NI 43-101 Technical Report
on the
Brenda Gold-Copper Project

Looking northwest toward the Creek zone, camp and core storage areas
Centered at 6,347,784m N and 628,578m E (NAD 83, Zone 9)
Toodoggone-Kemess District, North-Central British Columbia, Canada

Prepared For:

Canasil Resources Inc.
1760 – 750 W. Pender Street
Vancouver, British Columbia
Canada V6C 2T8

Effective Date: February 3, 2021

Prepared By:

Robert A. (Bob) Lane, MSc, PGeo
Plateau Minerals Corp.
3000 18th Street
Vernon, British Columbia V1T 4A6
Tel: 1.250.540.1330
Email: blane2k2@gmail.com

DATE & SIGNATURE PAGE

Herewith, the report entitled 'Technical Report on the Brenda Gold-Copper Project' effective date 3 February 2021.

"Originals Signed and Sealed"

Robert A. (Bob) Lane, MSc, PGeo **Plateau Minerals Corp.** **President**	**Dated 3 February 2021**

CONSENT OF QUALIFIED PERSON

I, **Robert A. Lane, P.Geo.,** consent to the public filing of the technical report titled "**NI 43-101 Technical Report on the Brenda Gold-Copper Project"** with the effective date of February 3, 2021 by Canasil Resources Inc.

I certify that I have read the News Release dated February 10, 2021, filed by Canasil Resources Inc. and that it fairly and accurately represents the information in the Technical Report for which I am responsible.

Dated this 10th day of February 2021

"Originals Signed and Sealed"

Robert A. (Bob) Lane, MSc, PGeo **Plateau Minerals Corp.** **President**	**Dated 10 February 2021**

CERTIFICATE & DATE – Robert A. (Bob) Lane

I, Robert A. (Bob) Lane, MSc, PGeo, do hereby certify that:

1. I am the president of Plateau Minerals Corp., a mineral exploration consulting company with an office located at 3000-18th Street, Vernon, British Columbia.
2. I am a graduate of the University of British Columbia in 1990 with a M.Sc. in Geology.
3. I am a Professional Geoscientist (PGeo) registered with the Association of Professional Engineers and Geoscientists of British Columbia (Registration #18993) and have been a member in good standing since 1992.
4. I have practiced my profession continuously since 1990 and have more than 30 years of experience investigating a range of mineral deposit types, including copper porphyry and related deposits, primarily in British Columbia.
5. I have read the definition of "qualified person" set out in National Instrument 43-101 and certify that by reason of education, experience, independence and affiliation with a professional organization, I meet the requirements of an Independent Qualified Person as defined in National Instrument 43-101.
6. I visited the Brenda Project on August 27-28, 2017.
7. I am responsible for all sections of the Technical Report entitled "**NI 43-101 TECHNICAL REPORT ON THE BRENDA GOLD-COPPER PROJECT**" with an Effective Date of January 14, 2021.
8. I am independent of the issuer, Canasil Resources Inc., applying all of the tests in Section 1.5 of National Instrument 43-101. I hold no direct or indirect interest in the Brenda Project. I have had prior involvement in the Brenda Project by managing the 2013 drill program.
9. I am not aware of any material fact or material change with respect to the subject matter of the report that is not disclosed in the report which, by its omission, would make the report misleading.
10. To the best of my knowledge, information and belief at the effective date, the Technical Report contains all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.
11. I have read NI 43-101 and Form 43-101F1, and the Technical Report has been prepared in compliance with that instrument and form.

Dated this 3 February 2021**:**

"Signed and Sealed"

Signature of Qualified Person

Robert A. (Bob) Lane, MSc, PGeo

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

APPENDIX 1: DRILL HOLE STRIP LOGS

APPENDIX 2: PETROGRAPHIC REPORT BY JOHN PAYNE (July 2012)

1 SUMMARY

1.1 INTRODUCTION

This Technical Report was prepared by Robert A. (Bob) Lane, MSc, PGeo, of Plateau Minerals Corp. who is a "Qualified Person" (QP) as defined by National Instrument 43-101. The report was commissioned by Canasil Resources Inc. ("Canasil").

The Brenda Project includes a significant porphyry gold-copper prospect located between two former producing mines in the Toodoggone-Kemess district of north-central British Columbia (BC), Canada.

This report is based primarily on data compiled from numerous operators, including Canasil, from 1985-2020, and provides summaries of project history, geology, mineralization, deposit characteristics and exploration targets, and to make recommendations for future work.

Robert A. (Bob) Lane, MSc, PGeo, visited the Project on August 27-28, 2017. On-site inspection included the camp and core storage areas, drillhole collar locations, one trench, exposures of bedrock, and drill core. Verification core samples were collected from five different holes drilled on the White Pass zone in the period 1993-2004 and one chip sample from a trench excavated on the EB zone.

1.2 PROJECT LOCATION, DESCRIPTION, ACCESS AND OWNERSHIP

The Brenda Project is located approximately 450km northwest of Prince George and 270km north of Smithers in north-central BC. The Project is situated in mountainous terrain east of the Spatsizi Plateau, west of the Swannell Ranges and north-northwest of Thutade Lake.

The Project is located centrally within the northwest-trending Toodoggone-Kemess district. The district forms part of the Stikine terrane, which consists predominantly of Late Paleozoic to Mesozoic island-arc volcanic and related sedimentary rocks that are invaded by important Early Jurassic rocks of the Black Lake suite. Mineralization in the district is characterized by epithermal gold-silver veins and porphyry gold-copper systems. The Toodoggone-Kemess district includes three former precious metal mines (Lawyers, Baker and Shasta) and one past-producing gold-copper mine (Kemess South). The Brenda Project includes both porphyry gold-copper prospects and epithermal gold-silver showings. Four mineralized zones, including White Pass, Creek, EB and Takla, have been the subject of detailed exploration including diamond drilling.

The Project has excellent road access from Prince George by way of well-maintained Forest Service Roads, the Omineca Resource Access Road (ORAR) and mining access roads that provide direct road access onto the Project. The local access roads are open from late spring through to early fall. The Project is 25km northwest of the former Kemess South mine.

On July 26, 2017, Canasil announced plans to undertake a spin-out or restructuring transaction in order to segregate its British Columbia properties into a separate company, Canmine Minerals Inc. (Canmine). The proposed spin-out transaction was approved at a special meeting of Canasil shareholders on December 12, 2017, and received the Final Court Order approving the Plan of Arrangement on December 20, 2017. However, subsequent to these approvals, the conditions for final acceptance of the spin-out transaction could not be completed due to resource market conditions at the time, particularly with regard to gold and copper prices. As a result, the Plan of Arrangement and proposed spin-out to Canmine was not finalized. Canasil intends to review possibilities to complete the transaction when market conditions provide opportunities to arrange the capital requirements for the proposed transaction to proceed.

The Brenda Project consists of 22 contiguous mineral claims totaling 4,450.0 hectares of subsurface mineral rights in the Omineca Mining Division. All of the claims are presently 100%-owned by Canasil and are in good-standing until at least May 30, 2024. None of the claims are subject to any underlying interests or royalties.

1.3 HISTORY

The first claims in the Project area were staked in 1950 by Emil Bronlund who discovered auriferous quartz veins in the Jock Creek and Red Creek drainages. Thirty years later the ground was re-staked by Canmine Development Company Inc. (Canmine) who primarily explored for gold and silver-bearing epithermal quartz vein systems. In 1985, Canmine optioned the claims to Canasil Resources Inc. (Canasil) who continued to evaluate the claims for its gold-silver potential. A number of quartz vein prospects were located, including the Takla and EB zones, with samples returning values of up to 42.16 g/t Au and 1,628.3 g/t Ag. However, gold and silver grades were generally more modest and the zones were limited in their extent. The first drilling on the Project was completed in 1988 by Cyprus Gold Canada Inc. (Cyprus) under a joint-venture agreement with Canasil, but the 12-hole program encountered only low concentrations of gold and silver over narrow widths. From 1989 through 1991, Canasil completed grid-based soil sampling surveys, modest trenching programs, and geophysical and geochemical surveys. The work outlined a broad gold-silver-copper geochemical anomaly with coincident high chargeability anomalies called the White Pass zone. These characteristics were indicative of possible porphyry style mineralization and changed the exploration strategy for the Project.

In 1992, Canasil completed a modest drilling campaign on the Brenda Project that included the first four holes in White Pass zone. In 1993, Romulus Resources Ltd. (Romulus) completed a multi-parameter exploration program on the Project, including soil geochemical sampling, Induced Polarization (IP) and magnetic geophysical surveys and diamond drilling. Romulus drilled four holes (957m) in the White Pass area that substantiated the gold-rich character of the porphyry mineralization on the Project. Results included 1.10 g/t Au, 0.13% Cu and 4.8 ppm Ag over 47.86m in hole 93-1 and 0.48 g/t Au, 0.144% Cu and 1.0 g/t Ag over 108.8m in hole 93-3.

These results confirmed the presence of a significant gold-copper porphyry system that warranted further exploration.

From 1995-1997, Canasil drilled another 16 holes (1,919m) on the Brenda Project, 13 of which tested the White Pass zone. Results were mixed, and none of the holes tested the zone to significant depths. Results included: 0.605 g/t Au and 0.123% Cu over 60.35m in hole BR-96-03, and 0.832 g/t Au and 0.139% Cu over 62.50m in hole BR-96-07. Drillhole 97-02 was highly anomalous in gold to a depth of 105.76m and included a 39.93m interval that averaged 1.12 g/t Au, 0.18% Cu, 3.2 g/t Ag and >800 ppm Pb and >800 ppm Zn. The high concentrations of zinc in the central White Pass zone were considered surprising and are more typical of the periphery of a porphyry system.

Northgate Exploration Ltd. (Northgate) undertook exploration programs in 2002, 2003 and 2004 under an Option and Joint Venture agreement that it signed with Canasil in July, 2002. This work included initial airborne high resolution magnetic, radiometric and satellite imaging surveys followed by three consecutive diamond drilling campaigns totaling 4,580m in 14 holes. Northgate showed that significant mineralization occurs over a strike length of at least 520m and to depth of at least 450m, and returned significantly longer intersections of gold and copper mineralization (up to 243m) than those from earlier programs (see table below). Gold mineralization was shown to be reasonably evenly distributed in the 0.5 g/t Au range, while copper grades were typically in the 0.05-0.15% Cu range.

In 2007, Canasil completed a 3-dimensional Induced Polarization (3D-IP) geophysical survey and five-hole (1,708m) HQ diamond drilling program. The results were thought to indicate potential for a deep porphyry gold-copper system at the White Pass zone. Drillholes BR-07-04 and BR-07-05 intersected broad zones of gold-copper mineralization beneath previous drillholes that appeared to be increasing with depth. These results, in conjunction with the strong anomalies observed in the geophysical survey, were encouraging.

The most recent exploration program on the Project took place in 2013. It consisted of one deep NQ-diameter diamond drillhole designed to test the central White Pass area 500m deeper than previous drilling. Drillhole BR-13-01 was collared within 2m of the collar location of 2007 drillhole BR-07-04 and drilled to a depth of 962.6m. The top 500m of drillhole BR-13-01 was not analyzed because it was a twin of drillhole BR-07-04; the highest grade intersection in drillhole BR-13-01 returned 0.376 g/t Au and 0.073% Cu over 68m from 504-572m. This intersection was, however, significantly lower in average grade than the equivalent section of drillhole BR-07-04 between 504-562m. The deeper part of drillhole BR-13-01 was dominated by late- to post-mineral monzonite dykes that were barren to very weakly mineralized. The 2013 drillhole was interpreted to have passed into a non-mineralized portion of the system and missed flanking mineralization. Deep-penetrating, three-dimensional geophysical surveys and additional deep diamond drilling were recommended.

Work on the project since 2013 has consisted of two desktop studies by consultants. In 2016-17, Wade Barnes modelled gold distribution in the White Pass zone in three dimensions, evaluated multi-element geochemistry in drill holes and soils, and recommended two target areas northeast of the White Pass zone. In 2019-2020, Brock Riedell re-evaluated soil and downhole geochemistry using metal ratios, relogged summary drill core from hole BR-13-01, and refined targeting.

1.4 GEOLOGY, ALTERATION AND MINERALIZATION

1.4.1 Geology

The Brenda Project is situated in a Mesozoic volcanic arc assemblage within the Stikine terrane along the eastern margin of the Intermontane belt. The Project lies within the Toodoggone-Kemess district, a northwesterly trending belt of Paleozoic to Tertiary sedimentary, volcanic and intrusive rocks. The district is dominated by northwest and northeast trending block faults.

The Brenda Project is underlain by basaltic volcanic rocks of the Upper Triassic Takla Group, andesitic, latitic and dacitic volcanic stratigraphy of the Lower to Middle Jurassic Toodoggone Formation (Hazelton Group) and monzonitic plutons, dykes and sills of the Black Lake suite that are co-magmatic with the Toodoggone Formation. Numerous precious metal-bearing epithermal type vein deposits and deeper-seated porphyry gold-copper deposits are associated with this magmatic event.

The northeastern two thirds of the Project are underlain by mainly porphyritic volcanic flows of the Metsantan member (lower Toodoggone Formation). A large zone of hydrothermally altered Metsantan volcanic rocks, associated with porphyritic dyke swarms, characterize the main area of exploration interest in the northern part of the Project. In the southwestern part of the Project volcanic rocks of the Takla Group are generally in fault contact with the Metsantan units or are intruded by a granitic pluton. The most westerly part of the Project is underlain by mainly ash flows of the Duncan member, the basal unit of the Toodoggone Formation.

Three types of dykes are recognized on the Project. They are generally from a few metres to tens of metres wide. From oldest to youngest they are i) quartz monzonite that appear to be syn- to late mineralization intrusions, ii) hornblende feldspar porphyry (or monzonite/quartz monzonite), the most common type of dyke on the Project; in the White Pass area the dykes trend dominantly northwest- to north-northwest, and iii) syenite/monzonite. Limited petrographic data show the rocks to range from diorite to quartz monzonite, and suggest high-K calc-alkalic affinity similar to the nearby Kemess deposits.

1.4.2 Alteration

In the northern part of the Project a widespread propylitic alteration zone consisting of illite, chlorite, epidote, carbonate and gypsum with disseminated pyrite, is surrounded and locally overprinted by a distal zone with fracture fillings containing pink zeolite (laumontite) and carbonate minerals.

In the central White Pass area of the Project, a north-trending zoned argillic-phyllic-potassic alteration sequence, associated with gold and copper mineralization, occurs over a distance of about 2.5km. It is dominated by argillic alteration with irregular flat lying areas of quartz alunite along dyke margins. Drilling beneath the north and south extremities of the argillic-quartz alunite alteration has intersected phyllic alteration suggesting that the argillic alteration is supergene. Drilling under the central portion of the argillic alteration at the top of White Pass has intersected a vertical central zone of potassic alteration with granular quartz-sulphide-±magnetite veins averaging 300m thick. It is enveloped by phyllic alteration that averages 150m thick. This alteration is cut by barren to weakly mineralized late- to post-mineral dykes.

1.4.3 Mineralization

Low sulphidation epithermal gold-silver mineralization and gold-copper porphyry mineralization are recognized on the Brenda Project. The two styles of mineralization are distinct, but are likely genetically-related. The Takla and EB zones are located in the headwaters of Red Creek, the Creek zone is located in the valley bottom immediately south of Jock Creek, and the White Pass zone is situated on a high-standing ridge about 1.5km south of Jock Creek. The White Pass zone has been the principal subject of exploration on the Project since 1993.

The White Pass zone is marked by a conspicuous colour anomaly and is characterized by a central zone of strongly potassic-altered latite with narrow quartz-magnetite stockworks. Gold-copper mineralization has been defined over a width of 300-400m. The potassic-altered zone is capped by a well-developed zone of argillic alteration and is surrounded by an intense phyllic (quartz-sericite-pyrite) alteration that averages 100-150m in width and carries weak gold-copper mineralization. The potassic-altered gold-copper zone has been traced by drilling over a strike length of >500m and to a depth of 560m. The deep mineralization is open along strike and to depth. A 3D-IP geophysical survey completed over the area suggests that the mineralization extends for at least 1000m along strike. Sulphide mineralization also occurs beneath and surrounding the large quartz-alunite cap located 1000m to the east.

The White Pass zone is cut by a swarm of eight or more, 8-45m thick post-mineral porphyritic monzonite dykes with an average orientation of 132/77°SW. Zones of gold and copper mineralization are dissected and diluted by the dykes resulting in alternating panels of well-mineralized volcanic rock separated by panels of late- to post-mineral, unmineralized to very weakly mineralized dyke rock. Gold-mineralized drillhole intersections from the White Pass zone (composited using a minimum thickness of 20 m averaging >0.4 g/t Au) are shown below.

Hole	From (m)	To (m)	Interval (m)	Au_(g/t)	Cu_(%)	Mo (ppm)	Ag (g/t)
WP-92-04	16.40	43.00	26.60	0.915	0.028	28.50	3.04
BR-93-01	9.14	57.00	47.86	1.100	0.130	11.61	4.76
BR-93-02	16.00	44.00	28.00	0.529	0.034	31.21	0.81
BR-93-02	74.00	134.00	60.00	0.478	0.073	18.23	0.27
BR-93-03	12.20	52.00	39.80	0.626	0.093	14.56	1.34
BR-93-03	55.00	91.00	36.00	0.538	0.237	12.08	1.44
BR-96-02	5.18	60.04	54.86	0.835	0.097	8.67	7.27
BR-96-02	102.71	123.13	20.42	0.593	0.107	ND	ND
BR-96-03	15.54	41.75	26.21	0.918	0.096	ND	ND
BR-96-03	50.90	75.89	24.99	0.465	0.187	ND	ND
BR-96-07	7.30	69.80	62.50	0.832	0.139	ND	ND
BR-97-01	148.00	172.80	24.80	1.120	0.133	11.03	4.47
BR-97-02	17.35	90.50	73.15	0.848	0.108	11.08	2.83
BR-97-05	5.20	47.70	42.50	0.578	0.025	30.92	1.48
BR-03-06	70.10	92.90	22.80	0.459	0.153	8.22	3.11
BR-03-06	95.40	117.10	21.70	0.584	0.114	9.86	2.92
BR-03-07	102.50	134.50	32.00	0.695	0.084	16.83	2.85
BR-03-07	135.60	155.90	20.30	0.502	0.079	13.07	4.43
BR-03-07	177.90	200.10	22.20	0.765	0.068	18.34	3.18
BR-03-07	214.70	258.10	43.40	0.612	0.097	13.49	5.01
BR-04-10	94.50	137.00	42.50	0.570	0.032	17.26	4.24
BR-04-10	163.00	199.00	36.00	0.547	0.039	21.44	2.58
BR-04-10	269.00	313.00	44.00	0.522	0.022	18.60	1.68
BR-04-14	404.00	442.00	38.00	0.676	0.024	62.71	1.39
BR07-04	110.00	146.00	36.00	0.428	0.072	17.92	2.64
BR07-04	174.00	198.00	24.00	0.671	0.070	20.00	2.45
BR07-04	200.00	260.00	60.00	0.592	0.109	14.43	4.29
BR07-04	320.00	342.00	22.00	0.464	0.039	19.64	2.46
BR07-04	504.00	560.00	56.00	0.722	0.122	10.00	3.82
BR07-05	110.00	133.91	23.91	0.433	0.080	8.34	1.74
BR07-05	142.00	186.00	44.00	0.825	0.129	9.77	3.65
BR07-05	336.11	386.00	49.89	0.562	0.061	15.82	7.57
BR07-05	459.52	483.90	24.38	0.672	0.112	16.30	6.39
BR-13-01	506.00	566.00	60.00	0.403	0.074	8.90	3.32

1.5 EXPLORATION, DRILLING AND DEPOSIT MODELLING

Canasil is not currently conducting field exploration on the Brenda Project.

Previous exploration on the Project consisted of prospecting, bedrock mapping, soil and rock geochemical sampling, aerial and ground-based geophysical surveys, trenching and diamond drilling. This work identified epithermal gold-silver prospects and porphyry gold-copper prospects. The geophysical surveys that have been completed over parts of the Project do not appear to penetrate as deeply as is required by today's exploration targeting of deeply buried porphyry systems.

A total of 65 surface exploration diamond drillholes with an aggregate length of 12,067m have been completed on the Project. The holes were drilled from 1988 to 2013 by various operators and tested five different targets on the Project. The White Pass zone has been tested by 41 of these drillholes (10,034m) over the course of nine drilling campaigns that took place from 1992-2013. This data, coupled with 2007 IP data, was used to create a geological model for the zone consisting of a Mineralized Zone (MZ) that is characterized by drillhole intersections of >0.1 g/t Au and several smaller Higher Grade Zones (HGZ) that are characterized by drillhole intersections of >0.4 g/t Au. The geological model and the defined zones are not part of any resource estimate and do not constitute a resource (see below). Based on drillhole intervals and weighted averages, the average grades of the modelled MZ are 0.410 g/t Au, 0.066% Cu and 2.74 g/t Ag, and the average grades of the modelled HGZ are 0.659 g/t Au, 0.092% Cu and 3.32 g/t Ag. Three-dimensional shapes for the MZ and HGZ were generated in similar fashion to that of grade shell interpolation. The shape for the MZ has approximate dimensions of 1000m by 400m and is from 100-600m thick. The HGZ has estimated dimensions of 200m by 300m and is 150m thick.

3D geological modelling of the White Pass zone was completed to assist future exploration. The modelling was carried out only in support of defining future drill targets within the project area and does not form part of any resource estimate. The preliminary model characterizes the zones geometry and establishes the position and orientation of the smaller HGZ relative to the broader MZ. The potential quantity and grade outlined by the model is conceptual in nature and there has been insufficient exploration on the White Pass zone to define a mineral resource. Also, it is uncertain if further exploration will result in the White Pass zone being delineated as a mineral resource.

1.6 SAMPLE PREPARATION, SECURITY AND ANALYSIS

The writer concludes that sample collection, sample preparation, security and analytical procedures utilized during historical programs were completed by professional geologists working for well-established junior mining exploration companies and therefore likely met or exceeded the best management practices and standards for the era in which the work was performed.

Use of a comprehensive QAQC program is recommended for all future exploration programs on the Brenda Project to ensure that all analytical data can be confirmed to be reliable.

1.7 DATA VERIFICATION

The data verification process included review of drill logs, analytical database, analytical certificates, project core handling, logging, sampling, QAQC and analytical protocols, geophysical reports and a site visit. The review of the QAQC program and results is presented in Section 11 of this Report. The data base for the Project is considered to be reliable and appropriate to prepare this Report.

The QP visited the Project on August 27-28, 2017. There was no activity on the Project at the time of the visit, therefore a review of active drill core handling, drill core Chain-of-Custody procedures, and QAQC methodologies could not be completed. A tour of the camp, core logging and core storage facilities presented as a clean and well-organized work environment consistent with small-scale exploration camps seen elsewhere in BC.

Verification samples were collected by the writer to validate earlier analytical results. The suite of samples consisted of eight drill core samples representing a total of five holes drilled in the White Pass zone. The batch of samples was submitted to MS Analytical (MS) in Langley, BC, for analysis. The analytical methods used were Fire Assay with AAS finish for Au and four-acid digestion with ICP-AES/MS for ultra-trace multi-element analysis. The 2017 results for gold and copper were compared with those from the original samples and were shown to have a reasonably good correlation for both gold and copper.

Overall, the new data produced from the re-sampling and re-analysis of selected intervals of historical drill core correlated well with the original values and verified that mineralization occurs at interesting grades and are comparable to those reported for the Project.

1.8 RESOURCE ESTIMATES

There are no resources estimated for the Project.

1.9 INTERPRETATION AND CONCLUSIONS

The geologic environment of the Brenda project is porphyry Cu-Au±Mo mineralization of elevated grade due to reactive intermediate to mafic host rocks cut by high-K calc-alkalic intrusions similar to those at important porphyry deposits worldwide, including Bingham, Red Chris, Grasberg, and Ok Tedi.

The Project has a relatively short exploration history from its discovery in 1950 to its first diamond drilling in 1988. Four principal zones have been the focus of exploration: the EB, Takla, Creek and White Pass zones.

The EB and nearby Takla zones are vein occurrences in the western part of the Brenda Project. The EB zone carries low values of gold and silver in weakly silicified and quartz-veined pyritic andesite of the Takla Group. The EB zone appears to be limited in extent. The Takla zone is described as an epithermal vein occurrence, also within Takla Group rocks, that includes high grades of gold and silver in surface samples. Drilling of the zone was not encouraging. Both of the zones should be evaluated as part of a Project-wide reassessment.

The Creek zone is a gold-copper porphyry prospect that occurs near the northern boundary of the Brenda Project. Results from surface sampling and short, near-surface drillhole intersections returned low to moderate concentrations of silver, lead and zinc with anomalous levels of copper and gold. A detailed review of all existing data and, if warranted, modelling of the zone should be completed prior to any further physical work on the zone.

The White Pass zone has been the focus of exploration on the Brenda Project since 1993. It is an important gold-copper-silver porphyry prospect that is characterized by a strong colour anomaly caused by pervasive argillic and phyllic alteration of exposed volcanic rocks, a broad gold-silver soil geochemical anomaly, a spotty copper soil geochemical anomaly, and a high chargeability anomaly. The zone has been tested by 41 diamond drillholes (10,034m) over the course of nine drilling programs that took place from 1992-2013.

The drilling demonstrated that White Pass zone mineralization occurs mainly within intermediate volcanic rocks of the Toodoggone Formation. Mineralization consists of quartz-magnetite ±pyrite±chalcopyrite veinlets and stockwork zones and, locally, disseminated magnetite and pyrite within zones of strong phyllic and weak to moderate potassic alteration. Potassic alteration with increasing K-feldspar and magnetite becomes dominant at depth. Elevated concentrations of zinc and silver are common in the White Pass zone.

Drillhole data for the White Pass zone has been compiled and modelled. The overall geometry of the Au-Cu-mineralized zone is a tabular body dipping 50-60 degrees to the northeast and open at depth. Modelling recognized eight barren to very weakly mineralized late- to post-mineral dykes ("PMD") oriented approximately 135°/75°S and distinguished them from weakly mineralized (anomalous to weak gold and copper values) Black Lake intrusive rocks that are distinguished by infrequent quartz±magnetite veins. White Pass zone mineralization is cut by the series of PMD resulting in alternating panels of mineralized rock and barren rock.

Modelling of White Pass zone data resulted in a Mineralized Zone (MZ), characterized by drillhole intersections of >0.1 g/t Au, and Higher Grade Zones (HGZ), characterized by drillhole intersections of >0.4 g/t Au. Three-dimensional shapes for the MZ and HGZ were generated in similar fashion to that of grade shell interpolation; some mineralized intervals cross PMD intervals if mineralization occurs on both sides of the PMD. The trend of the MZ has an orientation of 315°/30°NE. The modelled shape for the MZ has approximate dimensions of

1000m by 400m and is from 100-600m thick. The modelled shape for the HGZ has estimated dimensions of 200m by 300m and is 150m thick.

Modelling of the White Pass zone suggests that additional mineralization may exist northeast, southeast, east and southwest of the zone. A chargeability anomaly is shown just below current shapes for the MZ and HGZ, and chargeability anomalies to the northeast and southwest of the shapes have not been drilled. Drilling has not tested beneath the chargeability anomalies. The modelling also identified several gaps between mineralized intervals. Targeted infill drilling may connect some of the existing higher grade intervals thereby expanding the dimensions of the HGZ.

The zone shows reasonably good correlation between gold, copper and silver. These metals are commonly accompanied by geochemically anomalous concentrations of zinc. Molybdenum is present over short intervals. Multi-element modelling suggests a core of higher grade Cu-Au may lie in a zinc low immediately northeast of the White Pass zone

The generalized porphyry deposit model is characterized by anomalous concentrations of zinc and silver peripheral to its core. This relationship is common in other deeper porphyry deposits in British Columbia. The White Pass zone is unusual in that the central gold-copper zone carries significant levels of zinc. This may be the result of overprinting by multiple mineralizing events, such as the overlapping of a high-level porphyry system with that of a genetically related epithermal system, a feature not uncommon with telescoped porphyry systems (Sillitoe, 2010) or from post-mineral tilting of the porphyry system. Alternatively, it may suggest that a higher grade copper-gold zone is yet to be discovered at the Brenda Project.

1.10 RECOMMENDATIONS

The following multi-parameter Phase I exploration program is recommended.

Phase I

- Collect samples from intrusive rocks in the available core lithochemical and additional petrographic work to confirm rock nomenclature, high-K calc-alkalic affinity, and the presence and intensity of potassic alteration. Re-examine selected 2006 and 2012 thin sections. A key objective of this work is to refine the subdivision of intrusive rocks into pre- and syn-mineral, late-mineral, and post-mineral intrusive phases.
- Relog select drillholes to confirm the PMD and mineralized Black Lake Intrusive intervals, and to check for mineralogical/alteration characteristics that distinguish higher grade zone mineralization from lower grade zone mineralization. Logging of magnetic susceptibility and sulphate (gypsum and anhydrite) zoning should be included in all logging going forward.
- Sample and analyze the first 500 m of hole BR-13-01 and sections of unsampled core from other drillholes. The majority of this core still needs to be sawed.

- Complete detailed field mapping and bedrock sampling of areas defined as anomalous by previous prospecting, soil sampling, regional mapping or geophysical surveying, including the Target 2 area.
- Conduct soil geochemical sampling in select areas, as required, to expand upon or add further definition to existing geochemical anomalies. A priority is to extend coverage to the southwest of the White Pass zone.
- Complete additional IP/resistivity lines as guided by the relogging and soil geochemical results. Extend the 2007 SJ Geophysics lines toward the southwest and add new lines to the northwest of White Pass and southeast of Target 2.
- Drill a minimum of three oriented core holes to depths of at least 700m on priority targets identified by soil geochemistry, IP, and/or the model presented in Section 25 of this report. A preliminary list of proposed drillhole locations to be considered is shown in Table 26-1 and Figure 26-1.
- All analyses should include gold by fire assay and multi-element analysis by four-acid ICP-MS.

The estimated cost of the recommended Phase I exploration program is $877,000 and is laid out in Table 26-2. A second phase of exploration (Table 26-3) is also recommended to further define and assess targets on the Project, but is dependent on successful results arising from the completion of the Phase I program.

2 INTRODUCTION

2.1 ISSUER, TERMS OF REFERENCE AND PURPOSE OF REPORT

Canasil Resources Inc. (Canasil) is a Canadian mineral acquisition and exploration company listed on the TSX-Venture Exchange (TSX VENTURE: CLZ). The company is focused on the development of gold and copper deposits in British Columbia and in silver deposits in Mexico.

This report presents an independent property of merit Technical Report for the Brenda Project, located in British Columbia (BC), Canada. The Project includes a significant porphyry gold-copper prospect located between two former producing mines in the Toodoggone-Kemess district of north-central BC. This report is based primarily on data compiled from numerous operators, including Canasil, from 1985-2020, and provides summaries of project history, geology, mineralization, deposit characteristics and exploration targets, and to make recommendations for future work.

This report was prepared by Robert A. (Bob) Lane, MSc, PGeo, of Plateau Minerals Corp. who is a "Qualified Person" (QP) as defined by National Instrument 43-101. The QP was commissioned by Canasil and its wholly-owned subsidiary, Canmine, to prepare this report in support of the proposed Arrangement for the spin-out of Canmine and its subsequent listing as an independent Tier 2 issuer.

The purpose of this Report is to disclose a comprehensive, current compilation of all exploration activities and results for the Project. This Report was prepared in accordance with the guidelines provided in NI 43-101, Standards of Disclosure for Mineral Projects (June 24, 2011) for technical reports, Companion Policy 43-101CP, Form 43-101F1, and using industry accepted Canadian Institute of Mining, Metallurgy and Petroleum (CIM) "Best Practices and Reporting Guidelines" for disclosing mineral exploration information, including CIM Definition Standards for Mineral Resources and Mineral Reserves (November 22, 2005).

2.2 SOURCES OF INFORMATION

This report is based on historical information and data compiled by Canasil including unpublished paper and electronic copies of reports, technical memos and correspondence, geologic maps, drill logs and cross-sections, and publicly available reports and documents. All sources of data referenced in the text are listed alphabetically in Section 27 of this Report.

2.3 SITE VISIT AND SCOPE OF PERSONAL INSPECTION

The QP visited the Project on August 27-28, 2017. Access to the site is via all-season gravel roads and seasonal mining exploration trails suitable for 4x4 pickup travel. On-site inspection included the camp and core storage areas, drillhole collar locations, one trench, exposures of bedrock, and drill core.

Verification core samples were collected from five different holes drilled on the White Pass zone in the period 1993-2004 and one chip sample from a trench excavated on the EB zone.

Canasil was completing an assessment of the Project's camp at the time of the visit.

3 RELIANCE ON OTHER EXPERTS

The author is required by NI 43-101 *Standards of Disclosure for Mineral Projects* to include descriptions of Project title and terms of legal or purchase agreements that are presented in this Report. No Title Opinion for the claims that comprise the Brenda Project was provided to the author. Title was confirmed by independently reviewing the digital tenure records, including ownership and mineral claim status information listed on the Province of British Columbia's "Mineral Titles Online" website (https://www.mtonline.gov.bc.ca) on December 15, 2020.

4 PROJECT DESCRIPTION AND LOCATION

4.1 LOCATION AND DESCRIPTION

The Brenda Gold-Copper Project is located in the Omineca Mining Division approximately 270km north of Smithers and 450km northwest of Prince George in north-central British Columbia (Figure 4-1). The Project is centered at latitude 57°15′18″N and longitude 126°52′07″W (or UTM NAD83 coordinates of 6347784m N, 628578m E, Zone 9), and covers parts of BCGS maps 094E026 and 094E027. The Project is situated in mountainous terrain east of the Spatsizi Plateau, west of the Swannell Ranges and north of Thutade Lake.

The Project is located centrally within the northwest-trending Toodoggone-Kemess district, an area characterized by epithermal gold-silver veins and porphyry copper-gold systems. The district includes three former precious metal mines (Lawyers, Baker and Shasta) and one past-producing copper-gold mine (Kemess South).

Porphyry deposits in the district are associated with Early Jurassic intrusive rocks of the Black Lake Suite that invade mafic volcanic rocks of the Late Triassic Takla Group and that are coeval with the overlying dacitic volcanic strata of the Early Jurassic Toodoggone Formation (Hazelton Group). Epithermal veins occur in both Takla Group and Toodoggone Formation host rocks.

The Project has excellent road access from Prince George by way of well-maintained Forest Service Roads, the Omineca Resource Access Road (ORAR) and mining access roads that provide direct road access onto the Project. The local access roads are open from late spring through to early fall. The Project is 25km northwest of the Kemess South mine, 8km east of the Shasta mine and 20km southeast of the Baker mine. The Brenda Project includes both porphyry gold-copper prospects and epithermal gold-silver showings. Four mineralized zones, including White Pass, Creek, EB and Takla, have been the subject of detailed exploration including diamond drilling.

There are no resources or reserves estimated for the Project.

There has been no production from the Project.

4.2 TENURE AND OWNERSHIP

The Brenda Project consists of 22 contiguous mineral claims totaling 4,450.0 hectares of subsurface mineral rights in the Omineca Mining Division. Canasil acquired certain Project claims from Canmine Development Company Inc. in 1985-1986 and later expanded the size of the Project through staking additional claims. Canasil has kept the claims in good-standing since the acquisition and staking occurred. All of the claims are presently 100%-owned by Canasil (Free Miners Certificate: 104199) and are valid until at least May 30, 2024. The individual mineral claims that comprise the Project are listed in Table 4-1 and their distribution is shown in Figure 4-2.

On July 26, 2017, Canasil announced plans to undertake a spin-out or restructuring transaction in order to segregate its British Columbia properties into a separate company, Canmine. The transaction would allow Canasil to focus its effort on its activities in Mexico, while seeking to maximize the value of the British Columbia properties by highlighting them in a separate public company.

The proposed spin-out transaction was approved at a special meeting of Canasil shareholders on December 12, 2017, and received the Final Court Order approving the Plan of Arrangement on December 20, 2017. However, subsequent to these approvals to the date of this report, the conditions for final acceptance of the spin-out transaction could not be completed due to resource market conditions at the time, particularly with regard to gold and copper prices. As a result, the Plan of Arrangement and proposed spin-out to Canmine was not finalized. Canasil intends to review possibilities to complete the transaction when market conditions provide opportunities to arrange the capital requirements for the proposed transaction to proceed.

To extend the expiry date of the mineral claims, the claim holder must, on or before the anniversary date of the claim record exploration and development (assessment) work carried out on that claim during its current anniversary year. The amount of assessment work required in the first 2 years is $5 per hectare per year; in years 3 and 4 is $10 per hectare per year, in years 5 and 6 is $15 per hectare per year in year, and in subsequent years is $20 per hectare per year. Alternatively, the claim holder can pay cash in lieu of meeting the physical work requirements at double the corresponding assessment work value.

The Project does not include any surface tenures.

The project is not encumbered by any National or Provincial parks, or by any other type of protected area.

4.3 INDIGENOUS AND LOCAL COMMUNITY RELATIONS

The Brenda Project lies within the traditional lands of several local indigenous groups. Canasil communicates with these groups on an intermittent basis regarding its planned exploration activities. The writer is not aware of any agreements that have been negotiated with any of the local indigenous groups.

The writer is not aware of any other encumbrances, or potential encumbrances, that would negatively impact the future exploration of the Project.

4.4 PERMITTING, ENVIRONMENTAL LIABILITIES AND OTHER ISSUES

Proposed mechanical exploration on the Brenda Project is currently pending approval by the British Columbia Ministry of Energy and Mines (BCMEM) under existing permit MX-GEN-54.

An existing Multi-Year, Area-Based (MYAB) exploration permit includes geophysical surveys (ZTEM and Titan24 or 3DIP surveys), three drill sites, and 1 km of associated drill trail construction. Reclamation funds totaling C$47,000 are held under Permit MX-GEN-54 by the Minister of Finance and will be only be released to the company upon reclamation of the Project is deemed satisfactory by a Mines Inspector from the BCMEM.

Water for use in diamond drilling activities may require an application under the "Water Use for Mineral Exploration and Small Scale Placer Mining under the Water Sustainability Act" which was updated in April 2016.

There are no known environmental liabilities associated with the Project that at present accrue to Canasil. Once the proposed work has been approved, Canasil will be required to file an Annual Summary of Exploration Activities (ASEA) with BCMEM each year that the permit is in effect.

All filings are current.

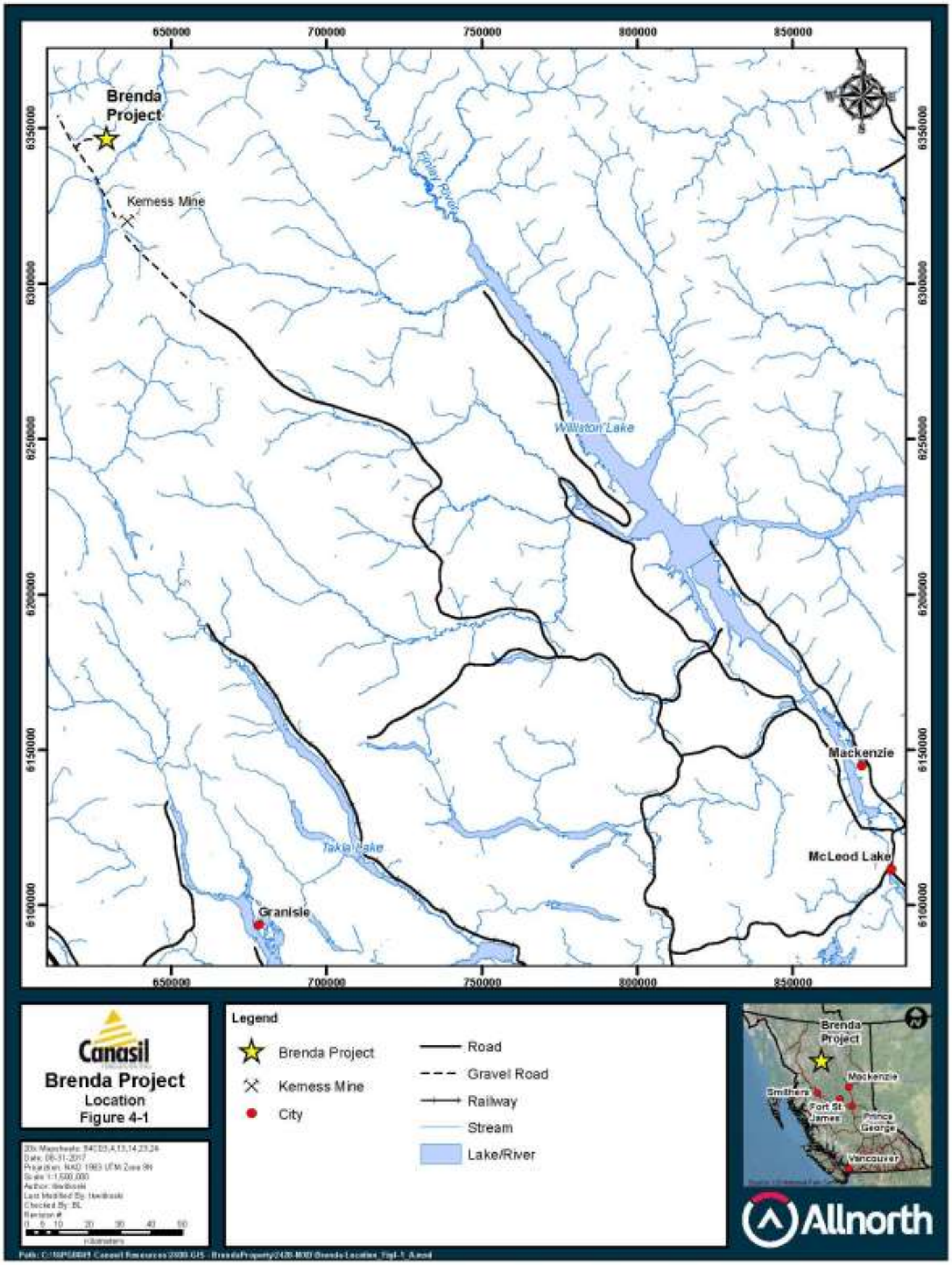


Figure 4-1: Location of the Brenda Project

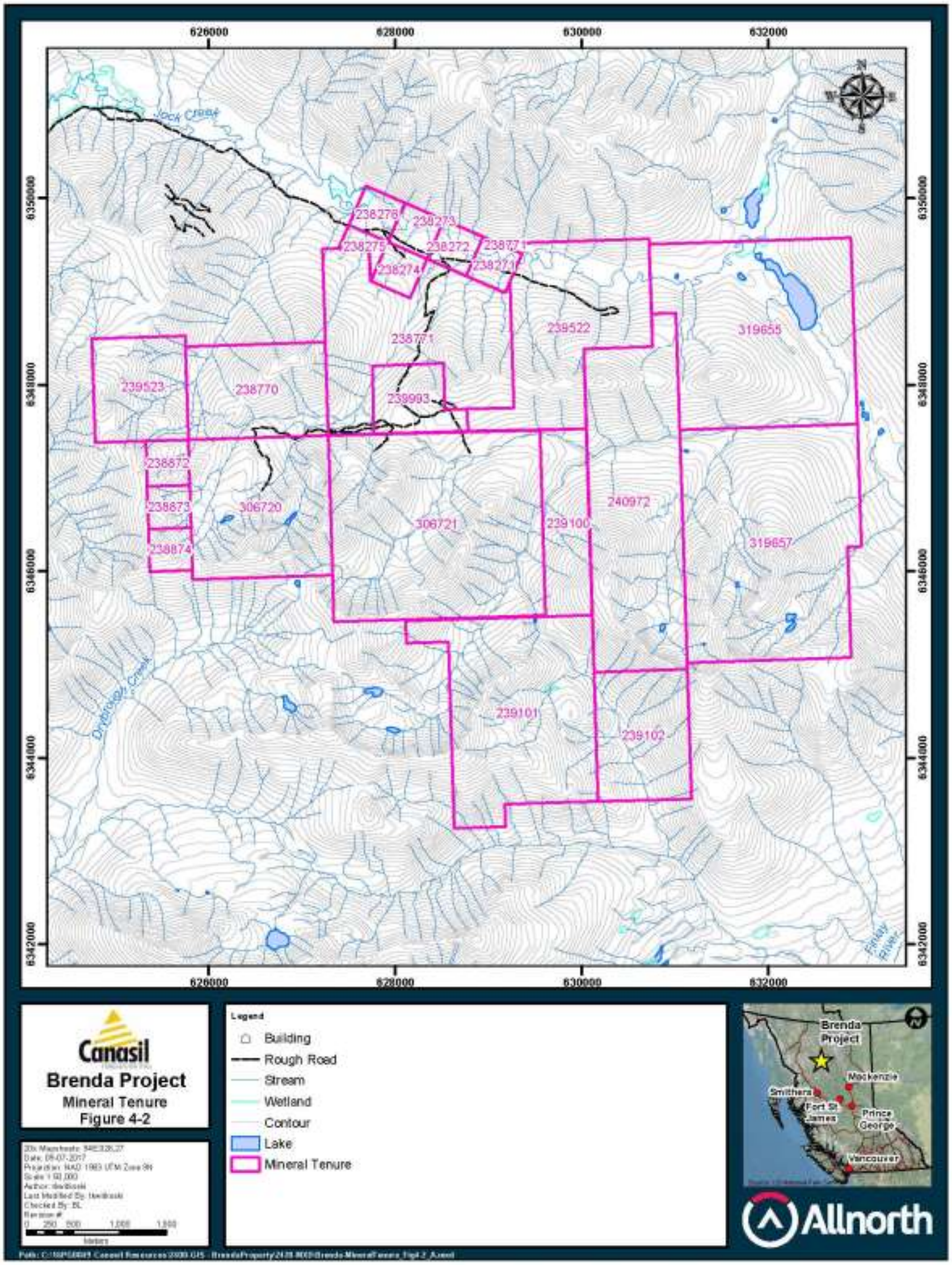


Figure 4-2: Mineral Tenure – Brenda Project

Table 4-1: Mineral Claims, Brenda Project

Tenure Number	Claim Name	Owner	Tenure Type	Tenure Sub Type	Map Number	Issue Date	Good To Date	Area (ha)
238271	BRENDA #1	104199 (100%)	Mineral	Claim	094E026	1980/jun/13	2024/may/30	25
238272	BRENDA #4	104199 (100%)	Mineral	Claim	094E026	1980/jun/13	2024/may/30	25
238273	BRENDA #5	104199 (100%)	Mineral	Claim	094E026	1980/jun/13	2024/may/30	25
238274	BRENDA #6	104199 (100%)	Mineral	Claim	094E026	1980/jun/13	2024/may/30	25
238275	BRENDA #7	104199 (100%)	Mineral	Claim	094E026	1980/jun/13	2024/may/30	25
238276	BRENDA #8	104199 (100%)	Mineral	Claim	094E026	1980/jun/13	2024/may/30	25
238770	JAN 1	104199 (100%)	Mineral	Claim	094E026	1984/mar/29	2024/may/30	150
238771	JAN 2	104199 (100%)	Mineral	Claim	094E026	1984/mar/29	2024/may/30	400
238872	MAX NO. 1	104199 (100%)	Mineral	Claim	094E026	1984/aug/21	2024/may/30	25
238873	MAX 2	104199 (100%)	Mineral	Claim	094E026	1984/aug/21	2024/may/30	25
238874	MAX 3	104199 (100%)	Mineral	Claim	094E026	1984/aug/21	2024/may/30	25
239100	JAN 6	104199 (100%)	Mineral	Claim	094E026	1986/feb/28	2024/may/30	100
239101	JAN 7	104199 (100%)	Mineral	Claim	094E026	1986/feb/28	2024/may/30	500
239102	JAN 8	104199 (100%)	Mineral	Claim	094E026	1986/feb/28	2024/may/30	250
239522	POCK	104199 (100%)	Mineral	Claim	094E026	1987/jul/06	2024/may/30	400
239523	HANS	104199 (100%)	Mineral	Claim	094E026	1987/jul/06	2024/may/30	150
239993	TOM 4	104199 (100%)	Mineral	Claim	094E026	1988/may/31	2024/may/30	150
240972	JAN #9	104199 (100%)	Mineral	Claim	094E026	1989/jul/06	2024/may/30	400
306720	TOM 3	104199 (100%)	Mineral	Claim	094E026	1988/may/31	2024/may/30	225
306721	TOM 5	104199 (100%)	Mineral	Claim	094E026	1988/may/31	2024/may/30	500
319655	KATH 1	104199 (100%)	Mineral	Claim	094E027	1993/jul/19	2024/may/30	500
319657	KATH 3	104199 (100%)	Mineral	Claim	094E027	1993/jul/20	2024/may/30	500

5 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE AND PHYSIOGRAPHY

5.1 ACCESS

The Project is accessible seasonally by road. Well-maintained Forest Service gravel roads lead north from the towns of Mackenzie and Fort St. James and connect to the Omineca Resource Access Road (ORAR) which extends past the Project. A rougher road, suitable for a 4x4 pick-up then runs 20km to the centre of the Project.

5.2 CLIMATE

The climate is generally moderate, although snow can occur during any month. Temperatures range from -35°C to 30°C with frost-free conditions from June through mid-August. Average annual precipitation of approximately 890mm is moderate and is more or less distributed throughout the year. Exploration can comfortably be conducted from May through September.

5.3 LOCAL RESOURCES

There is little in the way of local resources. The Brenda Project is located in a remote area of north-central BC, and there are no local communities from which to draw career professionals and labourers skilled in the mining profession. The Kemess South minesite is an important seasonal exploration base maintained by Aurico Metals Inc.

The closest communities of scale are Mackenzie and Fort St. James, located 235km south and 355km southwest, respectively, of the Project. Both communities are resource-based, and offer a range of provisions and services suitable for the mining and exploration sectors.

5.4 INFRASTRUCTURE

Local infrastructure on the Brenda Project site includes a small camp consisting of several wooden cabins, a 24-foot storage container, a core logging facility, and an intact system of access roads and exploration trails.

There is no power to the site, but 3-phase power does extend from Williston Lake to the Kemess South mine site located 25km south of the Project. The Kemess airfield is located approximately one hour drive from the Project, and the Sturdee Valley airstrip is located 21km west of the Project along the principal access road. The significant infrastructure developed for the Kemess South mine (air and road access, electricity) is an asset for the area.

5.5 PHYSIOGRAPHY

The area is characterized by broad, open, drift and moraine covered valleys, yielding to sub-alpine plateaus and rugged incised peaks and cirques. The Project is moderately to well-vegetated below tree-line with a mix of subalpine lodge pole pine, balsam and spruce, while poorly drained areas are dominated by alder, willow, and stunted spruce trees.

Elevations range from 1200-1800m above sea level (asl), with the tree line at about 1500m asl. The principal area of drilling on the White Pass zone is at approximately 1600m asl.

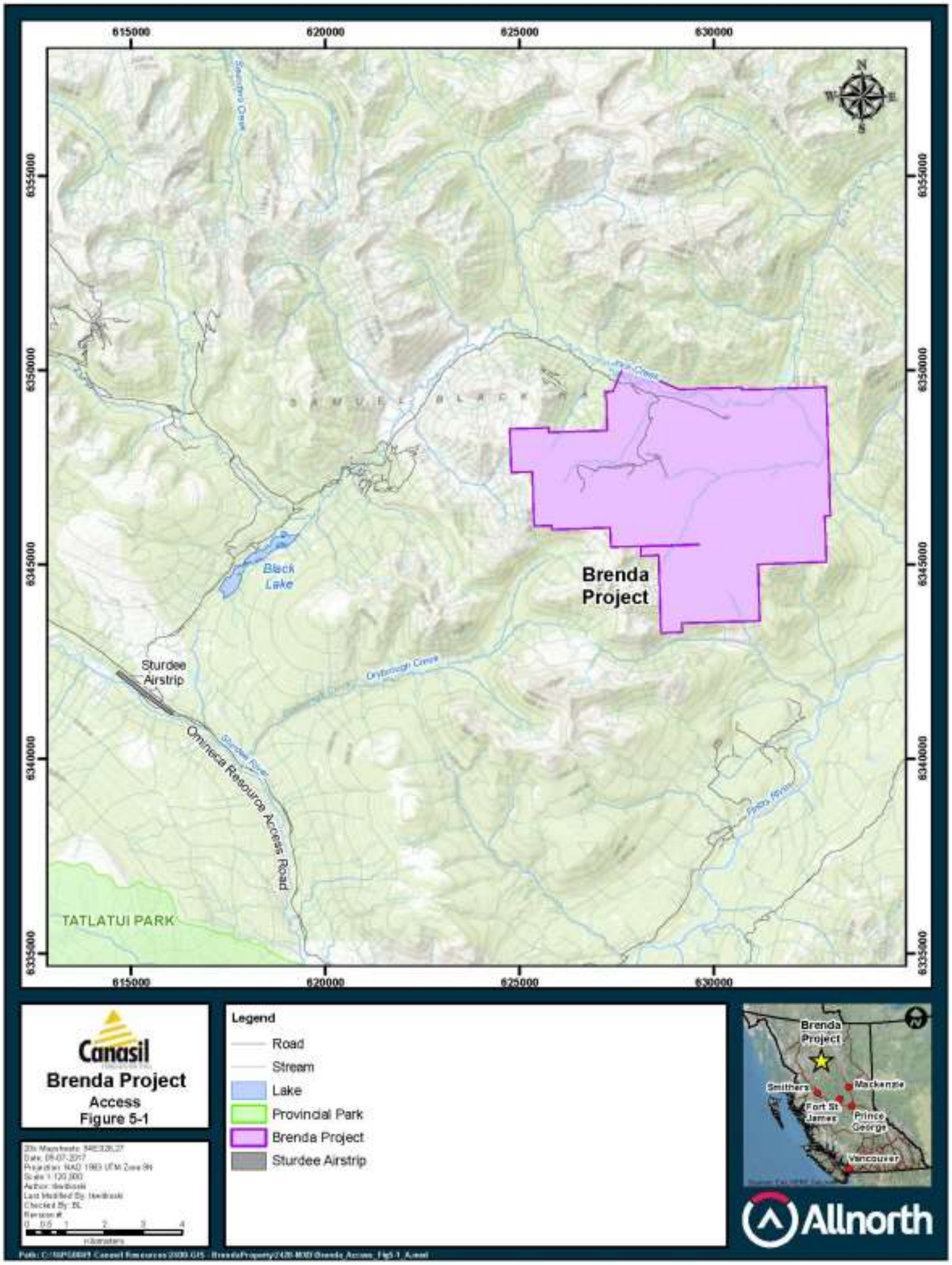


Figure 5-1: Brenda Project – Access

6 HISTORY

6.1 TOODOGGONE-KEMESS DISTRICT

The earliest reports of exploration activity in the area date back to the discovery of placer gold at the mouth of McConnell Creek in 1889. Several years later there was a brief staking rush in 1907 and prospecting remained active in the area through the early 1920's resulting in a placer discovery at McClair Creek. Cominco Ltd. was active in the area in the 1930's exploring for base metals (Diakow et al., 1993).

In 1966 Kennco Explorations (Western) Limited conducted reconnaissance exploration programs to evaluate the Toodoggone-Kemess district for copper porphyry systems. Follow-up fieldwork was conducted on several prospects including Kemess North, Pine, Fin, Chappelle (aka Baker), Shasta and Lawyers. The latter three prospects are gold-silver epithermal vein systems that later became small, short-lived producing mines, albeit potential exists for further exploration and development of these shallow mineral systems. Exploration in the vicinity of a prominent gossan that demarcates the Kemess North porphyry gold-copper deposit led to the discovery of the Kemess South porphyry gold-copper deposit. Kemess South was put into production in 1998 by Royal Oak Mines. Northgate Exploration Ltd. took over the mining operation in 2001. The mine closed in 2011, but during its operation a total of 783.6 million pounds of copper and 2.95 million ounces of gold were recovered from the processing of 228.7 million tonnes of ore (MINFILE, 2015).

Exploration in the Toodoggone-Kemess district continues with a focus on both epithermal gold-silver systems and gold-copper porphyry deposits, including the Kemess Underground and Kemess East deposits of Aurico Metals Inc. (Aurico). Aurico received an environmental certificate for development of its Kemess Underground deposit on March 15, 2017. Aurico was purchased by Centerra Gold Inc. in January, 2018.

6.2 HISTORY OF THE BRENDA PROJECT

A synopsis of the exploration history of the Brenda Project is shown in Table 6-1. Locations of the mineralized zones that were the subject of exploration are shown in Figure 6-1.

In 1950, Bralorne Mines Ltd. engaged Emil Bronlund to prospect areas in the Toodoggone-Kemess district. He discovered gold-bearing quartz in bedrock near the confluence of Jock and Red creeks and staked the Jock 1-4 claims to cover his find. In 1951, Bronlund discovered gold and silver-bearing quartz-chalcedony breccia in outcrop and float (the Tarn showing) at higher elevations on Red Creek and also in the headwaters of nearby White Creek (Bronlund, 1951).

Canmine Development Company Inc. 1980 - 1984

In 1980, in cooperation with Bronlund, the Brenda claims were staked for private company Canmine Development Company Inc. (Canmine) to cover the exposures located along Jock Creek near its confluence with Red Creek. Through the early-mid 1980s, Canmine staked more adjoining claims and carried out programs of prospecting, bedrock mapping, geochemical and geophysical surveys and trenching.

Table 6-1: Brenda Project – Exploration History

Year(s)	Activity
1950-51	Discovery of gold-bearing epithermal quartz veins along Jock and Red creeks by Emil Bronlund
1980-84	Prospecting and hand trenching on the veins by Canmine Development Co. Ltd.
1985	Detailed mapping, geophysical surveys and soil sampling conducted along Jock Creek by Canasil Resources Inc. (Canasil)
1987	Trenching and geochemical surveys completed on the veins by a joint venture partnership between Canasil and Cypress Gold Canada Inc. (Cyprus)
1988	Cypress completed a total of 12 diamond drillholes (1,219m) on the Creek, EB and Takla zones, but later relinquished its option on the property
1989	Canasil completed a soil geochemical survey on the White Pass zone
1990	Canasil conducted follow-up trenching on the White Pass, Creek and EB zones
1991	Canasil conducted hand trenching and rock sampling on the White Pass, Creek and EB zones, and completed additional soil sampling on the White Pass zone
1992	Canasil drilled a total of 721m in 13 holes (4 holes on the White Pass zone, 2 holes on the Creek zone, and 7 holes on the EB zone)
1993	Romulus Resources Ltd. completed IP/resistivity and magnetic surveys, soil sampling, and drilled 957m in 4 holes in the White Pass area
1994-97	Canasil conducted soil geochemistry, hand trenching and 1919m of diamond drilling in 16 holes on the White Pass and East Creek zones
2002	Northgate Exploration Ltd. conducted airborne magnetic, radiometric and satellite imaging surveys followed by 1649m of diamond drilling in 4 holes
2003	Northgate completed 1,484m of diamond drilling in 5 holes on the White Pass zone
2004	Northgate completed 1,446m of diamond drilling in 5 holes on the White Pass zone
2007	Canasil completed 32.2 line-km of IP and 1,709m of diamond drilling in 5 holes on the White Pass zone
2013	Canasil completed 963m of diamond drilling in 1 hole on the White Pass zone
2016-17	Canasil contracted Wade Barnes to complete a desktop study that resulted in a new three-dimensional geological model of the White Pass zone and defined additional targets to the east and northeast
2019-20	Canasil contracted K. Brock Riedell to undertake a desktop evaluation that included re-logging of available skeleton core and refined targeting from drilling and soil geochemical data.

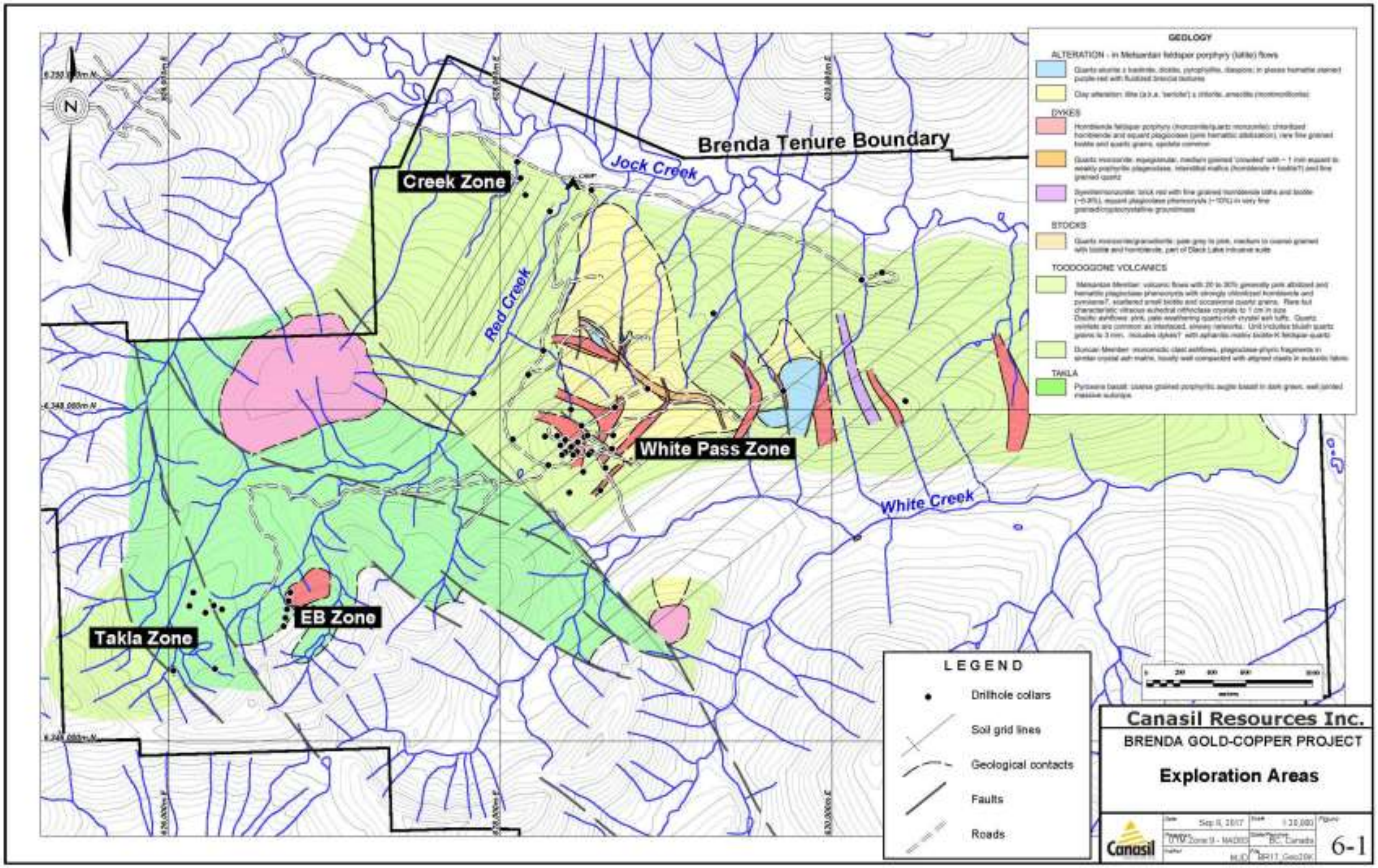


Figure 6-1: Locations of Exploration Areas, Brenda Project

In 1981, Canmine completed a small soil sampling grid immediately south of Jock Creek near its confluence with Red Creek collecting 88 soil samples and six rock samples. All of the samples were analyzed for Cu, Pb, Zn, Ag, Au and Hg by atomic absorption. Several gold-copper soil anomalies were identified. Gold values ranged from 5-175 ppb with one outlier of 1.07 ppm Au. Copper values ranged 50-310 ppm (Hrkac, 1982).

In 1984, Canmine conducted prospecting and hand trenching in areas of anomalous gold and silver-bearing float mineralization previously identified by Bronlund. Hand trenching efforts did not reach bedrock. Prospecting at higher elevations located a small quartz stockwork that returned up to 67.0 ppm Au (Weishaupt, 1993).

Canasil Resources Inc. 1985 – 1986

In 1985, Canmine optioned the Project to Canasil Resources Inc. (Canasil). Detailed geological mapping, geophysical surveying and soil sampling along Jock Creek was performed. Mineralized quartz-breccia with very low gold values were located. Prospecting of Red Creek and its basin located further high grade float with values ranging from 0.30-0.50 oz/ton Au and 4.0 - 63.5 oz/ton Ag. Quartz-alunite outcrops were also located (Weishaupt, 1993).

In 1986, Canasil focused its efforts in the Creek and Takla zones. It collected 189 soil samples from the Creek zone grid, and a total of 53 rock samples from hand excavated trenches covering 150 m^2 and from 110m of shallow 'test hole' drilling using a J.K. Smit 'winkie' diamond drill. A total of 48 silt samples were collected from a broader area of the Project. Core and rock samples from the Creek zone returned values ranging from 1-640 ppb Au and 0.4-135.5 ppm Ag. Core and rock samples from the Takla zone returned values ranging from 5-51000 ppb Au and 0.1-314 ppm Ag (Weishaupt, 1987). VLF-EM16R geophysical surveys were also completed over the Creek and Takla zones. Survey results outlined narrow, west-trending resistivity anomaly on the Creek zone that correlate with areas of secondary silica, and a narrow northwest-trending resistivity anomaly on the Takla zone (Weishaupt, 1987).

Cypress Gold Canada Inc. (Cyprus) 1987 – 1988

In 1987, Cyprus Gold Canada Inc. (Cyprus) signed a joint venture agreement with Canasil and constructed an access road to the project. Additional hand trenching and geochemical surveys along Jock Creek were done (Weishaupt, 1993), but details of this work were not available to the writer.

In 1988, Cyprus optioned the Brenda Project and completed multi-disciplinary program that included an aggregate of 804 "B" horizon soil samples, and a total 74 rock samples were collected from the Takla and Creek grids. Bedrock mapping and EM16-R, magnetics and multipole IP resistivity surveys were also completed over the gridded areas. Soil geochemistry was unsuccessful in detecting anomalous gold coincident with the Takla showing, perhaps because of extensive development of ferricrete in the area (Weishaupt, 1989). Significant anomalous gold values were confirmed on the Creek grid where the main anomaly, up to 50 m wide including values of up to 620 ppb Au and 3.6 ppm Ag, coincides with zones of quartz breccia discovered by trenching prior to 1988.

In 1988, a 12-hole diamond drill program totaling 1,219m was completed; a total of 354 core samples were collected and analyzed. Eight holes were drilled in the Takla zone and four holes were drilled in the Creek zone. The drill holes intersected short intervals of chalcopyrite, sphalerite, galena and pyrite mineralization within zones of strongly kaolinite, silica and epidote-altered quartz-chalcedony stockwork, breccia and veins across widths ranging from of 2.65-14.5m. Anomalous silver, lead and zinc were obtained in all four Creek zone holes (Weishaupt, 1989).

Canasil Resources Inc. 1989 – 1992

From 1989 through 1991, Canasil completed modest trenching programs, and geophysical and geochemical surveys on the White Pass, Creek and EB zones.

The 1989 field program consisted of line cutting, soil sampling and geophysical surveys in the new White Pass zone. The White Pass grid was established parallel to a fault interpreted from airborne magnetic data and included two exposures of altered volcanic rocks rich in alunite, a common product of high-sulphidation or acid sulphate epithermal systems (Panteleyev, 1996). A total of 712 soil samples were collected from the White Pass grid; results outlined a 600m north by 20-120m east gold-silver geochemical anomaly with spotty copper, lead and zinc values (Weishaupt, 1989). The size, orientation and location of this anomaly was suggestive of a gold and silver-bearing structure associated with the noted alteration and/or the interpreted fault.

Prior to the 1990 field season, Canasil Resources Inc. signed an agreement with Mingold Resources Inc. to provide funds to trench previously determined target areas. In 1990, Canasil conducted a program of line cutting, soil sampling, rock sampling and backhoe trenching in the White Pass, Creek and EB zone areas. A total of 110 soil samples were collected from an expanded grid on the White Pass zone and analyzed for gold and silver. A total of 792 lineal metres of backhoe trenching was completed (White Pass zone: 10 trenches, 418m, 135 chip samples; Creek zone: 8 trenches, 328.5m, 23 chip samples; EB zone: 1 trench, 45.5m, 21 chip samples). Rock chip samples collected from the EB zone were analyzed for gold and silver, while all other rock chip samples were analyzed for a suite of 30 elements by ICP, and for gold by Acid Leach/Atomic Absorption (AA).

Trenching on the EB zone exposed a large, silicified breccia and stockwork zone oriented 008/68-82°E. Assay results from 1m chip samples taken across the strike of the zone returned values that ranged from 99-4920 ppb Au and from 3.7-138.2 ppm Ag (Weishaupt, 1991).

