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# **Technical Report on the Geology of the Tahsis Property**

**TAHSIS, BRITISH COLUMBIA**

**LATITUDE 49°55' N, LONGITUDE 126°39" W**

**NTS MAP SHEET 92E**

**UTM COORDINATES 666200ME, 5533000MN ZONE 9**

**For:**

**CROSS RIVER VENTURES CORP.  
SUITE 2300-550 BURRARD STREET  
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**By:**

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**December 15, 2018**

**(Effective Date of Report: June 20, 2018)**

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### 3. Summary

Cross River Ventures Corp. can earn a 100% interest, subject to a 3.0% net smelter return (NSR) royalty in the Tahsis Property, a gold and copper exploration property on Northern Vancouver Island. The property is currently 100% owned by Qualitas Holdings Corp., a private British Columbia corporation that is arm's length to Sojourn Ventures Inc. The road accessible Tahsis Property is located 105 kilometres northwest of Campbell River, British Columbia and consists of 5 claims totaling 4,865.52 hectares.

The Tahsis Property lies in an area of high geological potential. The property is underlain by Eocene Mt. Washington Intrusive Suite quartz diorites in the north and central portion. A thin band of Triassic Quatsino limestone runs through the length of property and is intruded by the quartz diorites in two locations on the property. Anomalous gold stream sediment geochemistry is associated with the intrusive contacts of the quartz diorite proximal to the limestone. Three mineralized occurrences are present on the property.

Six exploration programs have been completed on the Tahsis property by or on behalf of Qualitas Holdings Corp., the property vendor since acquisition in 2010. A total of 903 and road soil samples, 691 grid soil samples, 60 stream sediment samples and 59 rocks samples were collected and the property was mapped. Three target areas have been identified, requiring follow up exploration:

- Target A is associated with the eastern contact area of the Mt. Washington Intrusive Suite quartz diorite. This is the intrusive that is associated with the gold veins of the Zeballos Gold Camp. Soil sampling along an abandoned and overgrown logging road at the north end of the target located a continuous 950 metre section of Au-in-soil values ranging from a minimum of 15 ppb to a maximum of 1672 ppb and Cu-in-soil values ranging from a minimum 119 ppm of to a maximum of 1651 ppm.
- Target B is associated with the contact between the Quatsino limestone and Karmutsen volcanics. Two cluster anomalies were clearly identifying during the 2013 grid soil sampling. Cluster 1 is approximately 450 metres north south by 500 metres east west and appears to lie on the lower slopes of a relatively gentle ridge. Cluster 2 is approximately 1300 metres east west by 250 metres north south and stretches down the west facing slope.

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- Target E lies within the Quatsino limestones with some interbedded Karmutsen basalts. A 450 metre section of 50 metre spaced road soil sampling contains gold values ranging from a low of 6 ppb Au to a high of 146 ppb Au. Additional values of 9, 7, 6 and 14 ppb occur further to the south. Sampling in 2013 returned a 150 metre section with values of 7, 17, 23, and 27 ppb Au a kilometre to the southeast.

Cross River completed a 5.5 kilometre induced polarization (IP) survey over targets B and E in November 2018. The survey successfully identified areas of high chargeability, which could represent sulphide mineralization.

At present no mineral resource or reserves exist for the Tahsis property.

Based on a thorough review of the available existing data combined with a field inspection, it is the author's professional opinion that the Tahsis Property is a property of merit and should be further investigated to define the economic viability of the gold and copper occurrences identified on Targets A, B and E.

In order to advance the property, the three target areas need to be followed up with some ground geophysics and trenching with some additional soil sampling. Ground geophysics will consist of magnetics and VLF-EM surveys over Grid A and Grid B. Grid A will consist of 5 N-S 1000 metre lines at 100 metre line spacings and Grid B will also consist of 5 N-S 1000 metre lines at 100 metre line spacings. Excavator trenching and soil sampling will be directed at Grid E, with some of the trenching also directed at Grid A and Grid B. A total of 100 soil samples will be taken over for Grid E and 25 hours of excavator trenching are budgeted for each of the three grids. The Phase I budget is estimated at \$107,800.

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## 4. Introduction

This Technical report was commissioned by Mr. Dan Placzek a director of Cross River Ventures Corp. (“Cross River”) to compile and summarize the geology, mineralization and exploration programs conducted on the Tahsis Property located in the Nanaimo Mining division on Vancouver Island B.C. (Figure 1), and to support its Qualifying property for the Canadian Securities Exchange.

The Tahsis property was acquired by staking by the property vendor, Qualitas Holdings Corp. in August 2010. Gold Ridge Exploration Corp. optioned the Tahsis property May 2011, completing a \$100K work program later in the year and acquiring a listing on the TSX Venture Exchange through and Initial Public Offering. Gold Ridge returned the property to Qualitas, who subsequently optioned it to Sojourn Ventures Inc. for its Qualifying Transaction on the TSX Venture Exchange. Sojourn completed \$109K in exploration in the late summer and fall of 2013 and a further \$35K in exploration in the summer of 2015. They returned the property to the Qualitas when they moved in a different direction. Qualitas subsequently optioned the Tahsis property to Cross River Ventures Corp. Table 1 shows a summary of the Tahsis historic work programs filed on behalf of Qualitas, the property vendor with the British Columbia Ministry of Energy and Mines through Statement of Work (SOW) filings.

**Table 1. Tahsis Property Exploration Expenditure History**

Optionee or Owner	SOW	File Date	Owner	Program	Work period
Gold Ridge Exploration Corp.	4961347	06-Aug-11	QHL	\$100,000.00	Jun to Aug 2011
Sojourn Ventures Inc.	5464470	23-Aug-13	QHL	\$62,850.00	Aug 2013
Sojourn Ventures Inc.	5471283	09-Oct-13	QHL	\$46,110.00	Aug to Oct 2013
Sojourn Ventures Inc.	5569422	08-Sep-15	QHL	\$35,364.23	Jun to Sep 2015
Qualitas Holdings Corp.	5618208	12-Sep-16	QHL	\$24,304.00	Sep 2016
Qualitas Holdings Corp.	5679365	31-Dec-17	QHL	\$20,110.00	Dec 2017

The section on the History of the property area has been taken from the British Columbia Ministry of Energy and Mines Assessment Files. The geological assessment reports have been written by competent geologists and engineers according to the industry standards of the day. The rock, soil and silt analyses were completed by reputable Canadian assay labs, in accord with the industry standards of the day. References to all of this work can be found in the references section of this report.

The author, Mr. Warren Robb P.Geo. of Maple Ridge B.C., was retained by Mr. Dan Placzek a director of Cross River Ventures Corp. to complete this technical report which has been prepared in conformity with guidelines presented in National Instrument 43-101 and companion documents. All figures used in this report were supplied to the author by Mammoth Geological Ltd. The maps were all generated using MapInfo software, the claim boundaries, geology and minfile mineral occurrences were taken electronically from the government of British Columbia's mtonline and Map Place websites. The author has conducted personal inspections of the property on August 5, 2011, February 21, 2013 and June 1, 2018.

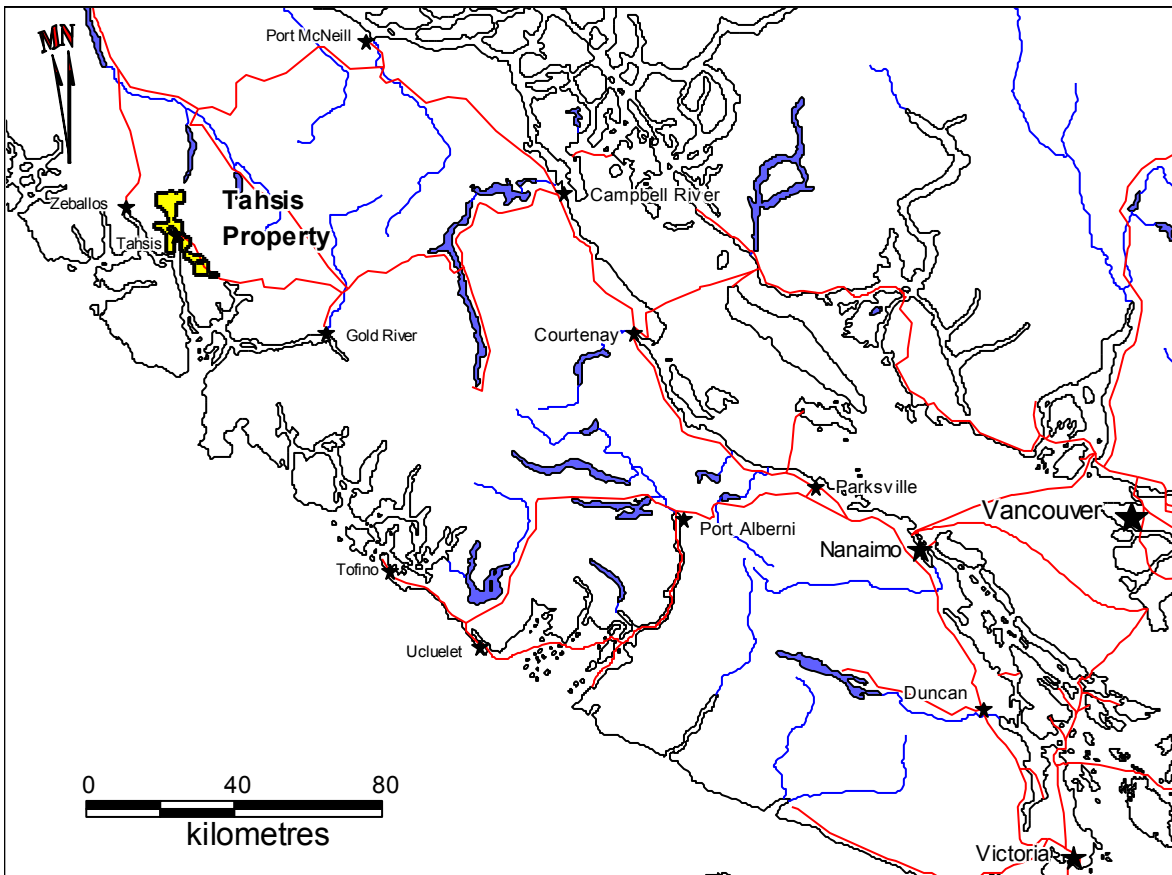


FIGURE 1. LOCATION MAP

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## 5. RELIANCE ON OTHER EXPERTS

The author is not relying on a report or opinion of any expert. Claim ownership comprising the Tahsis property and adjacent mineral tenures has been taken from the Mineral Titles Online database operated and maintained by the British Columbia Ministry of Energy and Mines on June 10, 2018.

## 6. Property Description and Location

The Tahsis Property is centered at 49° 55' North latitude 126° 39' West longitude located on NTS Map sheet 92E and 92L and on the BC Government TRIM Map sheets 092E087, 092E088, 092E097, 092L007. (Figure 1). The property forms an irregular rectangular shaped body and consists of 5 mineral tenures totaling approximately 4,866 hectares (Figure 2). The mineral tenures are for subsurface rights only, with the surface rights associated with the tenures, held by the crown. The tenure information is displayed in Table 2.

**Table 2. LIST OF CLAIMS**

<b>Tenure Number</b>	<b>Claim Name</b>	<b>Owner</b>	<b>Map Number</b>	<b>Issue Date</b>	<b>Good To Date</b>	<b>Area (ha)</b>
1046318	TAS 1	247642 (100%)	092E	2016/aug/29	2020/Jan/24	707.87
1046319	TAS 2	247642 (100%)	092E	2016/aug/29	2020/Jan/24	1456.57
1046320	TAS 3	247642 (100%)	092E	2016/aug/29	2020/Jan/24	935.47
1046321	TAS 4	247642 (100%)	092E	2016/aug/29	2020/Jan/24	1038.75
1046322	TAS 5	247642 (100%)	092E, 092L	2016/aug/29	2020/Jan/24	726.86
	<b>5</b>	<b>claims</b>				<b>4865.52</b>



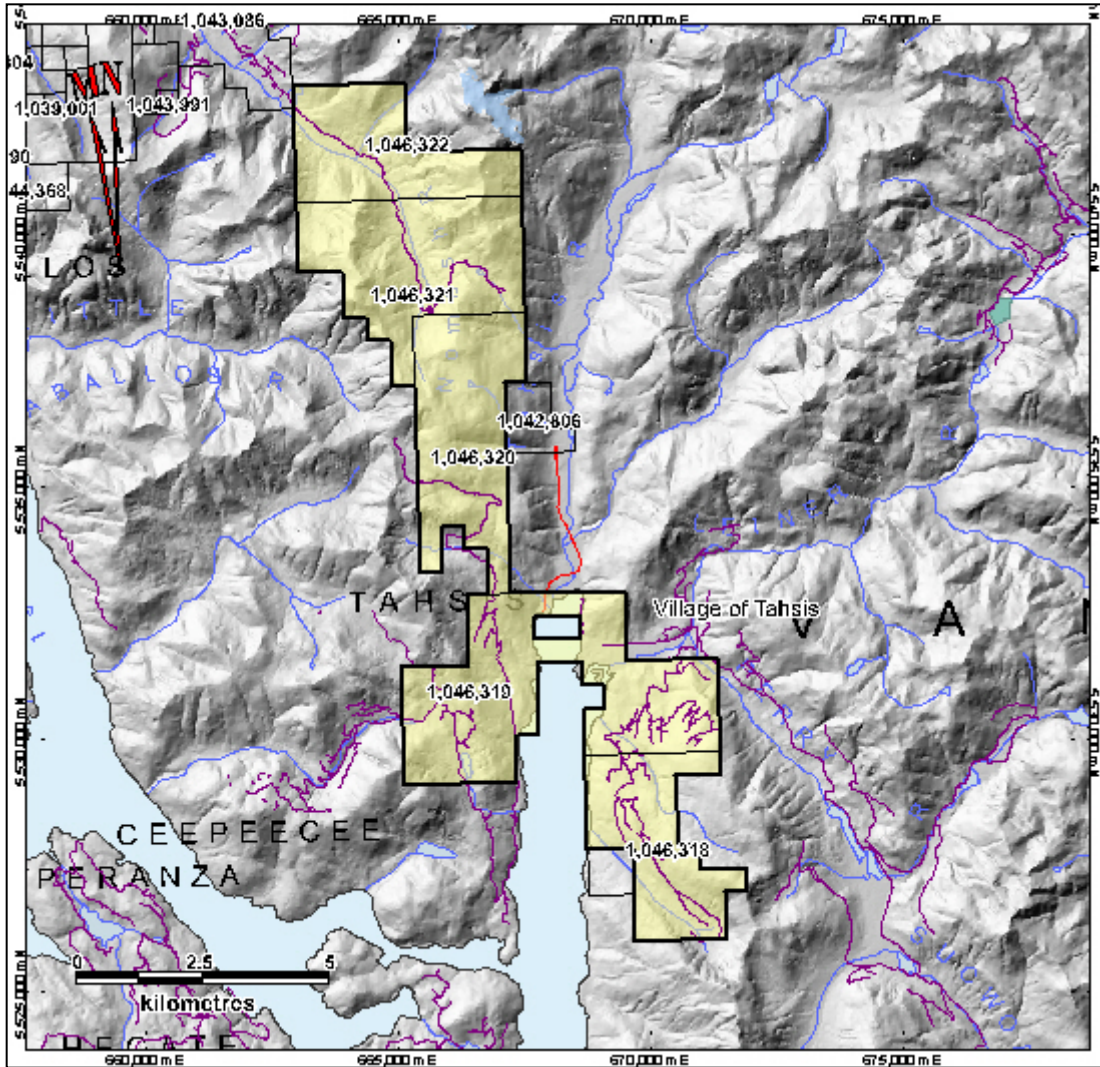


FIGURE 2. CLAIM MAP

The claims were originally acquired by map staking by Qualitas Holdings Corp. in 2010. Qualitas optioned the Tahsis claims (Table 2 and Figure 2) to Cross River Ventures Corp. on December 6, 2017 under the following terms:

Payments		
Date	Cash	Shares
Upon signing	\$20,000 (paid)	
Within 10 days of CSE approval <sup>(1)</sup>		300,000
1 <sup>st</sup> anniversary of CSE approval		250,000
2 <sup>nd</sup> anniversary of CSE approval		250,000
<b>Totals</b>	<b>\$20,000</b>	<b>800,000</b>

Work Commitments	
Expenditures of	Completed by
\$100,000	1 <sup>st</sup> anniversary
\$150,000	2 <sup>nd</sup> anniversary
<b>\$250,000</b>	

Note:

(1) Within 10 business days of the first business day after the date that the CSE has issued its approval in writing of the listing of the common shares of Cross River on the CSE ("CSE approval")

Upon completion of the terms, Cross River Ventures Corp. will be considered to, on delivery of notice to Qualitas, have exercised the option to acquire and will then hold a 100% interest in the Tahsis claims, subject to a 3% Net Smelter Return (NSR) royalty payable to Qualitas upon commercial production. Cross River Ventures Corp. can purchase up to 2% (2/3) of the NSR royalty for \$1,000,000 per 1% prior to commercial production.

The author is not aware of any environmental liabilities associated with the Tahsis property. The recommended work program will include excavator trenching and as such will require a ground exploration permit through the provincial Notice of Work Program. Current approval times are estimated at 6 months according to the British Columbia Ministry of Energy, Mines and Petroleum Resources.

The author is not aware of any other significant factors or risks that may affect access, title or the right or ability to perform work on the Tahsis property.

The Tahsis Property appears to be on crown land with the exception of the ground within the boundaries of the Village of Tahsis itself. The property has not been legally surveyed as all mineral tenures are map tenures acquired under the British Columbia Ministry of Energy and Mines and Petroleum Resources Mineral Titles Online system. There are two known mineral occurrences on the Tahsis Property, the NOMASH (BC Minfile number: 092E 024) and the GEO property (BC Minfile number: 092E 010). The location of the mineral occurrences and all geochemical anomalies relative to the property boundaries is shown on Figures 3 to 5. To the best of the author's knowledge, the Tahsis Property is not subject to any environmental liabilities.

