

**BC Geological Survey
Assessment Report
37150**




Ministry of Energy and Mines
BC Geological Survey

Assessment Report
Title Page and Summary

TYPE OF REPORT [type of survey(s)]: SOIL GEOCHEMISTRY AND PROSPECTING

TOTAL COST: 3925

AUTHOR(S): HOOGENDOORN, PAUL

SIGNATURE(S): P. HOOGENDOORN 

NOTICE OF WORK PERMIT NUMBER(S)/DATE(S):

YEAR OF WORK: 2017

STATEMENT OF WORK - CASH PAYMENTS EVENT NUMBER(S)/DATE(S): 5665760 September 17, 2017

PROPERTY NAME: SANTA BARBARA

CLAIM NAME(S) (on which the work was done): 1047594 SANTA BARBARA II 1046932 SANTA BARBARA

COMMODITIES SOUGHT: GOLD

MINERAL INVENTORY MINFILE NUMBER(S), IF KNOWN: GOLDEN HORN (HOMEWARD) 092L 019; MONITOR 092L 083

MINING DIVISION: ALBERNI

NTS/BCGS: 092L02W

LATITUDE: 50 ° 1 '8 " LONGITUDE: 126 ° 45 '7 " (at centre of work)

OWNER(S):

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2)

MAILING ADDRESS:

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OPERATOR(S) [who paid for the work]:

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PROPERTY GEOLOGY KEYWORDS (lithology, age, stratigraphy, structure, alteration, mineralization, size and attitude):

Zeballos stock, Quatsino limestone, Karmutsen, Vancouver Group, carbonate-hosted gold,

Catface intrusion, Triassic, Eocene, Mount Washington Intrusive Suite, quartz diorite, dolomite, andesite

REFERENCES TO PREVIOUS ASSESSMENT WORK AND ASSESSMENT REPORT NUMBERS: 18928, 27428

TYPE OF WORK IN THIS REPORT	EXTENT OF WORK (IN METRIC UNITS)	ON WHICH CLAIMS	PROJECT COSTS APPORTIONED (incl. support)
GEOLOGICAL (scale, area)			
Ground, mapping			
Photo interpretation			
GEOPHYSICAL (line-kilometres)			
Ground			
Magnetic			
Electromagnetic			
Induced Polarization			
Radlometric			
Seismic			
Other			
Airborne			
GEOCHEMICAL (number of samples analysed for...)			
Soil 10		1046932, 1047594	1659
Silt			
Rock 1		1046932	166
Other			
DRILLING (total metres; number of holes, size)			
Core			
Non-core			
RELATED TECHNICAL			
Sampling/assaying 11		11 samples	275
Petrographic			
Mineralographic			
Metallurgic			
PROSPECTING (scale, area) 15,000 square metres		1046932, 1047594	1825
PREPARATORY / PHYSICAL			
Line/grid (kilometres)			
Topographic/Photogrammetric (scale, area)			
Legal surveys (scale, area)			
Road, local access (kilometres)/trail			
Trench (metres)			
Underground dev. (metres)			
Other			
TOTAL COST:			3925

GEOCHEMICAL ASSESSMENT REPORT ON THE SANTA BARBARA MINERAL PROPERTY, NEAR ZEBALLOS, BRITISH COLUMBIA

Paul Hoogendoorn, FMC #144909
December 2017

Fort St. John, British Columbia

661040E x 5543150N UTM Zone 09
126°45'7"W x 50° 1'8"N

NTS Map: 092L/02

Mineral Titles Online Event 5665760

Mineral Tenures

1047594
1046932
1051142
1046931
1051141
1051143



Contents

INTRODUCTION	3
PROPERTY.....	4
LOCATION, PHYSIOGRAPHY & ACCESS.....	4
Location.....	4
Physiography.....	5
Access.....	8
Location map.....	9
GEOLOGICAL SETTING.....	10
Regional geology.....	10
Regional geology map.....	11
Property Geology.....	12
Property geology map.....	13
Exploration & Development History.....	14
General – Zeballos District.....	14
Santa Barbara Claim Group.....	14
Adjacent showings.....	14
Assessment Reports.....	15
2017 Work Program.....	17
Overview.....	17
Description of daily work.....	17
Methods.....	19
Results.....	20
Analytical Results.....	20
Recommendations.....	25
References.....	26
Appendix 1 – Field Log.....	27
Sample locations and results.....	28
Cost Statement.....	29
Assay Certificate.....	30
Statement of Qualifications.....	31

INTRODUCTION

This report describes a preliminary assessment of the **SANTA BARBARA** mineral property, in the Zeballos mining camp on northwest Vancouver Island. The prospecting and geochemical surveying described in this report is referred to herein as the “2017 Work Program”.

The Santa Barbara mineral property was secured by map-staking. The property was acquired to enable the investigation of carbonate-hosted disseminated gold mineralization related to Eocene plutonism marginal to the economically significant Zeballos stock.

The Zeballos mining camp reportedly produced over 9,600kg of gold (over 300,000 troy ounces) and 4,100 kg of silver (132,000 troy ounces) up to 1948, from approximately 651,000 tonnes of ore, for a mined grade of 14.5 grams per metric tonne (from Sinclair and Hansen). Several thousand additional tonnes of unknown grade were mined in the 1980s (MINFILE 092L 008). Additionally, there was a significant amount of base metal production developed from limestone stratigraphy in the camp: at the Ford iron-magnetite skarn, 1.28 million tonnes of iron was won at an average mined grade of 76% Fe in the 1960s (MINFILE 092L 028).

Gold production in the camp was primarily from narrow quartz veins within the quartz-diorite Zeballos stock. Gold production was recorded from 18 occurrences over a 20 km² area, of which 9 produced over 1,000 ounces of gold¹.

The author believes the large number of gold producers developed in the camp – despite the scarcity of outcrop, the extremely inhospitable steep-slope coastal physiography, the lack of modern “blind” exploration; and the very fragmented, unconsolidated mineral tenure ownership – make the district a compelling exploration target. Furthermore, the large geographic extent of relatively high-grade gold veins adjacent to a permissive limestone unit, and the proven potential for bulk-tonnage skarn mineralization adjacent the Zeballos stocks – gives credence to the possibility of disseminated mineralization that may have eluded the Depression-era high-graders who built the camp. As was succinctly stated by a British Columbia Geological Survey report, *“although not the largest gold camp in British Columbia...[Zeballos] is in all likelihood significantly underexplored due to its poor access, heavy vegetation, mountainous rugged terrain and relative lack of geological research”* (Marshall et al, 2005).

¹ Calculated from table provided at <http://www.empr.gov.bc.ca/Mining/Geoscience/MINFILE/ProductsDownloads/PublicationsList/Pages/092LTab1.aspx>

PROPERTY

The 560.6 hectare² Santa Barbara Property consists of the following mineral tenures, all owned 100% by the author without any encumbrance, earn-in right, royalty or other charge:

Title Number	Claim Name	Good To-Date	Status	Area (ha)
1046931	SASKATOON I	2019/APR/27	GOOD	145.3
1046932	SANTA BARBARA	2019/APR/27	GOOD	20.8
1047594	SANTA BARBARA II	2019/APR/27	GOOD	228.4
1051141	YOUSSEF I	2019/APR/27	GOOD	62.3
1051142	YOUSSEF	2019/APR/27	GOOD	83.0
1051143	SASKATOON III	2019/APR/27	GOOD	20.8

Good-to dates shown are subject to acceptance of this assessment report. The Property is in the traditional territory of the Ehattesaht Tribe, a Nuu-Chah-Nulth Nation.

LOCATION, PHYSIOGRAPHY & ACCESS

Location

The Santa Barbara Mineral Property is located in the Alberni Mining Division, on northwest Vancouver Island. The property is located in NTS map sheet 092L/02.

