



GREEN GLEN
MINERALS

Varden Project Site Visit Report

Initial Field Review

24 July 2022

Updated and Surrendered December 2022

Aiden Lavelle and Kevin Dalton



Refer to photo record attachments for Varden Ridge and Varden South

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Introduction

A field visit was conducted to the Varden Project area on the 16th, 17th and 19th of July. Weather was particularly bad with rain, low cloud and poor visibility hampering access to the elevated plateau which are covered by the Varden exploration permits but a visit by helicopter was finally achieved on the 19th July to the main prospect. Varden South or Rombaksbotn was visited on the 16th July and an area to the north of the permits near the main road to Kiruna was visited briefly on the 17th to check a mineral occurrence.

The three permits covering the main prospect are 100% owned by Green Glen Minerals Ltd but had not previously been visited due to Covid travel restrictions. The observations and summary are reported here. A total of 16 rock samples were taken.

Varden South - Rombaksbotn, 16th July 2022

Access and Infrastructure

Access to the Rombaksbotn valley to the south slope of the Varden ridge Plateau is by the Arctic Train which brings tourists to a number of remote stations along the Kiruna-Narvik line including the Katterat station about 5km from the gossanous south slopes of Varden Ridge. From Katterat, we hiked a trail 6.5km to the west down to the valley floor towards the gossan zone above the beach at Rombaksbotn. The trails are well worn with numerous historic information signs and with well-maintained footbridges in place across the rivers.

The Rombaksbotn delta area at the head of the fjord was the site of a substantial settlement predating the founding of Narvik Town as one the main population centres in the region. Tax records indicate that there were settlers there in 1500's, with farms in the 1700s and from 1843 until completion of the railway in 1902 there was continuous settlement with as many as 500 inhabitants by 1898. Ruins of the town are still visible which was a supply base for navvies building the train line to Abisko (Kiruna line). The supply road was completed in 1898 and the railway in 1902 with up to 5,000 workers engaged at the peak. However, the town was abandoned in 1903 when there was no further work and many inhabitants moved to Narvik with its established port and railway for iron ore export.

The tourist infrastructure and activities in the region are well developed and include hiking, snow mobile touring in winter, boat tours and boat pickup of hikers who get the train to the area as we did and a ski resort 9km to the east at Riksgransen. The Arctic train is a key feature of the area and the tourism offering with multiple stations every few kilometres to access various trails. We left the area by rigid inflatable speedboat from the jetty close to the gossan zone, passing by the remains of a German battleship (Georg Thiele) on route to Narvik.

Varden South Gossan Zone

The obvious iron oxide zone in the steep cliff was investigated as much as safely possible. The lowest slope has a covering of birch trees where large boulders can be investigated. The slope quickly grades up to scree and then steep outcrop which was accessible in a few places with great care roughly 65m above the valley floor. The slope is inaccessible above this.

Float

Large boulders at the base of the slope consist of pyritic greywacke, locally quartz rich and some gneissic quartz-rich sediments which may have been recrystallised coarse sandstone with minor biotite. Boulders show thinly bedded sandstone (5cm-20cm) interbedded with greywacke (siltstones) and visible flame structures and possible fine scale cross beds were seen. One silicified sandstone boulder with 1-5mm quartz veins was seen.

Several boulders of white coarse grained pegmatitic granite dyke were seen, one of which had an irregular contact with hornfelsed greywacke. The first sample (VAR-001, 362 ppm Zn, 32 ppb Au, 0.65 g/t Ag) taken at the base of the slope was from a boulder of fine-grained competent greywacke with >5% fine disseminated pyrite.

Outcrop

Three locations of outcrop at the top of the scree were sampled.

Sample VAR-002 (barren) was taken from white granular quartz vein material considered to be a shear vein within a narrow and weakly developed bedding-parallel shear hosted within a strongly pyritic black laminated shale. The quartz veins appear lensoidal and had milled grey quartz clasts and visible muscovite flakes. It is clear that the narrow shale interbed takes up the deformation between greywackes to the west and a thicker bedded package of competent greywackes or sandstone to the east. A shear fabric and extensional riedel shear veins of a few mm thickness and oxidised indicate a sinistral sense of shear. The shear is 160/60W and parallel to bedding with extensional veinlets striking E-W and dipping steeply south. While the shale is strongly pyritic, 10->20% pyrite, it is unclear if any of the sulfide mineralisation was formed by the shearing at this outcrop.