Trenching on the White Pass zone encountered highly sheared, fractured, and pervasively argillic and propylitic-altered trachy-andesite with local dark grey chalcedony quartz stringers, quartz fragments, and weak (Weishaupt, 1991). The best results occurred over an 18m interval in trench WP5 that averaged 1.01 g/t Au, 0.038% Cu, 4.5 g/t Ag and 55 ppm Mo. At the Creek zone, trenching exposed limited bedrock due to deep overburden. It consisted of highly silicified green andesite crystal tuff cut by quartz fractures and veinlets carrying varying amounts of sphalerite, galena and chalcopyrite. Results from limited chip sampling included a 6m interval in trench CG7 that averaged 0.187 g/t Au, 0.169% Cu, 6.9 g/t Ag, 37 ppm Mo, 0.09% Pb and 1.25% Zn. In nearby trench CG-8, a 1m chip sample returned a value of 11.64 g/t Au and 5.7 g/t Ag (Weishaupt, 1991).

In 1991, Canasil collected and analyzed an additional 163 soil samples to expand the size of the White Pass grid. It also completed 13 hand-cut trenches and 4 test pits on the zone from which 43 rock samples were collected and analyzed (Weishaupt, 1992). The soil sampling expanded the White Pass gold anomaly to 800m by 20-140m, while 33 of 43 rock samples returned >75 ppb Au. Canasil also submitted a total of 331 soil samples collected from the Creek zone, and completed drilling and blasting of test pits on the Creek and EB zones from which 15 large samples were collected and analyzed. Ferricrete was observed to overlie bedrock at lower elevations making for difficult interpretation of the data. The Creek zone test pit broke through the ferricrete and bedrock samples collected from the excavation returned values of up to 2752 ppm Cu, 38648 ppm Zn and anomalous levels of silver and gold (Weishaupt, 1992). Rock samples from the EB zone returned up to 1.71 g/t Au and 58.2 g/t Ag.

In 1992, Canasil drilled two holes on the Creek zone, four holes (271m) on the White Pass zone and seven holes on the EB zone. On the Creek zone, drillhole CR-92-01 contained an interval (from 5.2-7.2m) that assayed 0.359 g/t Ag, 0.044% Cu, 0.29% Pb and 0.66% Zn (Weishaupt, 1993). Strongly anomalous values of copper and gold were intersected in all four holes drilled on the White Pass zone. Hole WP-92-04 returned the best interval of gold mineralization: 26.6m averaging 0.915 g/t Au with 282 ppm Cu, while hole WP 92-03 returned the best interval of copper mineralization: 9.5 m averaging 0.19% Cu with 0.772 g/t Au (Weishaupt, 1993). Drilling of the EB zone failed to intersect encouraging grades of mineralization. The highest assay value was 0.675 g/t Au and 6.5 g/t Ag over 1m in drillhole EB-92-04 (Weishaupt, 1993).

The relatively high grades of zinc and lead are a characteristic of the Creek zone along with gold and copper grades that are approximately equivalent. The White Pass zone is characterized by higher grades of gold and lower grades of copper. Silver and molybdenum values in both zones are not insignificant.

Romulus Resources Ltd. 1993

In 1993, Romulus Resources Ltd. (Romulus) completed a multi-parameter exploration program on the Project, including soil geochemical sampling, Induced Polarization (IP) and magnetic geophysical surveys and diamond drilling. A total of 490 soil samples were collected from the expanded White Pass grid bringing the number of samples collected from the area to 1,554. These surveys outlined a well-defined gold anomaly exceeding 50 ppb Au that measured 800m by 800m. Silver showed a strong spatial association with gold, while copper formed a smaller anomaly within the broader gold zone. A 30 line-km IP survey outlined several broad zones of high chargeability, some of which correlated approximately with gold-silver-copper soil signatures. One large chargeability anomaly with elevated resistivity does not have a soil geochemical expression. The magnetic survey showed an area of discontinuous magnetic highs that roughly coincided with the outline of the gold-silver-copper soil geochemical anomaly.

Romulus drilled 4 deep holes in the White Pass area that substantiated the gold-rich character of the porphyry gold-copper mineralization on the Project. Results included 47.86m averaging 1.10 g/t Au, 0.13% Cu and 4.8 ppm Ag in hole 93-1 and 108.8 m averaging 0.48 g/t Au, 0.144% Cu and 1.0 g/t Ag in hole 93-3 (Rebagliati, 1993). These results confirmed the presence of an auriferous porphyry system that is open for extension and represents a gold-copper porphyry target warranting further exploration. The diamond drilling and the IP results suggested that the White Pass (Brenda) zone gold-copper mineralization is associated with (parallel) linear structural zones. Additional trenching and drilling were recommended in an effort to extend of the dimensions of the zone. Project-wide geochemical and geophysical surveys were recommended along with test pitting of two coincident IP-geochemical anomalies.

Canasil Resources Inc. 1995 - 1997

Drilling campaigns completed by Canasil in 1995-1997 totaled 1,919m in 16 holes and returned mixed results. In 1995, drillholes 95-01 and 95-02 tested an IP anomaly 2.0 km east of the White Pass zone, while drillholes 95-03 and 95-04 tested the White Pass zone. A total of 27 core samples were collected for analysis. Most of the holes intersected pyritic volcanics with anomalous levels of gold and copper. The most encouraging intersection was a 41.50m interval in hole 95-03 that averaged 0.77 g/t Au, 0.11% Cu and 3.3 g/t Ag (Weishaupt, 1996).

In 1996, Canasil drilled one hole (130.75m) in the Creek zone, and six holes (576.03m) in the White Pass zone. A total of 126 core samples were collected for analysis. A 7.47m interval at the top of the Creek zone drillhole averaged 588 ppb Au and 1173 ppm Cu (Weishaupt, 1996); the remainder of the hole was weakly to moderately anomalous in gold and copper. The six White Pass drillholes were grid-based and closely spaced to test a gold soil geochemical anomaly in the central part of the phyllic-altered zone. None of the holes tested the zone to significant depths, but did produce encouraging results, including: 0.605 g/t Au and 0.123% Cu over 60.35m in hole BR-96-03, and 0.832 g/t Au and 0.139% Cu over 62.50m in hole BR-96-07.

In 1997, Canasil completed five drillholes (734.25m) to assess the southwest and northwest projection of White Pass zone mineralization within the geochemical and geophysical anomalies. A total of 98 core samples were collected for analysis. Drillhole 97-02 was highly anomalous in gold to a depth of 105.76m and included a 39.93m interval that averaged 1.12 g/t Au, 0.18% Cu, 3.2 g/t Ag and >800 ppm Pb and >800 ppm Zn (Weishaupt, 1998).

Northgate Exploration Ltd. 2002-2004

Northgate Exploration Ltd. (Northgate) undertook exploration programs in 2002, 2003 and 2004 under an Option and Joint Venture agreement that it signed with Canasil in July, 2002. This work included initial airborne high resolution magnetic, radiometric and satellite imaging surveys followed by three consecutive diamond drilling campaigns totaling 4,580m in 14 holes. Details of the airborne and satellite surveys were not reported.

In 2002, Northgate completed 1649.3m of diamond drilling in four holes on the White Pass zone. A total of 866 core samples were collected and analyzed by a 34 element ICP package using a nitric-aqua regia digestion. Analysis for gold was by fire assay with an atomic absorption finish (Pautler, 2002). All four 2002 drillholes successfully intersected mineralized zones with anomalous grades of copper and gold, and expanded the surface dimensions of the White Pass zone to a 0.8 x 1.3 km area.

In 2003, Northgate completed 1,484.1m of drilling in 5 diamond holes on the White Pass zone. A total of 678 core samples were collected and analyzed by a 34 element ICP package using a nitric-aqua regia digestion. Analysis for gold was by fire assay with an atomic absorption finish on a one assay ton equivalent analytical charge (Pautler, 2003). The drilling intersected significant gold-copper mineralization over considerable widths including 0.55 g/t Au and 0.08% Cu over 167m in hole BR 03-7 and 0.38 g/t Au and 0.11% Cu over 80m in hole BR 03-6 (Pautler, 2003).

In 2004, Northgate completed 1,445.7m of drilling in 5 diamond drill holes on the White Pass zone. A total of 686 core samples were collected and analyzed by a 34 element ICP package using a nitric-aqua regia digestion (method ME-ICP41). Analysis for copper was also by assay (method Cu-AA49). Analysis for gold was by fire assay with an atomic absorption finish (method Au-AA23).

Northgate showed that significant mineralization occurs over a strike length of at least 520m and to depth of at least 450m, whose drilling returned significantly longer intersections of gold and copper mineralization (up to 243m) than those from earlier programs. Gold mineralization was shown to be reasonably evenly distributed in the 0.5 g/t Au range, while copper grades were typically in the 0.05-0.15% Cu range (Edmunds and Kay, 2004).

Topography was shown to be an effective mirror of the subsurface, with monzonite dykes creating resistive ridges while faults and volcanics create recessive gullies. Late east-west local faulting plays a significant role in juxtaposition of mineralized zones. If properly understood, this structural regime may yield significant new targets.

Edmunds and Kay (2004) concluded that it was unlikely that near surface or shallower mineralization observed at the White Pass zone would develop into an economic deposit because of the high degree of intrusive dilution and structural dissection. However, they argued that potential exists for more zones on the Project and suggested that a complete synthesis of all Project data may result in the identification of new targets. In November, 2004, Northgate terminated its option and joint venture agreement and returned 100% interest in the Project to Canasil.

Canasil Resources Inc. 2006

In 2006, Canasil contracted Dr. Andre Panteleyev to complete a bedrock mapping program over the central part of the Project. He outlined a large advanced argillic alteration zone capped with quartz alunite that lies immediately to the northeast of the previously drilled main White Pass area. The zone trends north-south and measures approximately 1200m north-south by 800m east-west, and is open to the south (see Figure 7-3). Quartz alunite ribs, or 'ledges', are present at higher elevations. The zone is associated with anomalous gold and molybdenite soil geochemistry and is rimmed by anomalous zinc and lead soil geochemistry. Panteleyev regarded the features of this large alteration zone to be characteristic of the upper levels of copper gold porphyry systems (Panteleyev, 2006).

The zone itself had not been drilled, but drilling immediately southwest of and adjacent to the alteration zone (holes 93-03, 03-06, 03-07, 04-10 and 04-14) returned highly anomalous values of copper and gold. Drill core from these holes display argillic alteration that overprints albite and propylitic alteration, some with extensive gypsum and fluorite veining. The argillic alteration is characterized by pervasive clay (illite) alteration with iron oxides after pyrite, pyrite, minor secondary copper minerals and sphalerite. Gold-copper values and the length of mineralized intervals appear to be increasing to the northeast towards the large newly mapped alteration zone (Panteleyev, 2006).

Canasil Resources Inc. 2007

In 2007, Canasil completed a 3-dimensional Induced Polarization (3D-IP) geophysical survey and five-hole (1,708m) HQ diamond drilling program. The results were thought to have identified a deep porphyry gold-copper system at the White Pass zone.

Geophysics

In 2007 Canasil contracted SJ Geophysics to complete a three-dimensional induced polarization (3D-IP) survey of a 4km by 2km area that included the White Pass zone (Figure 6-2). The survey consisted of 15 lines with an aggregate length of 32.2km. The lines followed an azimuth of 232°, and were spaced either 100m or 200m apart with stations spaced at 50m intervals along the lines. The main purpose of the survey was to further model and characterize the White Pass zone and provide additional vectoring information for exploration drilling.

The 3D Inversion Model Interpreted Chargeability plan maps outline a strong chargeability high at a depth of 100m with a >30 ms core between Lines 10800N and 11000N, and centered at UTM co-ordinates of 6348400N, 628660E. At deeper levels (300m and 400m below surface; Figure 6-3) two northwest–trending chargeability features of similar strength flank a prominent northwest-trending chargeability-low/resistivity-high feature that extends from Line 10800N to 9800N.

The chargeability cross-sections identify two chargeability highs (>30 ms) that have a sub-vertical orientation. One of the chargeability highs is situated between 11000N and 10800N and centered at approximately 900E; and the other is situated between 10400N and 10800N (Figure 6-4) and centered at about 400E (Rastad, 2008). Both chargeable zones strengthen with depth with the latter becoming very prominent at 300m below surface.

The resistivity cross sections depict a near-surface resistivity low layer (<1000 Ohm-m) overlying a more resistive layer (>2500 Ohm-m) with the contact between the two zones at a depth of between 200 and 250m (see Figure 6-3; Rastad, 2008). This phenomenon may reflect surface weathering and oxidation as well as the presence of broad surface zones of intense argillic and phyllic alteration.

Diamond Drilling

In 2007, Canasil completed five drillholes (1709m) on the White Pass zone. A total of 628 core samples were collected and analyzed.

The first three holes of the program (BR-07-01, BR-07-02 and BR-07-03) were drilled to relatively shallow depths to test for mineralization beneath a broad area of argillic alteration east of previous drilling. Holes BR-07-01 and BR-07-02 intersected weakly propylitic-altered latites and a quartz monzonite dyke. Mineralization in the latite consisted of 1-8% disseminated fine-grained pyrite. Analysis of the propylitic-altered latite produced very weak copper and gold values, with one lone notable gold assay of 0.74 g/t Au over 2m within narrow zones of silicification. Drillhole BR-07-03 was spotted approximately 800 m due east of drillhole BR-07-02 and tested a surface zone of quartz-alunite-clay alteration and surrounding argillic alteration within the airborne magnetic high that extends eastward from the main White Pass zone. The quartz alunite-argillic alteration zone is also surrounded by a large lead-zinc geochemical soil anomaly. The hole intersected phyllic-altered latitic volcanics with disseminated pyrite and uncommon quartz veinlets, and narrow quartz monzonite dykes. Individual sample intervals carried up to 15% disseminated pyrite and up to 0.5% chalcopyrite. Millimeter-scale quartz+/-calcite stringers containing sphalerite and galena were also noted throughout. Results were poor with most intervals carrying less than 50 ppm copper and negligible gold. Exceptions were a 2m sample near the top of the section that graded 1850 ppm Cu, and another near the bottom of the section that assayed 0.95 g/t Au (Nordin and Lane, 2008).

Drill holes BR-07-04 and BR-07-05 were drilled to test for mineralization beneath previous holes BR-03-07 and BR-97-01, respectively. Drillhole BR-07-04 was established in the central White Pass zone and encountered dark grey phyllic-altered to potassic-altered porphyritic latite from 90.12-260.1m. Quartz-magnetite stockworks with minor amounts of pyrite and chalcopyrite, as well as an increase in disseminated pyrite, were noted throughout this lower section, as were narrow zones of chloritic alteration, zones of increased hematite and local calcite veining. A quartz monzonite dyke interrupted the volcanic sequence from 260.1-273.6m, but phyllic-altered latite resumed to a depth of 379.7m. The latite was interrupted by five more quartz monzonite dykes, ranging in width from 1.8-6.4m, over an interval between 379.7 and 453.8m. The intervening panels of latite in this interval displayed moderate to pervasive phyllic alteration with zones of moderate to intense potassic alteration (Nordin and Lane, 2008). Potassic-altered zones were consistently accompanied by an increase in quartz-magnetite+/-sulphide veining and disseminated magnetite and pyrite and, as a consequence, an increase in gold and copper grades. Four zones of gold-copper mineralization were intersected in drillhole BR-07-04 (Table 9-2). These zones correspond directly with the potassic altered volcanic rocks and grades increase with intensity of alteration as well as with depth. The (post-mineral?) quartz monzonite dykes are typically weakly mineralized or barren of mineralization. Where narrow, the dykes have been incorporated into drill assay composites, therefore diluting the overall grade of each reported intersection. Near the dykes the potassic alteration has been overprinted by a pale green siliceous sericite-pyrite alteration with a marked decrease in copper and gold values.

Significant mineralized intercepts from drillholes BR-07-04 and BR-07-05 are listed in Table 6-2.

Summary

Overall, drillholes BR-07-04 and BR-07-05 intersected broad zones of gold-copper mineralization beneath previous drillholes BR-03-07 and BR-97-01 that appeared to be increasing with depth. These results, in conjunction with the strong anomalies observed in the geophysical survey, were encouraging and suggested potential for a deep-seated gold-copper porphyry system.

Table 6-2: Selected Results - 2007 Drilling, Brenda Project

Drill Hole #	Final Depth (m)	From (m)	To (m)	Core Length (m)	Au (g/t)	Cu (%)
BR-07-04	561.96	90.12	260.00	169.88	0.466	0.088
	Including:	200.00	260.00	60.00	0.592	0.111
		312.00	378.00	66.00	0.310	0.038
		420.08	460.00	39.92	0.418	0.628
		504.00	561.96	57.96	0.707	0.119
	Including:	508.00	546.00	38.00	0.867	0.141
BR-07-05	530.30	110.00	188.30	78.30	0.610	0.104
		336.11	376.00	39.89	0.625	0.062
		459.52	483.90	24.38	0.670	0.114
		488.89	499.39	10.50	0.570	0.101

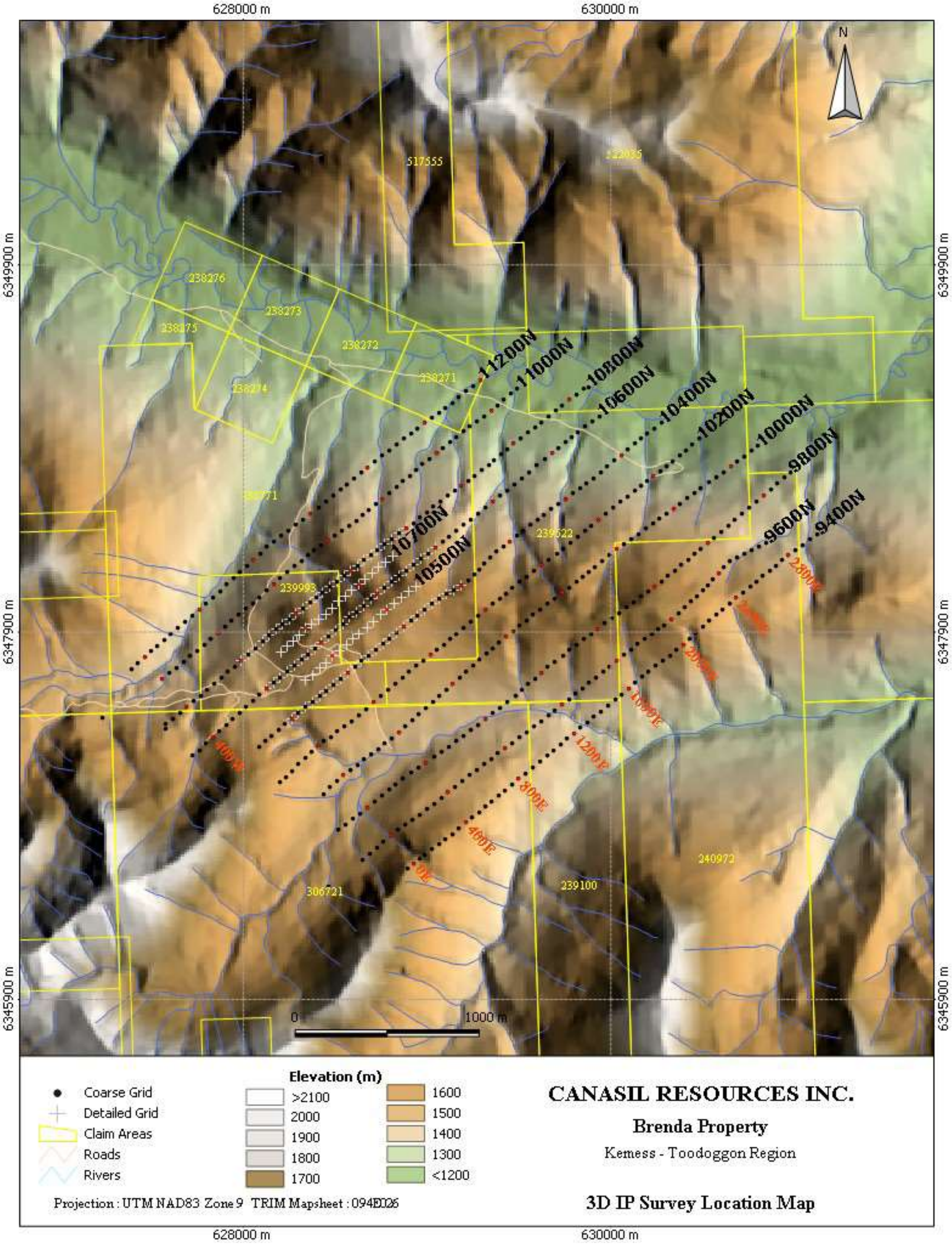


Figure 6-2: Location of the 2007 3D IP Survey

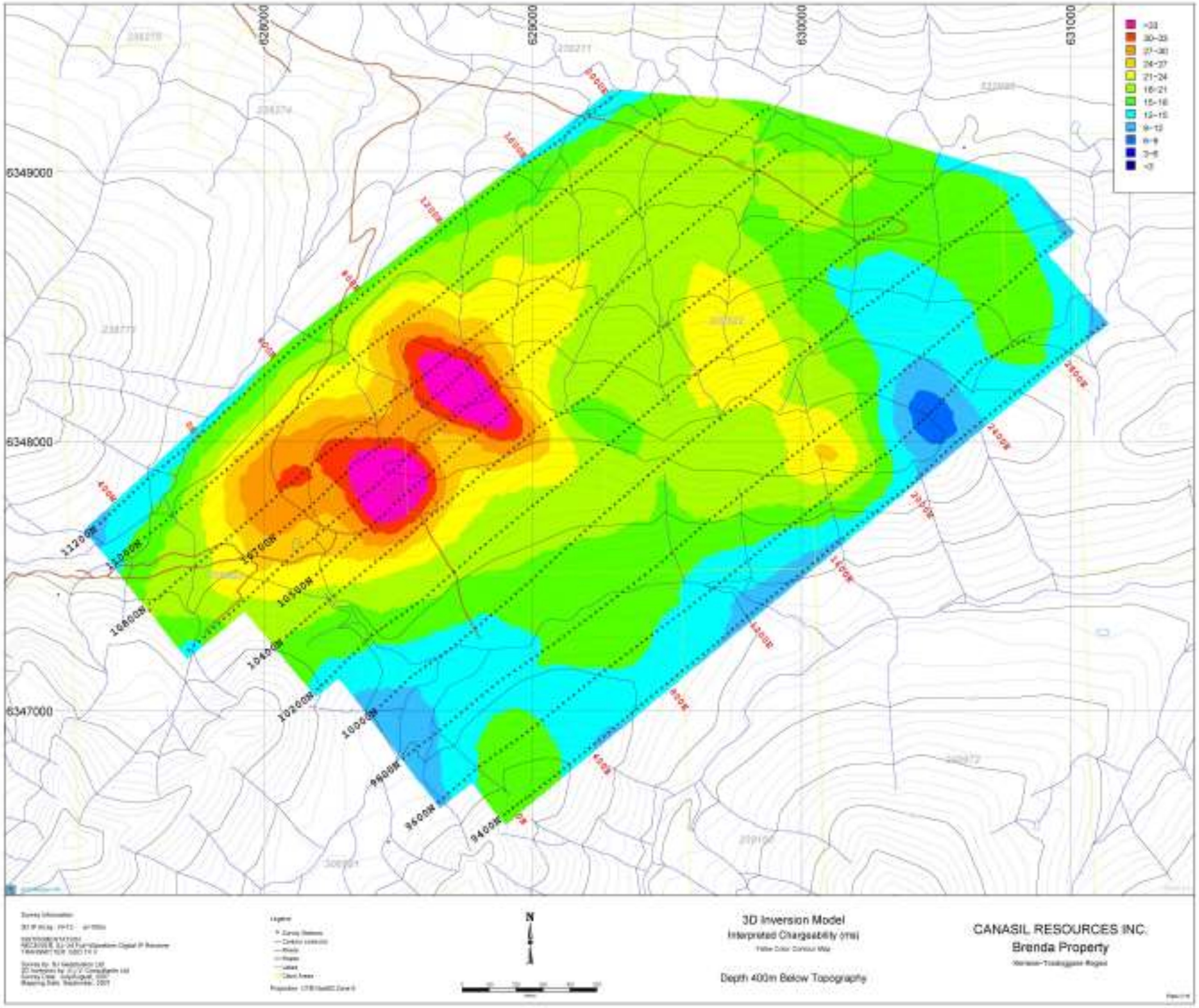


Figure 6-3: Chargeability plan, 400m depth, White Pass zone, Brenda Project

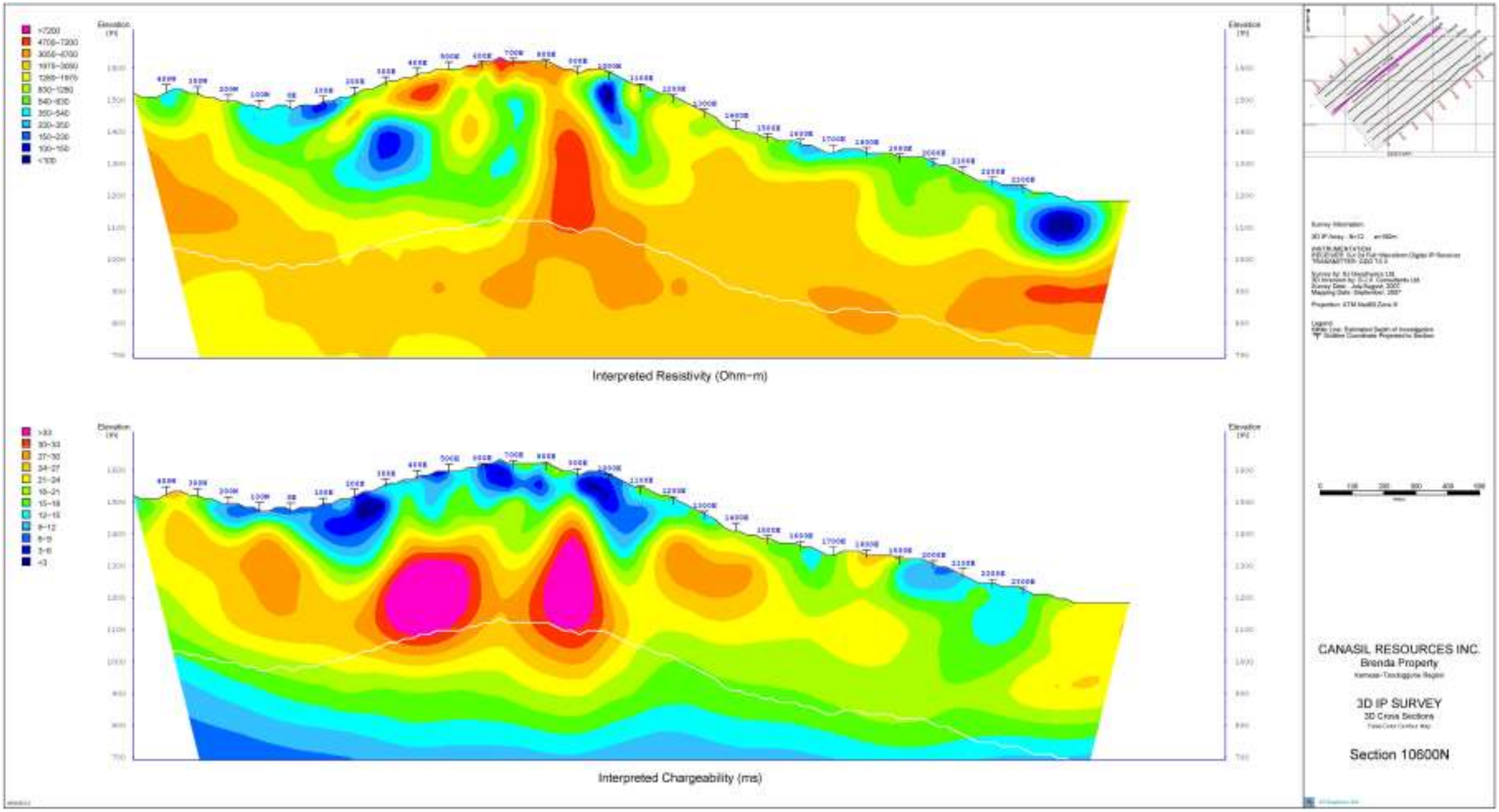


Figure 6-4: Chargeability and Resistivity Cross-section (10600 N), White Pass zone, Brenda Project

Canasil Resources Inc. 2013

The 2013 exploration program consisted of one deep NQ-diameter diamond drillhole designed to test the central White Pass area at a depth not previously assessed. Drillhole BR-13-01 was collared within 2m of the collar location of 2007 drillhole BR-07-04 and drilled to a depth of 962.6m (Figure 6-5). The two holes had the same azimuth (054°) and dip (-75°). The entire length of core from drillhole BR-13-01 was logged, but the upper 500m of the hole was not sampled as it was assumed to twin drillhole BR-07-04. The lower section of the hole, from a depth of 500m to its end at 962.6m, was sampled and assayed in its entirety. A total of 259 samples (including geochemical blanks and standards and duplicate pairs) were collected and analyzed. Drill assay results of note from drillhole BR-13-01, along with the lower part of drillhole BR-07-04, are listed in Table 6-3. Drillhole sections are shown in Figures 6-6.

Drillhole BR-13-01 encountered primarily phyllic-altered clastic volcanics from a depth of 504.0-530.4m. The volcanics are in faulted contact with quartz monzonite that extend to a depth of 571.2m. Weak, patchy potassic alteration occurs from 504.0-571.2m carrying scarce quartz stringers and modest quartz stockwork zones with up to 5% pyrite that coincide with gold-copper mineralization. Grades drop off abruptly at 571.2m where the quartz monzonite is truncated by a post-mineral monzonite dyke. Similar post- mineral monzonite dykes, typically reddish brown, sparsely propylitic and weak propylitic-altered, dominate the hole to a depth of 719.8m. Weakly mineralized quartz monzonite extends from 719.8-766.6m, but is also truncated by post-mineral monzonite dykes from 766.6-831.0m. Potassic-altered quartz monzonite with quartz-magnetite stringers extends to 854.6 where it is in contact with moderately potassic-altered clastic volcanics. The altered volcanic sequence is again interrupted by post-mineral monzonite dykes at a depth of 896.7m; they dominate the hole to its terminus at a depth of 962.6m.

The highest grade intersection in drillhole BR-13-01 returned 0.376 g/t Au and 0.073% Cu over 68m from 504-572m. This intersection was, however, significantly lower in average grade than the equivalent section of drillhole BR-07-04 between 504-562m. The deeper part of drillhole BR-13-01 was dominated by post-mineral monzonite dykes that, unless carrying inclusions of older mineralized quartz monzonite or volcanic rock, were effectively barren. Intervals of weakly potassic-altered clastic volcanics and quartz monzonite below a depth of 562m returned relatively low copper grades and weak gold grades.

The upper part of drillhole BR13-01 twinned drillhole BR-07-04 (total depth of 561.96m), enabling for direct comparison with the bottom 62m of BR07-04; the lower part of drillhole BR-13-01 provided new data for depths not previously explored on the Project. The average grade of that interval in BR13-01 was approximately half that returned in BR-07-04. The reasons for this marked difference are uncertain, but one possibility is that BR-13-01 did not accurately twin BR-07-04 due to deviation of the drillhole at depth.

Drillhole BR-13-01 encountered weakly anomalous gold-copper mineralization below the depth of drillhole BR-07-04. The 2013 drillhole may have passed into a non-mineralized portion of the system and missed flanking mineralization. Drill testing at depth laterally to the area tested by BR-13-01 may be warranted. In order to better define other potential drill targets, deep sensing 3D geophysical surveys, such as the Titan 24 DCIP (Direct Current resistivity and Induced Polarization chargeability) and MT (Magnetotelluric resistivity), should be considered. These surveys have been used effectively at the Copper Mountain and Kemess North projects in British Columbia. A program of approximately 10 line-km of ground-based geophysics and two deep follow-up diamond drillholes totaling 2000m was recommended (Lane, 2013).

Table 6-3: 2013 Drillhole Assay Composites, Brenda Project

Drillhole ID	From (m)	To (m)	Interval (m)	Au (ppm)	Cu (ppm)	Ag (ppm)
BR-13-01	504.0	572.0	68.0	0.376	735	3.38
and	720.0	766.0	46.0	0.047	306	1.87
and	832.0	896.0	64.0	0.034	525	1.52
and	930.0	942.0	12.0	0.015	442	0.87
BR-07-04	504.00	561.96	57.96	0.707	1190	-

Figure 6-5: Drilling of hole BR-13-01, Brenda Project

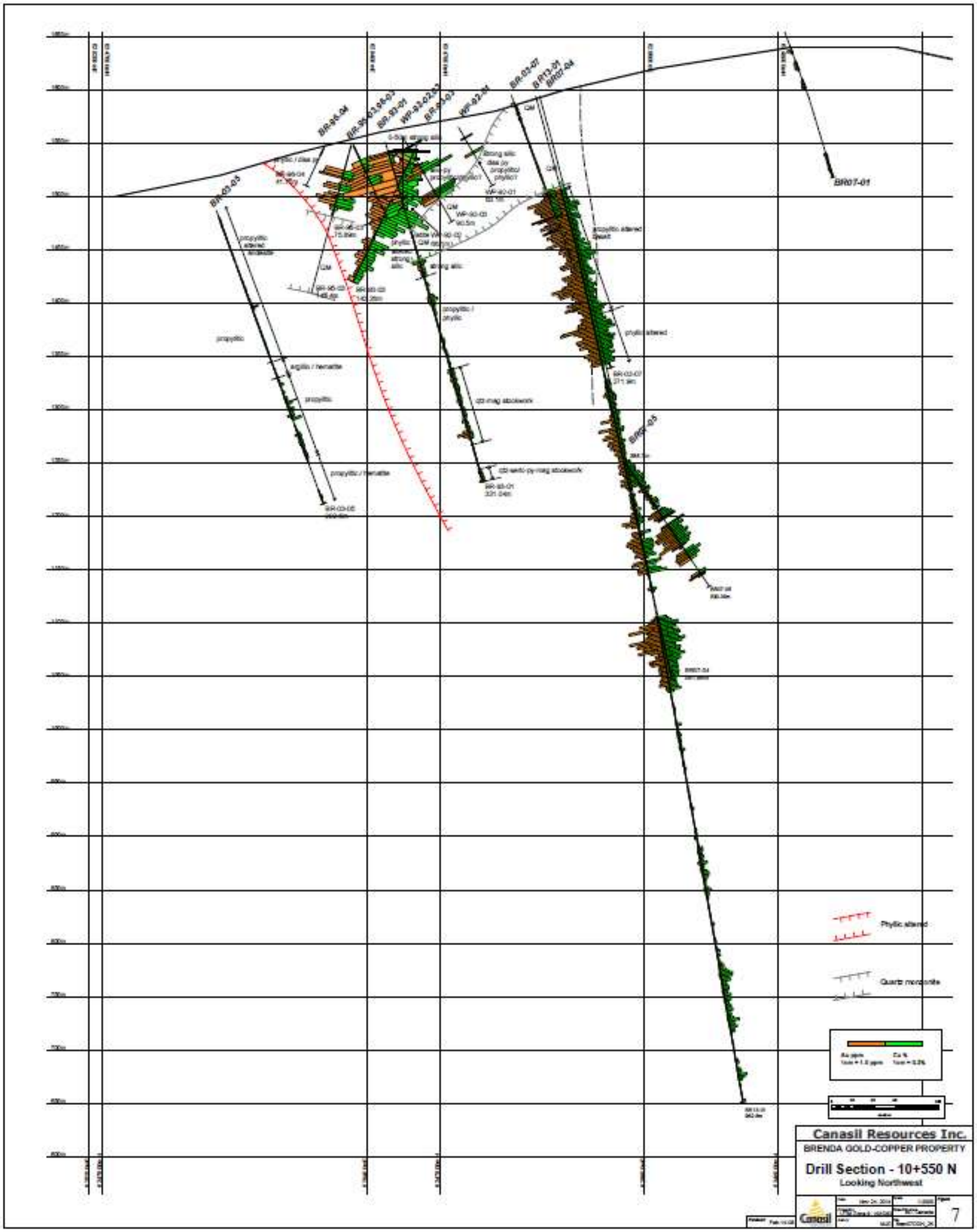


Figure 6-6: Drillhole BR-13-01, Section 10550 N, White Pass zone, Brenda Project

Canasil Resources, Inc. 2016 – 2017

In mid-2016, Canasil retained Wade Barnes to conduct a desktop study and create a three-dimensional geological model. Barnes had worked on the Kemess cluster of deposits and brought considerable familiarity with the geology of the Toodoggone-Kemess district. He did not examine core; his study was based on core photos, geological logs and assays. His work, summarized in Barnes (2017a, 2017b), included the following:

- Re-interpretation of drilled lithology from core photos and assays to resolve consistencies between adjacent holes.
- Distinguishing post-mineral dykes from mineralized Black Lake intrusive suite rocks. Barnes modelled eight northwest-trending post-mineral dykes.
- Modelled Au-mineralized zones in three dimensions using cutoffs of 0.1 and 0.4 g/t.
- Examined correlations of Au and Cu grades with Zn and Ag, making comparisons with other Zn-Ag enriched Au-Cu zones as at Kemess and Kwanika.
- Examined correlations of Au grades with chargeability anomalies.
- Modelled multi-element soil and downhole geochemistry using the porphyry elemental zoning model of Halley et al. (2015). Recommended drilling targets northeast and east of the known White Pass zone based on subsurface geochemistry, and a second target ("Target 2" herein) to the northeast based on Mo, Zn, Bi and As soil anomalies.

Canasil Resources, Inc. 2019 – 2020

In late 2019, Canasil contracted geologic consultant K. Brock Riedell to undertake a desktop evaluation of the Brenda project and make recommendations for further exploration. He did not have the opportunity to visit the Brenda Project during his review. His study, summarized in Riedell (2019), included the following:

- Review of relevant sections of reports by Panteleyev (2006) and Lane (2017), as well as petrographic reports by PetroScience Consultants (2007) and Vancouver Petrographics (2012).
- Compilation and interpretation of surface soil geochemistry, including standard porphyry metal ratios such as Mo/As, Pb/Cu, and Ag/Au.
- Compilation of drilling data; preparation of geologic and assay strip-logs, cross- and long-sections, and level plans, emphasizing the White Pass zone, using Geosoft Target™ software.
- Application of the MDRU Porphyry Index or MPIx (Bouzari et al., 2019) to both soil and drilling analyses to vector towards higher grade Cu-Au. This index was developed by researchers at the University of British Columbia's Mineral Deposits Research Unit (MDRU), based on the porphyry elemental zoning model of Halley et al. (2015). It ratios those elements near the porphyry Cu orebody (Cu. Mo, W, and Sn) against those

occupying higher levels of the system (Ag, As, Sb, Tl, and Li). The individual elements are factored up or down so that each has approximately the same impact on the final ratio. Minor modifications were required due to high detection limits in the Brenda data; W, Sn, Tl, and Li were omitted from the ratio, and Au substituted in the numerator.

- Review of core photos to define vectors based on porphyry-style quartz veining.
- Preliminary interpretation of results and identification of possible near-surface and deeper targets for continued drilling.
- Geologic logging of summary drill core from hole BR-13-01 (approximately one sample per 23m of drilling) and selected core intervals from BR07-04 (~20m) and BR07-05 (~17m).

7 GEOLOGICAL SETTING AND MINERALIZATION

7.1 INTRODUCTION

Regional bedrock mapping completed by the BC Geological Survey Branch (Diakow et al., 1993; 2005 and Diakow, 2001; 2004) and a regional airborne geophysical program completed by Geoscience BC in 2003 provided an important framework for understanding and interpreting the volcanic-dominated stratigraphy and suites of intrusions in the area.

7.2 REGIONAL GEOLOGY

The Project is situated in a Mesozoic volcanic arc assemblage within the Stikine terrane along the eastern margin of the Intermontane belt. The Project lies within the Toodoggone-Kemess district, a northwesterly trending belt of Paleozoic to Tertiary sedimentary, volcanic and intrusive rocks. The oldest rocks, or basement, are assigned to the Lower Permian Asitka Group, which are disconformably overlain by Upper Triassic Takla Group, which are in turn unconformably overlain by Toodoggone Formation of the Middle and Lower Jurassic Hazelton Group. To the west these assemblages are overlain by sedimentary rocks of the Upper Cretaceous Sustut Group. The lithologic units comprising the stratigraphic succession are summarized in Table 7-1.

Granitic rocks, mainly of Early Jurassic age, and cogenetic dykes intrude the volcanic successions. Phases of the Black Lake intrusive suite, which include granodiorite, hornblende diorite, pyroxene quartz-diorite, quartz-monzonite and quartz monzodiorite, are important hosts to gold-copper mineralization. Some of these plutonic masses are the Duncan Lake stock (197.3 Ma), the Sovereign stock (202.7 Ma) and the Maple Leaf pluton (199.6 Ma). The latter hosts the Kemess South gold-copper deposit. The regional distribution of Permian to Upper Cretaceous stratigraphy and intrusions (after Diakow, 2004) are shown in Figure 7-1. A legend for Figure 7-1 is provided in Figure 7-2.

7.3 STRUCTURAL SETTING

The Mesozoic volcanic-dominated assemblages are typically upright, shallow dipping sequences that are cross-cut by high-angle north to northwest trending faults. Significant regional structures are the Finlay-Ingenika and Moosevale fault systems, which bound the eastern margin of the belt. These structures are dextral strike-slip features and are related to the terrain bounding faults between the Intermontane and Omineca belts.

More local to the Brenda Project are the Pillar and Saunders faults, which are north-northwest normal, block fault structures. Low angle thrust faults are present in the district and are interpreted to be Eocene or younger with displacement believed to be towards the northeast.

The district is characterized by three superimposed volcanic arcs whose construction began in the upper Paleozoic. Marine volcanic and sedimentary successions dominated until the lower-middle Jurassic, when continental, quartz-normative volcanism began with the deposition of the Hazelton Group. The plutonic rocks of the Black Lake intrusive suite are coeval with the Toodoggone Formation and are likely co-magmatic. Block faulting has juxtaposed and exposed panels of varying depth from the magmatic and volcanic systems.

Gold and copper mineralization at the Brenda Project is associated with intense phyllic and potassic alteration that is centered on the White Pass area and has been traced by mapping, geophysical surveying and diamond drilling over a north-south trend for about 1000m. Argillic and quartz alunite alteration has been traced by mapping and trenching over an additional 750m to the north and to the south. The strong north trending alteration is thought to be related to a tensional fracture zone splaying off the northwest trending Pillar Fault which, on the Project, separates Takla rocks from Toodoggone rocks. The alteration zone extends further to the north and onto the Pil property where the Pillar Fault is associated with copper and gold mineralization.

Table 7-1: Regional Stratigraphy (after Diakow et al., 2005 and Diakow and Rhodes, 2005)

Age	Lithostratigraphic Unit	Description
Upper Cretaceous	Sustut Group	Sustut rocks grade from Brothers Peak Formation conglomerate, sandstone, mudstone with minor tuffaceous units down to the basal Tango Creek Formation polymictic conglomerate, sandstone, mudstone with minor lignite seams.
Middle & Lower Jurassic	Hazelton Group (Toodoggone Formation)	Consists of the Pillar, Graves, Quartz Lake, Saunders, Metsantan and Duncan members. Pillar member is a well-bedded, oxidized sequence dominated by clasts. Quartz Lake member is a conglomerate with finer clastic beds containing fine-grained porphyritic basalt clasts and pyroxene grains with minor basalt and rhyodacite flows. Graves member is a quartz-biotite bearing dacitic ash flow tuff deposit locally associated with rhyolitic flow and fallout facies. Saunders member is a dacite ash flow tuff with up to 45% plagioclase, quartz, hornblende and biotite. Metsantan member is an andesitic flow with 15-25% plagioclase or a coarse to medium-grained feldspathic sandstone sub-member with moderately well-sorted volcanic conglomerate and minor mudstone. Duncan member is a lapilli tuff interbedded with volcanic epiclasts or a poorly-sorted conglomerate submember marking the base of the Toodoggone formation.
Upper Triassic	Takla Group	Sequences of basalt distinguished by abundant plagioclase laths up to 3cm long. Upper layers generally display smaller plagioclase laths from 2-5mm long and up to 7% pyroxene. Fine to medium-grained porphyritic to aphanitic basalt with subordinate andesite flows containing medium-grained plagioclase and clinopyroxene phenocrysts are common. These flows occur both above and below the coarsely-bladed plagioclase porphyritic basalt. Intervolcanic, internally laminated intervals of siltstone and sandstone, containing angular grains of plagioclase and pyroxene are present; often with limestone lenses.

Age	Lithostratigraphic Unit	Description
Lower Permian	Asitka Group	Units of massive to thickly bedded limestone and chert or dacitic lapilli tuffs. Limestone units are locally interbedded with black, limy carbonaceous siltstone and mudstone and locally intruded by basaltic dikes and sills. Lapilli tuff units contain porphyritic andesite and dacitic flows and rare accretionary lapilli tuff.

7.4 PROJECT GEOLOGY

The most recent geological bedrock mapping of the Brenda Project (Figure 7-3) was conducted by Diakow et al. (2006) and Panteleyev (2006) and the information presented below is primarily a summary of their findings.

The northeastern two thirds of the Project are underlain by mainly porphyritic volcanic flows of the Metsantan member (Lower Toodoggone Formation). A large zone of hydrothermally altered Metsantan volcanic rocks, associated with porphyritic dyke swarms, punctuate the main area of exploration interest in the northern part of the Project. In the southwestern part of the Project volcanic rocks of the Takla Group are generally in fault contact with the Metsantan units or are intruded by a granitic pluton. The most westerly part of the Project is underlain by mainly ash flows of the Duncan member, the basal unit of the Toodoggone Formation.

7.4.1 Lithologic Units

The main lithologic map units present in map area, after Panteleyev (2006), are:

Volcanic Rocks

Pyroxene basalts of the Late Triassic Takla Group are generally porphyritic, coarse-grained augite phyric basalt flows that form dark green, well-jointed massive outcrops. Most flows contain epidote after calcic plagioclase and chlorite after mafic minerals. Rare amygdules contain epidote, quartz and chlorite.

Porphyritic volcanic flows (‘latite’) of the Metsantan Member (lower Toodoggone Formation of the Early Jurassic Hazelton Group) are the predominant volcanic unit in the map area. They contain 20-30% pink hematitic and albitized plagioclase phenocrysts accompanied by strongly chloritized hornblende (and possibly pyroxene), lesser biotite, rare quartz and rare, but pronounced, vitreous euhedral orthoclase crystals up to one centimetre in size. Outcrops commonly display pale pink phenocrysts in a pale to darker grey-green matrix, commonly with up to 5% epidote as discrete grains and fracture fillings. Argon-argon dating of typical flows from the southern part of the Project by Diakow et al. (2006) produced an apparent age of 194.1 ± 2.0 Ma. Dacitic ash flows occur locally as thin flow units in the Metsantan porphyry flow successions. The ash flows are pink, pale weathering quartz-rich crystal ash tuffs.

Subordinate grey-green dacitic crystal ash tuffs of the Duncan Member are characterized by pale brown-weathering plagioclase–phyric cognate fragments in a similar crystal ash matrix. Argon-argon dating on non-welded crystal-rich ash flow tuffs by Diakow et al. (2006) produced an apparent age of 198.9 ± 1.3 Ma.

Dykes

Three types of dykes are recognized on the Project. They are generally a few metres to tens of metres wide. From oldest to youngest they are:

Quartz monzonite: equigranular to weakly porphyritic, medium grained 'crowded' texture with 40-50% equant plagioclase from 1-2mm in size. Interstitial fine-grained minerals are hornblende, biotite and quartz. Alteration is primarily weakly chloritized mafic minerals and turbid plagioclase giving rise to chalky-weathering cream to buff-coloured feldspars. The dykes contain minor pyrite, have pale phyllic (illite/sericite) alteration envelopes and contain weakly anomalous gold values. They appear to be syn- to late mineralization intrusions. Three of these dykes trend northwesterly along the northern slope of the White Pass ridge alteration zone.

Hornblende feldspar porphyry (monzonite/quartz monzonite): typically pink to reddish-orange matrix when oxidized with equant pink, hematitic and albitized plagioclase phenocrysts. Chloritized hornblende and rare fine-grained quartz grains and possibly biotite are present. Epidote occurs as a characteristic alteration product, mainly as disseminated grains and patches, and less commonly in veinlets and fracture fillings. These are the most common type of dyke on the Project. In the White Pass/Camp Creek area the dykes trend dominantly northwest- to north-northwesterly.

Syenite/monzonite: 15-20% equant, pale grey to cream plagioclase phenocrysts up to 3 mm in size occur in a brick-red microcrystalline matrix. Thin laths of hornblende up to 2 mm in length and fine-grained biotite comprise up to 8% of the rock. These rocks form coarse blocky jointed, resistant outcrops. An argon-argon date from a porphyritic monzonite dyke of apparently this type, from eastern White Pass ridge, is reported to have an age of 187.3 ± 1.2 Ma (Diakow et al., 2006).

Minor dyke types include very fine granular to weakly amygdaloidal basalt dykes, rarely more than one metre wide. A few dykes of biotite-quartz-potassium feldpsar porphyry are present and may be genetically associated with dacitic ash flows.

Stocks

One large stock and one smaller stock of pale grey to pink, relatively unaltered looking quartz monzonite/granodiorite are composed of medium- to coarse- grained feldspars and quartz with biotite and hornblende. They are considered to be part of the Black Lake intrusive suite.

Compositions of Black Lake intrusive suite rocks

John G. Payne made a petrographic study (Vancouver Petrographics, 2012) of 14 samples from drill holes in the White Pass area, four of which had been logged as Black Lake intrusive suite rocks. Compositionally his samples range from diorite to monzodiorite, quartz monzodiorite, and quartz monzonite. These limited data strongly indicate a high-K calc-alkalic trend, which is broadly equivalent to the monzonitic Cu-(Mo-Au) suite of porphyry systems as classified by Seedorff et al. (2005).

7.4.2 Structure

Regional scale faults in the central Toodoggone-Kemess district are typically north- to northwesterly-trending (Diakow et al., 2006). The areas between these faults are commonly cut by westerly-trending structures that are consistent with block faulting in an extensional setting. More local to the Project are the Pillar and Saunders faults, which are north-northwest trending normal, block fault structures. On the Project, the Pillar Fault separates Takla volcanic rocks from those of the younger Metsantan succession. A well-developed 2.5km north-trending argillic-phyllic-potassic alteration zone, with associated gold and copper mineralization, is thought to be related to a tensional fracture zone splaying off from the northwest trending Pillar fault.

Low angle thrust faults are also present in the district and are interpreted to be Eocene or younger with displacement believed to be towards the northeast.

A number of smaller faults are defined by narrow zones of sheared, shattered and strongly clay-altered rocks. Basalt dykes have been injected into some of these structures which typically dip 50-65° W.

The Metsantan volcanic succession rarely displays bedding. A single bedding measurement near Jock Lake indicates a southwesterly dip of about 45 degrees, and is compatible with the 20-45 degree dips observed throughout the Toodoggone-Kemess district. Dykes cutting Metsantan rocks on the Project are generally steeply dipping and most strike north- to north-northwesterly. Dykes in Takla volcanic rocks in the southwestern part of the Project appear to trend predominantly to the northeast.

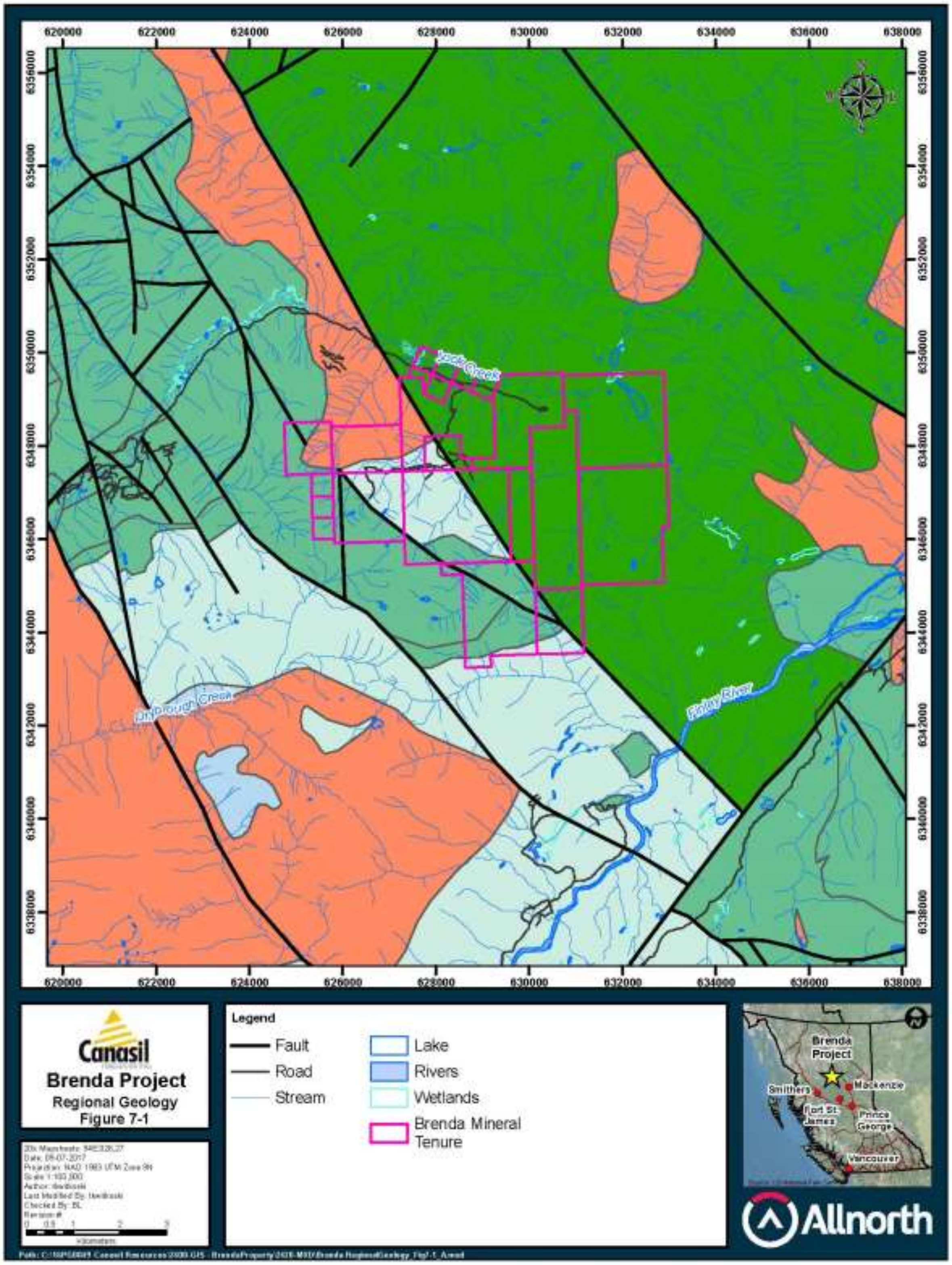
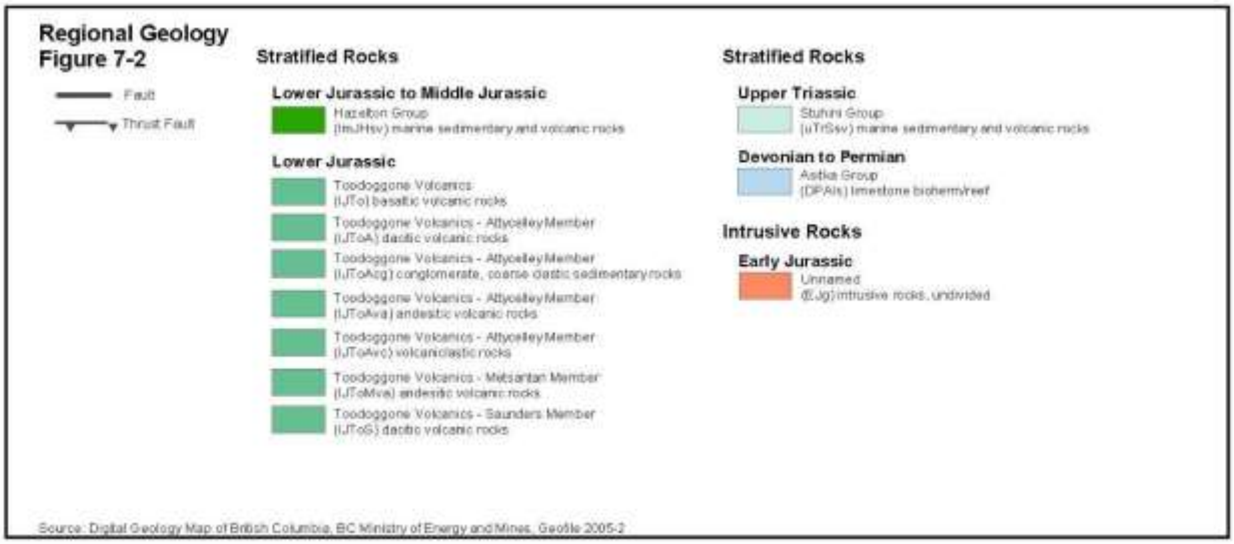


Figure 7-1: Regional Geology in the vicinity of the Brenda Project (after Diakow, 2004)



Source: Digital Geology Map of British Columbia, BC Ministry of Energy and Mines, Geofile 2005-2

Figure 7-2: Legend for Figure 7-1

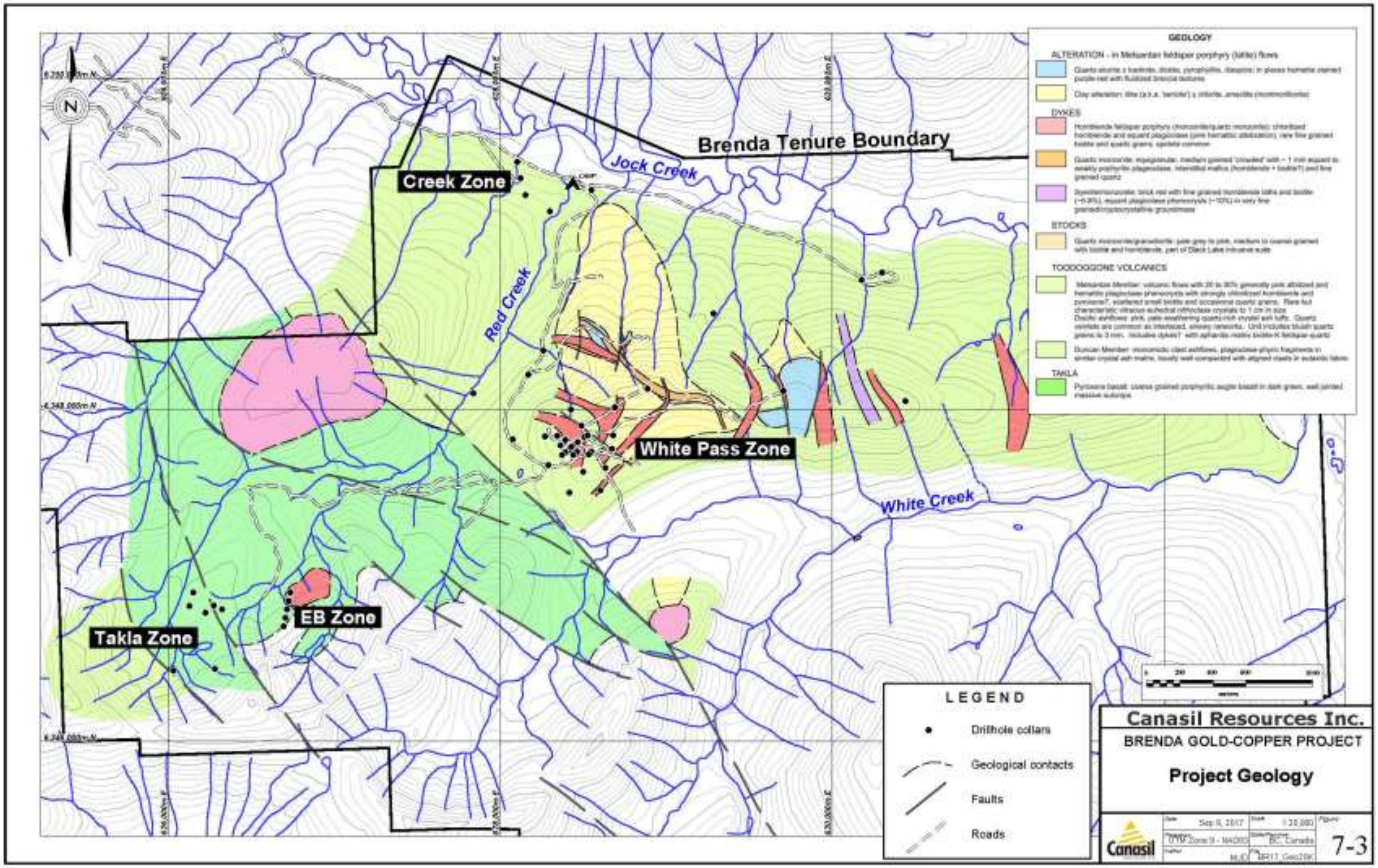


Figure 7-3: Geology of the Brenda Project (after Panteleyev, 2006)

7.4.3 Alteration and Mineralization

Alteration

In the northern part of the Brenda Project a widespread propylitic alteration zone consisting of illite, chlorite, epidote, carbonate and gypsum with disseminated pyrite, is surrounded and locally overprinted, by a distal zone with fracture fillings containing pink zeolite (laumontite) and carbonate minerals.

Propylitic alteration of the Metsantan flows and dykes has left the rocks with a characteristic spotted or speckled appearance. The pale grey-green matrix contrasts with subhedral grains, small irregular patches and fracture fillings of pistachio-green epidote and phenocrysts of grey to pink plagioclase. Chlorite with minor epidote has typically replaced mafic minerals. Veins of gypsum are common. Fracture fillings and veinlets containing calcite, pink zeolite (laumonite) and, rarely, pale purple anhydrite, also occur.

In the central White Pass area of the Project, a north-trending argillic-phyllic-potassic alteration zone, associated with gold and copper mineralization, occurs over a distance of about 2.5km. It is dominated by argillic alteration with irregular flat lying areas of quartz + alunite along dyke margins. Drilling beneath the north and south extremities of the argillic-quartz alunite alteration has intersected phyllic alteration suggesting that the argillic alteration is supergene. Drilling under the central portion of the argillic alteration at the top of White Pass has intersected a vertical central zone of potassic alteration averaging 300m thick, but reaching >800m thick in BR-13-01. The potassic zone is characterized by biotite ± chlorite replacing primary hornblende phenocrysts, with secondary K-feldspar and magnetite becoming relatively more important at depth. Granular quartz-sulphide±magnetite veins reach 10-15 percent of the rock and commonly form subparallel sheeted sets. The potassic zone is enveloped by phyllic alteration that averages 150m thick. Based on skeleton core from BR-13-01, the central zone is cut by common late gypsum veinlets extending to depths of approximately 250m. Similar sulphate zoning is typical in many porphyry systems; the gypsum veinlets are interpreted to form from supergene hydration of anhydrite in earlier veinlets (Gustafson and Hunt, 1975; Seedorff et al., 2005).

The most extensive development of the quartz-alunite-aluminosilicate alteration forms a white, sub-horizontal zone that caps the phyllic-potassic altered gold-copper zone. The ridge capping is comprised predominantly of massive fine-grained quartz-dickite-alunite with inclusions of foliated breccia near the outer margins.

Mineralization

Low sulphidation epithermal gold-silver mineralization and gold-copper porphyry mineralization are recognized on the Brenda Project. The two styles of mineralization are distinct, but are likely genetically-related. The Takla and EB zones are located in the headwaters of Red Creek, the Creek zone is located in the valley bottom immediately south of Jock Creek, and the White Pass zone is situated on a high-standing ridge about 1.5km south of Jock Creek.

Takla Zone

The Takla zone is characterized by quartz-chalcedony breccias, quartz veinlets and zones of silicification within andesitic volcanic rocks of the Takla Group. The area measures at least 200m long by 40-60m wide. The veins consist of colorless to pale grey quartz and chalcedony that strike northeast and east with steep variable dips. Banding and cockscomb textures are common. The veins contain from 1-10% euhedral pyrite. Minor amounts of chalcopyrite, galena and sphalerite occur in some veins. Late-stage calcite occurs in the centre of some veins. Epidote occurs as fracture fillings peripheral to the quartz-chalcedony breccia zones (Weishaupt, 1987).

At the Takla showing, six select grab samples collected along a 14m width returned values ranging from 0.34 to 1.52 oz/ton Au and 1.13 to 37.09 oz/ton Ag (Weishaupt (1989). These values coincide with a resistivity anomaly which is more than 490m in length. The highest grade intersection from 1988 drilling of the zone returned 0.710 g/t Au and 9.50 g/t Ag over 1.37m in drillhole Tak-88-8 (Weishaupt, 1989). No work has been done on the Takla zone since 1988. The Takla zone was not visited by the writer during his field visit.

EB Zone

The EB zone consists of a large quartz stockwork and breccia zone within pyritic, augite phyric grey-green andesite of the Takla Group. The zone is oriented 008/68-82°E and has been exposed by trenching for approximately 24m by 4-6m (Figure 7-4). Assay results from 1m chip samples taken across the strike of the zone returned values that ranged from 99-4920 ppb Au and from 3.7-138.2 ppm Ag (Weishaupt, 1991). Seven holes drilled on the zone in 1992 failed to intersect encouraging grades of mineralization. The highest assay value was 0.675 g/t Au and 6.5 g/t Ag over 1m in drillhole EB-92-04 (Weishaupt, 1993). No work has been done on the zone since 1992.

Creek Zone

The Creek zone is centered near the Brenda camp (Figure 7-5), and measures approximately 1000m northwest by 300m northeast. The zone is underlain by silicified green andesite to dacite crystal tuffs of the Toodoggone Formation. They are cut by quartz fractures and veinlets carrying variable amounts of pyrite, sphalerite, galena and chalcopyrite. In 1986, chip samples from hand-dug trenches and core samples from short ‘winkie’ test holes returned values ranging from 1-640 ppb Au and 0.4-135.5 ppm Ag. In 1988, results from limited chip sampling in machine-excavated trenches included a 6m averaging 0.187 g/t Au, 0.169% Cu, 6.9 g/t Ag, 37 ppm Mo, 0.09% Pb and 1.25% Zn. Four 1988 drillholes returned background to weakly anomalous results for gold, copper and silver. In 1992, Canasil drilled two holes on the Creek zone; drillhole CR 92-01 contained an interval (from 5.2-7.2m) that assayed 0.359 g/t Au, 0.044% Cu, 26.8 g/t Ag, 0.29% Pb and 0.66% Zn (Weishaupt, 1993). Three additional holes drilled on a potential eastern extension of the zone in 1995-1996 did not produce encouraging results.

The relatively high grades of zinc and lead are characteristic of the Creek zone, while silver and molybdenum values in are not insignificant. No work has been done on the zone since 1996. The Creek zone was not visited by the writer during his field visit.

Figure 7-4: Trench exposing mineralization, EB zone, Brenda Project

Figure 7-5: Looking northwest toward the Creek zone, camp and core storage areas, with area of argillic alteration in foreground, Brenda Project

White Pass Zone

The White Pass zone is marked by a conspicuous colour anomaly (Figure 7-6) and is characterized by a central zone of strongly potassic-altered latite and monzonite with narrow copper-gold-mineralized quartz-magnetite stockworks. The potassic-altered zone is capped by a conspicuous zone of argillic alteration and surrounded by an intense phyllic (quartz-sericite-pyrite) alteration that averages 100-150m in width and carries weak gold-copper mineralization. The potassic-altered gold-copper zone has been traced by drilling over a strike length of 1,000m northeast-southeast, width of 400m and depth of 560m. The deep mineralization is open along strike and to depth. A 3D-IP geophysical survey completed over the area suggests that the mineralization extends for at least 1000m along strike. Sulphide mineralization also occurs beneath and surrounding the large quartz-alunite cap located 1000m to the east.

The White Pass zone is cut by a swarm of eight or more, 8-45m thick post-mineral monzonite dykes with an average orientation of 132/77°SW. The dykes have bleached and altered the potassic and phyllic-altered areas to a pale green siliceous sericite-pyrite rock, and have lowered the grades near the dyke contacts. Locally the post mineral dykes have assimilated sections of the potassic quartz–magnetite stockwork. Skeleton core from BR-13-01 and BR07-04 suggests that some intervals logged as post-mineral dykes are veined and sulphide-mineralized, and are in fact late-mineral rather than post-mineral.

A bedrock geology and alteration plan map of the White Pass zone (after Nordin and Lane, 2008 and Panteleyev, 2006) is shown in Figure 7-7.

In the potassic alteration zone, mineralization consists mainly of well-developed 1-5mm quartz± magnetite±pyrite±chalcopyrite veinlets, locally with epidote, that have formed sheeted sets and stockworks (Figures 7-8 and 7-9). Veinlets are not as prominent in propylitic and phyllic alteration zones, but do contain pyrite and minor chalcopyrite as fine-grained disseminations and clots. Veinlets of gypsum are widespread in both propylitic and argillic alteration zones. Anhydrite occurs in short veins and irregular dilational openings, especially in the phyllic alteration zone.

In the phyllic alteration zones, sulphide mineralization consists mainly of widespread 2-3% disseminated pyrite, but can exceed 10% when present as grains in quartz+/-magnetite veinlets, on fractures and as patchy, fine-grained replacements. Chalcopyrite is erratically distributed and occurs in small aggregates and in quartz+/-magnetite veinlets. Molybdenite was noted as rare small grains in quartz veinlets. Dark brown to black sphalerite and lesser galena occur as disseminations and as fracture fillings primarily in a zone 500m wide that encompasses the phyllic and propylitic alteration zones, resulting in a broad zinc-lead geochemical halo.

