



Ministry of Energy, Mines & Petroleum Resources  
Mining & Minerals Division  
BC Geological Survey

Assessment Report  
Title Page and Summary

TYPE OF REPORT [type of survey(s)]: Technical

TOTAL COST: \$88,775

AUTHOR(S): Opal Resources Canada Inc. (Robert W. Yorke-Hardy)

SIGNATURE(S): 

NOTICE OF WORK PERMIT NUMBER(S)/DATE(S): MX-4-228, MX-4-630

YEAR OF WORK: 2018

STATEMENT OF WORK - CASH PAYMENTS EVENT NUMBER(S)/DATE(S): 5727957 January 23, 2019

PROPERTY NAME: Klinker (0400297), Ewer (1621057)

CLAIM NAME(S) (on which the work was done): 523012, 523016, 523018, 523025, 523032, 532954, 784902, 835907, 835910, 835927, 1013877, 1053300, 1053302

COMMODITIES SOUGHT: gold, opal, basalt decorative/landscape stone, Diatomaceous Earth, Absordent Clays

MINERAL INVENTORY MINFILE NUMBER(S), IF KNOWN: 082LSW125, 082LSW159

MINING DIVISION: Vernon

NTS/BCGS: NTS 82L05

LATITUDE: 50 ° 21 ' 23 " LONGITUDE: 119 ° 33 ' 55 " (at centre of work)

OWNER(S):

1) Robert W. Yorke-Hardy

2) \_\_\_\_\_

MAILING ADDRESS:

PO Box 298

Vernon, BC V1T 6M2

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

1) Opal Resources Canada Inc

2) \_\_\_\_\_

MAILING ADDRESS:

PO Box 298

Vernon, BC V1T 6M2

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

Precious Opal, common opal, agate, volcanic hosted opal, columnar basalt, gold, zeolite, diatomaceous earth, rhyolite,

Tectonic Belt Intermontane Overlap Assemblage, Harper Ranch

REFERENCES TO PREVIOUS ASSESSMENT WORK AND ASSESSMENT REPORT NUMBERS: 12030, 16152, 24370, 24606, 20266, 13649

TYPE OF WORK IN THIS REPORT	EXTENT OF WORK (IN METRIC UNITS)	ON WHICH CLAIMS	PROJECT COSTS APPORTIONED (incl. support)
<b>GEOLOGICAL (scale, area)</b>			
Ground, mapping		all	12844
Photo interpretation	Air photo and satellite - lineation/structures	835910, 532954, 523032, 523033, 523012	1800
<b>GEOPHYSICAL (line-kilometres)</b>			
Ground			
Magnetic			
Electromagnetic			
Induced Polarization			
Radiometric			
Seismic			
Other			
Airborne			
<b>GEOCHEMICAL (number of samples analysed for...)</b>			
Soil			
Silt			
Rock			
Other			
<b>DRILLING (total metres; number of holes, size)</b>			
Core			
Non-core	50 metres 0.75 inch diameter	835907 basalt samples	part of basalt sampling
<b>RELATED TECHNICAL</b>			
Sampling/assaying	basalt / opal	835907 / 523012, 523016, 523018, 523025	\$34312 / \$9310
Petrographic			
Mineralographic			
Metallurgic			
<b>PROSPECTING (scale, area)</b>			
			\$6645
<b>PREPARATORY / PHYSICAL</b>			
Line/grid (kilometres)			
Topographic/Photogrammetric (scale, area)			
Legal surveys (scale, area)			
Road, local access (kilometres)/trail			
Trench (metres)			
Underground dev. (metres)			
Other	mob-demob/reclamation opal/reclamation basalt	835907,523012,523016,523018,52302	\$3531 / \$11049 / \$4284
<b>TOTAL COST:</b>			<b>\$83,775</b>

**Assessment Work Report – Klinker & Ewer Properties**

**Event # 5727957**

**WORK PERIOD March 20/18 to November 29/18**

Addendum to Interim Report on  
Bulk Sampling Programs and support.

**NTS Map 82L 05**

UTM (NAD 83) 315510.164N 5584699.173W (center of work area)  
Lat. 50deg 23.122min N Long. 119deg 34.264min W

**VERNON MINING DIVISION**

Prepared By: Opal Resources Canada Inc.  
Robert W. Yorke-Hardy, Mining Technologist  
P.O. Box 298,  
Vernon, B.C.  
V1T 6M2