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Woss Lake Provincial Park adjoins the property to the north; Weymer Creek Karst Provincial Park adjoins the property on the east near the center of the property.

In order to maintain the claims in good standing assessment work must be done and filed with the Provincial government. Effective July 1, 2012 the Provincial Government changed the assessment requirements to maintain mineral tenure in good standing, the requirements are now as follows

- \$5.00 per hectare for each of the first and second anniversary years;
- \$10.00 per hectare for each of the third and fourth anniversary years;
- \$15.00 per hectare for each of the fifth and sixth anniversary years, and;
- \$20.00 per hectare for each subsequent anniversary year;

As of July 1, 2012 all claims will be treated as if they are in their first anniversary year.

At present Cross River has not made application for an exploration permit. Nor has the company begun dialogue with the Nuu-chah-nulth Tribal Council who have made land claims with in the area.

## **7. Accessibility, Climate, Local Resources, Infrastructure and Physiography**

The Tahsis property lies proximal to the village of Tahsis, which lies 105 kilometres west of Campbell River, British Columbia. Road access is via Highway 28 west from Campbell River to the Village of Gold River a distance of approximately 89 kilometres and then by the Head Bay Forest Service Road from Gold River to Tahsis a distance of approximately 62 kilometres. This road runs along the northeast boundary of the southern portion of the Tahsis Property claim block from kilometre 47 to kilometre 62. Access throughout the claim block is via logging roads in various stages of accessibility radiating from the village of Tahsis. The village of Tahsis is located on tidewater at the head of Tahsis Inlet.

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Access to the northern section of the north claim block is via Nomash Mainline from the Zeballos road. The Zeballos road leaves Highway 19 approximately 151 kilometres north of Campbell River or 78 kilometres south of Port Hardy. Nomash Mainline logging road leaves the Zeballos road approximately 30 kilometres south from Highway 19 or 12 kilometres north of Zeballos. The north claim block lies at kilometre 7 along Nomash Mainline. The spur roads are deactivated and movement through this section of the north block is extremely difficult.

The topography on the Tahsis property is rugged, ranging from sea level at Tahsis Inlet to 1400 metres in the northern portion of the claim block. The vegetation is thick and dense and consists of cedar, hemlock and spruce, with alder, willow and salal underbrush. The area is actively being logged, so there are numerous cut blocks in various stages of regrowth.

In this part of the province the climate is typical of coastal British Columbia. Summers are generally warm and dry, though fog can present issues with air transport. Winters are mild and very wet. The snow line is generally in the area of 400-700 metres during the period December through February so work in those months must be confined to the lower slopes.

Logistics for working in this part of the province are excellent. Gravel road access will allow the easy movement of equipment and supplies to the property. Heavy equipment is available in Gold River or possibly Tahsis. It may also be possible to bring equipment in by water. Depending upon the type of exploration, the field season can run year round.

There is sufficient area for the erection of mining infrastructure including tailings storage facilities, waste dumps, and mills. A power line exists from Gold River to Tahsis and sufficient water resources exist for mining purposes.

## **8. HISTORY**

The Tahsis area has a long exploration history due to its proximity to the Zeballos Gold Camp, approximately 25 kilometres to the northwest. In the Zeballos Gold Camp, 13 deposits produced a total of 287,811 ounces of gold and 124,700 ounces of silver from as early as 1930 until 1948 (Hoadley, 1953). One producer, Privateer, accounted for 154,381 ounces of gold and 60,878

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ounces of silver. A total of 285,771 tons of ore was mined from Privateer's five main veins, of which 158,332 tons was milled. Twelve other producers accounted for the balance of production with total outputs ranging from 54,000 ounces of gold to 5 ounces of gold. The British Columbia Ministry of Energy Mines and Petroleum Resources MINFILE database lists 33 lode gold deposits and occurrences in the Zeballos Gold Camp, all of which are associated with quartz veining. Along with free gold, other associated minerals included pyrite, arsenopyrite, calcite and chalcopyrite with occasional galena and sphalerite. The geology of the Tahsis area is similar to the Zeballos camp, making it a favourable exploration target.

Exploration has spilled southeast from Zeballos into the Tahsis River Valley and further to the southeast following the Eocene Mt. Washington intrusive plugs, the host rocks of much of the Zeballos mineralization. There are several mineral occurrences on old crown granted mineral claims in the area of the Tahsis claims, though none of them lie within the present Tahsis property boundary. These include the Star of the West and Independence claims located within the small block of claims northwest of Tahsis excluded from the current Tahsis property and immediately to the east of the Tahsis property, respectively. The Independence is auriferous quartz veins while the Star of the West is a gold-copper skarn in Quatsino limestone. The Tahsis property has a long exploration history. Table 3 shows the summary of the exploration history from the British Columbia Ministry of Energy, Mines and Petroleum Resources ARIS Assessment Report Index. The proximity of the Tahsis property to the Zeballos Gold Camp, approximately 25 kilometres to the northwest, has resulted in several cycles of exploration on the ground comprising the present Tahsis property.

The area around the old Independence workings, immediately east of the north central portion of the present Tahsis property, has been explored at regular intervals since the early 1980's. The first program was completed by property owner Peter Peto in 1983. A total of 15 rock samples, 4 silt samples and 9 soil samples were collected by various company geologists during the summer of 1983, divided between the Star of the West and the Independence claims (Peto, 1983).

**Table 3. Summary of Exploration History**

ARIS	Year	Reference	Company	Property	Work Done / Recommendations
9130	1981	White and Chabot, 1981	Pan Ocean Oil Ltd.	Tah Group	Heavy mineral sampling and rock and stream geochemistry. Mapping, rock, soil silt geochemistry recommended.
10157	1981	Chabot, 1982	Pan Ocean Oil Ltd.	Tah Group	Mapping, rock sampling. Rock sampling, mapping and prospecting recommended.
10659	1981	Beach, 1981	Colin Beach	Water	Prospecting. Prospecting and rock sampling recommended.
12058	1983	Robinson, 1983	Aberford Resources Ltd.	Tah Group	Mapping, rock sampling. Prospecting and detailed mapping recommended.
12354	1983	Peto, 1983	Peter Peto	Independence, Tahsis	Soil, rock sampling. Prospecting and rock sampling recommended.
13681	1985	Ronning, 1985	Homestake Mineral Development Company	Tah Group	Rock sampling. No further work recommended.
16426	1987	Freeze, 1987	Stow Resources Ltd.	Perry Group	Silt, rock sampling, mapping. Soil geochemistry, ground geophysics recommended.
16673	1987	Stephenson, 1987	North American Ventures Ltd.	Independence	Soil, rock sampling. Soil sampling, ground geophysics, mapping recommended.
20664	1990	Nelles, 1990	Landon Resources Ltd.	Extra	Mapping, rock sampling, IP/Mag surveys, diamond drilling. Mapping, follow up geophysics and diamond drilling recommended.
22130	1991	Coombes, 1992	Landon Resources Ltd.	Extra	Mapping, rock sampling, IP/Mag surveys. No further work recommended.
28652	1996	Diakow, 1996a	Gerry Diakow	Extra	Rock sampling. Silt and soil sampling recommended.
28659	1996	Diakow, 1996b	Gerry Diakow	Geo	Rock sampling. Silt and soil sampling recommended.
30088	2007	Raven and Nelson, 2008	Grande Portage Resources Ltd.	Cherry	Silt, soil, rock sampling, airborne geophysics. Prospecting, airborne geophysics recommended.

North American Ventures Ltd. explored the Independence claim in 1987. They flagged a grid, collected 290 soil samples at 100 metre intervals along north-south lines paced 50 metres apart and then ran magnetometer and VLF-EM surveys over the grid lines. A subsequent review of the data showed the grid lines stopped well short of the projected location of the Independence veins. (Stephenson, 1987).

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Landon Resources Ltd. completed a two year exploration program on the Star of the West workings and surrounding area in the early 1990's. This includes the small block of ground entirely surrounded by the present Tahsis property in the west central portion of the claim block. The initial 1990 program (Nelles, 1990) consisted of 12.6 line kilometres of magnetometer surveying, 6.2 line kilometres of Induced Polarization surveying, 32 rock samples, 8 heavy mineral samples, 7 petrographic analyses, geological mapping and two NQ diamond drill holes totaling 243 metres. The follow up 1991 program (Coombes, 1992) consisted of reconnaissance geological mapping at a scale of 1:5,000 (approximately 550 hectares); detailed geological mapping at a scale of 1:1,000 (approximately 60 hectares); grid construction (9,010 metres with 10m station intervals); soil (253 samples, of which, 213 were analyzed) and rock (22 samples) geochemical sampling; ground magnetometer geophysical surveys (14,910 metres at 10 metre intervals); and very low frequency electromagnetics (VLF-EM) geophysical surveys (11,280 metres at 10 metre intervals).

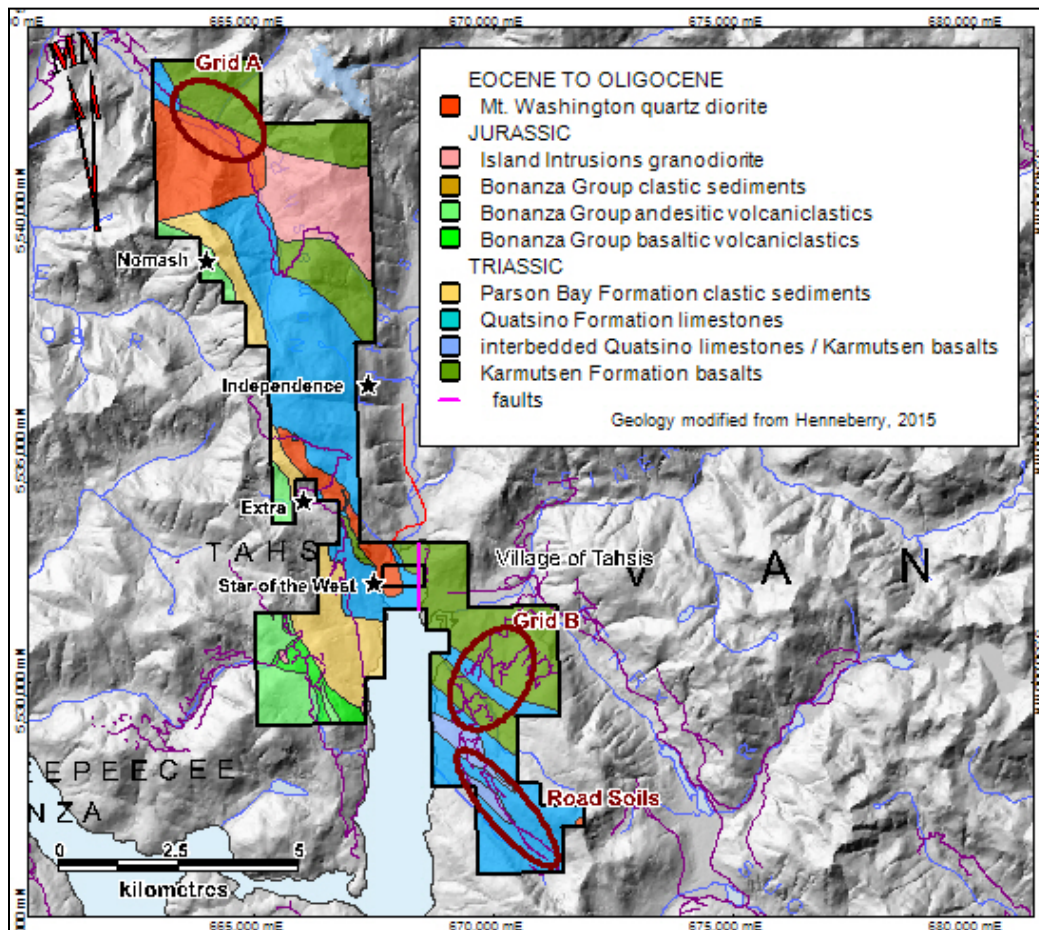
These programs found three showings: the Poole Creek skarn area, where pyrite usually occurs as disseminations and fracture fillings associated with quartz, calcite, epidote and chlorite veining, and pyrrhotite and chalcopyrite predominantly occur as disseminations and fracture fillings; the Open Cut Zone, where semi-massive mineralization, including fracture-related chalcopyrite, is hosted by open tensional fractures between two north-northwesterly striking and steeply dipping strike-slip faults along the diorite-limestone contact; and the Adit Zone, where semi-massive pyrite and chalcopyrite mineralization at the intrusive contact of a northerly striking andesite dyke. (Coombes, 1992).

Diakow (1996a) staked the Extra claim to cover the Star of the West showings in 1996. He also staked a second block, the Geo claim, on the western side of Tahsis Inlet, now covered by the southwest portion of the present Tahsis property (Diakow, 1996b). Rock sampling programs, consisting of 7 rock samples from the Extra claim and a further 7 samples from the Geo claim, were conducted on each property.

Colin Beach explored his Water claim on 1981, taking one rock sample and flagging a grid. Nothing of significance was noted, Beach (1981). Minfile reports that a sample collected from this property assayed 0.061% Cu, 0.8 grams per tonne silver and 0.035 grams per tonne gold. Neither Beach nor anyone else has been able to duplicate this sample or result. The ground

comprising the long expired Water claim underlies some of the northwest section of the current Tahsis property including the old Nomash showing.

Four significant exploration programs were completed on the bulk of the present Tahsis property. The 2007 program was completed by Grand Portage Resources Ltd. The claims subsequently expired and were acquired by Qualitas Holdings Corp., the property vendor, in 2010. They optioned the claims to Gold Ridge Exploration Corp., who subsequently completed a 2011 program. Gold Ridge later returned the claims and Qualitas next optioned them to Sojourn Ventures Inc. in 2013. Sojourn completed a program in 2013 and a second program in 2015 before returning the claims to Qualitas when they decided to move in a different direction. These program lead to the identification of three target areas: Grid A, Grid B and the Road Soils Area (Figure 3).



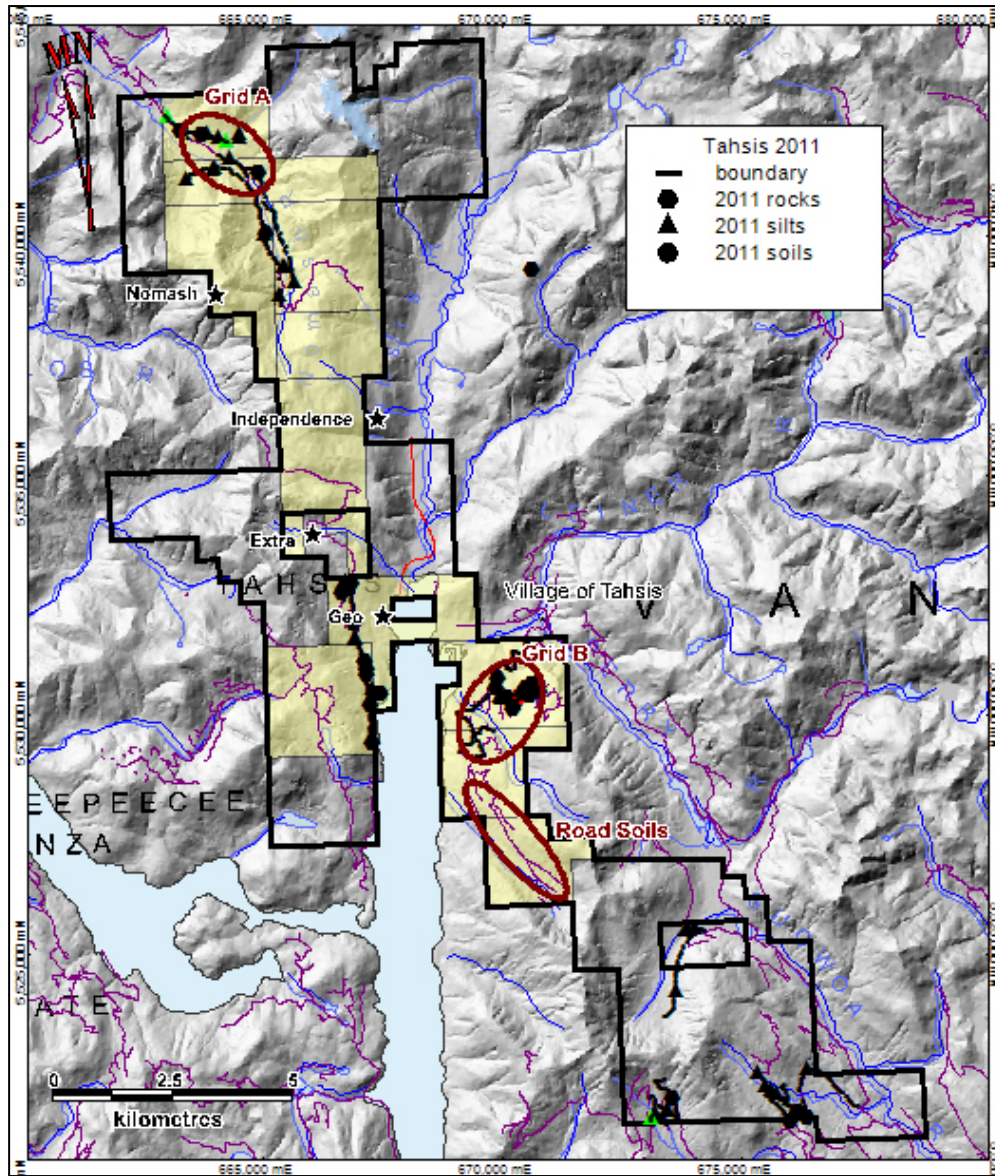


Grande Portage completed a 2007 exploration program of airborne geophysics, property wide stream sediment sampling, supplemental soil sampling and limited rock sampling (Raven and Nelson, 2008). The airborne time domain electromagnetic and caesium vapour magnetometer survey ran into a month of poor weather and only 162.7 of the planned 1443 line kilometres were actually flown. No maps were produced due to lack of data. The stream sediment sampling program was confined to accessible areas of the property and consisted of 14 moss-mat silt and 236 conventional silt samples, identifying four areas for follow-up: Targets A through D. A total of 78 soil samples were taken in areas where stream drainages were minimal. The sampling assisted in confirming Targets A and D and suggested Target B could be larger in scope than suggested by the silt sampling. While a total of 26 rock samples were reported as taken by Raven and Nelson (2008) assay results were only provided for 15 samples. Descriptions of the rock individual rock samples were not provided in the 2008 report, so it is unknown if the samples were float, grabs or chips.