Zones of gold and copper mineralization are dissected and diluted by the barren to low-grade, younger porphyritic monzonite dykes resulting in what has been modeled as alternating intervals, or panels of well-mineralized volcanic rock separated by panels of late- to post-mineral, unmineralized to weakly mineralized dyke rock. Mineralized drillhole intersections from the White Pass zone are shown in Tables 7-2 and 7-3. Typical intersections in the better grade core are approximately 50m thick, averaging 0.15-0.2% Cu and 0.5-1.0 g/t Au.

Figure 7-6: Looking northeast at the White Pass zone, Brenda Project

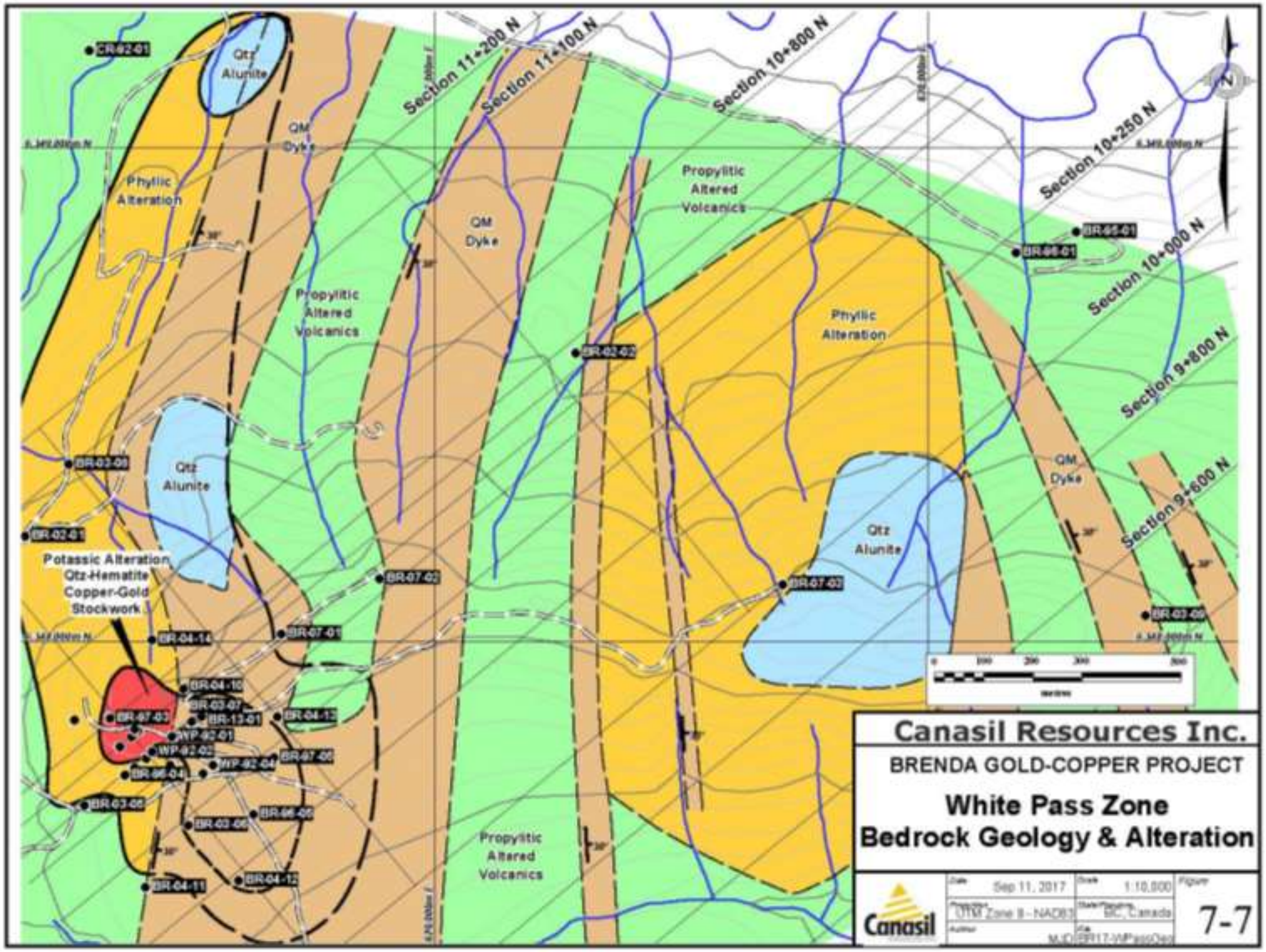


Figure 7-7: Bedrock geology and alteration map of the White Pass area, Brenda Project

Figure 7-8: Quartz-magnetite-pyrite-epidote veinlets in potassic-altered latite (top: hole BR-03-07@165.95m) and quartz-magnetite±pyrite stockwork in hematite-dusted, weakly potassic-altered to phyllic-altered latite (bottom; hole BR-07-04@226.00m)

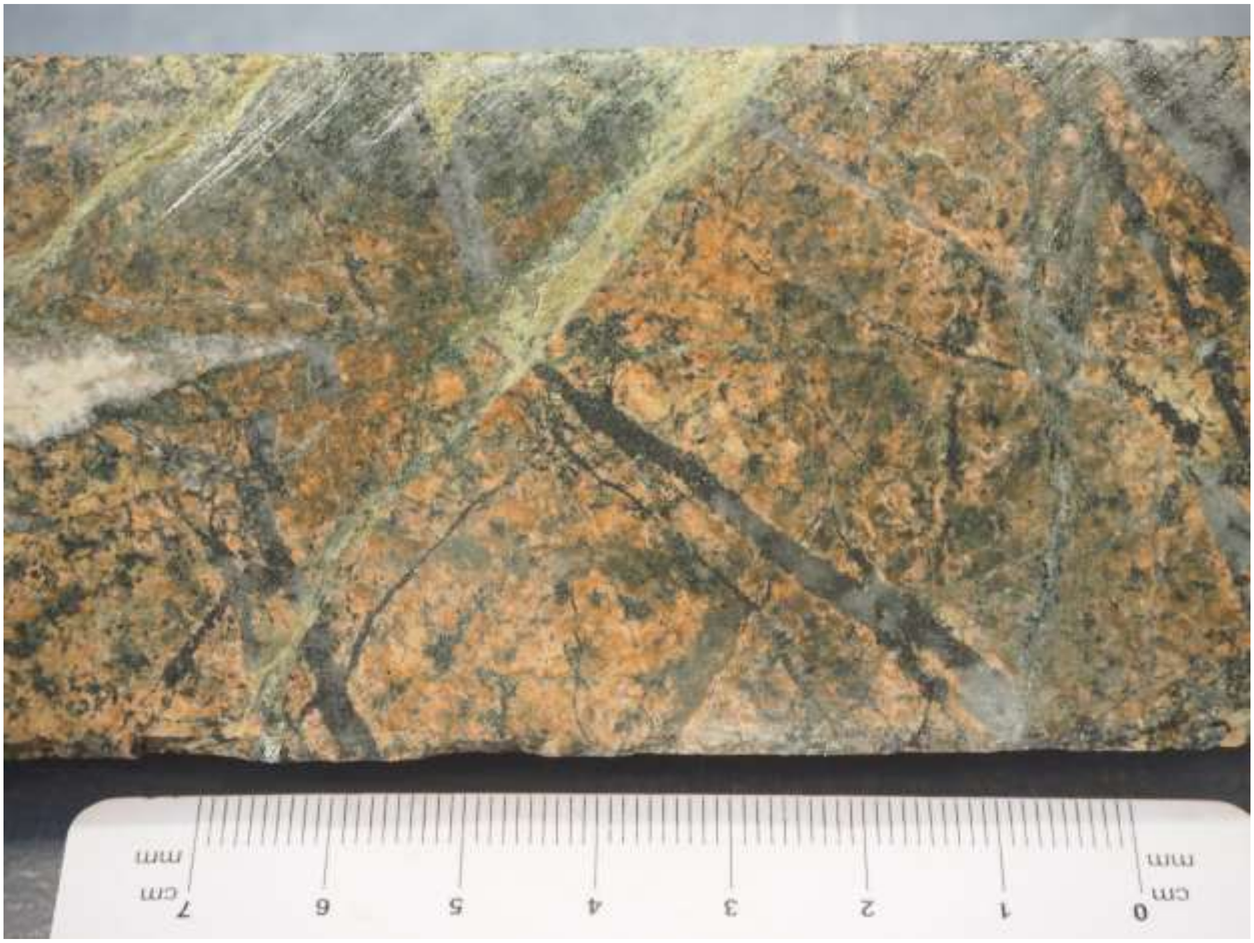


Figure 7-9: Potassic-altered monzonite cut by magnetite-rich granular quartz veinlets, in hole BR-13-01@725.0m.

Table 7-2: Gold drillhole intersections, White Pass zone, Brenda Project

Hole	From (m)	To (m)	Interval (m)	Au_(g/t)	Cu_(%)	Mo (ppm)	Ag (g/t)
WP-92-04	16.40	43.00	26.60	0.915	0.028	28.50	3.04
BR-93-01	9.14	57.00	47.86	1.100	0.130	11.61	4.76
BR-93-02	16.00	44.00	28.00	0.529	0.034	31.21	0.81
BR-93-02	74.00	134.00	60.00	0.478	0.073	18.23	0.27
BR-93-03	12.20	52.00	39.80	0.626	0.093	14.56	1.34
BR-93-03	55.00	91.00	36.00	0.538	0.237	12.08	1.44
BR-96-02	5.18	60.04	54.86	0.835	0.097	8.67	7.27
BR-96-02	102.71	123.13	20.42	0.593	0.107	ND	ND
BR-96-03	15.54	41.75	26.21	0.918	0.096	ND	ND
BR-96-03	50.90	75.89	24.99	0.465	0.187	ND	ND
BR-96-07	7.30	69.80	62.50	0.832	0.139	ND	ND
BR-97-01	148.00	172.80	24.80	1.120	0.133	11.03	4.47
BR-97-02	17.35	90.50	73.15	0.848	0.108	11.08	2.83
BR-97-05	5.20	47.70	42.50	0.578	0.025	30.92	1.48
BR-03-06	70.10	92.90	22.80	0.459	0.153	8.22	3.11
BR-03-06	95.40	117.10	21.70	0.584	0.114	9.86	2.92
BR-03-07	102.50	134.50	32.00	0.695	0.084	16.83	2.85
BR-03-07	135.60	155.90	20.30	0.502	0.079	13.07	4.43
BR-03-07	177.90	200.10	22.20	0.765	0.068	18.34	3.18
BR-03-07	214.70	258.10	43.40	0.612	0.097	13.49	5.01
BR-04-10	94.50	137.00	42.50	0.570	0.032	17.26	4.24
BR-04-10	163.00	199.00	36.00	0.547	0.039	21.44	2.58
BR-04-10	269.00	313.00	44.00	0.522	0.022	18.60	1.68
BR-04-14	404.00	442.00	38.00	0.676	0.024	62.71	1.39
BR07-04	110.00	146.00	36.00	0.428	0.072	17.92	2.64
BR07-04	174.00	198.00	24.00	0.671	0.070	20.00	2.45
BR07-04	200.00	260.00	60.00	0.592	0.109	14.43	4.29
BR07-04	320.00	342.00	22.00	0.464	0.039	19.64	2.46
BR07-04	504.00	560.00	56.00	0.722	0.122	10.00	3.82
BR07-05	110.00	133.91	23.91	0.433	0.080	8.34	1.74
BR07-05	142.00	186.00	44.00	0.825	0.129	9.77	3.65
BR07-05	336.11	386.00	49.89	0.562	0.061	15.82	7.57
BR07-05	459.52	483.90	24.38	0.672	0.112	16.30	6.39
BR-13-01	506.00	566.00	60.00	0.403	0.074	8.90	3.32

Note: Intercepts composited using a minimum thickness of 20m averaging >0.4 g/t Au.

Table 7-3: Copper drillhole intersections, White Pass zone, Brenda Project

Hole	From (m)	To (m)	Interval (m)	Au (g/t)	Cu (%)	Mo (ppm)	Ag (g/t)
BR-03-06	58.9	120.8	61.9	0.440	0.128	9.35	2.82
BR-03-07	212.8	254.3	41.5	0.613	0.106	12.73	5.37
BR-93-01	26.56	59	32.44	1.055	0.176	9.76	5.64
BR-93-02	234	254	20	0.745	0.131	11.30	0.73
BR-93-03	37	94	57	0.526	0.211	11.74	1.20
BR-93-03	100	127	27	0.299	0.111	14.44	0.10
BR-96-02	41.75	72.23	30.48	0.615	0.178	ND	ND
BR-96-02	83.51	131.97	48.46	0.449	0.105	ND	ND
BR-96-03	32.61	75.89	43.28	0.497	0.149	ND	ND
BR-96-07	34.44	69.8	35.36	0.825	0.214	ND	ND
BR-97-01	127	172.8	45.8	0.790	0.111	9.51	3.61
BR-97-02	35.35	75.3	39.95	1.103	0.179	11.75	3.18
BR07-04	148	174	26	0.232	0.100	10.46	5.62
BR07-04	200	260	60	0.592	0.109	14.43	4.29
BR07-04	502	546	44	0.795	0.135	11.14	4.39
BR07-05	142	188.3	46.3	0.792	0.131	10.28	3.69
BR07-05	459.52	483	23.48	0.678	0.114	15.89	6.40

Note: Intercepts composited using a minimum thickness of 20m averaging >0.1% Cu.

8 DEPOSIT TYPES

In northern British Columbia porphyry copper deposits occur in the Quesnel and Stikine terrains, and in post-accretionary settings. They are classified into two principal types: alkalic and calc-alkalic, based on composition of host rocks, metal ratios, alteration types and presence or absence of quartz stockworks. The Brenda Project hosts mineralization that is consistent with the calc-alkalic porphyry deposit type, but is unusual in that gold predominates over copper. As in more typical calc-alkalic porphyry deposits, silver and molybdenum may be important. As noted in section 7.4.1, limited petrographic data on intrusive rocks at Brenda indicate a high-K trend, as in the nearby Kemess deposits as well as the Kerr-Sulphurets-Mitchell, Red Chris, and Tatogga deposits further northwest (Duuring et al., 2009, Dickinson, 2006; McKinley, 2006, Rees et al., 2015; Osatenko et al., in press). Similar high-K intrusions are related to large and relatively high- to high-grade Cu-Au ± Mo deposits worldwide, such as Bingham, Robinson, Grasberg, Ok Tedi and Bajo Alumbrera (Wilson et al., 2002; Rees et al., 2015).

Porphyry copper deposits are typically high tonnage (greater than 100 million tonnes) and low to medium grade (0.3–2.0% Cu; Sillitoe, 2010). They are the world's most important source of copper, accounting for more than 60% of the annual world copper production and about 65% of known copper resources. Porphyry copper deposits are an important source of other metals, most notably molybdenum, gold and silver.

Calc-alkalic porphyry deposits consist of mineralization that is relatively evenly distributed throughout large volumes of rock. These deposits are typically formed within a few kilometres of the surface from hydrothermal fluids in the range of < 150 - 300°C. Mineralization is spatially, temporally and genetically associated with hydrothermal alteration of the host rock intrusions and wall rocks. Intrusions range from coarse-grained phaneritic to porphyritic stocks, batholiths and dike swarms. Compositions range from quartz diorite to granodiorite and quartz monzonite, and can include multiple emplacement of successive intrusive phases and a wide variety of breccias. A generalized model for a classic calc-alkalic porphyry copper deposit is shown in Figure 8-1.

Alteration can consist of a central and early formed potassic zone, that commonly coincides with ore, that grades outward into an extensive, marginal propylitic alteration halo. These older alteration assemblages can be overprinted by phyllic (sericite+/-pyrite) alteration (Figure 8-2). Mineralization consists of stockworks of quartz veinlets, quartz veins, closely spaced fractures and breccias containing pyrite and chalcopyrite with lesser molybdenite and bornite; disseminated sulphide minerals are present, but generally in subordinate amounts.

Porphyry copper deposits commonly are centered on small cylindrical porphyry stocks or swarms of dikes (Panteleyev, 1995; Sillitoe, 2010). However, the geometry and dimensions of porphyry copper deposits vary greatly because of multiple factors including post-ore intrusions, a range of types of host rocks that influence deposit morphology, amounts of hypogene and supergene ore each of which has different configurations, and erosion and post-ore deformation including faulting and tilting. Deposit geometries are also determined by economic factors that outline ore zones within larger areas of low-grade, concentrically zoned mineralization.

The vertical extent of hypogene mineralization in porphyry copper deposits is generally less than or equal to 1 to 1.5 km (Sillitoe, 2010). The predominant hypogene copper sulphide minerals are chalcopyrite, which occurs in nearly all deposits, and bornite, which occurs in about 75% of deposits. Molybdenite, the only molybdenum mineral of significance, occurs in about 70% of deposits. Gold and silver, as by-products, occur in about 30% of deposits.

In porphyry copper deposits, the development of supergene, or secondary copper, mineralization occurs when low-pH groundwater dissolves copper from hypogene copper minerals in an oxidizing environment, and transports and re-precipitates the copper in the form of oxides, carbonates, silicates and or sulphides in a stable, low-temperature, reducing environment. In British Columbia, likely as a result of glaciation, most exposed porphyry deposits lack a supergene zone.

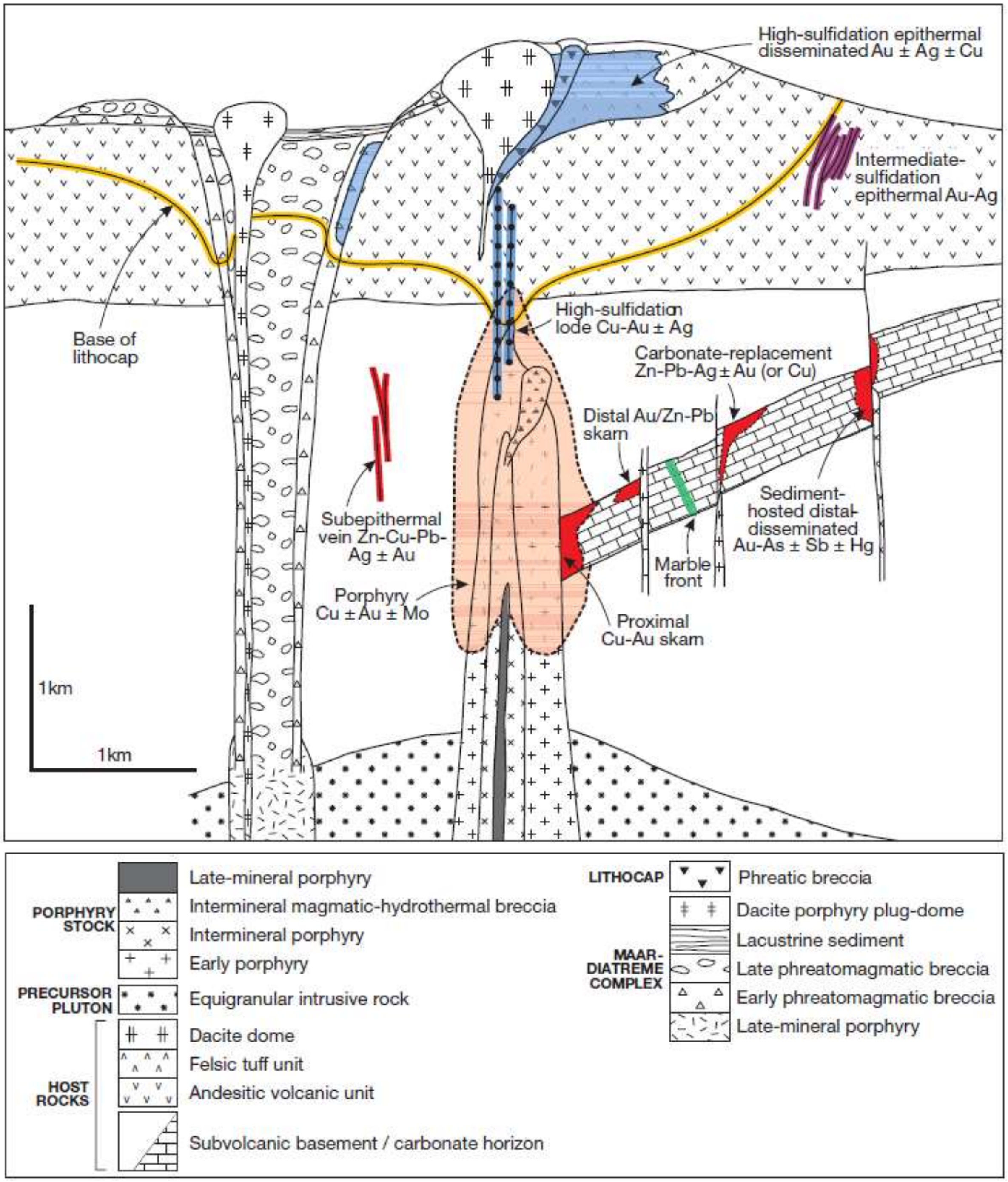


Figure 8-1: Generalized model for a telescoped porphyry copper system (after Sillitoe, 2010).

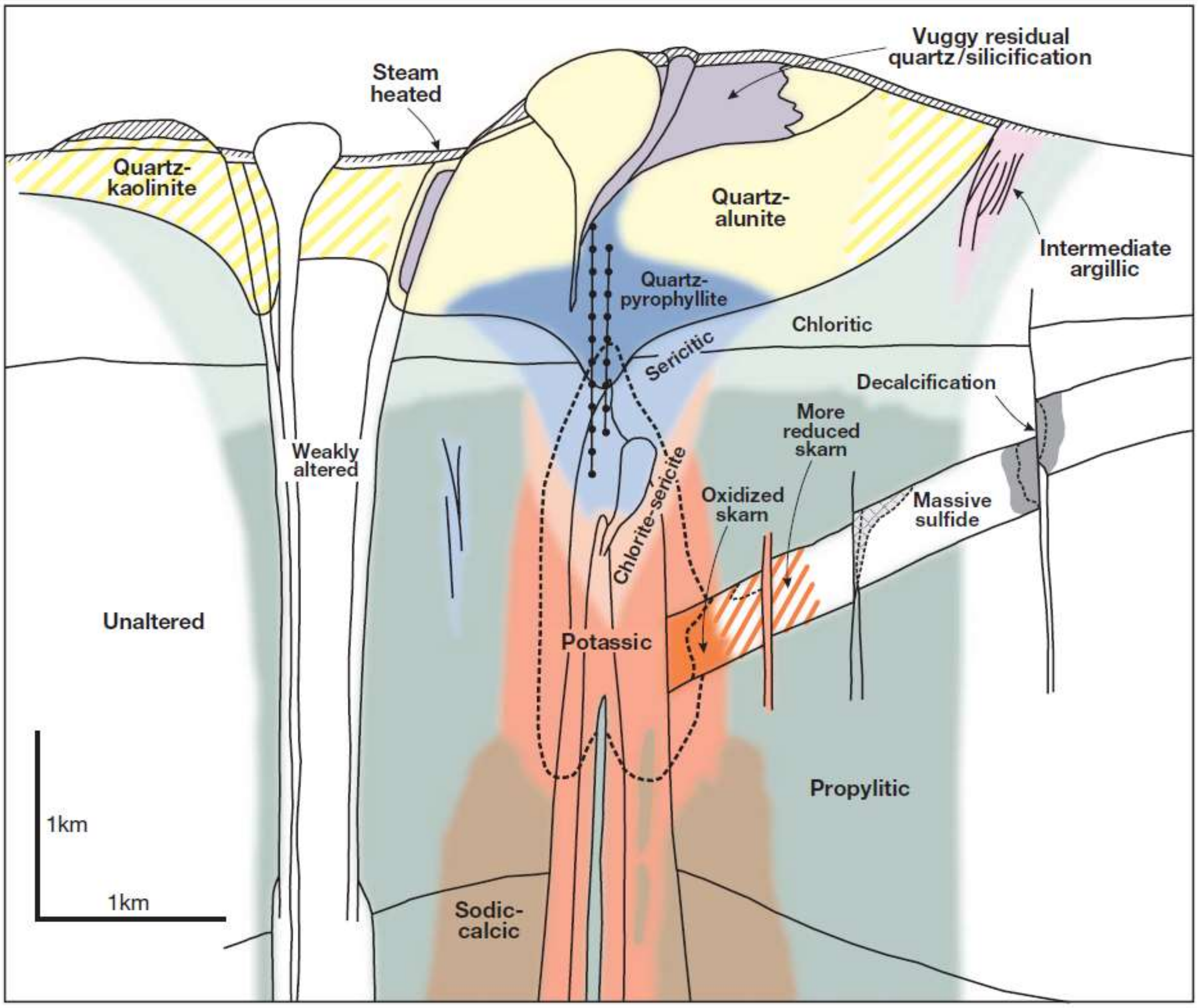


Figure 8-2: Generalized alteration-mineralization zoning for a telescoped porphyry copper system (after Sillitoe, 2010).

9 EXPLORATION

9.1 CURRENT EXPLORATION

Canasil is not currently conducting exploration on the Brenda Project.

9.2 PREVIOUS EXPLORATION, DATA COMPILATION AND MODELLING

Previous exploration on the Project consisted of prospecting, bedrock mapping, soil and rock geochemical sampling, aerial and ground-based geophysical surveys, trenching and diamond drilling. This work identified epithermal gold-silver prospects and porphyry gold-copper prospects. The exploration work was completed by a number of companies whose crews were under the direct supervision of professional geologists.

Canasil has compiled soil geochemical data for 1190 grid-based samples collected on the Project. Colour-contoured plots for gold and for copper are shown in Figures 9-1 and 9-2, respectively. Each plot shows gold and/or copper anomalies that coincide with the zones explored. Standard porphyry-targeting elemental ratios such as Mo/As and Pb/Cu have been applied to the soil data (Figures 9-3 and 9-4), as well as a variation of the MDRU Porphyry Index (Figure 9-5). Consistent anomalies in these ratios indicate undrilled areas of near-surface or deeper potential to the west, northwest, and south of White Pass, and within and north of "Target 2".

Trenching and test pitting were important in the early history of the Project allowing workers to examine fresh bedrock beneath either glacial overburden, talus, ferricrete or pervasively altered rock, thereby confirming the source of some of the surface anomalies.

Geophysical surveys have been completed over parts of the Project, but do not penetrate as deeply as is required by today's exploration targeting of deeply buried porphyry systems. The effective depth of the 2007 IP survey was about 400m. Select plan and sections from IP surveys completed over the White Pass zone are shown in Section 6.

Drilling on the Project has taken place intermittently from 1988-2013, totaling 12,067m in 65 holes. Canasil has compiled all of the drillhole data into a single database that has been reviewed by the writer. Since 1993, drilling has focused primarily on the White Pass zone, a significant porphyry gold-copper target. Table 9-1 lists the amount of drilling each zone has received.

Modelling of the White Pass Zone

Riedell (2019) prepared plans and sections illustrating drill results in the White Pass zone, with a focus on Cu mineralization. A SW-NE cross-section across the White Pass zone (Figure 9-7) suggests the higher grade Cu core dips ~50-60 degrees northeast and remains open at depth.

Hole BR-13-01 apparently passed out of better grade mineralization, probably because it was drilled at a -75 degree dip, steeper than the higher grade zone. Level plans (Figure 9-8 and 9-9) suggest that the core of better grade mineralization in the White Pass zone also remains open to the southeast, based on encouraging Au and Cu in the most distal hole BR-04-12 (Figure 9-8), and possibly to the northwest.. Riedell (2019) also hypothesized that the known shape of the mineralized zone in this SW-NE section might represent just a portion of a shell-shaped zone of better Au and Cu grades, with a possible repetition to the southwest.

A 3D geological model for the White Pass zone of the Brenda Project was created by Barnes (2017a) after review of drill core assay data and examination of drill core photos for the zone. A summary of his findings is presented below. The 3D geological modelling was carried out only in support of defining targets for further exploration within the project area and was not intended as and does not form part of any resource estimate.

The 3D geological model of the White Pass zone was determined to characterize its preliminary geometry, to establish the position and orientation of the smaller HGZ relative to the broader MZ, and to be used as a guide to assist in future drilling. The potential quantity and grade outlined by the model is conceptual in nature and there has been insufficient exploration on the White Pass zone to define a mineral resource. Also, it is uncertain if further exploration will result in the White Pass zone being delineated as a mineral resource.

Some minor conflicting geological logging was noted and the codes for these units were revised. This included modifying the labeling of volcanic stratigraphy from Takla Group to the younger Toodoggone Formation of the Hazelton Group (which does contain minor basalt flows), and distinguishing weakly altered and mineralized Black Lake intrusive rocks from post-mineralization monzonite dykes, which were often originally logged as the same unit.

Table 9-1: Drilling by zone, Brenda Project

Zone	Years Drilled	Holes	Metres
Creek	1988, 1992, 1995, 1996	9	923.58
EB	1992	7	316.65
Takla	1988	8	792.68
White Pass	1992-2013	41	10,033.76

The resulting reinterpretation outlined eight post-mineral dykes (PMD) oriented approximately 135°/75° S (Figure 9-10). The weakly mineralized Black Lake intrusive rocks contain sparse quartz±magnetite veins with anomalous to weak gold and copper values. These units occur on the edge and wedges within some of the PMD (Figure 9-11). The country rock enclosing the

PMD and the weakly mineralized Black Lake intrusive rock consists predominantly of volcanic stratigraphy of the Toodoggone Formation.

White Pass zone mineralization occurs mainly within intermediate volcanic rocks of the Toodoggone Formation. Mineralization is associated with strong phyllic and weak to moderate potassic alteration. Some mineralized zones appear to have increased sericite and chlorite alteration with increased pyrite, while other zones show increased K-feldspar, possible biotite and chlorite alteration with minor quartz veining. The mineralization is cut by the series of PMD resulting in panels of mineralized rock separated by panels of barren rock. The Mineralized Zone (MZ) is characterized by drillhole intersections of >0.1 g/t Au (Figure 9-12) and Higher Grade Zones (HGZ) are characterized by drillhole intersections of >0.4 g/t Au (Figure 9-13).

Based on drillhole intervals and weighted averages, the average grades of the modelled MZ are 0.410 g/t Au, 0.066% Cu and 2.74 g/t Ag, and the average grades of the modelled HGZ are 0.659 g/t Au, 0.092% Cu and 3.32 g/t Ag. Three-dimensional shapes for the MZ and HGZ were generated in similar fashion to that of grade shell interpolation; some mineralized intervals cross PMD intervals if mineralization occurs on both sides of the PMD. The trend of the mineralized zone shape created from those intervals follows an azimuth of 315° and dips 30° NE (Figures 9-14 to 9-17. This orientation could be due to faults running northwest-southeast causing fault blocks to drop down to the northeast. This is evident in the shape for the HGZ as it appears to step down to the northeast. The shape for the MZ has approximate dimensions of 1000m by 400m and is from 100-600m thick. The HGZ has estimated dimensions of 200m by 300m and is 150m thick.

Barnes (2017b) modelled downhole geochemistry using the porphyry elemental zoning model of Halley et al. (2015). He recognized that Zn anomalies formed an incomplete "doughnut" open to the northeast. Because Halley et al. (2015) recognized that Zn often forms at the same level in the system as better grade Cu-Au mineralization but lateral to it, Barnes inferred that the centre of the strongest Cu-Au grades could occupy the low within the Zn anomaly (the Northeast White Pass target herein), which only a single drillhole (BR-04-14) had tested (Figure 9-18). Patterns in drilled Mo, Bi, and As supported this interpretation. Drillhole BR-14-04 cut generally increasing values in Cu, Au, Mo, and MPIx from approximately 350m to its total depth of 451.1m (see strip log in Appendix 1).

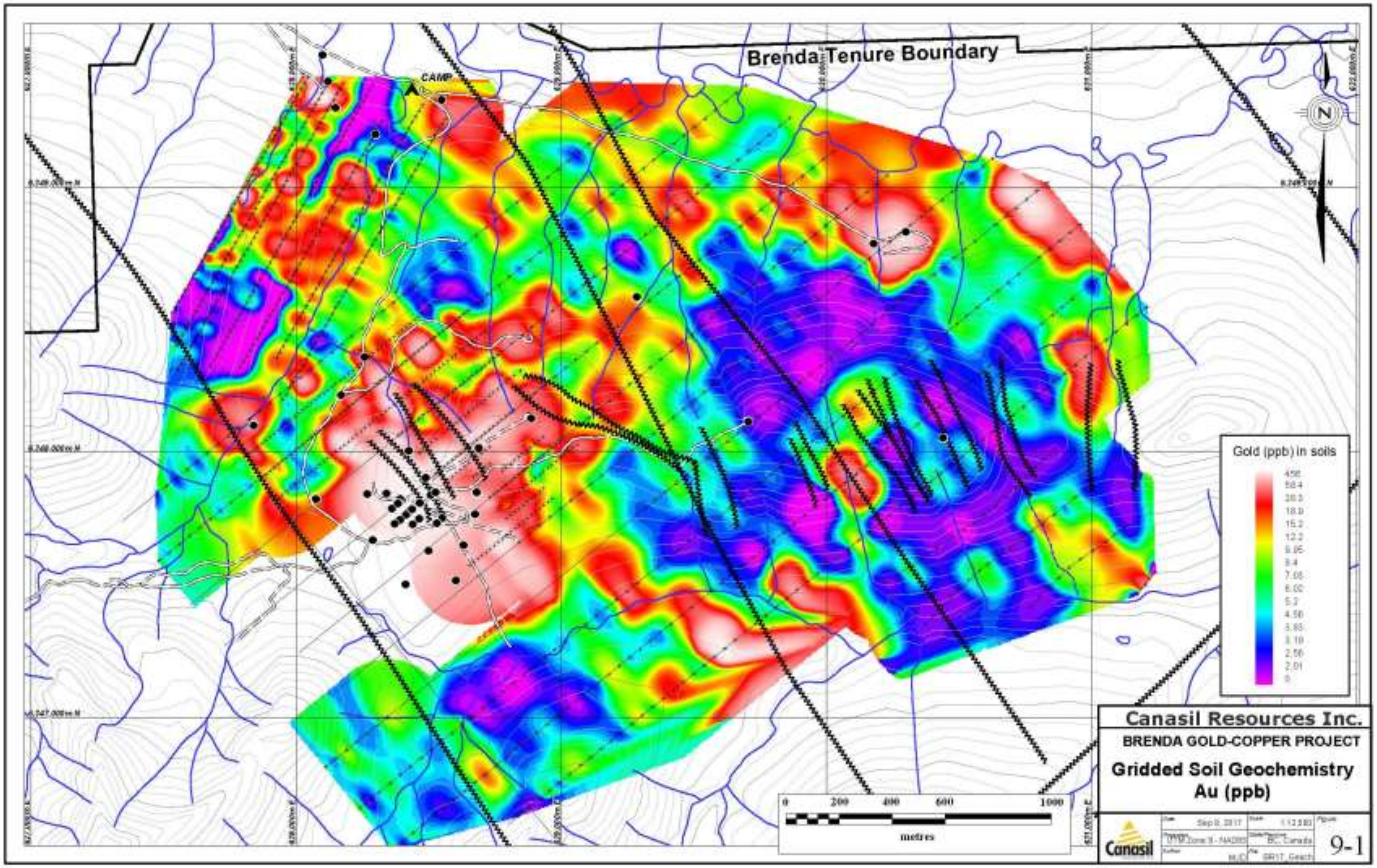


Figure 9-1: Contoured Soil Geochemistry – Gold (ppb)

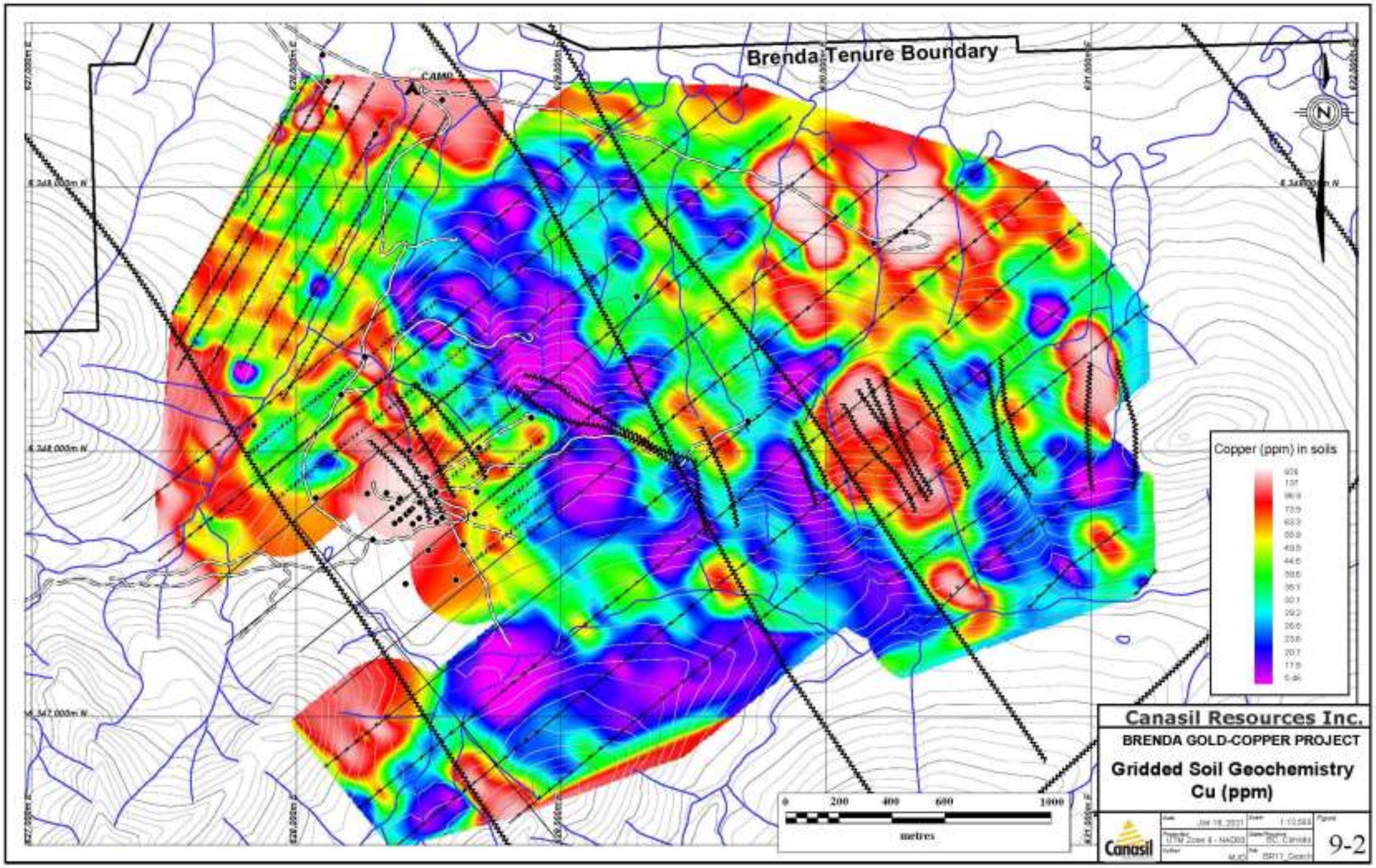


Figure 9-2: Contoured Soil Geochemistry – Copper (ppm)

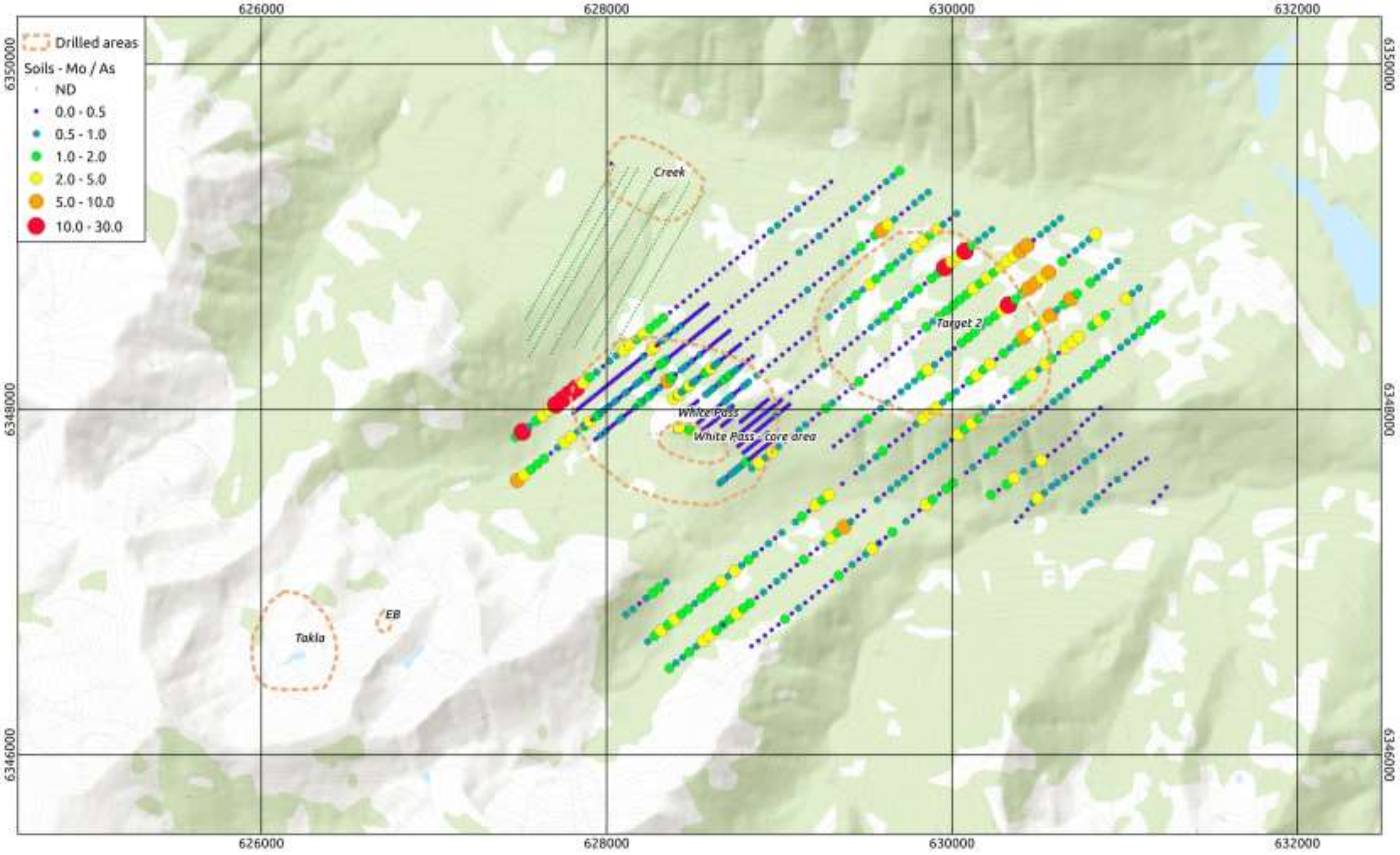


Figure 9-3: Map showing ratio in soils of the Cu-ore proximal element Mo versus the distal element As, against the approximate outlines of drilled areas. "ND" = not determined due to lack of As data. "Target 2" refers to the soil geochemical target defined by Barnes (2017b)

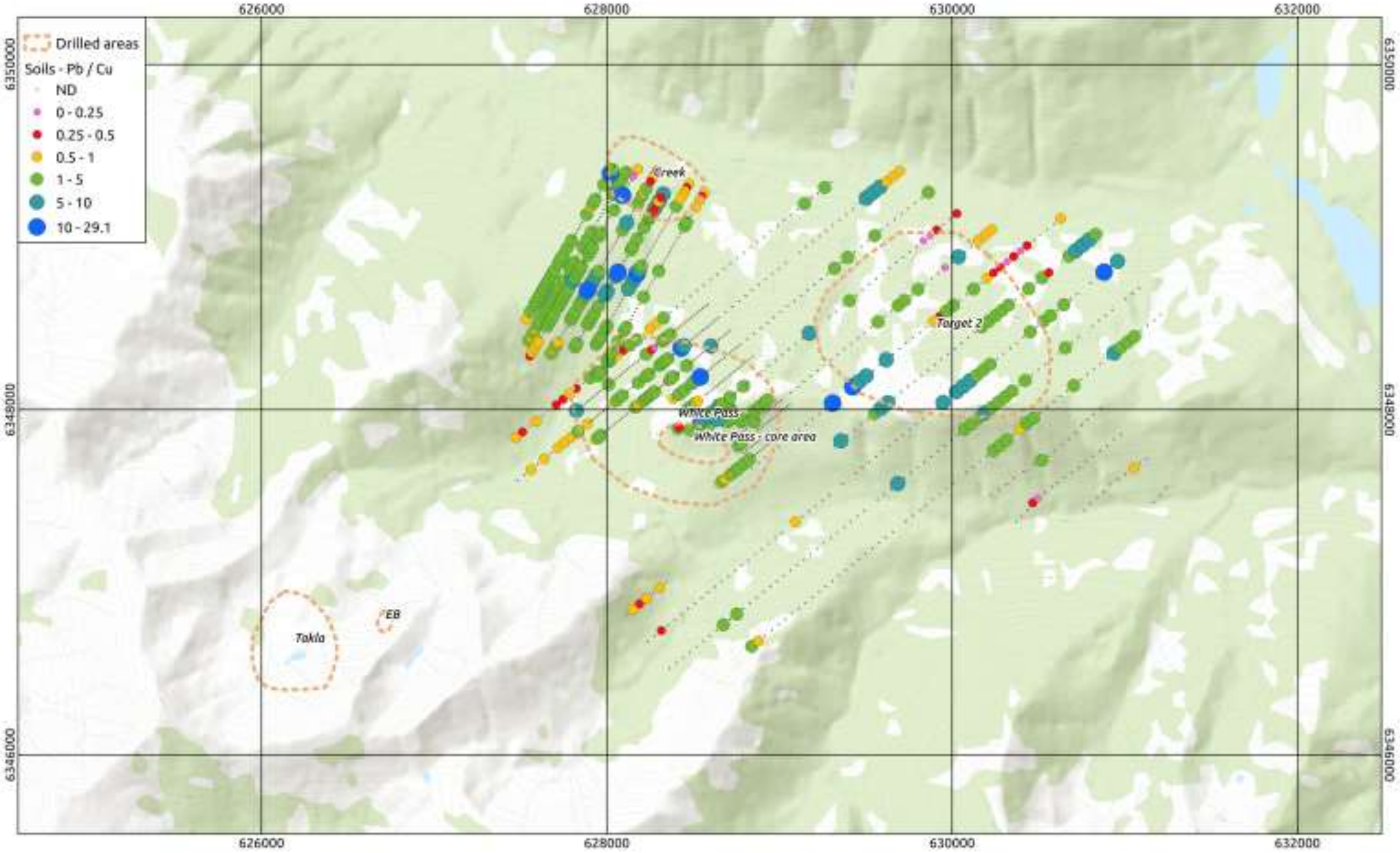


Figure 9-4: Map showing ratio in soils of Pb versus Cu, against the approximate outlines of drilled areas. In this case, the distal element is ratioed against the proximal element to increase the contrast in the ratio. "ND" = not determined due to low values (Cu < 50 ppm and/or Pb < 25 ppm); these thresholds were applied to prevent the creation of false anomalies by ratioing of background or near-background values.

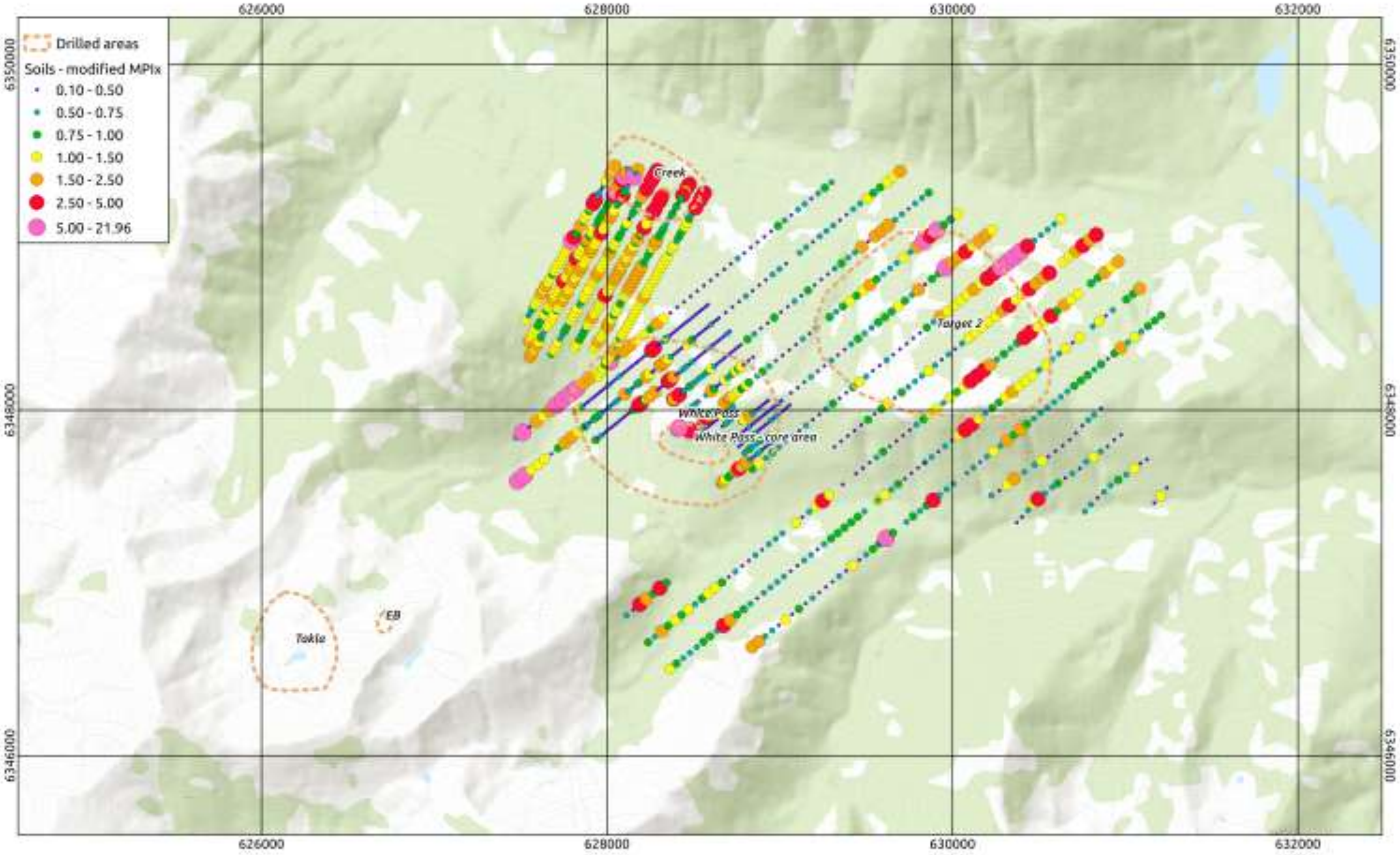


Figure 9-5: Map showing modified MDRU Porphyry Index in soils against outlines of drilled areas. The index is based on the Halley et al. (2015) metal zoning model of the upper levels of porphyry systems. It is calculated as (0.1*Cu_ppm + Mo_ppm + 0.2*Au_ppb) / (5*Sb_ppm + Ag_g/t + As_ppm); i.e., ratioing Cu-proximal metals to distal ones. The index is based on that proposed by Bouzari et al. (2019), but W, Sn, Tl, and Li are omitted due to high detection limits in the Brenda data (Au substitutes for W and Sn in the numerator).

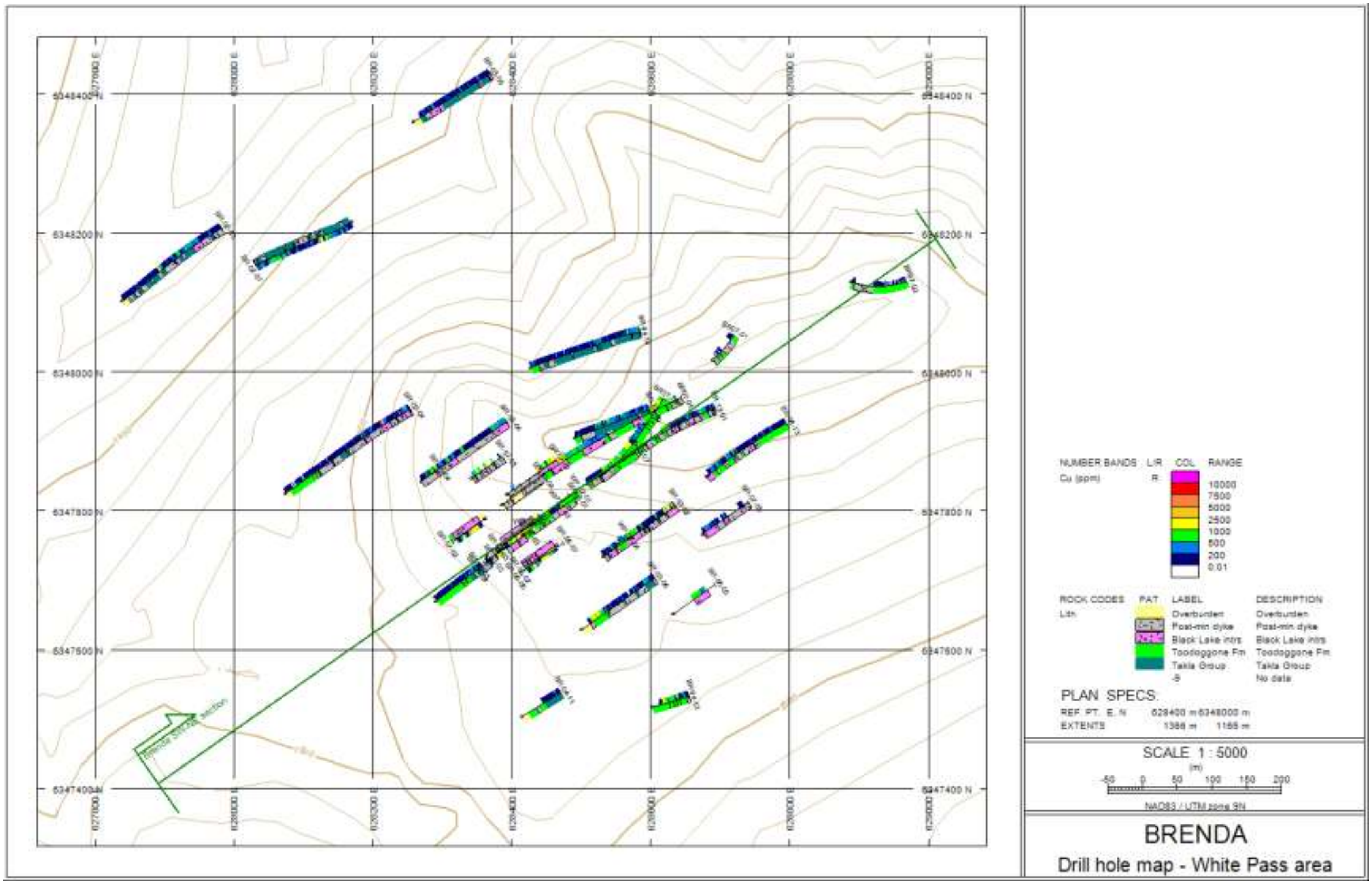


Figure 9-6: Drillhole map of the White Pass zone, illustrating lithology and Cu grades projected to the surface. The green line is the location of the cross-section in Figure 9-7.

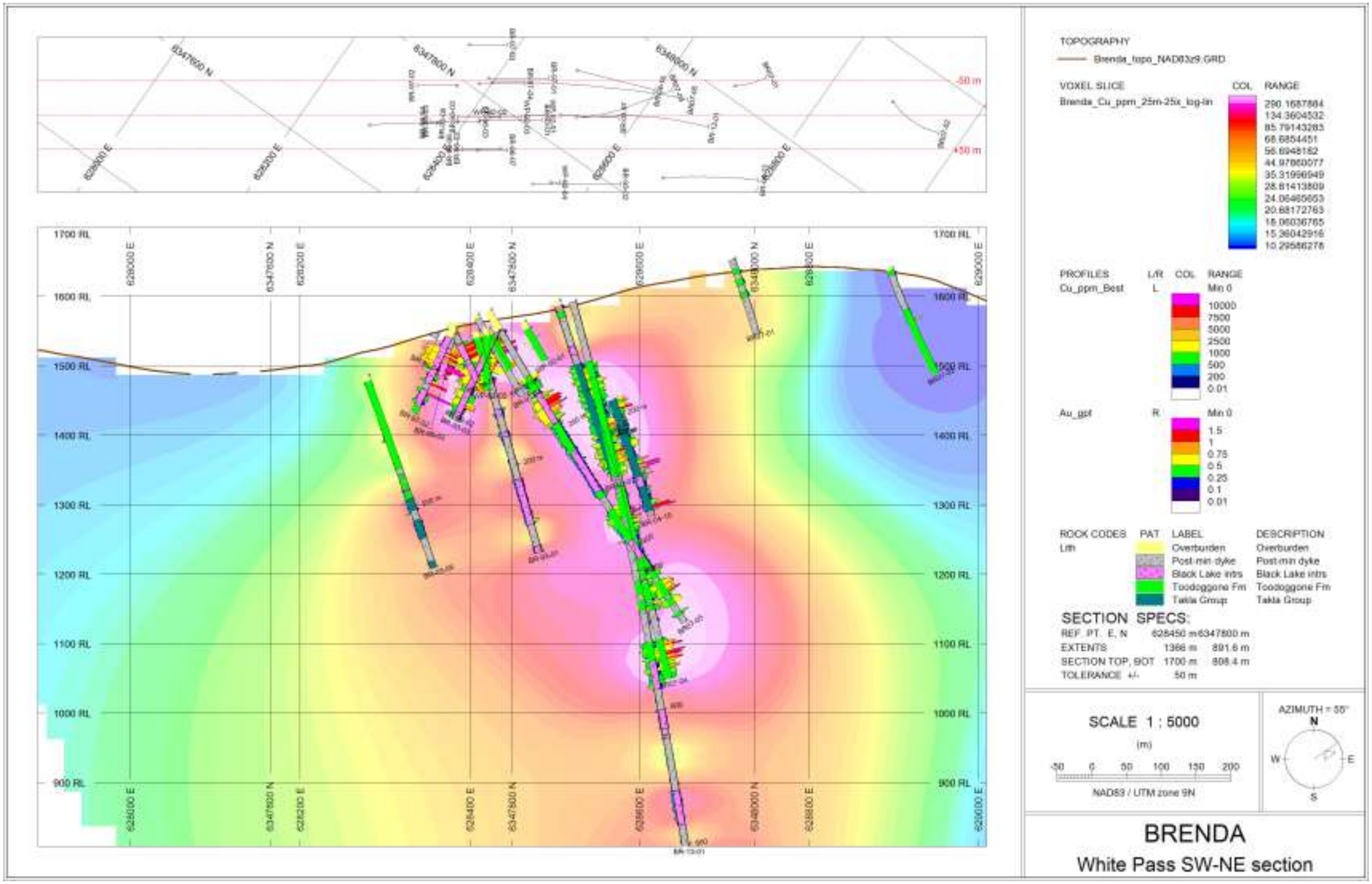


Figure 9-7: SW-NE cross-section through the White Pass zone. Drill hole traces are annotated with Cu and lithology on the left, and Au on the right. The coloured backdrop shows kriged Cu grades. Note that many of the lower grade areas are due to late- to post-mineral dykes, shown in grey in the lithologic bars.

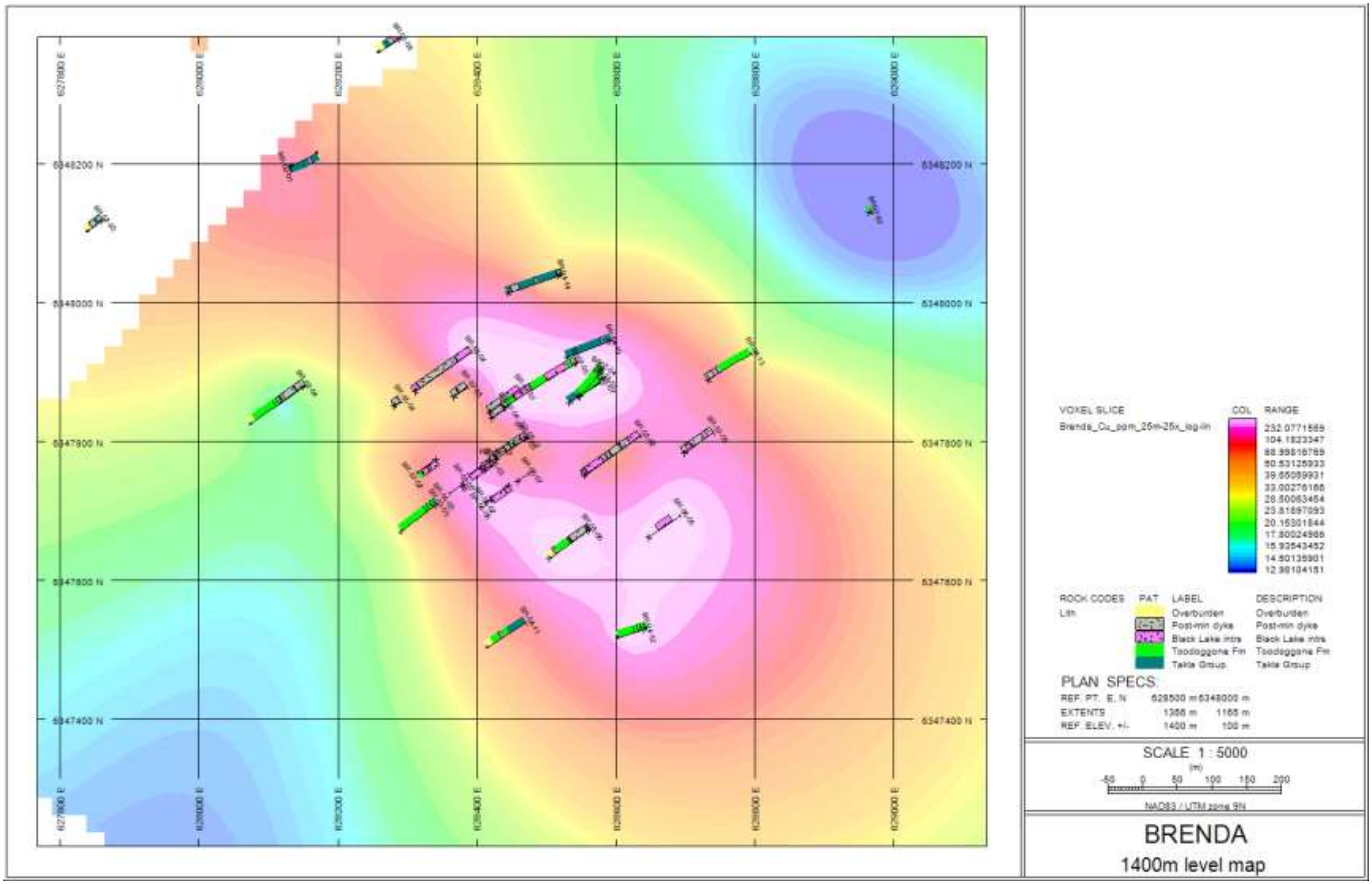


Figure 9-8: Level map of the 1400m elevation.

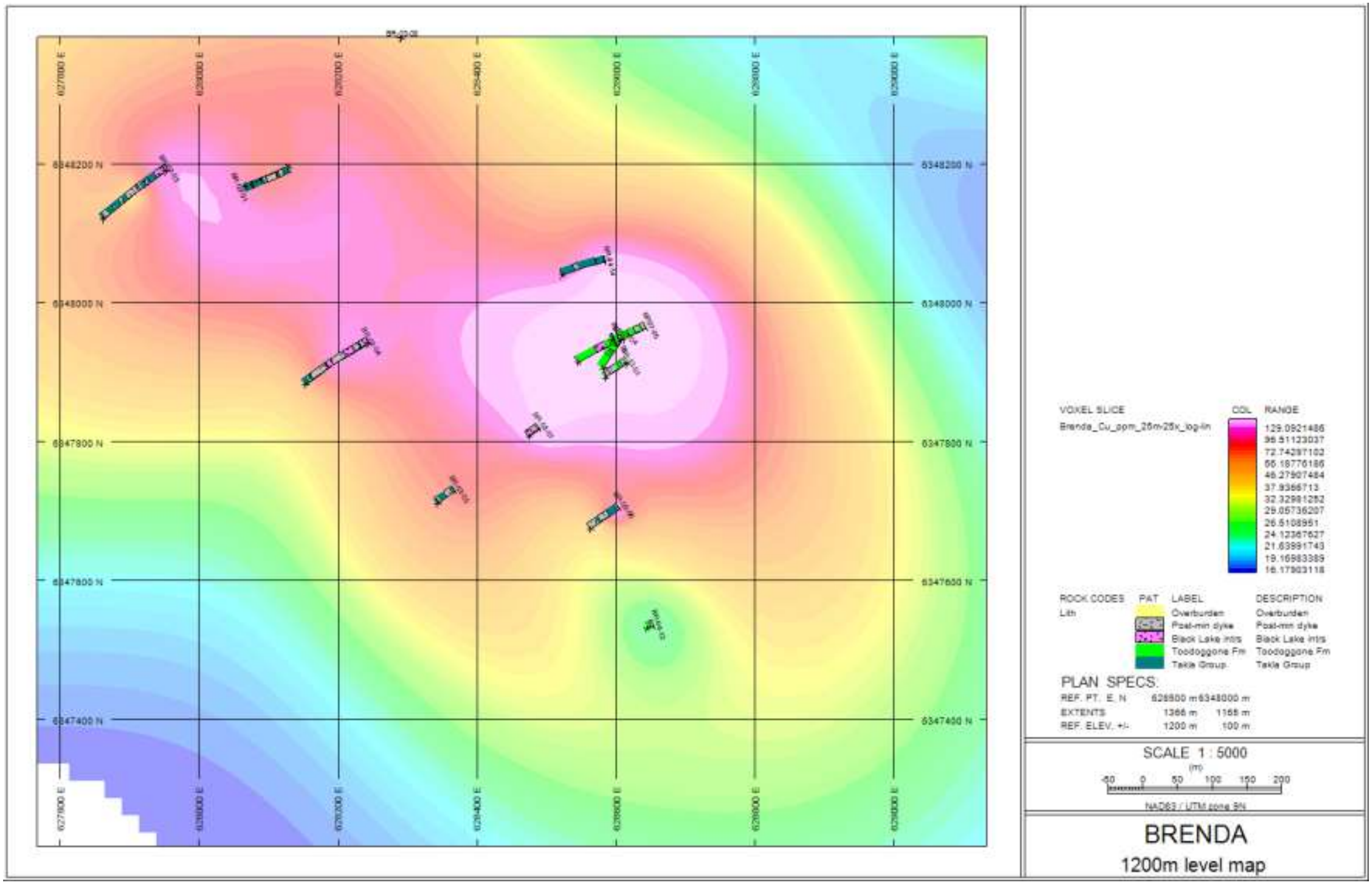


Figure 9-9: Level map of the 1200m elevation. The zone of better grade Cu is displaced ~100m to the northeast relative to the 1400m elevation.

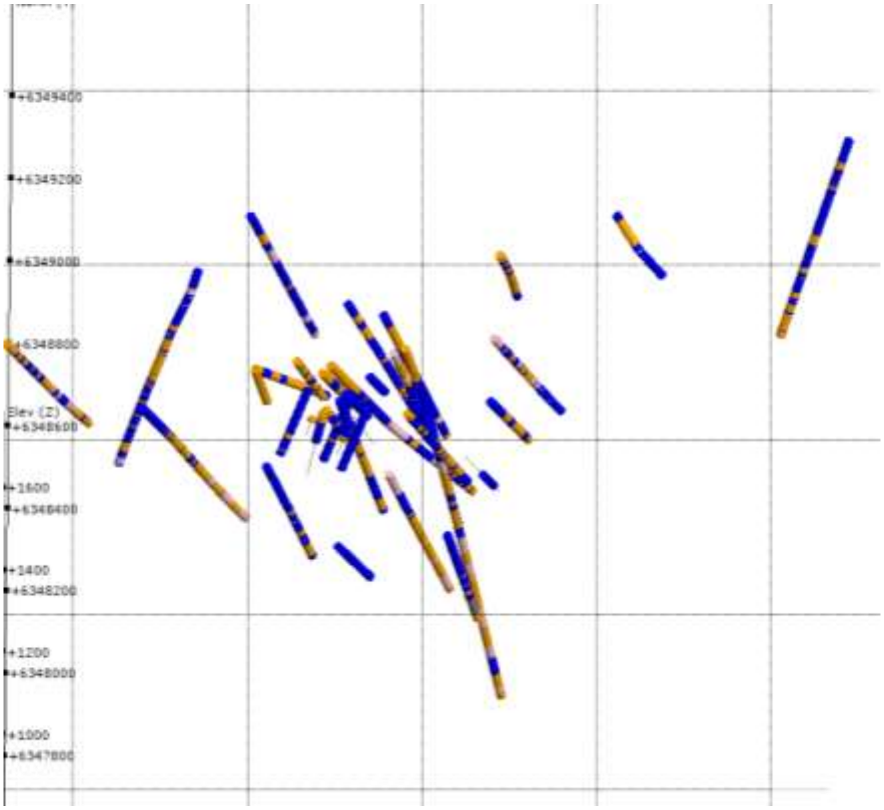


Figure 9-10: View of drillholes showing updated lithological codes looking north at a dip of 45°. Blue are Hazelton Group volcanics, orange are PMD, pink are weakly mineralized Black Lake Intrusions, and grey are Cretaceous basalts.