Prepared by: Dated: April 7, 2019

## **TABLE OF CONTENTS**

	Page No.
Summary -----	2
Introduction -----	5
Location and Access -----	6
Physiography and Vegetation -----	8
Property Description -----	9
Property History -----	10
Property Exploration History -----	11
Regional Geology -----	13
Property Geology -----	16
Structural Geology and Faulting -----	17
2018 Assessment Work Description and Discussion ---	21
Equipment and Supplies Used -----	43
Conclusions and Recommendations -----	44
Cost Statement -----	45
Statement of Qualifications -----	50
Bibliography -----	51
Appendix I – Extract from Lindinger P. Geo. Report -----	53
Appendix II – Property Minfile Descriptions -----	54

## **LIST OF MAPS**

Property Location Map -----	Page	6
Property Access Maps -----	Pages	7&8
Mineral Claim Map -----	Page	10
Regional Geology and Showings Map ---	Page	15
Structure and Target Area Map -----	Page	20
2018 Work Location Maps ---	Pages	21&22
North Basalt Plug Satellite Image -----	Page	23
Basalt Area Location Map --	Page	24
Basalt Bulk Sample Area Maps ---	Page	24
Basalt Area 2018 Reclamation Map --	Page	25
South Basalt Area Location Map --	Page	31
Pete Zone Work Area Map ---	Page	32
716, 766 and JR Zone Work Locations Map ---	Page	33
716, 766 and JR Zone Satellite and Air Photo Structures --	Page	34
716 Diatomaceous Earth 2018 Sample Location Map ----	Page	35
Diatomaceous Earth Testing – Tenure 523032	Page	38
Claudia/Klinker Zone 2018 Reclamation Work Location Map ---	Page	39
Dave Zone 2018 Work Area Map ---	Page	42
Gates Zone 2018 Work Area Map --	Page	42

---

## Summary

Evaluation of the Klinker Opal deposit and Ewer columnar basalt deposits are ongoing activities. The evaluation of these deposits requires bulk sampling and vertical integration to finished product and test marketing in order to assess economic viability.

There is no 'commodities market' for Opal in order to determine value and there is no precedence in Canada to follow in order to assist in this endeavor.

Likewise, there is no commodities market for columnar basalt used for decorative landscaping.

The BC Government and the mining community as a whole do not pursue learning about nor give much relevance to these types of deposits. Despite this, world class opal gemstones continue to be discovered from the Klinker Deposit and now from the adjacent Claudia Zone as well. Likewise, columnar basalt is demonstrating potential as a product for landscaping but there is little documentation to guide these activities.

Further examination of a quartz/agate vein system initially explored in 2016 and 2017 on the JR suggests the potential for free gold mineralization. Panning of collected crushed material yielded heavy minerals and at least one visible flake of free gold. Samples will be assayed as finances are available. There are numerous target areas where gold may occur so panning is a good, economical method of exploration for this project.

Diatomaceous earth mineralization showings were further explored in 2018 and trenching is planned for 2019 once permits are obtained warrant further examination and testing. Samples were submitted to Absorbent Products Ltd. in Kamloops. Results of their examination are awaited.

## Assessment Work Program Description

During the period from March 20, 2018 to November 29, 2018 physical work and technical work valued in excess of \$83,000 was conducted on various mineral tenures in the Klinker-Ewer claim block as described herein. Early estimates of cost were \$40,000; which when combined with Portable Assessment Credits allowed the claims to be advanced until November 1, 2019.

No new staking was conducted in 2018. However, claim reductions and staking was conducted in January 2019 to consolidate the OK Westside Property - Klinker/Ewer claim block prior to recoding Event 5727957. No work was conducted on the portions of ground reduced from the claim block and no work was applied to the newly staked claims.

This work was conducted on behalf of the owner; Robert W. Yorke-Hardy as a continuing work program on the **OK Westside Property**, otherwise referred to as the Klinker, Ewer and Upper Pinaus & Upper McGregor Creek Mineral Property; which program was initially commenced in 2008. In 2012 OK Westside Project was split into two parts because Department of Mines in Kamloops required two separate permit applications to be completed.

At the time of writing NOW applications to amend Permit #s MX- 4-228 and MX-4-630 are under review. Approval of these work permits is imperative to advancement of this project.

Both hand work and mechanized reclamation work was conducted in 2018. Reclamation work, the mechanized work portion of the work in 2018 work; was conducted under MX-4-630 and MX-4-228.

Work was conducted on Tenure #'s 523012, 523016, 523018, 523025, 532954, 784902, 835907, 835910, 1013877, 1053300, 1053302. See Location maps on pages 21 & 22.

The 2018 program consisted of 9 man-days of mechanical reclamation work and 33-man days of physical work on reclamation activities, 5 man-days on mob/de-mob, 77-man days of basalt sample work sample, 22 man-days on opal sample work, 20 man-days on technical work related to prospecting, panning and sample crushing. A total of 10 days has been spent on the reparation of this report.