Gold Ridge Exploration Corp. explored the present Tahsis claim block in the spring of 2011, completing a preliminary exploration program consisting of: 619 road soil samples, 42 rock samples and 34 silt samples testing 4 target areas identified by earlier operators (Figure 4a). They had exploration success at Target A, located on both sides of Nomash Creek valley on the north claim block, returning elevated gold and copper values from soils and silts and at Target B, located to the east of the head of Tahsis Inlet, returning elevated gold and copper values from rocks and soils. Gold Ridge completed very limited sampling at Target C and Target D (Robb, 2011).

**Table 4. Summary of Tahsis Property Programs**

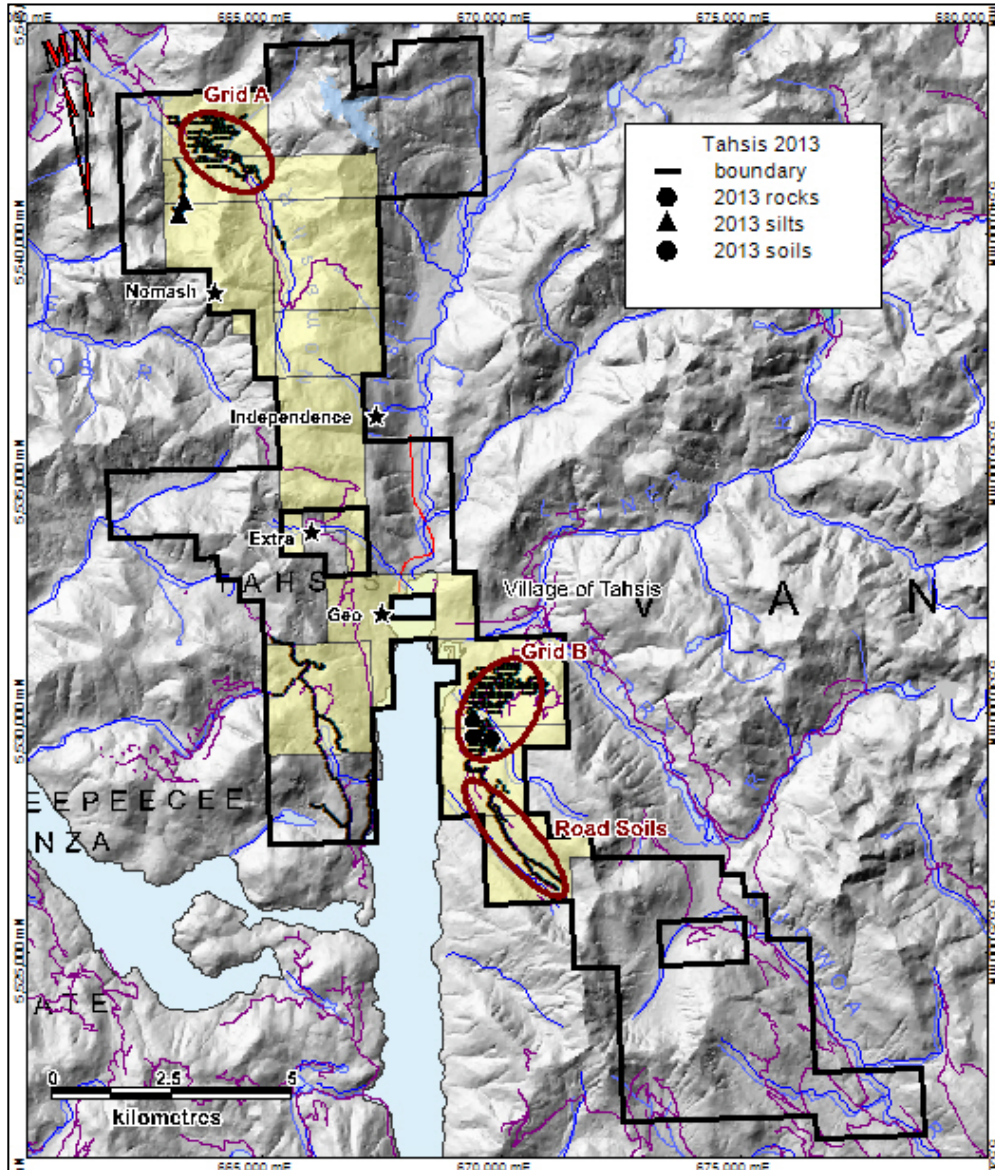
<b>Company</b>	<b>Year</b>	<b>Road Soils</b>	<b>Grid soils</b>	<b>Silts</b>	<b>Rocks</b>
Gold Ridge	2011	619		34	42
Sojourn	2013	176	691	2	3
Sojourn	2015	108		24	14



UTM NAD83 ZONE 9

FIGURE 4A. TAH SIS 2011 EXPLORATION PROGRAM

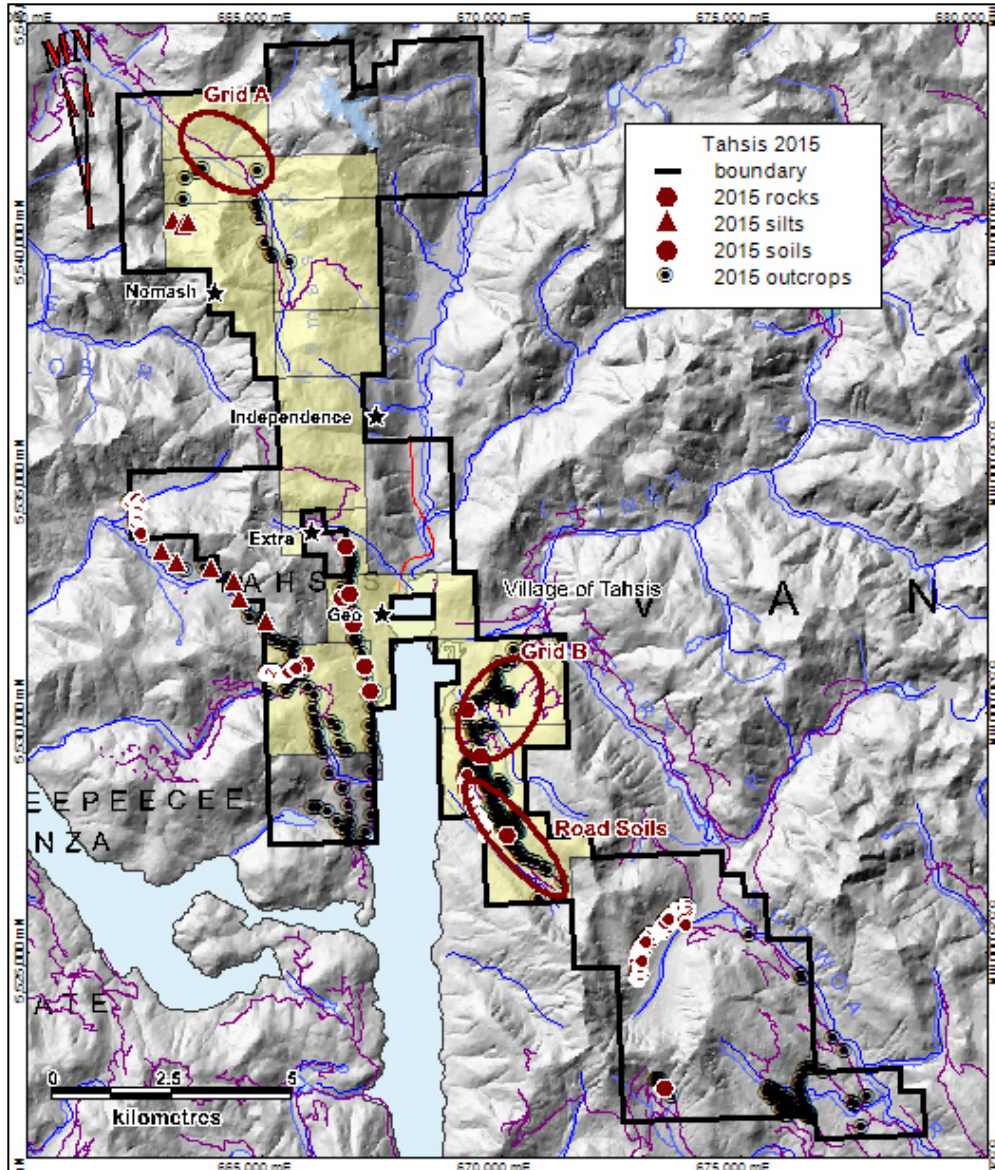
Sojourn Ventures Inc. undertook grid soil sampling programs at Target A and Target B in the summer of 2013 (Figure 4b). Extremely difficult ground conditions significantly curtailed the size of the proposed soil grids and lead to a program of road soil sampling to meet the exploration expenditures required under the option agreement. Grid and road soil sampling in the Target A area located a continuously anomalous 950 metre section of road at the top end of the grid, with gold-in-soil ranging from a minimum of 15 ppb to a maximum of 1672 ppb and copper-in-soil values ranging from a minimum 119 ppm of to a maximum of 1651 ppm.



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**FIGURE 4B. TAH SIS 2013 EXPLORAION PROGRAM**

Grid and road soil sampling in the Target B area located two clusters of anomalous gold and copper in soil: cluster 1 – approximately 450 metres north south by 500 metres east west and cluster 2 – approximately 1300 metres east west by 250 metres north south. Road soil sampling in the southwestern end of the claim block located anomalous gold and copper in soil values as the south end of Target D was approached at the extremity of the sampling program. Program statistics were 691 grid soils, 176 road soils, 2 moss mat stream sediment samples and 3 rock samples. (Henneberry, 2013).



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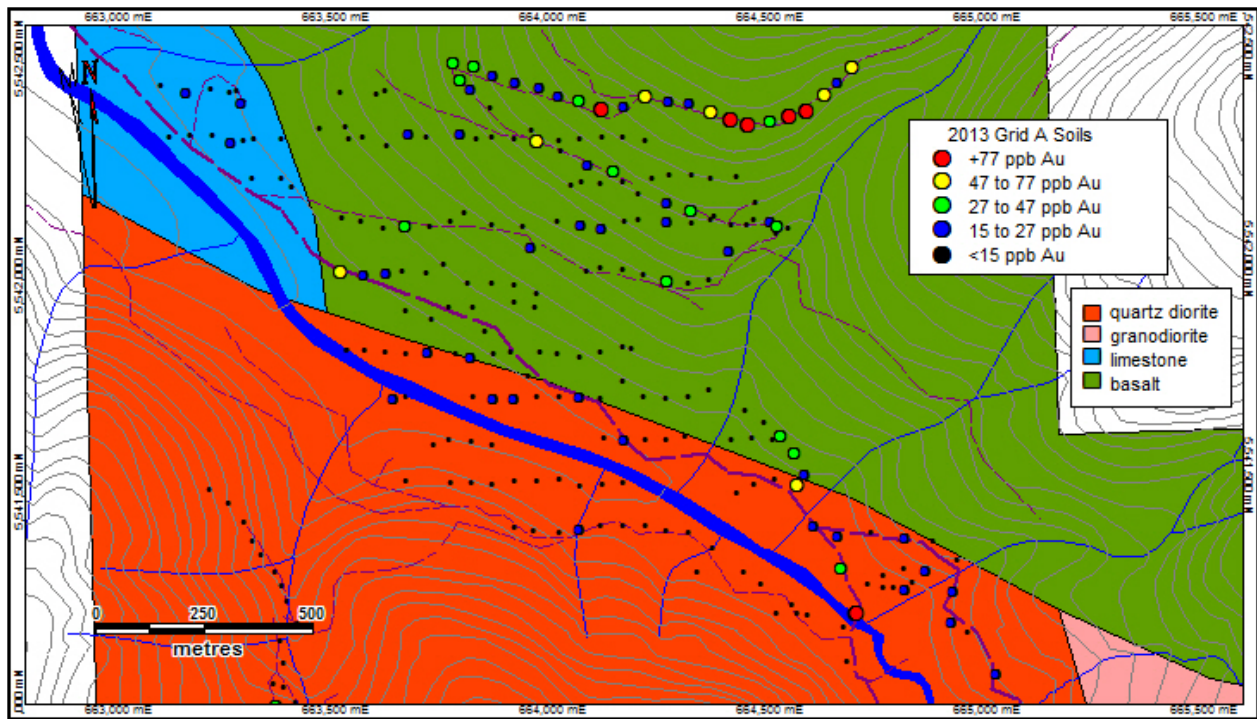
FIGURE 4C. TAH SIS 2015 EXPLORATION PROGRAM

Sojourn completed a second program of local road soil sampling, stream sediment sampling, rock sampling and preliminary geological mapping in 2015. A total of 108 road soil samples, 1 moss mat stream sediment sample, 23 conventional stream sediment samples and 14 rock samples were taken and 352 outcrop locations were logged during the July 2015 exploration program (Figure 4c).

This exploration allowed downsizing of the property by allowing some of the peripheral area claims to expire. (Henneberry, 2015).

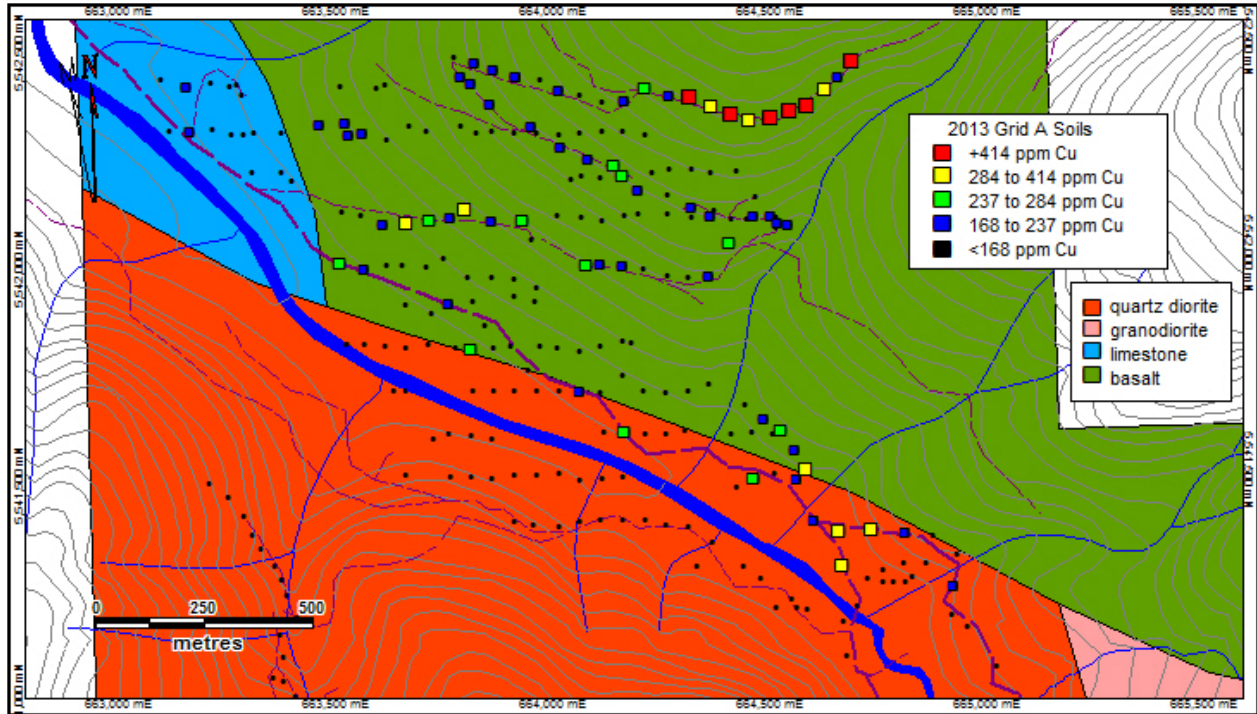
The Grid A soil sampling concentrated in the area of the 2011 road Au-in-soil and Cu-in-soil anomalies in the northern claim block. The bush conditions were extremely difficult so the planned 200 metre by 50 metre sample grid was not possible. The sampling concentrated on the severely overgrown roads cutting through the grid and lines along the proposed grid wherever possible. The results are plotted as Figures 5a and 5b.

The gold plot (Figure 5a) shows scattered spot anomalies throughout the portion of the grid that was established. More importantly, it strongly suggests a significant zone of continuous of Au-in-soil values along an overgrown road on the northern end of the grid. The continuous 950 metre section of road contained Au-in-soil values ranging from a minimum of 15 ppb to a maximum of 1672 ppb and Cu-in-soil values ranging from a minimum 119 ppm of to a maximum of 1651 ppm. (Table 5).



