk BLANK	<1	<0.05	<1	<1	<0.05	<0.2
*Std OREAS 681	18	4.34	2	2	0.71	<0.2

- not analysed | -- element not determined | I.S. insufficient sample | L.N.R. listed not received



Order Number PO#  
Project LIARD FLUORITE  
Submission Number \*BBY\* Liard Fluorite / 7 Rocks  
Number of Samples 7

ANALYSIS REPORT BBM21-13723

Element	@La	@Lu	@Mo	@Nb	@Nd	@Pb
Method	GE_IMS91A50	GE_IMS91A50	GE_IMS91A50	GE_IMS91A50	GE_IMS91A50	GE_IMS91A50
Lower Limit	0.1	0.05	2	1	0.1	5
Upper Limit	10,000	1,000	10,000	10,000	10,000	10,000
Unit	ppm m / m	ppm m / m	ppm m / m	ppm m / m	ppm m / m	ppm m / m
052517	2.7	0.07	<2	<1	2.0	<5
052518	0.5	<0.05	<2	<1	0.6	<5
052519	2.0	<0.05	<2	<1	1.5	<5
052520	1.5	<0.05	<2	1	1.6	<5
052521	2.0	<0.05	<2	<1	1.9	<5
052522	3.0	0.07	<2	<1	2.0	<5
052523	3.4	0.07	<2	<1	1.9	<5
*Rep 052521	2.1	<0.05	<2	<1	1.8	<5
*Blk BLANK	<0.1	<0.05	<2	<1	<0.1	<5
*Std OREAS 681	20.4	0.30	<2	6	22.8	10

Element	@Pr	@Rb	@Sb	@Sm	@Sn	@Ta
Method	GE_IMS91A50	GE_IMS91A50	GE_IMS91A50	GE_IMS91A50	GE_IMS91A50	GE_IMS91A50
Lower Limit	0.05	0.2	0.1	0.1	1	0.5
Upper Limit	1,000	10,000	10,000	1,000	10,000	10,000
Unit	ppm m / m	ppm m / m	ppm m / m	ppm m / m	ppm m / m	ppm m / m
052517	0.23	0.6	0.1	1.1	<1	<0.5
052518	0.16	0.7	0.1	0.5	<1	<0.5
052519	0.25	<0.2	0.2	0.9	<1	<0.5
052520	0.24	0.6	0.2	0.8	<1	<0.5
052521	0.26	1.0	0.3	0.8	<1	<0.5
052522	0.15	0.4	<0.1	1.5	<1	<0.5
052523	0.20	0.5	<0.1	1.2	<1	<0.5
*Rep 052521	0.28	0.9	0.3	0.9	<1	<0.5
*Blk BLANK	<0.05	0.2	<0.1	<0.1	<1	<0.5
*Std OREAS 681	5.43	78.8	0.2	4.9	2	<0.5

- not analysed | -- element not determined | I.S. insufficient sample | L.N.R. listed not received



Order Number                      PO#  
Project                                LIARD FLUORITE  
Submission Number                \*BBY\* Liard Fluorite / 7 Rocks  
Number of Samples                 7

**ANALYSIS REPORT BBM21-13723**

Element Method Lower Limit Upper Limit Unit	@Tb GE_IMS91A50 0.05 1,000 ppm m / m	@Th GE_IMS91A50 0.1 1,000 ppm m / m	@Tl GE_IMS91A50 0.5 1,000 ppm m / m	@Tm GE_IMS91A50 0.05 1,000 ppm m / m	@U GE_IMS91A50 0.05 1,000 ppm m / m	@W GE_IMS91A50 1 10,000 ppm m / m
052517	0.13	0.2	<0.5	0.06	2.62	<1
052518	0.11	0.5	<0.5	<0.05	1.51	<1
052519	0.09	0.2	<0.5	<0.05	7.23	<1
052520	0.16	0.1	<0.5	0.06	10.51	<1
052521	0.13	0.1	<0.5	<0.05	1.80	<1
052522	0.13	0.1	<0.5	<0.05	0.98	<1
052523	0.09	<0.1	<0.5	<0.05	2.02	<1
*Rep 052521	0.14	0.2	<0.5	<0.05	1.78	<1
*Blk BLANK	<0.05	<0.1	<0.5	<0.05	<0.05	<1
*Std OREAS 681	0.59	6.2	<0.5	0.28	1.45	1

Element Method Lower Limit Upper Limit Unit	@Y GE_IMS91A50 0.5 1,000 ppm m / m	@Yb GE_IMS91A50 0.1 1,000 ppm m / m	@Zr GE_IMS91A50 0.5 10,000 ppm m / m
052517	19.2	0.2	14.1
052518	13.4	0.2	1.3
052519	14.6	0.1	1.9
052520	20.6	0.3	3.2
052521	14.9	0.2	2.2
052522	20.5	0.2	2.7
052523	15.1	0.2	1.4
*Rep 052521	15.3	0.2	2.6
*Blk BLANK	<0.5	<0.1	<0.5
*Std OREAS 681	17.4	1.9	80.8

- not analysed | -- element not determined | I.S. insufficient sample | L.N.R. listed not received



Order Number  
Project  
Submission Number  
Number of Samples

PO#  
LIARD FLUORITE  
\*BBY\* Liard Fluorite / 7 Rocks  
7

**ANALYSIS REPORT BBM21-13723**

SGS Canada Minerals Burnaby conforms to the requirements of ISO/IEC17025 for specific tests as listed on their scope of accreditation found at <https://www.scc.ca/en/search/laboratories/sgs>

Tests and Elements marked with an "@" symbol in the report denote ISO/IEC17025 accreditation.