The Santa Barbara Property is located on the northeast slope of Lukwa Mountain, covering the steeply incised alpine valley of Curly Creek, which drains into the northwesterly-flowing Nomash River. To illustrate the topography: The Curly Creek catchment is roughly 3.2km in length along its long axis, yet drains an area of over 900 metres of vertical relief.

The 2017 work program was centered near 660980 E x 5542830 N, UTM Map Zone 09. It focused on the north-facing (south situated) wall of an alpine valley, at the headwaters of Curly Creek. The work program took place at approximately 500 metres elevation. Portions of the project area have been logged, while others appear to be mature second growth forest.

² The property areas reported are **inclusive of underlying Crown Granted mineral rights which have sole and exclusive claim to all minerals contained within their boundaries**, and which have no work commitments. Portions of the property, including the areas of known mineralization, are subordinate to Crown Grants.

Physiography

The project area is characterized by rugged coastal physiography. The mountains of the Zeballos area emerge steeply from the Pacific Ocean, exceeding 1,100 meters near the project area (e.g. Beano Mountain, 1,221 m; Lukwa Mountain, 1,144 m).

Fauna is second and third growth coastal coniferous forest, including fir, cedar and hemlock., with alder and thick deciduous growth along road alignments and recently disturbed areas.

Topography is steep: it is not uncommon for slopes to exceed 30°.

What's more, the considerable quantity of tangled windfall and slash makes foot passage extremely arduous. There are also considerable areas of boulder-fields at the higher elevation within the claim block; with precipitous crevices between boulders concealed by thick moss, prospecting is quite hazardous. Altogether, the physiography within the project area is very challenging and not readily passable.

The region receives considerable precipitation, as may be expected by its coastal location. Much precipitation is in the form of snow at the higher alpine. The regional Environment Canada weather station for northern Vancouver Island (at Cape Scott) reports average annual precipitation of 260cm, which is believed to be illustrative of conditions in the project area.

Typical physiography from the Santa Barbara mineral property is shown below:



Figure 1 Looking north into the Nomash River Valley from tenure 1046932



Figure 2 The dried creek bed of Curly Creek, taken from a location south of the claim group.



Figure 3 Looking north across the Curly Creek valley towards the Homeward Mine, taken from within a cut-block near the boundary of claim 1046932 and 1047594.



Figure 4 Mature forest in the south slope of the Curly Creek valley



Figure 5 Boulder strewn terrain within the property. Boulders are made of diorite.

Access

Access to the property is by the Nomash Main logging road, a well-maintained gravel resource road that follows the Nomash River.

A smaller, de-commissioned logging road switch-backs across tenure 1047594 towards the Golden Horn mine and the cut blocks of the Curly Creek valley. This road is currently impassable to vehicles due to water bars and alder growth, but the base seems in reasonably good state of repair, and it could be rehabilitated for 4x4 truck access up to the Curly Creek at 660950E x 5543490N.

The nearest regional centre is Campbell River, approximately 190km by road. Campbell River has long serviced the mining industry, including the past-producing Island Copper, Quinsam Coal, and Myra Falls mines, and has all services required for exploration and development. The village of Zeballos is located approximately 14km by road from the Santa Barbara Mineral Property; Zeballos is on tidewater, and is accessible by float plane.

Road access to the project area is as follows:

- From Campbell River, travel 150km north on Hwy 19;
- From a point approximately 22km north of Woss, turn left (southwest) on the Zeballos Main Road.
- Travel 32km southwest on the Zeballos Main Road, and turn left (southeast) on the Nomash Main Road, at 657980 E x 5546170 N;
- Travel 3.2km southeast on the Nomash Main Road, and veer right (southwest) on an unnamed logging road at 660610 E x 5545050 N; and
- Proceed 270m to a bridge over the Nomash River, continue travelling uphill for 1.8km until a washed-out bridge across the Curly Creek bridge. Proceed another 800 metre on foot into the claim-block. Roughly halfway between the Nomash River bridge and Curly Creek the road becomes impassable to vehicles in its current state.

Accommodation, fuel, groceries, and land-line telephone and Internet services are available in Zeballos. There is heavy machinery for hire in the area should it be required for future exploration and development, and hydroelectricity is available within several kilometers of the property.

With a long history of natural resource development, a workforce experienced in the extractive sectors, low population density, and proximity to tidewater, northern Vancouver Island is an attractive region for mineral exploration. There was considerable public geoscience investment in the northern Island in the last decade, suggesting a supportive political outlook for mineral investment in the region.

Location map

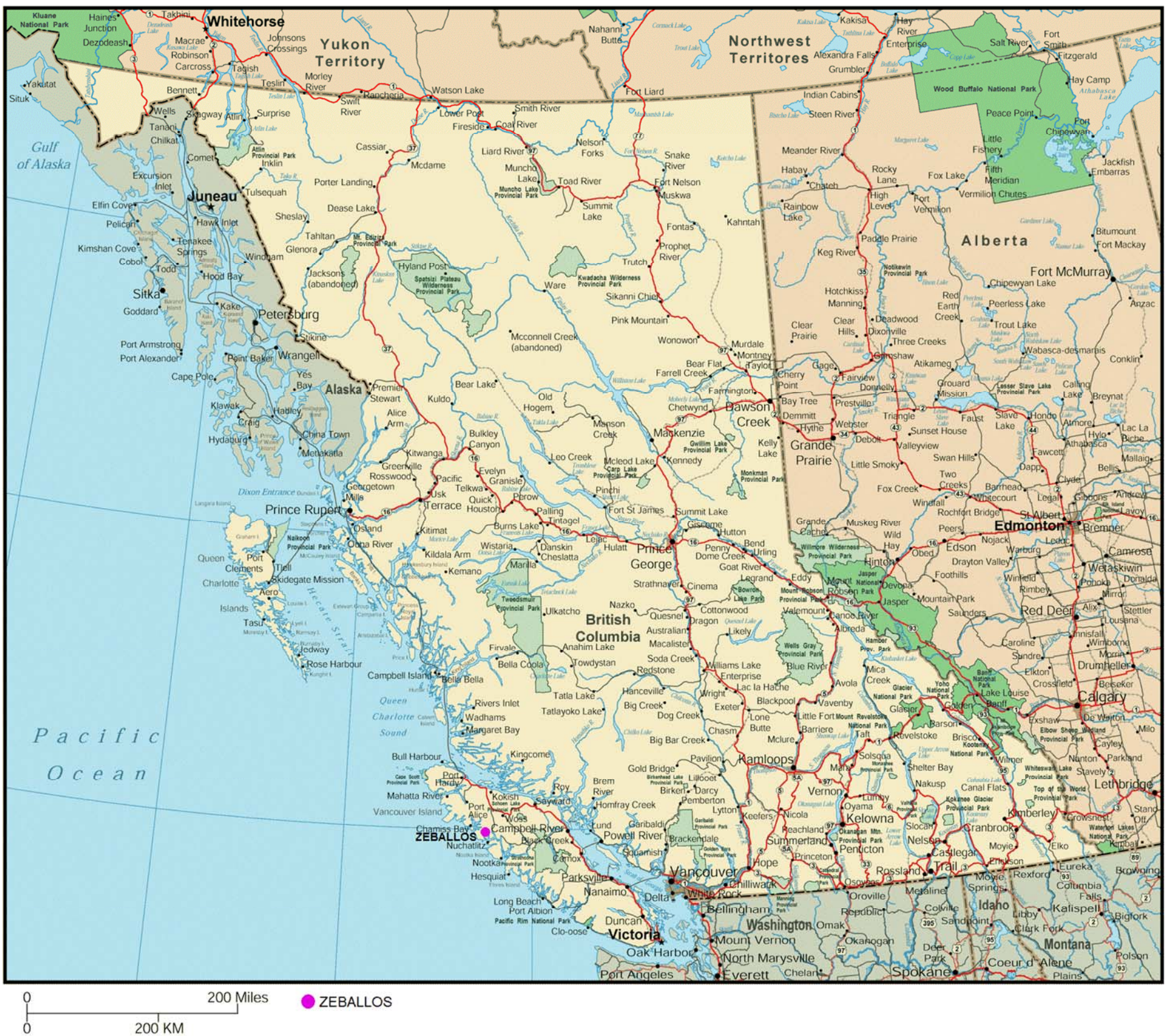


Figure 6 Location map

GEOLOGICAL SETTING

Regional geology³

The Santa Barbara property is located in the Wrangellia Terrane. The Wrangellia Terrane is a complex stratigraphic sequence comprising (a) Paleozoic arc-derived volcanic basement rock, (b) enormous oceanic flood basalts from Triassic time, up to 6km thick locally, (c) later Triassic carbonate and sedimentary formations that accumulated during subsequent periods of subsidence of the volcanic pile, (d) Bonanza-group volcanic and coeval intrusive rocks of Jurassic-aged and (e) intrusive rocks primarily of post-accretion (Cretaceous to Tertiary) age.