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FIGURE 5A. GRID A GOLD IN SOILS



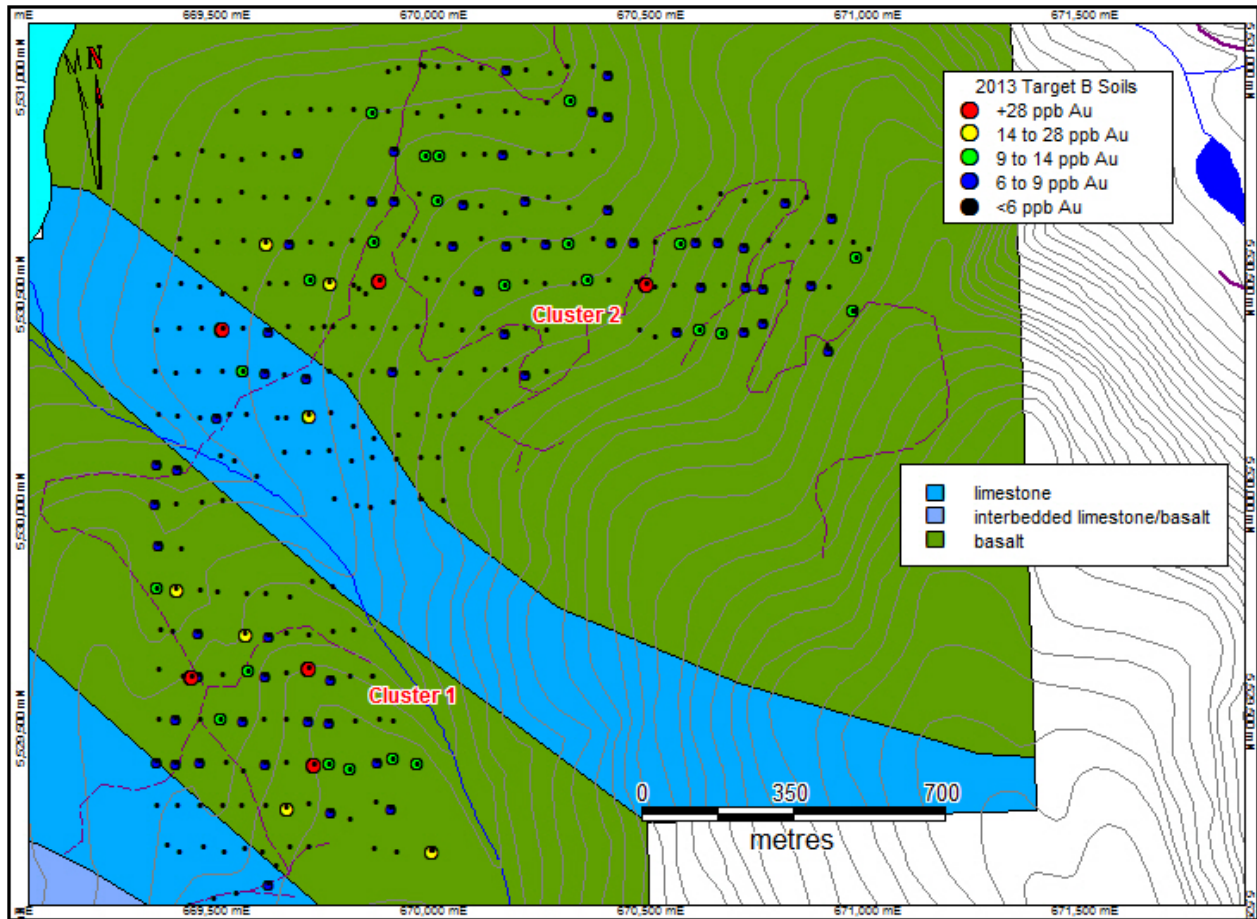
UTM NAD 83 ZONE 9

FIGURE 5B. GRID A COPPER IN SOILS

The Target A Cu-in-soil plot (Figure 5b) again shows considerable scatter through the part of the grid that was established. The overgrown road at the north end of the grid also appears to be strongly anomalous in copper over the same 950 metre section that is anomalous in gold. This area is a highly attractive target. This area of the property appears to be underlain by Karmutsen volcanics.

**Table 5. Grid A Zone on Anomalous Soils**

Sample No	ppm Cu	ppb Au	Sample No	ppm Cu	ppb Au	Sample No	ppm Cu	ppb Au
KW 009	179	16	KW 005	120	38	JT 067	756	1672
WR 020	236	35	KW 006	134	78	JT 068	392	323
WR 019	129	38	KW 007	208	19	JT 069	563	46
WR 018	207	28	KW 008	258	53	JT 070	1651	268
WR 017	236	20	JT 064	173	15	JT 071	473	84
KW 002	215	20	JT 065	433	23	JT 072	350	50
KW 003	149	19	JT 066	306	55	JT 073	227	18
KW 004	207	23				JT 074	749	77



UTM NAD 83 ZONE 9

FIGURE 6A. GRID B GOLD IN SOILS

The Target B soil sampling concentrated in the area of the 2011 road Au-in-soil and Cu-in-soil anomalies in the southern claim block. The bush conditions were extremely difficult so the planned 200 metre by 50 metre sample grid was not possible. The sampling concentrated for the most part on the lower slopes, which proved to be somewhat more accessible. The results are plotted as Figures 6a and 6b.

The initial observation from the sampling in this area is the gold and copper values are half of what they were in the Target A area. The geology in this area is Karmutsen volcanics and Quatsino limestones, in comparison to the Karmutsen volcanics and Mt. Washington suite intrusives at Grid A.

Grid B is associated with the contact between the Quatsino limestone and Karmutsen volcanics. Two cluster anomalies were clearly identifying during the 2013 grid soil sampling. Cluster 1 is approximately 450 metres north south by 500 metres east west and appears to lie on the lower

slopes of a relatively gentle ridge. Cluster 2 is approximately 1300 metres east west by 250 metres north south and stretches down the west facing slope.

The gold plot (Figure 6a) show scatter throughout the grid, but also seems to have identified two anomalous clusters. Cluster 1 is in the southwest portion of the grid within the limestones and Cluster 2 appears to be a loosely defined zone trending through the centre of the grid.

The copper plot (Figure 6b) appears to replicate the gold plot in that both Cluster 1 and Cluster 2 are clearly identifiable. Cluster 1 is approximately 450 metres north south by 500 metres east west and appears to lie on the lower slopes of a relatively gentle ridge. Cluster 2 is approximately 1300 metres east west by 250 metres north south and stretches down the west facing slope.

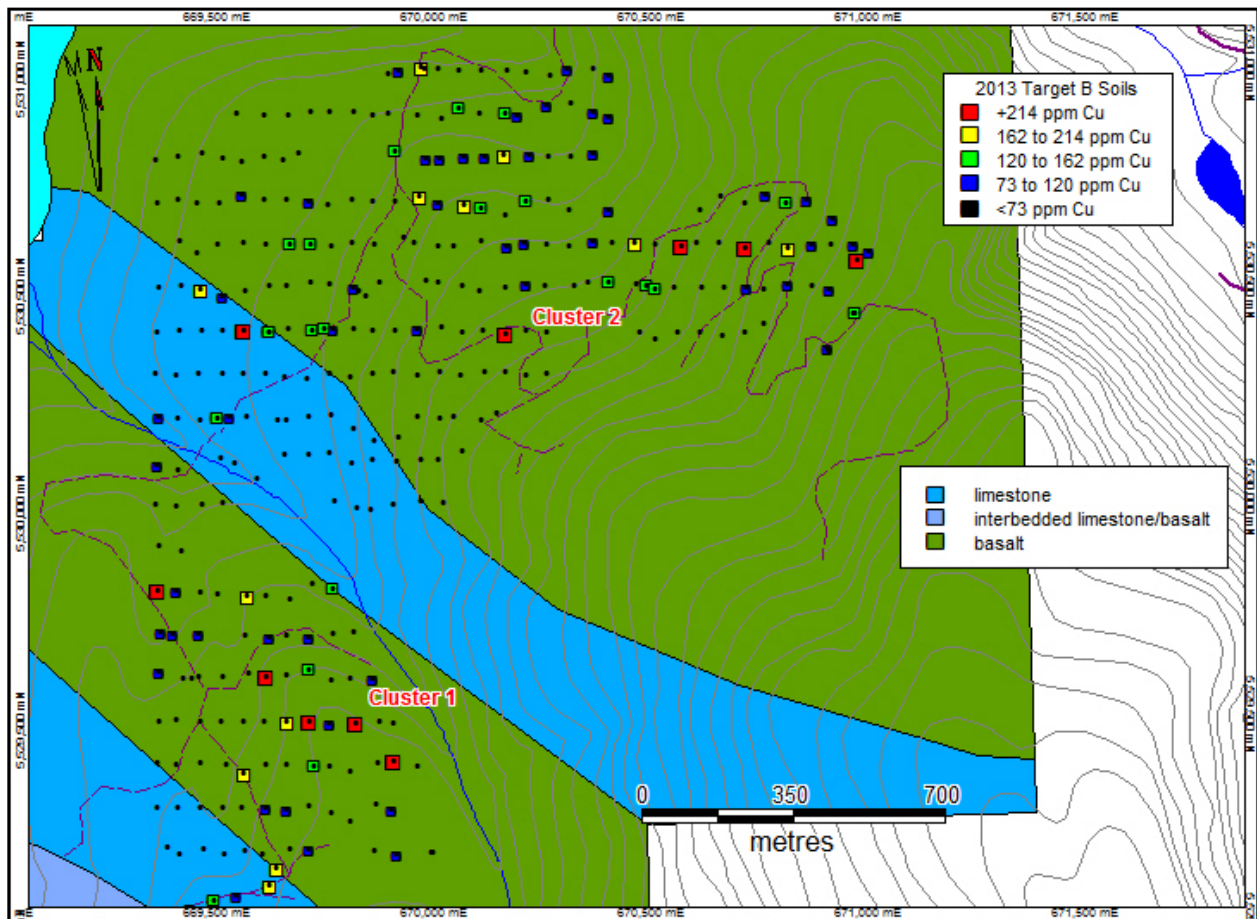


FIGURE 6B. GRID B COPPER IN SOIL



slope.

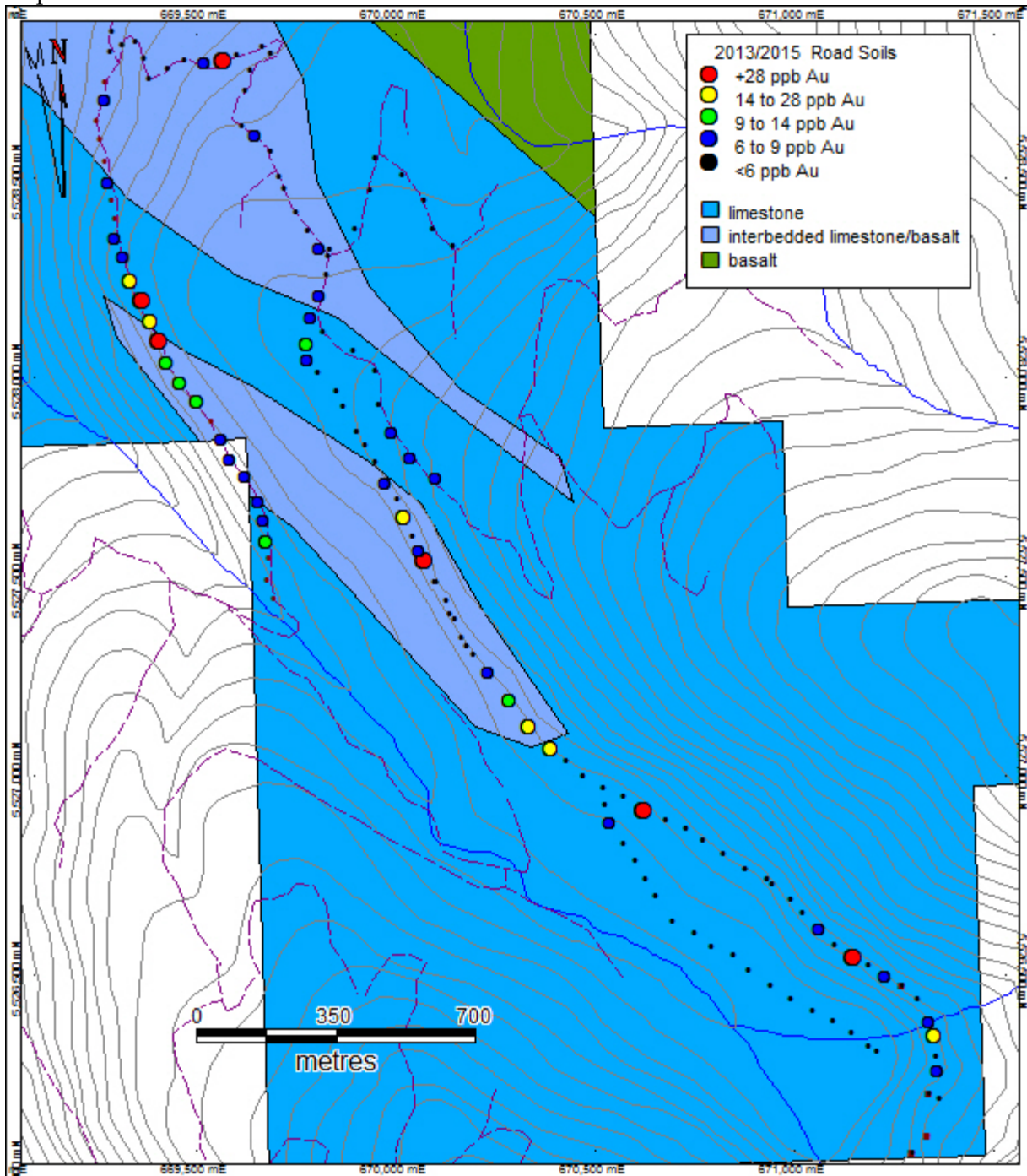


FIGURE 7. ROAD SOIL GOLD IN SOIL

A third area of interest lies to the south of Grid B in the road soil area, where a zone of anomalous gold in soil was located in 2015 in the same area where anomalous values were found in 2013. The plot is shown in Figure 7. A 450 metre section of 50 metre spaced road soil sampling contains gold values ranging from a low of 6 ppb Au to a high of 146 ppb Au. Additional values of 9, 7, 6 and 14 ppb occur further to the south. Sampling in 2013 returned a 150 metre section with values of 7, 17, 23, and 27 ppb Au a kilometre to the southeast. The gold values look to be associated with an area of interbedded Quatsino limestone and Karmutsen basalt. There were no anomalous zones in the copper in soil so a copper plot was not done.

**Table 6. Road Soil Area Anomalous Soils**

Sample No	ppm Cu	ppb Au	Sample No	ppm Cu	ppb Au	Sample No	ppm Cu	ppb Au
26357	41	14	26362	45	9	26368	44	18
26358	85	7	26363	9	2	26369	122	146
26359	62	10	26364	89	12	26370	52	24
26360	50	6	26365	26	12	26371	15	8
26361	80	7	26366	88	11	26372	31	6
			26367	82	90			

The rock and silt samples taken from the 2011, 2013 and 2015 programs have been compiled and are presented as Figure 8a through 9b. A total of 59 rocks were taken over the three programs. Two samples stood out. A vuggy quartz pod showing copper oxides was located in the Karmutsen basalts in the area of Grid B. A grad sample of the zone returned as value of 1.075% copper. A rusty shear zone in the general area of the Extra showing returned a value of 3375 ppm copper. (Figure 8a). A brecciated, 1 to 15 centimetre wide quartz carbonate vein with traces of disseminated fine grained pyrite returned a value of 738 ppb Au and a brecciated quartz stockwork zone in the same area returned a value of 393 ppb Au. Both samples lie within the Grid B area. (Figure 8b).

A total of 61 stream sediment samples were taking over the three programs (Figure 9a and Figure 9b). One area of anomalous copper values was located in the northwest corner of the property along the eastern contact of the Zeballos pluton. This area was also anomalous in gold and led to the establishment of the soil grid at the Grid A target. Other spot or cluster gold anomalies were located in areas of the originally southern claims that were abandoned when the property was downsized.