As set out herein a total of 176 man-days of work were conducted. A total of 6 tonnes of previously excavated opal bearing rock was sorted to recover contained opals and to cut and polish opal recovered. A total 110 tonnes of previously excavated columnar basalt was removed as reclamation of part of the stockpile on Tenure 834907 and transported to our Otter Lake Road yard for sample testing. Samples of weathered and crushed quartz/agate vein material were collected panned and examined. Access recon to and prospecting at the Gates and Dave showings and lay-out proposed trails and trenches. Diatomaceous earth samples were collected for study and submitted for evaluation.

Leo Lindinger an independent P. Geo. from Kamloops prepared a "REPORT ON WHOLE ROCK, MULTIELEMENT ANALYSES DELETERIOUS ELEMENT COMPOSITION AND ACID ROCK GENERATING POTENTIAL" on the basalt from the Lady King Basalt Bulk Sample Site and a summary of Analytical Results and Discussion section of said report is attached in Appendix I.

However, R. Yorke-Hardy the writer of this report, concludes that the volume to weight conversion used in said report is not correct; see notes in Appendix I.

The Klinker/Ewer property is underlain in part by a basal sequence of opal bearing clast and matrix supported lahars and sediments of the Eocene Kamloops Group which are similar to those that host precious opal initially discovered in 1991 on the Klinker 1 & 2 claims. In 2016 an occurrence of precious opal, the Claudia Zone, was explored on ground outside the area of the main Klinker deposit on which extensive work has been conducted since its discovery in 1991. The Claudia Opal Zone, appears to represent a second significant precious opal occurrence and warrants further exploration.

Some apparently unrelated mineral occurrences have been noted in previous work reports; but only the main Klinker Opal 'deposit' and the Lady King Basalt deposit have been seriously explored since discovery. The Lady King Basalt deposit consists of a large plug of columnar basalt and rhyolite occur in the north-west corner of the claims.

The 716 and JR zone quartz-agate vein mineral occurrences located and worked on in recent years where further explored by hand trenching in preparation for geological mapping and sampling. Further trenching is planned to extend the JR quartz/agate vein system – with suspected free gold to the south and the 716 quartz stockwork zones to the north at the 766 zone.

A program of trenching and test pits is recommended in order to further explore the extent and potential of the Claudia Zone occurrence of precious opal, Diatomaceous

Earth (DE), Zeolites and fine-grained quartz sand layer. The relationship to the main Klinker deposit is yet unknown but the quartz sand and DE, which are water lain, may be one silica source for the formation of opal. An initial test conducted on the DE shows good potential provided volume of material can be sourced.

Further exploration to determine the number and extent of vein occurrences at the JR Zone is recommended and 32 element ICP plus gold assay is recommended to test samples taken in 2017 and 2018.

Type, quality and extent of the Diatomaceous Earth (DE) and quartz sand industrial mineral occurrences should be further investigated. The multiple occurrences of various zeolites encountered in 2017 and further hand test pitted in 2018 should be further studied.

A program of trenching is proposed using a small backhoe/excavator in the target favourable DE area.

Additional geological mapping is recommended as well as a preliminary air-photo interpretation to identify the most favourable structures on the claims for precious opal, quartz/agate vein structures keeping in mind the potential for epithermal mineralization hosted in Tertiary volcanics.

As previously recommended further work is proposed on the Basalt project, the Dave Zone, the Gates Zone and the Bouleau Lake red jasper, which should be assayed for gold/silver and trace elements.

---

## **Introduction**

This report describes the 2018 work program on the Klinker/Ewer claim block which is a continuation of the bulk sampling work programs on the two projects which started in 2008. The 2108 programs included work on basalt samples to prepare them for test marketing and to a lesser amount on opal samples to confirm that precious opal from the Claudia Zone is of marketable quality.

A total of 176 man-days of work were conducted between March 20, 2018 and November 29, 2018 and this report was prepared over the period Jan 29<sup>th</sup> to Apr 19<sup>th</sup> 2018. Work conducted included reclamation work at two sites and included the further examination of a new deposit of landscaping/ground-cover material.

Opal bearing rock previously stockpiled as low-grade and areas around previous mechanical trenching was hand contoured while workers looked for opal and agate.

The main focus of the work in 2018 was on basalt previously stockpiled and consisted of drilling and cutting to create decorative landscape items for market testing. Approximately >150 items were created by drilling ¾-inch holes through the long axis to be used as fountains. The bases of these pieces were cut using diamond saws to facilitated vertical installation. A 12 tonne sample of minus 18-inch long basalt material was crushed to minus 3-inch size to explore its potential for Fire-Proofing landscape ground cover to replace bark mulch and wood chips.

A report on the acid generating properties of the basalt, as required for bulk sampling permit, was completed and a copy is attached hereto as an appendix.