Sample VAR-003 (0.61 g/t Ag, 185 ppm Zn) was a roughly 4m chip sample across a strongly iron-stained greywacke with 5-10% fine disseminated pyrite in places. Some shale beds in the interval had >20% pyrite and a stringer with some fine yellow sphalerite(?) was seen. Sheeted east-west oxidised pyritic stringers are common in the sampled zone. A greywacke bed in the centre of the interval was strongly silicified and heavily iron stained with some replacement to white-grey granular quartz and disseminated pyrite. The bed varied from 10-80cm thick over 2-3m due to being augened or stretched.

The final sample VAR-004 (0.94 g/t Ag, 69 ppm Zn) was a grab sample from a very pyritic shale bed with gossanous texture. The shale bed with strong staining could be seen to continue up the cliff side but access was unsafe. The bedding over the entire zone is generally similar with very steep dip to the west.

The conclusion from the visit to Varden South (Rombaksbotn) is as follows:

- The strong iron staining is caused by oxidised pyrite mainly in thin shale interbeds and some silicified pyritic greywacke and may be in part related to sinistral shears.
- The slopes are unstable and too steep for any other exploration with regular boulder falls.
- The gossan zone at Rombaksbotn is in a sensitive location due to the important historic and cultural value of the old settlement and the related tourism and scenic nature of the area. There is no possibility of mining related development at the head of the fjord.

Varden Ridge 19th July 2022

Access

Varden Ridge was visited on the 19th July via a helicopter contracted from HeliTrans in Narvik. A. Lavelle and K. Dalton were dropped at 8am and picked up at 5pm near the peak of Varden Ridge, in the south-central part of the prospect. Weather was dry but cool.

The topography on the plateau was more rugged than expected with abundant steep elevation changes of 5-15m or more however exposure of outcrop is excellent and almost all snow had melted except around lakes and high north facing outcrops.

The area to the south was walked first, followed by the southern central silicified zone and then an area around the northern targets recommended by Dave Coller. The styles of mineralisation and alteration and lithologies mentioned in Coller's report were seen and 16 samples were taken although our interpretation below is somewhat different from an economic geology perspective. Coller's report is described as a 'Structural and GIS Analysis' and Target Generation Report.

Observations

The geology as described by Coller appears mostly accurate with most outcrop in the area of interest being greywacke or laminated siltstone or pyritic shales forming a continuous bedded sequence striking approximately N-S and steeply west-dipping. A traverse was made as far as the Varden granite defining the eastern edge of the prospect area.

The Varden granite and well-exposed contact with the sediments was inspected. The granite is a K-Feldspar porphyritic foliated granite with subhedral to sometimes rounded phenocrysts, mostly 5mm to 2cm in size making up 30%-40% of the rock. The foliation is well developed. The granite could be described as dry with no evidence of pegmatites or alteration whatsoever internally or on the contact. The sediments are unaltered on the contact and lack any veining or obvious thermal metamorphism. There is evidence of minor shearing along the contact therefore the intrusion is probably syn-metamorphic but apparently not related to any hydrothermal fluids or mineralisation.

Many of the previously recorded mineralised veins were found to be either pyritic shales or minor sulphide veins. The thickness ranges from 2cm to typically 5cm but they can swell to 20cm. The vein structure could not be traced for more than around 40m at best but the vein material within the structure appear to be even shorter. The best exposure of a vein was at an outcrop described as workings in the central-north part of the prospect but in reality, it was a site where a larger sample had previously been taken and where the strongest example of a mineralised structure could be found. The vein of silicified greywacke with grey silica fill, 5-20cm thick, had c. 5% galena, 1% fine black sphalerite (difficult to see), trace chalcopyrite and pyrite. The selective grab sample from the vein (VAR016) assayed 17.3 g/t Ag, 36 ppb Au, 0.2 g/t In, **2.3% Pb and 5.91% Zn**. The wall rock alteration zone is up to 2m in width with evidence of shearing and it contains minor disseminated sulphide including galena. A 2m wallrock sample adjacent to the vein (sample VAR017) assayed 6.65 g/t Ag, 23 ppb Au, 0.2 g/t In, **0.56% Pb and 1.02% Zn**.