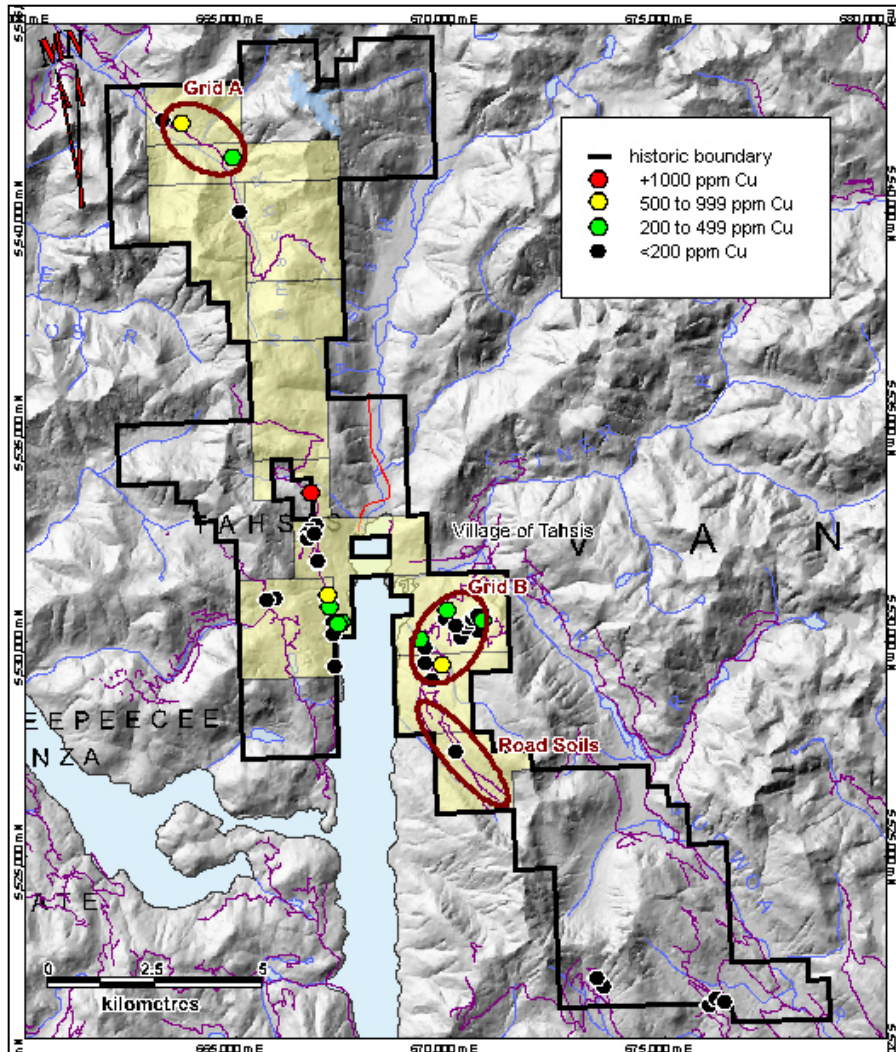


FIGURE 8A. HISTORIC ROCK SAMPLES COPPER

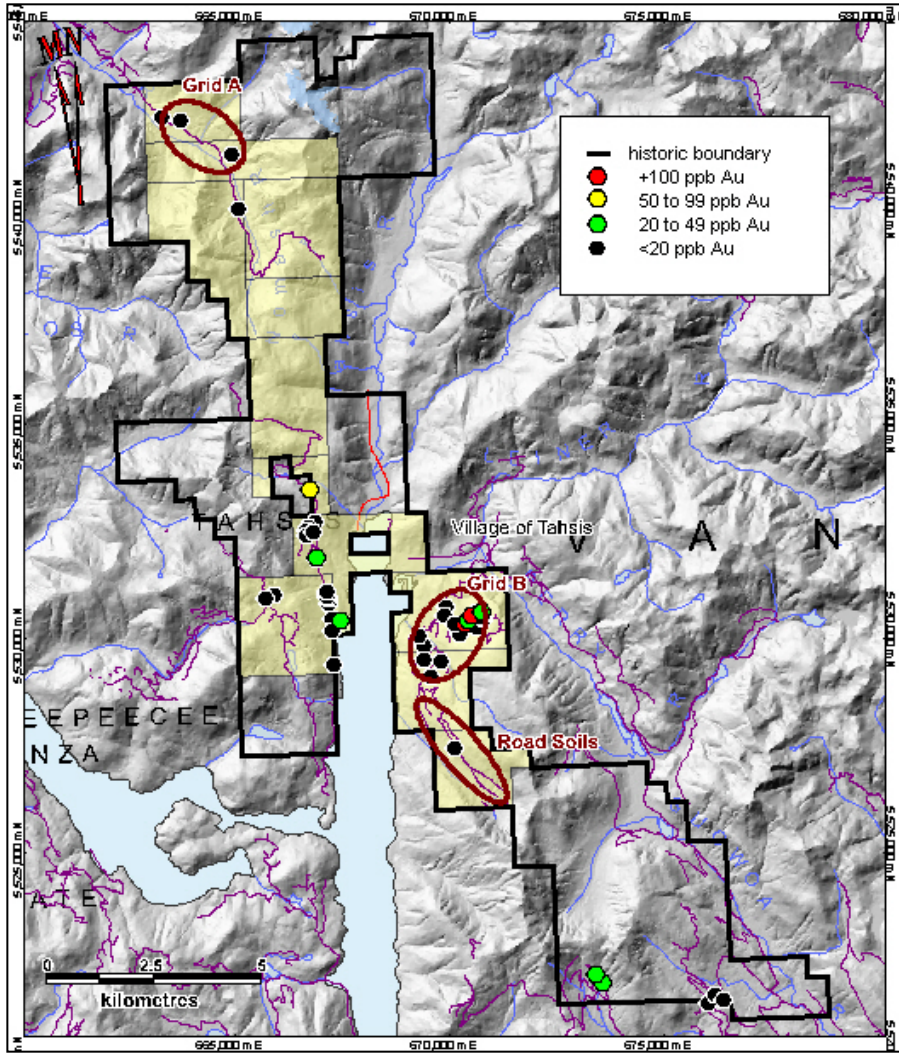
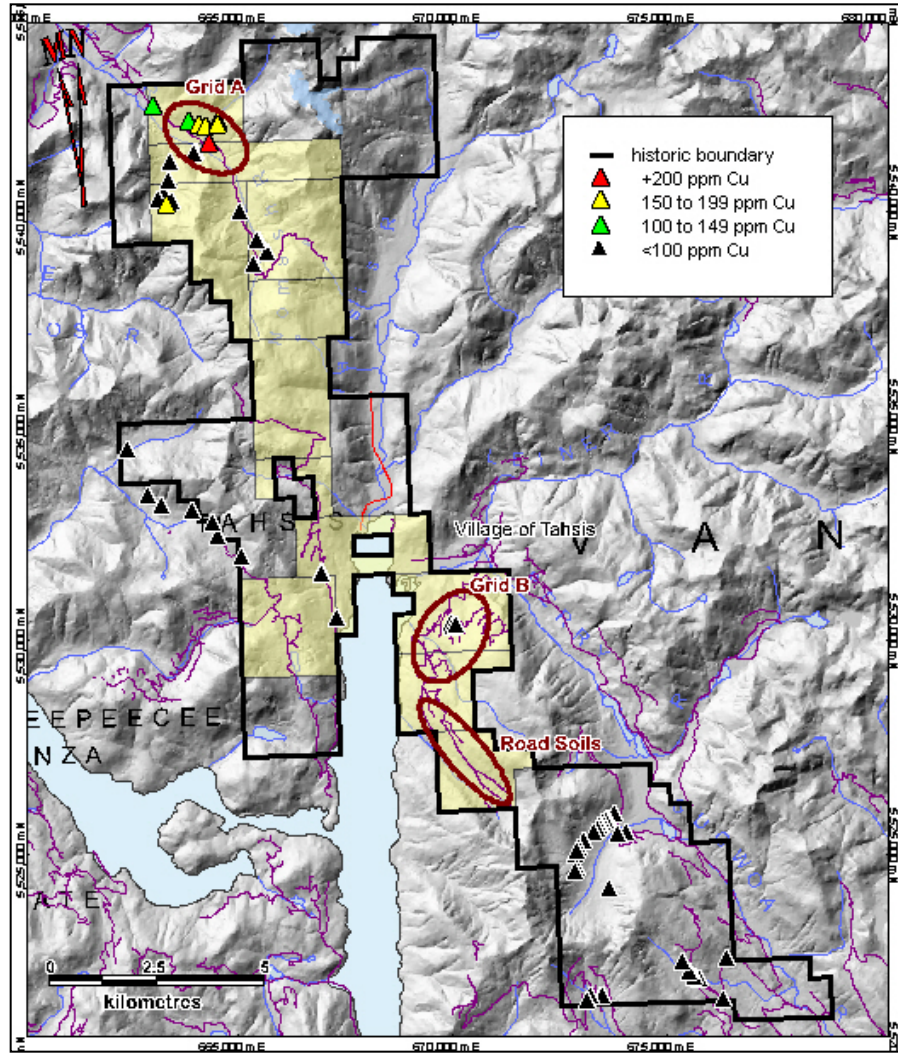
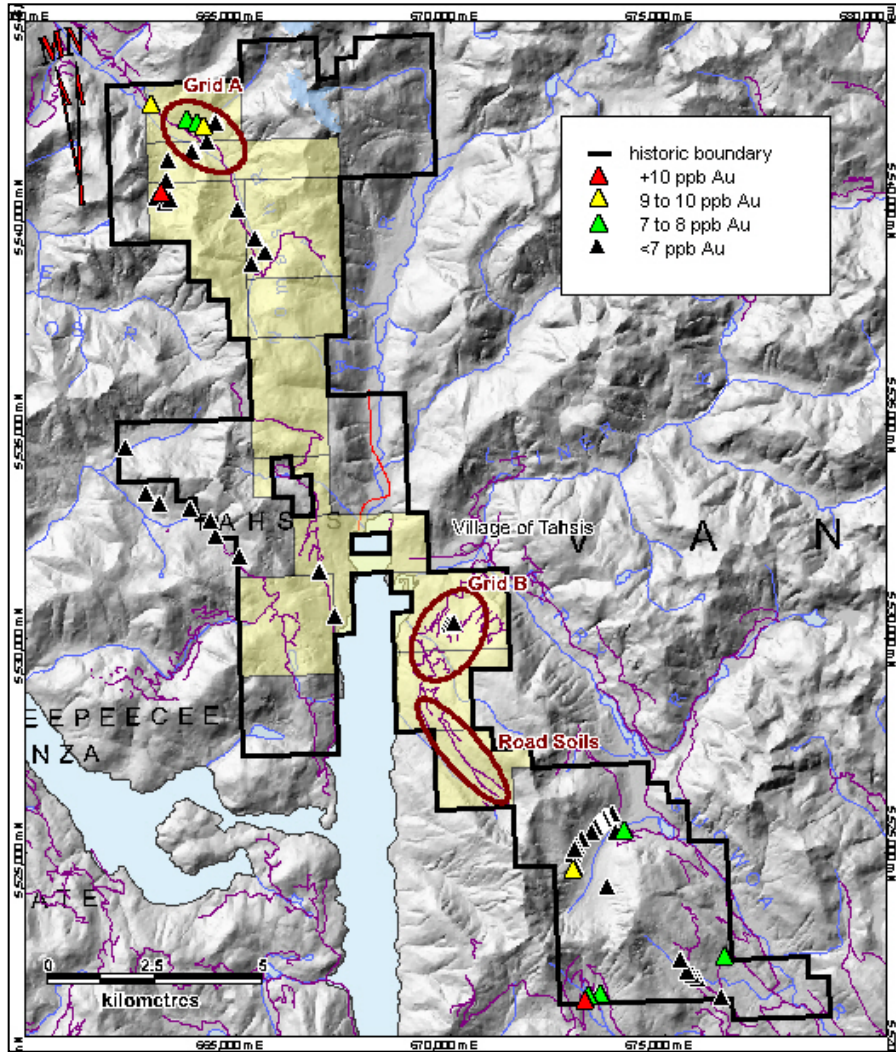


FIGURE 8B. HISTORIC ROCK SAMPLES GOLD



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FIGURE 9A. QUALITAS SILT SAMPLES COPPER



UTM NAD83 ZONE 9

FIGURE 9B. QUALITAS SILT SAMPLES GOLD

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## 9.0 Geological Setting and Mineralization

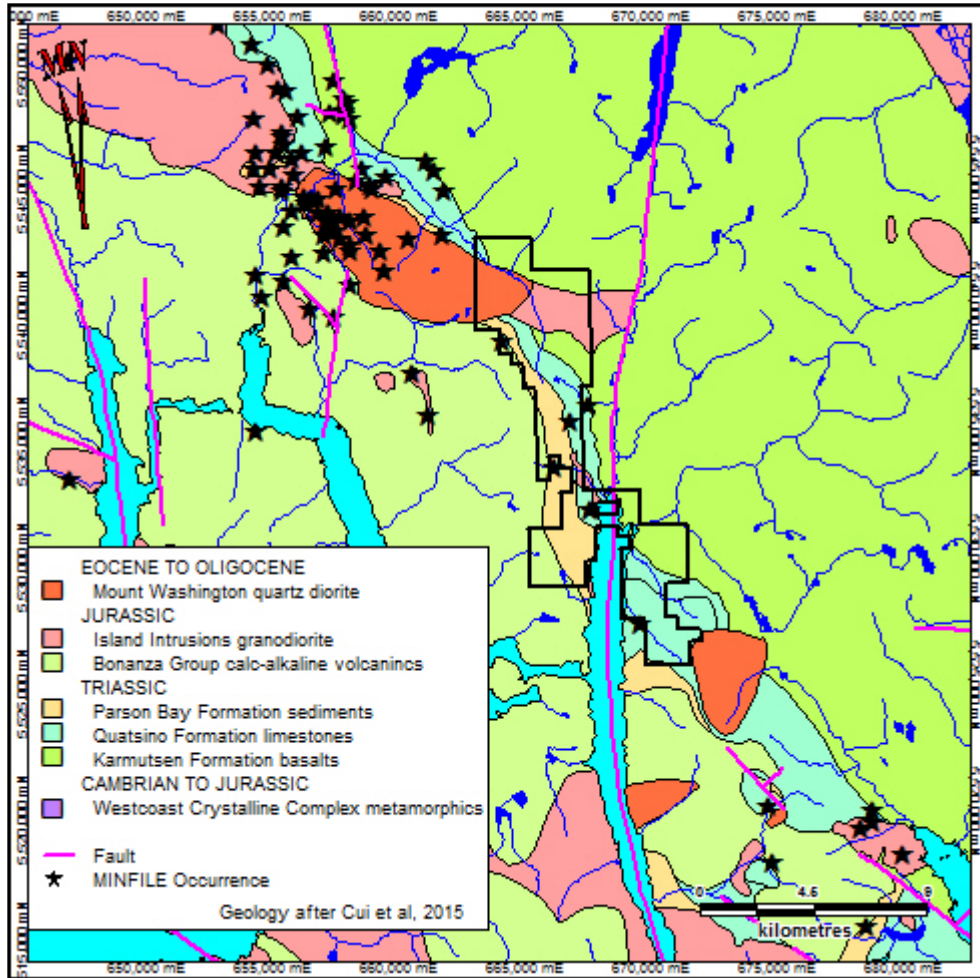
### 9.1 REGIONAL GEOLOGY

The geology of northeast Vancouver Island has been described by Muller et al (1974) and Muller et al (1981). The area is located within the Insular Belt of the Canadian Cordillera. The map area is chiefly underlain by the middle to upper Triassic Vancouver Group, overlain by the lower Jurassic Bonanza Group. The Vancouver Group is intruded by large and small bodies of middle Jurassic Island Intrusions. The region may be divided into several large structural blocks, separated mainly by important near-vertical faults and themselves fractured into many small fault segments (Figure 10).

The Vancouver Group is comprised of the lower Karmutsen Formation, middle Quatsino Formation and upper Parson Bay Formation. The Karmutsen Formation, the thickest and most widespread of the Vancouver Group formations, consists of basaltic pillow lavas, pillow breccias and lava flows with minor interbedded limestones, primarily in the upper part of the formation. Karmutsen rocks outcrop throughout northeastern Vancouver Island.

The Quatsino Formation overlies the basalts. The lower part of the Quatsino Formation consists of thick bedded to massive, brown-grey to light grey, grey to white weathering, fine to microcrystalline, commonly stylolitic limestone. The upper part is thin to thick bedded, darker brown and grey limestone, with fairly common layers of shell debris. The formation is in gradational contact with the overlying Parson Bay Formation by an increase in layers of calcareous pelites. Quatsino limestone outcrops as three narrow belts in the northern part of Vancouver Island.

The Parson Bay Formation consists of a series of interbedded silty limestones and calcareous shales and sandstones, and occasional beds of pure limestone. Parson Bay rocks outcrop sporadically overlying the Quatsino limestone.



Projection NAD 83 Zone 9

**FIGURE 10. REGIONAL GEOLOGY**

The Bonanza Group overlies the Vancouver Group. Bonanza Group rocks are primarily a Jurassic assemblage of interbedded lava, breccia and tuff with compositions ranging from basalt through andesite and dacite to rhyolite, deposited in a volcanic island arc environment. The Bonanza Group outcrops throughout the map area.

Granitoid batholiths and stocks of the Island Intrusions underlie the central core of Vancouver Island from one end to the other. These intrusions range in composition from quartz diorite and tonalite to granodiorite and granite. Island Intrusions outcrop throughout the map area.

There are local Eocene quartz diorite intrusions of the Mount Washington Intrusive Suite that are more prominent on the western side of Vancouver Island.



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The network of faults displayed at the north end of Vancouver Island appear to be the superposition of two or more fracture patterns, each with characteristic directions but of different age and origin.

**Plate 1. Karmutsen Formation**



1a. pillow basalts



1b. amygdaloidal basalt



1c. fracture epidote



1d. fine basalt

## **9.2 PROPERTY GEOLOGY**

The Tahsis property was mapped during the 2015 field program (Henneberry, 2015), concentrated on numerous logging roads in within the claim block with coverage ranging from

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excellent through to non-existent. In inaccessible areas, the British Columbia Geological Survey 2015 Digital Geology (Cui et al, 2015) was integrated into the mapping. In addition, Nelles (1990) mapping in the area northwest of the head of Tahsis Inlet was integrated into the mapping.

Outcrop is generally abundant as soon as the logging roads leave the valley bottoms, with long stretches of more or less semi-continuous to continuous outcrop common along several of the logging roads. A total of 352 distinct outcrop locations were documented (Figure 11).

The Tahsis property is underlain by Triassic Vancouver Group rocks, Jurassic Bonanza Group rocks and intrusions and Eocene Intrusions, with the Vancouver and Bonanza Group rocks trending in a southeast-northwest direction. The geology is more complicated than shown on the 1:250,000 scale maps of sheets 092E and 092L accompanying Muller et al's (1974) and Muller et al's (1981) reports.

The Triassic Vancouver Group rocks cover 3/5 of the claim block. Moving northeast to southwest the Karmutsen Formation basalts abut the eastern boundary of the property. The rock is generally grey black to black on weathered surface and dark grey black to black on fresh surface. These rocks range from fine grained (Plate 1d) to fragmental, with exposures of pillow basalts noted locally (Plate 1a). They are locally amygdaloidal (Plate 1b). Alteration ranges from fresh to weakly to moderately hematitic. Abundant fracture epidote was noted in several outcrops on the northeast side of Tahsis Inlet (Plate 1c). Disseminated pyrite in concentrations ranging from traces to 1% to 2% was noted locally. Copper was noted and sampled at one location.

Two specimens were sent for petrographic analysis, one from the east centre of the claim block (WP904) and one from the southeast end of the claim block (WP1035). Both samples were described as likely hypabyssal intrusives, with 904 a plagioclase phyric andesite or basaltic andesite and 1035 a plagioclase-mafic (rare olivine?) phyric andesite or basaltic andesite porphyry.