Post-accretion intrusive rocks have been described as belonging to either the Catface group or the Mount Washington Intrusive Suite; both terms are applied to a series of post-accretion intrusions of the kilometres (pluton) scale. These bodies are associated with economically compelling mineralization elsewhere on the Island.

On Vancouver Island, basement rocks of the Wrangellia Terrane comprised Devonian arc rocks, namely the economically significant Mt. Sicker and Buttle Lake formations. Beginning in the Triassic, these were overwhelmed by massive eruptions of flood basalts (the Karmutsen formation), which laid down a kilometres-thick sequence of volcanic rock in a relatively short period. In the project area, these Karmutsen volcanics are the oldest exposed stratum.

After the formation of the Karmutsen unit, volcanism paused and subsidence occurred, resulting in the deposition and accumulation of carbonate and sedimentary deposits atop the resultant oceanic shelf. These are represented in the project area by the limestones of the Quatsino and the mixed sedimentary rocks of the younger Parsons Bay formations. Collectively, the Karmutsen volcanics, the Quatsino limestones, and the volcanic-sedimentary Parsons Bay formations comprise the Triassic-age Vancouver Group.

Subsequently re-activated volcanism in Jurassic time resulted in an overlying sub-aerial volcanic pile (the Bonanza Group) with co-eval intrusive rocks of the Island Plutonic Suite. After forming an off-shore composite terrane via consolidation with several smaller terranes, Wrangellia was accreted to ancestral North America approximately 100 million years ago. Subsequent subduction fostered plutonism throughout Vancouver Island.

Structurally, the project area is located astride the north-trending Nimpkish-Hustan fault system, which appears to pre-date the Eocene-aged Zeballos stock and is reflected in the local topography, from Hecate Strait across the north Island. This is hypothesized as an important structural control on mineralization in Zeballos.

³ References: Regional geology is compiled from: Ferri et al 2008, Greene et al 2008, Gonzalez 2004, Nixon et al 2006, Stevenson 1950, Marshall et al 2006

Regional geology map

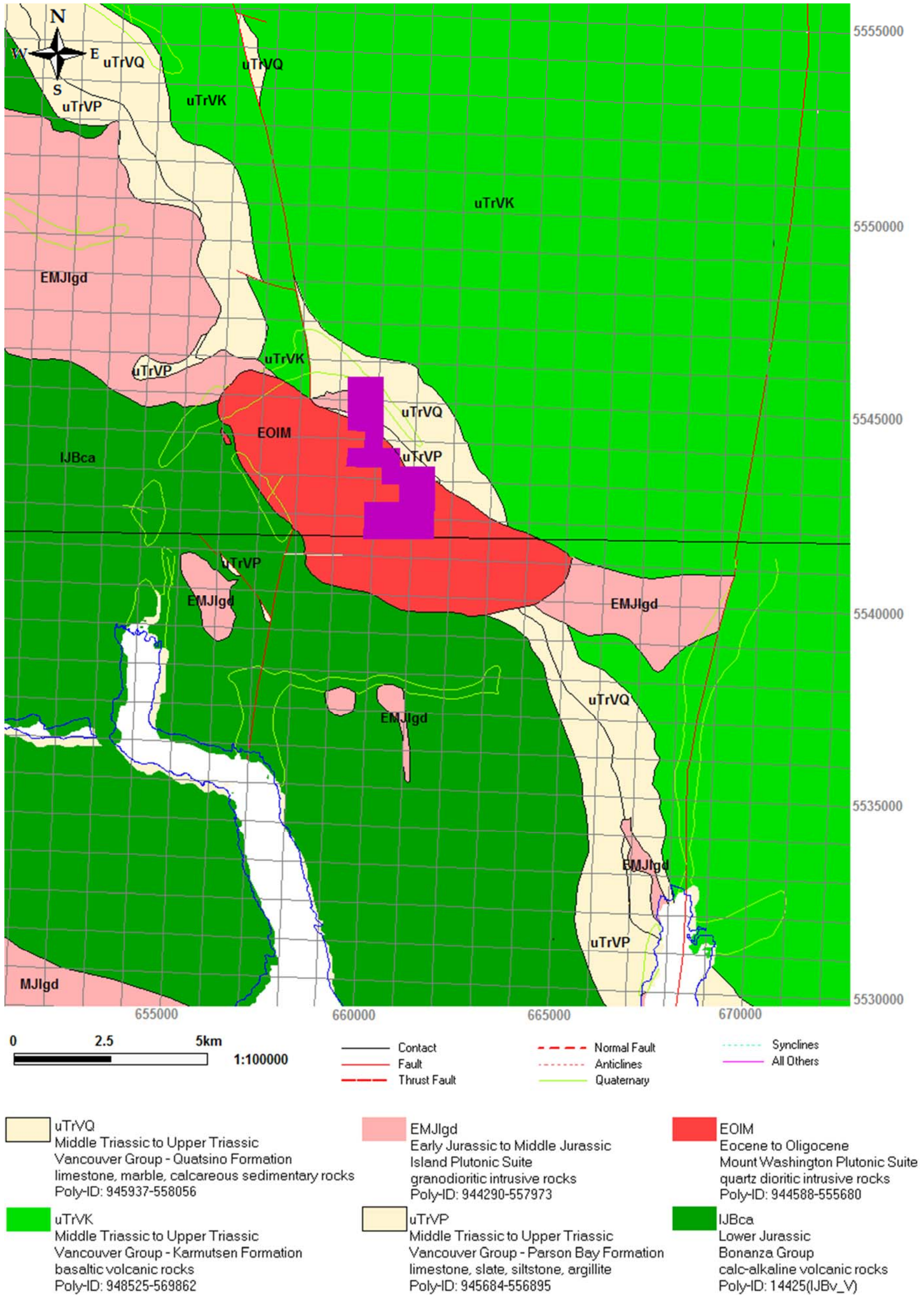


Figure 7 Regional geology, taken from BCGS Mapplace, 1:100,000 scale

Property Geology

The Santa Barbara property is located on the mapped boundary of the Eocene-aged Zeballos stock and the upper Triassic carbonates of the Quatsino formation. Blue-green andesitic volcanic rock, believed to be the Karmutsen formation, is also present in the project area.

The Quatsino limestone is well displayed where it forms karst features in the channel of the Nomash river, several hundred meters upstream from the bridge to the claim group.

The Eocene Zeballos stock, which appears locally to comprise quartz-diorite, is the dominant bedrock in the claim-group, and was the primary rock type encountered during the field program. It has been observed that mineralization favours the outer margins of the stock, with gold believed to have been sourced from the core and deposited in this outer “chill margin” (Gonzalez).