Minor shearing at Varden is present throughout the package of sediments which is accompanied by thin white 1-3mm quartz veinlets and chloritic (+/- silica) micro-shears but they do not appear to be related to any sulphide mineralisation even where Collar had suggested drill targets. Pervasive and strong silicification in the greywackes in the central silicified zone is also apparently not related to

sulphide mineralisation. The silicified zone is recognisable as such due to the strong alteration which typically involves more grey silica and obvious wall rock alteration 1-2cm either side of the silica veinlets. Outcrops with white quartz shear veinlets and localised minor crackle breccia were sampled along with examples of various styles of alteration and mineralisation and selective grabs from sulphide veins and pyritic shales. Gold anomalism in the 12 rock samples collected at Varden Ridge is generally low level. The most anomalous sample for gold (VAR011) assayed 46 ppb Au and 8.72 g/t Ag from a selective grab sample of *5-10cm silicified but gougey fault material on fault plane with some FeOx after weathered sulphide and pyrite*. The same sample had 0.14% As, 0.29% Cu, 0.3g/t In, 268 ppm Mo, 309 ppm Pb, 0.1% V and 0.375% Zn and 0.31 g/t Re. The fault was considered to be a younger brittle fault.

Overall, the level of base metal mineralisation was relatively low and the samples taken indicate that the pyritic sediments are anomalous in a suite of elements typical of many black shales i.e. As, Mo, Pb, Sb, V, Zn etc. Potentially economic grades of mineralisation are confined to certain minor vein structures which appear to be later more brittle N-S structures such as that which had 5.91% Zn and 2.3% Pb (sample VAR016).

Varden North

A brief visit was made to mineral occurrence near the Narvik-Kiruna Road (E10) north of Varden on the 17th July following heavy rain earlier in the day. The occurrence was reported to be of arsenopyrite located between the E10 road and the lake Nedre Jernvatnet. Within 50m of the coordinate, joints or fabric and minor shear foliation was found in a large granite outcrop. Two zones 1m apart were seen with a west zone c. 50cm wide and an east zone c.10-15cm wide trending ~166°. Only minor iron-oxide staining was present (Coord 33 W 616004, 7602377). Exposure is excellent with the entire area underlain by massive coarse-grained to megacrystic granite. This weak sulphide was clearly introduced along a later brittle joint plane. The area is of no further interest.

From this area along the E10 road it was seen that access to Varden Ridge is practically impossible due to extreme topography and lakes.