## **Plate 2. Quatsino Formation**

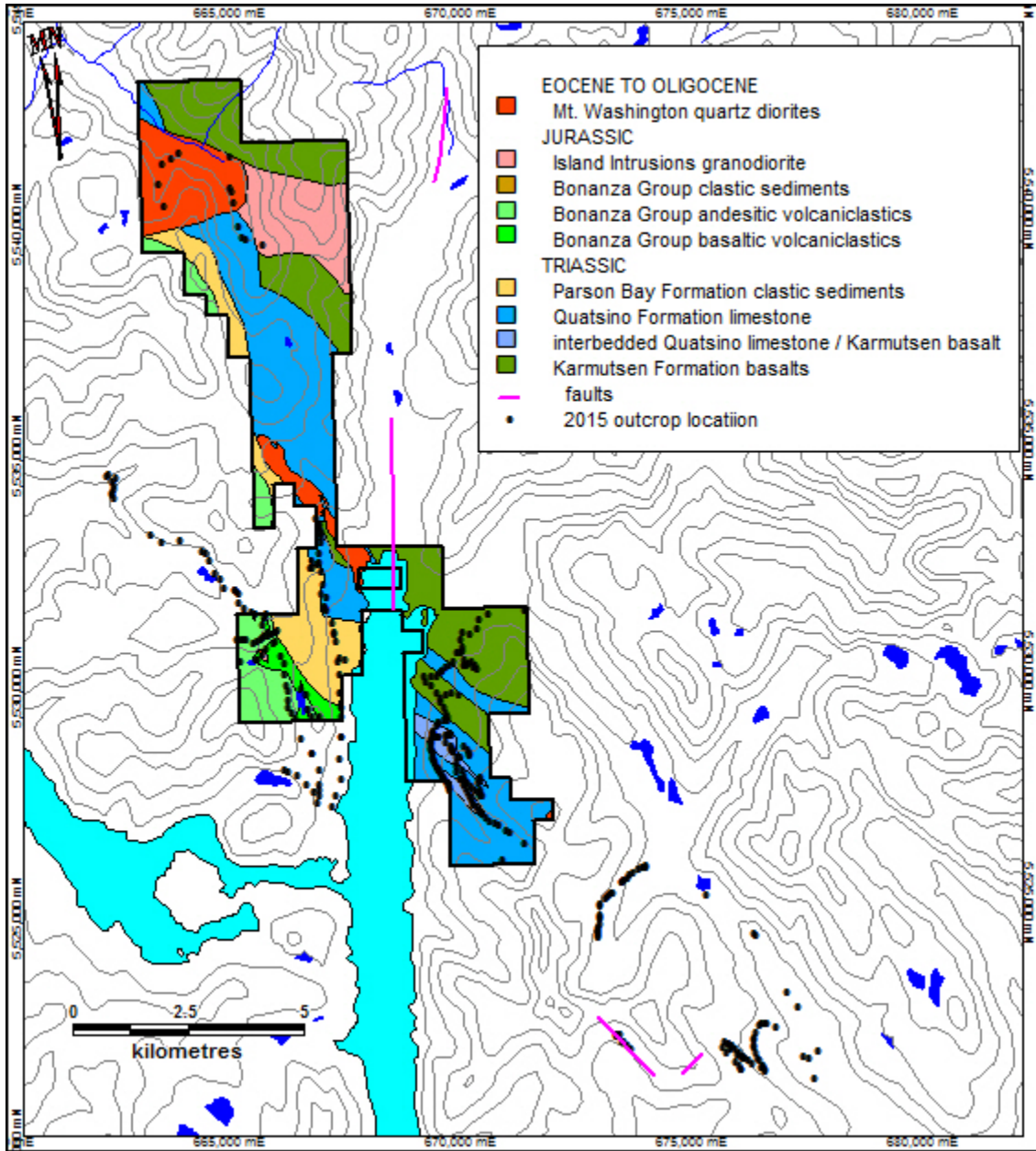


2a. interbedded limestone / basalt



2b. steeply dipping limestone

The Quatsino Formation forms a narrow belt, 1000 to 1500 metres wide trending southeast-northwest through the centre of the property (Plate 2b). The northeastern side is actually comprised more of interbedded limestone and basalt ranging in thickness from 10's of centimetres to a few metres (Plate 2a). There is no alteration or skarnification at the limestone basalt contacts, which suggest deposition on top of the limestone as opposed to dyke intrusion.



Projection NAD 83 Zone 9

**FIGURE 11. PROPERTY GEOLOGY**

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The limestone varies greatly in color and appearance throughout its exposure. The dominant stones are fine grained and dove grey to grey black in color. A larger exposure of white coarser grained marbleized limestone was noted proximal to the southern contact of the Mt. Washington intrusion at the northern end of the claim block. As would be expected, there is considerable variation in the strike and dip of the limestone beds with strikes and dips ranging from  $030^{\circ}/30^{\circ}\text{SE}$  to  $170^{\circ}/40^{\circ}\text{E}$  and  $175^{\circ}/42^{\circ}\text{W}$ . Generally, the limestone was unmineralized, though locally 1% to 2% disseminated pyrite was noted.

The Parson Bay calcareous clastic sediments outcrop along the southwestern edge of the limestone in the western side of the claim block. These rocks range from light brown to grey black in color with beds ranging in thickness from centimetres to 1 to 2 metres (Plate 3a). They show varying amounts of disseminated pyrite, ranging from trace to 5%. They are for the most part altered with varying amounts of silica, clay, sericite and FeOx. A series on sub-parallel andesite dykes crosscutting the sediments were noted in one exposure (Plate 3b).

**Plate 3. Parson Bay Formation**



3a. interbedded siltstones



3b. dykes crosscutting sediments

The Bonanza Group rocks are confined to the western extremities of the claim block, overlying the Parson Bay sediments. The dominant units mapped were a dark grey black more basaltic volcanics and a lighter grey green andesitic volcanoclastic along with local fine clastics. The volcanoclastics appear to gradually change from basaltic to andesitic towards the north.

The basaltic volcanoclastic ranges from fine grained to fragmental in texture and is grey black in color. Outcrops are generally massive to blocky. Alteration consists of weak to moderate car-

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bonate as clots or stringers and local epidote, manganese and chlorite. Mineralization was rare and consisted of traces to ¼% disseminated pyrite. A peculiar circular lichen was quite common on the basaltic outcrops as shown in Plate 4a. This lichen was also regularly noted, though not as commonly, on the Karmutsen basalts.

The andesitic volcaniclastic is a lighter grey green in color and ranges from fine grained through fragmental to agglomerate (Plate 4b). Outcrops are generally massive to blocky as well. Alteration consists of weak to moderate carbonate as clots or stringers and local epidote, manganese, chlorite and sericite, along with local fracture limonite and FeOx. Mineralization was rare and consisted of occasional traces of pyrite.

The clastic sediments were localized to small areas in the central western claim block. They consisted of thinly bedded siltstones to shales generally coloured shades of brown or grey brown (Plate 4c, 4d). The units found in the west central region were interbedded with volcaniclastics. Alteration consisted on carbonate clots and stringers in the north and limonite, with local sericite and silica in the south. No mineralization was noted.

**Plate 4. Bonanza Group**



4a. basaltic volcaniclastic



4b. andesitic agglomeratic volcaniclastic



4c. fine sediments cut by dykes

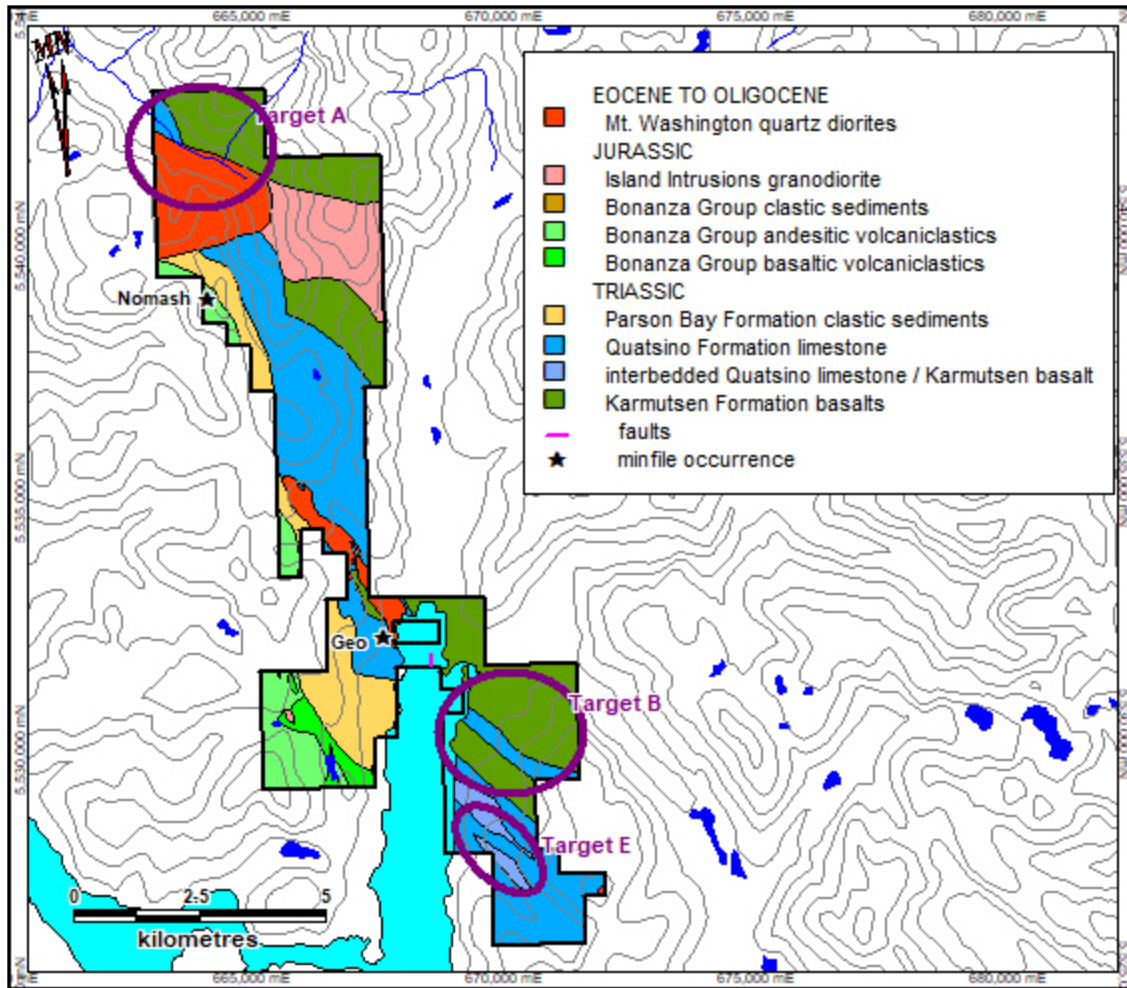


4d. fine siltstone

Three specimens of Bonanza volcanoclastics were submitted for petrographic analysis: WP 722 and WP 735 from the more andesitic volcanoclastics in the west centre of the claim group and WP 719 from the basaltic volcanoclastics in the centre of the claim block. WP 719 and WP 722 were both described as an intermediate volcanoclastics. WP 735 was described as a plagioclase-clinopyroxene phyric andesite or basaltic andesite porphyry, a likely hypabyssal intrusive.

One exposure of granodiorite of the Jurassic Island Intrusions was mapped in the northern part of the claim block. The massive cliff was composed of a medium grained grey rock. Weak sericite, epidote and FeOx were noted in the unmineralized rock.

Parts of three small stocks lie on the claim block. Exposures on in the northernmost stock and the southernmost stock were examined. The northern stock is a blocky to sheeted medium grained, grey white diorite containing hornblende, biotite, plagioclase and quartz. No mineralization was noted and no alteration was noted. The blocky to sheeted southern stock is of similar composition and appearance. Again, no mineralization or alteration was noted.



PROJECTION NAD 83 ZONE 9

FIGURE 12. MINERALIZATION MAP

## 9.2 MINERALIZATION

The Tahsis Property is being explored for auriferous quartz vein and gold skarn mineralization. There presently are two known areas of bedrock mineralization on the property. These are the NOMASH (Minfile number: 092E 024) and the GEO property (Minfile number: 092E 010). On the Nomash property mineralization consisting of scattered chalcopyrite in a skarn is reported to occur over an area measuring 3.0 by 5.0 metres a short distance away from an intrusive contact. A sample collected from this area assayed 0.061% Cu, 0.8 g/t Ag and 0.035 g/t Au (Minfile: 092E 024). Subsequent work has not been able to verify the presence of this mineralization. The following description for the GEO occurrence is summarized from the B.C.



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government MINFILE database. Mineralization consisting of lenses of chalcopyrite, magnetite, pyrite, pyrrhotite and minor arsenopyrite is present in garnet-epidote altered limestone of the Quatsino Formation. One sample assayed 8.2grams per tonne gold, 34.3 grams per tonne silver, 9.0% copper and 14.0 % zinc. The locations of these samples are uncertain.

Three of the five target areas identified on the property have proven to have potential to host mineralization, Target A, Target B and Target E. These zones are shown on Figure 12:

- Target A is associated with the eastern contact area of the Mt. Washington Intrusive Suite quartz diorite. This is the intrusive that is associated with the gold veins of the Zeballos Gold Camp. Soil sampling along an abandoned and overgrown logging road at the north end of the target located a continuous 950 metre section of Au-in-soil values ranging from a minimum of 15 ppb to a maximum of 1672 ppb and Cu-in-soil values ranging from a minimum 119 ppm of to a maximum of 1651 ppm.
- Target B is associated with the contact between the Quatsino limestone and Karmutsen volcanics. Two cluster anomalies were clearly identifying during the 2013 grid soil sampling. Cluster 1 is approximately 450 metres north south by 500 metres east west and appears to lie on the lower slopes of a relatively gentle ridge. Cluster 2 is approximately 1300 metres east west by 250 metres north south and stretches down the west facing slope.
- Target E lies within the Quatsino limestones with some interbedded Karmutsen basalts. A 450 metre section of 50 metre spaced road soil sampling contains gold values ranging from a low of 6 ppb Au to a high of 146 ppb Au. Additional values of 9, 7, 6 and 14 ppb occur further to the south. Sampling in 2013 returned a 150 metre section with values of 7, 17, 23, and 27 ppb Au a kilometre to the southeast.

## 10. Deposit Types

There are two main deposit types targeted for the Tahsis property. They include: auriferous quartz veins typical of the Zeballos Gold Camp and gold skarns associated with the Quatsino limestones. There is also the potential for disseminated gold in limey clastic sediments, which would be related to auriferous quartz veins.

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The following description of auriferous quartz veins is summarized from the Mineral Deposits Profile for Au-Quartz Veins by Ash and Alldrick (1996). Gold-bearing quartz veins and veinlets with minor sulphides crosscut a wide variety of host rocks and are generally localized along major regional faults and related splays. The wall rock is typically altered to silica, pyrite and muscovite within a broader carbonate alteration halo. Veins form within fault and joint systems produced by regional compression or transpression (terrane collision), including major listric reverse faults, second and third-order splays. Veins usually have sharp contacts with wallrocks and exhibit a variety of textures, including massive, ribboned or banded and stockworks with anastomosing gashes and dilations. Textures may be modified or destroyed by subsequent deformation. Tabular fissure veins are present in more competent host lithologies, while veinlets and stringers forming stockworks are present in less competent lithologies. They typically occur as a system of en echelon veins on all scales. Lower grade bulk-tonnage styles of mineralization may develop in areas marginal to veins with gold associated with disseminated sulphides. These deposits may also be related to broad areas of fracturing with gold and sulphides associated with quartz veinlet networks.

The ore mineralogy is native gold, pyrite, arsenopyrite, galena, sphalerite, chalcopyrite, pyrrhotite, tellurides, scheelite, bismuth, cosalite, tetrahedrite, stibnite, molybdenite, gersdorffite (NiAsS), bismuthimite (Bi<sub>2</sub>S<sub>2</sub>), tetradymite (Bi<sub>2</sub>Te<sub>2</sub>S). The gangue mineralogy is quartz, carbonates (ferroan-dolomite, ankerite ferroan-magnesite, calcite, siderite), albite, mariposite (fuchsite), sericite, muscovite, chlorite, tourmaline, graphite. Alteration assemblages consist of silicification, pyritization and potassium metasomatism and generally occur adjacent to veins (usually within a metre) within broader zones of carbonate alteration, with or without ferroan dolomite veinlets, extending up to tens of metres from the veins

Geochemical signatures include elevated values of Au, Ag, As, Sb, K, Li, Bi, W, Te and B ± (Cd, Cu, Pb, Zn and Hg) in rock and soil and Au in stream sediments. Geophysically, faults are indicated by linear magnetic anomalies. Areas of alteration indicated by negative magnetic anomalies due to destruction of magnetite as a result of carbonate alteration. Placer gold or elevated gold in stream sediment samples is an excellent regional and property-scale guide to gold-quartz veins.

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The following description of gold skarns is summarized from the Mineral Deposits Profile for Au Skarns by Ray (1998). Gold-dominant skarn mineralization is genetically associated with a skarn gangue consisting of Ca - Fe - Mg silicates, such as clinopyroxene, garnet and epidote. Gold is often intimately associated with Bi or Au-tellurides, and commonly occurs as minute blebs (<40 microns) that lie within or on sulphide grains. The vast majority of Au skarns are hosted by calcareous rocks. Most Au skarns form in orogenic belts at convergent plate margins. They tend to be associated with syn to late island arc intrusions emplaced into calcareous sequences in arc or back-arc environments. These deposits are generally related to plutonism associated with the development of oceanic island arcs or back arcs. Gold skarns are hosted by sedimentary carbonates, calcareous clastics, volcanoclastics or (rarely) volcanic flows. They are commonly related to high to intermediate level stocks, sills and dikes of gabbro, diorite, quartz diorite or granodiorite composition. Gold skarns vary from irregular lenses and veins to tabular or stratiform orebodies with lengths ranging up to many hundreds of metres. Rarely, can occur as vertical pipe-like bodies along permeable structures.

The ore mineralogy consists of gold, commonly present as micron-sized inclusions in sulphides, or at sulphide grain boundaries. To the naked eye, ore is generally indistinguishable from waste rock. Due to the poor correlation between Au and Cu in some Au skarns, the economic potential of a prospect can be overlooked if Cu-sulphide-rich outcrops are preferentially sampled and other sulphide-bearing or sulphide-lean assemblages are ignored. The mineralization in pyroxene-rich and garnet-rich skarns tends to have low Cu:Au (<2000:1), Zn:Au (<100:1) and Ag/Au (<1:1) ratios. The gold is commonly associated with Bi minerals (particularly Bi tellurides). The presence of other minerals varies due to original host lithology and can include: ± pyrrhotite ± chalcopyrite ± pyrite ± magnetite ± galena ± tetrahedrite ± arsenopyrite ± tellurides (e.g. hedleyite, tetradymite, altaite and hessite) ± bismuthinite ± cobaltite ± native bismuth ± sphalerite ± maldonite. They generally have a high sulphide content and high pyrrhotite:pyrite ratios.