It might be noted that, while bedrock maps show the mines of Zeballos to be hosted uniformly within the Zeballos-group intrusive rock, underground histories (as reported in Minfile) suggest far more heterogenous lithologies than might be inferred from bedrock maps. Both andesites and limestones were reportedly encountered underground and proved important local host rocks in the camp - e.g. at the Mount Zeballos (MINFILE 092L 012), Golden Gate (MINFILE 092L 005) and Tagore (MINFILE 092L 006). Gonzalez (2004) observed that: *From underground maps, most vein mineralization is within a complex sequence of calcium-rich volcanic rocks, pyro- metasomatic altered limestone rocks, hornfels altered lime-silicate volcanic rocks, and narrow tongues of quartz diorite and granodiorite rocks related to the Island Intrusive. Rapid erosion of the non-intrusive rocks may be the reason that some of these units are not readily visible on the surface*” (A.R. 27428, 2004).

Property geology map

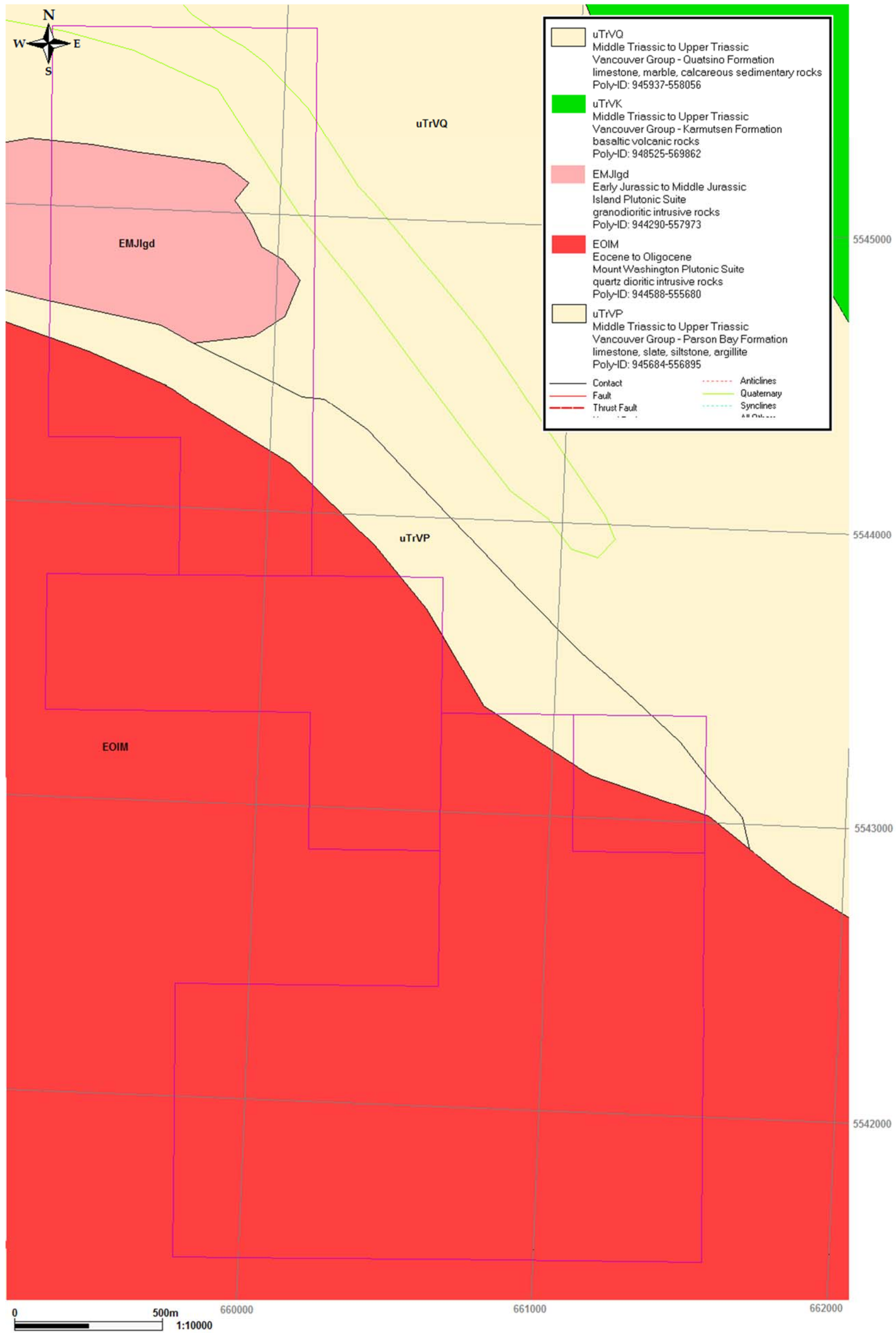


Figure 8 Property geology, 1:5,000 scale

Exploration & Development History

General – Zeballos District

The history of exploration and development of the Santa Barbara property is part of the broader history of the Zeballos mining camp. Readers are referred to the works of Stevenson (1950) and Hoadley (1953) who provide compelling histories of the mining camp, from the initial development of the Tagore gold vein in 1929 (MINFILE 092L 006) to the closing of the Privateer Mine in 1948 (MINFILE 092L 008).

During this peak period, which all but ended with the closure of the gold mines during World War II, over 300,000 ounces of gold were mined from 18 small producers. These mining operations were mostly small-scale and invariably hard-scrabble. The isolated camp was fragmented into many small crown-grants, capital was evidently scarce, and as befits the Depression-era, development consisted of the pursuit of small surface veins underground to feed small mills by labour intensive methods. The most prolific producers were located on the northwest edge of the stock (Gonzalez).

Through the 1960s, the open-pit Ford Magnetite deposit provided a second act for the district, with over 1.2 million metric tonnes of magnetite recovered from a limestone body peripheral the Zeballos stock (MINFILE 092L 028).

In the 1980s, the Privateer and Spud Valley mines of the Zeballos camp were re-activated, with a new mill built on the Privateer mine (MINFILE 092L 028). 2,000 tonnes were mined from the Privateer Mine through 1991, and underground exploration and development was carried out at the Spud Valley and Goldfield (MINFILE 092L 013) mines by McAdam Resources Inc. These programs failed to achieve commercial success, however.

Overall, the crown granted ownership of the mineralized areas within the camp has resulted in a relatively scant assessment work history.

Santa Barbara Claim Group

Adjacent showings

The exploration history of what is now the Santa Barbara Property parallels the history of the larger Zeballos mining camp, of which it is part. The documented exploration history of the Santa Barbara project area begins with the development of the Homeward mine (MINFILE 092L 019, also referred to as Golden Horn), on the southern boundary of tenure 1051142 (*note: rights to the Homeward mine are not secured by the Santa Barbara claim group, due to an over-riding crown grant Lot 1795*).

Homeward Mine (MINFILE No 092L 019)

The Homeward mine (also known as the Golden Horn) consists of 5 east-west (85°) striking gold veins, of which the No 1 vein was exposed in the Curly Creek bed, and has been reportedly traced over 1,000 meters horizontally over a vertical distance of 600 meters. The No. 1 vein was mined from 1941 – 1942, with over 3,300 tonnes ore removed from workings comprising two parallel adits at the 607metre and 643metre levels respectively, and a series of two stopes between them. Mined ore processed through the 50-tonne per day mill yielded approximately 1,500 ounces gold, for a head grade of 0.40 ounces per tonne. The two adits follow the No. 1 vein for approximately 260m. (Stevenson, 1950).

The Homeward Mine is the most southeasterly mine in the Zeballos camp.

Monitor Showing (MINFILE 092L 083)

Roughly 1,300m from the Homeward Mine, and to the immediate west of 1046932, the Monitor property saw “*several short adits...driven on the 280 to 295 degrees striking, steeply dipping quartz-pyrite-gold veins*” (MINFILE 092L 083). Furthermore, this adjacent property reportedly hosted “*...massive copper sulphide replacement in limestone of the Upper Triassic Vancouver Group, Quatsino Formation near an intrusive contact*” (MINFILE 092L 083). Details are scant on this showing, and there is no history of modern exploration.