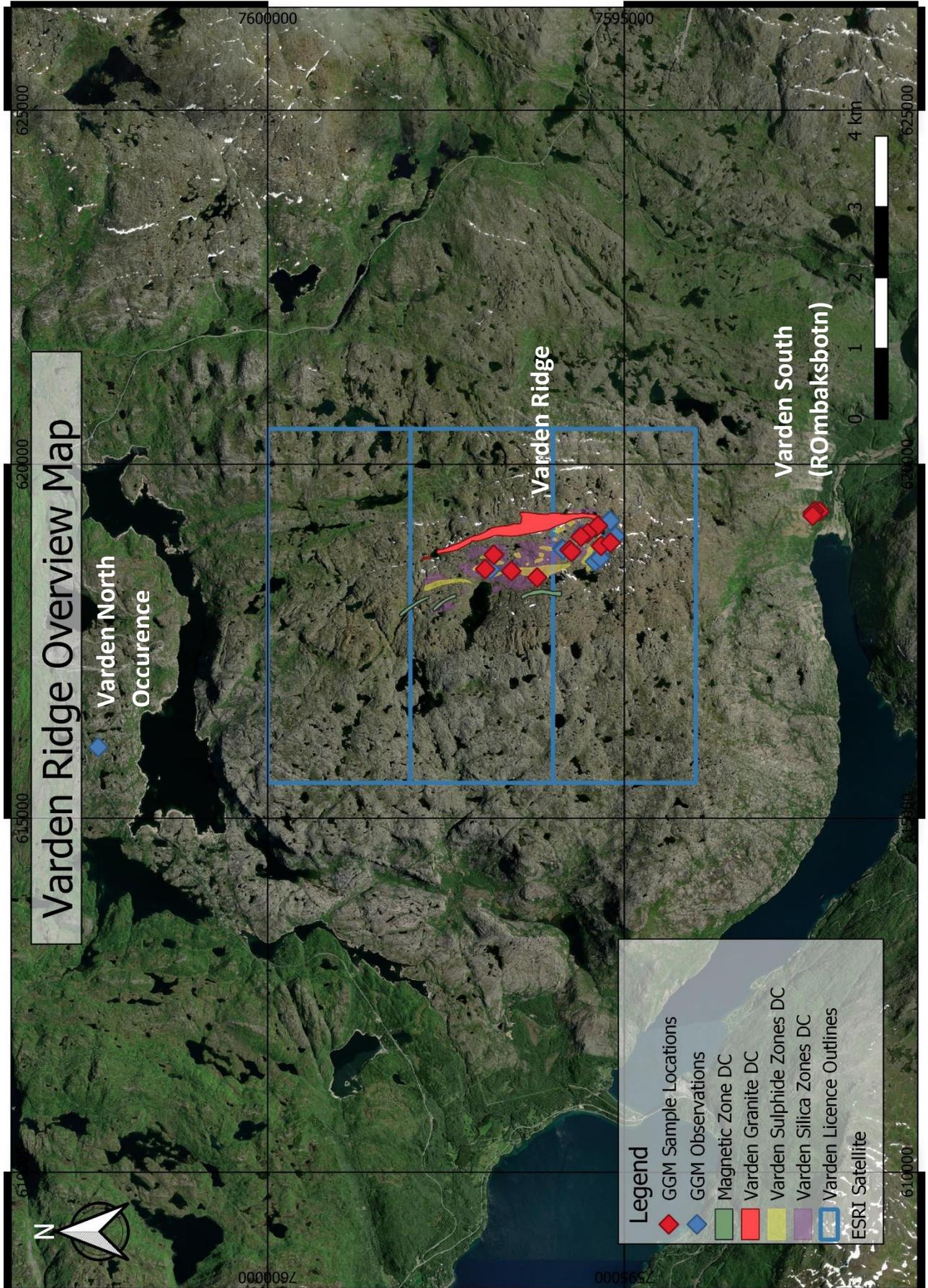
Conclusion