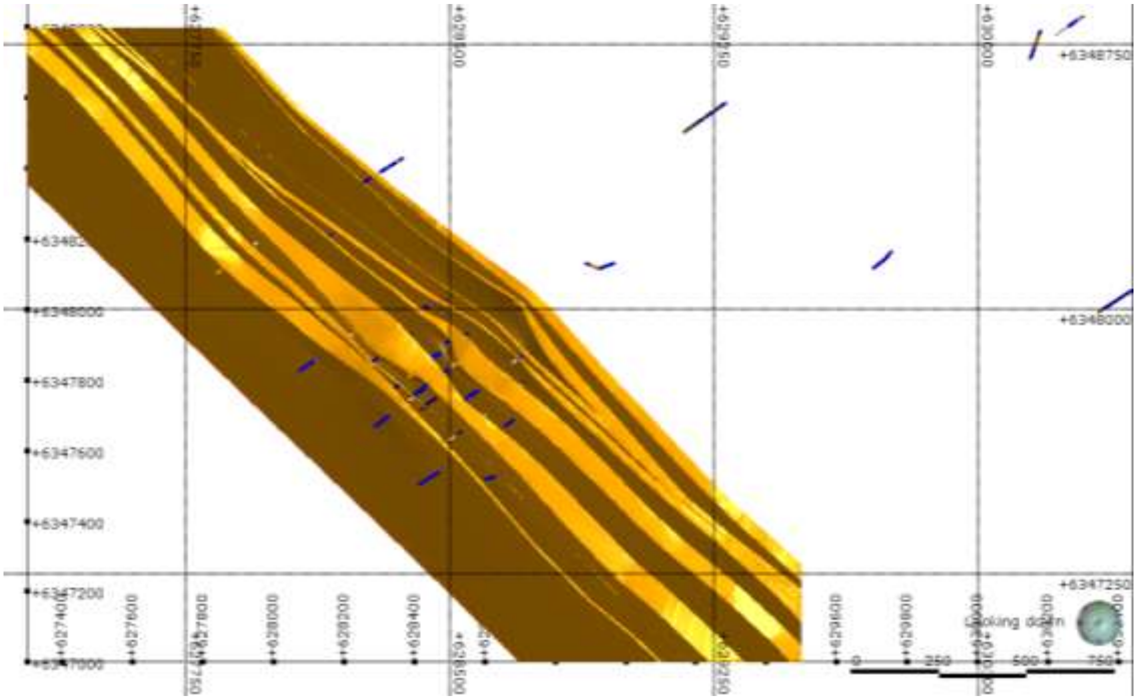


Figure 9-11: PMD model in plan view showing eight sheeted dykes oriented approximately 135°/75°N.

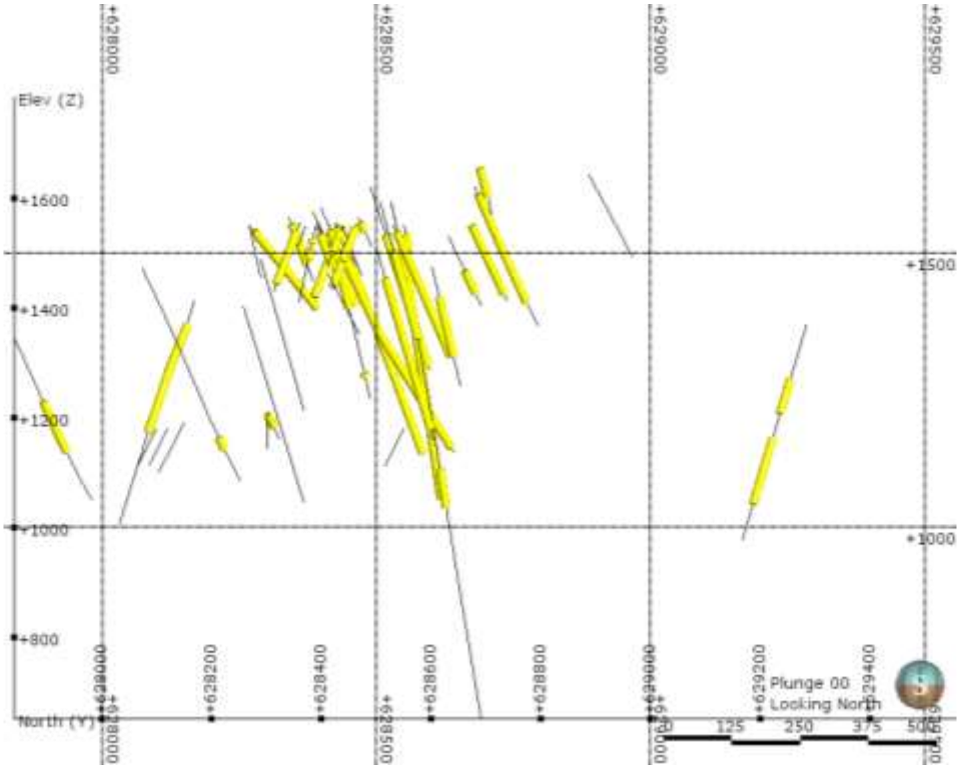


Figure 9-12: Down hole traces showing MZ (>0.1 g/t Au) intersections (view to the north)

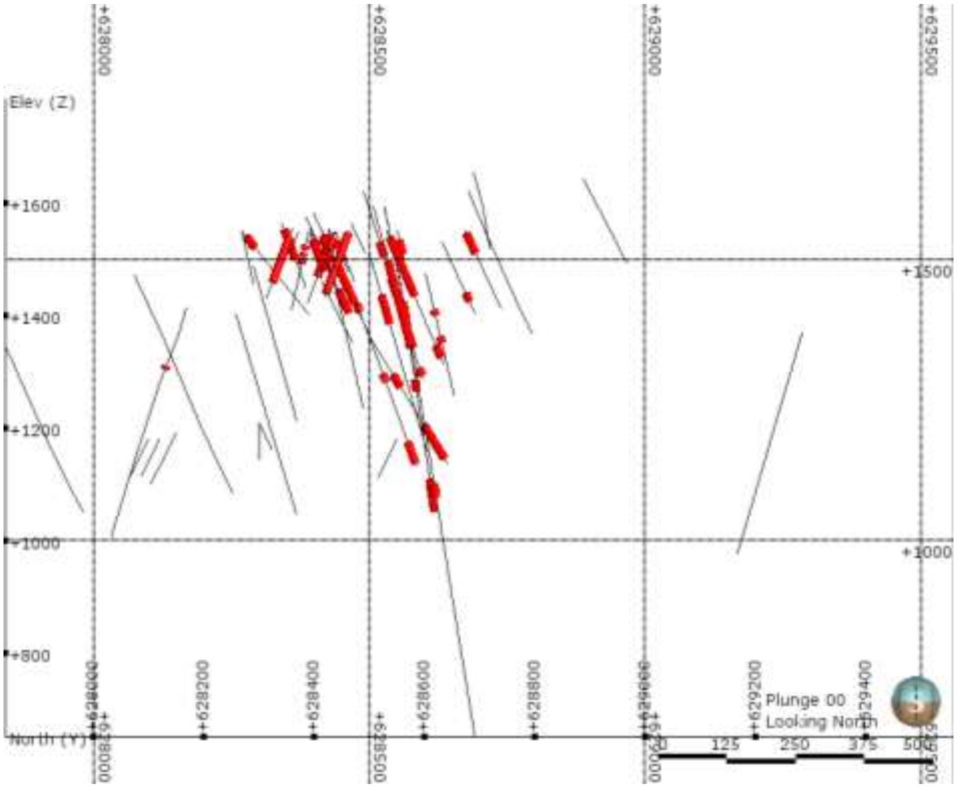


Figure 9-13: Down hole traces showing HGZ (>0.4 g/t Au) intersections (view to the north)

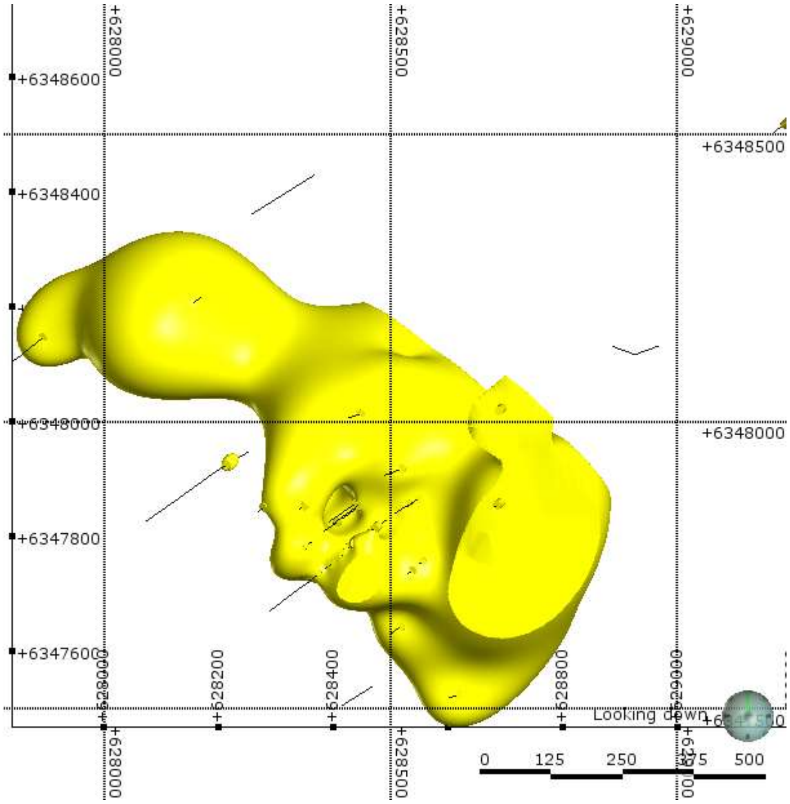


Figure 9-14: Plan view of the MZ shape (>0.1 g/t Au) cut off to the northeast by a PMD and compounded by a lack of drilling

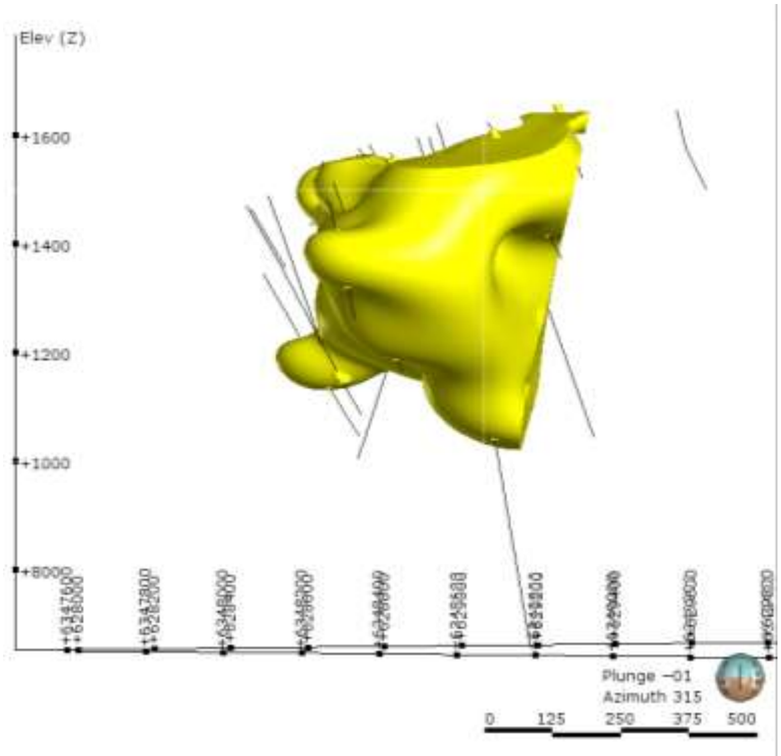


Figure 9-15: MZ (>0.1 g/t Au) shape cut off to the northeast by PMD and compounded by a lack of drilling (view is at an azimuth of 315°)

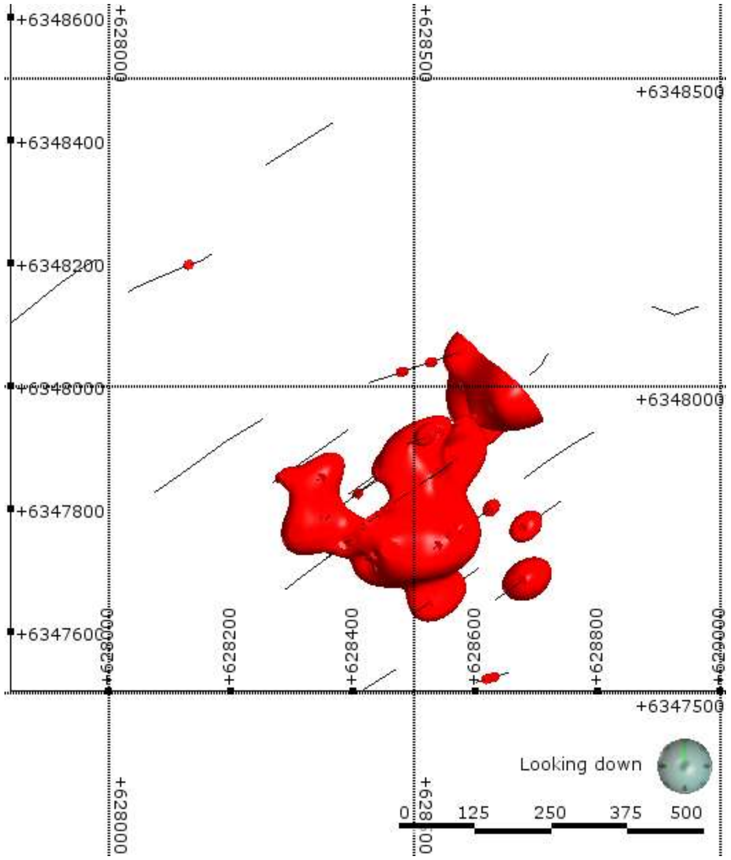


Figure 9-16: Plan view of the HGZ (>0.4 g/t Au) shapes cut off to the northeast by PMD and compounded by a lack of drilling

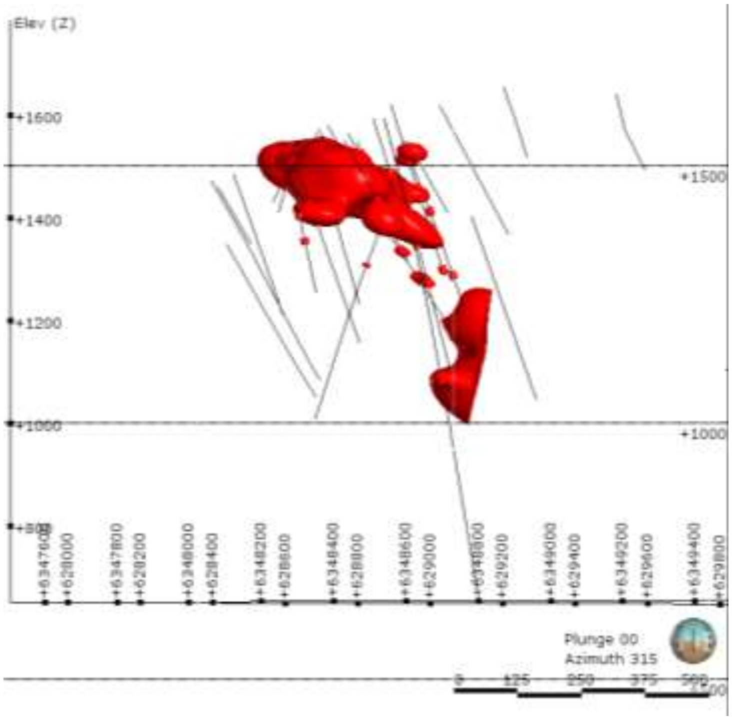


Figure 9-17: HGZ (>0.4 g/t Au) shapes cut off to the northeast by PMD and compounded by a lack of drilling (view at azimuth of 315°)

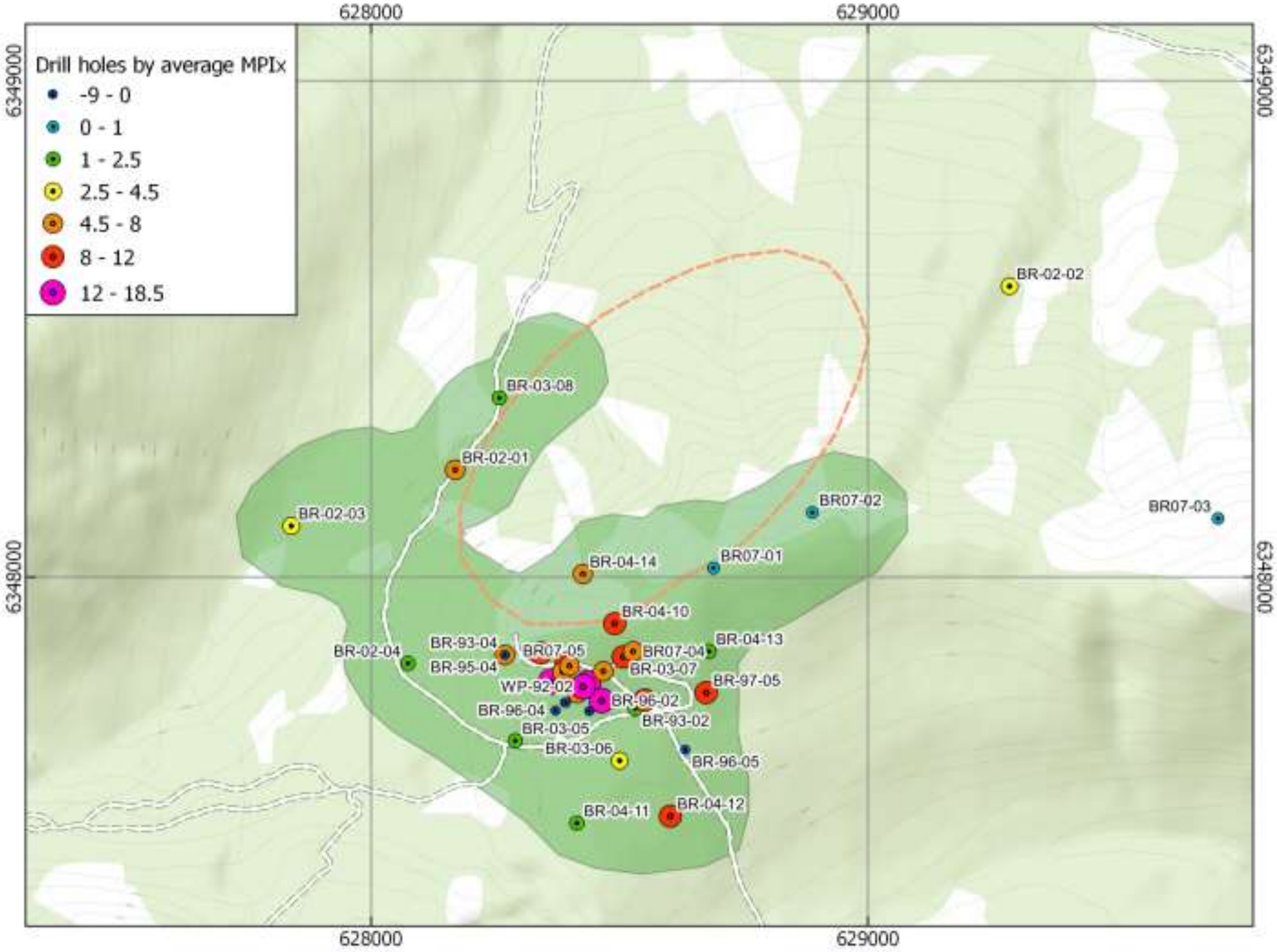


Figure 9-18: Drillhole map of the White pass zone, showing the subsurface Zn "doughnut" (green) and Northeast White Pass target (orange outline) defined by Barnes (2017b)

10 DRILLING

10.1 CURRENT DRILLING

There is no current drilling on the Project. Previous drilling is summarized.

10.2 PREVIOUS DRILLING

A total of 65 surface exploration diamond drillholes with an aggregate length of 12,067m have been completed on the Project. The holes were drilled from 1988 to 2013 by various operators and tested five different targets on the Project. The orientation and true thickness of all of the reported drill intersections are unknown.

Near-complete technical data has been compiled for the majority of these holes. The location of all holes drilled on the Project are shown on Figure 10-1. Table 10-1 lists drillhole location and orientation data by year, operator and target. Select diamond drilling results are provided in Section 7 of this report.

Drill core is stored near the exploration base camp on Project tenure. It is either in metal racks or is cross-stacked and covered by tarps (Figure 10-2).

Table 10-1: Summary of Surface Exploration Drilling, Brenda Project

Year	Operator	Hole ID	Zone ID	Easting	Northing	Elev (m)	Azimuth	Dip	Depth (m)
1988	Cyprus Gold (Canada) Ltd.	Tak-88-01	Takla-EB	626280	6346440	1720	138	-45	94.51
1988	Cyprus Gold (Canada) Ltd.	Tak-88-02	Takla-EB	626275	6346825	1645	246	-43	102.74
1988	Cyprus Gold (Canada) Ltd.	Tak-88-03	Takla-EB	626225	6346780	1650	246	-45	50.92
1988	Cyprus Gold (Canada) Ltd.	Tak-88-04	Takla-EB	626150	6346900	1645	232	-45	90.55
1988	Cyprus Gold (Canada) Ltd.	Tak-88-05	Takla-EB	626325	6346800	1670	246	-45	92.68
1988	Cyprus Gold (Canada) Ltd.	Tak-88-06	Takla-EB	626125	6346820	1670	112	-45	100.92
1988	Cyprus Gold (Canada) Ltd.	Tak-88-07	Takla-EB	626030	6346430	1715	202	-48	127.13
1988	Cyprus Gold (Canada) Ltd.	Tak-88-08	Takla-EB	626030	6346430	1715	202	-58	133.23
1988	Cyprus Gold (Canada) Ltd.	Crk-88-01	Creek	628150	6349300	1190	210	-44	130.18
1988	Cyprus Gold (Canada) Ltd.	Crk-88-02	Creek	628120	6349400	1180	210	-45	96.65
1988	Cyprus Gold (Canada) Ltd.	Crk-88-03	Creek	628100	6349500	1180	210	-45	102.74
1988	Cyprus Gold (Canada) Ltd.	Crk-88-04	Creek	628550	6349330	1180	210	-45	96.65
1992	Canasil Resources Inc.	CR-92-01	Creek	628300	6349200	1210	35	-50	66.15
1992	Canasil Resources Inc.	CR-92-02	Creek	628300	6349200	1210	35	-89	67.60
1992	Canasil Resources Inc.	WP-92-01	White Pass	628467	6347810	1565	55	-62	63.10
1992	Canasil Resources Inc.	WP-92-02	White Pass	628426	6347779	1555	55	-60	90.52
1992	Canasil Resources Inc.	WP-92-03	White Pass	628426	6347779	1555	0	-90	66.10
1992	Canasil Resources Inc.	WP-92-04	White Pass	628551	6347752	1550	55	-75	50.90
1992	Canasil Resources Inc.	EB-92-01	EB	626715	6346800	1647	282	-60	38.70
1992	Canasil Resources Inc.	EB-92-02	EB	626715	6346800	1647	282	-75	46.00
1992	Canasil Resources Inc.	EB-92-03	EB	626705	6346750	1647	282	-60	37.50
1992	Canasil Resources Inc.	EB-92-04	EB	626705	6346750	1647	282	-75	47.85
1992	Canasil Resources Inc.	EB-92-05	EB	626695	6346700	1648	282	-60	50.90
1992	Canasil Resources Inc.	EB-92-06	EB	626725	6346850	1646	282	-60	57.00
1992	Canasil Resources Inc.	EB-92-07	EB	626735	6346900	1645	282	-45	38.70
1993	Romulus Resourcs Ltd.	B-93-01	White Pass	628415	6347766	1551	55	-74	331.04
1993	Romulus Resourcs Ltd.	B-93-02	White Pass	628531	6347735	1552	55	-62	270.36

Year	Operator	Hole ID	Zone ID	Easting	Northing	Elev (m)	Azimuth	Dip	Depth (m)
1993	Romulus Resourcs Ltd.	B-93-03	White Pass	628437	6347787	1550	235	-65	143.26
1993	Romulus Resourcs Ltd.	B-93-04	White Pass	628269	6347843	1550	55	-45	212.45
1995	Canasil Resources Inc.	BR-95-01	Creek (East)	630300	6348832	1285	235	-50	136.24
1995	Canasil Resources Inc.	BR-95-02	Creek (East)	630300	6348832	1285	0	-90	96.62
1995	Canasil Resources Inc.	BR-95-03	White Pass	628390	6347747	1550	235	-65	145.38
1995	Canasil Resources Inc.	BR-95-04	White Pass	628269	6347843	1550	55	-65	99.66
1996	Canasil Resources Inc.	BR-96-01	Creek (East)	630178	6348789	1280	200	-50	130.75
1996	Canasil Resources Inc.	BR-96-02	White Pass	628464	6347751	1551	235	-65	131.97
1996	Canasil Resources Inc.	BR-96-03	White Pass	628392	6347747	1548	55	-65	75.89
1996	Canasil Resources Inc.	BR-96-04	White Pass	628371	6347731	1548	235	-65	41.75
1996	Canasil Resources Inc.	BR-96-05	White Pass	628632	6347652	1530	55	-60	146.60
1996	Canasil Resources Inc.	BR-96-06	White Pass	628439	6347730	1549	235	-65	80.16
1996	Canasil Resources Inc.	BR-96-07	White Pass	628439	6347730	1549	55	-65	99.66
1997	Canasil Resources Inc.	BR-97-01	White Pass	628392	6347824	1555	55	-60	172.82
1997	Canasil Resources Inc.	BR-97-02	White Pass	628361	6347789	1555	235	-65	137.46
1997	Canasil Resources Inc.	BR-97-03	White Pass	628341	6347847	1565	55	-65	130.15
1997	Canasil Resources Inc.	BR-97-04	White Pass	628385	6347809	1575	55	-60	133.20
1997	Canasil Resources Inc.	BR-97-05	White Pass	628674	6347767	1550	55	-60	160.63
2002	Northgate Exploration Ltd.	BR-02-01	White Pass	628169	6348216	1415	235	-70	436.80
2002	Northgate Exploration Ltd.	BR-02-02	White Pass	629285	6348586	1370	235	-70	420.60
2002	Northgate Exploration Ltd.	BR-02-03	White Pass	627839	6348103	1348	51	-60	346.90
2002	Northgate Exploration Ltd.	BR-02-04	White Pass	628074	6347826	1472	54	-65	445.00
2003	Northgate Exploration Ltd.	BR-03-05	White Pass	628290	6347670	1487	55	-70	292.60
2003	Northgate Exploration Ltd.	BR-03-06	White Pass	628500	6347630	1510	55	-70	374.90
2003	Northgate Exploration Ltd.	BR-03-07	White Pass	628507	6347839	1595	55	-70	271.90
2003	Northgate Exploration Ltd.	BR-03-08	White Pass	628258	6348361	1403	55	-70	381.00
2003	Northgate Exploration Ltd.	BR-03-09	White Pass	630440	6348055	1625	235	-45	163.70
2004	Northgate Minerals Corp.	BR-04-10	White Pass	628490	6347906	1620	69	-70	353.60

Year	Operator	Hole ID	Zone ID	Easting	Northing	Elev (m)	Azimuth	Dip	Depth (m)
2004	Northgate Minerals Corp.	BR-04-11	White Pass	628414	6347504	1460	58	-60	128.00
2004	Northgate Minerals Corp.	BR-04-12	White Pass	628602	6347518	1475	73	-76	225.60
2004	Northgate Minerals Corp.	BR-04-13	White Pass	628680	6347850	1620	55	-60	287.40
2004	Northgate Minerals Corp.	BR-04-14	White Pass	628426	6348006	1550	65	-70	451.10
2007	Canasil Resources Inc.	BR-07-01	White Pass	628689	6348018	1655	50	-70	144.78
2007	Canasil Resources Inc.	BR-07-02	White Pass	628888	6348130	1642	110	-60	170.99
2007	Canasil Resources Inc.	BR-07-03	White Pass	629705	6348118	1606	53	-75	300.84
2007	Canasil Resources Inc.	BR-07-04	White Pass	628527	6347850	1594	54	-75	561.96
2007	Canasil Resources Inc.	BR-07-05	White Pass	628399	6347821	1582	54	-60	530.43
2013	Canasil Resources Inc.	BR-13-01	White Pass	628527	6347850	1594	54	-75	962.60
	Total drillholes: 65							Total metres:	12,066.67

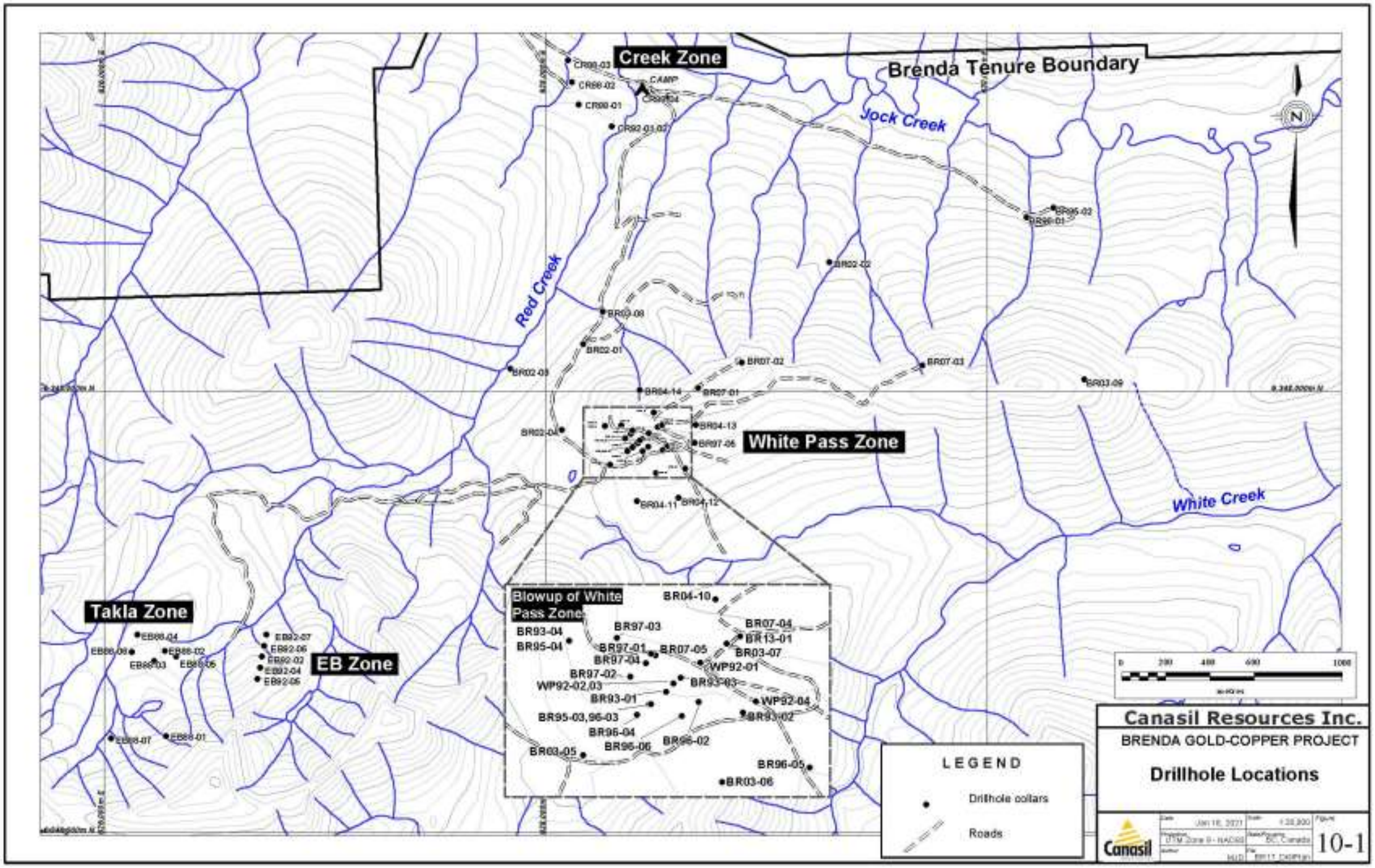


Figure 10-1: Distribution of Diamond Drillholes, Brenda Project

Figure 10-2: Core storage area, Brenda Project

11 SAMPLE PREPARATION, ANALYSES AND SECURITY

11.1 SOIL SAMPLING

A total of 1190 grid-based soil samples, collected by various operators from 1980-1993, have been compiled and plotted by Canasil. Descriptions of soil sample collection techniques are provided in summary reports for each year the work was conducted. Soil samples were generally collected from the 'B' horizon on 25-50m spacings, but 'C' horizon material was sampled in areas that lacked 'B' horizon soil. Sampling procedures were consistent with industry standards for the years in which the work was completed. The soil sampling programs were conducted under the guidance of seasoned, professional geologists.

Two laboratories were used for all of the historical soil geochemical analysis and assaying: Acme Analytical Laboratories Ltd. (now Bureau Veritas S.A.) and ALS Canada Ltd. (under subsidiaries ALS Chemex and ALS Minerals). Both are well-known, reputable laboratories that maintained high professional accreditation standards during the years in which they analyzed samples from the Project. Neither Canmine nor Canasil have a relationship of any manner with either of the two laboratories.

In earlier sampling programs, soils were analyzed for a minimum of copper, lead, zinc, silver and gold, but later sampling programs included a larger multi-element suite that consisted of 30 or more elements. Gold was determined by Atomic Absorption (AA), while the remaining elements were analyzed by Inductively Coupled Plasma (ICP) techniques.

Certificates of Analysis are available for most of the soil sampling programs conducted on the Project and were reviewed by the writer. There is no reference to the use of blind certified reference standards, duplicates or blanks, other than those inserted by the lab itself. There is no reference to the use of a check-assay procedure.

11.2 ROCK SAMPLING

An unknown number of surface rock samples have been collected on the Project. Rock samples have been grabs from float, outcrop, trench and test pits. Some trenches were chip and/or channel sampled with typical sample lengths of 1m; they are not discussed further.

11.3 DIAMOND DRILLING AND CORE SAMPLING

Diamond drilling has occurred on the Brenda Project periodically since 1988. The historical drill core sample preparation, sampling procedures, and lab preparation and analytical methods utilized during these programs are generally well recorded in the literature. Sample preparation and analytical methods have varied relatively little from program to program, but QAQC standards improved from the early days of drilling. For the most part NQ and HQ-diameter core has been split or sawn and sampled on 2m to 3m intervals. Certificates of Analysis, which provide a brief summary of the different analytical methods used, are available for all of the drill core sampling programs conducted on the Project and were reviewed by the writer.

Two laboratories were used for all of the historical drill core analysis and assaying: Acme Analytical Laboratories Ltd. (now Bureau Veritas S.A.) and ALS Canada Ltd. (under subsidiaries ALS Chemex and ALS Minerals). Both are well-known, reputable laboratories that maintained high professional accreditation standards for quality established by the Standards Council of Canada that conformed to the requirements of ISO/IEC (International Organization for Standardization/International Electrotechnical Commission) during the years in which they analyzed samples from the Project. The specific certifications during the earlier years in which samples were analyzed are not known, but both laboratories have conformed to the requirements of ISO/IEC 17025:2005 and the conditions for accreditation established by SCC since 2005.

Neither Canmine nor Canasil have a relationship of any manner with either of the two laboratories.

Data for diamond drilling has been captured and compiled by Canasil; this work is summarized by year in Table 11-1.

Table 11-1: Drill Campaigns by Year, Brenda Project

Year	Company	Holes	Metres	Samples
1988	Cyprus Gold (Canada) Ltd.	12	1,218.90	354
1992	Canasil Resources Inc.	13	721.02	72
1993	Romulus Resources Ltd.	4	957.11	393
1995	Canasil Resources Inc.	4	477.90	27
1996	Canasil Resources Inc.	7	706.78	126
1997	Canasil Resources Inc.	5	734.26	98
2002	Northgate Exploration Ltd.	4	1,649.30	862
2003	Northgate Exploration Ltd.	5	1,484.10	674
2004	Northgate Minerals Corp.	5	1,445.70	685
2007	Canasil Resources Inc.	5	1,709.00	605
2013	Canasil Resources Inc.	1	962.60	231
Total		**65**	**12,066.67**	**4,127**

11.4 CORE SAMPLE PREPARATION AND ANALYSES

1988 Program

Core logging and sampling for the 1988 drilling program was conducted by Cyprus Gold Canada Inc. (Cyprus) personnel. All drillholes were described in geological logs that showed sample intervals, generally 1-2m in length, with corresponding sample identification number and results. There is no description of core logging or sampling methods used. A total of 354 core samples were collected and shipped to Acme Analytical Laboratories Ltd. in Vancouver, BC, for analysis. There is no reference to the use of blind certified reference standards, duplicates or blanks other than those inserted by the lab. There is no reference to the use of a check-assay procedure.

Core samples were crushed to -5mm and a 23gm split was pulverized until 98% passed through a 100 mesh screen. For ICP analysis, 0.5g of processed sample was digested in hot dilute aqua regia in a boiling water bath and diluted to 10ml with demineralized water. Copper, lead, zinc, arsenic and silver were determined by ICP in which a 0.500 gram sample was digested with 3ml of 3:1:2 HCL-HN03-HZ0 at 95°C for one hour and was diluted to 10ml with water. Gold was determined by AA in which a 10.0g sample of the -100 mesh material was ignited overnight at 600°C and later digested with hot dilute aqua regia. The resulting clear solution was extracted with Methyl Isobutyl Ketone (MIBK), and gold Au was determined in the MIBK extract by Atomic Absorption. The results for Cu, Pb, Zn, Ag and As were reported in ppm while the results for Au were reported in ppb.

1992 Program

Core logging and sampling for the 1992 drilling program was conducted by Canasil Resources Inc. (Canasil) personnel. All drillholes were described in geological logs that showed sample intervals, generally 1-2m in length, with corresponding results for gold and copper. Some drillholes, particularly those drilled in the White Pass zone were not sampled from top to bottom leaving large gaps of no analytical data between mineralized intervals (these intervals were sampled and analyzed in 1993). As a result only 72 core samples were collected and shipped to Acme Analytical Laboratories Ltd. in Vancouver, BC, for analysis. There is no description of core logging or sampling methods used. There is no reference to the use of blind certified reference standards, duplicates or blanks other than those inserted by the lab. There is no reference to the use of a check-assay procedure.

Core sample preparation and analyses are the same as those methods employed in 1988, except that a total of 30 elements are reported.

1993 Program

Core logging and sampling for the 1993 drilling program was conducted by Romulus Resources Ltd. personnel. All drillholes were sampled from top to bottom and were described in detailed geological logs. Sample intervals, typically 2m in length, and analytical results were tabulated in separate spreadsheets on a hole-by-hole basis with the corresponding sample identification number that can be cross-referenced with the Certificates of Analysis.

There is no description of core logging or sampling methods used. A total of 393 core samples were collected and shipped to Min-En Laboratories in Vancouver, BC, for analysis. There is no reference to the use of blind certified reference standards, duplicates or blanks other than those inserted by the lab. There is no reference to the use of a check-assay procedure.

Core sample preparation is not known. ICP analysis was used to determine levels of copper, silver, lead, zinc, arsenic and antimony. Fire assay methods were used to determine concentrations of gold and copper. Details of the analytical methods used are not known.

1995 – 1997 Programs

Core logging and sampling for the 1995 to 1997 drilling program was conducted by Canasil personnel. All drillholes were described in geological logs that showed sample intervals with corresponding results for gold, copper and silver. Only select intervals of the drillholes were analyzed, generally corresponding to sections of visually mineralized and altered volcanic rocks. Sample lengths generally coincided with each run drilled and were nominally 3m in length. A total of 251 core samples were collected and shipped to Acme Analytical Laboratories Ltd. in Vancouver, BC, for analysis. There is no description of core logging or sampling methods used. There is no reference to the use of blind certified reference standards, duplicates or blanks other than those inserted by the lab. There is no reference to the use of a check-assay procedure.

Drill core samples were crushed and pulverized to -150 microns (-100 mesh). A 0.5g split from each sample was placed in a test tube; aqua regia was added to each test tube to digest the sample. The resulting sample solution was then heated for one hour in a boiling hot water bath (95°C). The sample solution was then aspirated into an ICP emission spectrograph for the determination of 30 elements. Gold was determined by fire assay methods similar to those described for the 1988 and 1992 programs.

2002 – 2004 Programs

Core logging and sampling for the 2002, 2003 and 2004 drill programs was conducted by Northgate Exploration Ltd. (Northgate) personnel. All drillholes were described in detailed geological logs that also provide sample intervals, sample identification numbers and corresponding results for gold and copper. Core logging and sampling was performed at

Northgate's Kemess South minesite. The entire length of each drillhole was sampled. In 2002, samples were analyzed for 34 elements using an aqua regia ICP-AES package and gold was analyzed by one assay-tonne fire assay with an atomic absorption finish. In 2003-2004, the same multi-element and gold analytical methods were used, but all samples were also assayed for copper by triple-acid digestion with an atomic absorption finish, and select anomalous samples were assayed for zinc and lead.

Over the three drilling campaigns, Northgate collected a total of 2,221 core samples which were prepared at its the Kemess minesite prior to being shipped to ALS Chemex Labs (ALS) in Vancouver, BC, for analysis. Sample preparation followed detailed procedures provided to Northgate by ALS.

In 2002, a total of 35 quality control samples were inserted into the sample stream, but there is no distinction between core samples and control samples in the compiled data or in the analytical certificates within drilling summary reports. There was no assessment of the control sample results. In 2003, quality control samples were inserted into the sample stream, but in unknown quantities. There was no assessment of the control sample results.

In 2004, quality control samples (blanks, duplicates and standards) were inserted into the sample stream at regular intervals such that 1 in 26 samples were submitted for control purposes. Analysis of seven blanks did not indicate any laboratory error or significant contamination. Five of six standards confirmed that gold and copper analytical results were within acceptable error limits with respect to accuracy. Fifteen duplicate assays indicated good reproducibility of both gold and copper assays. Northgate concluded that analytical work by ALS provided sound and accurate gold and copper analytical results for its 2004 diamond drilling program (Edmunds and Kay, 2004).

2007 and 2013 Programs

Core logging and sampling for the 2007 and 2013 drill programs were conducted by Canasil personnel. All drillholes were described in detailed geological logs; analytical results were tabulated in separate spreadsheets on a hole-by-hole basis with the corresponding sample identification number that can be cross-referenced with the Certificates of Analysis. Core logging and sampling was conducted on site. The entire length of each drillhole was logged by experienced geologists and split by experienced geotechnicians utilizing a hydraulic core splitter or a gas-powered core saw. The 2007 drillholes were sampled in their entirety while the top 500m of the 2013 drillhole (BR-13-01) was not split because it twinned the upper part of drillhole BR-07-04. The remainder of BR-13-01 was split. The split and unsplit core was stored on the Project in core racks with core from previous exploration programs.

Drill core was logged for both geologic and geotechnical properties. Sample intervals were determined by the geologist, but were usually 2.0m in length. Descriptive geological logs, geotechnical logs and assay certificates for the drillholes were reviewed by the writer.

Drillhole collar locations were surveyed by hand-held GPS, and are considered to be accurate within 3m in plan. Elevation data was taken from the BC government digital elevation model presented on 1:20,000 scale trim, and is considered accurate within 20 m. Downhole surveys were completed on each drillhole.

Samples from both programs were sent to ALS for preparation and analysis. Each sample was analyzed for 33 major and trace elements by four-acid ICP-AES analysis and assayed for gold by fire assay with an atomic absorption finish on a 30g split. In 2007, quality control samples (blanks, duplicates and standards) were not inserted into the sample stream at regular intervals; in addition, ALS inserted standards of its own and ran some duplicates as part of its standard operating procedures, but an assessment of this data was not performed. In 2013, quality control samples (blanks, duplicates and standards) were inserted into the sample stream on a regular basis and can be denoted on analytical certificates by an 'A' or 'B' sample number suffix. An assessment of this data was not compiled in the drilling report.

11.5 2017 VERIFICATION SAMPLING

The samples collected by the writer in 2017 were from drill core and from one trench. Each sample was placed in a plastic sample bag with a uniquely numbered tag from a sample tag book, and closed securely with a zip tie. The tag book comprised three distinct tags per each unique number; the second tag was placed in the core box and the third tag remained in the sample tag book for future reference. The samples were transported by the writer from the Project and stored securely prior to being shipped by commercial courier to the laboratory in Langley, British Columbia.

MS Analytical Laboratories ("MS") in Langley, British Columbia, analyzed the samples from 2017 verification sampling of the historic drill core. MS conforms to a quality system that meets the requirements of ISO 17025:2005 accreditation for certain methods, including those used herein. Results are shown in Table 12-1.

Neither Canmine nor Canasil have a relationship of any kind with MS.

Sample Preparation

- Each sample received by MS lab staff was dried and individually crushed and pulverized following preparation procedure PRP910 whereby samples are jaw crushed until 70% of the sample material passes through a 2mm screen.
- From this material a 250 g riffle split sample is collected and then pulverized in a mild steel ring-and-puck mill until 85% passes through a 75 µm screen.

- A 0.2 g split of each milled sample is collected for multi-element analysis and ore grade lead and/or zinc analysis, and a 30 g split of each milled sample is collected for gold assay.

Sample Analytical Procedures

The following laboratory procedures were used to analyze the core and rock samples, and associated QA/QC samples, collected in 2017.

Multi-element Analyses

- A 0.2 g split of each milled sample was evaluated for 48 elements, including silver, by a four acid digestion using a combination of hydrochloric, nitric, perchloric and hydrofluoric acids using ICP-AES/MS ultra-trace level analysis (method IMS-230).

Gold Analysis

- A 30 g split of each milled sample was evaluated for gold by lead collection fire assay fusion with an AAS finish (method FAS-111).

Two multi-element Certified Reference Standards (CRS) were inserted into the 2017 sample batch and MS inserted one CRS into the sample batch. A statistical analysis of the CRS used was not performed because of the small number of samples. However all results were within an acceptable range of the recommended values for gold, copper, silver and molybdenum (Table 11-2).

Table 11-2: Certified Reference Standards – 2017 Results

CRS ID	Sample ID	Inserted by	Lab Assay	CRM Value	CRM low	CRM high	Within CI
			Au g/t				
CDN-CM-24	3776	QP	0.503	0.521	0.465	0.577	Yes
CDN-GS-P4C	CDN-GS-P4C	MSA	0.350	0.362	0.326	0.398	Yes
			Cu %				
CDN-CM-24	3776	QP	0.369	0.365	0.345	0.385	Yes
CDN-CM-31	3787	QP	0.081	0.084	0.078	0.090	Yes
			Ag g/t				
CDN-CM-24	3776	QP	4.3	4.1	3.7	4.5	Yes
CDN-CM-31	3787	QP	0.7	0.5	-	-	-
			Mo ppm				
CDN-CM-31	3787	QP	95	90	70	110	Yes

11.6 SUMMARY OF QUALITY ASSURANCE / QUALITY CONTROL (QAQC) PROCEDURES

QAQC procedures were not in place for drilling programs completed on the Project from 1988-1997. In 2002, Northgate instituted the first QAQC program of record on the Project. However, reports for the 2002-2003 Northgate work do not include an assessment of the effectiveness of the lab based on the blanks, standards and/or duplicate core samples it inserted into the sample stream for each batch submitted to the lab. In 2004, Northgate completed an assessment of its QAQC program concluding that analytical work by ALS provided sound and accurate gold and copper analytical results for the 2004 diamond drilling program. In 2007, no QAQC procedures were employed, and in 2013, while QAQC procedures were employed, no assessment of the accuracy and precision of the lab was determined.

11.7 SAMPLE SECURITY

All samples collected on the Brenda Project were packaged for shipment under the management of the project geologist. Samples were sent to the lab in one or more batches by either the exploration company running the program, typically at the end of the season, or by commercial trucking company familiar with the remote area.

11.8 ADEQUACY OF SAMPLE PREPARATION, SECURITY AND ANALYTICAL PROCEDURES

The writer concludes that security, sample collection, sample preparation and analytical procedures utilized during historical drill programs were completed by professional geologists working for well-established junior mining exploration companies and therefore likely met or exceeded the best management practices and standards of the era in which the work was performed.

Use of a comprehensive QAQC program is recommended for all future exploration programs on the Brenda Project to insure that all analytical data can be confirmed to be reliable.

12 DATA VERIFICATION

The data verification process included review of drill logs, analytical database, analytical certificates, project core handling, logging, sampling, QAQC and analytical protocols, geophysical reports and a site visit. The review of the QAQC program and results is presented in Section 11 of this Report. The data base for the Project is considered to be reliable and appropriate to prepare this Report.

Robert A. (Bob) Lane, MSc, PGeo, visited the Project on August 27-28, 2017. The road-based site visit included:

- inspections of the camp, core logging and core storage facilities,
- examination of host rock geology and/or mineralization at the EB and White Pass zones,
- visits to numerous historic drillhole collar locations on the EB and White Pass zones,
- review, examination and sampling of core from holes drilled in the White Pass zone from 1993-2007.

There was no activity on the Project at the time of the visit, therefore a review of active drill core handling, drill core Chain-of-Custody procedures, and QAQC methodologies could not be completed.

The tour of the camp, core logging and core storage facilities presented as a clean and well-organized work environment consistent with small-scale exploration camps seen elsewhere in BC. Drill core is stored at the camp located on Brenda Project tenure at UTM (NAD83, Zone 9) co-ordinates 6349428 N and 628389 E.

The writer selected five drillholes for review and laid the core out for examination at the core storage area. Drillhole logs, analytical summary results and assay certificates were used to verify the core and logged intervals. The data correlated with the physical core and no issues were identified. In addition, the writer toured the core storage facility, randomly pulling and examining core from several additional drillholes. Core recoveries appeared to be very good to excellent, except near the tops of some holes where significant lengths of poor recovery was noted. Unsampled intervals in some of these drillholes correlated with post-mineralization dykes; the position of these dykes was accurately reflected in the drillhole logs.

It was noted that ten or more different geologists have logged core on the Project leading to the possibility of misidentification of certain geological units that host mineralization. While this is not considered critical, it may be in the company's best interest to re-log a number of drillholes to ensure that lithologic descriptions and terminology have been applied in a consistent and standardized manner across all of the holes drilled on the Project, particularly those in the White Pass zone.

12.1 ANALYTICAL DATA VALIDATION

Verification samples were collected by the writer in 2017 to validate earlier analytical results. The suite of samples consisted of eight drill core samples representing a total of five holes drilled in the White Pass zone. Competent core was sampled using a core saw (Figure 12-1), while badly broken sections were sampled manually by selecting an estimated half of the remaining material. All of the intervals sampled had their original sample tags intact making direct comparison possible.

In addition to core samples, one 0.7m continuous chip sample was collected from the centre of the EB zone trench (Figure 12-2) to characterize the zone. It was included in the batch of verification samples submitted for analysis. Two Standard Reference Material (SRM) samples and one blank sample were inserted into the batch for control.

The batch of samples was submitted to MS Analytical (MSA) in Langley, BC, for analysis. The analytical methods used were Fire Assay with AAS finish for Au and four-acid digestion with ICP-AES/MS for ultra-trace multi-element analysis. The 2017 results are compared with those from the original sample results Table 12-1. Figures 12-3 and 12-4 compare new data with original values and show that there is a reasonably good correlation for both gold and copper.

Overall, the new data produced from the re-sampling and re-analysis of selected intervals of historical drill core correlated well with the original values and verify that earlier operators followed proper procedures and used adequate care to obtain reliable results.

Adequacy of Data

The writer is confident that the data and results are valid based on the site visit and inspection of all aspects of the project; this confidence extends to the methods and procedures used. The verification program determined that the historical data base, compiled from hard-copy and electronic drillhole logs, cross-sections and maps, and unpublished private reports, is adequate and provides a sound technical framework upon which future exploration programs can be built.

The writer is satisfied with the adequacy of the data for the purposes used in the technical report.

Figure 12-1: Quartered drill core, White Pass zone, Brenda Project

Figure 12-2: Continuous 0.7m chip sample, EB zone, Brenda Project

Table 12-1: Analytical Results for 2017 Verification and Character Samples, Brenda Project

Drill Core and Rock Samples							2017 Analytical Results			Previous Analytical Results		
Zone	Previous ID	2017 ID	Hole ID	From (m)	To (m)	Description (host rock, alteration, mineralization)	Au g/t	Cu %	Ag g/t	Au g/t	Cu %	Ag g/t
White Pass	64611	3778	BR-93-01	53.93	57.00	pink to grey porphyritic (plagioclase, hornblende, augite) latite flow with 1% f-gr diss py; cut by qz stringers; late gypsum stringers	0.322	0.122	1.4	0.450	0.140	1.5
White Pass	68663	3779	BR-07-04	222.00	224.00	pinkish-brown potassic-altered latite flow cut by qz-mt-py+/-ep veinlets	0.340	0.115	5.6	0.380	0.118	4.9
White Pass	68664	3780	BR-07-04	224.00	226.00	pinkish-brown potassic-altered latite flow cut by qz-mt-py+/-ep veinlets	1.701	0.210	3.8	1.480	0.193	2.7
White Pass	110171	3781	BR-97-01	167.40	170.40	pinkish-brown to pale green porphyritic latite flow cut by qz-mt-py stringers	1.459	0.109	4.2	1.400	0.114	4.3
White Pass	110172	3782	BR-97-01	170.40	172.80	pinkish-brown to pale green porphyritic latite flow cut by qz-mt-py stringers	1.726	0.156	5.8	2.550	0.213	8.4
White Pass	122388	3783	BR-03-07	165.40	167.40	strongly hematitic, pinkish-grey mottled porphyritic intermediate volcanic flow cut by qz-mt±py stringers; anhydrite in late fractures	0.261	0.066	5.6	0.220	0.055	5.3
White Pass	122391	3784	BR-03-07	171.40	173.40	strongly hematitic, pinkish-grey mottled porphyritic intermediate volcanic flow cut by qz-mt-py±cp±ep stringers; anhydrite in late fractures	0.418	0.101	7.0	0.556	0.116	6.9
White Pass	210253	3785	BR-04-12	115.80	117.30	grey-green massive andesite flow, weak propylitic alteration, 1-2% diss py	0.712	0.098	4.6	0.807	0.101	4.3
EB	-	3786	-	-	-	EB trench: 0.7m continuous chip sample across rusty-weathering, pyritic augite-phyric andesite cut by two qz-py veins oriented 030/80E	0.659	0.008	17.1	-	-	-

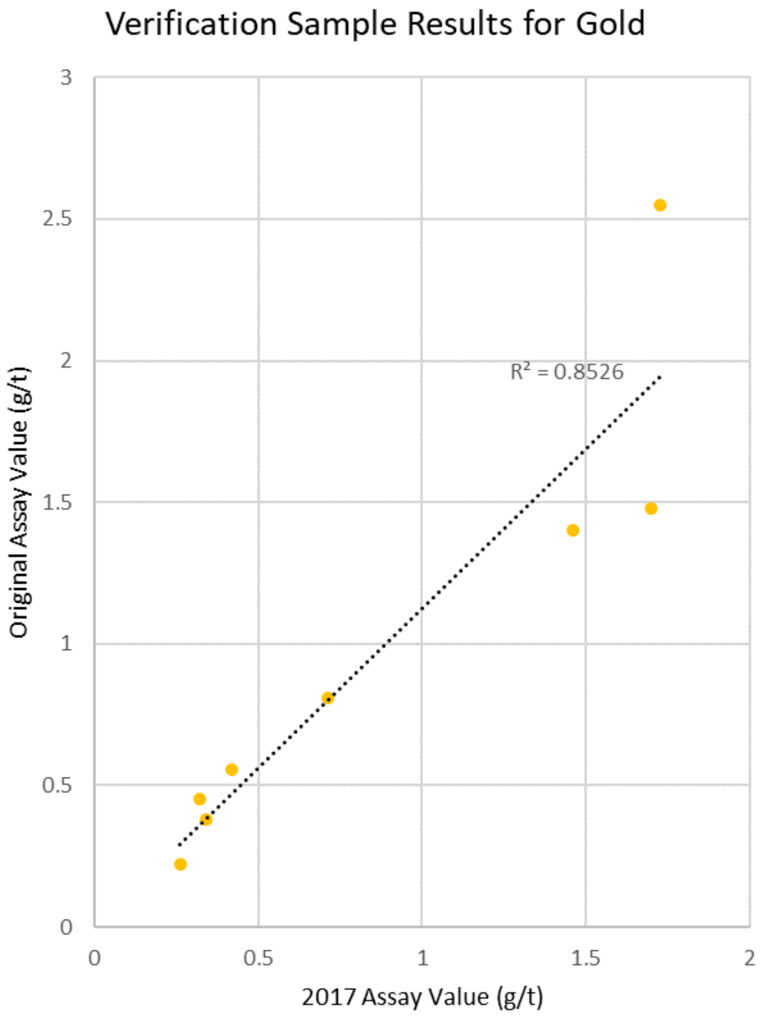


Figure 12-3: Correlation of Core Duplicate Pairs for Gold

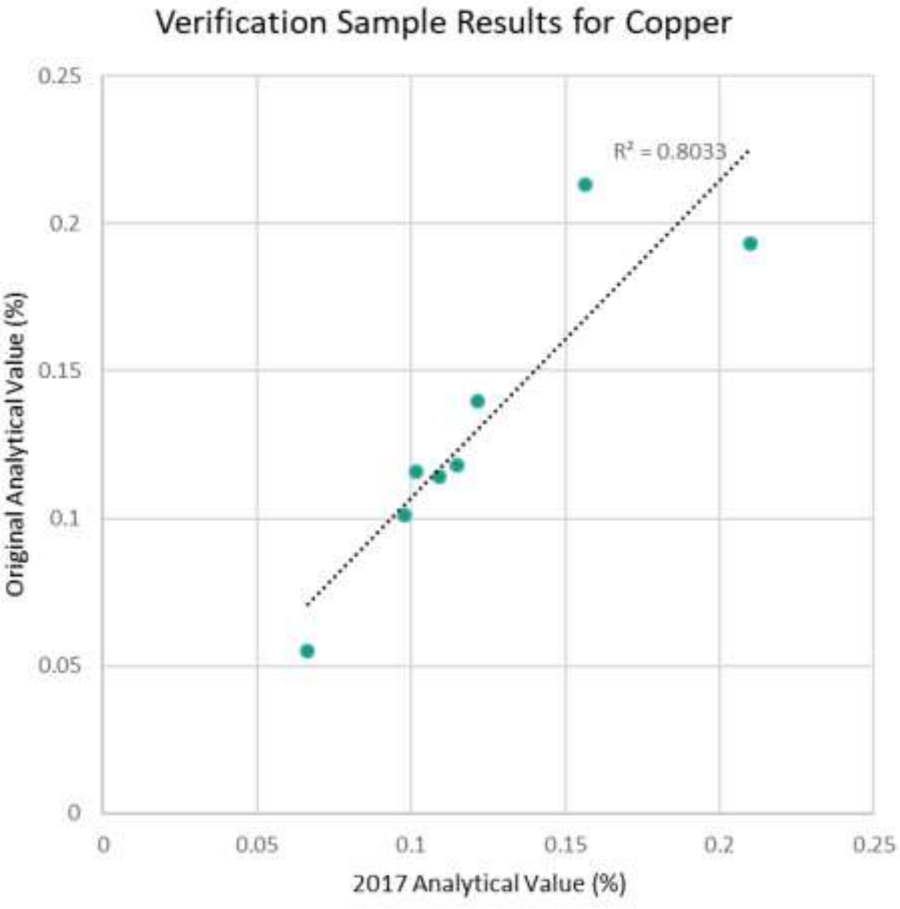


Figure 12-4: Correlation of Core Duplicate Pairs for Copper

13 MINERAL PROCESSING AND METALLURGICAL STUDIES

There has been no mineral processing or metallurgical studies on the Brenda Project.

14 MINERAL RESOURCE ESTIMATES

There are no current mineral resource estimates on the Brenda Project.

15 MINERAL RESERVE ESTIMATES

There are no current mineral reserve estimates on the Brenda Project.

16 MINING METHODS

The Brenda Project is not an ‘advanced property’ as defined by NI 43-101; therefore this section is not applicable.

17 RECOVERY METHODS

The Brenda Project is not an ‘advanced property’ as defined by NI 43-101; therefore this section is not applicable.

18 PROJECT INFRASTRUCTURE

The Brenda Project is not an ‘advanced property’ as defined by NI 43-101; therefore this section is not applicable.

19 MARKET STUDIES AND CONTRACTS

The Brenda Project is not an ‘advanced property’ as defined by NI 43-101; therefore this section is not applicable.

20 ENVIRONMENTAL STUDIES, PERMITTING AND SOCIAL OR COMMUNITY IMPACT

The Brenda Project is not an ‘advanced property’ as defined by NI 43-101; therefore this section is not applicable.

21 CAPITAL AND OPERATING COSTS

The Brenda Project is not an 'advanced property' as defined by NI 43-101; therefore this section is not applicable.

22 ECONOMIC ANALYSIS

The Brenda Project is not an 'advanced property' as defined by NI 43-101; therefore this section is not applicable.

23 ADJACENT PROPERTIES

Properties adjacent to the Brenda Gold-Copper Project are shown in Figure 23-1. They include the Shasta and Baker properties of Sable Resources Ltd., the Pil property of Findlay Minerals Ltd., and the Joy property of Amarc Resources Ltd. Shasta and Baker are former small-scale gold-silver producers currently on care-and-maintenance (MINFILE, 2015). The Pil and Joy properties are prospective for porphyry and epithermal mineralization similar to that found on the Project (MINFILE, 2015; Amarc Resources Ltd., 2017). Bouzari et al. (2019) examined a number of these properties and collected new geochemical, geochronological, fluid inclusion, and short-wave infrared alteration data. They concluded that several of these prospects exhibit characteristics of shallow-level porphyry systems.

Other significant nearby properties include Lawyers, located approximately 25km northwest of the Project, and Kemess, located 25km south of the Project. The Lawyers property of Benchmark Metals Inc. is a former underground gold-silver mine that is the subject of advanced exploration.

Veins and vein-like structures occur on the Brenda Project. Vein mineralization identical to that on the Lawyers, Shasta, and Baker mine properties has not been found on the Project. The writer is unable to verify the information on the Lawyers, Shasta, and Baker mine properties and this information is not necessarily indicative of the mineralization on the Project that is the subject of this technical report.

The Kemess property of Centerra Gold Inc. includes the former Kemess South open pit gold-copper mine and the Kemess Underground and Kemess East deposits. Previous owner, Aurico Metals Inc., received an environmental certificate for development of the Kemess Underground (KUG) deposit on March 15, 2017. The KUG deposit has probable reserves 107.4 million tonnes grading 0.54 g/t Au, 0.27 % Cu and 1.99 g/t Ag, and indicated resources of 246.4 million tonnes grading 0.42 g/t Au, 0.22 % Cu and 1.75 g/t Ag (SRK, 2016). The Kemess East deposit, located 1km east of KUG, has inferred resources of 113.1 million tonnes grading 0.46 g/t Au, 0.38 % Cu and 1.94 g/t Ag (SRK, 2017).

Porphyry gold-copper mineralization similar to that at the Kemess property has not been found at the Project. The reserves and resources reported on the Kemess property are not present at the Project. The writer has not done sufficient work to classify the information on the Kemess property as current mineral resources or mineral reserves and this information is not necessarily indicative of the mineralization on the Project that is the subject of this technical report. Canasil is not treating the information on the Kemess property as current mineral resources or mineral reserves.

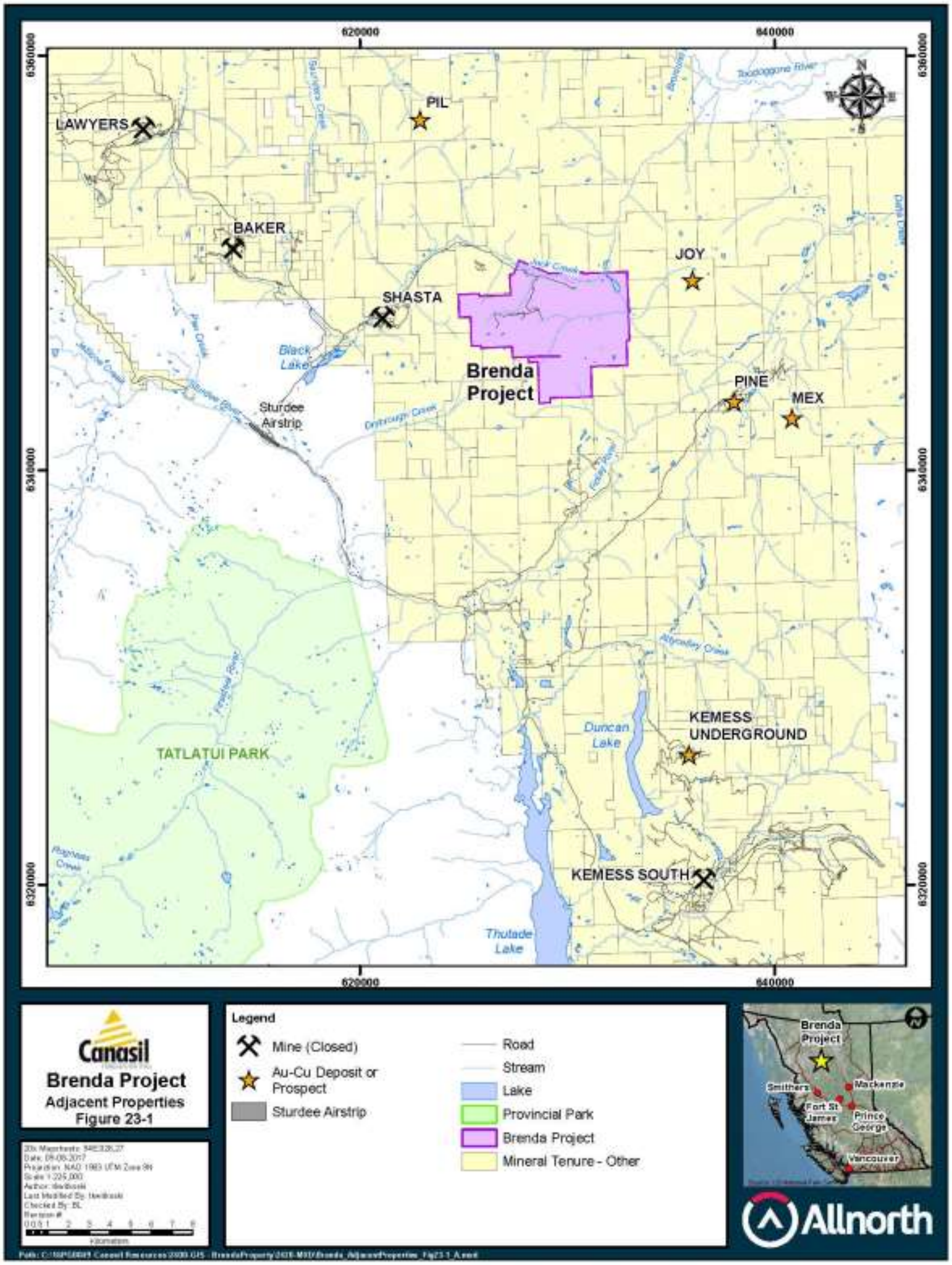


Figure 23-1: Adjacent Properties, Brenda Project

24 OTHER RELEVANT DATA AND INFORMATION

The writer has reviewed the sources of information cited in the text and listed in the Section 27 of this report. The information includes written descriptions, drillhole logs, cross-sections and maps produced by various operators on the Brenda Project over a period of more than 35 years. Some of the reports reviewed are public assessment reports available through the B.C. Ministry of Energy and Mines Assessment Report Indexing System (ARIS), while others are internal reports completed by the operator. The writer is not aware of any additional sources of information that might significantly change the conclusions presented in this Report.

The writer is not aware of any foreseeable extraordinary difficulties that should arise or hamper additional exploration activities on the Brenda Project.

25 INTERPRETATION AND CONCLUSIONS

The geologic environment of the Brenda Project is favourable for porphyry Cu-Au ± Mo mineralization, potentially at elevated grade, due to (1) reactive intermediate to mafic host rocks of the Takla Group and Upper Toodoggone Formation, and (2) the likely high-K calc-alkalic porphyry intrusions, similar to most of those elsewhere in the Toodoggone-Kemess district. High-K intrusions are related to important Cu-Au ± Mo deposits worldwide, such as Bingham, Robinson, Red Chris, Bajo Alumbrera, Grasberg, and Ok Tedi.