As the Monitor occurrence is roughly on strike with the veins of the Homeward mine, the Santa Barbara claim group secures the gap between the two where any segments of continuous mineralization which may exist might be found. The Property’s proximity to the Monitor showing is also significant because of the reported presence of limestone replacement mineralization, which is suggestive of the possibility of disseminated mineralization in the Quatsino horizons peripheral to the Zeballos stock.

Assessment Reports

Graham, J. Campbell. Geophysical Report on the Gold Quad Property, Zeballos Area, British Columbia. For Golden Quadrant Resources Ltd. 1989. Vancouver, B.C. A.R. 18,928.

This report describes a geophysical survey conducted in the Nomash River valley. It included a line of magnetometer surveying on the “Nomash Silver” claim that extended into the lower regions of the Curly Creek valley.

The southern portion of Curly Creek valley was characterized by relatively lower magnetic response, which the worker conjectured may reflect a thickening body of limestone obscuring the higher background intrusive rock.

Gonzalez, Ralph A. *Geologic Survey and Geochemical Sampling on the Central Zeballos Property. For Canalaska Ventures Ltd. 2004. Vancouver, B.C. A.R. 27428.*

While this work program covered much of the Zeballos district beyond the Santa Barbara project area, it also included a 104-sample soil and silt geochemical survey of the Curly Creek drainage, including much of what is now the Santa Barbara property. Sampling followed the existing road network.

Key observations included:

- A low-level gold-in-soil anomaly was located below Homeward Mine, within the Curly Creek valley. Despite the relative enrichment, absolute values were surprisingly low, and there was no copper or zinc enrichment to speak of.

Sample	Easting	Northing	Gold (ppm)
CCN034	660795	5542876	0.25
CCN043	660741	5542868	0.22
CCN044	660741	5542868	0.04
CCN045L	660683	5542916	0.10
CCN046	660671	5542966	0.06
CCN047	660724	5542703	0.01
CCN048L	660655	5543015	0.08

- A copper-, molybdenum- and zinc-in-soil anomaly was identified approximately 200 m north of tenure 1046932, along the ridge line dividing the Curly Creek valley from the Nomash River valley to the east. The anomaly was identified by the following adjacent samples:

Sample	Easting	Northing	Copper (ppm)	Zinc (ppm)	Molybdenum (ppm)	Strontium (ppm)
CC013	661058	5543396	71	45	16	23
CC022	661097	5543475	90	44	8	53
CC014	661109	5543413	20	32	2	12
CC015	661131	5543406	2	4	14	4
CC016	661145	5543398	66	39	62	150
CC021	661152	5543468	58	54	5	51
CC017	661155	5543395	76	84	6	42
CC018	661158	5543403	68	50	2	798
CC019	661174	5543403	90	46	5	189
CC020	661183	5543412	180	128	2	352

- These results compared to n=104 average responses of 28ppm copper and 29ppm zinc. This anomaly also had strong strontium responses, as noted above.

- The entire Curly Creek survey area had considerably lower aluminum and calcium background than the remainder of the Zeballos dataset.

2017 Work Program

Overview

The field work portion of the 2017 Work Program was contracted by the author to Lukasz Jarawka, B. Sc., a registered B.C. Geologist-in-Training and experienced mineral explorationist.

The 2017 Work Program took place from September 4, 2017 to September 7, 2017. It was intended as an initial investigation of the Property to satisfy assessment reporting obligations.

The objectives of the Zeballos mineral exploration program were to:

- Expand upon the soil surveying described in A.R. 27428 in the upper reaches of the Curly Creek valley, south of the crown granted lots 1792, 1793 and 1797 and east of the crown granted lots 1996 and 1796.
- Attempt a new north to south soil line on tenure 1046932 east of the crown granted lots 1996 and 1796. This line was located to cross the mapped contact boundary between the limestone and plutonic units as shown on British Columbia Geological Survey bedrock maps. The feasibility of such a line was uncertain, given surface conditions.
- If possible, locate by prospecting the contact between the limestone unit and the granite unit on tenure 1046932.

Description of daily work

September 4, 2017

Mobilize from Victoria, B.C. to the site by 4x4 truck. A tent camp was set up on the south side of the Nomash River bridge near 660870 x 5544120. No exploration work was conducted on this day.

September 5, 2017

Work was focused on conducting a new north-south soil line and trying to identify and map the contact between the limestone unit and plutonic rock on tenure 1046932. The north to south soil line followed the ridge of the mountain. It was anticipated that this north to south route would cross at an oblique angle the northwest trending contact between the limestone and plutonic formations on the property, based on B.C. Geological Survey mapping.

A total of 4 soil samples and one rock sample were collected from this traverse, due to poor ground conditions and dangerous topographic features. Soil samples S1-S3 all retained similar characteristics: they were all light grey in color, and contained what appeared to be fine-grained quartz sands. Soil sample S4 was different from the other three. S4 was a dark brown color with fine grained micas and quartz grains throughout the sample.

Only A-horizons were observed at each soil location, as the A-horizons terminated on bedrock.

Also, each of the soil sample stations was covered by a thick layer of organic material, ranging between 15 – 45 centimetres depth.

The traverse failed to reveal a contact between the limestone unit and the plutonic unit on the property. All outcrops encountered were granite diorite, with the exception of a single volcanic outcrop (see sample “Rock1”, taken from 661135E x 5543238). Rock 1 was a sample from an unmapped andesite outcrop. The andesite was a dark grey-blue color with blebs of quartz, epidote and possibly chalcopyrite throughout the matrix. Some minor quartz veining was also seen in this outcrop. The relation of the andesite unit to the granite unit is not know at this time due to limited outcrop exposures on the property.

September 6, 2017

The focus for this day was to follow the old logging road south into the upper portion of Curly Creek headwaters, and expand on the previously conducted soil survey south of the crown grants within tenure 1047594.

A total of 6 soil samples were collected from upslope of the abandoned logging road. An attempt was made to keep soil spacing at 50 meters intervals along this traverse, though poor ground conditions (namely trees and extensive boulders) prevented sampling at exactly 50-meter intervals. Samples were collected at the next best location when necessary.

The color of the soil medium in this area was quite different than that of the samples collected on September 5th. Samples here ranged from a dark brown color to a rusty red color. As before, only A-horizon samples were collected, since at each station the A-horizon terminated at bedrock.

The area uphill of the road near samples S9 and S10 was covered by large granite boulders. Large crevasses, sometimes greater than 2 metres in depth were hidden by plants, roots and moss. This made any travel uphill of the road dangerous, as an individual could fall into one of these cavities unwittingly. The traverse was ended at S10 location due to poor ground conditions and a shortage of time.

During the traverse along the logging road a dolomite outcrop was encountered (SB07). This outcrop was located north of tenure 1046932. An attempt was made to follow the outcrop onto the property to the south, though the outcrop quickly disappeared and the next outcrop encountered was diorite (Sb08).



Figure 9 Soil Sampling, Santa Barbara property

Methods

Soil samples were taken by spade, and rock samples taken by rock hammer. Locations were captured by Garmin eTrex Vista HCx handheld G.P.S.

Soil samples were collected in standard Kraft soil sampling bags, and air dried in secure storage. They were shipped dry via Greyhound couriers to Pioneer Laboratories Inc. of Richmond, B.C., an accredited assay facility.

The analytical methods employed by Pioneer Laboratories are described below:

<i>Cu, Pb, Zn, Ag analysis</i>	<i>A 0.500 gram sample is digested with 3 ml of aqua regia, diluted to 10ml with water, and is finished by atomic absorption.</i>
<i>Au analysis</i>	<i>A 20 gram sample is digested with aqua regia, MIBK extracted, and is finished by atomic absorption or graphite furnace atomic absorption to 1 ppb detection</i>

Results

The 2017 Work Program failed to meet its objectives, though by its rudimentary nature it did not negate the primary hypothesis – namely, that the limestone periphery to the Zeballos intrusion is a worthwhile early-stage gold target. Overall, it must be conceded that results were disappointing.