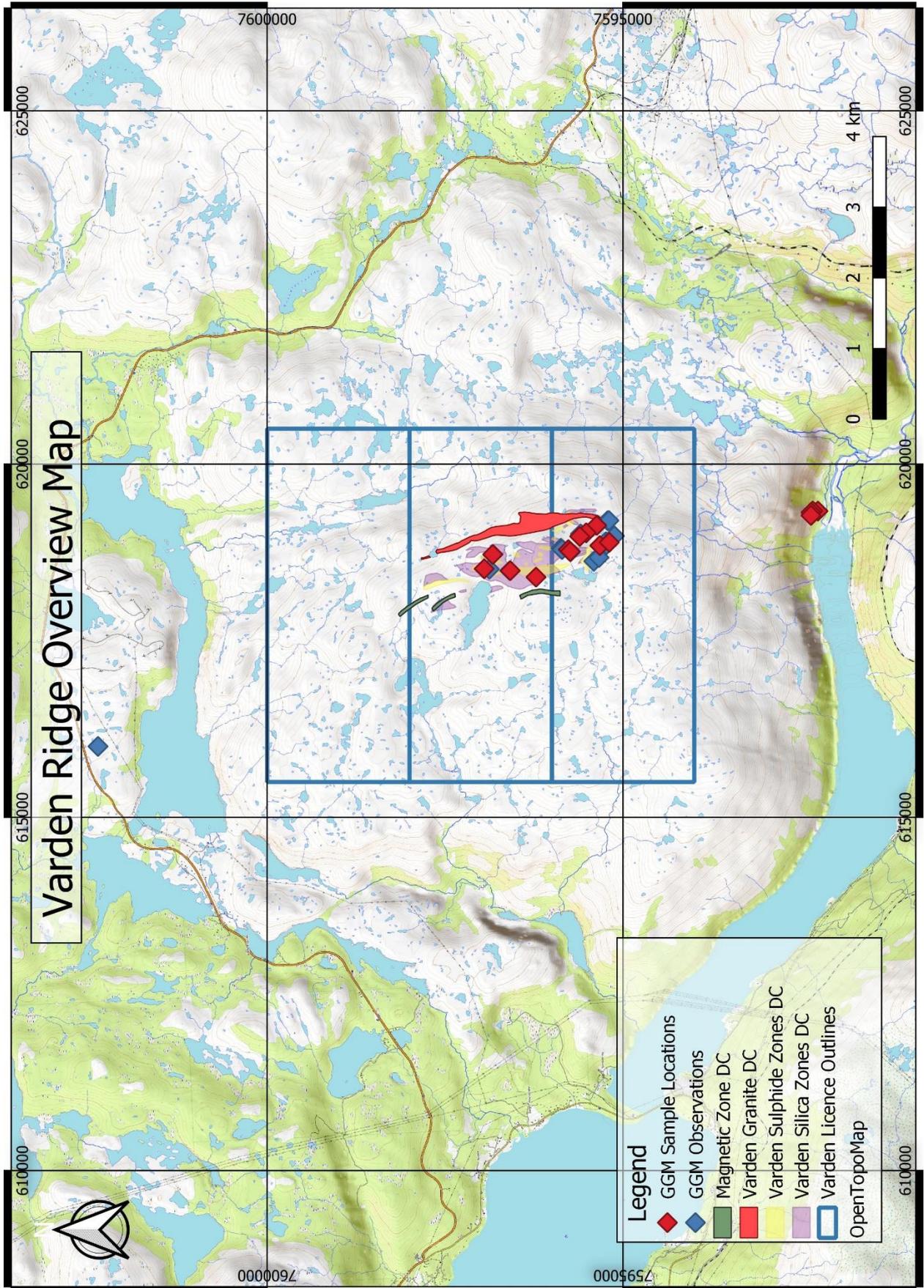
The conclusion of the visit is as follows:

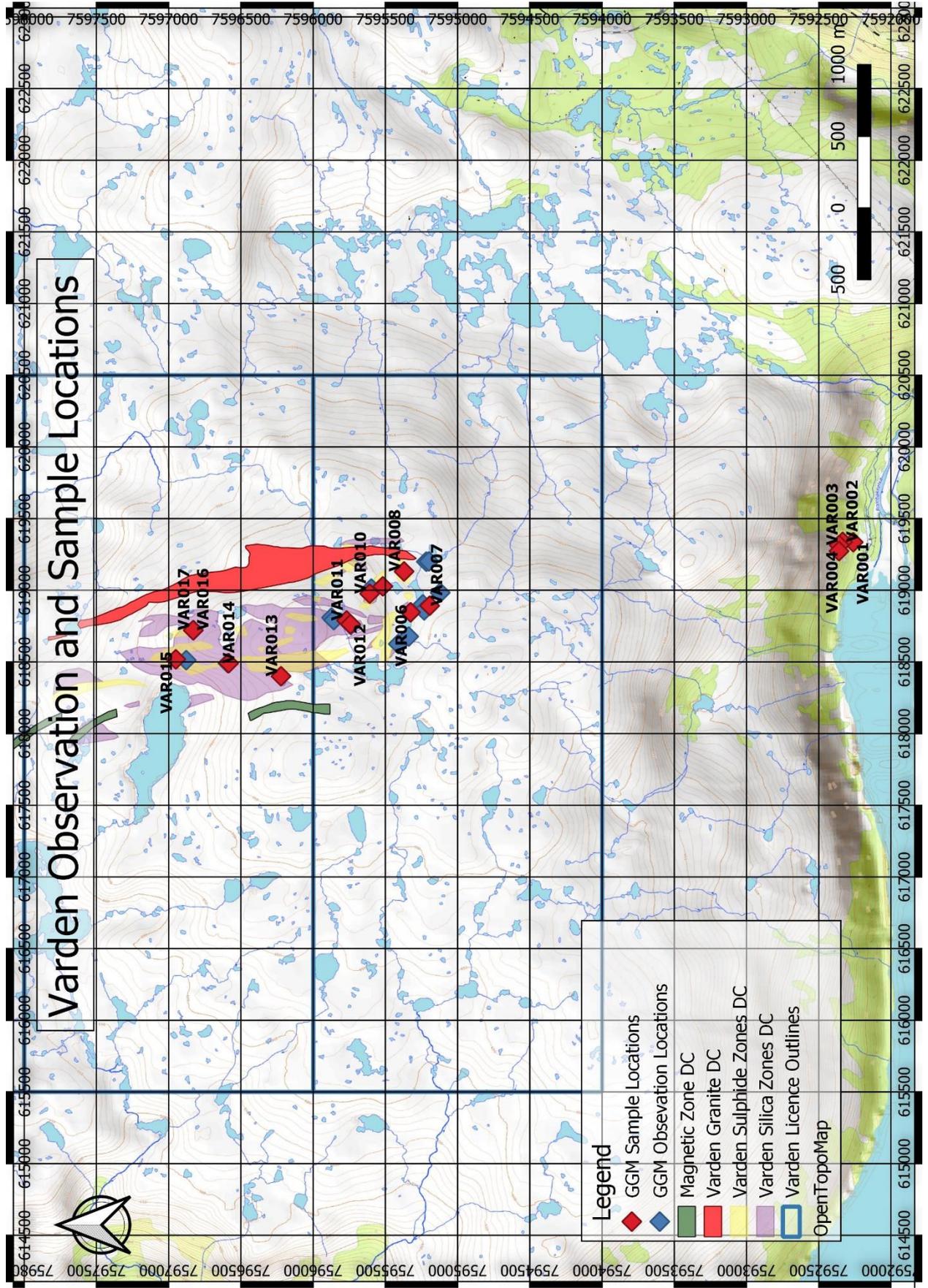
- Sulphide zones seen are nearly always pyritic shale and greywacke. The pyritic shale weathers to gossanous rotten outcrop in places due to the high sulphide content, which, while visually interesting does not appear related to a hydrothermal system.
- Narrow mineralised veins 5-10cm thick were found and appear related to minor shearing with localised percent level Pb and Zn.
- The silicified zone is present and real but was lacking sulphide as well as signs of major shearing (such as zones of >5cm veins) that might be expected in an economic system. There is no evidence that the wide pervasive silicification is part of the same phase as the minor base-metal mineralisation. The base metal sulphides appear to be introduced as a later brittle event.
- Minor abundant white quartz veinlets and chlorite-quartz veinlets related to visible shearing of the sedimentary package could be a result of regional stress/oblique compression or granite intrusion with the plentiful pyritic shales focussing the shearing near Varden ridge.