- not analysed | -- element not determined | I.S. insufficient sample | L.N.R. listed not received

8-Nov-2021 11:40PM BBM\_U0016200097

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MIN-M\_COA\_ROW-Last Modified Date: 05-Nov-2019

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Member of the SGS Group (SGS 5A)



SGS Canada Inc.  
P.O. Box 4300 - 185 Concession St.  
Lakefield - Ontario - K0L 2H0  
Phone: 705-652-2000 FAX: 705-652-6365

**Ares Strategic Mining Inc**  
Attn : Raul Sanabria

25-January-2022

Unit 1001-409 Granville St  
Vancouver, BC  
V6C 1T2, Canada

Date Rec. : 04 November 2021  
LR Report : CA02192-NOV21  
Client Ref : Liard Fluorite

Phone:  
Fax:

## CERTIFICATE OF ANALYSIS

### Final Report-R1

Sample ID	SiO2 %	Al2O3 %	Fe2O3 %	MgO %	CaO %	Na2O %	K2O %	TiO2 %
1: 025217	2.42	0.09	0.02	< 0.01	47.8	0.17	< 0.01	0.06
2: 025218	7.08	0.13	0.03	< 0.01	26.4	0.27	< 0.01	0.10
3: 025219	4.47	0.10	< 0.01	< 0.01	39.4	0.24	< 0.01	0.08
4: 025220	4.43	0.06	0.05	< 0.01	56.7	0.10	< 0.01	0.03
5: 025221	20.8	0.18	0.12	< 0.01	41.2	0.13	0.02	0.05
6: 025222	1.44	0.07	< 0.01	< 0.01	39.8	0.24	< 0.01	0.08
7: 025223	4.02	0.13	0.01	< 0.01	32.5	0.26	< 0.01	0.09
8-DUP: 025220	4.44	0.07	0.06	< 0.01	56.7	0.08	< 0.01	0.03

Sample ID	P2O5 %	MnO %	Cr2O3 %	V2O5 %	LOI %	Sum %	F %	Weight g
1: 025217	0.02	< 0.01	< 0.01	0.02	7.01	57.6	32.8	255
2: 025218	0.01	< 0.01	< 0.01	0.05	2.05	36.1	17.9	243
3: 025219	0.01	< 0.01	< 0.01	0.04	14.6	58.9	22.1	257
4: 025220	0.02	< 0.01	< 0.01	0.01	4.12	65.5	36.7	243
5: 025221	0.01	< 0.01	< 0.01	0.02	6.06	68.5	27.8	231
6: 025222	< 0.01	< 0.01	< 0.01	0.04	8.80	50.4	27.5	264
7: 025223	0.01	< 0.01	< 0.01	0.05	17.3	54.3	22.4	248
8-DUP: 025220	0.02	< 0.01	< 0.01	0.01	4.11	65.5	36.8	---

Control Quality Analysis - not suitable for commercial exchange

### Method Descriptions

Parameter	Description	SGS Method Code
Al2O3	Aluminum by borate fusion XRF	GO/GC/GT_XRF78V/R

Online UMS

000782288



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Lakefield - Ontario - K0L 2H0  
Phone: 705-652-2000 FAX: 705-652-6365

LR Report : CA02192-NOV21

Parameter	Description	SGS Method Code
CaO	Calcium by borate fusion XRF	GO/GC/GT_XRF76V/R
Cr2O3	Chromium by borate fusion XRF	GO/GC/GT_XRF76V/R
Fe2O3	Iron by borate fusion XRF	GO/GC/GT_XRF76V/R
Fluoride	Fluoride by borate fusion XRF 9.6.1	GO/GC/GT_XRF76V/R
K2O	Potassium by borate fusion XRF	GO/GC/GT_XRF76V/R
LOI	Loss at 1000C XRF	GO/GC/GT_XRF76V/R
MgO	Magnesium by borate fusion XRF	GO/GC/GT_XRF76V/R
MnO	Manganese by borate fusion XRF	GO/GC/GT_XRF76V/R
Na2O	Sodium by borate fusion XRF	GO/GC/GT_XRF76V/R
P2O5	Phosphorus by borate fusion XRF	GO/GC/GT_XRF76V/R
SiO2	Silicon by borate fusion XRF	GO/GC/GT_XRF76V/R
Sum	Sum	
TiO2	Titanium by borate fusion XRF	GO/GC/GT_XRF76V/R
V2O5	Vanadium by borate fusion XRF	GO/GC/GT_XRF76V/R
Weight	Received weight including original packaging	

Shamim Teetoochi  
Project Coordinator, Minerals Services,  
Analytical