The 2017 Work Program suggests the limestone-diorite contact is further north of 1046932 than is shown on B.C. Geological Survey maps. This suggests the target area for carbonate-hosted disseminated gold mineralization may be further north in the Nomash valley than hoped.

The 2017 Work Program also revealed the presence of an inlying body of andesite within claim 1064932. This andesite outcrop appeared to be prospective, with chalcopyrite recognized in the field, albeit in quantities subsequently proven to be sub-economic. It is undetermined if this outcrop relates to the basal Karmutsen volcanic unit, or a volcanic bed within the overlying volcanic-sedimentary Parson Bay succession.

The 2017 Work Program also revealed the difficulty of employing soil surveying as an exploration technique in the area; both due to the practical impassability of the terrain, the lack of B-horizon development, and the overall high-energy surficial deposits. It is worth considering whether Mobile Metal Ion or biogeochemical surveying would be a more effective tool in the district.

The 4 soil samples taken on claim 1046932 failed to reveal continuity of the downslope copper-zinc anomaly reported by Gonzalez (2004), and no anomalous results were obtained;

The 6 soil samples taken on claim 1047594 were modestly better, albeit of non-economic interest. The rock sample taken from the andesite outcrop was also sub-anomalous, despite the presence of minor visible chalcopyrite grains.

Analytical Results

Station/Sample:	Type:	Easting (UTM):	Northing (UTM):
SB01	Outcrop	661034	5543150
Tenure:		1046932	
Field note:		Diorite outcrop with some minor quartz veining that appears to be striking in a general east-west direction.	
Discussion		<i>Orientation of quartz veining is significant, given that it parallels the 85° vein system at the Homeward mine, and the most common orientation of the productive vein systems in the Zeballos camp.</i>	

Station/Sample:	Type:	Easting (UTM):		Northing (UTM):
SB02	Outcrop	661126		5543110
Tenure:		1046932		
Field note:		Large Diorite outcrop that is greater than 10m ² of exposed rock. No visible veining in the outcrop and the diorite consists of a classic salt and pepper texture.		
SB03	Outcrop	661123		5543072
Tenure:		1046932		
Field note:	Outcrop	Granite outcrop covered by moss. No visible veining and the outcrop measures approximately 3m ² .		
SB04	Outcrop	661132		5543035
Tenure:		1046932		
Field note:		This station is located at the base of what is a very large vertical granite outcrop. This outcrop appears to continue along the contour of the mountain. To continue south of this point on the line is too dangerous on my own and would require proper climbing gear and experience.		
SB05	Outcrop	661128		5543143
Tenure:		1046932		
Field note:		Diorite outcrop ~30m ² . Salt and pepper textured diorite with no veining visible and covered by moss.		
SB06	Talus	661120		5543180
Tenure:		1046932		
Field note:		Talus that is composed of predominantly diorite has collected on a flat part of the slope. The boulders are large and about the size of cars. Some veining, believed to be quartz can be seen in some of the boulders. No limestone has been encountered as of yet.		
Rock 1	Outcrop	661135		5543238
Tenure:		1046932		
Field note:		Andesite outcrop. Andesite with many blebs of epidote and quartz throughout its matrix. The outcrop also appears to host some chalcopyrite mineralization. The blebs make up anywhere from 1% to 5% of the rock depending on sample collected. Epidote is an olive green color and the quartz is colorless. The chalcopyrite appears tarnished with some iridescent colors becoming visible when observed under sunlight.		
Analytical results:				
Cu (ppm)	Pb (ppm)	Zn (ppm)	Ag (ppm)	Au (ppb)
42	19	75	0.2	2

Station/Sample:	Type:	Easting (UTM):	Northing (UTM):	
SB07	Outcrop	661181	5543410	
Tenure:		North of property		
Field note:		Outcrop located outside the property boundary. This outcrop consists of dolomite that reacts with HCl when scraped by a knife. The unit is light grey to white in color. There are no visible veins on the outcrop. There are parts of the outcrop that are exposed to the surface that do show evidence of oxidation in the form of a rusty orange and brown color staining. On a freshly broken surface the presence of sulfide minerals is evident, possibly chalcopyrite. Also, at the outcrop there appears to be an unmapped road striking approx. 100 degrees. This road is heavily overgrown; old logging piles are strewn about it (possible Monitor showing road?).		
SB08	Outcrop	661236	5543343	
Tenure:		North of property		
Field note:		An attempt was made to follow the dolomite up the 100° road described in SB07 onto the property. The unit quickly transitions into the granite diorite unit and no contact between the two is evident since the dolomite unit disappears into the ground. This station is the first sight of granite diorite after the dolomite unit. The diorite does have some minor quartz veining on the centimetre scale.		
SB09	Outcrop	661136	5543396	
Tenure:		North of property		
Field note:		Diorite outcrop. Outcrop is near vertical and no visible veining can be seen. Salt and pepper texture.		
S1	Soil	661126	5543101	
Tenure:		1046932		
Field note:		The sample pit consisted of approximately 45cm of organic material and man plant roots. The A-horizon was only about 2 cm thick and was directly on top of diorite bedrock. The sample was light grey in color and had a uniform consistency. The sample appeared to be comprised of fine quartz grains		
Analytical results:				
Cu (ppm)	Pb (ppm)	Zn (ppm)	Ag (ppm)	Au (ppb)
2	4	10	0.1	1

Station/Sample:	Type:	Easting (UTM):	Northing (UTM):	
S2	Soil	661128	5543049	
Tenure:		1046932		
Field note:		Organic layer is approximately 30cm thick. Sample is light grey in color with what appear to be sandy size quarts grains uniformly mixed in the sample along with micas. The soil horizon is only 1cm thick and lies directly on granite.		
Analytical results:				
Cu (ppm)	Pb (ppm)	Zn (ppm)	Ag (ppm)	Au (ppb)
3	5	9	0.1	1
S3	Soil	661128	5543041	
Tenure:		1046932		
Field note:		Soil was collected from below an uprooted tree at the base of a vertical granite outcrop. The organic layer in this area is approximately 15cm thick, and the sample layer was approximately 10cm thick. The sample is a light grey soil composed of quarts sands and micas. This sample is similar to the previous samples found in the other soil sample locations along this traverse.		
Analytical results:				
Cu (ppm)	Pb (ppm)	Zn (ppm)	Ag (ppm)	Au (ppb)
5	4	10	0.2	1
S4	Soil	661133	5543125	
Tenure:		1046932		
Field note:		15cm organic layer and 5cm of soil A-horizon. The soil is a dark brown color, it consists of uniform fine grain material, including fine grains of quarts and mica flakes.		
Analytical results:				
Cu (ppm)	Pb (ppm)	Zn (ppm)	Ag (ppm)	Au (ppb)
3	5	13	0.1	3