The gangue mineralogy varies due to original host lithology Magnesian exoskarn gangue includes: olivine, clinopyroxene (Hd2-50), garnet (Ad7-30), chondrodite and monticellite. Retrograde minerals include serpentine, epidote, vesuvianite, tremolite-actinolite, phlogopite, talc, K-feldspar and chlorite. Calcic exoskarn gangue can be broken down into three subtypes: pyroxene rich, which has high pyroxene:garnet ratios and diopsidic to hedenbergitic clinopyroxene (Hd 20-100), K-feldspar, Fe-rich biotite, low Mn grandite garnet (Ad 10-100), wollastonite

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and vesuvianite; garnet rich, which has low pyroxene:garnet ratios and includes low Mn granite garnet (Ad 10-100), K-feldspar, wollastonite, diopsidic clinopyroxene (Hd 0-60), epidote, vesuvianite, sphene and apatite; and epidote rich, which includes abundant epidote and lesser chlorite, tremolite-actinolite, quartz, K-feldspar, garnet, vesuvianite, biotite, clinopyroxene and late carbonate.

Geochemical signatures include Au, As, Bi, Te, Co, Cu, Zn or Ni soil, stream sediment and rock anomalies, as well as some geochemical zoning patterns throughout the skarn envelope (notably in Cu/Au, Ag/Au and Zn/Au ratios). Geophysically, airborne magnetic or gravity surveys are used to locate plutons with follow-up induced polarization and ground magnetic used to locate skarns. Placer gold can also be an indicator of gold skarns. As well, any carbonates, calcareous tuffs or calcareous volcanic flows intruded by arc-related plutons have a potential for hosting Au skarns.

The proximity to the Zeballos Gold Camp and the general trend of the regional geology across the Tahsis Property forms the basis for the exploration programs completed. These programs were designed to explore and investigate geochemical signatures as described in this section.

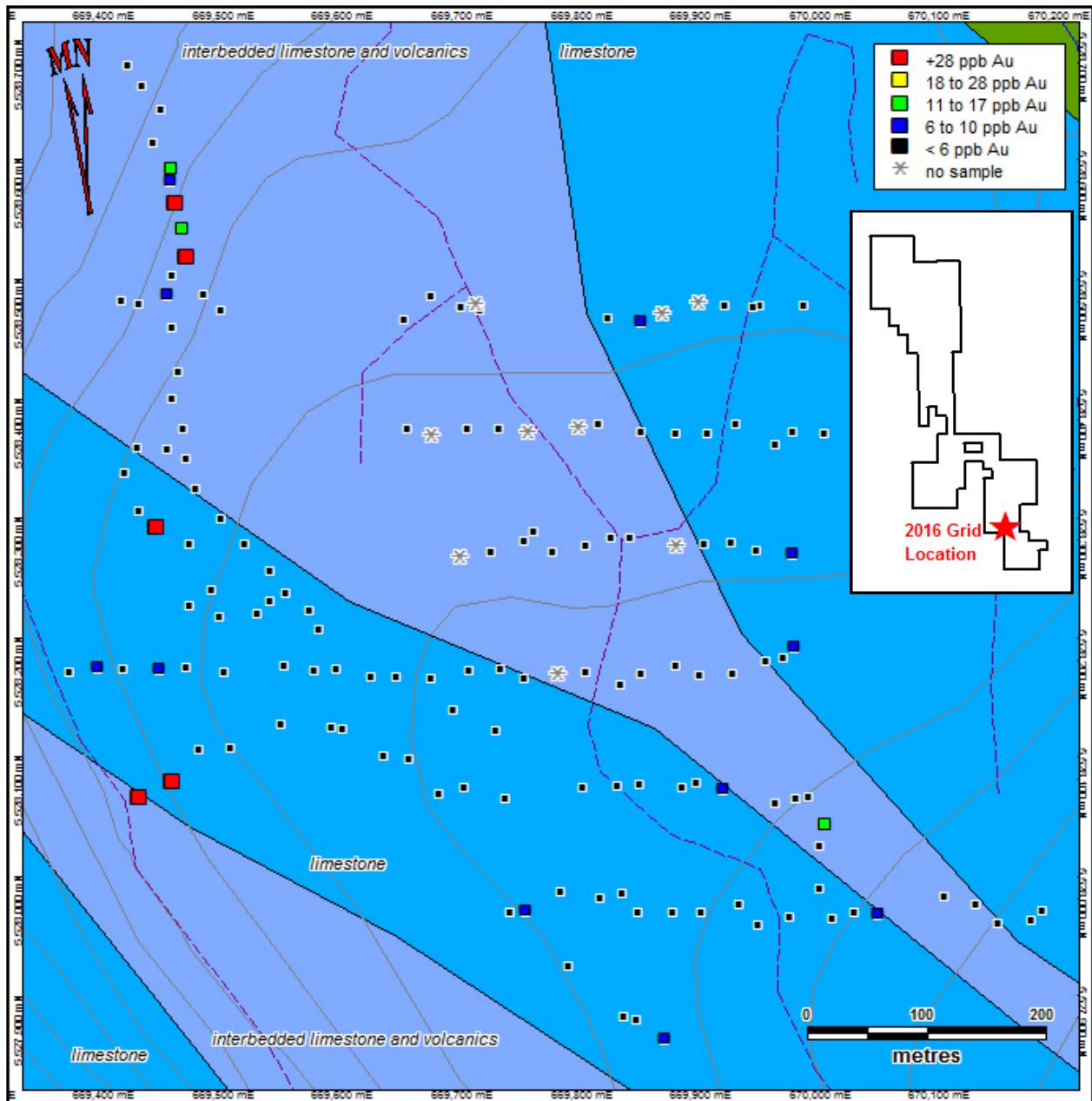
## **11. Exploration**

Recent exploration program completed on the Tahsis property include a 2016 soil program by Sojourn Ventures Inc., a 2017 rock sampling program by Qualitas Holdings Corp. and a 2018 Induced Polarization (IP) program by Cross River Ventures Corp.

The Sojourn 2016 exploration program consisted of 149 soil samples over a semi-regular grid soil sampling with one rock sample also taken. A 500 to 1000 gram sample was collected from the “B” horizon and placed in pre-numbered kraft paper soil bag. Each sample location was recorded as a waypoint in a GPS unit in the map datum NAD 83. Sample sites were then flagged with fluorescent ribbon and marked with the sample number.

The one rock sample was taken from a 20 centimetre volcanic bed within the limestone. One to three kilograms were taken from bedrock and placed in a plastic bag, with an assay ticket also placed in the same bag. The sample location was marked as a waypoint in a GPS unit in the map

datum NAD 83. The sample sites was flagged with fluorescent ribbon and marked with the sample number.

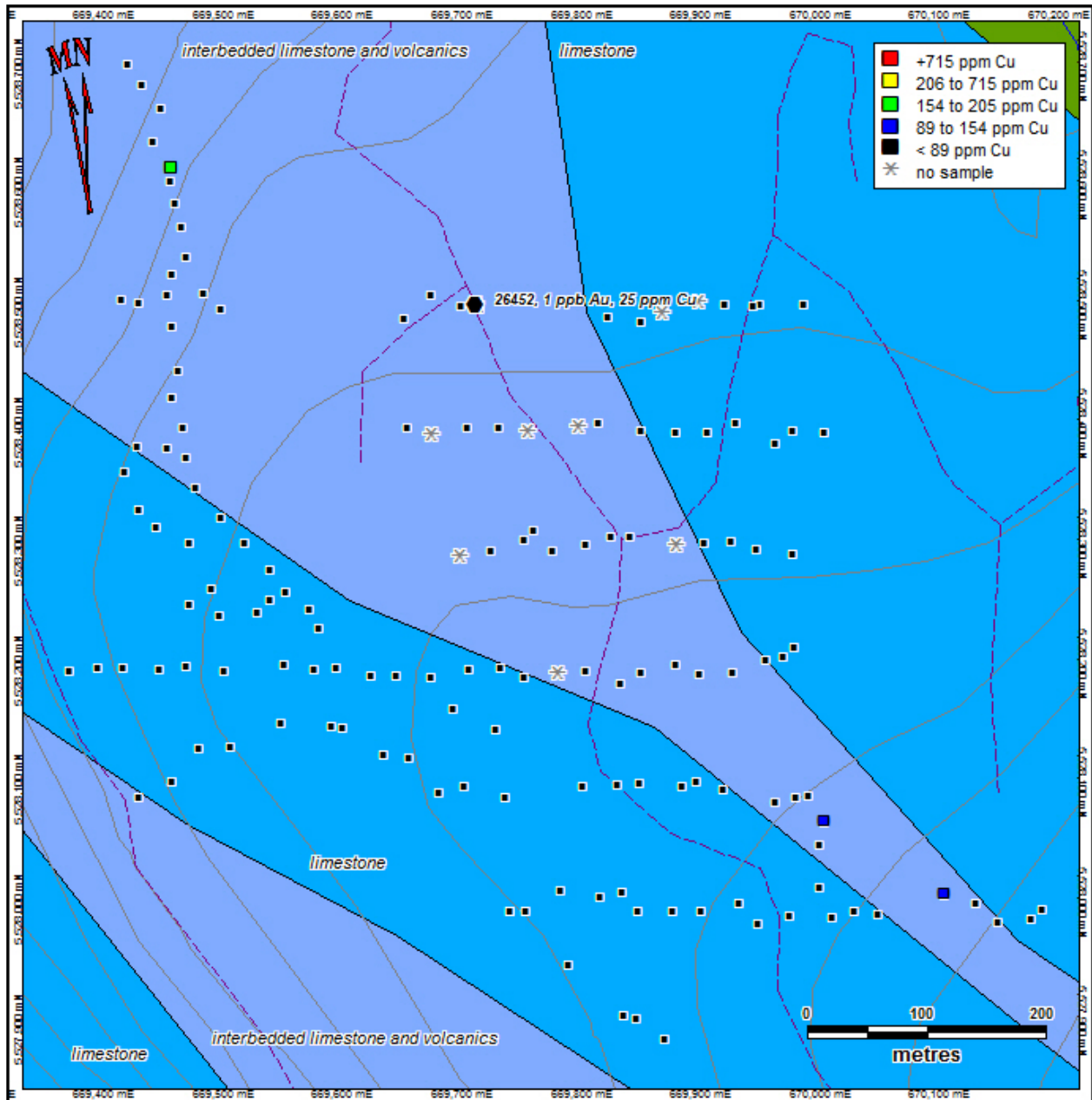


Projection NAD 83 Zone 9

**FIGURE 13A. 2016 SOIL SAMPLES GOLD**

All sample and outcrop data was downloaded nightly into a computer. All samples were delivered by the sampling crew to ALS Minerals in North Vancouver for analysis.

The author is not aware of any sampling or recovery factors that could materially impact the accuracy and reliability of the assay results. The author believes the samples taken to be representative and does not feel there are any factors that would cause sample bias.



Projection NAD 83 Zone 9

FIGURE 13B. 2016 SOIL SAMPLES COPPER AND ROCK SAMPLE

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**Table 7: Geochemical Statistics for Soil Sampling**

<b>Percentile</b>	<b>75th</b>	<b>90th</b>	<b>95th</b>	<b>98th</b>	<b>Maximum</b>	<b>Count</b>
Au ppb	6	11	18	28	474	1268
Cu ppm	89	154	205	308	715	1268

The soil sampling results from the 2016 program were combined with the results from the earlier programs to produce new summary statistics as shown in Table 7.

The 2016 gold-in-soil results are shown in Figure 13a. Two anomalous areas were identified. The first is a cluster of six anomalous values in a string of 7 samples along a north trending deactivated road in the north section of the grid area. Gold-in-soil values range from 5 ppb to 76 ppb Au over this 300 metre section of road.

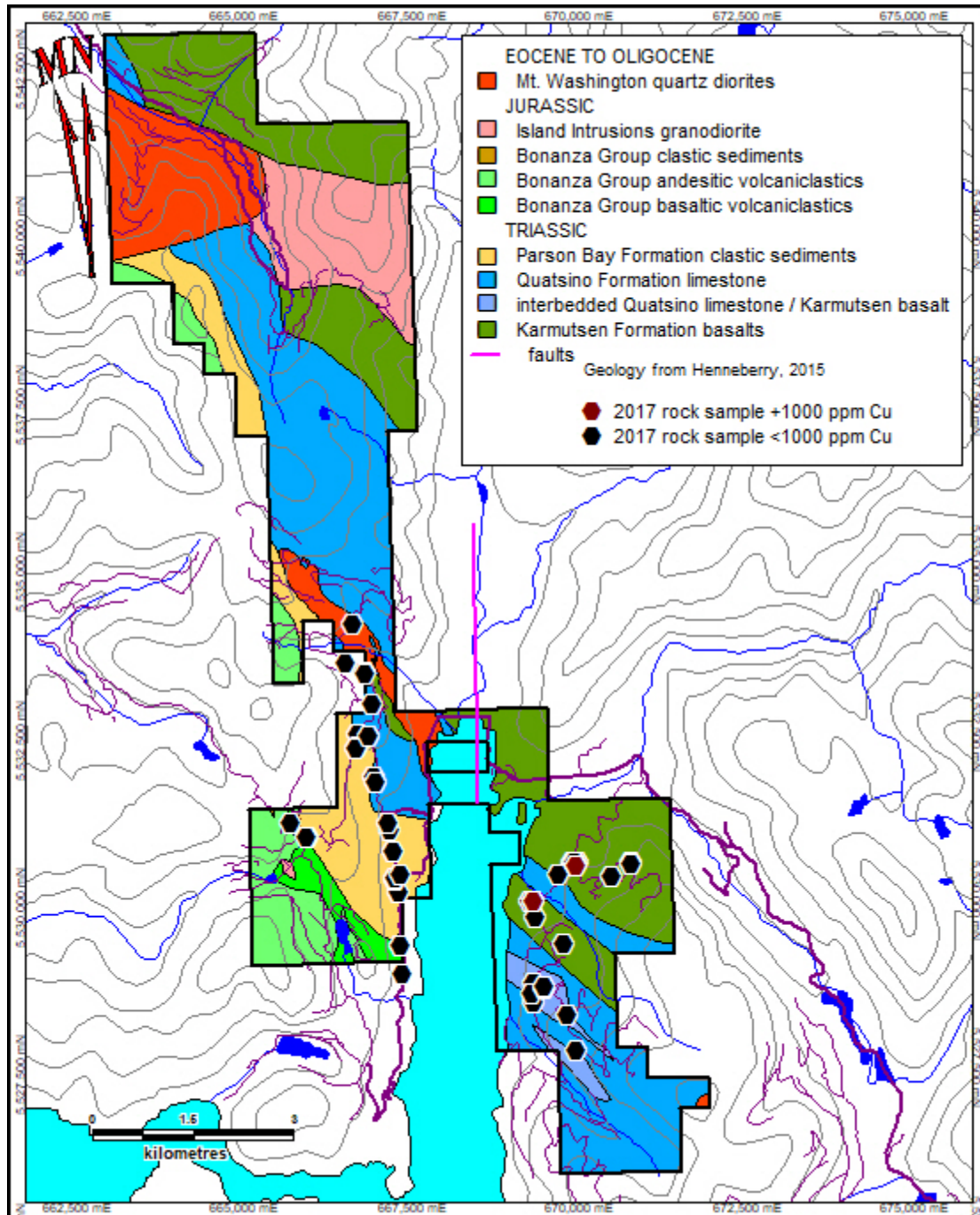
The second area consists of two sequential samples on the west side of the grid, returning values of 121 ppb Au and 134 ppb Au. This is in the same area where a 2015 road soil sampling returned a value of 90 ppb Au. This area needs to be investigated.

The copper plot, Figure 13b shows only three widely spaced samples returned copper-in-soil values above the 75<sup>th</sup> percentile.

In addition one rock sample was taken. A grab sample from a 20 centimetre volcanic bed within the limestone was sampled. The sampled returned a background value for gold and a value of 25 ppm for copper.

The 2017 Qualitas program consisted of the collection of a total of 47 rock samples throughout the property to provide additional background geochemical data for the various rock types on the property. The samples were taken from the voluminous outcropping throughout the property, both general samples to establish background values for the various rock types and specific samples where signs of alteration or mineralization were noted. One to three kilograms were taken from bedrock and placed in a plastic bag, with an assay ticket also placed in the same bag. Each sample location was marked as a waypoint in a GPS unit in the map datum NAD 83. Sample sites were then flagged with fluorescent ribbon and marked with the sample number.

The author is not aware of any sampling or recovery factors that could materially impact the accuracy and reliability of the assay results. The author believes the samples taken to be representative and does not feel there are any factors that would cause sample bias.



Projection NAD 83 Zone 9

**FIGURE 13C. 2017 ROCK SAMPLE LOCATIONS**



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Three of the 47 samples returned copper values in excess of 1000 ppm: E07507 returned 11 ppb Au and 1070 ppm Cu, E07516 returned 22 ppb Au and 1255 ppm Cu and E07515 returned 1 ppb Au and 6190 ppm Cu from a carbonate vein carrying malachite. These results are in line with the results from the earlier exploration program (Figure 13C).

In November 2018, Cross River Ventures Corp. contracted Peter Walcott and Associates to conduct a 5.5 line kilometre Induced Polarization (“IP”) Survey on the Tahsis Property. The Survey was designed to test the Conductivity and Resistivity of the underlying strata and to identify possible anomalies coincidental with the geochemical programs, which had been conducted previously over the survey area. In addition, Qualitas Holdings Corp., the property vendor, completed a small exploration program for assessment credits in December 2017, which will be described in the following sections.

The induced polarization (IP) survey was conducted using a pulse type system, the principal components of which were manufactured by Walcer Geophysics Ltd. of Enniskillen, Ontario, and by Instrumentation GDD of St. Foy, Quebec.

The system consists basically of three units, a receiver (GDD), transmitter (Walcer) and a motor generator (Honda). The transmitter, which provides a maximum of 9.0 kw dc to the ground, obtains its power from a 20 kw 60 cps alternator driven by a Honda 24 hp gasoline engine. The cycling rate of the transmitter is 2 seconds “current-on” and 2 seconds “current-off” with the pulses reversing continuously in polarity. The data recorded in the field consists of careful measurements of the current (I) in amperes flowing through the current electrodes C1 and C2, the primary voltages (V) appearing between any two potential electrodes, P1 through P7, during the “current-on” part of the cycle, and the apparent chargeability, (Ma) presented as a direct readout in millivolts per volt using a 200 millisecond delay and a 1000 millisecond sample window by the receiver, a digital receiver controlled by a micro-processor the sample window is actually the total of twenty individual windows of 50 millisecond widths.