The Brenda Project has a relatively short exploration history from its discovery in 1950 to its first diamond drilling in 1988. The Project includes four principal zones that have been the focus of exploration, including the EB, Takla, Creek and White Pass zones.

The EB and nearby Takla zones are vein occurrences in the western part of the Brenda Project. The EB zone carries low values of gold and silver in weakly silicified and quartz-veined pyritic andesite of the Takla Group. The EB zone appears to be limited in extent. The Takla zone is described as an epithermal vein occurrence, also within Takla Group rocks, that includes high grades of gold and silver in surface samples. Drilling of the zone was not encouraging. Both of the zones should be evaluated as part of a Project-wide reassessment.

The Creek zone is a gold-copper porphyry prospect that occurs near the northern boundary of the Brenda Project. Results from surface sampling and short, near-surface drillhole intersections returned low to moderate concentrations of silver, lead and zinc with anomalous levels of copper and gold. A detailed review of all existing data and, if warranted, modelling of the zone should be completed prior to any further physical work on the zone.

The White Pass zone has been the focus of exploration on the Brenda Project since 1993. It is an important gold-copper-silver porphyry prospect that is characterized by a strong colour anomaly caused by pervasive argillic alteration of exposed volcanic rocks, a broad gold-silver soil geochemical anomaly, a spotty copper and molybdenum soil geochemical anomalies, and a high chargeability anomaly. The zone has been tested by 41 diamond drillholes (10,034m) over the course of nine drilling programs that took place from 1992-2013.

The drilling demonstrated that White Pass zone mineralization occurs mainly within intermediate volcanic rocks of the Toodoggone Formation. Mineralization consists of quartz-magnetite±pyrite±chalcopyrite veinlets, sheeted veinlets and stockwork zones and, locally, disseminated magnetite and pyrite within zones of strong phyllic and weak to moderate potassic alteration. Potassic alteration with increasing K-feldspar and magnetite becomes dominant at depth. Elevated concentrations of zinc and silver are common in the White Pass zone.

Drillhole data for the White Pass zone has been compiled and modelled. The resulting work outlined eight barren late- to post-mineral dykes (PMD) oriented approximately 135°/75°S and distinguished them from weakly mineralized (anomalous to weak gold and copper values) Black Lake intrusive rocks that contain minor quartz±magnetite veins. White Pass zone mineralization is cut by the series of PMD resulting in alternating panels of mineralized rock and barren rock.

3D geological modelling of White Pass zone data resulted in a Mineralized Zone (MZ), characterized by drillhole intersections of >0.1 g/t Au, and Higher Grade Zones (HGZ), characterized by drillhole intersections of >0.4 g/t Au. Three-dimensional shapes for the MZ and HGZ were generated in similar fashion to that of grade shell interpolation; some mineralized intervals cross PMD intervals if mineralization occurs on both sides of the PMD. The trend of the MZ has an orientation of 315°/30°NE. The modelled shape for the MZ has approximate dimensions of 1000m by 400m and is from 100-600m thick. The modelled shape for the HGZ has estimated dimensions of 200m by 300m and is 150m thick.

The reader is reminded that 3D geological modelling of the White Pass zone was completed to assist future exploration. The modelling was carried out only in support of defining targets for future exploration within the project area, and was not intended as and does not form part of any resource estimate. The 3D modelling of the White Pass zone is preliminary and was performed in an attempt to characterize its geometry, to establish the position and orientation of the smaller HGZ relative to the broader MZ, and to be used as a guide to assist in future drilling. The potential quantity and grade outlined by the model is conceptual in nature and there has been insufficient exploration on the White Pass zone to define a mineral resource. Also, it is uncertain if further exploration will result in the White Pass zone being delineated as a mineral resource.

The modelling of the White Pass zone suggests that the core of better grade mineralization in the White Pass zone remains open in several directions, to the northeast, southeast and southwest. Additional mineralization and exploration targets may exist to the east. A chargeability anomaly is shown just below current shapes for the MZ and HGZ, and chargeability anomalies to the northeast and southwest of the shapes have not been drilled. Drilling has not tested beneath the chargeability anomalies. Figures 25-1 to 25-4 show the position of the modelled MZ and HGZ shapes relative to high chargeability anomalies. The modelling also identified several gaps between mineralized intervals. Targeted infill drilling may connect some of the existing higher grade intervals thereby expanding the dimensions of the HGZ. Potential to the northeast is supported by the analysis of subsurface multi-element data by Barnes (2017b). Potential to the southeast is based on encouraging Au and Cu in the most distal hole BR-04-12 (Figure 9-8). Potential to the southwest is suggested by the possibility of a “mirror image” of the northeast-dipping White Pass to the southwest. This is an area of limited exposure and no soil sampling coverage.

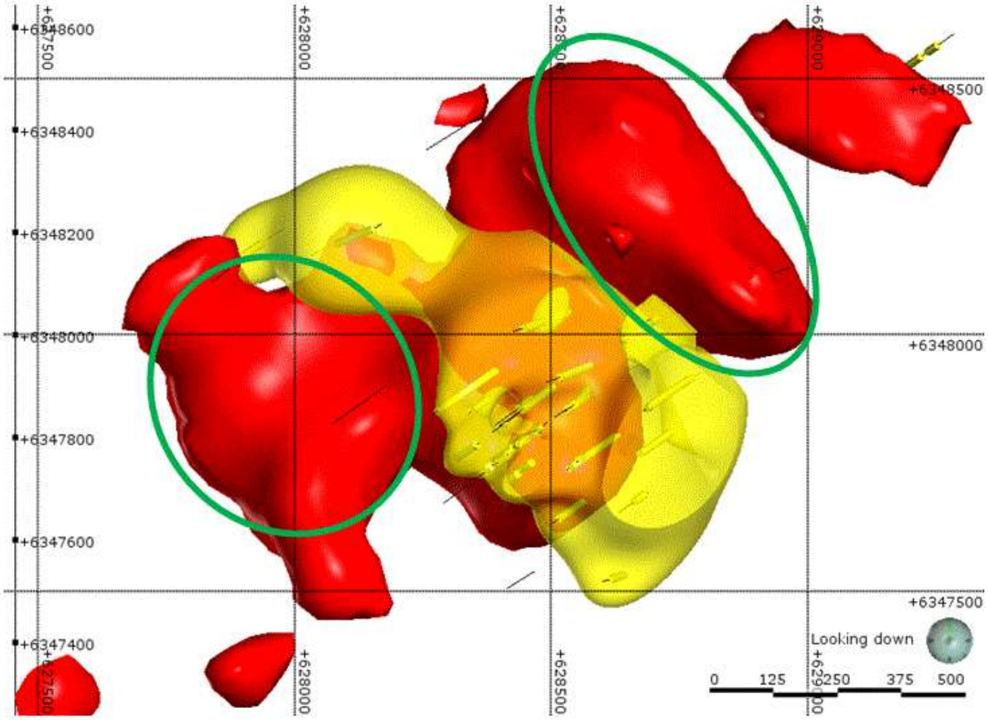


Figure 25-1: Plan view of the MZ in yellow and chargeability high in red. Green circles show untested areas

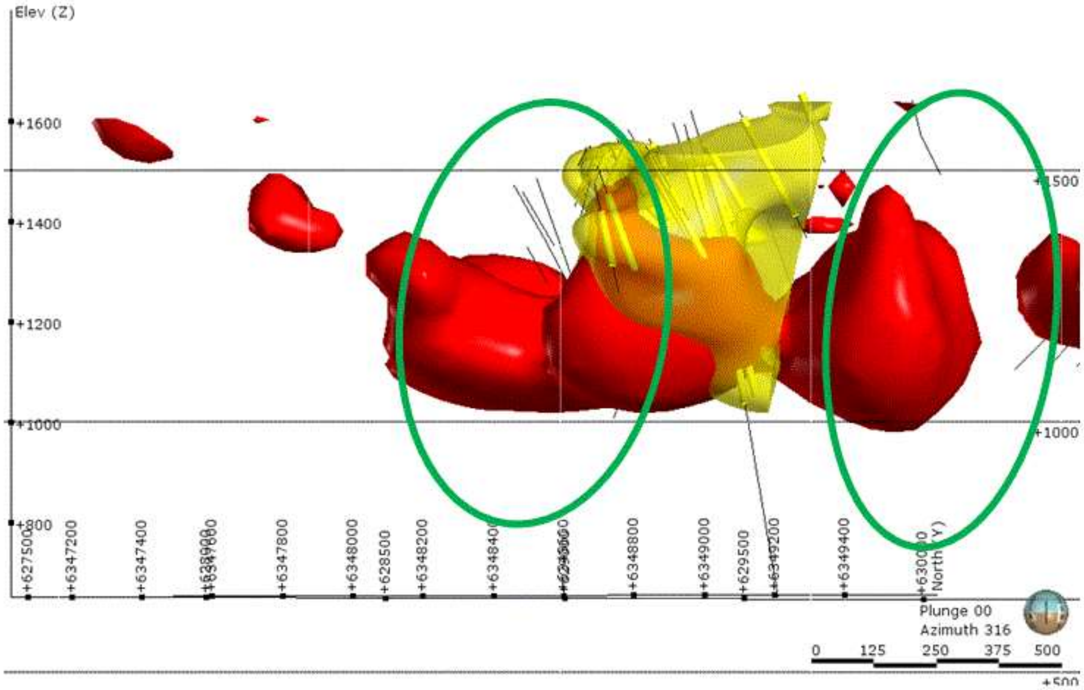


Figure 25-2: View at 315° of the MZ in yellow and chargeability high in red. Green circles show untested areas

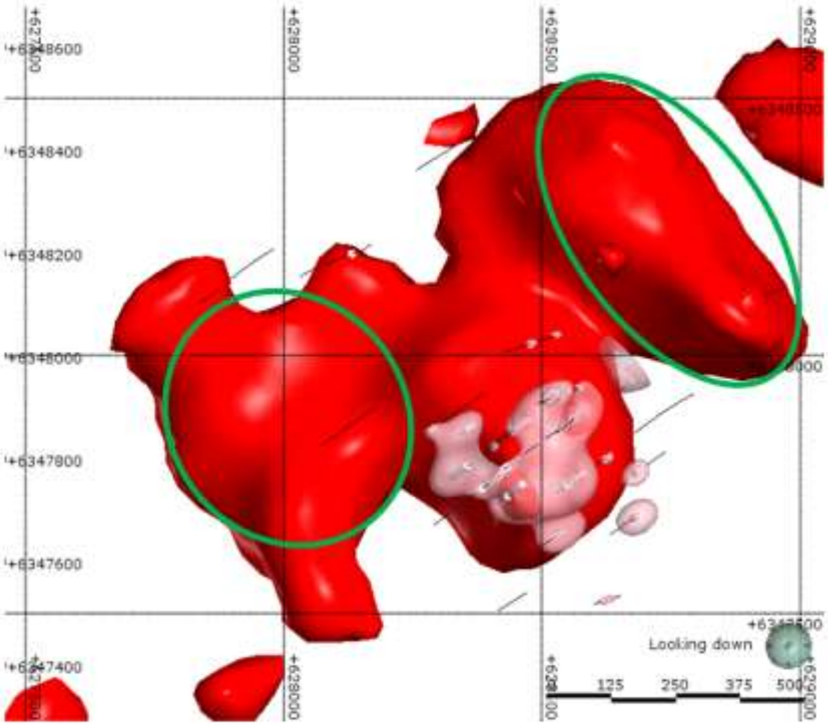


Figure 25-3: Plan view of the HGZ in pink and chargeability high in red. Green circles show untested areas

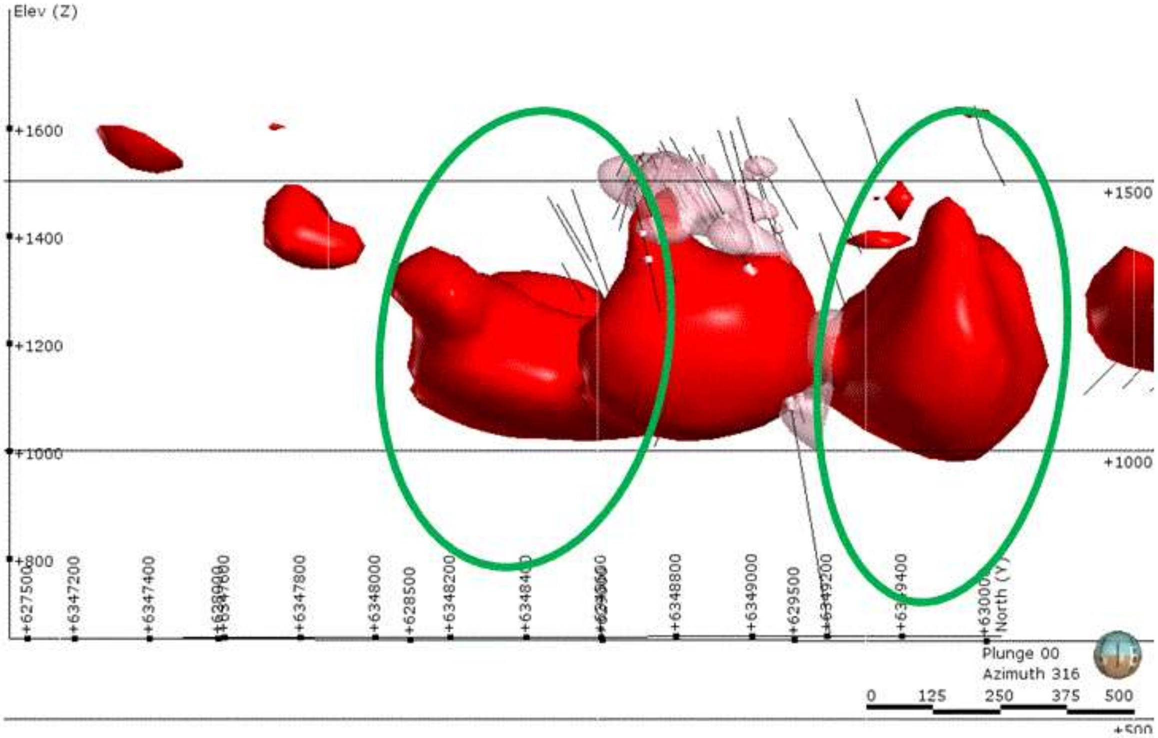


Figure 25-4: View at 315° of the HGZ in pink and chargeability high in red. Green circles show untested areas

The zone shows reasonably good correlation between gold, copper and silver. These metals are commonly accompanied by significantly elevated concentrations of zinc. Molybdenum is present in meaningful concentrations over short intervals.

The generalized porphyry deposit model is characterized by anomalous concentrations of zinc and silver peripheral to its core. This relationship is common in other deeper porphyry deposits in British Columbia. The White Pass zone is unusual in that the central gold-copper zone carries significant levels of zinc. This may be the result of overprinting by multiple mineralizing events, such as the overlapping of a high level porphyry system with that of a genetically related epithermal system, a feature not uncommon with telescoped porphyry systems (Sillitoe, 2010) or from post-mineral tilting of the porphyry system. Alternatively, it may suggest that a higher grade copper-gold zone is yet to be discovered at the Brenda Project. The geochemical modelling of Barnes (2017b) suggests that it could be in the low-Zn zone to the northeast.

25.1 RISKS AND UNCERTAINTIES

Risks and uncertainties associated with exploration at the Project include:

- Ability of Canasil to obtain necessary permits; and
- The porphyry copper-gold target is technically justified based on the geology and mineralization encountered to date both on the Project and at the adjacent properties. The risk associated with this target type lay in the relation between grade and size of any porphyry-style mineralized zone to depth of the zone beneath waste rock. It may not meet the criteria necessary to become a mine; and
- Political, legal or regulatory risk factors that include but are not limited to changes to laws, expropriation, changes in taxation or royalty regimes or non-issuance, cancellation or revocation of permits or licenses required to develop and operate the Project; and
- Project risk factors that would be expected to potentially impact any project such as this Project, such as adverse weather conditions, acts of god and other force majeure events, delays due to unforeseen factors such as late delivery or unavailability of equipment or materials or unavailability of labour resources, poor performance by contractors or construction contractors, disputes with local residents, etc.; and
- Political, legal or regulatory risk factors, for example changes to laws, expropriation, changes in taxation or royalty regimes or non-issuance, cancellation or revocation of permits or licenses required to develop and operate the Project; and
- There is the risk that Canasil may not be able to raise sufficient capital to adequately explore the entire Project. The program and budget proposed in this Technical Report will be just the start of the series of drilling campaigns and technical studies that are needed to take an exploration project through to becoming a mining Project.

All these risks and uncertainties, individually or combined could affect the Project's continuing viability and/or ultimately its economic viability.

26 RECOMMENDATIONS

The following multi-parameter Phase I exploration program is recommended.

Phase I

- Collect samples from intrusive rocks in the available core lithochemical and additional petrographic work to confirm rock nomenclature, high-K calc-alkalic affinity, and the presence and intensity of potassic alteration. Re-examine selected 2006 and 2012 thin sections. A key objective of this work is to refine the subdivision of intrusive rocks into pre- and syn-mineral, late-mineral, and post-mineral intrusive phases.
- Relog select drillholes to confirm the PMD and mineralized Black Lake Intrusive intervals, and to check for mineralogical/alteration characteristics that distinguish higher grade zone mineralization from lower grade zone mineralization. Logging of magnetic susceptibility and sulphate (gypsum and anhydrite) zoning should be included in all logging going forward.
- Sample and analyze the first 500 m of hole BR-13-01 and sections of unsampled core from other drillholes. The majority of this core still needs to be sawed.
- Complete detailed field mapping and bedrock sampling of areas defined as anomalous by previous prospecting, soil sampling, regional mapping or geophysical surveying, including the Target 2 area.
- Conduct soil geochemical sampling in select areas, as required, to expand upon or add further definition to existing geochemical anomalies. A priority is to extend coverage to the southwest of the White Pass zone and to complete coverage of lines over the east-southeast projection of the White Pass zone.
- Complete additional IP/resistivity lines as guided by the relogging and soil geochemical results. Extend the 2007 SJ Geophysics lines toward the southwest and add new lines to the northwest of White Pass and southeast of Target 2.
- Drill a minimum of three oriented core holes to depths of at least 700m on priority targets identified by soil geochemistry, IP, and/or the model presented in Section 25 of this report. A preliminary list of proposed drillhole locations to be considered is shown in Table 26-1 and Figure 26-1.
- All analyses should include gold by fire assay and multi-element analysis by four-acid ICP-MS.

The estimated cost of the recommended Phase I exploration program is $877,000 and is laid out in Table 26-2. A second phase of exploration (Table 26-3) is also recommended to further define and assess targets on the Project, but is dependent on successful completion of the Phase I program.

Phase II

- A LiDAR survey should be flown over the entire Project area. Added control should be obtained by placing markers at highly visible known locations such as the camp and drill sites.
- Follow-up diamond drilling on targets outlined, but not tested, in Phase I and identified in Phase II.
- Follow mapping and soil sampling based on targets developed in Phase I and possible more regional areas.

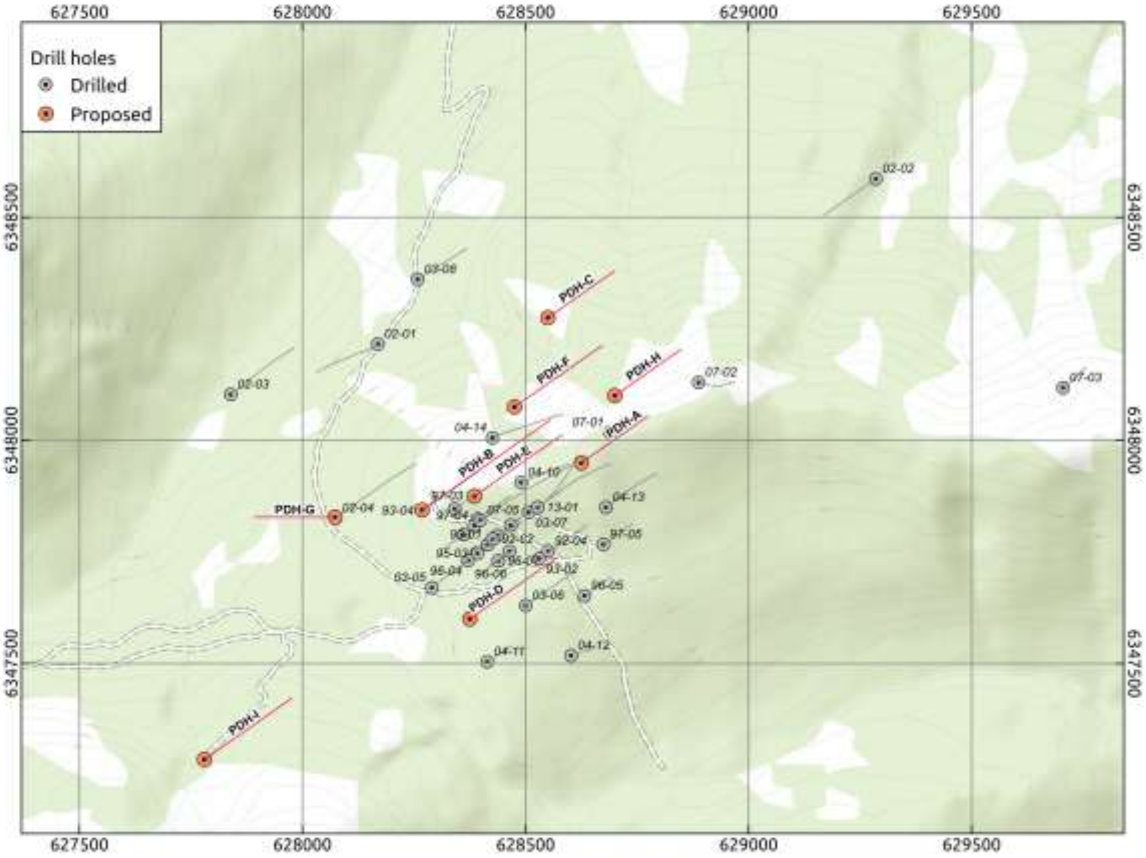


Figure 26-1: Preliminary Proposed Drillhole Locations, Brenda Project

Table 26-1: Preliminary Proposed Drillholes, Brenda Project

Proposed Drillhole	Easting	Northing	Elevation	Azimuth	Dip	Depth (m)	Rationale
PDH-A	628625	6347950	1624	55	-75	700	Test the NE extent of Cu-Au intercepts in BR07-04 and 07-05
PDH-B	628268	6347844	1544	55	-60	700	Test the depth extent of Cu-Au mineralization in BR-93-04, as suggested by the 3D Cu grid
PDH-C	628550	6348275	1507	55	-75	700	Test the NE White Pass target near the centre of the Zn low and the W edge of the IP high
PDH-D	628375	6347600	1531	55	-70	700	Test depth extent of near-surface Cu-Au in BR-93-03 and 97-02
PDH-E	628385	6347875	1580	55	-70	700	Similar concept as PDH-B, but tests depth extent further to NE
PDH-F	628475	6348075	1522	55	-70	700	Test the S-central part of the NE White Pass target based on the Zn low
PDH-G	628073	6347828	1477	270	-75	700	Test a chargeability high W of the main White Pass zone
PDH-H	628700	6348100	1604	55	-75	700	Test the SE edge of the NE White Pass target and the S edge of the IP anomaly
PDH-I	627780	6347285	1540	55	-70	700	Test the concept of a SW lobe of the White Pass zone; subject to verification and possible shift in location by proposed new soil coverage

Table 26-2: Estimated Budget for Phase 1 Exploration Program, Brenda Project

Activity	**Est. Cost**
Re-establish Camp and Infrastructure	$20,000
Geological Supervision, Personnel, Camp Operations	$75,000
Lithochemistry and petrography	$9,000
Splitting & analyses of previously unsampled drill core (est 500 samples plus 50 QAQC)	$60,000
Soil Sampling (800 samples)	$90,000
Bedrock Mapping	$50,000
IP/Resistivity Geophysical Survey	$70,000
Diamond Drilling (3 holes: 2,100m @ $150/m)	$315,000
Core Sample Preparation & Analyses (1,050 samples @$97/sample plus 105 QAQC)	$108,000
Sub-Total	$797,000
Contingency (10%)	$80,000
Total	**$877,000**

Table 26-3: Estimated Budget for Phase 2 Exploration Program, Brenda Project

Activity	**Est. Cost**
Geological Supervision, Personnel, Camp Operations	$150,000
Diamond Drilling (7 holes: 4,900m @ $150/m)	$735,000
Core Sample Preparation & Analyses (2,450 samples @$97/sample plus 245 QAQC)	$252,000
Sub-Total	$1,137,000
Contingency (10%)	$114,000
Total	**$1,251,000**

27 REFERENCES

Amarc Resources Ltd. (2017, Aug 22): Amarc and Hudbay Partner to Advance the Joy Copper-Gold Porphyry Project [Press Release]; retrieved from: http://www.amarcresources.com/ahr/NewsReleases.asp?ReportID=800698

Barnes, W. (2017a): Brenda Property Geology Review; private internal Memo to Canasil Resources Inc., 17 pages.

Barnes, W., (2017b): Brenda porphyry finder: private internal memo to Canasil Resources Inc., 14 p.

Bronlund, E. (1951): Private Report for Bralorne Mines Ltd.

Bouzari, F., Bissig, T., Hart, C.J.R., and Leal-Meija, H. (2019) An exploration framework for porphyry to epithermal transitions in the Toodoggone mineral district (94E): Geoscience BC Report 2019-18, 105 p. (https://doi.org/10.1080/14432471.2019.1600184).Diakow, L.J. (2004): Geology of the Samuel Black Range between the Finlay River and Toodoggone River, Toodoggone River Map Area, North-central British Columbia, Parts of NTS 94E/2,6 and 7; *B.C. Ministry of Energy, Mines and Petroleum Resources*, Open File Map 2004-4.

Diakow, L.J. (2001): Geology of the Southern Toodoggone River and Northern McConnell Creek Map Areas, North-Central British Columbia; *B.C. Ministry of Energy, Mines and Petroleum Resources*, Map 2001-1.

Diakow, L.J., Nixon, R.R. and Lane, B. (2005): Geology between the Finlay and Toodoggone Rivers, Toodoggone River Map Area, North-Central British Columbia (Parts of the NTS 94E/2, 6 and 7); *Geological Survey of Canada*, Open File Map 2005-3.

Diakow, L.J., Panteleyev, A. and Schroeter, T.G. (1993): Geology of the Early Jurassic Toodoggone Formation and Gold Silver Deposits in the Toodoggone River Map Area, Northern British Columbia, B.C. Geological Survey Branch, Bulletin 86.

Diakow, L.J., Panteleyev, A. and Schroeter, T.G., (1991): Jurassic Epithermal Deposits in the Toodoggone River Area, Northern British Columbia: Examples of Well-preserved, Volcanic-hosted, Precious Metal Mineralization; *Economic Geology*, Volume 86, pages 529-554.

Diakow, L.J. and Rhodes, R. (2005): Geology between the Toodoggone River and Chukachida Lake (Parts of NTS 94E/6, 7, 10 and 11), North-Central British Columbia; *in* Geological Fieldwork 2005, *B.C. Ministry of Energy, Mines and Petroleum Resources*, Paper 2006-1, pages 29-38.

Dickinson, J.M. (2004): Jura-Triassic magmatism and porphyry Au-Cu mineralization at the Pine deposit, Toodoggone district, north-central British Columbia: M.Sc. Thesis, University of British Columbia, 126 p.

Duuring, P., Rowins, S.M., Bradley S. M. McKinley, B.S.M., Dickinson, J.M., Diakow, L.J., Kim, Y., Creaser, R.A. (2009): Examining potential genetic links between Jurassic porphyry Cu–Au±Mo and epithermal Au±Ag mineralization in the Toodoggone district of North-Central British Columbia, Canada: Mineralium Deposita, v 44, p. 463–496.

Edmunds, F.C. and Kay, B.G. (2004): Exploration Program (Diamond Drill Program) on the Kemess Property, Assessment Report 27556, 178 pages.

Gustafson, L.B., and Hunt, J.P. (1975): The porphyry copper deposit at El Salvador, Chile: Economic Geology, v. 70, p. 857-912.

Halley, S., Dilles, J.H., and Tosdal, R.M. (2015): Footprints: Hydrothermal alteration and geochemical dispersion around porphyry copper deposits: SEG Newsletter, no. 100, p. 1, 12-17.

Lane, R.A. (2014): 2013 Diamond Drilling Program on the Brenda Gold-Copper Property; *B.C. Ministry of Energy, Mines and Petroleum Resources*, Assessment Report 34999, 76 pages.

Lane, R.A., Bowen, B.K. and Giroux, G.H. (2016): NI 43-101 Technical Report and Resource Estimate on the Lawyers Gold-Silver Project Toodoggone Region British Columbia, Canada; private report for PPM Phoenix Precious Metals Corp., 178 pages.

Massey, N.D.W., MacIntyre, D.G. and Desjardins, P.J. (2003): Digital Map of British Columbia: Tile NO9 North Central B.C., *B.C. Ministry of Energy, Mines and Petroleum Resources*, Geofile 2003-18.

McKinley, B.S.M., 2006, Geological characteristics and genesis of the Kemess North porphyry Au-Cu-Mo deposit, Toodoggone district, north-central British Columbia, Canada: M.Sc. Thesis, University of British Columbia, 157 p.

MINFILE (2015): Baker, 094E 026; BC Ministry of Energy and Mines, MINFILE digital data.

MINFILE (2015): Kemess South, 094E 094; BC Ministry of Energy and Mines, MINFILE digital data.

MINFILE (2015): Shasta, 094E 050; BC Ministry of Energy and Mines, MINFILE digital data.

Monger, J.W.H. (1977): The Triassic Takla Group in McConnell Creek Map-area, North-central British Columbia, *Geological Survey of Canada,* Paper 76-29, 45 pages.

Nordin, G. and Lane, R.A. (2008): 2007 Diamond Drilling Program and 3D Induced Polarization Survey, Brenda Gold-Copper Property; *B.C. Ministry of Energy and Mines*, Assessment Report 30176, 218 pages.

Osatenko, M., Riedell, K.B., and Lang, J., in press: Characteristics of porphyry copper and porphyry molybdenum deposits in the northwestern Cordillera: Canadian Institute of Mining, Metallurgy, and Petroleum Special Volume 57.

Panteleyev, A. (1996): Epithermal Au-Ag-Cu: High Sulphidation, in Selected British Columbia Mineral Deposit Profiles, Volume 2 - Metallic Deposits, Lefebure, D.V. and Hõy, T., Editors, British Columbia Ministry of Employment and Investment, Open File 1996-13, pages 37-39.

Panteleyev, A. (2006): Report on 2006 Geological Mapping, Brenda Copper-Gold Property, Toodoggone District, Northern British Columbia, prepared for Canasil Resources Inc., 16 pages.

Pautler, J. (2002): Report on the 2002 Diamond Drill Program on the Brenda Property; *B.C. Ministry of Energy and Mines*, Assessment Report 27161, 211 pages.

Pautler, J. (2003): Report on the 2003 Diamond Drill Program on the Brenda Property; *B.C. Ministry of Energy and Mines*, Assessment Report 27422, 227 pages.

PetraScience Consultants Inc. (2007): Petrographic description of 3 samples, Brenda property, B.C.: Report for Canasil Resources, petrography by Alexandra Mauler and Anne J.B. Thompson, 13 p.

Rebagliati, C.M. (1993): Assessment Report, 1993 Exploration Program, Brenda Property; B.C. Ministry of Energy and Mines, Assessment Report 23385, 164 pages.

Rebagliati, C.M., Bowen, B.K, Copeland, D.J. and Niosi, D.W.A., Kemess South and North Porphyry Gold-Copper Deposits Northern British Columbia, in Porphyry Deposits of the Northwestern Cordillera of North America, CIM Special Volume 46.

Riedell, K.B. (2019): Brenda Project: Desktop review: Report for Canasil Resources, 12 p.

Seedorff, E., Dilles, J.H., Proffett, J.M., Jr., Einaudi, M.T., Zurcher, L., Stavast, W.J.A., Johnson, D.A., and Barton, M.D (2005): Porphyry deposits; characteristics and origin of hypogene features: Economic Geology 100th Anniversary Volume, p. 251-298.

SRK Consulting (Canada) Inc. (2016): Technical Report for the Kemess Underground Project and Kemess East Resource Estimate, British Columbia, Canada; prepared for AuRico Metals Inc., 409 pages.

SRK Consulting (Canada) Inc. (2017): Technical Report for the Kemess Underground Project and Kemess East Project, British Columbia, Canada; prepared for AuRico Metals Inc., 443 pages.

Vancouver Petrographics (2012): Report 120552 for Gary Nordin, Canasil Resources: Unpublished report, petrography by J. G. Payne, 37 p.

Weishaupt, P.J. (1989): Geochemical, Geophysical, Diamond Drilling and Physical Report on the Brenda and Jan Groups; *B.C. Ministry of Energy and Mines*, Assessment Report 18441, 204 pages.

Weishaupt, P.J. (1991): Trenching Report on the Brenda Claims; *B.C. Ministry of Energy and Mines*, Assessment Report 20963, 31 pages.

Weishaupt, P.J. (1992): Geological and Geochemical Report, Brenda Group of Mineral Claims; B.C. Ministry of Energy and Mines, Assessment Report 22272, 42 pages.

Weishaupt, P.J. (1993): Diamond Drilling Report on the Brenda and Tom Claims; B.C. Ministry of *Energy and Mines*, Assessment Report 22820, 49 pages.

Weishaupt, P.J. (1996): Diamond Drill Report on the Brenda Property; *B.C. Ministry of Energy and Mines*, Assessment Report 24628, 33 pages.

Weishaupt, P.J. (1998): Drilling Report on the Brenda Property; *B.C. Ministry of Energy and Mines*, Assessment Report 25439, 51 pages.

Wilson, A., Cooke, D., and Thompson, J. (2002): Alkalic and high-K calc-alkalic porphyry Au-Cu deposits: A summary, in Cooke, D.R., and Pongratz, J., eds., Giant ore deposits: Characteristics, genesis and exploration: CODES Special Publication 4, p. 51-55.

APPENDICES

APPENDIX 1: DRILL HOLE STRIP LOGS

Figures A1-1 through A1-10 present lithologic and multi-element graphic strip logs for seven holes in the White Pass zone, one (BR-04-14) in the Northeast White Pass target, and two in "Target 2" (BR-96-01 and BR-02-02). The logs for the most holes are nominally at 1:2000 scale, whereas those for the deeper holes BR-04-14, BR07-04, BR07-05, and BR-13-01 are at 1:5000 scale. Since there are no S analyses for the earlier holes, these logs show Bi instead.

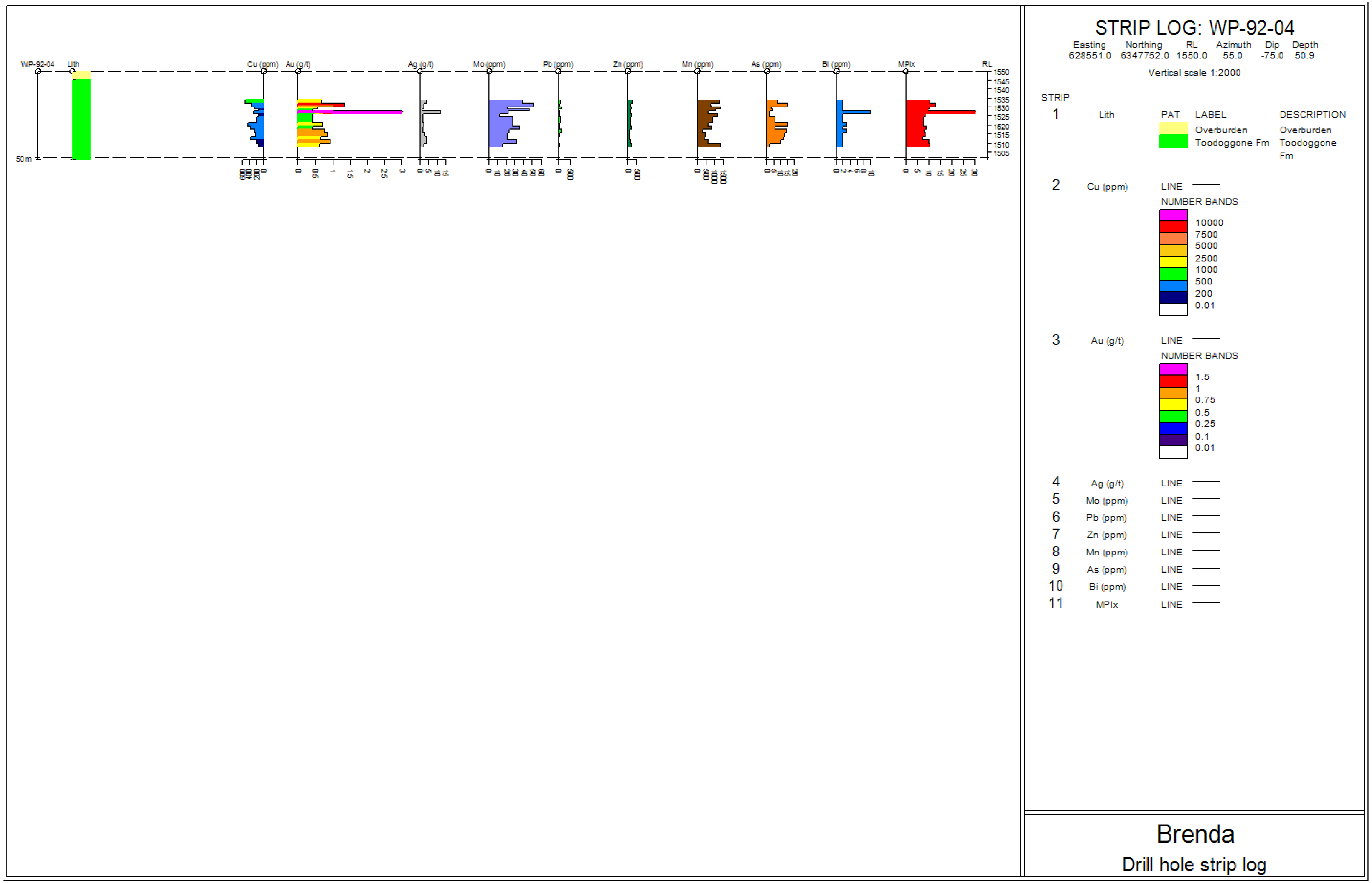


Figure A1-1: Strip log for hole WP-92-04 in the White Pass zone.

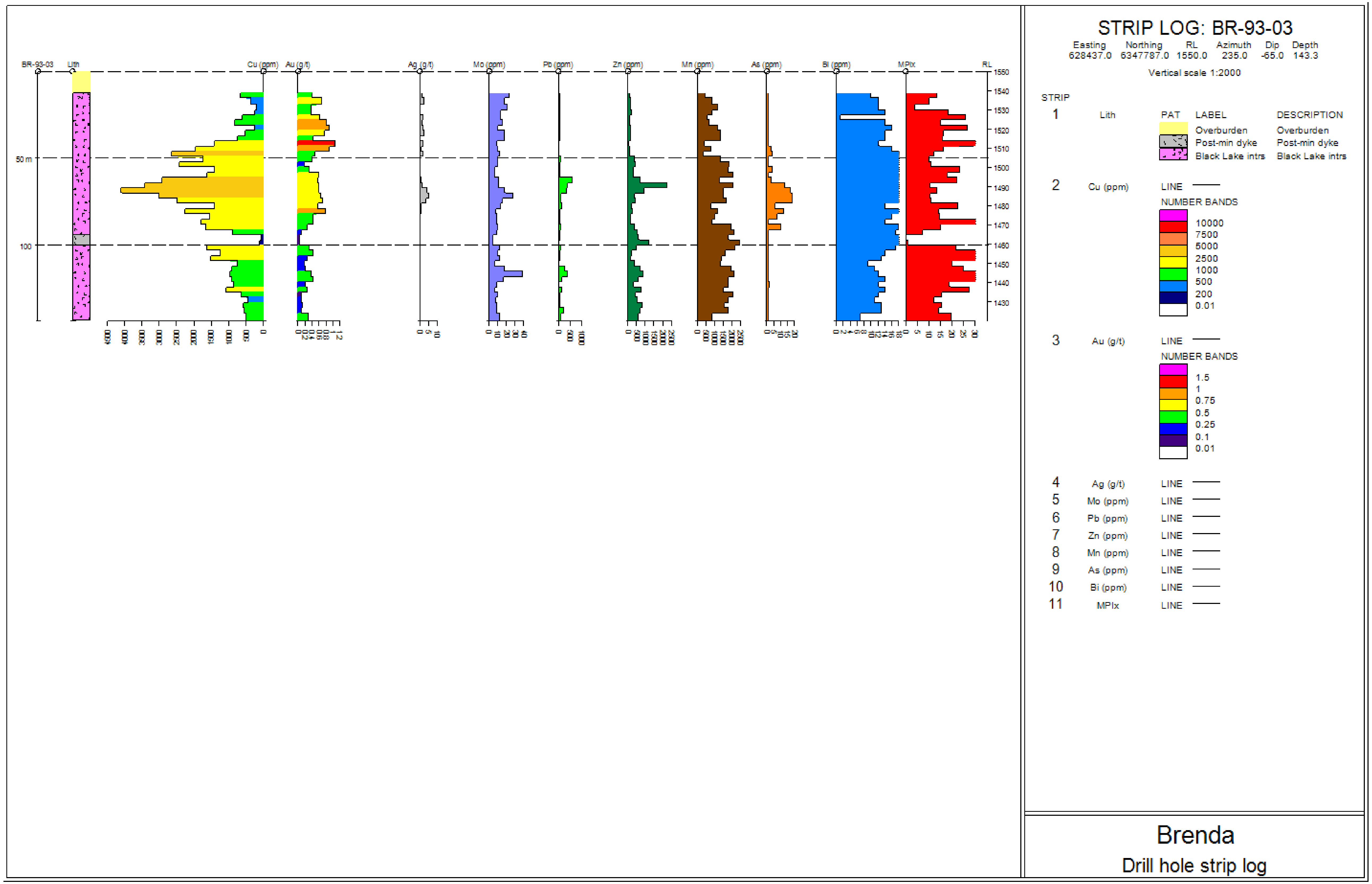


Figure A1-2: Strip log for hole BR-93-03 in the White Pass zone.

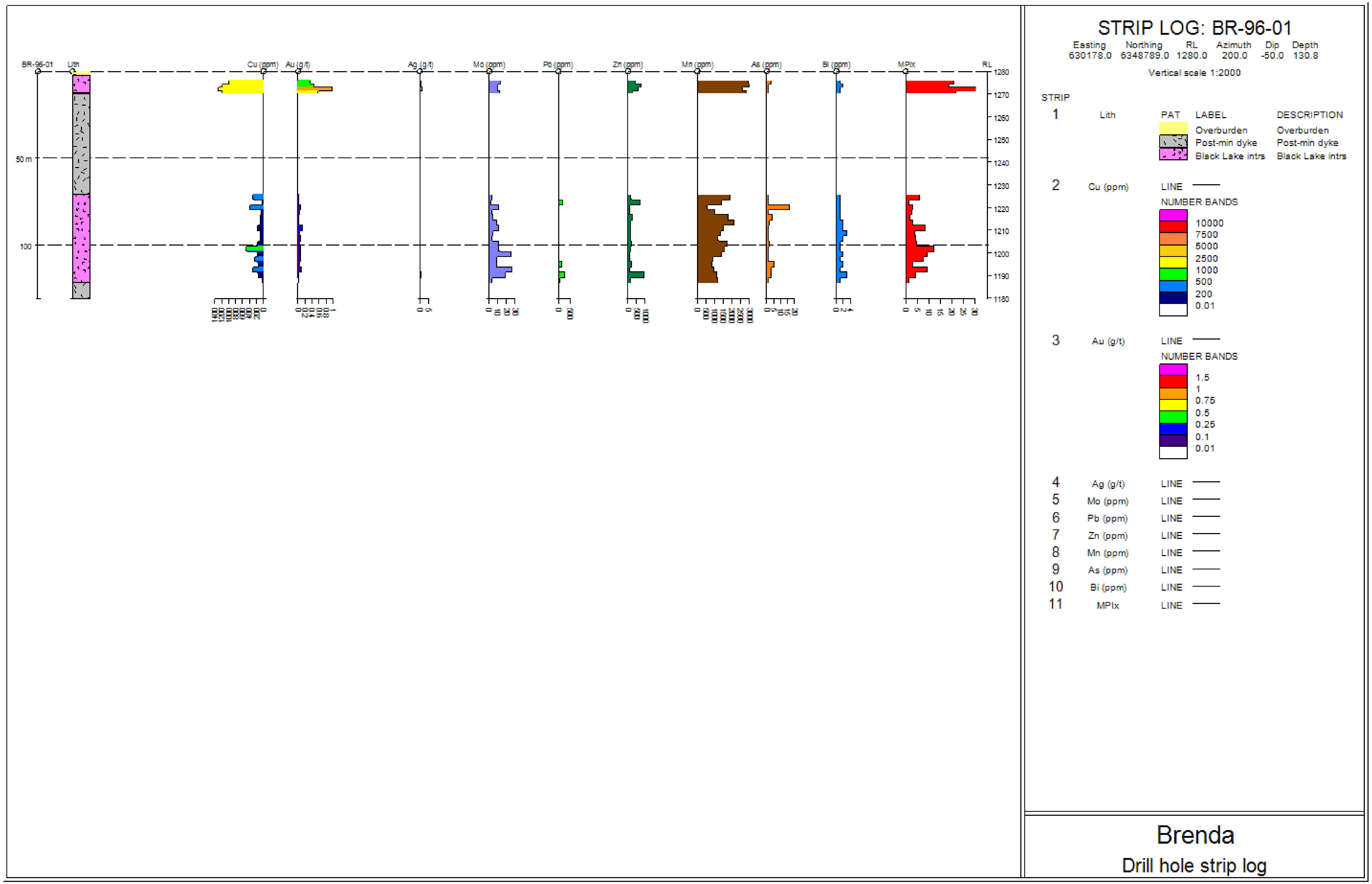


Figure A1-3: Strip log for hole BR-96-01 in Target 2.

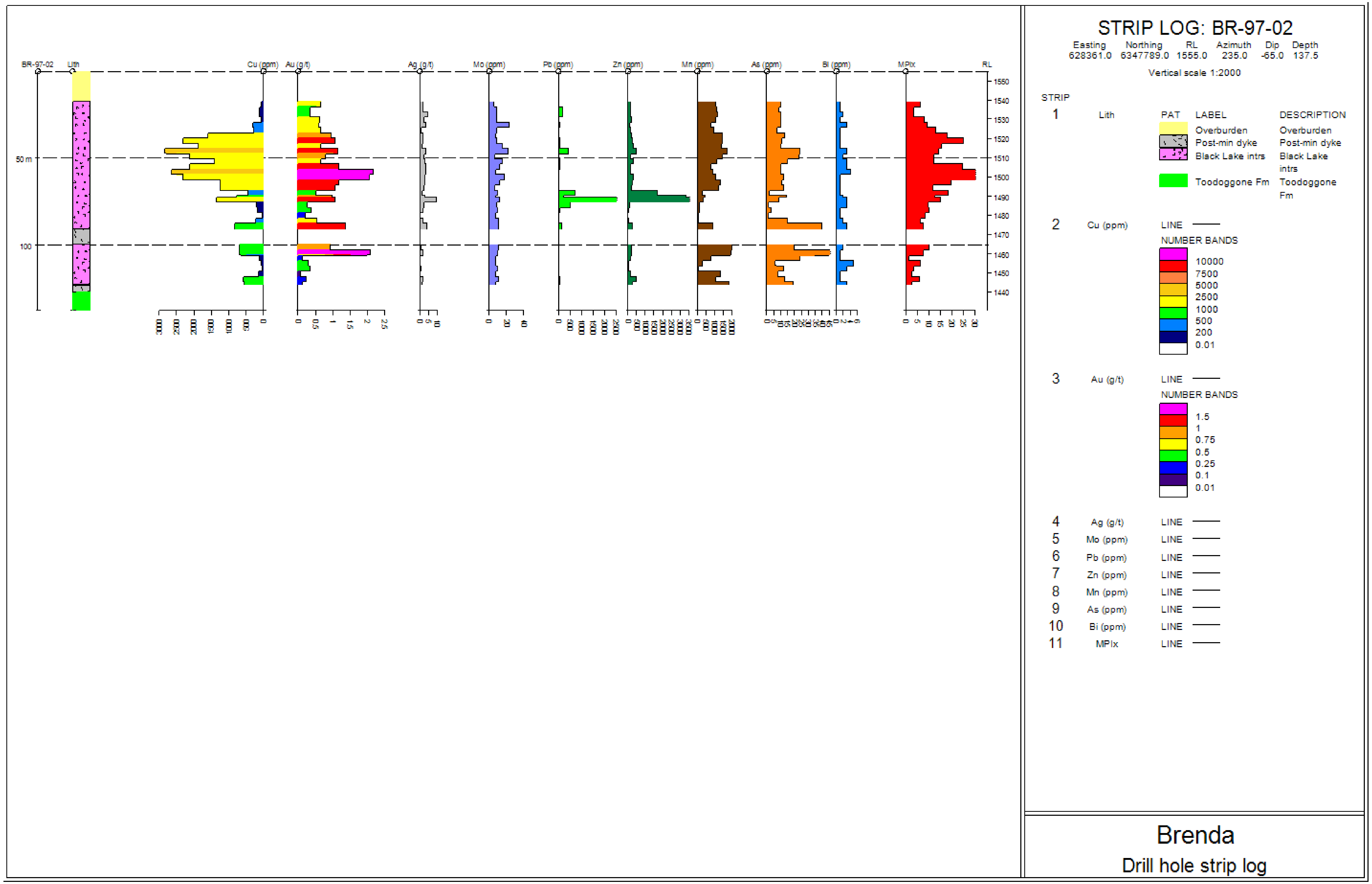


Figure A1-4: Strip log for hole BR-97-02 in the White Pass zone.

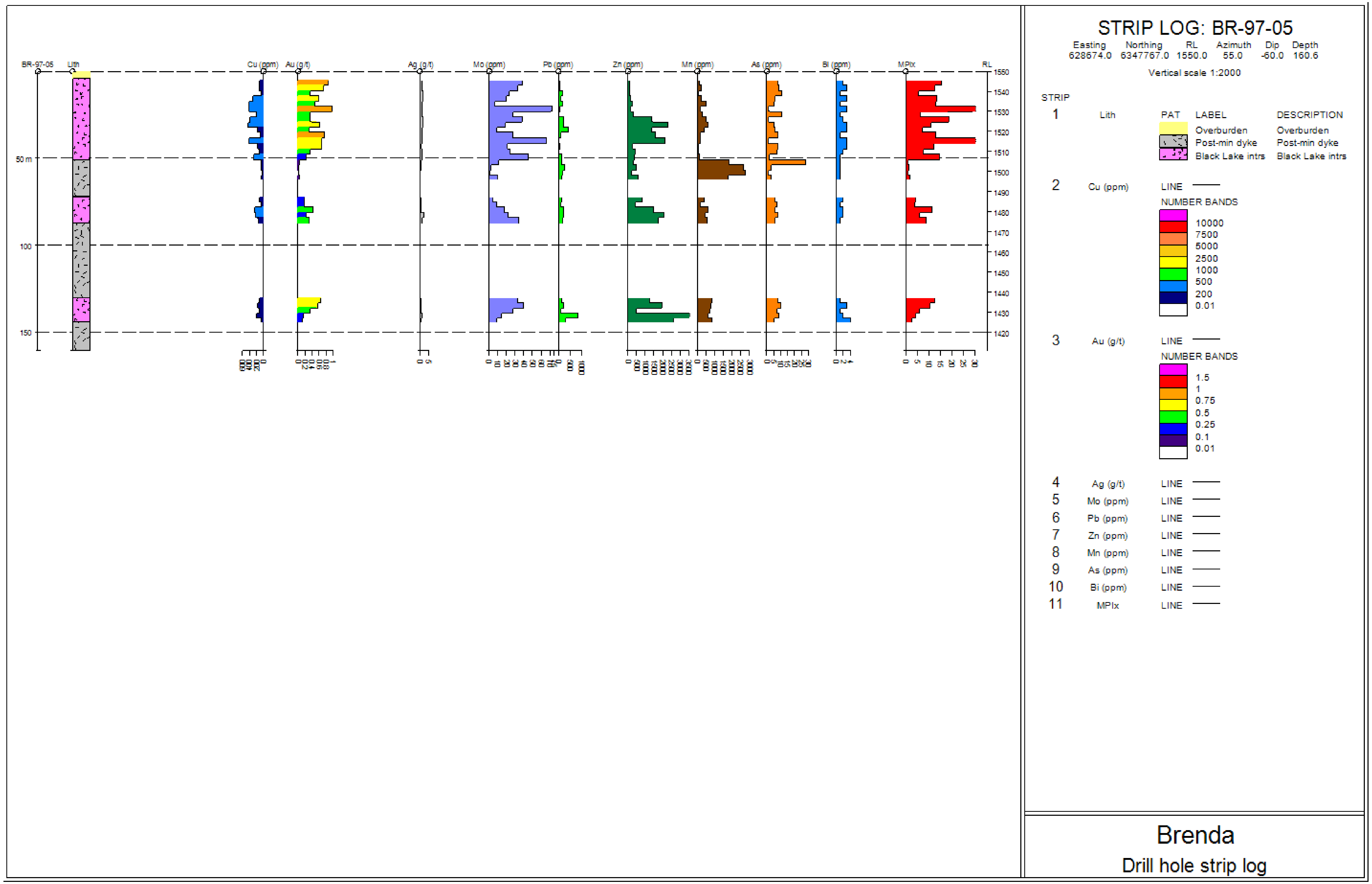


Figure A1-5: Strip log for hole BR-97-05 in the White Pass zone.

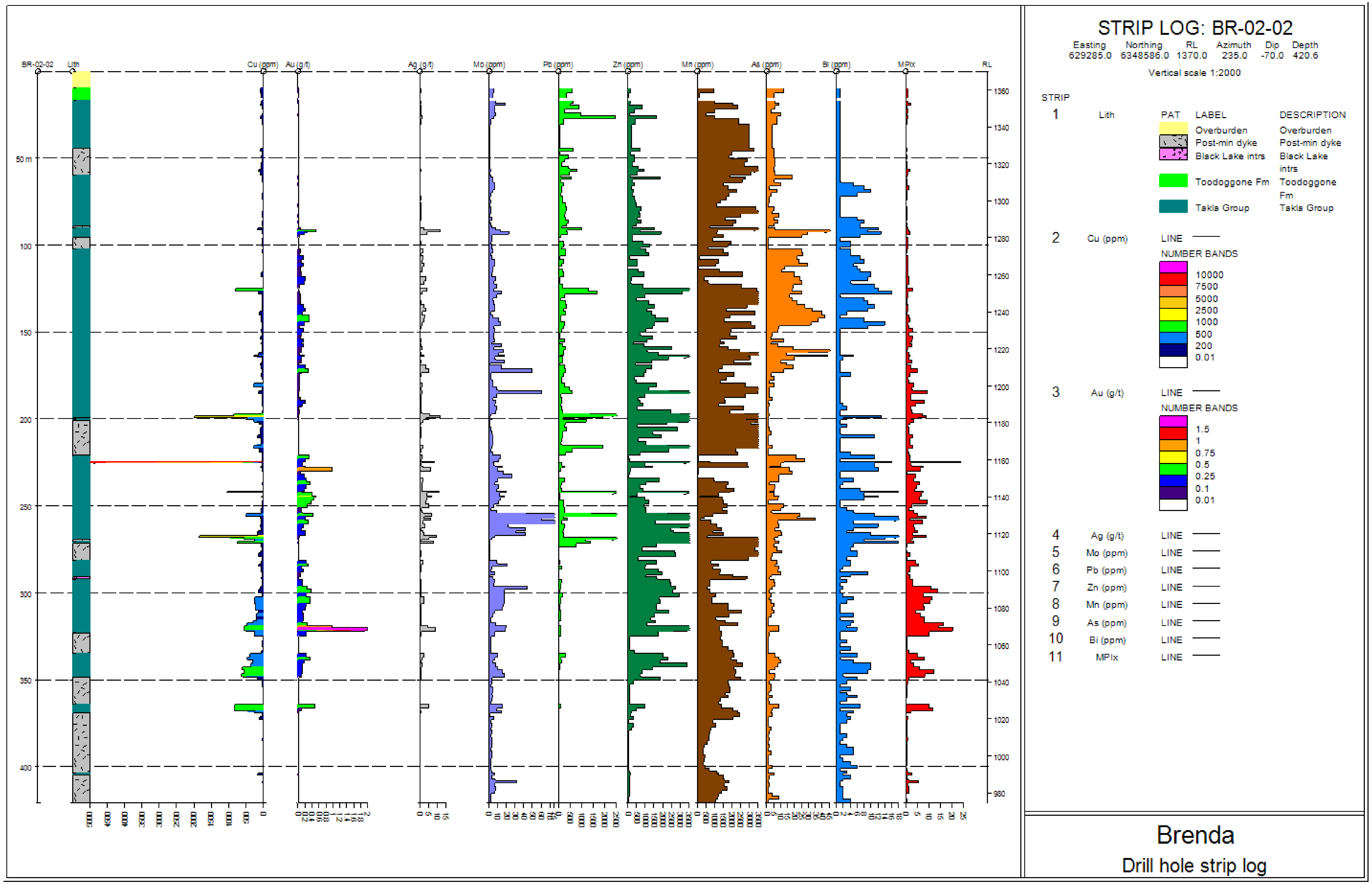


Figure A1-6: Strip log for hole BR-02-02 in Target 2.

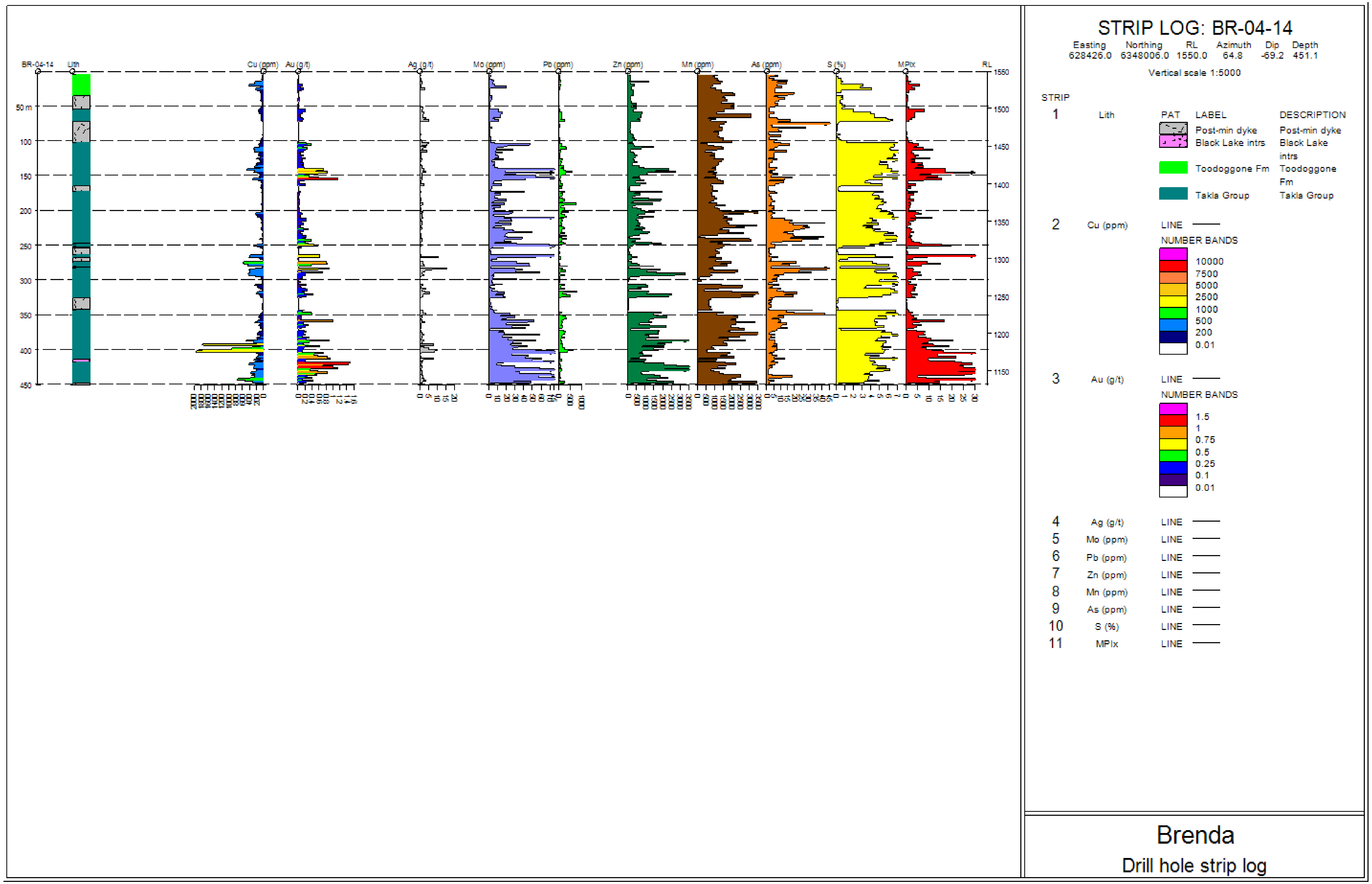


Figure A1-7: Strip log for hole BR-04-14 in the Northeast White Pass target.

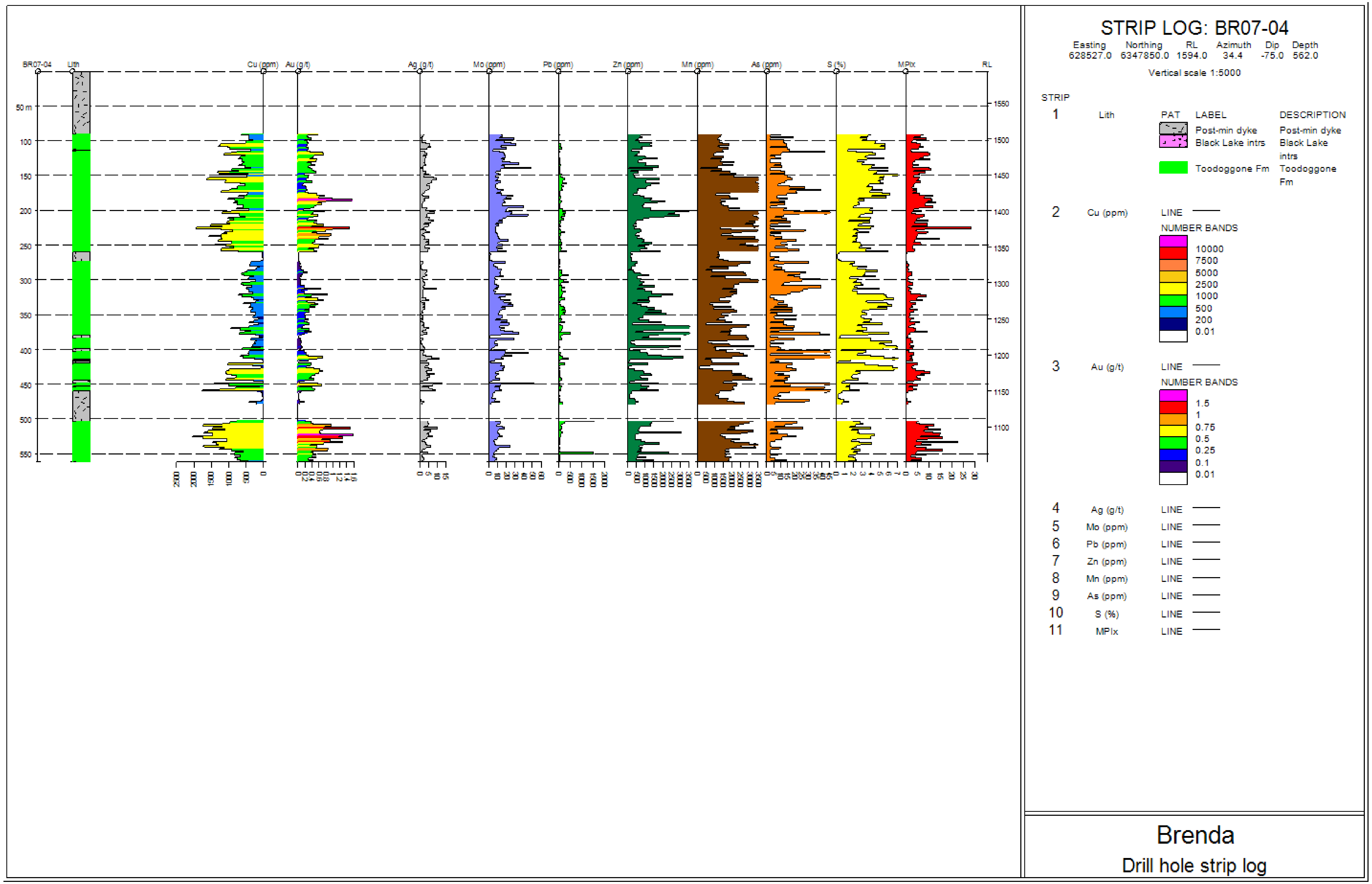


Figure A1-8: Strip log for hole BR07-04 in the White Pass zone.

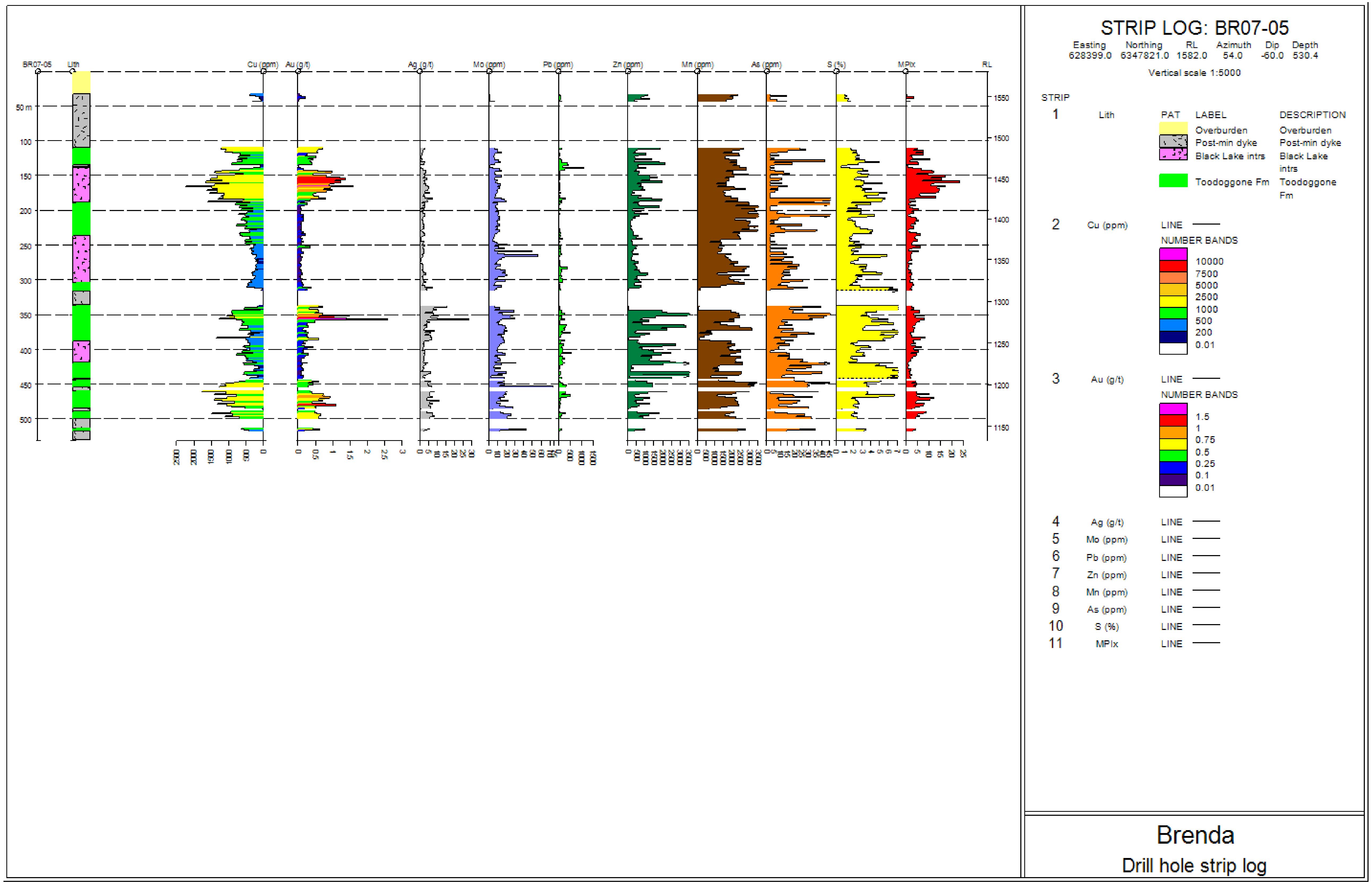


Figure A1-9: Strip log for hole BR07-05 in the White Pass zone.