Station/Sample:	Type:	Easting (UTM):	Northing (UTM):	
SB10	Outcrop	660870	5543048	
Tenure:		1047594 (<i>subject to Lot 1996 grant</i>)		
Field note:		Diorite outcrop located in a stream bed. The characteristics of the diorite are the same as the previous units.		
SB11	Outcrop	660731	5542710	
Tenure:		1047594 (<i>subject to Lot 1796 grant</i>)		
Field note:		Diorite outcrop, same as before. The old logging road appears to be following the vertical granite outcrop.		
S5	Soil	660649	5542124	
Tenure:		1047594		
Field note:		Organic layer is approximately 2.5cm thick. The soil is a chocolate brown color with many granite clasts scattered throughout.		
Analytical results:				
Cu (ppm)	Pb (ppm)	Zn (ppm)	Ag (ppm)	Au (ppb)
17	10	28	0.2	1
S6	Soil	660622	5542106	
Tenure:		1047594		
Field note:		Soil sample. Soil is a rusty brown color with many small clasts less than 2.5cm size.		
Analytical results:				
Cu (ppm)	Pb (ppm)	Zn (ppm)	Ag (ppm)	Au (ppb)
16	11	39	0.1	5
S7	Soil	660575	5542091	
Tenure:		1047594		
Field note:		Silty soil very fine grained. No clast in soil and the soil is a grey brown color.		
Analytical results:				
Cu (ppm)	Pb (ppm)	Zn (ppm)	Ag (ppm)	Au (ppb)
10	12	37	0.1	1
S8	Soil	660528	5542070	
Tenure:		1047594		
Field note:		Fine grained soil sample. Some granite clasts are found in the soil. The organic layer is approximately 15cm in this area.		
Analytical results:				
Cu (ppm)	Pb (ppm)	Zn (ppm)	Ag (ppm)	Au (ppb)
11	15	31	0.1	1

Station/Sample:	Type:	Easting (UTM):	Northing (UTM):	
S9	Soil	660491	5542049	
Tenure:		1047594		
Field note:		Rusty red/brown color it has many small clasts of granite in the soil. Organic layer is approximately 30cm in the area.		
Analytical results:				
Cu (ppm)	Pb (ppm)	Zn (ppm)	Ag (ppm)	Au (ppb)
16	16	36	0.2	1
S10	Soil	660423	5541984	
Tenure:		1047594		
Field note:		The soil was collected within the boulder field. Soil is a rusty brown color with lots of granite clast in the soil. The organic layer is approximately 5cm thick.		
Analytical results:				
Cu (ppm)	Pb (ppm)	Zn (ppm)	Ag (ppm)	Au (ppb)
15	15	39	0.1	4

Recommendations

The 2017 Work Program indicated that the limestone units are unlikely to extend onto the Santa Barbara property, and therefore the area explored in 2017 is not a favourable target for disseminated gold exploration.

It appears that the limestone units are located farther to the north of the property than what is shown on the British Columbia Geological Survey *MapPlace* desktop maps. The location of the dolomite outcrop just north of tenure 1046932 and the absence of any limestone unit outcrops and float along the traverse on tenure 1046932 supports this finding. Ultimately, the primary hypothesis – that the Quatsino limestone unit may be a favourable host for disseminated gold mineralization associated with the same Tertiary event that created the vein deposits of the Zeballos-camp – effectively remains untested.

It is recommended to seek out opportunities to acquire mineral rights further north of the Santa Barbara, extending into the areas of known limestone in the Nomash Valley. As such an endeavour would push the target area further from known veins and lineaments, more reconnaissance-level exploration techniques (e.g. stream sampling) would be required.

Concurrent with any further geochemical sampling or prospecting, it is recommended that a program of line-cutting be carried out. This can facilitate safe foot travel amidst the windfall, dense underbrush, logging debris and boulder-piles that characterize the alpine project area, and allow for more exhaustive geological mapping. It is also recommended that future work be done in teams of 2 or more workers, given the identified high hazards of working in the terrain.

References

- Earle, Steven. The Geology & Geological History of Vancouver Island. Vancouver Island University. Retrieved from: <https://web.viu.ca/earle/geol111/geology-of-vancouver-island.pdf>
- Ferri, F., Nixon, G.T. and Reyes, J. *Organic geochemistry of Late Triassic to Early Jurassic sedimentary rocks in northern Vancouver Island*; Geoscience Reports 2008, B.C. Ministry of Energy, Mines and Petroleum Resources, pages 13-23. 2008. Victoria, B.C.
- Gonzalez, Ralph A. Geologic Survey and Geochemical Sampling on the Central Zeballos Property. For Can Alaska Ventures Ltd. 2004. Vancouver, B.C. A.R. 27,428.
- Graham, J. Campbell. Geophysical Report on the Gold Quad Property, Zeballos Area, British Columbia. For Golden Quadrant Resources Ltd. 1989. Vancouver, B.C. A.R. 18,928.
- Greene, A.R., Scoates, J.S., and D. Weis. Wrangellia Terrane on Vancouver Island, British Columbia: Distribution of Flood Basalts with Implications for Potential Ni-Cu-PGE Mineralization in Southwestern British Columbia. in Geological Fieldwork 2004, British Columbia Ministry of Energy and Mines, Paper 2005-1, p 209-220. 2005. Victoria, B.C.
- Hansen, M.C. and Sinclair, A.J. A Preliminary Assessment of Zeballos Mining Camp (092L). British Columbia Geological Survey Geological Fieldwork 1983. Department of Geological Sciences, University of British Columbia. 1983.
- Hoadley, J.W. Geology and Mineral Deposits of the Zeballos-Nimpkish Area, Vancouver Island, British Columbia in Geological Survey of Canada, Memoir 272. 1953. Ottawa, ON.
- Marshall, D., Close, S., Podstawskyj, N. and A. Aichmeier. Gold Mineralization and Geology in the Zeballos Area, Nootka Sound, Southwestern British Columbia in Geological Fieldwork 2004, British Columbia Ministry of Energy and Mines, Paper 2005-1, p 301-310. 2005. Victoria, B.C.
- Massey, N.D. The Vancouver Island Mineral Potential Project; in Geological Fieldwork 1994, Grant, B. and Newell, J.M., Editors, B.C. Ministry of Energy, Mines and Petroleum Resources, Paper 1995-1. 2008. Victoria, B.C.
- Muller, J.E., Cameron, B.E.B and Northcote, K.E. Geology and Mineral Deposits of Nootka Sound Map-Area Vancouver Island, British Columbia. Geological Survey of Canada, Paper 80-16. Ottawa, ON.
- Nixon, G.T., Kelman, M.C., Stevenson, D. Stokes, L.A., and K.A. Johnston. Preliminary Geology of the Nimpkish Map Area (NTS 092L/07), Northern Vancouver Island, British Columbia; in Geological Fieldwork 2005, British Columbia Ministry of Energy, Mines and Petroleum Resources, Paper 2006-1 and Geoscience BC, Report 2006-1, p 135-152. 2006. Victoria, B.C.

Northcote, B. Exploration and mining in the Coast Area, British Columbia in: *Exploration and Mining in British Columbia, 2014*. British Columbia Ministry of Energy and Mines, British Columbia Geological Survey, Information Circular 2015-2, pp. 83-95. 2015. Victoria, B.C.

Stevenson, J. S. Geology and Mineral Deposits of the Zeballos Mining Camp. British Columbia Department of Mines, Bulletin No. 27. 1950. Victoria, B.C.

Appendix 1 – Field Log

The field log was taken by the field worker contracted to carry out the program, Lukasz Jarawka, G.I.T., of Victoria, B.C.

September 4, 2017

Left Victoria, BC and drove up to Zeballos by 4x4 pick-up truck. Got onto the logging road leading up to the property at 18:30 and set up camp.

September 5, 2017

Woke up at 5 am still too dark out to start work. Went back to sleep and got back up at 6:30, the sun was starting to come up now. Had a bite to eat and then I hit the trail.

10:00 am a few hours in to the hike now I managed to lose the trail somehow and have decided that the easiest way to the spur road was to hike up a creek bed. For some reason my GPS appears to read south as north and vice versa. The surrounding forest appears to have been helicopter logged in the past and the remnants of fallen old growth trees scatter the landscape, not to mention they make the hike near impossible. The creek bed seemed like the safest option, though all the moss on the rocks made that extremely slippery and dangerous. The two main creek beds that I crossed were predominantly composed of very large granite diorite boulders.

Note: The ground thus far has been at a 50+ degree grade. And the landscape is littered by fallen trees from past helicopter logging operations. It is hard to gain any traction on the fallen trees due to moss growth.