- The relationship between the silicification and later sulphide introduction is unclear but the silicification could be a regional effect related to large intrusives as the geology at Gautelis has the same features.
- The gossan zone at Rombaksbotn is in a sensitive location due to the important historic and cultural value of the old settlement and the related tourism and is therefore out of bounds.
- Access from the north or west on foot for fieldwork is practically impossible while any road construction would be a major feat due to the topography.
- The Company will focus on other more prospective and higher potential projects and targets which have easier access. The Varden permits will not be renewed beyond 2022.

Maps and Sample Notes







Prospect	Sample Number	UTM 33W X	UTM 33W Y	RL	Date	Sampler	Type	Description	Alteration	Mineralisation	Structure
Varden South	VAR001	619335	7592262	11	16/07/2022	KD AL	Float	Chip sample off 3 boulders of strongly pyritic siliceous dark grey fine-grained greywacke with 5-10% pyrite. Boulders are very rusted on the weathered surface and form steep talus cones from above slopes.		Pyrite 5-10%	
Varden South	VAR002	619337	7592335	55	16/07/2022	KD AL	Outcrop	Grab sample of sugary fine to medium grained orangish white quartz and coarse dark grey quartz with possible fine sulphides in sinistral shear zone 160/60W. Milled quartz and muscovite also present. The shear zone slip plane is a finely bedded black shale unit.			Shear 160/65W
Varden South	VAR003	619315	7592359	65	16/07/2022	KD AL	Outcrop	4m chip sample across shear zone, probably parallel to VAR002 at 160/65W. The same siliceous greywacke with >10% pyrite weathering rust orange on surface. There are also areas of soft oxidised green rotten sulphides weathering out. One yellow stringer of sphalerite. There is a pod of massive amorphous white quartz in centre of the shear it is from 5-75cm in width over 3m parallel to the shear.		Pyrite >10% Sphalerite 1%	
Varden South	VAR004	619273	7592360	65	16/07/2022	KD AL	Outcrop	Chip sample from a shale unit approximately 1m wide but pinches and swells in the shear zone 160/65W. Green and yellow rotting sulphides very fine probably >10%		Pyrite >10%	
Varden	VAR005				16/07/2022	KD	STD GBM911-11	STD GBM911-11. 11,499 ppm Copper, 1,422 ppm Zinc, 1,722 ppm Pb, 10.2 ppm Ag			
Varden Central	VAR006	618846	7595326	729	19/07/2022	KD AL	Outcrop	Chip sample across 10m of fine greywacke and interbedded shales which are oxidising orange and rusty on surface. Also, some interbeds of very fine sandstone. Minor disseminated pyrite throughout. Quartz silica veinlets look cold and barren.		<1% pyrite	
Varden Central	VAR007	618892	7595194	728	19/07/2022	KD AL	Outcrop	Sheared black shale with strong fine disseminated pyrite, stronger shear fabric on edge of outcrop but crumbly and not silicified except at outer edge where there is a possible siliceous shear with pyrite. Chips across a 2m outcrop			
Varden Central	VAR008	619131	7595371	747	19/07/2022	KD AL	Outcrop	Chip sample across 25m of outcrop of orange oxidised greywacke and very fine sandstone with some minor silicified bands, no visible sulphide			
Varden Central	VAR009	619027	7595518	739	19/07/2022	KD AL	Outcrop	Chip sample across zone of silicified greywacke 10m wide with stringer veins of quartz with disseminated pyrite.		<1% pyrite	
Varden Central	VAR010	618976	7595609	763	19/07/2022	KD AL	Outcrop	Chip sample of 5m wide zone of silica vein proto breccia. Small areas with breccia clasts but mostly narrow stockwork veins which have been subsequently folded. No alteration around veins, trace pyrite		Trace Pyrite	
Varden Central	VAR011	618789	7595769	770	19/07/2022	AL KD	Outcrop	5-10cm selective grab sample of silicified but gougey fault material on fault plane, some FeOx after weathered sulphide and pyrite. Grey fine-grained greywacke around fault is strongly silicified. Fault sampled is a brittle linear fault, post mineralisation?	Sil	1-2% Py	Fault 084/59 N
Varden Central	VAR012	618763	7595742	782	19/07/2022	AL	Outcrop	Chips around outcrop of moderate-strong, pervasive, silica-altered, fine-grained, dark greywacke. No FeOx or obvious sulphide other than trace pyrite. Fracture set parallel 037/64 SE with other intersecting silicified joints.	Sil	0.5%	
Varden Central	VAR013	618400	7596223	750	19/07/2022	AL KD	Outcrop	15m chip sample across fine grained greywacke some minor silica stringer veins in certain beds			
Varden Central	VAR014	618491	7596585	717	19/07/2022	AL KD	Outcrop	Chip sample across fine grained greywacke with minor shale interbeds with minor stringers of pyrite		Trace Pyrite	
Varden Central	VAR015	618518	7596951	708	19/07/2022	KD AL	Outcrop	Silicified greywacke with minor stringer veins of quartz, very siliceous along fault 025/60 W. The fault is not planar and is wavy. Folded after faulting			
Varden Central	VAR016	618721	7596829	733	19/07/2022	AL	Outcrop	Selective vein grab sample of structure with silicified greywacke and grey silica ~5% fine galena, 1% fine black sphalerite (?), possibly more. Strike N-S 005/+70 W	Sil	5% Galena, >1% Sphal, Tr Py,	005/70 W
Varden Central	VAR017	618721	7596831	733	19/07/2022	AL	Outcrop	2m wallrock sample to vein in VAR016. Silicified greywacke with shale interbeds, stringers of white quartz but also grey quartz which has galena, structure or zone is ~2m wide locally but cannot be traced very far. Also visible galena with trace chalcopyrite, sphalerite and pyrite.		1% total	005/70 W



Figure 1 Bedded sequence of pyritic shales and greywackes/siltstones at Varden with visible oxidation of sulphides.



Figure 2 Best vein structure with silica-galena-sphalerite vein (5cm) under bag and up to 2m of silicified greywacke wallrock to left.



Figure 3 5cm silica-galena-sphalerite vein structure.