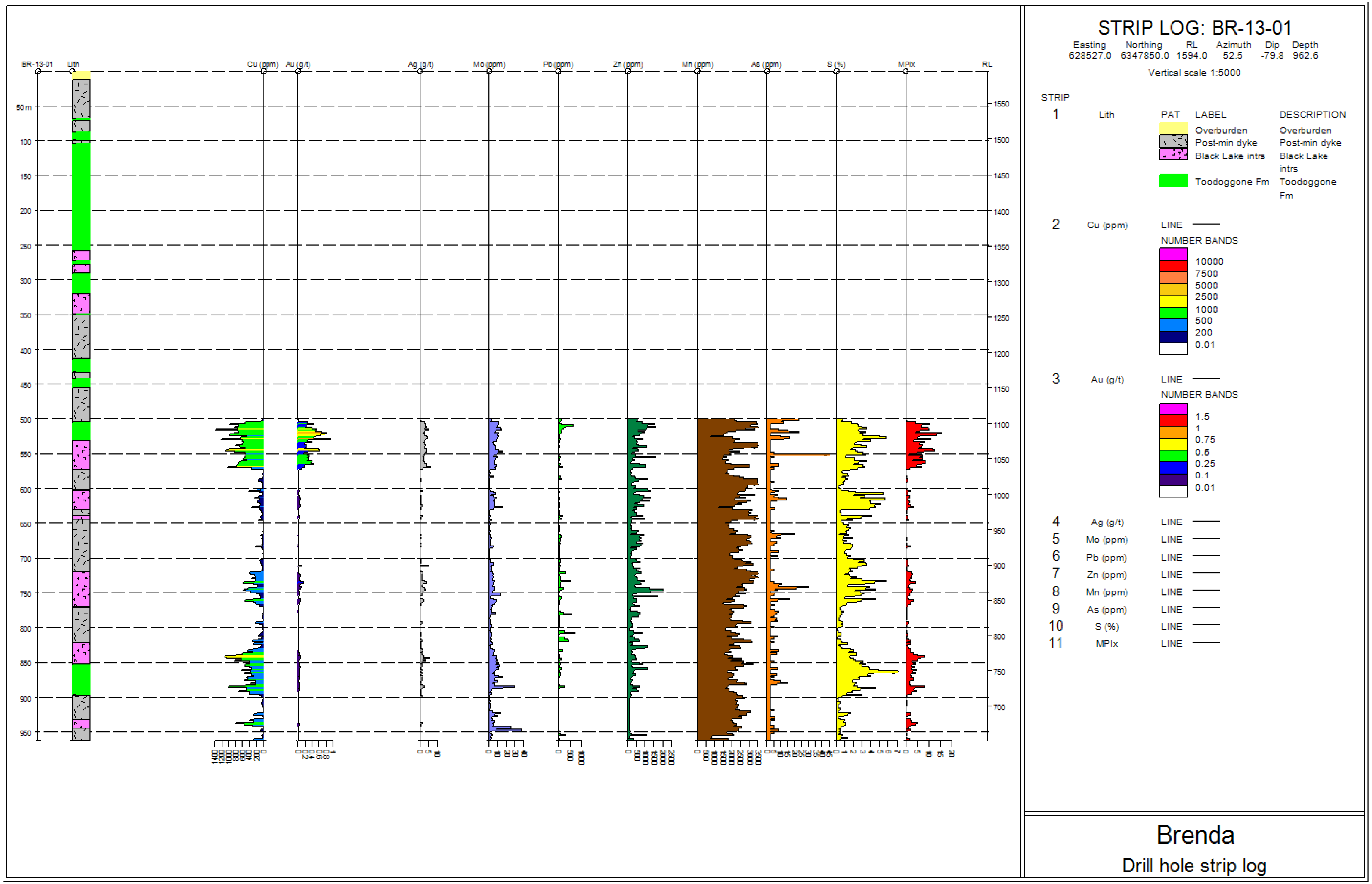


Figure A1-10: Strip log for hole BR-13-01 in the White Pass zone. The first 500 m were not analyzed because this hole essentially twinned BR07-04.

APPENDIX 2: PETROGRAPHIC REPORT BY JOHN PAYNE (July 2012)

Vancouver Petrographics Ltd.
8080 GLOVER ROAD, LANGLEY, B.C., V1M 3S3
PHONE (604) 888-1323 • FAX (604) 888-3642
email: vanpetro@vanpetro.com
website: www.vanpetro.com

Report 120552 for
Gary Nordin,
Canusil Resources Inc.,
750 – 625 Howe Street,
Vancouver, BC, V6C 2T6
Ph: 604-306-4759

July, 2012

Samples:
93-02: 150.0 m, 238.0 m
96-06: 20 m
97-02: 56.5 m
03-07: 125 m, 226 m
04-10: 111.0 m, 330.0 m
04-13: 235.0 m
04-14: 301.9 m, 443.0 m
07-04: 542.44 m, 553.7 m
07-05: 307.0 m, 495.7 m

Summary:

Sample 93-02 150.0 m is of porphyritic latite that contains abundant phenocrysts of plagioclase (altered slightly to moderately to sericite and/or epidote and very slightly to calcite) and much less abundant ones of hornblende (altered completely to chlorite-epidote) and apatite; these are set in a much finer grained groundmass of plagioclase and K-feldspar with disseminated patches of magnetite and minor disseminated grains of pyrite and calcite. Early veinlets are of magnetite. Replacement patches are of epidote. Several veinlets and replacement patches are of kaolinite. A few veinlets are of calcite.

Sample 93-02 238.0 m is of porphyritic latite that contains abundant phenocrysts of plagioclase (altered slightly to sericite) and much less abundant ones of quartz and hornblende (altered completely to chlorite-Ti-oxide); these are set in a groundmass of much finer grained plagioclase and K-feldspar with lesser chlorite and quartz. A few veinlets are of calcite-magnetite. One veinlet is of quartz with lesser calcite and chlorite. A few late veinlets are of calcite.

Sample 96-06 20 m is of porphyritic felsic tuff that contains phenocrysts of plagioclase (altered completely to sericite) and much less abundant ones of hornblende (?; altered completely to clinozoisite/epidote-pyrite) and of quartz; these are set in a groundmass of plagioclase (altered moderately to sericite) with abundant disseminated pyrite. Veinlets and replacement patches are of kaolinite.

Sample 97-92 56.5 m is of porphyritic latite that contains anhedral phenocrysts of plagioclase (altered slightly to moderately to sericite) in a very variable groundmass dominated in places by plagioclase, in places by K-feldspar, and in places by quartz. Magnetite, pyrite, and chalcopyrite with locally minor specular hematite form disseminated grains and patches. A few patches are dominated by sericite with lesser magnetite-epidote and minor pyrite and chalcopyrite. A set of subparallel veins is of quartz with lesser magnetite and pyrite, commonly as selvages along one side of the vein, and with scattered patches of chalcopyrite.

Sample 03-07 125 m is of latite tuff that contains fragments from 0.5-1.5 mm in size of hypabyssal latite dominated by plagioclase, phenocrysts of plagioclase (altered moderately to strongly to sericite), and minor ones of quartz; these are set in a groundmass of extremely fine grained plagioclase (altered slightly to moderately to sericite). Early discontinuous veinlets are of magnetite. Later veinlets and veins are of quartz, pyrite, magnetite, chalcopyrite, and kaolinite in widely varying proportions. Late veins and veinlets are of kaolinite, which was largely removed from the section during preparation.

Sample 03-07 226.0 m is of porphyritic dacite that contains phenocrysts of plagioclase (altered slightly to sericite and calcite) and minor ones of biotite (altered completely to pseudomorphic chlorite and minor patches of Ti-oxide); these are set in a groundmass of plagioclase (altered slightly to moderately to sericite and calcite) and quartz. Veins are of quartz and lesser pyrite, and of quartz-sericite-chalcopyrite.

Sample 04-10 111.0 m is of fine porphyritic hypabyssal dacite that contains scattered phenocrysts of plagioclase (altered completely to sericite) in a groundmass of equant quartz and sericite, with disseminated grains and clusters of pyrite and minor ones of Ti-oxide. A few replacement patches are of quartz. Veins and veinlets are of kaolinite; one contains angular grains and shards of pyrite.

Sample 04-10 330.0 m is of hypabyssal latite/dacite that contains scattered phenocrysts of plagioclase (altered completely to sericite and lesser anhydrite) in a groundmass of sericite and quartz with disseminated grains and patches of pyrite. Veinlets and replacement patches are of anhydrite. The largest vein has a rim of fluorite and an alteration envelope consisting of sericite, pyrite, and anhydrite. A few veinlets are of kaolinite-anhydrite.

Sample 04-13 235.0 m is zoned. Zone A is of porphyritic latite that contains abundant anhedral to subhedral phenocrysts of plagioclase (altered completely to sericite and minor anhydrite) and scattered fragments of hypabyssal latite in a groundmass of much finer grained plagioclase (altered slightly to sericite) with minor disseminated pyrite and Ti-oxide. Zone B is a replacement patch of sericite with lesser anhydrite, pyrite, and kaolinite. Zone C consists of a fragment(?) of altered latite dominated by quartz with lesser sericite. Several veinlets up to 0.5 mm wide are of kaolinite.

Sample 04-14 301.9 m is of slightly porphyritic latite that contains phenocrysts of plagioclase (altered strongly to sericite and anhydrite) in a groundmass of equant plagioclase. Scattered coarser grained patches in the groundmass may be inclusions of hypabyssal latite. Scattered patches (possibly mafic phenocrysts) were altered completely to chlorite or kaolinite. Anhydrite forms abundant porphyroblastic grains and ragged patches. Muscovite forms scattered clusters. Pyrite forms disseminated anhedral grains. A vein is of quartz with much less abundant anhydrite and minor sericite and pyrite.

Sample 04-14 443.0 m is of porphyritic dacite that contains phenocrysts of plagioclase (altered slightly to strongly to sericite and epidote with lesser anhydrite and kaolinite) in a groundmass dominated by plagioclase with disseminated pyrite. Two subparallel veinlets are of quartz-anhydrite-pyrite and of sphalerite-pyrite-(chalcopyrite-quartz-anhydrite), respectively.

Sample 07-04 542.44 m is of porphyritic dacite that contains anhedral phenocrysts of plagioclase (altered slightly to locally moderately to sericite and lesser epidote) in a groundmass of equal amounts of plagioclase and K-feldspar, with lesser quartz and disseminated magnetite. Replacement minerals include quartz, anhydrite, and epidote. Veins and veinlets are of quartz with lesser magnetite, minor to locally moderately abundant chlorite and anhydrite, and minor chalcopyrite.

Sample 07-04 553.7 m is of porphyritic hypabyssal dacite that contains abundant anhedral phenocrysts of plagioclase and one phenocryst of quartz; these are set in a groundmass of plagioclase and K-feldspar with much less abundant quartz. Wispy veinlets are of magnetite-(quartz). A few veinlets are of chlorite-magnetite-(anhydrite). A few veinlets are of calcite-anhydrite-chlorite.

Sample 07-05 307.0 m is of hypabyssal porphyritic dacite that contains anhedral phenocrysts of plagioclase (altered slightly to sericite and locally slightly to epidote) in a groundmass of K-feldspar-plagioclase-(quartz-chlorite) with disseminated patches of magnetite and minor grains and patches of epidote. Several early-formed discontinuous veinlets are of magnetite. A vein and a few veinlets are of quartz-magnetite. A veinlet is of chlorite-quartz-magnetite with minor patches of pyrite and of chalcopyrite. A few late veinlets are of kaolinite that was lost from the section during its preparation.

Sample 07-05 495.7 m is of porphyritic hypabyssal latite/dacite that contains scattered anhedral phenocrysts of plagioclase (altered slightly to strongly to sericite) and minor ones of quartz and of biotite (altered completely to pseudomorphic chlorite and minor Ti-oxide); these are set in a variable groundmass, in places consisting of plagioclase (altered slightly to strongly to sericite) with interstitial chlorite, and more commonly dominated by secondary quartz with minor to moderately abundant plagioclase (altered slightly to completely to sericite). A vein is of quartz with abundant pyrite and magnetite and lesser chalcopyrite and ankerite along its centreline. The vein was offset up to 1.5 mm along two late subparallel veinlets of quartz with disseminated epidote and tremolite (?; altered completely to sericite), with patches of pyrite and lesser chalcopyrite.

Photographic Notes:

The scanned sections show the gross textural features of the sections; these features are seen much better on the digital image than on the printed image. For the photographs, sample numbers are shown in the upper left corner, photo numbers are shown in the lower left corner, and the letter in the lower right corner indicates the lighting conditions: P = plane light, X = plane light in crossed nicols; R = reflected light, RP = reflected light and plane incident light; ~RX = reflected light in moderately crossed nicols and incident light in crossed nicols. Locations of photographs are shown on the scanned sections. Descriptions of the photographs are at the end of the report.

John G. Payne, Ph.D., P.Geol.
Tel: (604)-597-1080
email: jppayne@telus.net

Sample 93-02 150.0 m **Porphyritic Latite**
Alteration: Sericite-(Chlorite-Pyrite-Chalcopyrite)
Replacement/Veins: Magnetite, Epidote; Kaolinite; Calcite

Abundant phenocrysts of plagioclase (altered slightly to moderately to sericite and/or epidote and very slightly to calcite) and much less abundant ones of hornblende (altered completely to chlorite-epidote) and apatite are set in a much finer grained groundmass of plagioclase and K-feldspar with disseminated patches of magnetite and minor disseminated grains of pyrite and calcite. Early veinlets are of magnetite. Replacement patches are of epidote. Several veinlets and replacement patches are of kaolinite. A few veinlets are of calcite.

mineral	percentage	main grain size range	
phenocrysts			
plagioclase	15-17%	0.5-1.5	(a few up to 2 mm long)
hornblende	0.3	0.5-0.8	
apatite	0.3	0.3-0.6	
groundmass			
plagioclase	60-65	0.02-0.05	
K-feldspar	17-20	0.01-0.03	
magnetite	2- 3	0.02-0.05	
chalcopyrite	0.3	0.03-0.08	
sphalerite	minor	0.03-0.1	
pyrite	minor	0.03-0.1	
quartz	minor	0.1-0.15	
Ti-oxide	minor	0.005-0.01	
zircon	trace	0.05-0.07	
replacement, veins			
1) magnetite-(chlorite)	0.5	0.02-0.05	
2) epidote	3- 4	0.05-0.3 (ep), 0.03-0.07 (cl)	
3) kaolinite-(chalcopyrite)	3- 4	0.01-0.05	
4) calcite	0.3	0.05-0.1	

Plagioclase forms subhedral to anhedral equant phenocrysts that were altered slightly to moderately to sericite and locally to epidote and/or calcite. One plagioclase phenocryst adjacent to a vein of chlorite-(epidote) was altered strongly to epidote.

Hornblende forms scattered phenocrysts that were altered completely to chlorite and minor epidote; commonly these minerals were lost from the section during sample preparation.

Apatite forms anhedral phenocrysts.

The groundmass is dominated by equant plagioclase (altered slightly to sericite) with moderately abundant K-feldspar (identified from stained offcut block). Scattered patches of groundmass up to 0.5 mm in size are much finer grained than normal (0.01-0.02 mm).

Magnetite forms disseminated anhedral grains and clusters up to 0.5 mm across of similar grains.

Pyrite forms disseminated subhedral grains and a few clusters of grains.

Chalcopyrite forms disseminated patches, some of which are associated with hornblende phenocrysts.

(continued on page 2)

Sample 93-02 150.0 m (page 2)

Sphalerite (with minor chalcopyrite and with minor exsolution blebs of chalcopyrite) forms a few proximal grains associated with one chlorite-rich lens.

Quartz forms scattered equant grains. It is concentrated moderately in a few patches up to 1.5 mm in size in which it is intergrown with groundmass feldspars; textures suggest that this quartz is of replacement origin.

Ti-oxide forms disseminated spots, mainly less than 0.02 mm in size.

Several discontinuous veinlets from 0.05-0.2 mm wide are of magnetite with local patches of chlorite, the latter mainly in the wider veinlets.

Irregular replacement patches up to a few mm across and minor veinlets up to 0.07 mm wide are of epidote with minor calcite and locally minor chalcopyrite, pyrite, and sphalerite.

Several veinlets up to 1 mm wide and a few replacement patches up to 2 mm across are of kaolinite.

A few veinlets up to 0.05 mm wide are of calcite and much less abundant chlorite and locally chalcopyrite.

Sample 93-02 238.0 m **Porphyritic Latite**
Alteration: Sericite-Calcite-Chlorite
Veinlets: Calcite-Magnetite-Sericite; Quartz-Calcite-Chlorite; Calcite

Abundant phenocrysts of plagioclase (altered slightly to sericite) and much less abundant ones of quartz and hornblende (altered completely to chlorite-Ti-oxide) are set in a groundmass of much finer grained plagioclase and K-feldspar with lesser chlorite and quartz. A few veinlets are of calcite-magnetite. One veinlet is of quartz with lesser calcite and chlorite. A few late veinlets are of calcite.

mineral	percentage	main grain size range
phenocrysts		
plagioclase	17-20%	0.5-2
hornblende	2- 3	0.5-1
quartz	0.4	0.5-0.8
apatite	0.1	0.3-0.4
groundmass		
plagioclase	40-45	0.01-0.02
K-feldspar	20-25	0.01-0.02
quartz	3- 4	0.03-0.05
calcite	2- 3	0.02-0.05
chlorite	2- 3	0.02-0.03
magnetite	2- 3	0.02-0.07
chalcopyrite	0.2	0.03-0.05
pyrite	minor	0.03-0.1
zircon	trace	0.05-0.07
veinlets		
1) calcite-magnetite-sericite	1- 2	0.03-0.07 (ct, mt), 0.1-0.3 (se)
2) quartz-(calcite-chlorite)	1- 2	0.10-0.2 (qz), 0.03-0.07 (ct, cl)
3) calcite	1- 2	0.05-0.2

Plagioclase forms anhedral equant to prismatic phenocrysts that were altered slightly to locally moderately to sericite and locally slightly to patches of epidote, calcite, or chlorite.

Hornblende forms anhedral phenocrysts that were altered completely to intergrowths of chlorite and magnetite.

Quartz forms a few anhedral phenocrysts.

Apatite forms a few equant anhedral phenocrysts.

In the groundmass, plagioclase (altered slightly to sericite) and K-feldspar form intergrowths of anhedral equant grains. In a few places up to a few mm across, K-feldspar is much more abundant than normal; some of these patches are associated with calcite-magnetite veinlets near one end of the section.

Quartz forms disseminated grains and is concentrated moderately to strongly in certain patches, some of which also contain chlorite and which may be of replacement origin.

Magnetite is concentrated moderately in a few open clusters up to a few mm across in which it is intergrown with groundmass feldspars. It also forms disseminated equant grains. Some grains are altered slightly to hematite.

(continued on page 2)

Sample 93-02 238.0 m (page 2)

Chalcopyrite forms disseminated grains that are concentrated moderately in certain parts of the section.

Pyrite forms disseminated grains and open clusters of grains.

Zircon forms a few subhedral prismatic grains.

A set of subparallel diffuse veinlets up to 0.2 mm wide near one end of the section are of calcite magnetite, and sericite. In part associated with these are replacement patches in which the groundmass is dominated by K-feldspar and lesser quartz.

A discontinuous veinlet 0.2-0.4 mm wide is of quartz with lesser calcite and chlorite.

A few late veinlets averaging 0.05-0.2 mm wide are of calcite; one of these cuts the quartz-rich veinlet.

Sample 96-06 20 m **Porphyritic Felsic Tuff**
Alteration: Sericite-Pyrite-Clinozoisite/Epidote
Veins, Veinlets: Kaolinite

Phenocrysts of plagioclase (altered completely to sericite) and much less abundant ones of hornblende (?; altered completely to clinozoisite/epidote-pyrite) and of quartz are set in a groundmass of plagioclase (altered moderately to sericite) with abundant disseminated pyrite. Veinlets and replacement patches are of kaolinite.

mineral	**percentage**	**main grain size range**
phenocrysts		
plagioclase	12-15	0.5-1.5
hornblende(?)	3- 4	0.7-1.5
quartz	1- 2	0.3-0.7
groundmass		
plagioclase	40-45	0.005-0.02
sericite	10-12	0.005-0.015
pyrite	4- 5	0.02-0.05
kaolinite	2- 3	0.05-0.12
ilmenite/Ti-oxide	1- 2	0.02-0.15
replacement, veinlets		
1) kaolinite	3- 4	0.01-0.05

Plagioclase forms anhedral to subhedral prismatic phenocrysts that were altered completely to sericite.

Hornblende(?) forms subhedral prismatic phenocrysts that were altered completely to aggregates of clinozoisite/epidote and locally minor tremolite/actinolite.

Quartz forms anhedral equant phenocrysts.

In the groundmass, plagioclase forms equant anhedral grains that were altered slightly to strongly to sericite.

Pyrite forms disseminated grains and clusters up to 1 mm across of anhedral equant grains.

Kaolinite is concentrated in patches up to 1 mm in size in which it forms aggregates of equant flakes (0.05-0.15 mm); these may be secondary after original phenocrysts of uncertain composition.

Ilmenite/sphene forms disseminated patches up to 1 mm across that were altered completely to leucoxene and moderately abundant silicates and pyrite.

Numerous veinlets from 0.05-0.3 mm wide and a few veins up to 1 mm wide are of very fine grained kaolinite.

Sample 97-02 56.5 m **Porphyritic Latite**
Alteration: Sericite-(Epidote)
Veins: Quartz-Pyrite-Magnetite-Chalcopyrite

Anhedral phenocrysts of plagioclase (altered slightly to moderately to sericite) are set in a very variable groundmass dominated in places by plagioclase, in places by K-feldspar, and in places by quartz. Magnetite, pyrite, and chalcopyrite with locally minor specular hematite form disseminated grains and patches. A few patches are dominated by sericite with lesser magnetite-epidote and minor pyrite and chalcopyrite. A set of subparallel veins is of quartz with lesser magnetite and pyrite, commonly as selvages along one side of the vein, and with scattered patches of chalcopyrite.

mineral	percentage	main grain size range	
phenocrysts			
plagioclase	10-12%	0.5-1.5	
groundmass			
plagioclase	25-30	0.02-0.05	
K-feldspar	25-30	0.02-0.05	
quartz	7- 8	0.02-0.05	
magnetite	2- 3	0.02-0.07	
pyrite	1- 1.5	0.03-0.1	
epidote	1- 1.5	0.1-0.3	(a few up to 0.5 mm)
chalcopyrite	0.5	0.02-0.05	
sericite	0.5	0.02-0.05	
specular hematite	0.1	0.05-0.12	
chlorite	minor	0.02-0.05	
veins			
1) quartz	17-20	0.1-0.3	
pyrite	1- 1.5	0.05-0.1	
magnetite	1- 1.5	0.05-0.1	
chalcopyrite	0.3	0.05-0.2	

Plagioclase forms anhedral equant to prismatic phenocrysts that were altered slightly to moderately to disseminate flakes of sericite and minor patches of epidote.

The groundmass is very variable. In places it is dominated by plagioclase (altered slightly to sericite) with much less abundant K-feldspar and/or quartz. Elsewhere, K-feldspar is dominant, and probably is of replacement origin. Several patches contain abundant quartz, also probably of replacement origin.

Magnetite forms disseminated grains and clusters of grains, in part intergrown with epidote and in par containing disseminated grains of pyrite. Magnetite was altered slightly to moderately to hematite, mainly along borders of grains.

Pyrite forms disseminated subhedral to euhedral grains and anhedral grains associated with magnetite.

Epidote commonly occurs intergrown intimately with magnetite in cores of magnetite-rich patches. It also forms disseminated grains in plagioclase phenocrysts, in the groundmass, and in replacement patches of K-feldspar.

Chalcopyrite forms anhedral patches up to 0.3 mm in size, in part associated with pyrite and magnetite.

(continued on page 2)

Sample 97-02 56.5 m (page 2)

Specular hematite forms tabular grains, mainly associated with margins of patches dominated by magnetite.

A few patches up to 2 mm across are dominated by sericite with moderately abundant clusters of magnetite-epidote and scattered grains of chalcopyrite and pyrite.

Chlorite forms a few clusters of flakes, in part associated with magnetite.

Two veins up to 3 mm wide are dominated by quartz with moderately abundant magnetite and pyrite, mainly as selvages along one or both sides of the veins. Chalcopyrite forms scattered patches up to 0.5 mm in size.

Sample 03-07 125 m **Latite Tuff**
Alteration: Sericite
Veins, Veinlets: Magnetite; Quartz-Kaolinite-Pyrite-Chalcopyrite-Magnetite; Kaolinite

Fragments from 0.5-1.5 mm in size of hypabyssal latite dominated by plagioclase, phenocrysts of plagioclase (altered moderately to strongly to sericite), and minor ones of quartz are set in a groundmass of extremely fine grained plagioclase (altered slightly to moderately to sericite). Early discontinuous veinlets are of magnetite. Later veinlets and veins are of quartz, pyrite, magnetite, chalcopyrite, and kaolinite in widely varying proportions. Late veins and veinlets are of kaolinite, which was largely removed from the section during preparation.

mineral	percentage	main grain size range	
phenocrysts			
plagioclase	8-10%	0.7-1.5	(a few up to 2 mm long)
quartz	0.3	0.3-0.7	
fragments			
hypabyssal latite	7- 8	0.02-0.05	
groundmass			
plagioclase	45-50	0.005-0.01	
sericite	10-12	0.005-0.01	
magnetite	2- 3	0.03-0.06	
Ti-oxide	0.2	0.01-0.02	
pyrite	0.1	0.2-0.4	
chalcopyrite	0.1	0.02-0.1	
epidote	trace	0.05-0.07	
veins, veinlets			
1) magnetite	0.3	0.02-0.05	
2) quartz-pyrite-kaolinite-chalcopyrite-magnetite	3- 4	0.05-0.25 (qz, py, cp), 0.005-0.03 (ka), 0.05-0.07 (mt)	
3) kaolinite	5- 7	0.02-0.05	

Plagioclase forms subhedral prismatic phenocrysts that were altered moderately to strongly to sericite.

Quartz forms a few angular phenocrysts.

Fragments up to a few mm across are of hypabyssal latite, which is dominated by equant plagioclase grains (altered slightly to sericite) with minor magnetite, Ti-oxide, and pyrite.

The groundmass is variable and dominated by plagioclase (altered slightly to moderately to sericite).

Magnetite forms disseminated patches of equant grains, many of which contain minor pyrite and/or chalcopyrite. One large patch is 2 mm across.

Chalcopyrite forms disseminated grains.

Pyrite is concentrated in a few patches of anhedral grains and is associated with kaolinite, chalcopyrite, and minor epidote.

A set of early discontinuous veinlets up to 0.1 mm wide is dominated by magnetite.

Later veinlets up to 0.7 mm wide are dominated by quartz with lesser pyrite, chalcopyrite, kaolinite, and magnetite.

A few late veinlets and veins up to 1 mm wide are dominated by kaolinite, much of which was lost during preparation of the section.

Sample 03-07 226.0 m Porphyritic Dacite
Alteration: Sericite-Calcite-Chlorite
Veins, Veinlets: Quartz-Pyrite; Quartz-Sericite-Chalcopyrite

Phenocrysts of plagioclase (altered slightly to sericite and calcite) and minor ones of biotite (altered completely to pseudomorphic chlorite and minor patches of Ti-oxide) are set in a groundmass of plagioclase (altered slightly to moderately to sericite and calcite) and quartz. Veins are of quartz and lesser pyrite, and of quartz-sericite-chalcopyrite.

mineral	**percentage**	**main grain size range**	
plagioclase	15-17%	0.5-1.5	(a few up to 3 mm long)
mafic	1	0.7-1	
apatite	minor	0.5	
groundmass			
plagioclase	35-40%	0.02-0.05	
quartz	12-15	0.02-0.05	
sericite	12-15	0.005-0.02	
kaolinite	1- 2	0.005-0.015	
magnetite	1	0.03-0.07	
chalcopyrite	0.1	0.01-0.025	
ankerite/hematite	minor	0.015-0.02	
sphalerite	trace	0.1	
pyrite	trace	0.03-0.05	
veins, veinlets			
1) quartz-magnetite-chlorite-(chalcopyrite)	3- 4	0.1-0.3 (qz), 0.03-0.07 (mt, cl); 0.02-0.05 (cp)	
2) quartz-pyrite-chalcopyrite-sericite-ankerite-chlorite	4- 5	0.1-0.3 (qz, py); 0.05-0.2 (cp, ak); 0.01-0.03 (se, cl)	
3) quartz-chalcopyrite-(sericite)	1- 2	0.1-0.3 (qz, cp); 0.01-0.015 (se)	

Plagioclase forms anhedral to subhedral equant to prismatic phenocrysts that were altered slightly to strongly to sericite with scattered patches of calcite up to 0.07 mm in size.

Mafic phenocrysts range from equant to elongate and were altered completely to intergrowths of chlorite with much less abundant sericite, calcite, and Ti-oxide.

Apatite forms one anhedral stubby prismatic phenocryst with rounded outlines.

The groundmass is dominated by equant plagioclase (altered slightly to moderately sericite and patches of calcite) and quartz in moderately varying proportions.

Sericite with disseminated spots of ankerite (altered moderately to red hematite, mainly along margins of grains) forms diffuse patches up to 1.5 mm in size. A few patches of sericite contain moderately abundant kaolinite.

Magnetite forms disseminated grains and clusters of a few grains, with one cluster up to 1.7 mm long.

Chalcopyrite forms disseminated anhedral grains, mainly from 0.02-0.03 mm in size. It is concentrated moderately to strongly in a patch 1.5 mm across with lesser magnetite and pyrite. One patch 0.12 mm across contains a core of sphalerite that contains abundant exsolution blebs of chalcopyrite.

Pyrite forms scattered subhedral to euhedral grains.

(continued on page 2)

Sample 03-07 226.0 m (page 2)

A vein up to 1.5 mm wide and a few smaller ones are dominated by equant quartz with lesser magnetite, with scattered patches of chlorite. A few patches of magnetite up to 0.6 mm long were altered moderately to hematite mainly along or near margins of grains; one large patch contains several grains of chalcopyrite.

A vein up to 1 mm wide is of quartz with abundant patches of pyrite and lesser ones of chalcopyrite, with locally abundant patches of sericite, of ankerite, and of chlorite.

A vein up to 0.3 mm wide is of quartz with abundant patches of chalcopyrite and of sericite.

Sample 04-10 111.0 m **Fine Porphyritic Hypabyssal Dacite**
Alteration: Quartz-Sericite-Pyrite
Replacement: Quartz-Pyrite; Kaolinite
Veins, Veinlets: Kaolinite

Scattered phenocrysts of plagioclase (altered completely to sericite) are set in a groundmass of equant quartz and sericite, with disseminated grains and clusters of pyrite and minor ones of Ti-oxide. A few replacement patches are of quartz. Veins and veinlets are of kaolinite; one contains angular grains and shards of pyrite.

mineral	**percentage**	**main grain size range**	
phenocrysts			
plagioclase	5- 7%	1-2.5	
groundmass			
quartz	40-45	0.03-0.05	
plagioclase/sericite	30-35	0.03-0.05	
pyrite	5- 7	0.03-0.2	(a few up to 1 mm)
Ti-oxide	0.2	0.01-0.05	(one patch 0.4 mm across)
chalcopyrite	trace	0.01-0.03	(one patch 0.1 mm long)
sphalerite	trace	0.01-0.02	
veins, veinlets, replacement			
1) kaolinite	10-12	0.03-0.1	

Plagioclase forms anhedral to subhedral phenocrysts that were altered completely to sericite.. Grain outlines are diffuse. Some large diffuse sericite-rich patches may represent clusters of plagioclase phenocrysts or may be part of the variable quartz-sericite alteration of the rock.

The groundmass is dominated by equant quartz and lesser plagioclase (altered completely to sericite and probably quartz). The ratio of quartz to sericite varies widely, suggesting that quartz-rich patches are of replacement origin.

Pyrite forms disseminated anhedral to subhedral grains and tight to open clusters of grains. It is concentrated strongly in one diffuse patch 1 cm across with lesser quartz and minor sericite. A few grains contain minor inclusions up to 0.03 mm in size of chalcopyrite and lesser sphalerite.

Ti-oxide forms disseminated ragged patches, mainly less than 0.03 mm in size. One patch 0.4 mm across probably is secondary after a grain of sphene or ilmenite.

Chalcopyrite forms a few disseminated anhedral grains in the rock and associated with pyrite.

A few replacement patches up to 2.5 mm across with diffuse margins are of very fine to fine grained quartz with minor sericite and pyrite.

Irregular veins and veinlets up to 1 mm wide are of kaolinite that was partly removed from the section during sample preparation. One veinlet 0.3 mm across is bordered by an envelope up to 0.5 mm wide containing abundant disseminated anhedral pyrite. A few veinlets contain a few fragments of pyrite up to 0.15 mm in size. One vein contains abundant fragments of pyrite, some of which are as closely spaced shards separated by selvages of kaolinite.

Sample 04-10 330.0 m **Hypabyssal Latite/Dacite**
Alteration: Sericite-Quartz-Pyrite-Anhydrite
Veins, Veinlets: Anhydrite-(Fluorite); Kaolinite-(Anhydrite)

Scattered phenocrysts of plagioclase (altered completely to sericite and lesser anhydrite) are set in a groundmass of sericite and quartz with disseminated grains and patches of pyrite. Veinlets and replacement patches are of anhydrite. The largest vein has a rim of fluorite and an alteration envelope consisting of sericite, pyrite, and anhydrite. A few veinlets are of kaolinite-anhydrite.

mineral	percentage	main grain size range	
phenocrysts			
plagioclase	12-15%	0.5-0.8	(a few up to 1.5 mm long)
biotite(?)	1- 2	0.3-0.7	
quartz	0.1	0.1-0.2	
fragments			
hypabyssal latite	4- 5	0.05-0.15	
groundmass			
plagioclase/sericite	60-65	0.015-0.025 (pl)	
quartz	1- 2	0.02-0.04	(a few grains from 0.3-0.7 mm)
pyrite	5- 7	0.02-0.2	
anhydrite	2- 3	0.05-0.2	
ilmenite	minor	0.02-0.03	
chalcopyrite	trace	0.01-0.03	(locally up to 0.25 mm)
veins, veinlets			
1) anhydrite-(fluorite)	5- 7	0.05-0.5	
2) kaolinite-(anhydrite)	1	0.03-0.1	

Plagioclase forms anhedral to subhedral phenocrysts that were altered completely to sericite with minor to locally moderately abundant patches of anhydrite. A few also were replaced moderately by irregular aggregates of pyrite.

Biotite(?) forms slightly elongate anhedral phenocrysts that were altered completely to pseudomorphic muscovite/kaolinite.

A few equant quartz grains from 0.1-0.2 mm in size are small phenocrysts. Quartz forms a few anhedral grains from 0.3-0.7 mm in size; the origin of these is uncertain; they look neither like phenocrysts nor replacement patches.

Fragments up to a few mm across are of very fine grained hypabyssal latite consisting of equant plagioclase grains (altered slightly to moderately to sericite) with much less abundant quartz.

A few fragments up to 1 mm across consist of equant quartz grains (0.07-0.2 mm) with 5-10% patches of sericite.

The groundmass is dominated by equant plagioclase (altered slightly to moderately to sericite) with much less abundant quartz. Grain size varies moderately, suggesting that slightly coarser grained patches are fragments included in a finer grained matrix.

Anhydrite forms disseminated anhedral grains and clusters of grains.

Pyrite forms disseminated anhedral to subhedral grains and open clusters up to several mm across of grains that are intergrown with groundmass minerals.

Ilmenite forms a few patches up to 0.4 mm across of extremely fine grained aggregates.

(continued on page 2)

Sample 04-10 330.0 m (page 2)

Chalcopyrite forms disseminated patches intergrown with pyrite and as inclusions up to 0.05 mm across in pyrite, and minor disseminated grains in silicates.

A vein up to 1.5 mm wide is of anhydrite with a zone of fluorite up to 0.15 mm wide along its margin. Bordering it is an alteration envelope up to a few mm wide of sericite with abundant pyrite and scattered grains of anhydrite.

A few veinlets up to 1.5 mm wide are dominated by anhydrite with minor kaolinite. One of these contains a lens zone of chalcopyrite and minor epidote(?).

One veinlet up to 0.3 mm wide is of kaolinite with minor to moderately abundant anhydrite.

Sample 04-13 235.0 m **Porphyritic Latite**
Alteration: Sericite-(Anhydrite)
Replacement: Sericite-Anhydrite-Pyrite-Kaolinite-Quartz
Veinlets: Kaolinite

Zone A is of porphyritic latite that contains abundant anhedral to subhedral phenocrysts of plagioclase (altered completely to sericite and minor anhydrite) and scattered fragments of hypabyssal latite in a groundmass of much finer grained plagioclase (altered slightly to sericite) with minor disseminated pyrite and Ti-oxide. Zone B is a replacement patch of sericite with lesser anhydrite, pyrite, and kaolinite. Zone C consists of a fragment(?) of altered latite dominated by quartz with lesser sericite. Several veinlets up to 0.5 mm wide are of kaolinite.

mineral	**percentage**	**main grain size range**	
porphyritic latite	**(Zone A)**		
phenocrysts			
plagioclase	10-12%	0.3-1.2	(a few up to 1.5 mm)
quartz	minor	0.1-0.15	
groundmass			
plagioclase	25-30	0.015-0.025	
sericite	4- 5	0.01-0.02	
anhydrite	1- 2	0.3-0.8	(a few up to 1 mm)
pyrite	0.3	0.03-0.1	
Ti-oxide	minor	0.01-0.03	(a few up to 0.2 mm)
fragments(?)			
hypabyssal latite	2- 3	0.03-0.07	
replacement	**(Zone B)**		
sericite	25-30	0.01-0.03	
anhydrite	5- 7	0.5-1	(a few up to 1.5 mm)
pyrite	4- 5	0.05-0.5	(a few up to 0.7 mm)
kaolinite	1- 2	0.02-0.05	
altered latite	**(Zone C)**		
quartz	7- 8	0.02-0.04	
sericite	2- 3	0.01-0.02	
pyrite	0.3	0.02-0.3	
veinlets			
1) kaolinite	3- 4	0.02-0.07	

In Zone A, plagioclase forms anhedral to subhedral, equant to slightly prismatic phenocrysts that were altered completely to dense aggregates of sericite with scattered grains of anhydrite and pyrite and minor patches of Ti-oxide.

Quartz forms a few equant grains that may be small phenocrysts.

Zone A contains a few fragments up to 2.5 mm across of slightly coarser grained hypabyssal latite that is dominated by equant plagioclase grains that were altered slightly to sericite.

The groundmass of Zone A is dominated by equant plagioclase grains that were altered slightly to sericite. Anhydrite forms ragged porphyroblasts and a few lenses up to 1.5 mm long of a few grains. Pyrite forms disseminated anhedral to subhedral grains. Ti-oxide forms disseminated patches up to 0.1 mm in size.

(continued on page 2)

Sample 04-13 235.0 m (page 2)

Zone B is a replacement patch that is dominated by sericite with lesser pyrite, kaolinite (intergrown with sericite), and disseminated patches of anhydrite. Some of the kaolinite is related in origin to the kaolinite veins. A few pyrite grains contain a lensy or blebby inclusion of chalcopyrite (0.03 mm) and a few contain a blebby inclusion of galena or pyrrhotite (0.01 mm). A few patches are dominated by coarse anhydrite grains.

Zone C is of altered latite/dacite and is moderately uniform, being dominated by equant grains of quartz with lesser sericite and with minor to moderately abundant disseminated grains and patches of pyrite.

Several veinlets from 0.3-1 mm thick are of kaolinite; some of these cut through a replacement zone of anhydrite-sericite-pyrite and some contain grains of pyrite, possibly as inclusions of previous alteration material. Some veins are branching and one was offset up to 0.1 mm on a small fracture.

Sample 04-14 301.9 m **Slightly Porphyritic Latite**
Alteration: Sericite-(Chlorite)
Replacement: anhydrite-Muscovite
Vein: Quartz-Anhydrite-(Sericite-Pyrite)

Phenocrysts of plagioclase (altered strongly to sericite and anhydrite) are set in a groundmass of equant plagioclase. Scattered coarser grained patches in the groundmass may be inclusions of hypabyssal latite. Scattered patches (possibly mafic phenocrysts) were altered completely to chlorite or kaolinite. Anhydrite forms abundant porphyroblastic grains and ragged patches. Muscovite forms scattered clusters. Pyrite forms disseminated anhedral grains. A vein is of quartz with much less abundant anhydrite and minor sericite and pyrite.

mineral	percentage	main grain size range	
phenocrysts			
plagioclase	15-17%	0.5-1	(a few up to 1.5 mm)
mafic	0.3	0.7-1	
groundmass			
plagioclase	40-45	0.02-0.03	
dusty opaque	minor		
replacement			
anhydrite	30-35	0.3-1	(a few up to 1.7 mm)
muscovite	3- 4	0.07-0.15	(a few up to 0.2 mm)
pyrite	1- 2	0.03-0.15	(a few grains up to 1 mm long)
rutile	minor	0.01-0.02	
apatite	trace	0.2	
vein			
1) quartz-(anhydrite-sericite-pyrite)			
	2- 3	0.05-0.2 (qz, ah); 0.05-0.07 (py); 0.01-0.03 (se)	

Plagioclase forms subhedral prismatic phenocrysts that were altered strongly to completely to sericite and lesser muscovite, some of which forms fan-textured aggregates (0.07-0.12 mm). Some plagioclase phenocrysts probably were replaced completely by anhydrite.

A patch 0.8 mm across is of cryptocrystalline kaolinite(?) with much less abundant quartz and two grains of pyrite. A patch 1.2 mm long is of chlorite and dusty opaque. These may be secondary after mafic phenocrysts.

The groundmass consists of slightly interlocking plagioclase that was altered slightly to moderately in patches to sericite. Grain size varies slightly to locally moderately, suggesting the presence of early-formed fragment from the same magma chamber.

Anhydrite forms disseminated anhedral to subhedral porphyroblasts.

Muscovite forms clusters of anhedral to subhedral grains; some of the latter form intergrowths up to 0.3 mm across of radiating flakes.

Pyrite forms disseminated equant anhedral grains.

Rutile forms clusters up to 0.25 mm long of equant grains that are secondary after sphene or ilmenite.

Apatite forms one euhedral grain.

A vein 2 mm wide is of quartz (containing dusty semi-opaque inclusions) with a train of skeletal grains of anhydrite and minor sericite along the centreline of the vein and minor sericite and pyrite elsewhere.

Sample 04-14 443.0 m Porphyritic Dacite
Alteration: Sericite-Epidote-Anhydrite-(Kaolinite)
Replacement: Pyrite-Anhydrite-Epidote
Veins, Veinlets: Quartz-Anhydrite-Pyrite; Sphalerite-Pyrite-Chalcopyrite

Phenocrysts of plagioclase (altered slightly to strongly to sericite and epidote with lesser anhydrite and kaolinite) are set in a groundmass dominated by plagioclase with disseminated pyrite. Two subparallel veinlets are of quartz-anhydrite-pyrite and of sphalerite-pyrite-(chalcopyrite-quartz-anhydrite), respectively.

mineral	**percentage**	**main grain size range**	
phenocrysts			
plagioclase	15-17%	0.3-1	(a few up to 2.5 mm)
fragments			
hypabyssal latite	1- 2	0.03-0.05	
groundmass			
plagioclase	50-55	0.01-0.03	
K-feldspar	10-12	0.02-0.07	
quartz	8-10	0.01-0.025	
pyrite	3- 4	0.03-0.08	(a few up to 0.5 mm)
Ti-oxide	0.3	0.01-0.05	
sphalerite	trace	0.03-0.07	
chalcopyrite	trace	0.03-0.08	
replacement			
anhydrite	0.5	0.5-1	
epidote	0.5	0.1-0.3	
veinlets			
1) quartz-anhydrite-pyrite	2- 3	0.1-0.3 (qz, ah), 0.05-0.5 (py)	
2) sphalerite-pyrite-(chalcopyrite-quartz-anhydrite)	1	0.05-0.15	

Plagioclase forms anhedral to subhedral phenocrysts that were altered slightly to locally moderately to sericite and locally slightly to strongly to epidote clusters, some of which have a radiating texture. A few, mainly large phenocrysts were replaced strongly by epidote and lesser anhydrite. A few phenocrysts were altered strongly to sericite with patches of cryptocrystalline kaolinite.

Scattered fragments up to 1.5 mm in size are of hypabyssal latite consisting of equant, slightly interlocking plagioclase grains (altered slightly to moderately to sericite) with lesser anhydrite, epidote, and pyrite.

In the groundmass, plagioclase forms anhedral equant grains that were altered slightly to sericite and dusty opaque.

K-feldspar forms anhedral grains intergrown with plagioclase and lesser quartz; it is concentrated moderately to strongly in parts of the section (as shown on the stained offcut block) as aggregates of equant grains.

Quartz forms disseminated equant grains intergrown with feldspars.

(continued on page 2)

Sample 04-14 443.0 m (page 2)

Pyrite forms disseminated anhedral grains and clusters of a few grains. It is concentrated locally in pyrite-rich patches up to a few mm across, associated with some of which are patches of epidote and anhydrite.

Ti-oxide forms disseminated patches, mainly less than 0.05 mm across, with a few up to 0.4 mm across; it probably is secondary after sphene or ilmenite.

Chalcopyrite forms disseminated patches.

Sphalerite (with minor exsolution blebs of chalcopyrite) forms a few patches associated with some of the clusters of pyrite.

A veinlet 0.5 mm wide is of quartz with lesser anhydrite and pyrite.

A veinlet from 0.15-0.3 mm wide is of sphalerite (with exsolution blebs of chalcopyrite), lesser pyrite and chalcopyrite, and minor anhydrite and quartz.

Sample 07-04 542.44 m **Porphyritic Dacite**
Alteration: Sericite-Chlorite
Replacement: Epidote, Anhydrite
Veins: Magnetite-Quartz;
Quartz-Magnetite-Chlorite-(Anhydrite-Chalcopyrite)

Anhedral phenocrysts of plagioclase (altered slightly to locally moderately to sericite and lesser epidote) are set in a groundmass of equal amounts of plagioclase and K-feldspar, with lesser quartz and disseminated magnetite. Replacement minerals include quartz, anhydrite, and epidote. Veins and veinlets are of quartz with lesser magnetite, minor to locally moderately abundant chlorite and anhydrite, and minor chalcopyrite.

mineral	percentage	main grain size range	
phenocrysts			
plagioclase	15-17%	0.3-0.8	(a few up to 2.5 mm long)
hornblende	0.5	0.3-0.7	
groundmass			
plagioclase	30-35	0.02-0.05	
K-feldspar	30-35	0.02-0.05	
magnetite	2- 3	0.03-0.07	
chalcopyrite	0.1	0.02-0.05	
sphalerite	trace	0.03-0.06	
replacement			
quartz	3- 4	0.02-0.05	
epidote	0.5	0.05-0.15	
anhydrite	0.3	0.03-0.07	
veins, veinlets			
1) magnetite-quartz	1- 2	0.05-0.1	
2) quartz-magnetite-chlorite-(anhydrite-chalcopyrite-epidote)	7- 8	0.05-0.4 (qz, mt), 0.02-0.05 (cl, ep), 0.05-0.2 (ah); 0.02-0.1 (cp)	

Plagioclase forms anhedral to locally subhedral, commonly corroded phenocrysts that were altered slightly to sericite and patches of epidote. A few were altered more strongly to patches of epidote, some of which have a radiating texture.

Hornblende forms subhedral to euhedral phenocrysts that were altered completely to chlorite and minor Ti-oxide.

In the groundmass, plagioclase and K-feldspar form slightly interlocking, equant grains.

Magnetite forms disseminated grains and clusters of grains that were altered slightly to locally moderately inwards from their margins to hematite. A few patches up to 2.5 mm across are of magnetite (altered slightly to moderately to hematite along grain borders) with lesser epidote.

Anhydrite forms disseminated anhedral, commonly ragged grains.

Chalcopyrite forms disseminated grains, in part associated with magnetite.

Sphalerite forms a few patches associated with chalcopyrite (it contains tiny exsolution blebs of chalcopyrite.

A few diffuse replacement patches up to a few mm across contain moderately abundant quartz intergrown with lesser plagioclase and K-feldspar.

(continued on page 2)

Sample 07-04 542.44 m (page 2)

A few, probably early veinlets up to 0.5 mm wide are dominated by magnetite with much less abundant quartz and minor epidote and chalcopyrite.

A few veins up to 2.5 mm wide are of quartz with disseminated clusters of grains of magnetite, less abundant patches of chlorite, and minor disseminated anhydrite and chalcopyrite. One large patch of chlorite contains clusters of chalcopyrite and epidote, and disseminated grains of anhydrite. Chalcopyrite is concentrated moderately with magnetite in a few patches, where it forms grains up to 0.2 mm in size. Sphalerite (with tiny exsolution blebs of chalcopyrite) occurs with a patch of chalcopyrite and anhydrite. One large vein contains a few plagioclase grains, which are interpreted as inclusions of host-rock phenocrysts.

Sample 07-04 553.7 m
Porphyritic Hypabyssal Dacite
Alteration: Sericite-Anhydrite-Chlorite
Replacement:
Veinlets: Magnetite-Quartz; Chlorite-Magnetite-(Anhydrite); Calcite-Anhydrite-Chlorite

Abundant anhedral phenocrysts of plagioclase and one phenocryst of quartz are set in a groundmass of plagioclase and K-feldspar with much less abundant quartz. Wispy veinlets are of magnetite-(quartz). A few veinlets are of chlorite-magnetite-(anhydrite). A few veinlets are of calcite-anhydrite-chlorite.

mineral	percentage	main grain size range	
phenocrysts			
plagioclase	30-35%	0.5-1	
quartz	1	1.5	
groundmass			
plagioclase	20-25	0.02-0.05	
K-feldspar	20-25	0.02-0.05	
quartz	4- 5	0.02-0.05	
magnetite	2- 3	0.03-0.2	(a few up to 0.7 mm)
chlorite	1- 2	0.02-0.05	
anhydrite	1- 2	0.05-0.15	
pyrite	1- 2	0.03-0.12	(a few up to 0.2 mm long)
chalcopyrite	minor	0.02-0.07	(a few up to 0.15 mm)
veins, veinlets			
1) magnetite-chlorite-quartz-(anhydrite)	1- 2	0.02-0.05	
2) quartz-magnetite-(chlorite-anhydrite-chalcopyrite)	5- 7	0.05-0.2	
3) calcite-anhydrite-chlorite	0.3	0.02-0.05	

Plagioclase forms anhedral phenocrysts and clusters of phenocrysts that contain dusty opaque inclusions and were altered very slightly to sericite and locally slightly to patches of epidote. A few were replaced more strongly by patches of one or more of anhydrite, epidote, and lesser chlorite. Some may be altered slightly to moderately to K-feldspar, especially in the part of the section that contains abundant K-feldspar in the matrix (see stained offcut block).

Quartz forms an anhedral equant phenocryst with dusty opaque inclusions.

In the groundmass, plagioclase and K-feldspar form slightly interlocking grains in variable proportions throughout the section. K-feldspar may be in part at least an alteration of plagioclase.

Magnetite forms disseminated grains and clusters of grains that were altered slightly to locally moderately to hematite, mainly in patches on or near the margins of the grains.

Chlorite forms disseminated patches up to 0.3 mm in size.

Epidote forms disseminated patches up to 0.3 mm in size, in part intergrown with lesser anhydrite.

Anhydrite forms disseminated anhedral grains.

Pyrite forms disseminated anhedral grains.

Chalcopyrite forms disseminated anhedral grains.

(continued on page 2)

Sample 07-04 553.7 m (page 2)

Numerous subparallel discontinuous veinlets are dominated by magnetite with minor to moderately abundant amounts of quartz, anhydrite, chlorite, and pyrite, and minor chalcopyrite.

A vein up to 5 mm wide is of quartz with a few large patches of magnetite-(chalcopyrite) and with minor disseminated grains of anhydrite. A vein 0.8 mm wide is of quartz with patches of magnetite, lesser ones of chlorite, and minor disseminated grains of anhydrite. It cuts obliquely across veinlets of magnetite-chlorite.

A few late veinlets up to 0.2 mm wide are dominated by calcite with minor to moderately abundant anhydrite and minor chlorite. Some of these are fracture-filling and a few are irregular. One of the irregular veinlets has sharp bends controlled by fractures in the host rock; wispy calcite stringers extend outwards along some of these fractures for up to 0.5 mm.

Sample 07-05 307.0 m **Hypabyssal Porphyritic Dacite**
Alteration: Sericite, Epidote
Veinlets: Magnetite; Quartz-Magnetite-(Chlorite); Chlorite-(Quartz-Magnetite-Pyrite-Chalcopyrite); Kaolinite

Anhedral phenocrysts of plagioclase (altered slightly to sericite and locally slightly to epidote) are set in a groundmass of K-feldspar-plagioclase-(quartz-chlorite) with disseminated patches of magnetite and minor grains and patches of epidote. Several early-formed discontinuous veinlets are of magnetite. A vein and a few veinlets are of quartz-magnetite. A veinlet is of chlorite-quartz-magnetite with minor patches of pyrite and of chalcopyrite. A few late veinlets are of kaolinite that was lost from the section during its preparation.

	mineral	**percentage**	**main grain size range**	
	phenocrysts, early-formed aggregates			
	plagioclase	15-20%	0.3-1	(a few up to 2 mm long)
	biotite	0.2	0.3-0.5	
	groundmass			
	K-feldspar	30-35	0.02-0.07	
	plagioclase	25-30	0.02-0.07	
	quartz	4- 5	0.02-0.07	
	magnetite	3- 4	0.05-0.2	
	chlorite	2- 3	0.02-0.05	
	epidote	0.3	0.05-0.1	(a few up to 0.2 mm)
	pyrite	0.1	0.03-0.1	
	chalcopyrite	minor	0.01-0.05	(a few up to 0.15 mm)
	apatite	minor	0.03-0.05	
	veinlets, veins			
1)	magnetite	0.3	0.05-0.1	
2)	quartz-magnetite-(chlorite-chalcopyrite)	5- 7	0.05-0.5 (qz, cl), 0.05-0.15 (mt, cp)	
3)	chlorite-quartz-(magnetite-pyrite-chalcopyrite)	1	0.05-0.1 (cl, qz), 0.05-0.2 (mt); 0.02-0.05 (py, cp)	
4)	kaolinite	1	0.01-0.03 (?) (lost from section)	

Plagioclase forms anhedral coarser grains and patches of coarser grains that were altered slightly to locally moderately or strongly to sericite and minor epidote. Such patches probably represent early-formed crystal aggregates. Some grains were replaced slightly to moderately by K-feldspar.

A few patches consist of aggregates of chlorite, quartz, and lesser epidote; chlorite is oriented, suggesting that these patches represent altered biotite phenocrysts.

The groundmass is dominated by slightly interlocking grains of K-feldspar and plagioclase (altered slightly to sericite). Grain size is variable and grades upwards into that of the coarser grains.

Quartz forms disseminated anhedral grains intergrown moderately with feldspars.

Magnetite (altered slightly to hematite, mainly along or near grain margins) forms disseminated grains and clusters of grains. Some magnetite grains are aligned in discontinuous wispy early-formed veinlets. A few magnetite clusters contain one or two inclusions of chalcopyrite (0.01-0.03 mm).

Chlorite forms ragged patches up to 0.5 mm in size, in part containing grains of epidote. It also forms interstitial grains intergrown with very fine grained K-feldspar-plagioclase in the groundmass.

(continued on page 2)

Sample 07-05 307.0 (page 2)

Epidote forms disseminated patches and single grains.

Pyrite forms disseminated anhedral grains. It is most abundant in the zone between the two large quartz-rich veins.

Chalcopyrite forms disseminated equant patches, commonly associated with magnetite clusters. A few contain minor inclusions of pyrite.

Several discontinuous early veinlets mainly less than 0.1 mm wide and up to a few mm long are of magnetite (altered slightly to moderately to hematite).

A vein up to 1.5 mm wide consists of quartz with abundant magnetite (mainly along one side of the vein; altered slightly to moderately to hematite) and scattered patches of chalcopyrite. A parallel proximal vein up to 3 mm wide is dominated by quartz with minor patches of magnetite, two patches of chlorite, one with moderately abundant magnetite and the other with a grain of epidote and minor one of magnetite, and a few grains of pyrite, including a string of grains that cuts across the vein at a high angle and may represent a later event. A few smaller discontinuous veinlets are of quartz and magnetite (altered slightly to moderately to hematite).

A diffuse veinlet mainly from 0.3-0.5 mm wide and locally up to 1 mm wide contains abundant chlorite with lesser quartz and magnetite, and locally contains patches of pyrite and chalcopyrite. Where it joins a quartz-magnetite vein at a low angle, the latter contains abundant chlorite intergrown finely with quartz and magnetite, suggesting that the two veinlets are of the same age.

A few late veinlets up to 0.5 mm wide are of kaolinite that was lost from the section during its preparation.

Sample 07-05 495.7 m **Porphyritic Hypabyssal Latite/Dacite**
Alteration: Quartz-Sericite-(Chlorite)
Vein: Quartz-Magnetite-Pyrite-(Chalcopyrite-Ankerite)

Scattered anhedral phenocrysts of plagioclase (altered slightly to strongly to sericite) and minor ones of quartz and of biotite (altered completely to pseudomorphic chlorite and minor Ti-oxide) are set in a variable groundmass, in places consisting of plagioclase (altered slightly to strongly to sericite) with interstitial chlorite, and more commonly dominated by secondary quartz with minor to moderately abundant plagioclase (altered slightly to completely to sericite). A vein is of quartz with abundant pyrite and magnetite and lesser chalcopyrite and ankerite along its centreline. The vein was offset up to 1.5 mm along two late subparallel veinlets of quartz with disseminated epidote and tremolite (?; altered completely to sericite), with patches of pyrite and lesser chalcopyrite.

mineral	**percentage**	**main grain size range**
phenocrysts		
plagioclase	5- 7%	0.5-1.5
quartz	0.5	0.5-0.8
biotite	0.3	0.3-0.5
groundmass		
quartz	30-35	0.02-0.05
plagioclase/sericite	30-35	0.01-0.02
chlorite	3- 4	0.02-0.05
pyrite	0.2	0.03-0.1
sphalerite	0.2	0.05-0.15
magnetite	0.1	0.02-0.05
chalcopyrite	minor	0.02-0.05
Ti-oxide	0.2	0.01-0.03
zircon	minor	0.2
veins		
1) quartz-magnetite-pyrite-(chalcopyrite-ankerite)	20-25	0.02-0.5 (qz, mt, py)
2) quartz-pyrite-chalcopyrite-epidote-tremolite/sericite)	2	0.05-0.1 (qz), 0.1-0.3 (py, cp), 0.02-0.07 (ep); 0.1-0.7 (tr?)

Plagioclase forms irregular to subhedral phenocrysts that were altered slightly to strongly to sericite. In places they grade downwards in grain size into groundmass plagioclase.

Quartz forms a few anhedral phenocrysts with regular outlines.

Biotite (altered completely to pseudomorphic chlorite with minor disseminated Ti-oxide) forms anhedral phenocrysts, mainly less than 0.5 mm in size.

The groundmass is variable. In least altered patches it is dominated by equant anhedral plagioclase (altered slightly to locally strongly to sericite) with scattered patches of chlorite (probably after biotite) and minor quartz. Grain size of the groundmass grades upwards to that of the fine grained phenocrysts. Locally, the groundmass contains patches up to 1.5 mm in size of chlorite with abundant disseminated equant grains of magnetite (altered moderately to strongly to hematite).

More commonly the groundmass is dominated by quartz with minor to moderately abundant sericite (both formed in large part by replacement of plagioclase).

(continued on page 2)

Sample 07-05 495.7 m (page 2)

Sulphides form disseminated patches, mainly less than 0.5 mm in size, with one sphalerite-rich patch being up to 1 mm across. Patches commonly consist of pyrite with lesser chalcopyrite and minor sphalerite. Sphalerite contains abundant exsolution blebs of chalcopyrite.

Zircon forms one equant grain with subrounded outlines.

The main vein is several mm wide and is dominated by quartz, which is very fine grained in a broad outer zone, and moderately coarser grained in the core. It contains concentrations along its centreline of intergrowths of pyrite and magnetite (altered moderately to hematite), with lesser chalcopyrite and interstitial ankerite. Chlorite forms scattered patches in quartz near the margin of sulphide-oxide patches.

The main vein is offset up to 1.5 mm along two late veinlets up to 0.5 mm wide consisting of quartz with a few patches of pyrite and lesser chalcopyrite. Bordering the larger veinlet or as an early-formed part of it is a zone up to 0.7 mm wide consisting of an intimate intergrowth of quartz with elongate grains of epidote and less abundant elongate grains of tremolite(?, altered completely to sericite-quartz).

List of Photographs

(page 1 of 6)

Photo	Section	Description
01	93-02 150.0	plagioclase phenocryst (altered slightly to moderately to sericite), three proximal anhedral grains of apatite and one patch of chlorite-(epidote) (probably secondary after a hornblende phenocryst and largely removed from the section) in a groundmass of much finer grained plagioclase (altered slightly to sericite)) and much less abundant K-feldspar, and minor magnetite, chalcopyrite (associated with chlorite-[epidote]), and disseminated Ti-oxide.
02	93-02 150.0	large plagioclase phenocryst (altered slightly to moderately to sericite and scattered patches of calcite) in a groundmass of plagioclase (altered very slightly to sericite) and lesser K-feldspar and minor pyrite; discontinuous veinlets of magnetite; veinlet of calcite.
03	93-02 150.0	cluster of magnetite (altered slightly to hematite) with lesser epidote, sphalerite and chalcopyrite, enclosed in a large plagioclase phenocryst to the left (altered slightly to sericite and calcite) with a patch of leucoxene, and to the right, finer grained plagioclase.
04	93-02 150.0	plagioclase phenocryst (altered slightly to sericite) in a groundmass of much finer grained plagioclase and lesser K-feldspar; replacement patch of epidote and lesser calcite with a core of kaolinite; veinlet of kaolinite.
05	93-02 238.0	phenocrysts of plagioclase (altered moderately to sericite), phenocryst of quartz, and two phenocrysts of hornblende (altered completely to chlorite with minor disseminated Ti-oxide) in a groundmass dominated by plagioclase with lesser K-feldspar and quartz, disseminated grains and patches of magnetite, and a few grains of calcite and trace chalcopyrite (with calcite).
06	93-02 238.0	to the left: patch dominated by magnetite and chlorite with lesser plagioclase (altered slightly to sericite) and calcite; to the right: plagioclase phenocrysts (altered slightly to sericite and locally moderately to epidote) in a groundmass of plagioclase-K-feldspar-(quartz); replacement patch/veinlet of quartz with minor sericite (probably after relict plagioclase).
07	93-02 238.0	K-feldspar-rich replacement patch with lesser calcite and disseminated grains of magnetite, chalcopyrite, and quartz, and one patch of each of sericite and chlorite; associated with diffuse veinlet of calcite.
08	96-06 20	plagioclase phenocrysts (altered completely to sericite) in a groundmass of extremely fine grained plagioclase (altered slightly to sericite) with disseminated grains of pyrite and patches of Ti-oxide/leucoxene; top right: veinlet of kaolinite.

List of Photographs

(page 2 of 6)

Photo	Section	Description
09	96-06 20	phenocryst of hornblende (altered completely to clinozoisite/epidote and minor tremolite and pyrite), quartz, and ilmenite/sphene (altered completely to Ti-oxide-pyrite-plagioclase); groundmass of plagioclase (altered slightly to moderately to sericite) with disseminated patches of pyrite and of Ti-oxide; veinlet of kaolinite offsets the hornblende phenocryst.
10	96-06 20	top left: hornblende phenocryst (altered completely to epidote/clinozoisite) with rim of sericite-kaolinite-pyrite; groundmass is plagioclase (altered slightly to strongly to sericite) with minor to very abundant disseminated pyrite and with patches of Ti-oxide-pyrite; patches of coarser grained kaolinite with minor pyrite, sericite, and epidote; irregular veinlet of kaolinite.
11	97-02 56.5	plagioclase phenocryst (altered slightly to moderately to sericite) bordered by a replacement zone rich in K-feldspar with disseminated patches of magnetite and lesser pyrite; further away (at left) groundmass is plagioclase (altered slightly to moderately to sericite) with lesser quartz.
12	97-02 56.5	patch of sericite with abundant clusters of magnetite-epidote with lesser grains of chalcopyrite and of pyrite; top right: groundmass of plagioclase-K-feldspar; bottom right: replacement patch of quartz-(K-feldspar).
13	97-02 56.5	top left: host rock: groundmass plagioclase altered moderately to sericite with disseminated pyrite; centre: margin of vein: magnetite-pyrite-(chalcopyrite) with minor groundmass plagioclase; lower right: core of vein: quartz with minor patches of pyrite.
14	03-07 125.0	plagioclase phenocrysts (altered slightly to moderately to sericite), a patch of sericite-magnetite (possibly after hornblende) and a euhedral grain of zircon in a groundmass dominated by plagioclase (altered slightly to sericite) with minor disseminated magnetite and Ti-oxide; veinlet of quartz-magnetite with trace chalcopyrite.
15	03-07 125.0	to the left: plagioclase phenocryst (altered moderately to sericite) in an extremely fine grained groundmass dominated by plagioclase (altered slightly to sericite) with minor patches of magnetite; to the right: fragment of hypabyssal latite consisting of equant plagioclase (altered slightly to sericite) with minor Ti-oxide and trace chalcopyrite.
16	03-07 125.0	replacement patch of pyrite, chalcopyrite, kaolinite, much of which was removed from the section, denoted (ka), and epidote; host rock is groundmass plagioclase (altered slightly to strongly to sericite and kaolinite), with disseminated patches of magnetite and a few patches of chlorite-(Ti-oxide).

List of Photographs

(page 3 of 6)

Photo	Section	Description
17	03-07 125.0	far left: host rock plagioclase (altered slightly to sericite) replaced by quartz on margin of vein; left-centre: vein of quartz with lesser kaolinite (lost from section), pyrite, chalcopyrite, and magnetite; to the right: host rock: plagioclase (altered slightly to moderately to sericite with patches of kaolinite (lost from section) and minor chalcopyrite and magnetite.
18	03-07 226.0	plagioclase phenocrysts (altered slightly to moderately to sericite and minor calcite) and one mafic phenocryst (altered completely to chlorite-sericite-calcite-[Ti-oxide]); groundmass of equant plagioclase (altered slightly to sericite) and quartz with disseminated magnetite and patches of calcite.
19	03-07 226.0	patchy replacement of sericite (with disseminated spots of ankerite that were altered moderately to strongly to hematite) and quartz, with a patch of sericite-kaolinite-(chalcopyrite); minor chlorite; at left of photo is a diffuse veinlet of quartz with patches of sericite.
20	03-07 226.0	patch of sphalerite (with abundant exsolution blebs of chalcopyrite) and chalcopyrite between two plagioclase phenocrysts (altered moderately to strongly to sericite with minor sericite/muscovite adjacent to the sulphide patch; minor groundmass plagioclase-quartz.
21	03-07 226.0	host rock of plagioclase (altered moderately to calcite and lesser sericite) and much less abundant quartz, one grain of apatite, and minor chalcopyrite; veinlet of sericite-quartz-chalcopyrite.
22	04-10 111.0	groundmass of quartz with lesser patches of sericite and disseminated grains and clusters of pyrite; veinlet of kaolinite.
23	04-10 111.0	irregular plagioclase phenocryst (altered completely to sericite with minor Ti-oxide) in a groundmass of equant quartz with interstitial patches of sericite.
24	04-10 111.0	to the left: kaolinite vein containing a cluster of angular pyrite grains including some shards; pyrite probably was present prior to brecciation and formation of the kaolinite vein; to the right: host rock consisting of equant quartz and interstitial patches of sericite; cut by kaolinite veinlet. Note: (ka) represents areas where kaolinite was removed from the section during its preparation.
25	04-10 330.0	plagioclase phenocryst (altered completely to sericite and anhedral grains of anhydrite); groundmass of plagioclase (altered moderately to sericite) with much less abundant quartz and minor anhydrite and Ti-oxide.
26	04-10 330.0	to the left: fragment? of hypabyssal latite consisting of equant plagioclase (altered slightly to moderately to sericite) and much less abundant quartz, in part probably of replacement origin); to the right: plagioclase phenocryst (altered completely to sericite and minor disseminated grains of anhydrite) in a groundmass of extremely fine grained plagioclase (altered slightly to sericite) with patches of pyrite and minor grains of anhydrite and of quartz.