September 6, 2017

Notes: Today the plan is to hike the road up to the end of the crown grants and extend the soil line into the Santa Barbara II claim block. After waking up I dismantled camp prior to commencing the work. I got out onto the trail at 07:45am.

Note: South of sample site S9, sample locations uphill of the old logging road are covered by large boulders upslope of the road. The granite boulders are covered by moss and tree roots. This combination of roots and moss covers large voids between the boulders. Walking on this is dangerous as one could break through the moss and roots and get seriously injured on the fall.

Sample locations and results

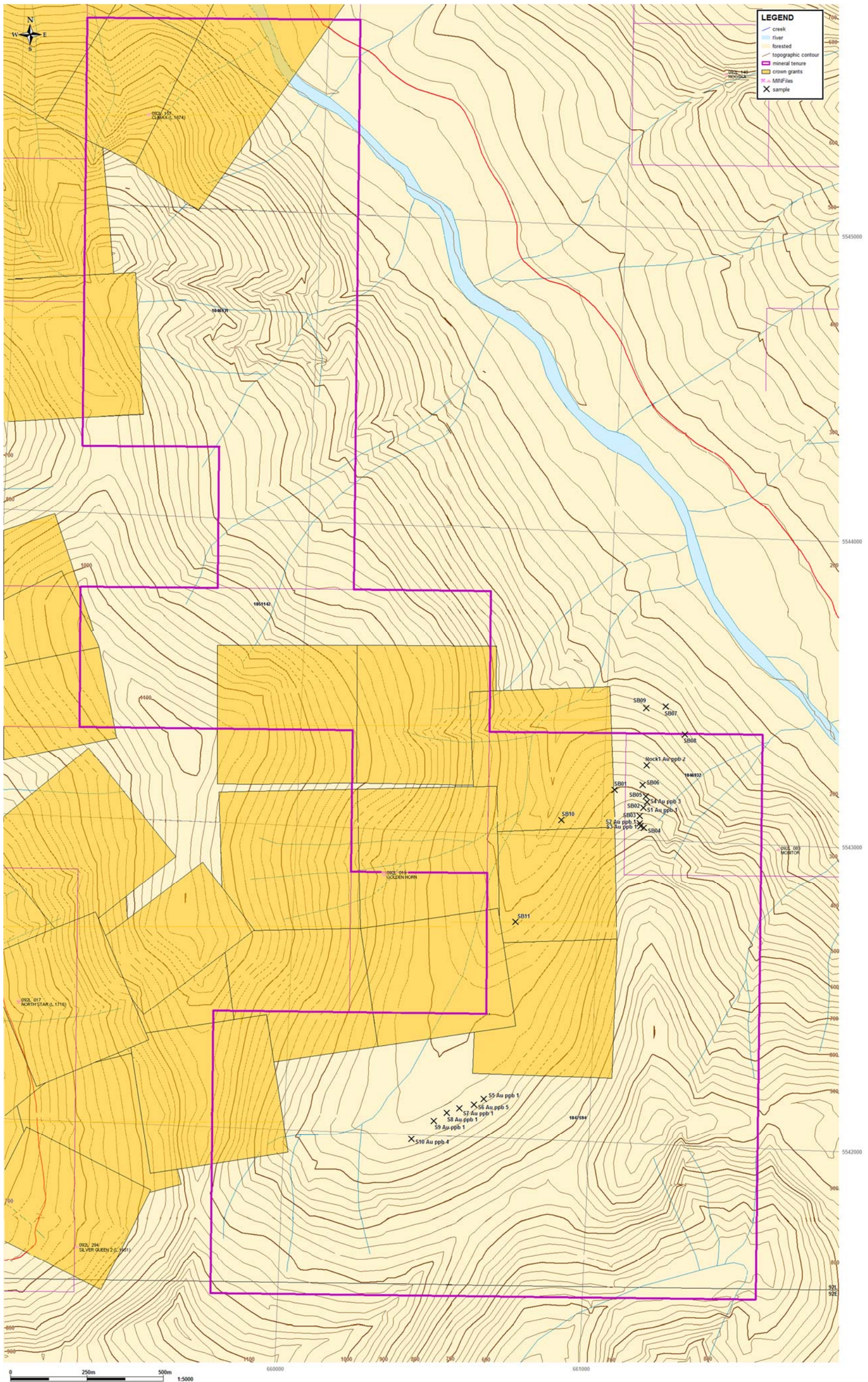


Figure 10 Sample locations and gold results, 1: 5,000 scale. From BCGS Mapplace base maps. Crown grants shown in amber.

Cost Statement

Exploration Work type	Comment	Days			Totals
Personnel (Name) / Position	Field Days (list actual days)	Days	Rate	Subtotal*	
Lukasz Jarawka	September 4 - 6, 2017	3	\$400.00	\$1,200.00	
				\$1,200.00	\$1,200.00
Office Studies	List Personnel				
Literature search	Paul Hoogendoorn	2.0	\$300.00	\$600.00	
Reprocessing of data	Paul Hoogendoorn	0.5	\$300.00	\$150.00	
General research	Paul Hoogendoorn	2.0	\$300.00	\$600.00	
Report preparation	Paul Hoogendoorn	2.0	\$480.00	\$960.00	
				\$2,310.00	\$2,310.00
Geochemical Surveying	Number of Samples	No.	Rate	Subtotal	
Soil	<i>Includes assay, supplies</i>	10.0	\$25.00	\$250.00	
Rock	<i>Includes assay, supplies</i>	1.0	\$25.00	\$25.00	
				\$275.00	\$275.00
Equipment Rentals					
Field Gear (Specify)	Spot™ tracker, GPS, chainsaw	3.00	\$30.00	\$90.00	
				\$90.00	\$90.00
Freight, rock samples					
	Greyhound to Richmond	1.0	\$50.00	\$50.00	
				\$50.00	\$50.00
<i>TOTAL Expenditures</i>					\$3,925.00

Assay Certificate

PIONEER LABORATORIES INC. #103-2691 VISCOUNT WAY, RICHMOND, BC CANADA V6V 2R5 TEL. 604 231-8165

GEOCHEMICAL ANALYSIS CERTIFICATE

Cu, Pb, Zn Ag Analysis - 0.500 gm sample is digested with 3 ml of aqua regia, diluted to 10 ml with water and is finished by AA.

Au Analysis - 20 gram sample is digested with aqua regia, MIBK extracted, and is finished by AA or graphite furnace AA to 1 ppb detection.

MR. PAUL HOOGENDOORN

Project:

Sample Type: Soils/Rock

Analyst

R Sam

Report No. 2171728

Date: November 24, 2017

ELEMENT SAMPLE	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Au ppb
S1 E661126 N5543101	2	4	10	0.1	1
S2 E661128 N5543049	3	5	9	0.1	1
S3 E661128 N5543041	5	4	10	0.2	1
S4 E661133 N5543125	3	5	13	0.1	3
S5 E660649 N5542124	17	10	28	0.2	1
S6 E660622 N5542106	16	11	39	0.1	5
S7 E660575 N5542091	10	12	37	0.1	1
S8 E660528 N5542070	11	15	31	0.1	1
S9 E660491 N5542049	16	16	36	0.2	1
S10 E660423 N5541948	15	15	39	0.1	4
Rock1 E661135 N5543238	42	19	75	0.2	2

Statement of Qualifications

Paul Hoogendoorn

I Paul Hoogendoorn, of Fort St. John, British Columbia, do hereby certify that:

- I personally supervised the work described in this report. I have previous experience prospecting the project area.
- I did author the above report and believe the contents of the report to be true and accurate.
- I did complete the MINE 1001 course at the British Columbia Institute of Technology in 2002, and I have been active as a prospector since 2008.

Paul Hoogendoorn December 1, 2017