The apparent resistivity ( $\rho_a$ ) in ohm metres is proportional to the ratio of the primary voltage and the measured current, the proportionality factor depending on the geometry of the array used. The chargeability and resistivity are called apparent as they are values which that portion of the earth sampled would have if it were homogeneous. As the earth sampled is usually inho-

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mogeneous the calculated apparent chargeability and resistivity are functions of the actual chargeability and resistivity of the rocks.

The survey was carried out using the “pole-dipole” method of surveying. In this method the current electrode, C1, and the potential electrodes, P1 through Pn+1, are moved in unison along the survey lines at a spacing of “a” (the dipole) apart, while the second current electrode, C2, is kept constant at “infinity”. The distance, “na” between C1 and the nearest potential electrode generally controls the depth to be explored by the particular separation, “n”, traverse.

On this survey a 50 metre dipole was employed and first to sixth separations readings were obtained. In all a total of 5.5 kilometres of surveying were completed between November 24 and 30, 2018.

The two IP traverses follow along the same road roughly in a north – south and then in a north-west - southeast direction. An approximately 250 metre gap exists between the northern and southern portions of the survey. The road meandered too far to the west for useful data and a straight line through the bush would have required more time than was allotted to the project.

Line 10+00E tends to display lower chargeability and resistivity values than Line 11+00E. The geology map (Figure 13D.) indicates that Line 10+00E predominantly covers the Karmutsen Basalts while Line 11+00E is predominantly over the Quatsino Limestone. One can infer that the Limestones give a higher resistivity and chargeability response than the Basalts.

The I.P. data are presented as an individual pseudo-section plot of apparent chargeability and resistivity at a scale of 1:5,000 and appear in the APPENDIX. Plots of the 21 point moving filter – illustrated on the pseudo section – for the above are also displayed in the top window to better show the location of the anomalous zones.

Line 10+00E shows a zone of elevated resistivity values between 17+50S and 22+00S, which correlates very well with the mapped Quatsino Limestone. This zone of higher resistivities (> 5000 Ohm\*m) is bisected and flanked to the south and north by zones of lower than background

resistivity ( $< 2500 \text{ Ohm}\cdot\text{m}$ ) and elevated chargeability ( $> 10 \text{ mV/V}$ ). Narrow Mineralized veins may be the cause of these responses.

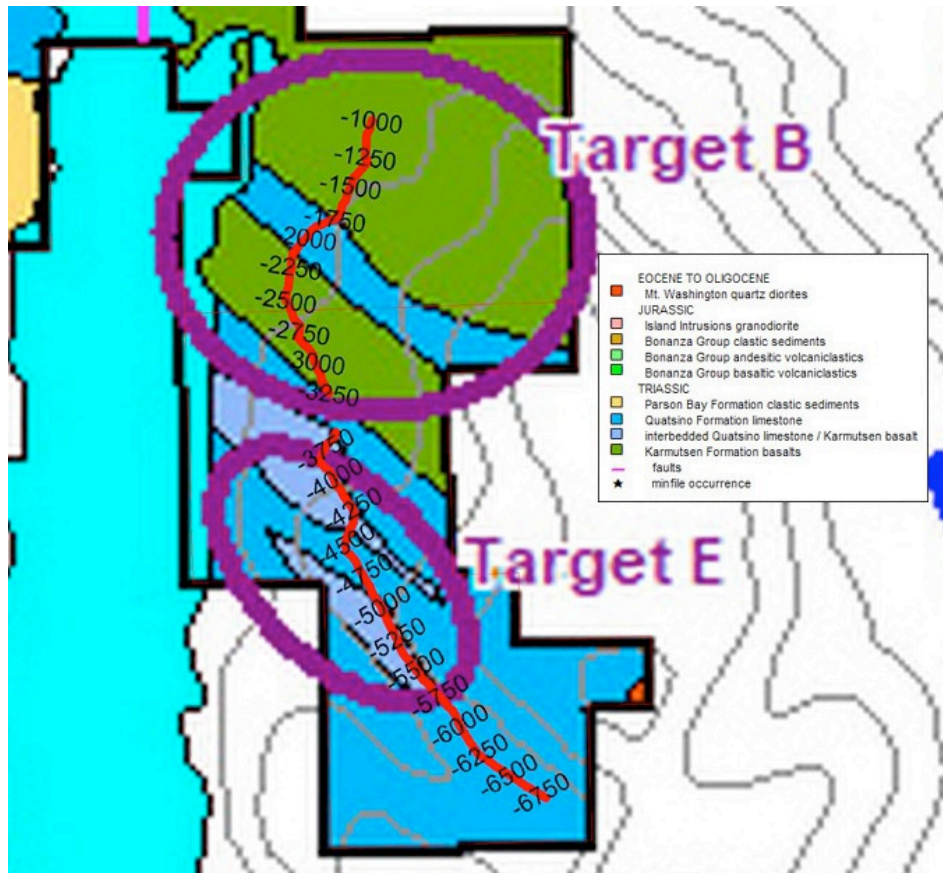


FIGURE 13D. IP SURVEY LOCATIONS

Line 11+00E exhibits a large zone of higher resistivity from  $\sim 52+50\text{S}$  to  $\sim 38+00\text{S}$ . No correlation can be discerned with the geology map but the causative feature is likely to be the limestones also. Several chargeability anomalies are seen within this zone in an area of high background values. The map and data both suggest that the line is oriented along strike making meaningful interpretations difficult.

At the southern extent of the high resistivity zone between  $49+00\text{S}$  and  $53+00\text{S}$  anomalous chargeability values ( $> 25 \text{ mV/V}$ ) appear to coincide with slightly lower resistivity values ( $3000 > 5000 \text{ Ohm}\cdot\text{m}$ ).

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At the southern extremity of the line between 64+00S and 66+00S a discrete, well defined chargeability anomaly ( $>25$  mV/V) correlates well with a zone of low resistivity ( $<2000$  Ohm\*m).

The Author is satisfied that the sampling method and approach was successful in obtaining representative samples which accurately reflects the chemical signature of the underlying bedrock, and could not determine factors which would result in bias results in the sampling stream.

## **12. Drilling**

There has been no drilling undertaken on the property.

## **13. Sample Preparation, Analyses and Security**

Cross River Ventures Corp. has yet to undertake any geochemical exploration on the Tahsis property. However, Qualitas Holdings Corp., the property vendor, completed a small exploration program for assessment credits in December 2017, which will be described in the following sections, as will the 2016 Sojourn Ventures Inc. program.

At the end of the field day, all soil and rock samples were brought back to town. They were put in sequence and placed 12 to 15 in a 13 by 18 poly bag with three poly bags placed in a rice bag for soils and placed seven to eight in a rice bag for rocks. One standard, sealed in a Ziploc bag, was also placed in two of the rice bags. The bag was then zip strapped and stored in the project manager's motel room. Since these were preliminary surveys no sample splitting or reduction was necessary. The samples were delivered by the field manager directly to ALS Canada Ltd. in North Vancouver, British Columbia an ISO/IEC 17025:2005 certified facility. ALS Minerals is independent of both Cross River and Qualitas.

All samples are logged in the tracking system, weighed and dried. Silt and soil samples are first dried at 60°C and then dry-sieved using a 180 micron (Tyler 80 mesh) screen. Rock samples are finely crushed to better than 70 % passing a 2 mm (Tyler 9 mesh, US Std. No.10) screen after which a split of up to 250 g is taken and pulverized to better than 85 % passing a 75 micron

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(Tyler 200 mesh, US Std. No. 200) screen. A 30gm sub-sample of the pulverized rock sample pulp is leached with 90ml or 180ml of 2-2-2 HCl-HNO<sub>3</sub>-H<sub>2</sub>O solution at 95°C for one hour, followed by dilution to 300ml or 600ml and 36 element ICP-MS.

Two blank standards were inserted in the soil sample stream and One standard from WCM Minerals was inserted into the rock sample stream. All returned values within 2 Standard Deviations of the expressed values.

The author feels the sample preparation, security and analytical procedures for the preliminary ground surveys on the Tahsis property were adequate for each of the three exploration programs.

In the author's professional opinion the methods employed by Qualitas with regards to sample preparation, security and its scrutiny of the analytical procedures performed are in general terms, acceptable for the level of exploration undertaken. In future programs Cross River should look to increase the frequency at which standards are introduced, begin inserting blanks and take duplicate samples while in the field.

## **14. Data Verification**

The Author reviewed all historical and geochemical data presented in this report and had personal communications with Qualitas concerning exploration techniques and with ALS personnel on the analytical procedures and methods used. During the property visits conducted by the author, samples sites were viewed where possible. The author did not collect independent samples during his personal inspection, as the geochemical data in the authors opinion, was consistent and within the ranges that had been obtained by previous operators. As the program was a preliminary early stage exploration program repeating soil analysis in light of the quality assurance program the author's opinion would have been excessive. It is the author's professional opinion that the data presented in this report is adequate for the purposes of this report given the stage of exploration the property is at.

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## **15. Mineral Processing and Metallurgical Testing**

No detailed mineral processing or metallurgical testing has been conducted on material from the property.

## **16. Mineral Resource and Mineral Reserve Estimates**

At present no mineral resource or reserves exist for the property.

## **17. Adjacent Properties**

**The following description of the Zeballos Gold Camp has not been verified by the Author and the information is not necessarily indicative of the mineralization on the Tahsis property.**

In the Zeballos Gold Camp, 13 deposits produced a total of 287,811 ounces of gold and 124,700 ounces of silver from as early as 1930 until 1948 (Hoadley, 1953). One producer, Privateer, accounted for 154,381 ounces of gold and 60,878 ounces of silver. A total of 285,771 tons of ore was mined from Privateer's five main veins, of which 158,332 tons was milled. Twelve other producers accounted for the balance of production with total outputs ranging from 54,000 ounces of gold to 5 ounces of gold. The British Columbia Ministry of Energy Mines and Petroleum Resources MINFILE database lists 33 lode gold deposits and occurrences in the Zeballos Gold Camp, all of which are associated with quartz veining. Along with free gold, other associated minerals included pyrite, arsenopyrite, calcite and chalcopyrite with occasional galena and sphalerite.

## **18. Other Relevant Data and Information**

At present there is no other relevant data or information for the property.

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## 19. Interpretation and Conclusions

### 19.1 INTERPRETATION

The Tahsis Property lies within an area of high geological potential on the northwest coast of Vancouver Island. This area is prospective for auriferous gold veins, as shown by the proximal Zeballos Gold Camp; skarn and replacement mineralization within the Quatsino limestones and disseminated gold deposits in the limey sediments of the Parson Bay Formation.

The 2011 Gold Ridge Exploration Corp., the 2013, 2015 and 2016 Sojourn Ventures Inc., the 2017 Qualitas Holdings Corp. and the 2018 Cross River Ventures Corp. exploration programs on the present Tahsis property were met with success. The 2011 program followed up on two of the four targets identified as a result of Robb's (2011) historic compilation. The 2013 program focused in on the Target A and Target B areas from the 2011 program and identified Au-in-soil and Cu-in-soil anomalies in prospective geological settings that require further exploration. The 2015, 2016 and 2017 programs concentrated on preliminary geological mapping and an initial assessment of the previously untested and peripheral areas of the claim block.

The geological mapping proved to be in general agreement with the government mapping, with the dominant units being the Vancouver Group in the eastern two thirds and the Bonanza Group dominating the western third. Local zones of copper mineralization of limited areal extent, typical of the Karmutsen Formation throughout Vancouver Island, were noted. The soil geochemistry located several areas of interesting gold and or copper values in the Quatsino limestone that will require follow up, especially the claims adjacent to the east side of Tahsis Inlet and north of the Mt. Washington stock in the southern section of the claim group. The Quatsino to the south of the stock did not show the same volume of interesting values.

There is very limited outcrop exposure over the areas of 2013 A grid accessed during the 2015 mapping so little comment can be offered on the anomalies. While there is abundant outcrop over the 2013 B grid, little of significance was noted to explain the anomalies. Aside from these two grids, the other area of interest is Target E, the Quatsino limestone with minor interbedded Karmutsen basalts along the eastern side of Tahsis Inlet. A 450 metre section of road soil sampling at 50 metre intervals contains gold values ranging from a low of 6 ppb Au to a high of 146 ppb Au. Additional values of 9, 7, 6 and 14 ppb occur further to the south. Sampling of proximal

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roads in the same area in 2013 also returned several elevated values further supporting further exploration.

The IP survey successfully identified areas of higher resistivity interpreted and coincidental chargeability high on lines 10+00E and 11+00 E. The high resistivity is interpreted as relating to the Quatsino limestone, while the high chargeability may be related to sulphide mineralization. Given the anomalous geochemical results obtained over the grid areas these coincidental geochemical and geophysical anomalies offer an attractive exploration target.

All three target areas need to be followed up with some ground geophysics and trenching with some additional soil sampling. Ground geophysics will consist of magnetics and VLF-EM surveys over Grid A and Grid B. Grid A will consist of 5 N-S 1000 metre lines at 100 metre line spacings and Grid B will also consist of 5 N-S 1000 metre lines at 100 metre line spacings. Excavator trenching and soil sampling will be directed at Grid E, with some of the trenching also directed at Grid A and Grid B. A total of 100 soil samples will be taken over for Grid E and 25 hours of excavator trenching are earmarked for each of the three grids.

## **19.2 CONCLUSIONS**

Based on a thorough review of the available existing data combined with a field inspection, it is the author's professional opinion that the Tahsis Property optioned from Qualitas Holdings Corp. is a property of merit and should be further investigated to define the economic viability of the gold and copper occurrences identified on Targets A, B and E.

The author is unaware of any significant risks or uncertainties that could affect the reliability or confidence of the exploration data presented in this report. Previous work programs, mainly the soil geochemistry, utilized analytical standards for quality control assurance and the results reported indicate no irregularities in the assay procedures. The project is at an early stage and thus there are no mineral resource or reserve estimates nor projected economic outcomes.



## 20. Recommendations

A program of excavator trenching and/or ground magnetics and VLF-EM is recommended for the three grid target areas at the Tahsis property. The ground geophysics contract is estimated at \$50,000 all in, while the excavator trenching with limited soil sampling is estimated at \$52,700, including permitting. The total Phase I budget with a \$7,300 contingency is \$107,800 as shown in Table 7.

**Table 7. 2018 Budget Recommendation**

Ground Geophysics						
	Two man	28	days	@	\$1,200	\$33,600
	Vehicle	28	days	@	\$150	\$4,200
	Room and Board	28	days	@	\$150	\$4,200
	Fuel					\$2,000
	Machine Rentals	28	days	@	\$100	\$2,800
	Processing and Report					\$1,000
Prospecting / trenching:						
	Two man crew all in	10	days	@	\$1,950	\$19,500
	Analysis - soils	100	samples	@	\$25	\$2,500
	Analysis - rock	50	samples	@	\$40	\$2,000
	Analysis - standards	10	samples	@	\$20	\$200
	Excavator mob/demob					\$1,500
	Excavator (all in)	75	hours	@	\$150	\$11,250
Equipment and Supplies:						
	Supervision					\$2,000
	Travel					\$3,000
	Permitting					\$5,000
	Documentation					\$5,000
	Contingency					\$7,300
<b>Total Budget</b>						
						<b>\$107,800</b>

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## **25. Date and Certificate**

### **25.1 SIGNATURE PAGE AND DATE:**

The undersigned prepared this technical report titled “Technical Report on the Geology of the Tahsis Property”.

The effective date of this Technical report is 20 June 2018.

Dated this 15th Day of December 2018

Signed

“SIGNED AND SEALED”

Warren Robb P.Geol.  
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## 25.2 CERTIFICATE OF QUALIFIED PERSON:

### CERTIFICATE

To accompany the report entitled

“Technical Report on the Geology of the Tahsis Property”

Dated December 15, 2018

Effective Date June 20, 2018

I, WARREN D. ROBB, do hereby certify that:

- a) I am a consulting geologist residing at 21968- 127 Avenue Maple Ridge, B.C. V2X 4P5
- b) I graduated from the University of British Columbia with a Bachelor of Science degree in Geological Sciences in 1987, and I have practiced my profession as a geologist continuously for 24 years. I have conducted field gold exploration programs and property reviews in Canada (13 years), Argentina (0.5 years), China (2 years) and Africa (7.5 years). My experience in exploration has ranged from early stage exploration to supervising drill programs to estimate Mineral Resources. I have been a member of the Association of Professional Engineers and Geoscientists of British Columbia registration number 19947, since December 1992.
- c) That by reason of my education, affiliation with a professional association and past relevant work experience; I fulfill the requirements to be a “qualified person” for the purposes of NI43-101.
- d) I personally visited the property for one day on August 5, 2011 and February 21, 2013 and June 1, 2018.
- e) I am responsible for **all items** of the technical report entitled “Technical Report on the Geology on the Tahsis Property” dated December 15, 2018 with an effective date of June 20, 2018 (“the technical report”) relating to the Tahsis Property in B.C.

- 
- f) I am independent of the issuer Cross River Ventures Corp. and the vendor Qualitas Holdings Corp. applying all tests in section 1.5 of National instrument 43-101. I have no interest in the Tahsis property
- g) I authored a 43-101 report on the Tahsis property for Gold Ridge Exploration Ltd. in 2011 and a 43-101 report for Sojourn Ventures Inc. in 2013 so I have had prior involvement with the Tahsis Property, which is the subject of this Technical Report.
- h) I have read National Instrument 43-101 and Form 43-101F1, and the Technical report has been prepared in compliance with that instrument and form.
- g) That as at the effective date of June 20, 2018 to the best of my knowledge, information, and belief, the technical report which I am responsible for, contains all scientific and technical information that is required to be disclosed to make the technical report not misleading.

Dated this 15th Day of December 2018

“SIGNED AND SEALED”

Warren Robb, P. Geo.

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## **APPENDIX**