List of Photographs

(page 4 of 6)

Photo	Section	Description
27	04-10 330.0	to the left: vein of anhydrite with selvage of fluorite and minor anhydrite on its margin; to the right: altered envelope dominated by sericite with abundant anhedral pyrite and disseminated grains of anhydrite; cavities along the edge of the vein.
28	04-10 330.0	replacement patch of anhydrite, pyrite, and muscovite/kaolinite with minor apatite(?); host rock is plagioclase (altered moderately to sericite) with scattered quartz grains and minor anhydrite.
29	04-13 235.0	plagioclase phenocrysts (altered completely to sericite and disseminated grains of anhydrite and of pyrite and minor patches of Ti-oxide) in a groundmass of extremely fine grained plagioclase (altered slightly to sericite) with minor disseminated grains of pyrite.
30	04-13 235.0	replacement patch: coarse grains of anhydrite and smaller ones of pyrite in an extremely fine grained groundmass containing patches dominated by either sericite or kaolinite and a few gradational zones between the two.
31	04-13 235.0	to the left: Zone C: alteration of sericite-quartz-pyrite; to the right: Zone B: alteration of sericite-pyrite-anhydrite with patches containing moderately abundant kaolinite intergrown with sericite; veinlet of kaolinite.
32	04-14 301.9	groundmass plagioclase (altered slightly to moderately to sericite); replaced by porphyroblasts of anhydrite and clusters of muscovite; patch of kaolinite with minor quartz and two grains of pyrite.
33	04-14 301.9	subhedral plagioclase phenocrysts (altered completely to sericite and patches of muscovite); groundmass anhedral plagioclase (with dusty opaque inclusions, altered slightly to strongly to sericite and/or muscovite); replacement porphyroblasts of anhydrite; minor pyrite.
34	04-14 301.9	vein of quartz with irregular anhydrite grains and minor sericite along its centreline, and with minor sericite elsewhere; cuts host rock consisting of groundmass plagioclase (altered slightly to sericite/muscovite) with a porphyroblast of anhydrite.
35	04-14 443.0	plagioclase phenocrysts (large one altered strongly to a cluster of epidote grains and less strongly elsewhere to sericite; small ones altered slightly to sericite) in a groundmass of plagioclase with lesser K-feldspar and quartz and scattered patches of Ti-oxide; vein of quartz-anhydrite.
36	04-14 443.0	anhedral plagioclase phenocrysts (altered slightly to sericite) in a groundmass of plagioclase (altered slightly to sericite) and lesser quartz, with scattered patches of Ti-oxide and an equant grain of zircon; veinlet of sphalerite (with exsolution blebs of chalcopyrite) and pyrite, with much less abundant chalcopyrite and quartz.

List of Photographs

(page 5 of 6)

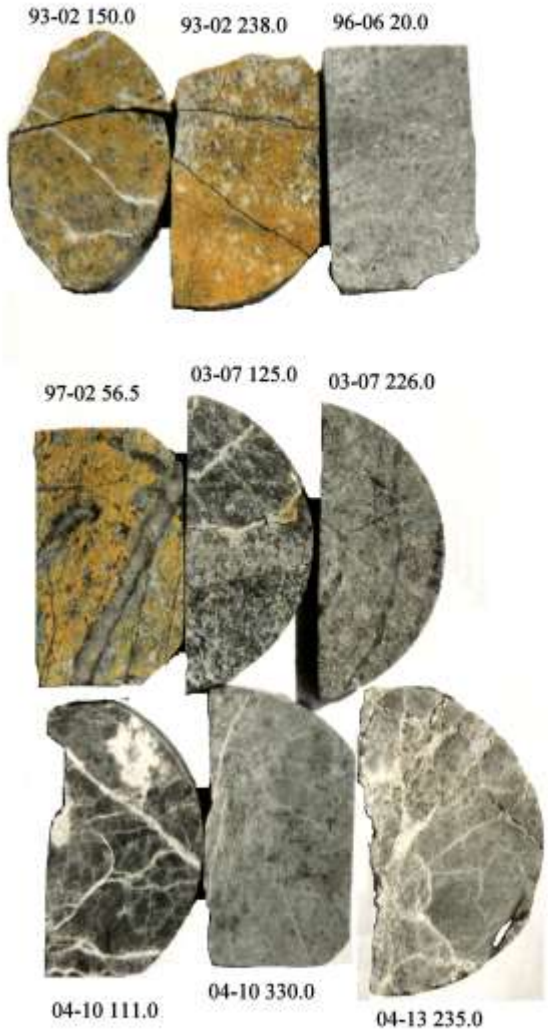
Photo	Section	Description
37	04-14 443.0	plagioclase phenocryst (altered strongly to a patch of epidote) in a groundmass of plagioclase (altered slightly and locally strongly to sericite) with much less abundant quartz and minor chlorite; vein of pyrite-quartz-anhydrite, with a small inclusion of galena in the largest pyrite grain.
38	04-14 443.0	plagioclase phenocrysts (altered slightly to sericite) in a groundmass of plagioclase-K-feldspar with scattered patches of sericite; replacement by pyrite with patches of epidote and anhydrite
39	07-04 542.44	phenocrysts of plagioclase (altered slightly to sericite) and of hornblende (altered completely to chlorite with minor epidote and Ti-oxide) in a groundmass of interlocking plagioclase and K-feldspar with minor epidote and Ti-oxide; veinlet of quartz with minor anhydrite and trace chalcopyrite.
40	07-04 542.44	top left: plagioclase phenocryst (altered slightly to epidote) in a groundmass of plagioclase-K-feldspar with minor ragged patches of anhydrite; lower right: vein of quartz with patch of magnetite-chlorite along its margin and several grains of anhydrite in its core.
41	07-04 542.44	to the left: vein with large patch dominated by chlorite with a cluster of epidote, chalcopyrite, and magnetite and a few grains of anhydrite; top right: intergrowth of chlorite with magnetite and lesser anhydrite, with minor quartz; lower right: host rock: interlocking plagioclase phenocrysts and minor finer grained groundmass, minor magnetite, and chlorite.
42	07-04 542.44	plagioclase phenocryst (variably altered to sericite, stronger in the core and weaker in the rim) in a groundmass of K-feldspar with lesser plagioclase and quartz, with replacement patches of epidote and disseminated magnetite (altered slightly in patches to hematite); veinlet of magnetite (altered slightly to moderately to hematite) and lesser quartz.
43	07-04 553.7	at top: host rock is equant interlocking plagioclase grains (with dusty opaque inclusions, possibly partly altered to K-feldspar) with much less abundant quartz; near bottom: host rock is finer grained K-feldspar, plagioclase, and quartz with disseminated patches of magnetite; early vein is of quartz-magnetite with patches of chlorite and of anhydrite and minor chalcopyrite; a late veinlet is of anhydrite and lesser calcite; where it cuts the early vein, magnetite was granulated strongly and included in the younger veinlet.
44	07-04 553.7	intergrowth of anhedral plagioclase (altered slightly to K-feldspar with patches of epidote), with minor interstitial quartz, patches of anhydrite and disseminated grains of magnetite (altered slightly to moderately to hematite); diffuse veinlet is of chlorite with patches of magnetite (altered slightly to moderately to hematite) and minor epidote.

List of Photographs

(page 6 of 6)

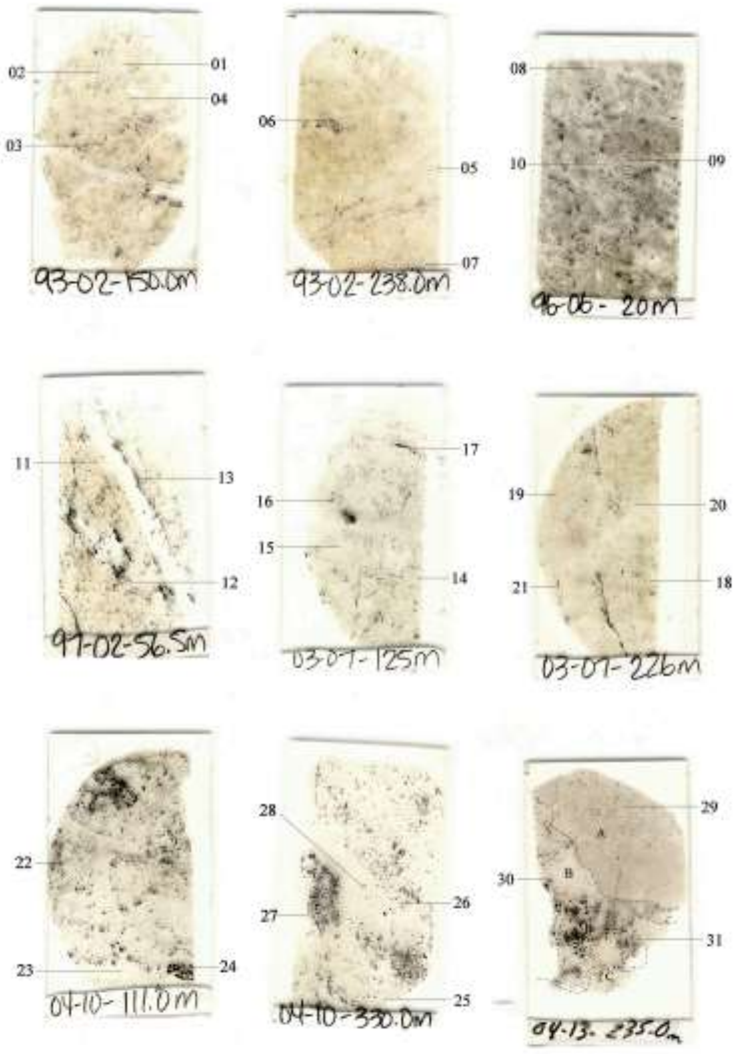
Photo	Section	Description
45	07-04 553.7	anhedral plagioclase grains (altered slightly to moderately to K-feldspar) in a groundmass of finer grained plagioclase and K-feldspar with disseminated patches of magnetite; cut by irregular veinlet of calcite-(anhydrite) with sharp bends along fractures, with wispy calcite veinlets extending outwards along some of these fractures.
46	07-05 307.0	plagioclase phenocrysts (altered slightly to moderately to sericite) in a groundmass of K-feldspar and plagioclase (altered slightly to sericite) with patches of sericite (probably secondary after plagioclase phenocryst, but no crystal outlines obvious) magnetite (altered slightly to hematite), of chlorite, and of epidote.
47	07-05 307.0	to the left: fine grained plagioclase (altered slightly to sericite and locally strongly to epidote-sericite with a patch of chalcopyrite) and K-feldspar, cut by a diffuse veinlet of chlorite with patches of pyrite and of chalcopyrite); top right: vein of quartz with patches of magnetite (altered slightly to moderately to hematite); bottom right: very fine grained groundmass of K-feldspar-plagioclase with minor quartz, epidote, and magnetite.
48	07-05 307.0	to the left: intergrowth of fine grained plagioclase (altered slightly to sericite and trace epidote) with minor interstitial chlorite and patches of magnetite; to the right: scattered anhedral plagioclase grains (altered slightly to chlorite) in a groundmass of extremely fine grained K-feldspar and much less abundant plagioclase, disseminated clusters of magnetite (altered slightly to moderately to hematite) and minor interstitial patches of chlorite.
49	07-05 495.7	ragged plagioclase phenocrysts and patches of chlorite (probably secondary after biotite) grading down in grain size to much finer grained plagioclase (altered slightly to locally strongly to sericite) with interstitial patches of chlorite and minor Ti-oxide; minor sulphide patch of pyrite, sphalerite (with exsolution blebs of chalcopyrite and chalcopyrite.
50	07-05 495.7	replacement patch of sphalerite (with exsolution blebs of chalcopyrite) and sericite, with lesser chalcopyrite and pyrite; scattered patches of plagioclase (altered slightly to moderately to sericite and lesser chlorite); much of the groundmass is replacement quartz with much less abundant sericite and patches of chlorite.
51	07-05 495.7	to the left: margin of vein consisting of very fine grained quartz; which grades into coarser grained quartz and minor chlorite bordering the sulphide zone; to the right: core of vein; lensy patch of pyrite, magnetite (altered moderately to hematite) and chalcopyrite, with interstitial ankerite.
52	07-05 495.7	host rock: small plagioclase phenocrysts (altered slightly to strongly to sericite) in a variable groundmass of quartz and plagioclase; veinlet of quartz with minor magnetite with an alteration zone on one side consisting of an intimate intergrowth of quartz, epidote, and elongate tremolite grains (altered completely to sericite), with minor pyrite.

120552 canusil blocks (1)

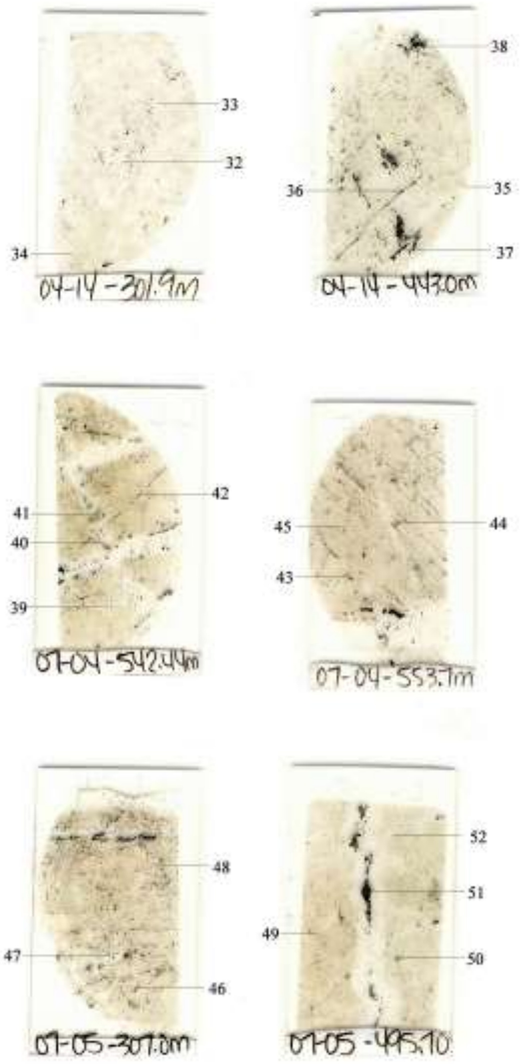


120552 canusil blocks (2)

120552 canusil sections (1)



120552 canusil sections (2)



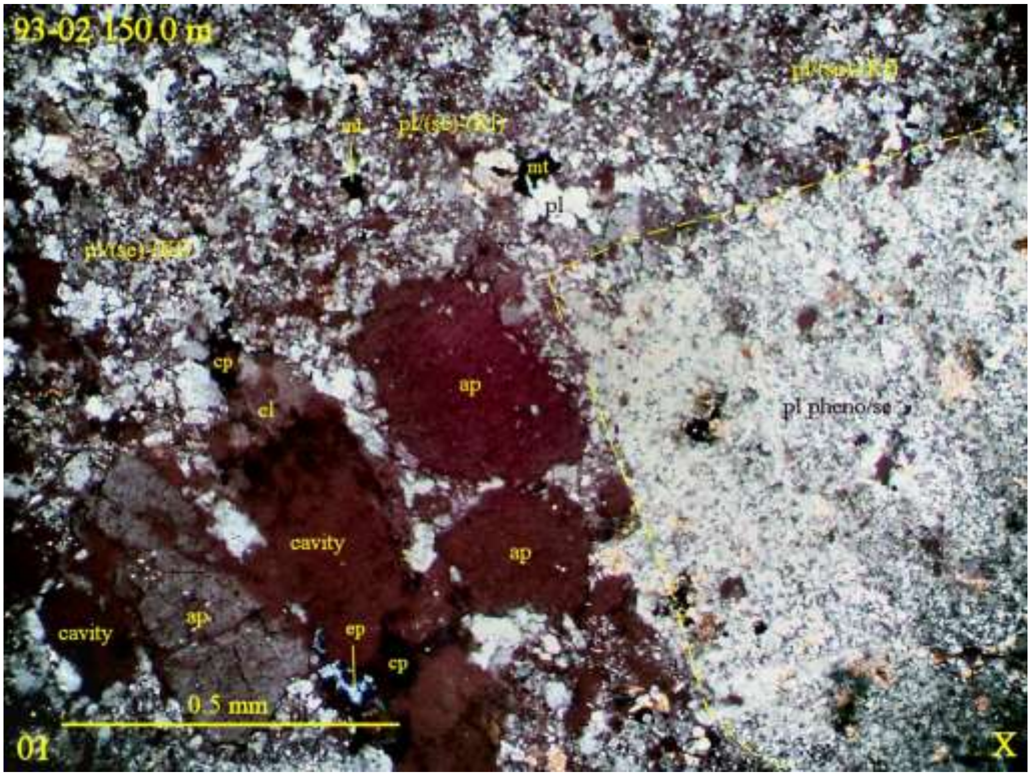


Photo: 01 93-02 150.0

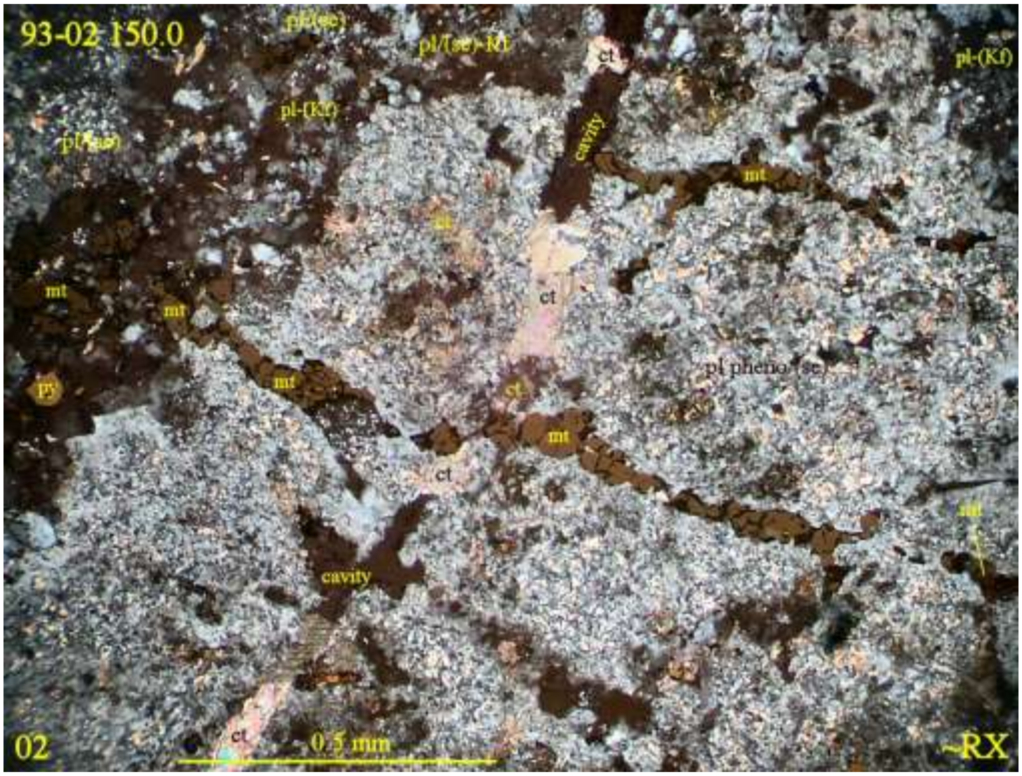


Photo: 02 93-02 150.0

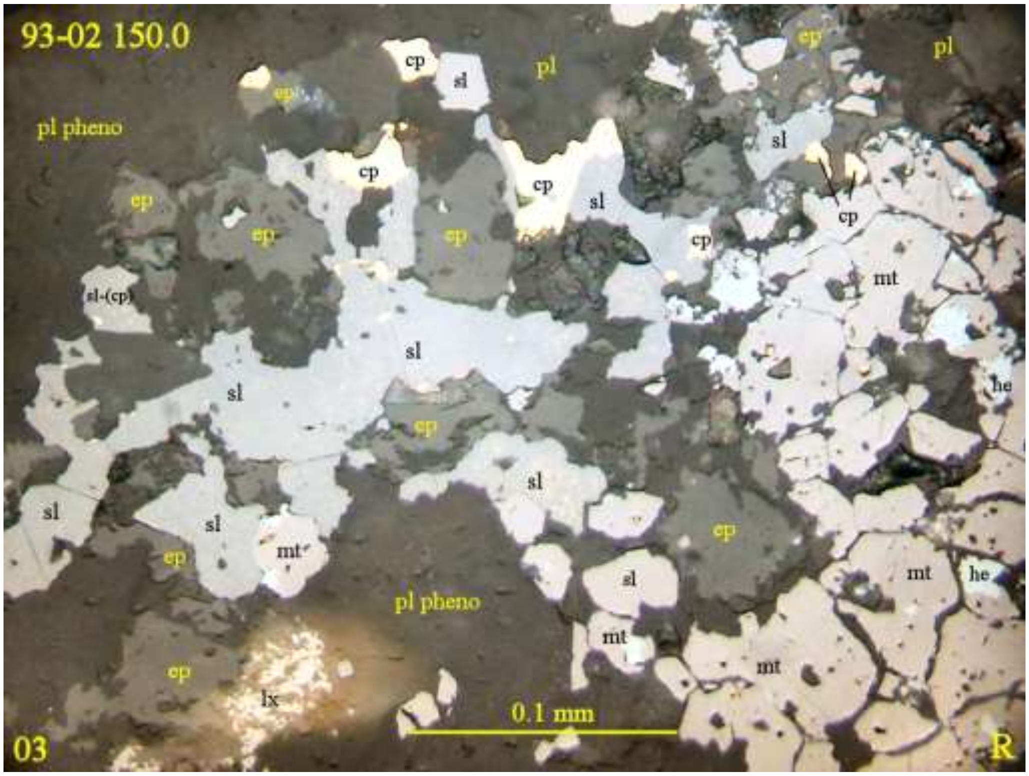


Photo: 03 93-02 150.0

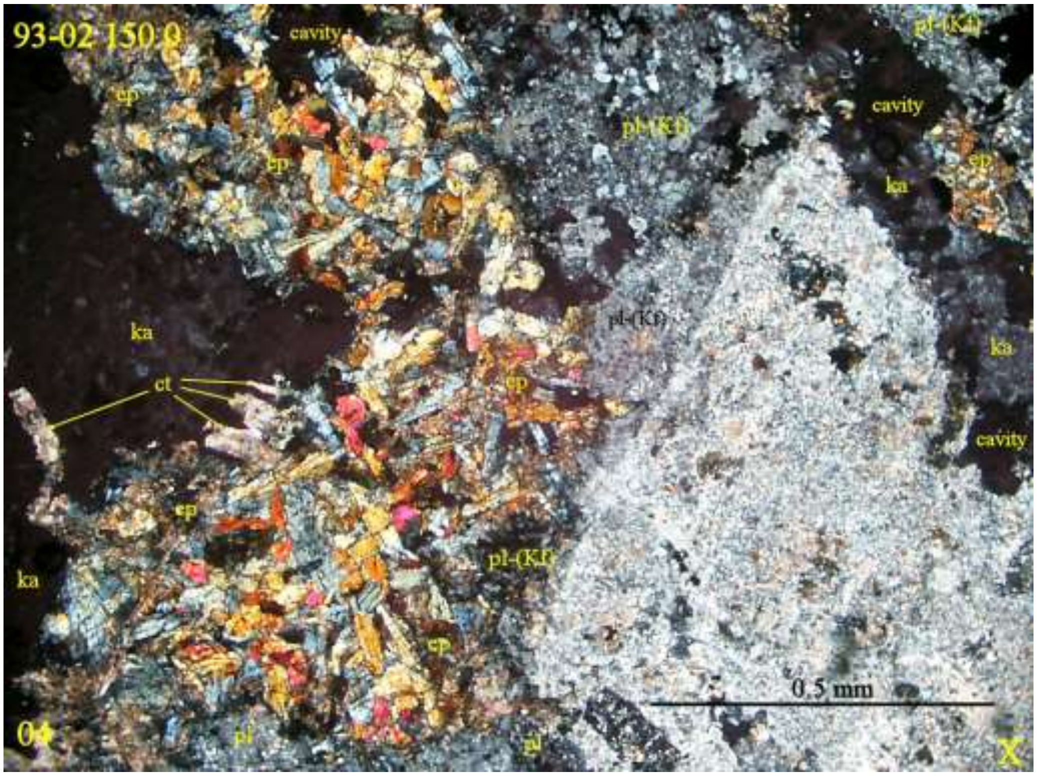


Photo: 04 93-02 150.0

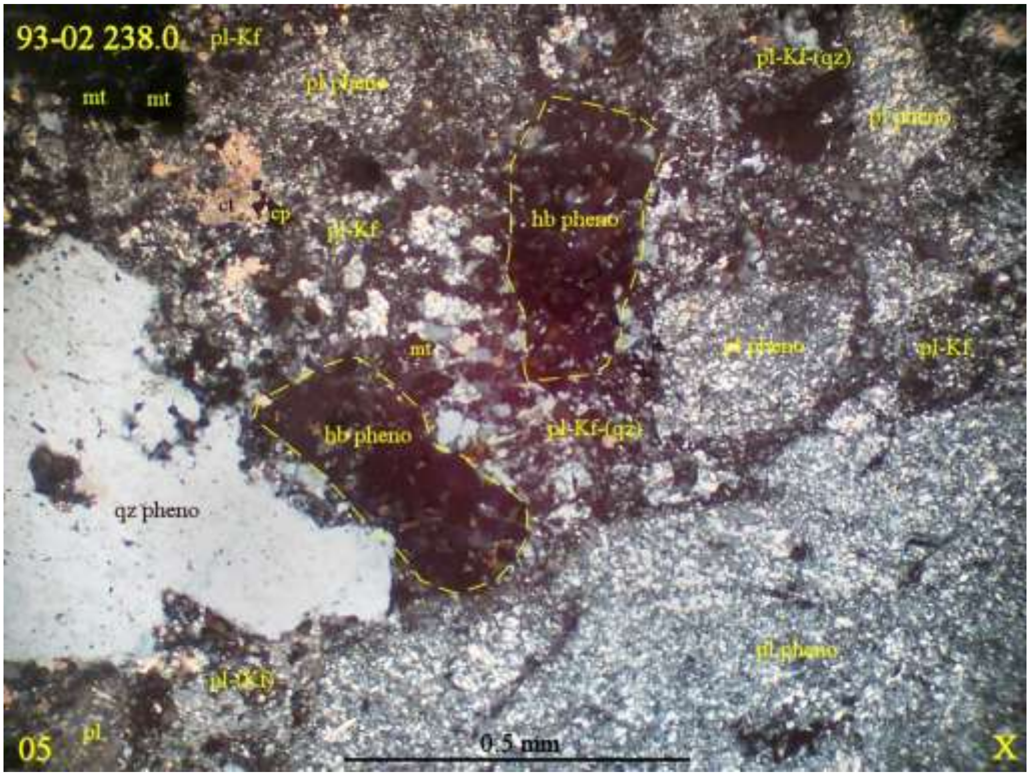


Photo: 05 93-02 238.0

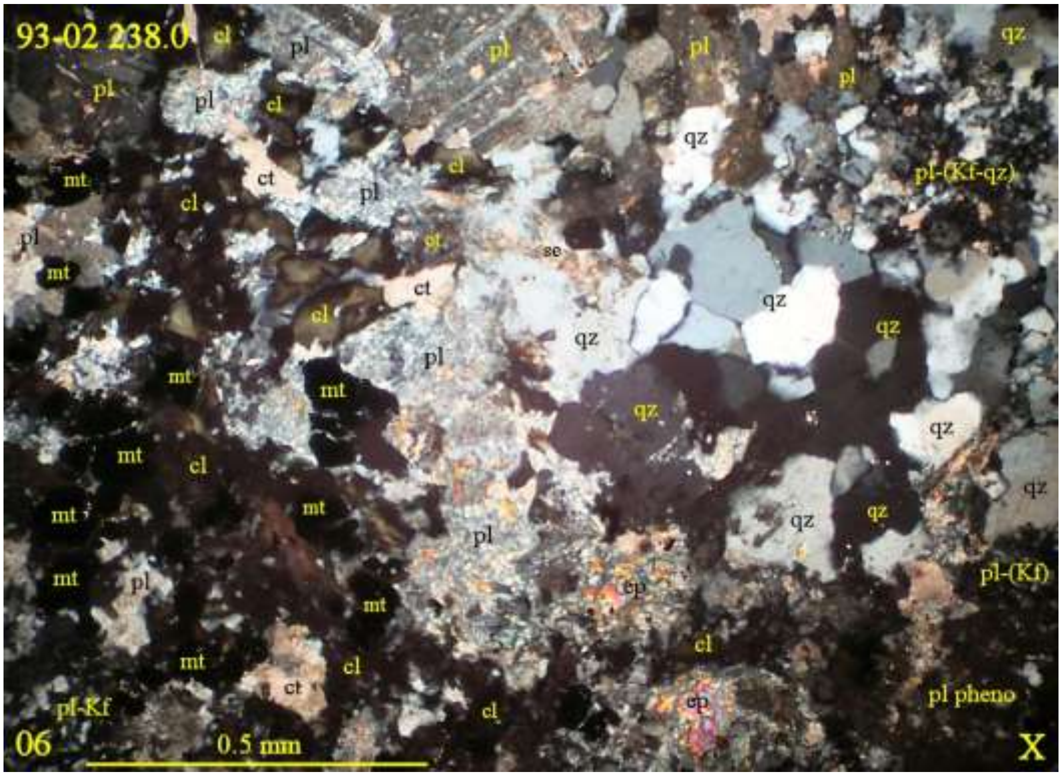


Photo: 06 93-02 238.0

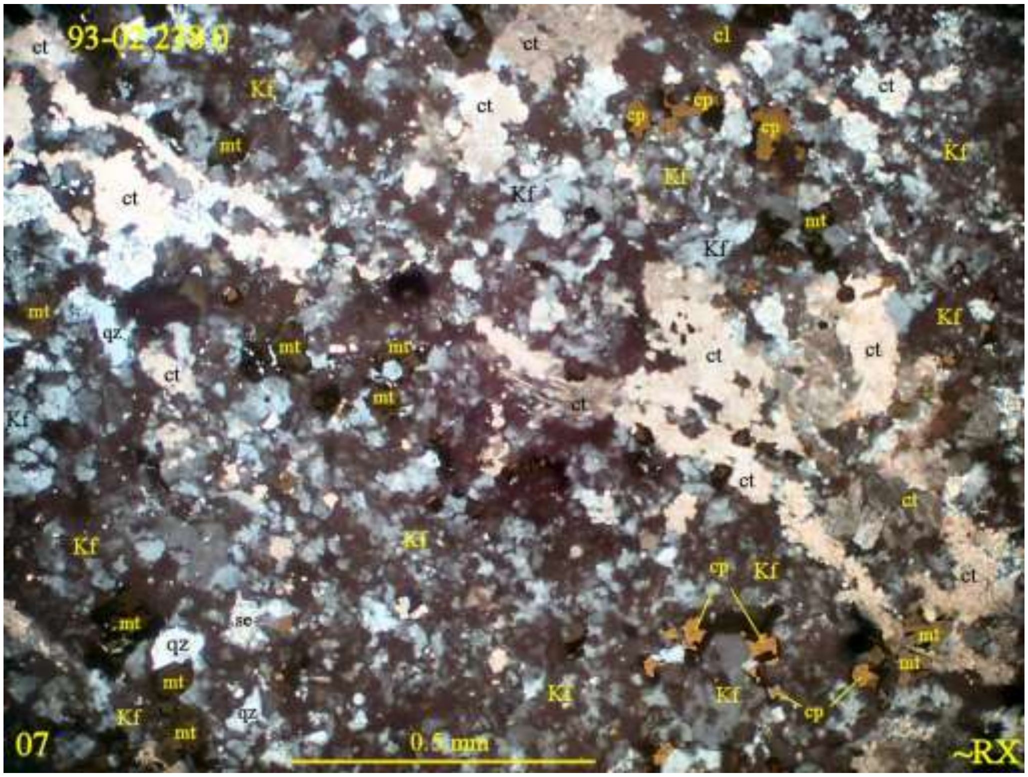


Photo: 07 93-02 238.0

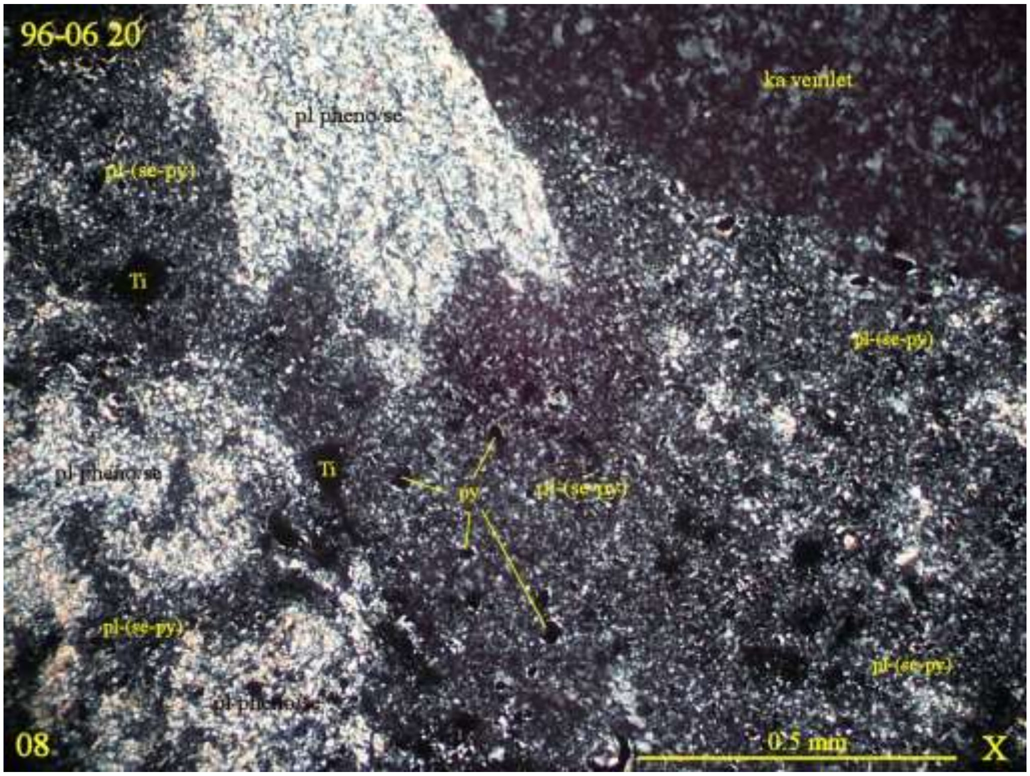


Photo: 08 96-06 20

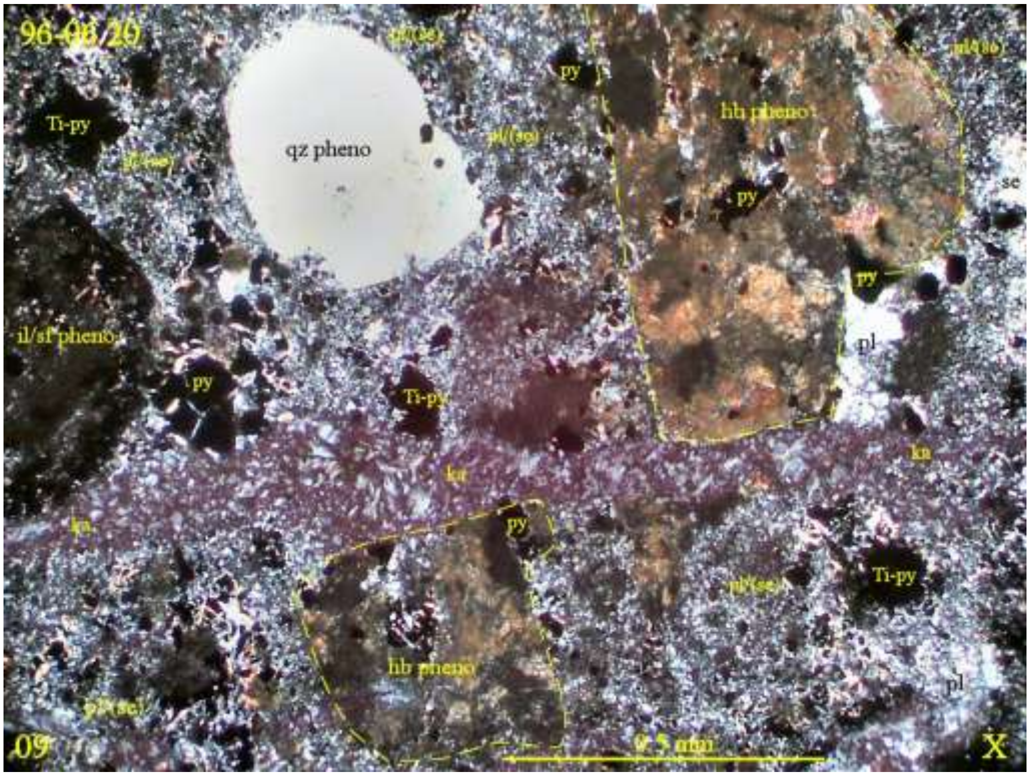


Photo: 09 96-06 20

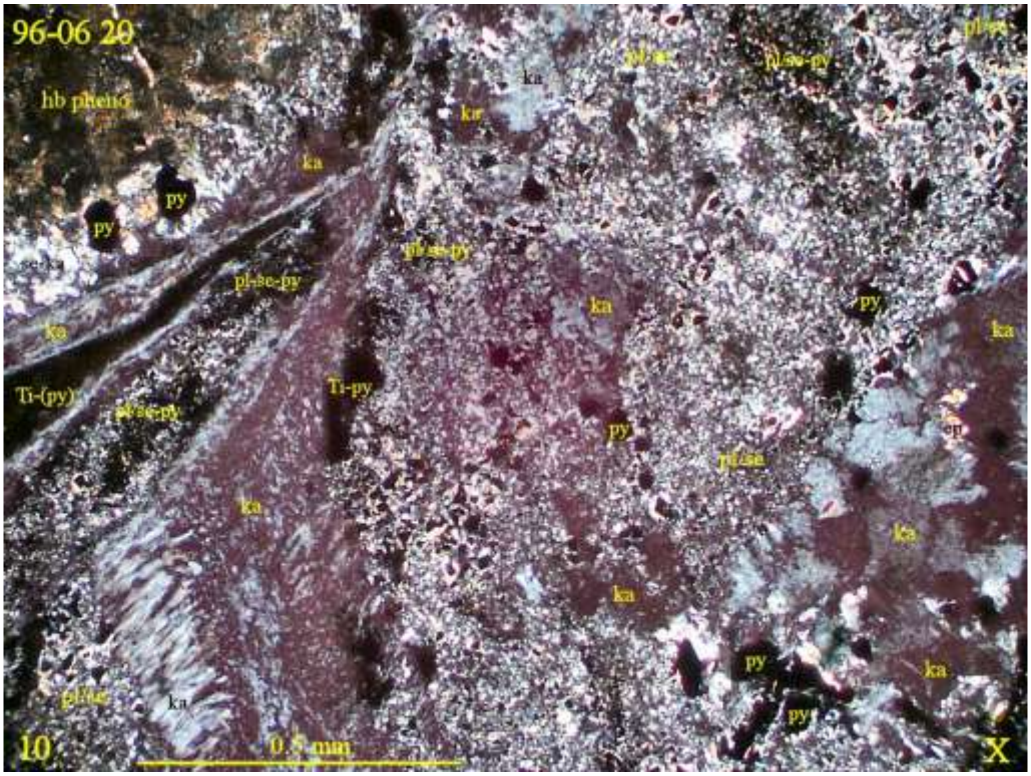


Photo: 10 96-06 20

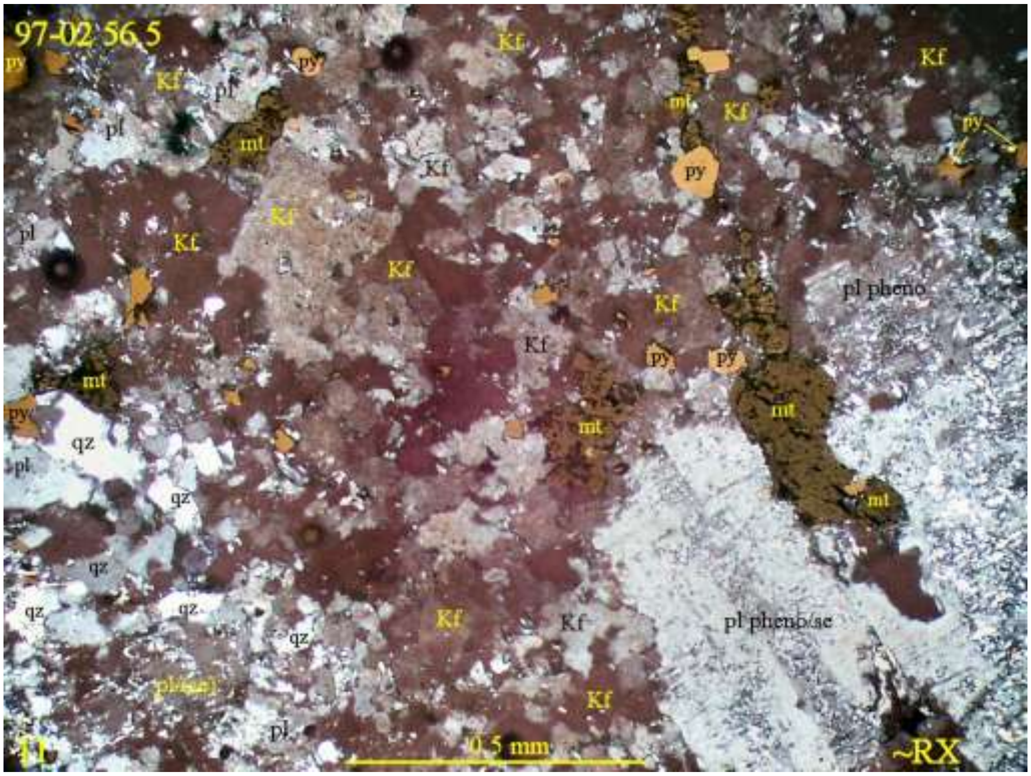


Photo: 11 97-02 56.5

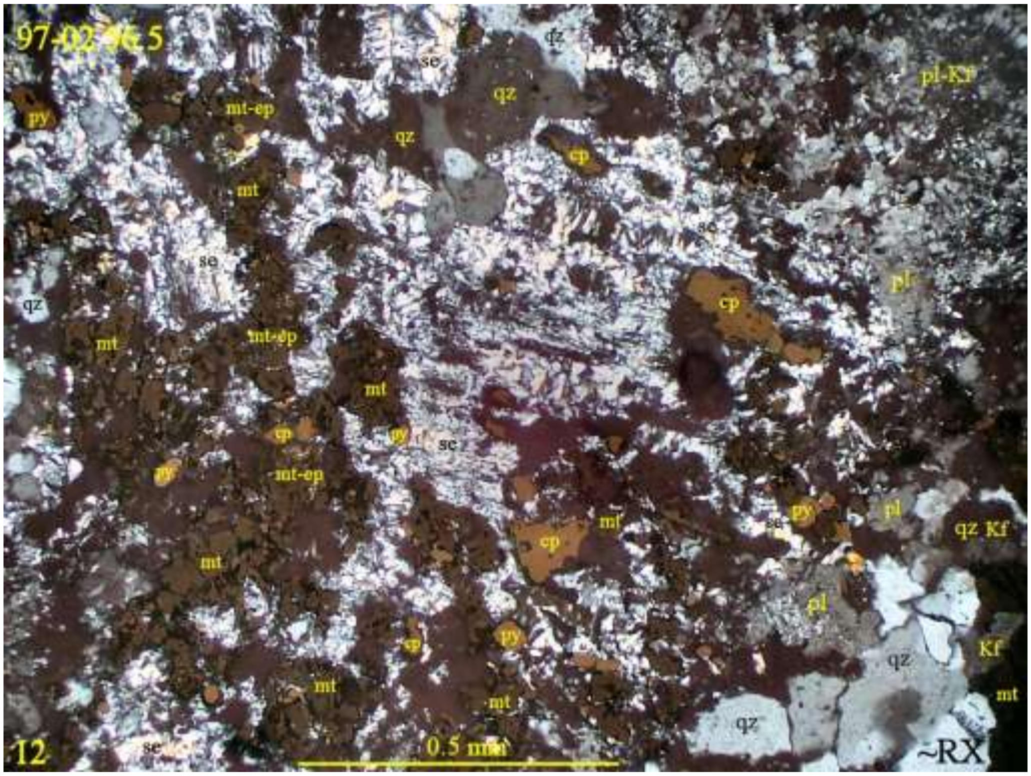


Photo: 12 97-02 56.5

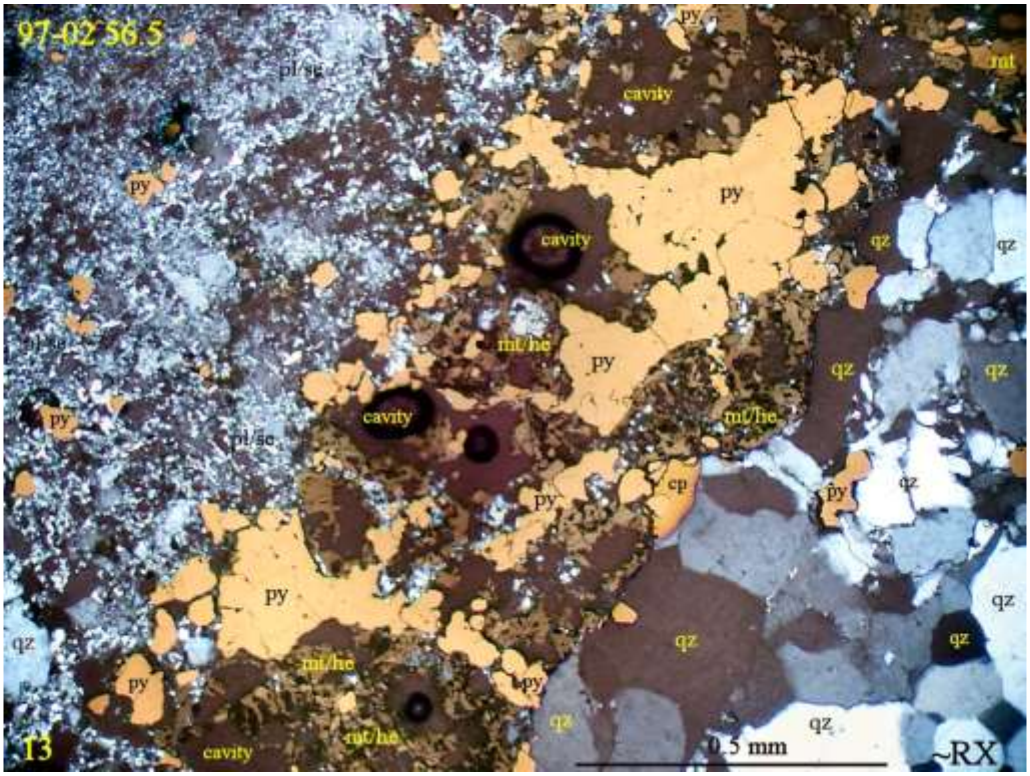


Photo: 13 97-02 56.5

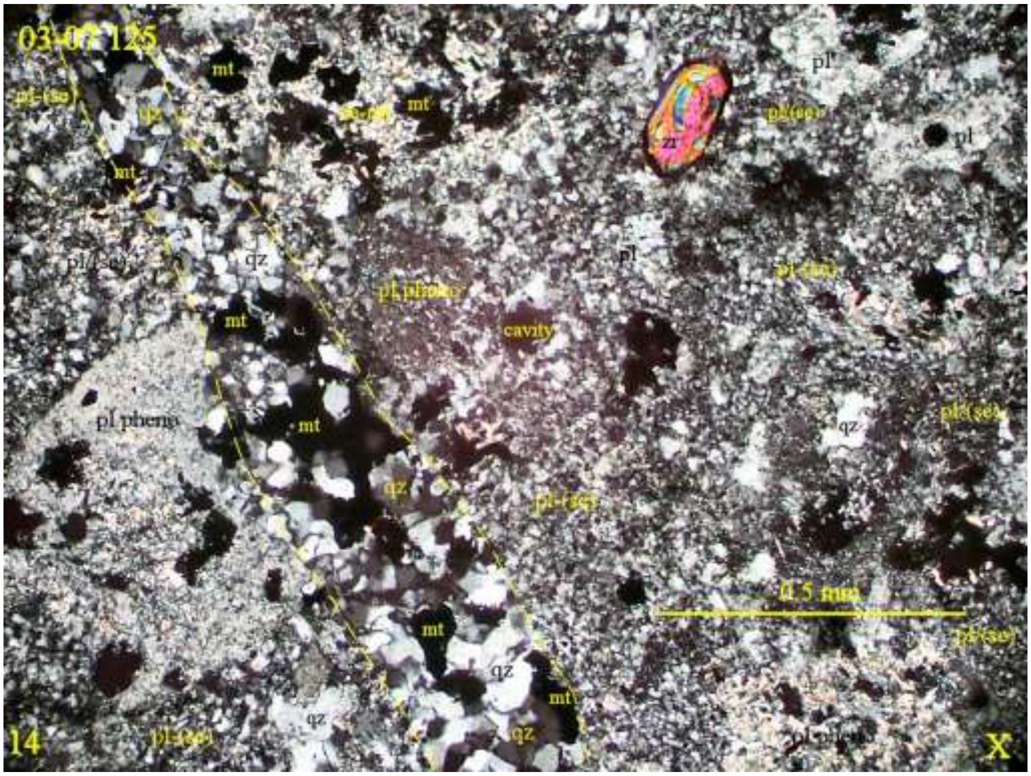


Photo: 14 03-07 125.0

Photo: 15 03-07 125.0

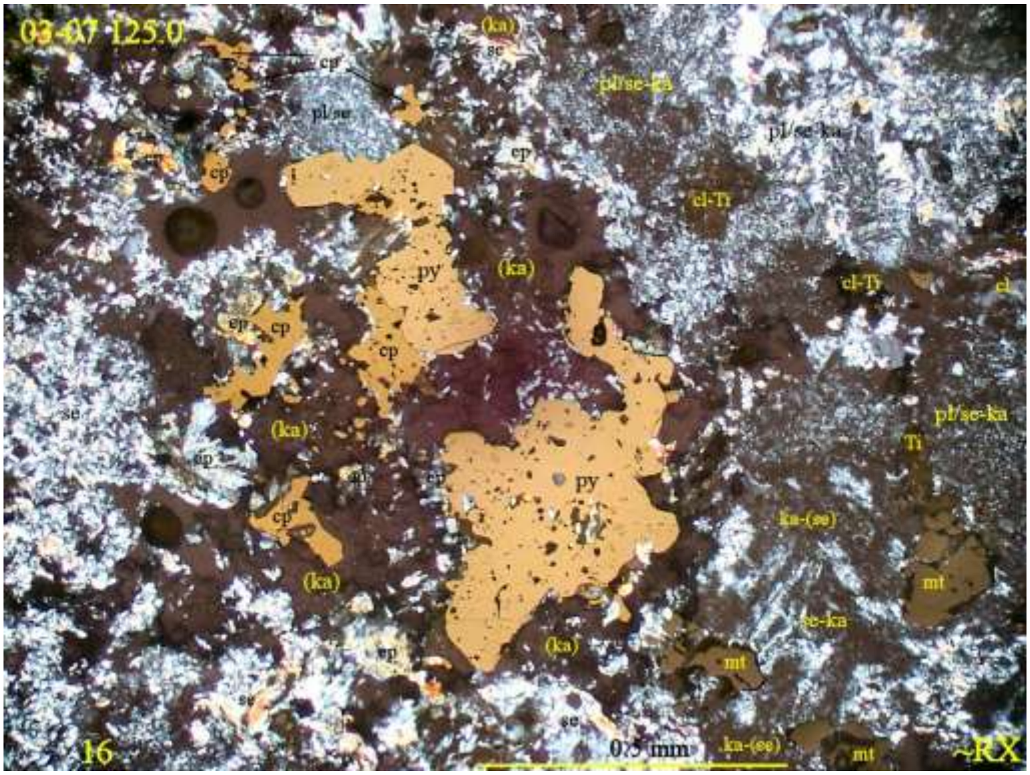


Photo: 16 03-07 125.0

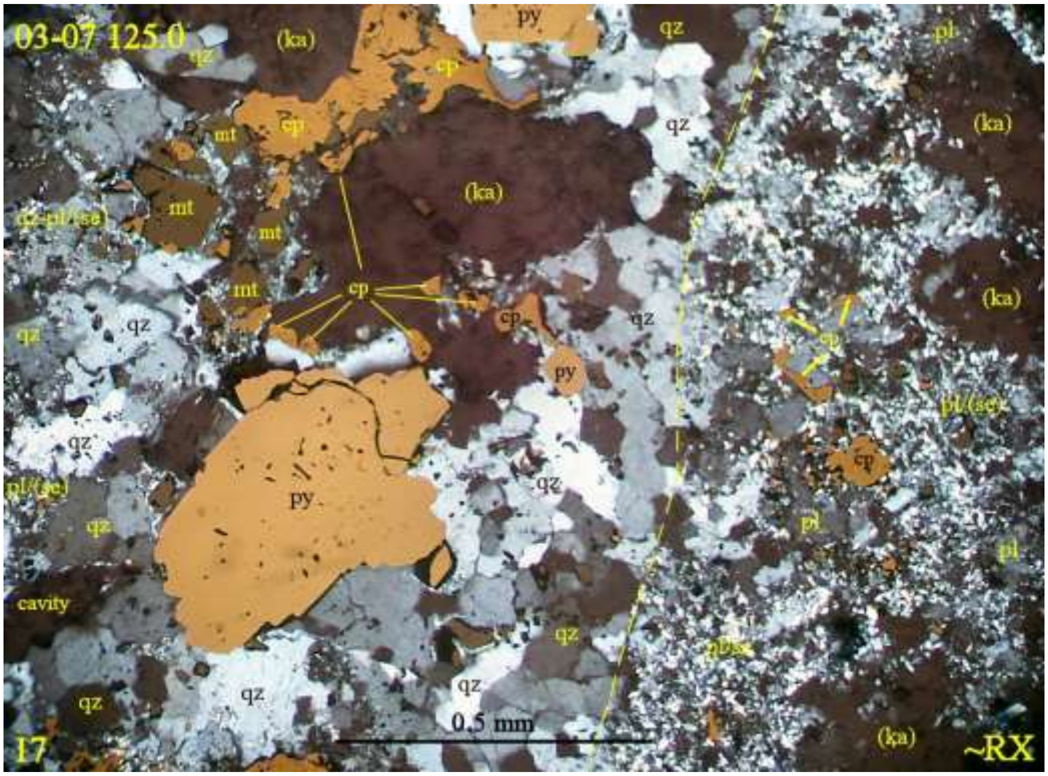


Photo: 17 03-07 125.0

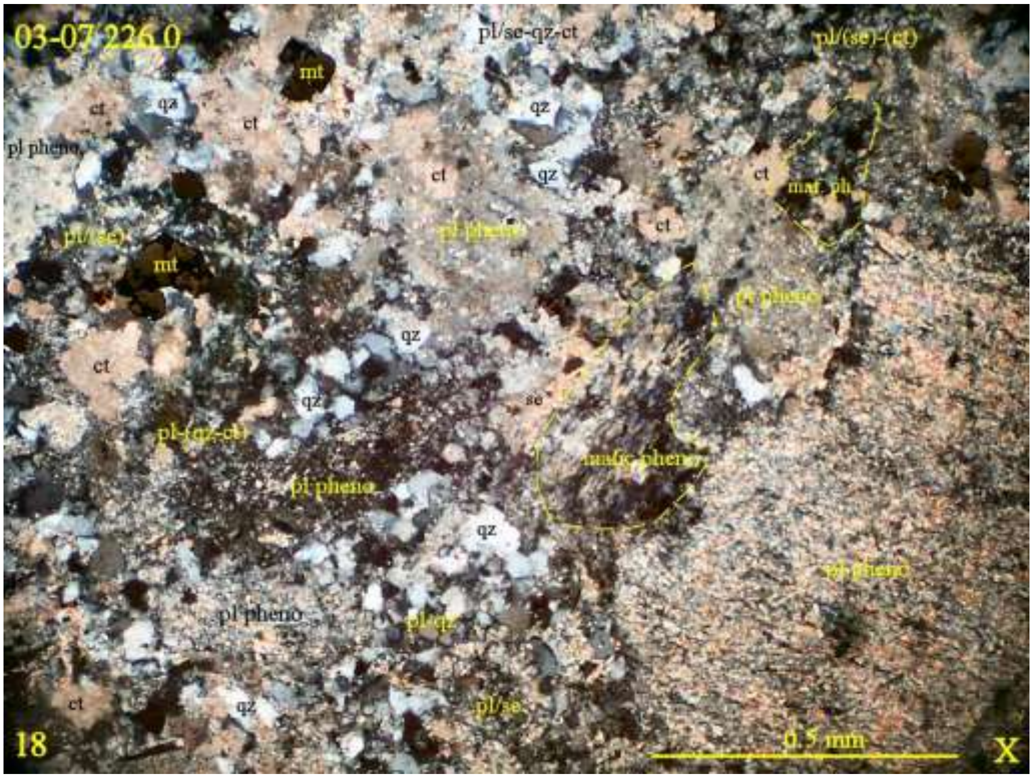


Photo: 18 03-07 226.0

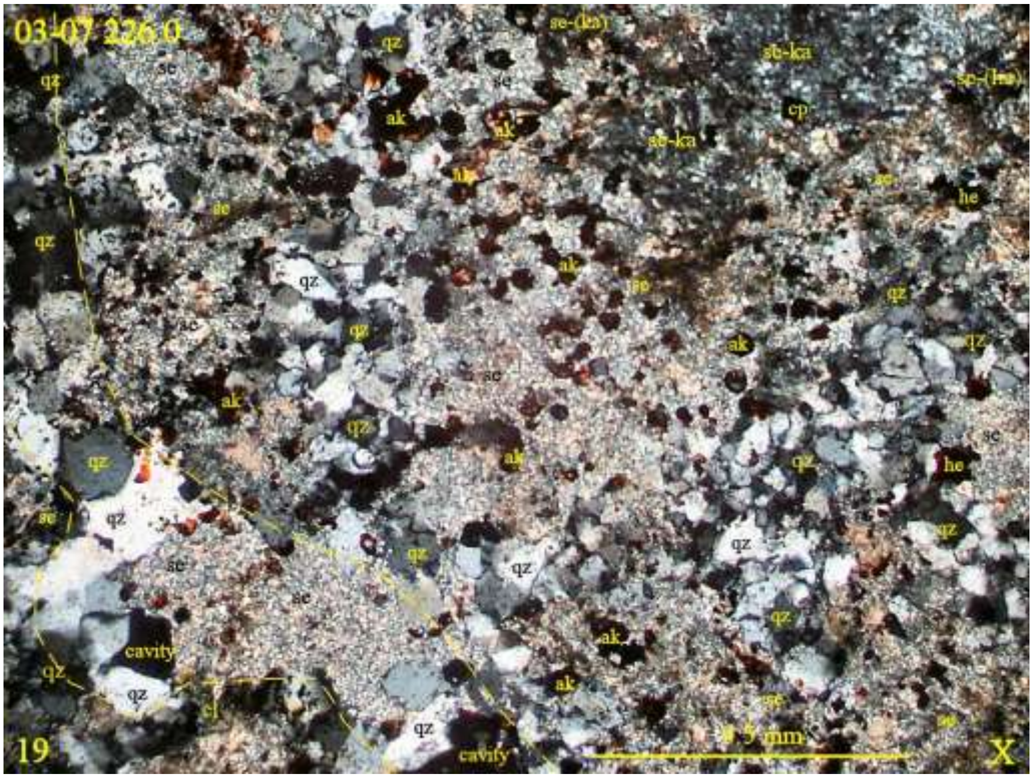


Photo: 19 03-07 226.0

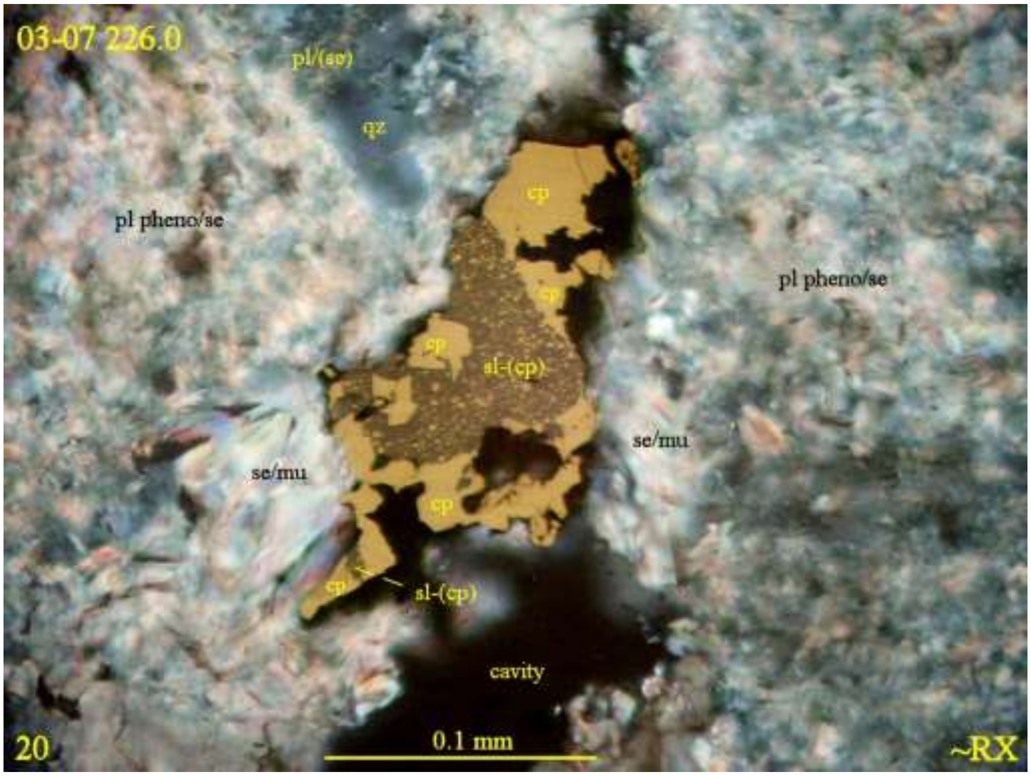


Photo: 20 03-07 226.0

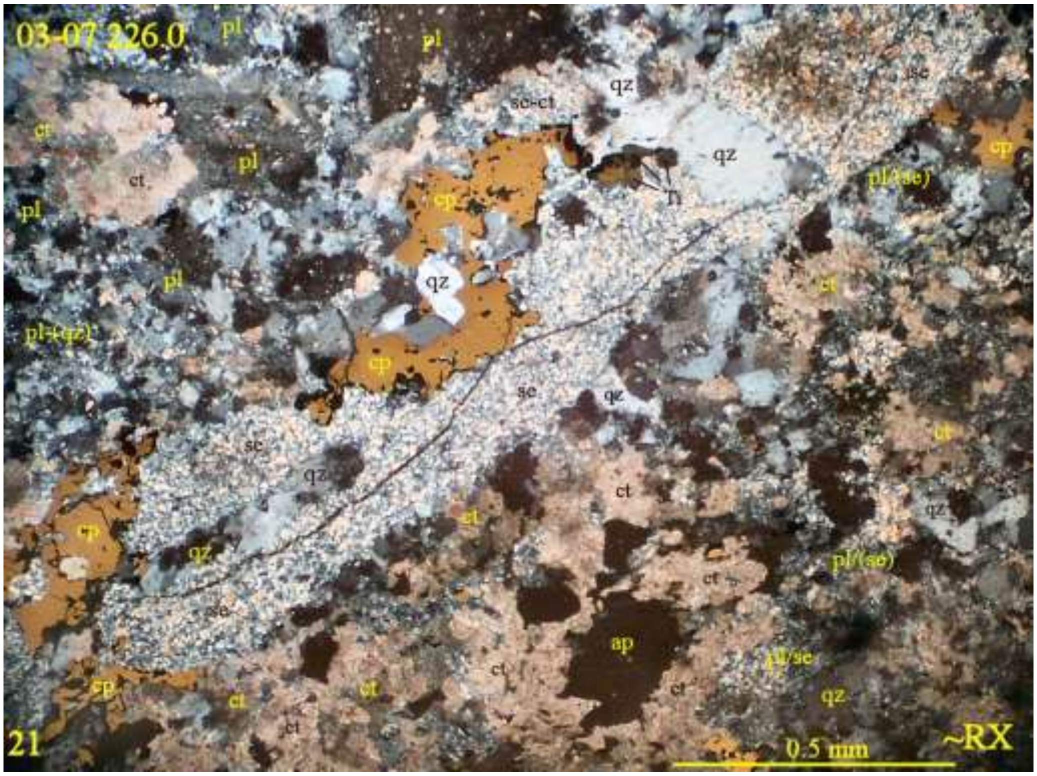


Photo: 21 03-07 226.0

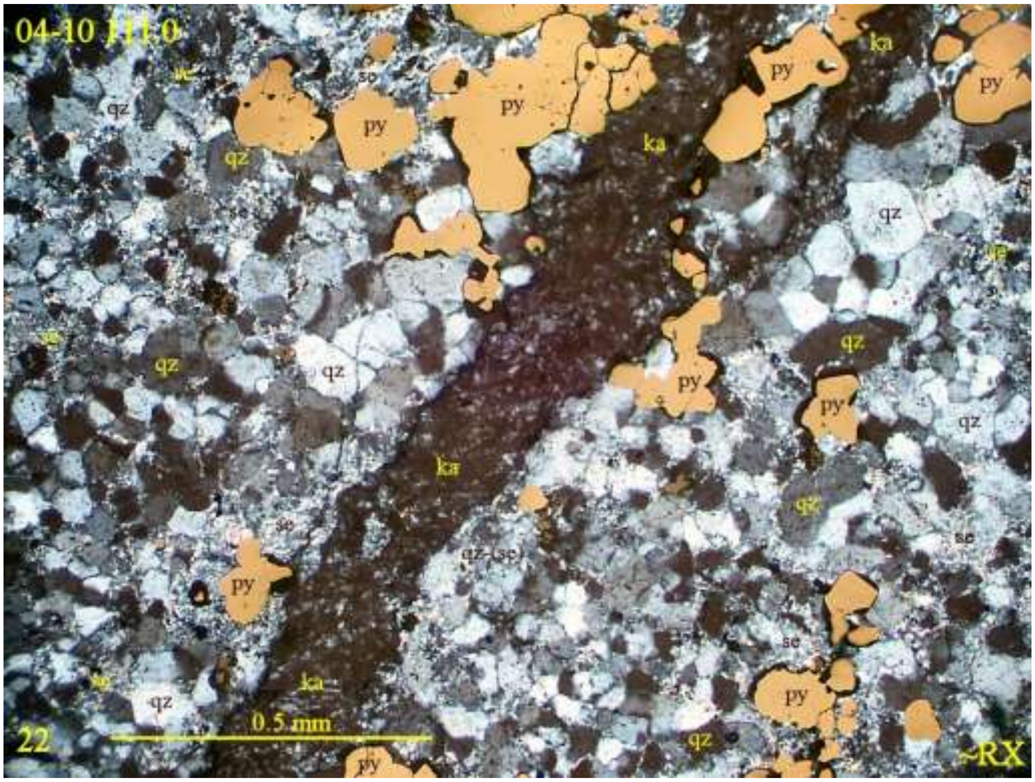


Photo: 22 04-10 111.0

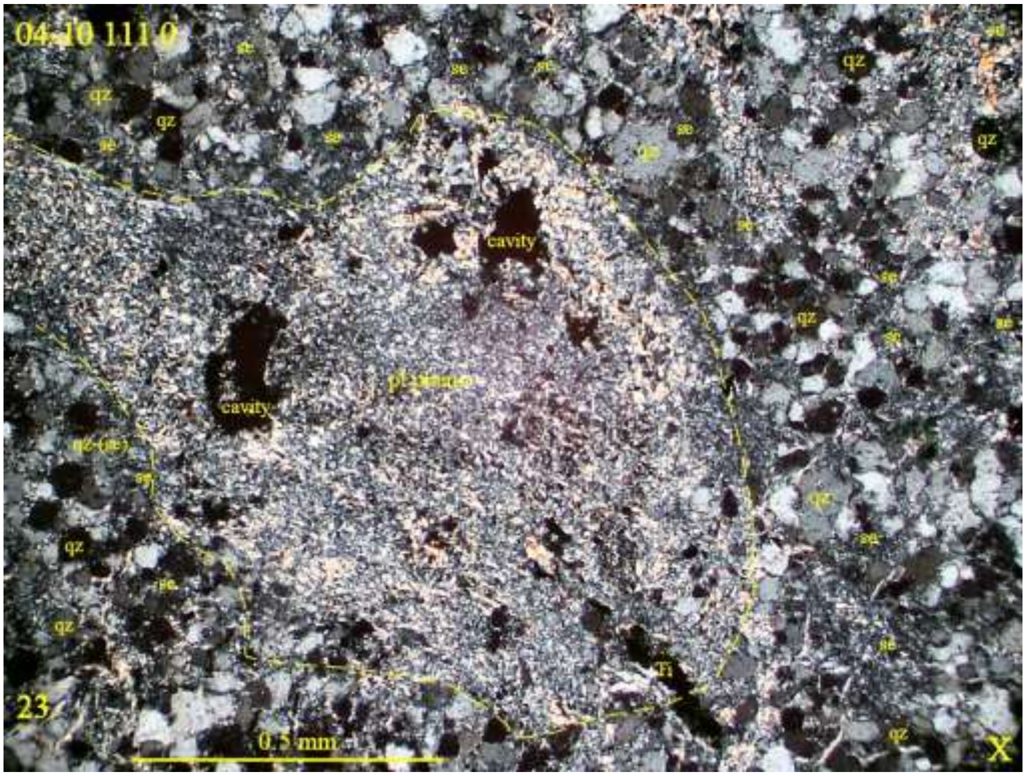


Photo: 23 04-10 111.0

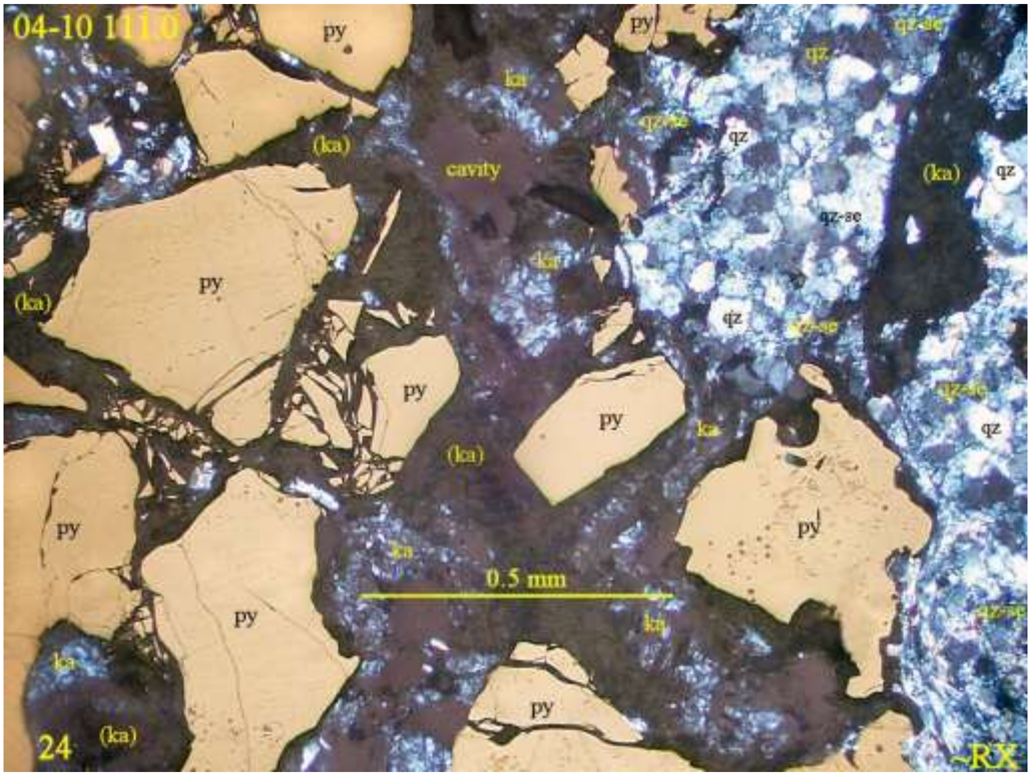


Photo: 24 04-10 111.0

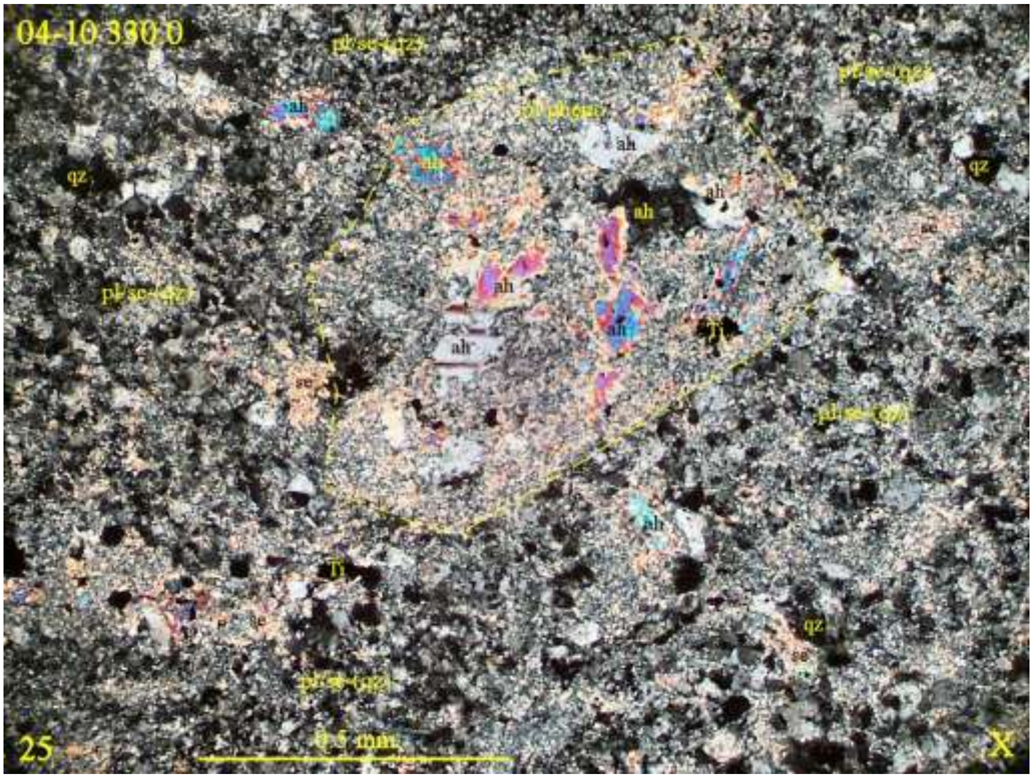


Photo: 25 04-10 330.0

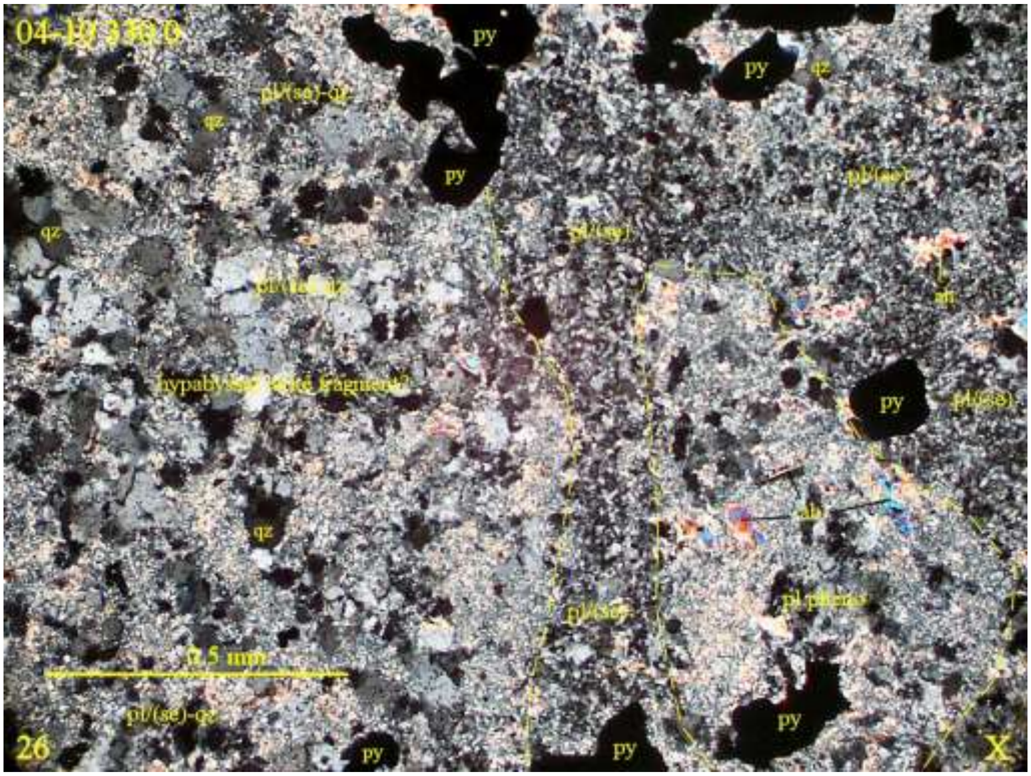


Photo: 26 04-10 330.0

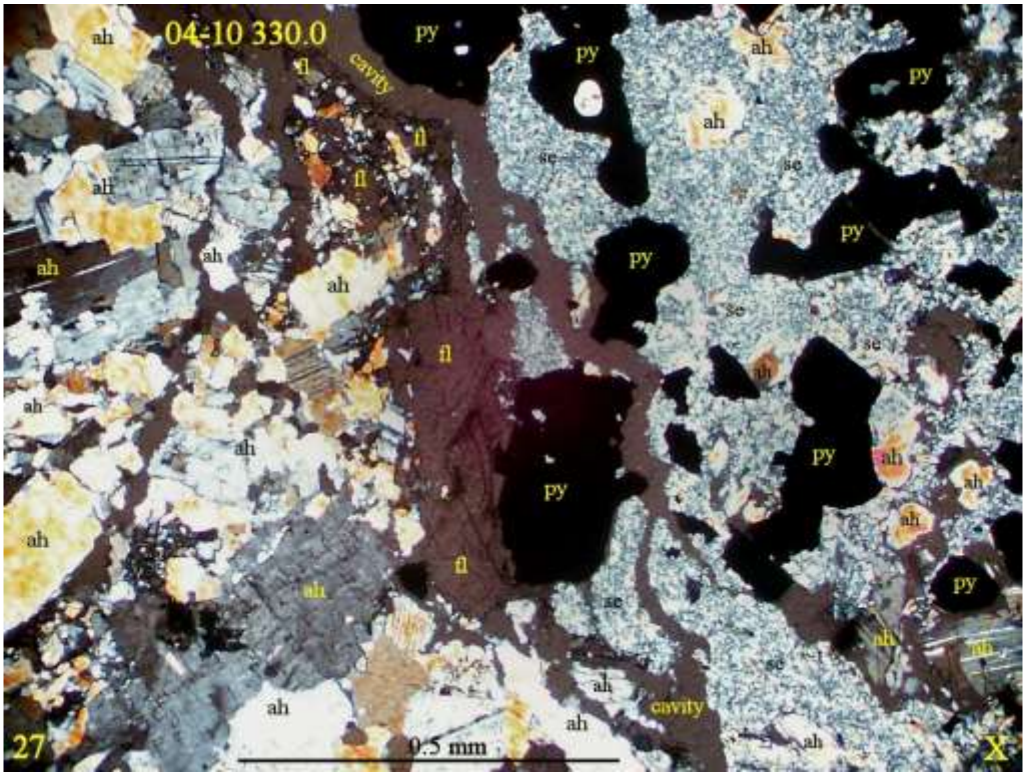


Photo: 27 04-10 330.0

Photo: 28 04-10 330.0

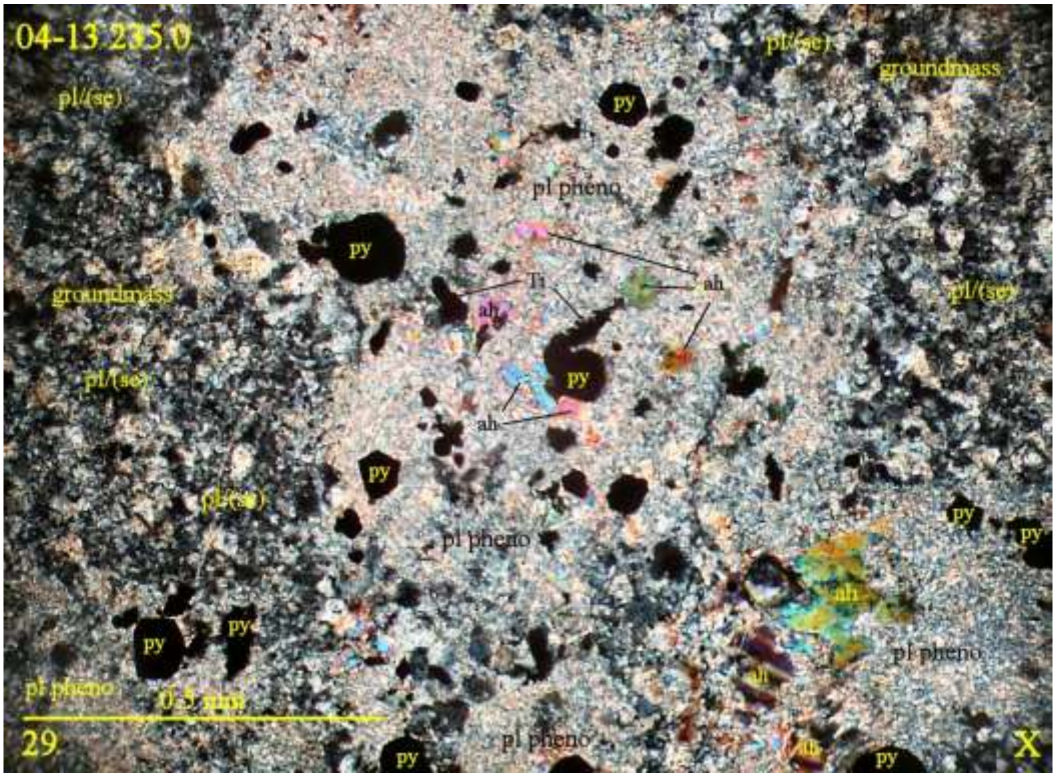


Photo: 29 04-13 235.0

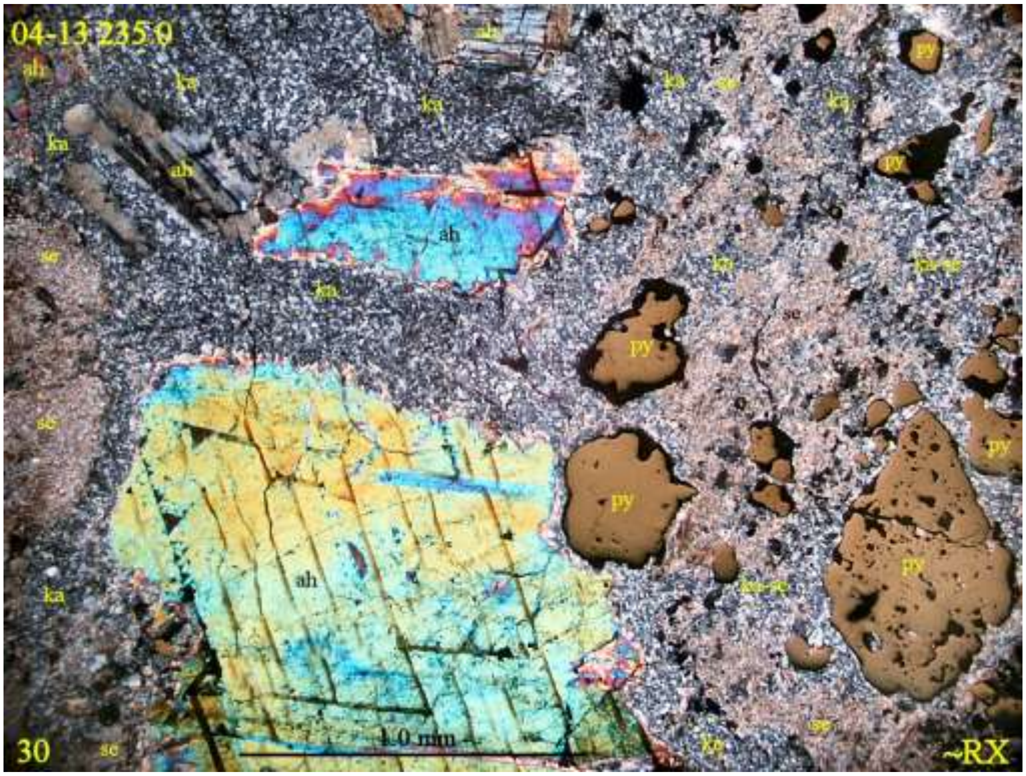


Photo: 30 04-13 235.0

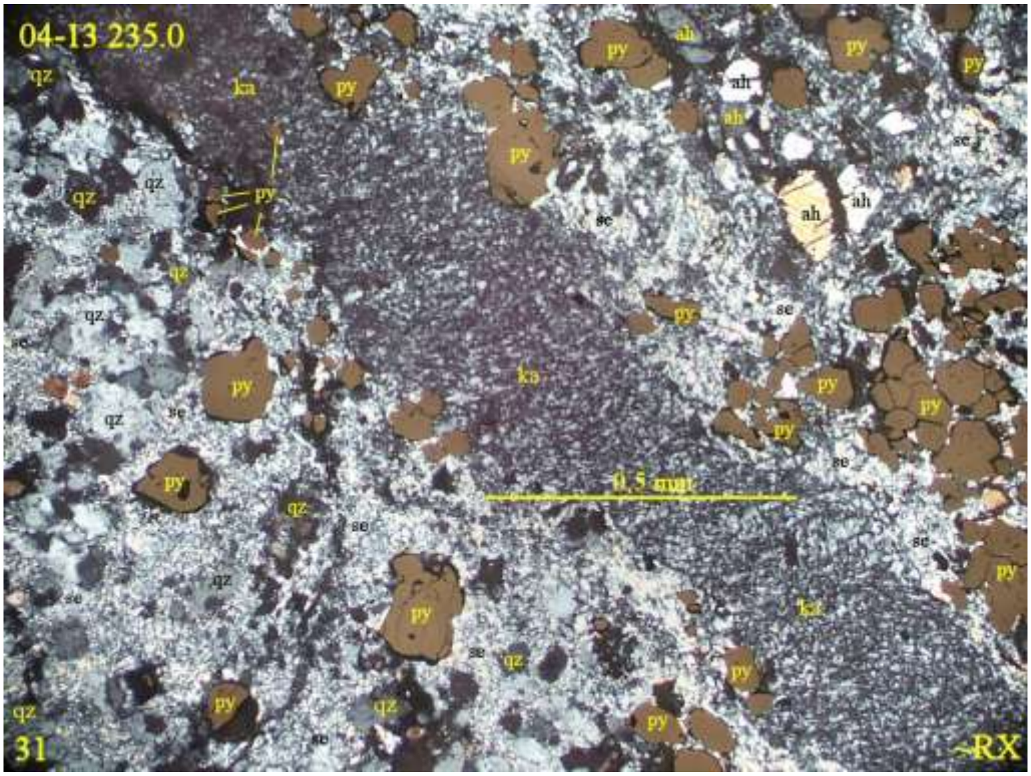


Photo: 31 04-13 235.0

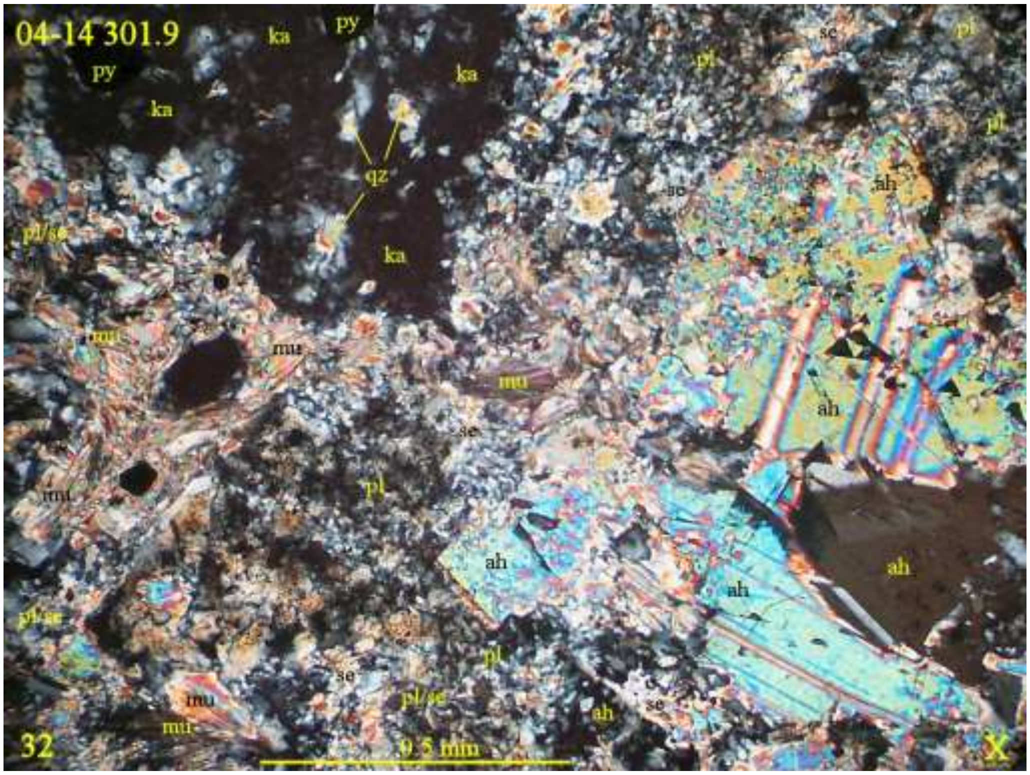


Photo: 32 04-14 301.9

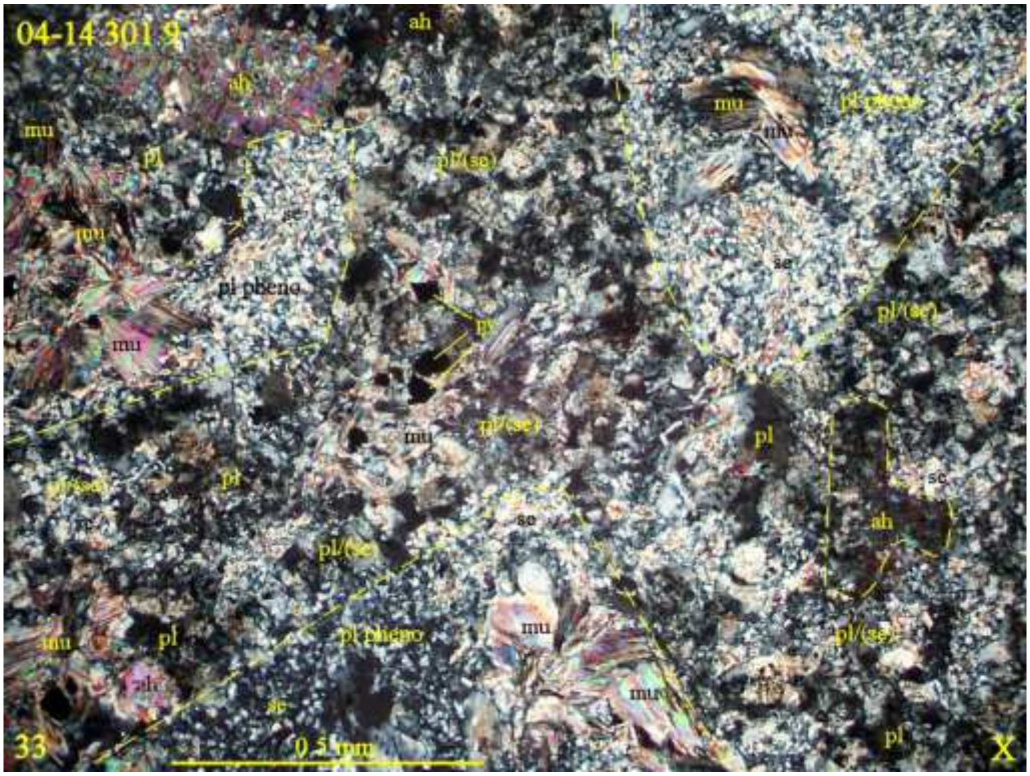


Photo: 33 04-14 301.9

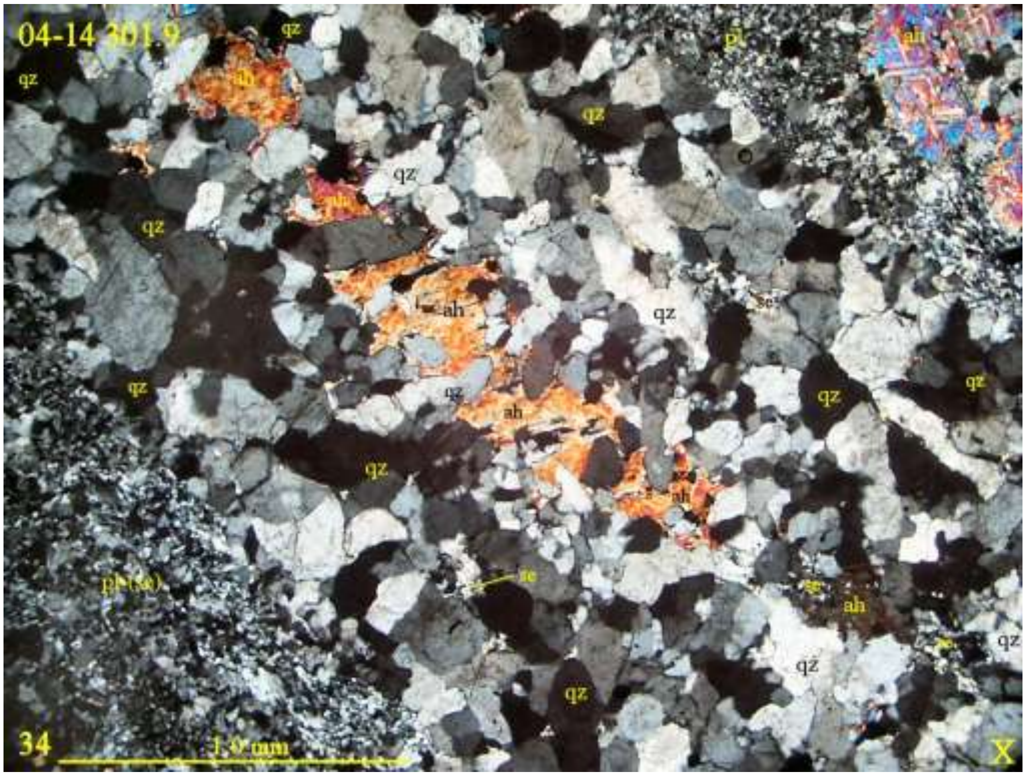


Photo: 34 04-14 301.9

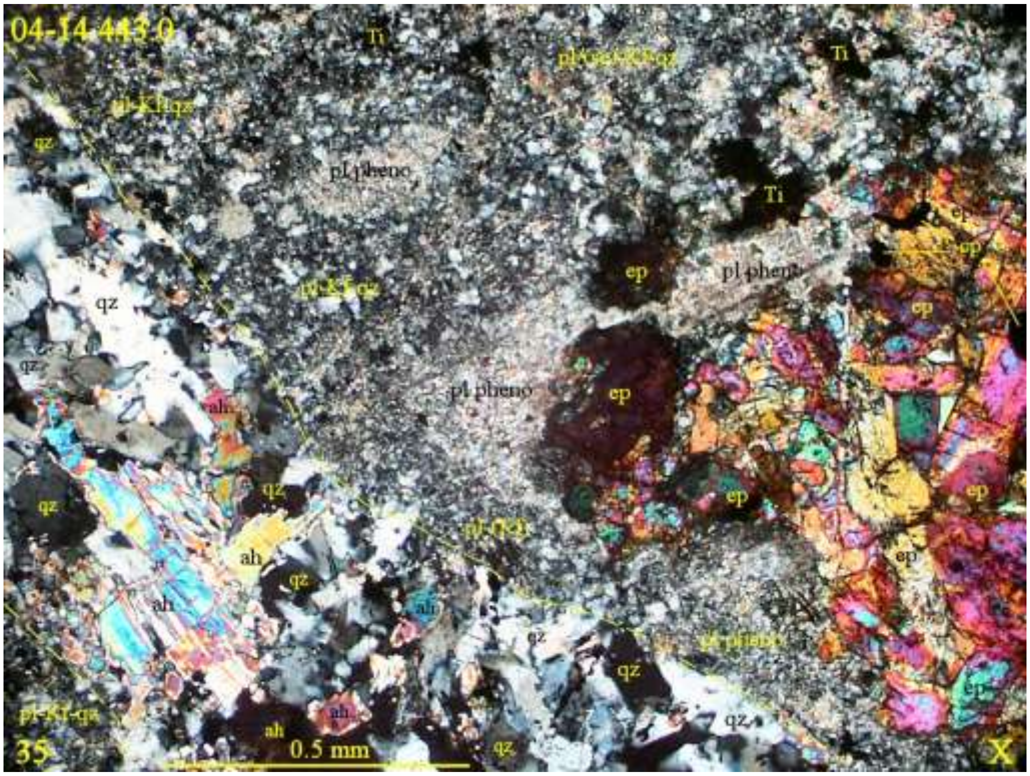


Photo: 35 04-14 443.0

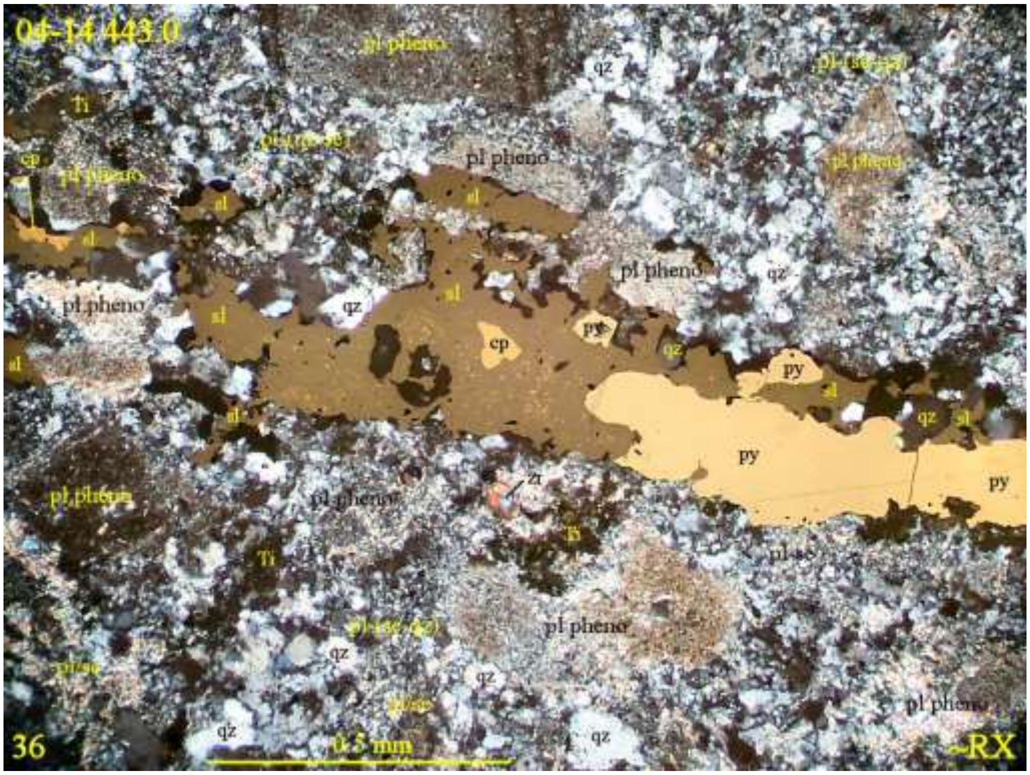


Photo: 36 04-14 443.0

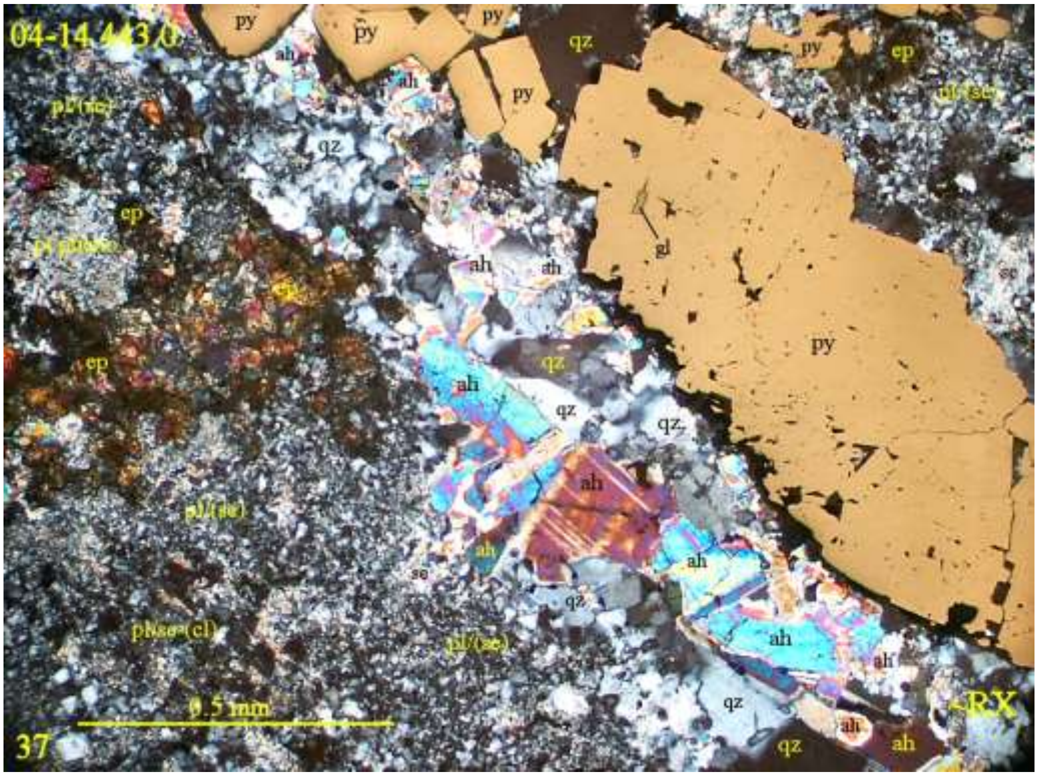


Photo: 37 04-14 443.0

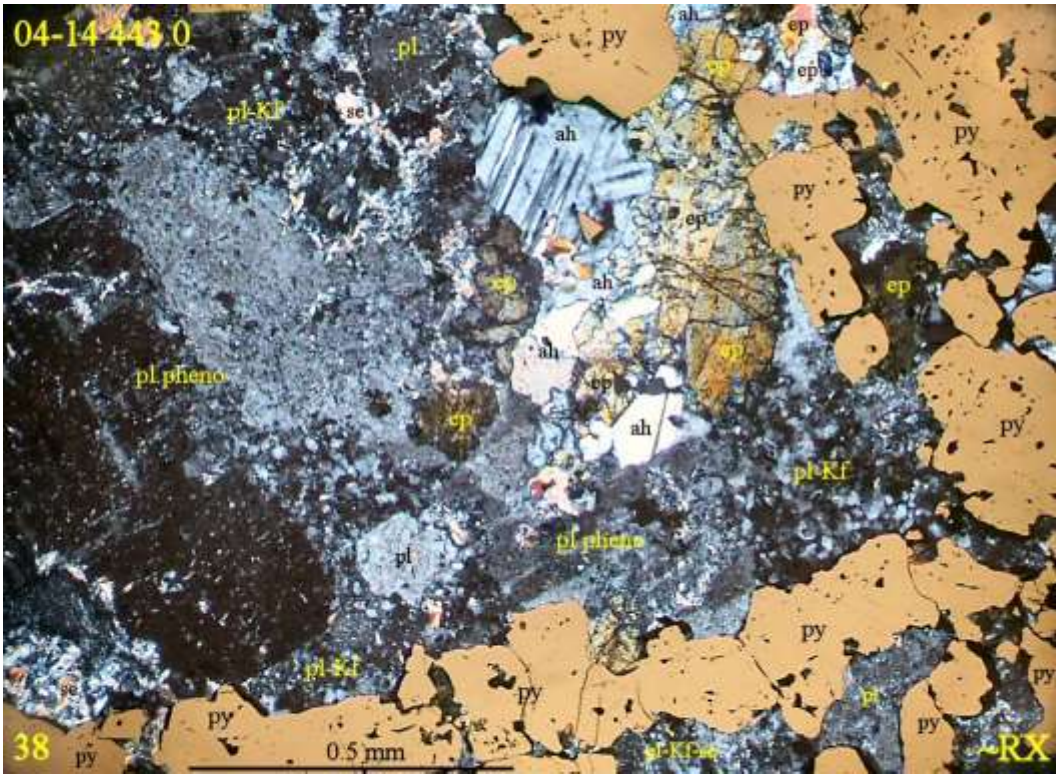


Photo: 38 04-14 443.0

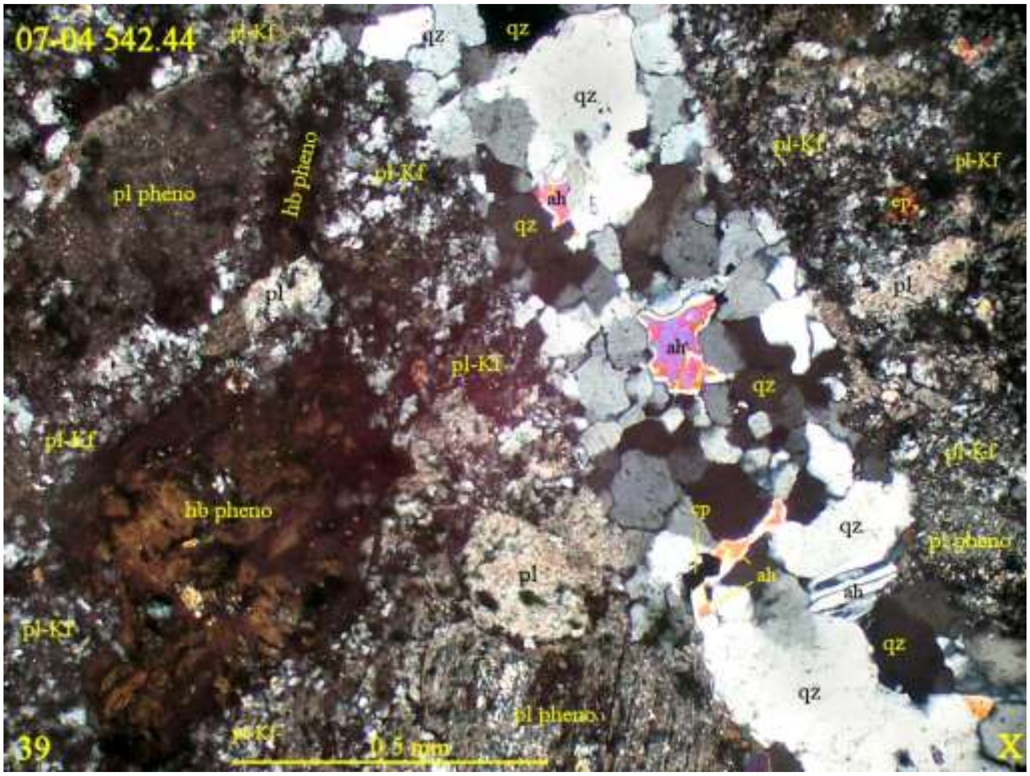


Photo: 39 07-04 542.44

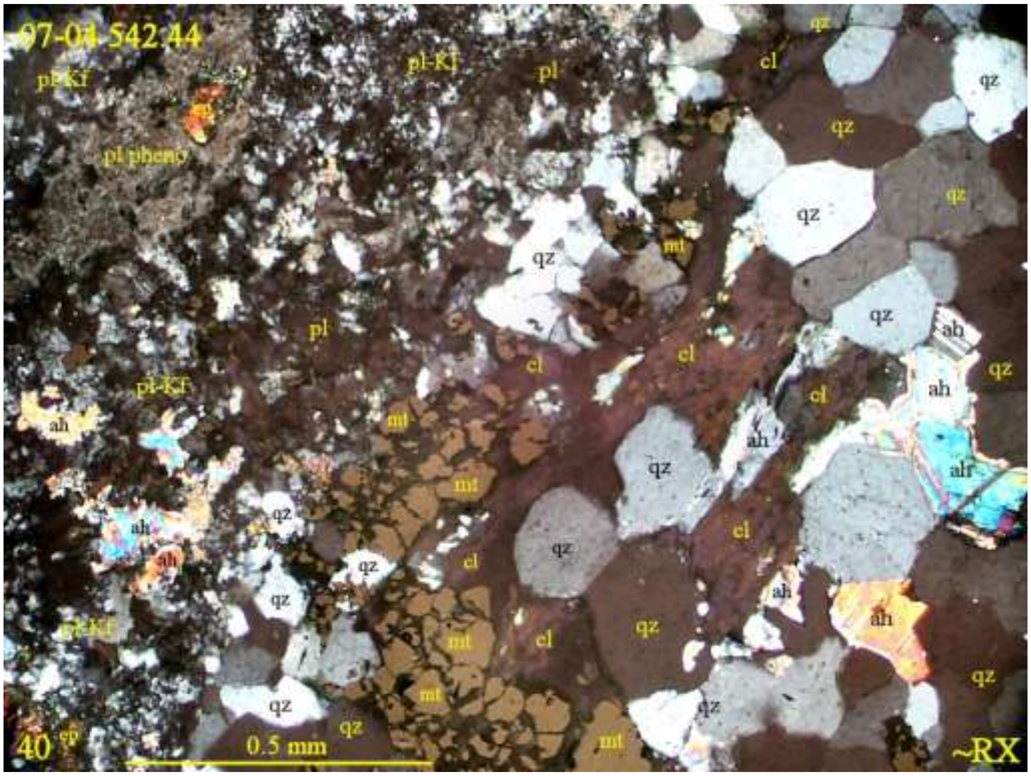


Photo: 40 07-04 542.44

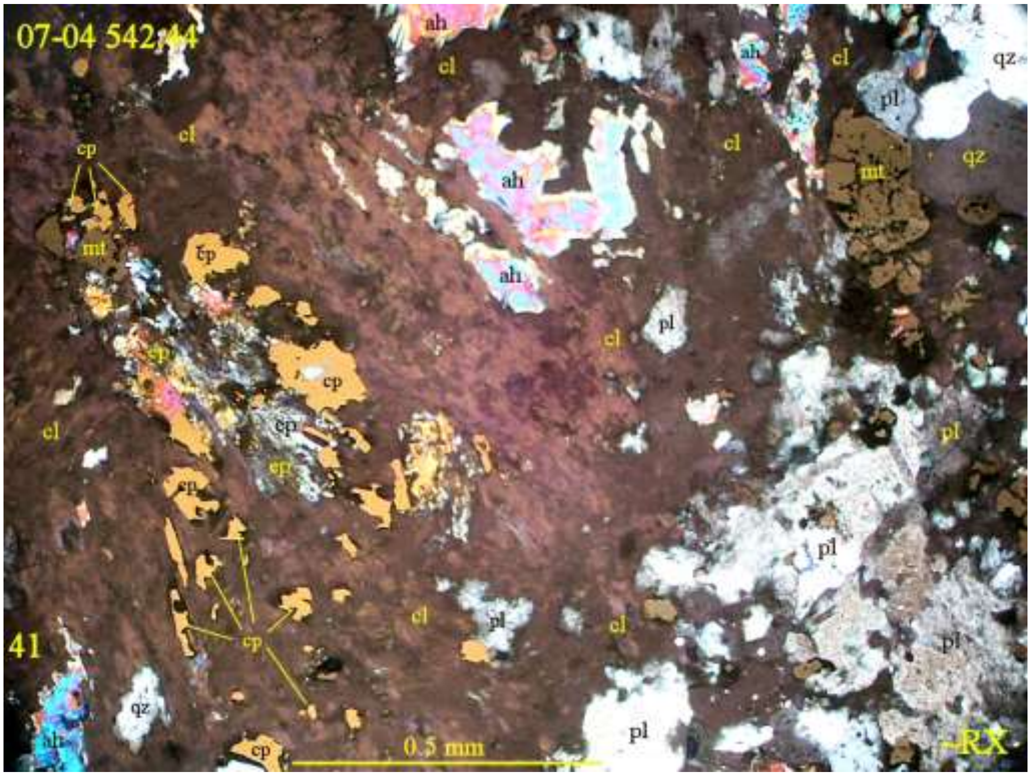


Photo: 41 07-04 542.44

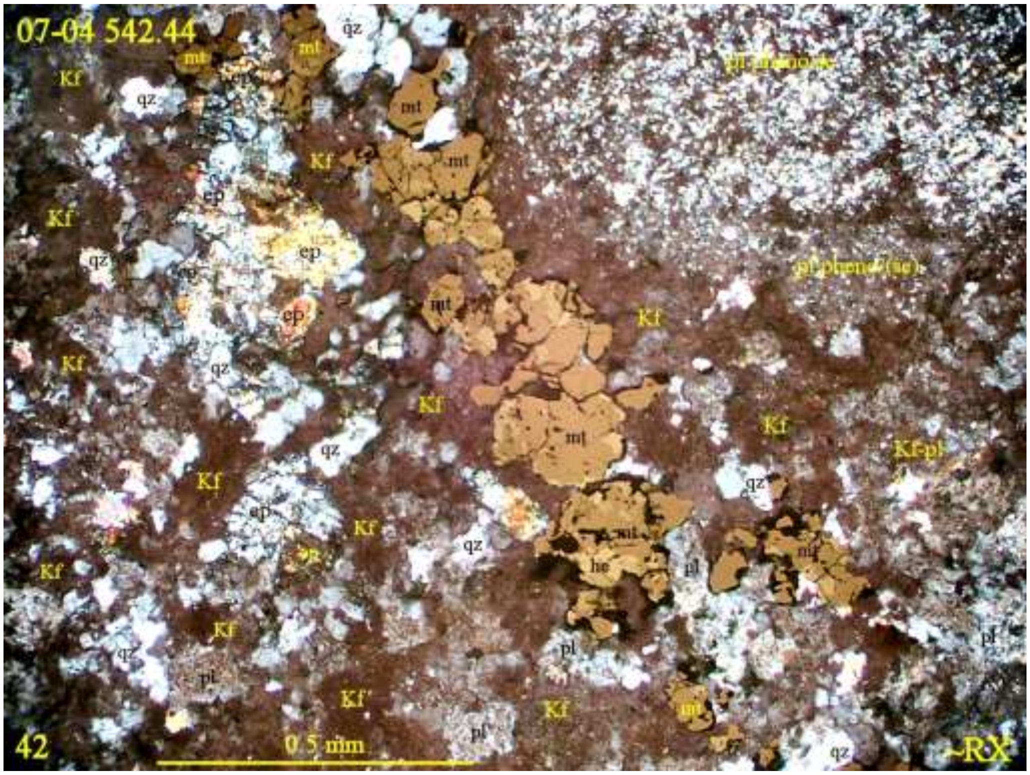


Photo: 42 07-04 542.44

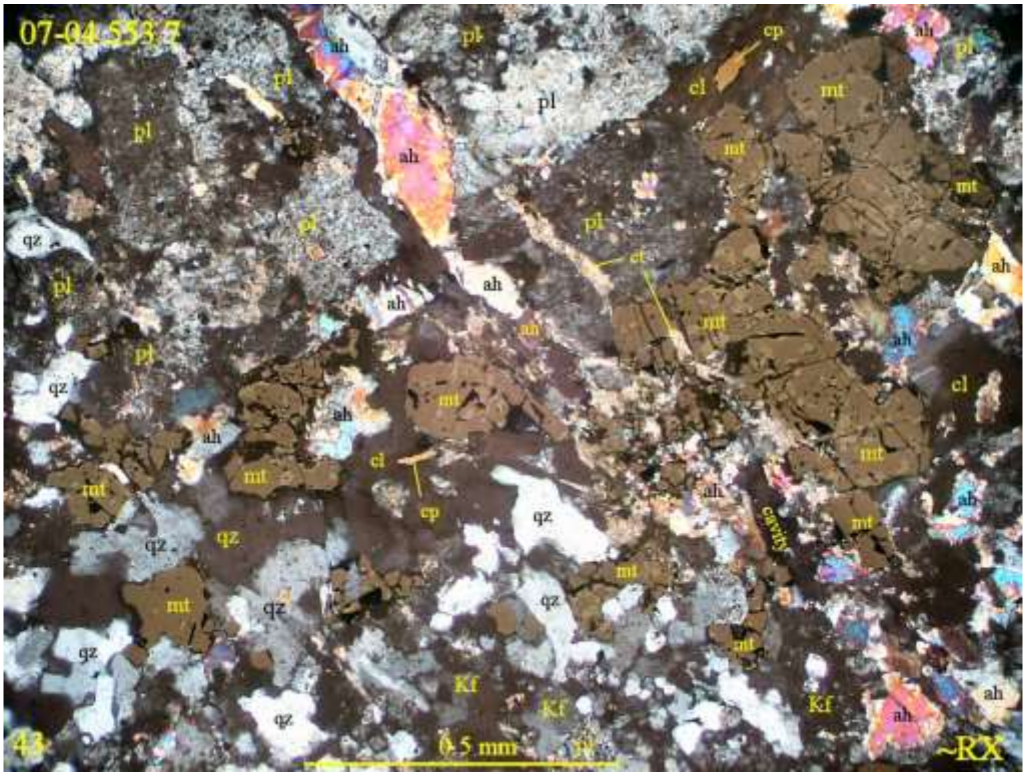


Photo: 43 07-04 553.7

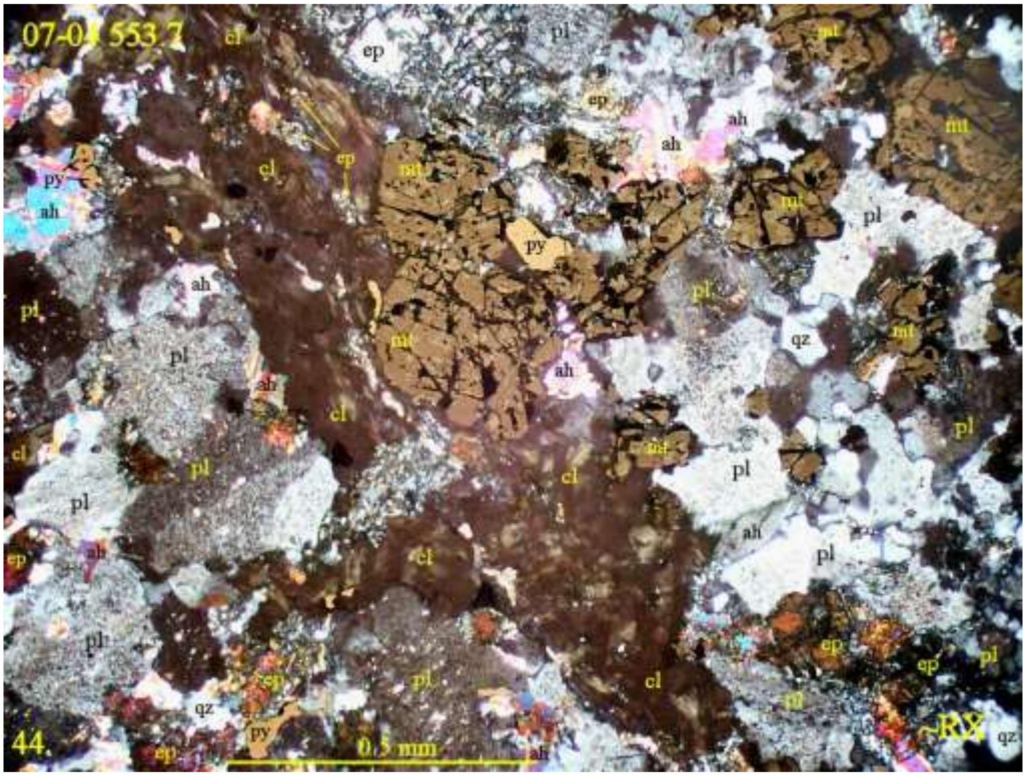


Photo: 44 07-04 553.7

Photo: 45 07-04 553.7

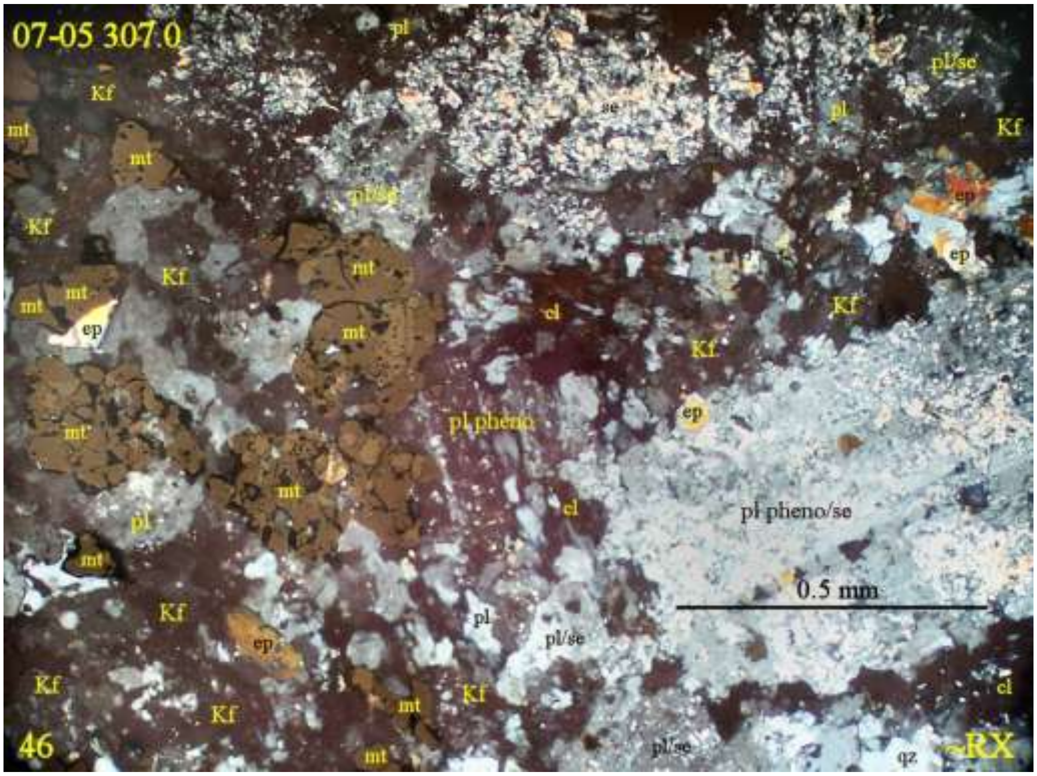


Photo: 46 07-05 307.0

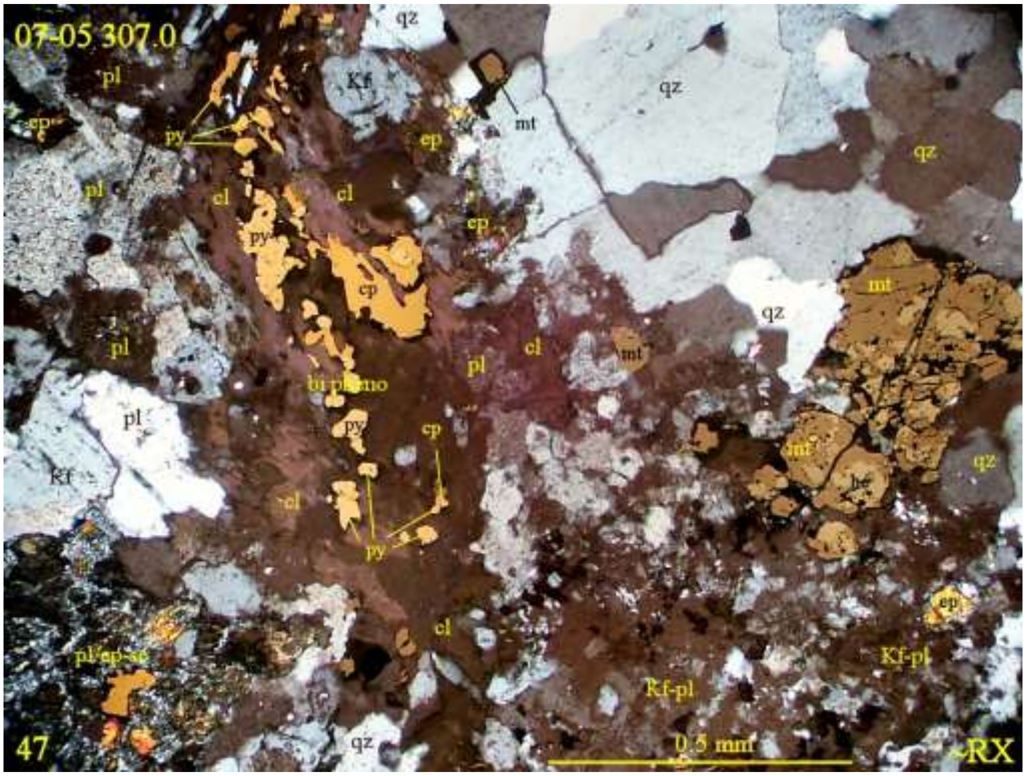


Photo: 47 07-05 307.0

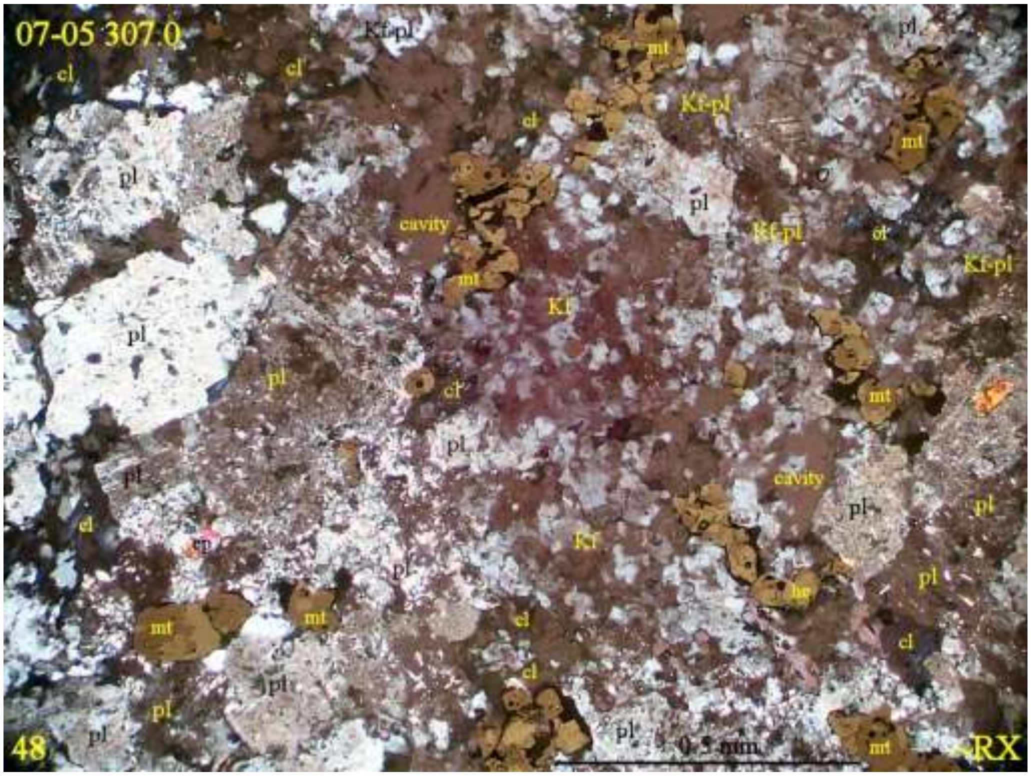


Photo: 48 07-05 307.0

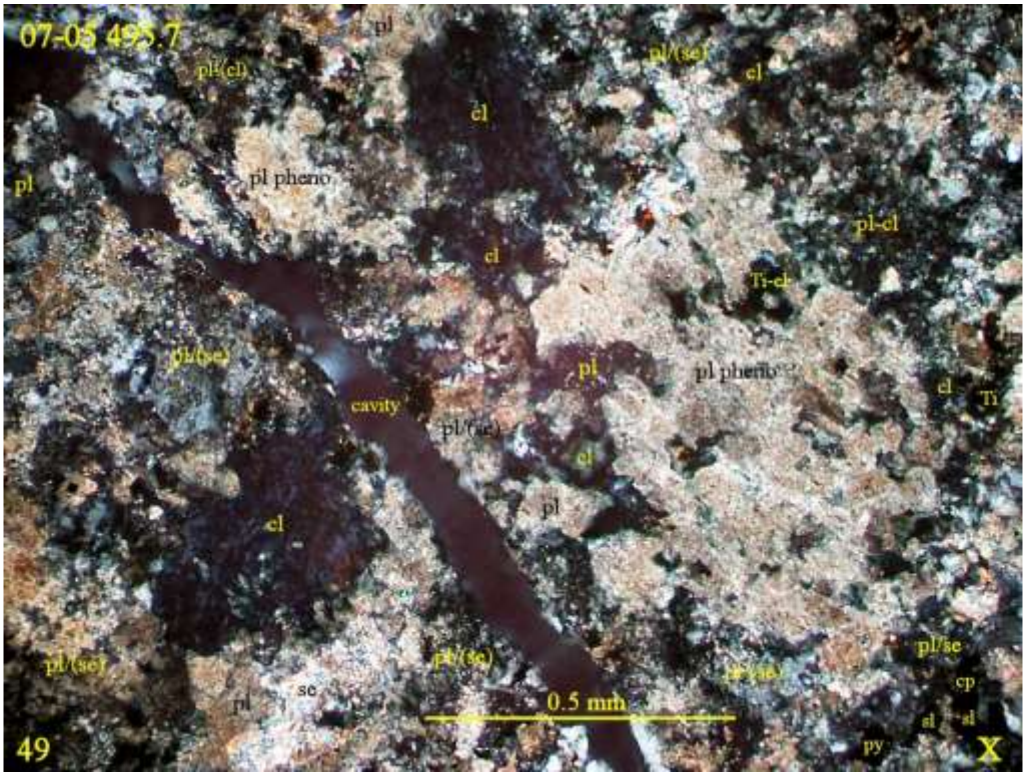


Photo: 49 07-05 495.7

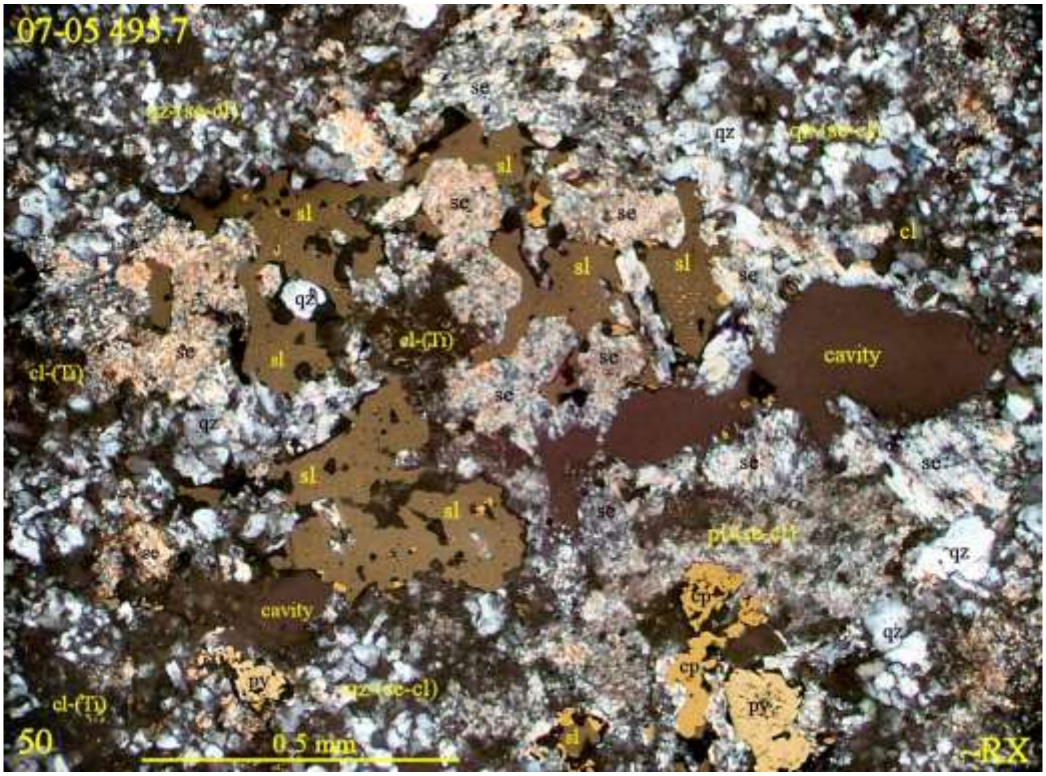


Photo: 50 07-05 495.7

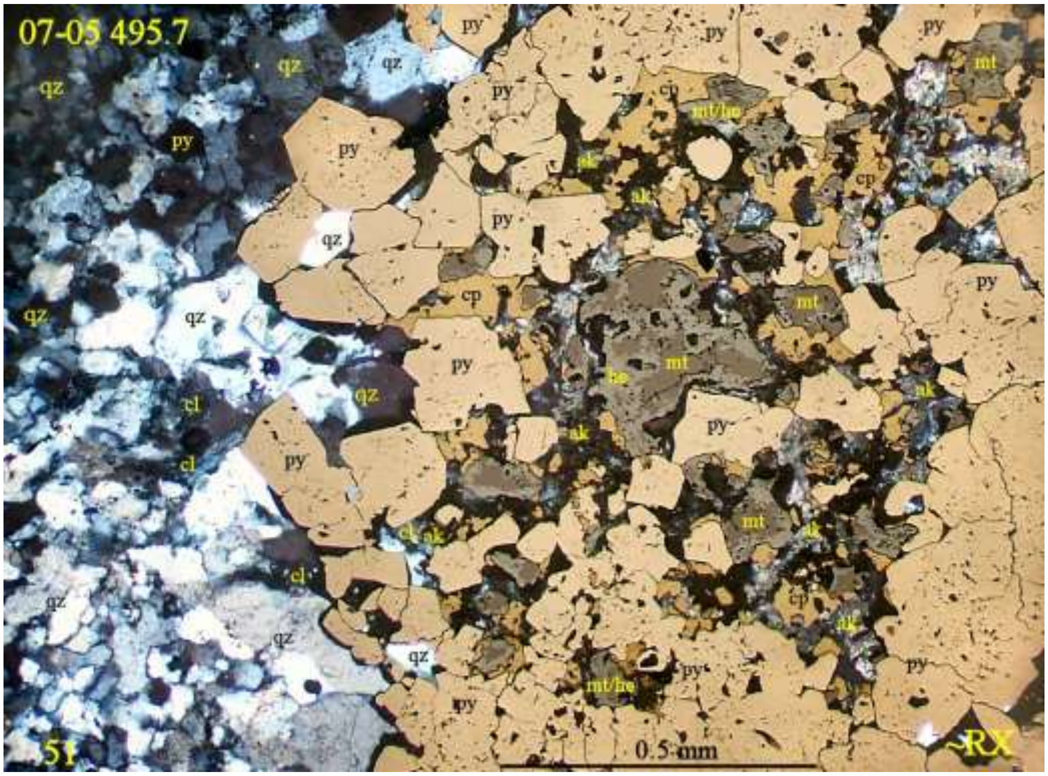


Photo: 51 07-05 495.7

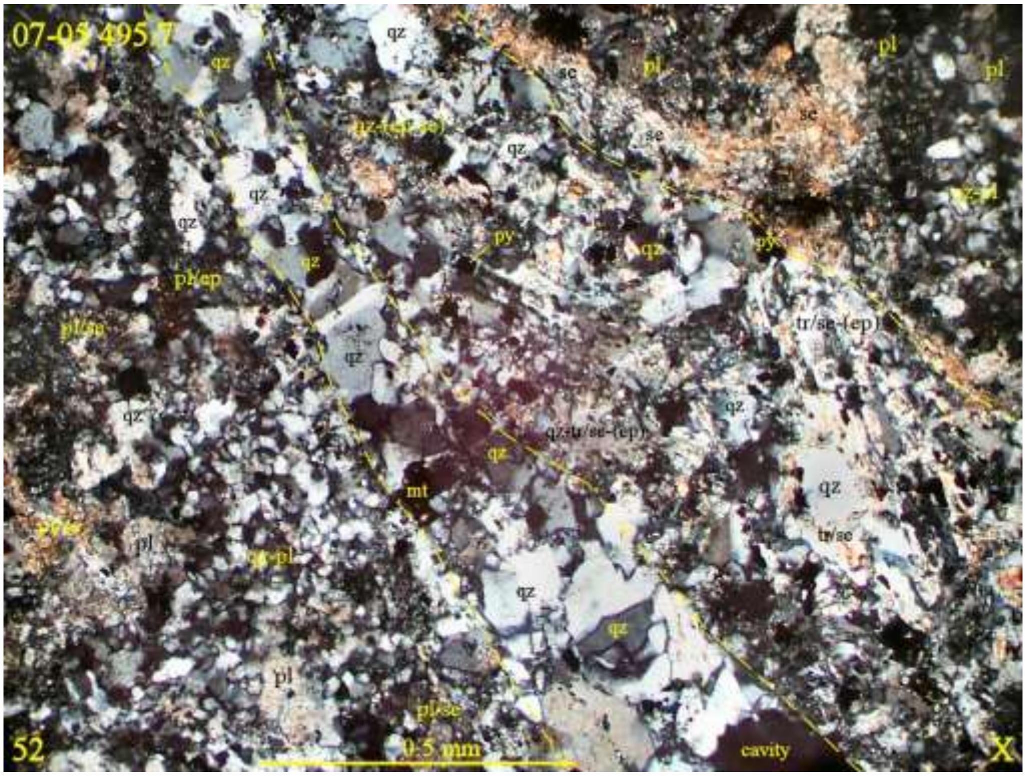


Photo: 52 07-05 495.7