A total of 110 tonnes of basalt were reclaimed from the stockpiled material on Tenure 835907. Approximately 40 tonnes of this material was hauled to Vernon yard and shipped 70 tonnes were transported to a landscaping project in Lillooet.

Opal sample cutting was conducted on material previously recovered from the Claudia Zone the vicinity of the northwest corner of the old Klinker 1 mineral claim; as well as outcrop exposures at other sites on the mineral claims.

Panning was conducted on a side tributary to Gates Creek after the discovery of highly altered quartz vein(?) material containing semi-massive arsenopyrite. No visible gold was detected in the panned samples but the sites tested were not optimum locations as the gravels were loose and deep making a good sample difficult to collect.



## Property Location Map:



## Location and Access:

The Westside properties are located from 13 west of the City of Vernon, British Columbia at the south end of the block to 30 kilometres north-west at the north end of the block; of the City of Vernon, British Columbia and are situated in the West Okanagan Plateau, at the upper limits of Pinaus Creek, Ingram Creek, which drain north into the Salmon River; Bouleau Creek which drains into Whiteman Creek and then into Okanagan Lake; and McGregor and Ewer Creeks which drain eastward into Equis Creek, which in turn drains south-east into the west side of Okanagan Lake at a point 9.5 kilometres south-west of the north end of the lake.

The claims are distributed north and south of the Klinker Mining Lease extending from Pinaus Lake on the north to the area north of Bouleau Creek. The center of the property at the Klinker Mining Lease is approximately 319250 m E/5581200 m N (UTM zone 11U-WGS 84).

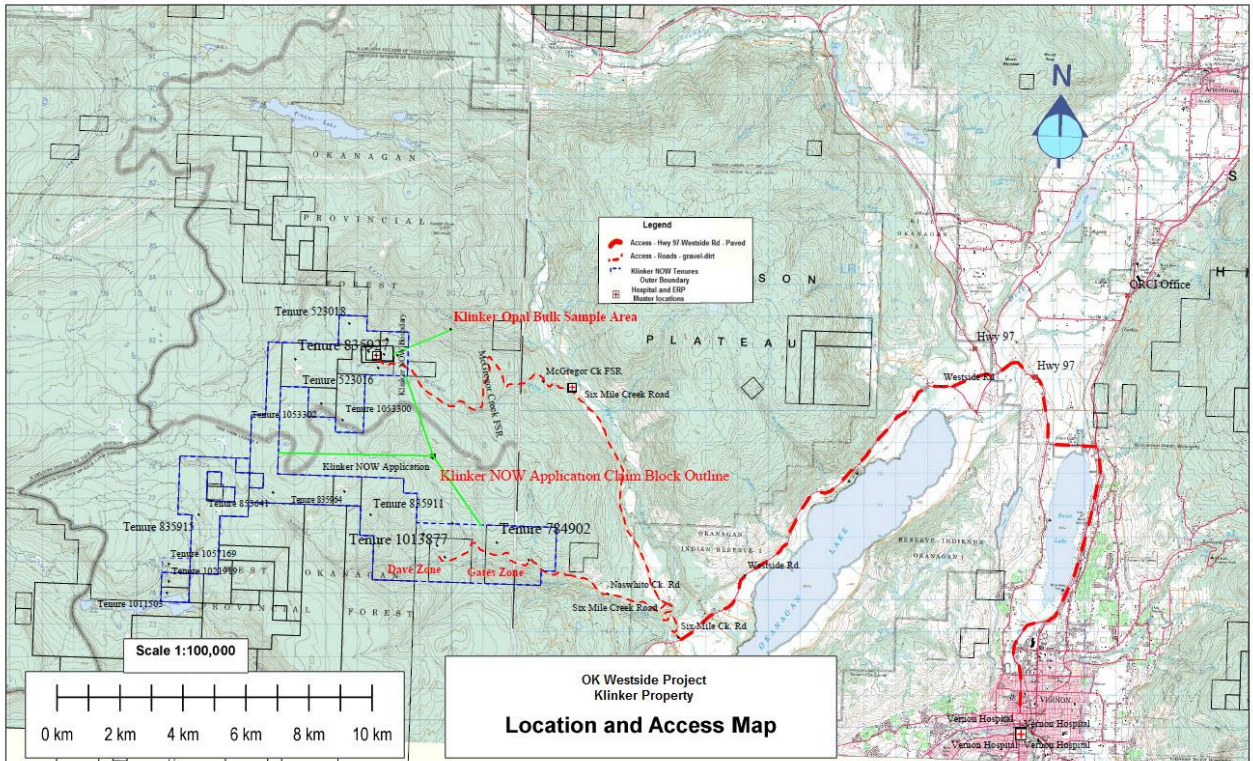
The OK Westside Property is divided into two parts, and there are two work permits; being the Klinker (MX-4-228) and the Ewer (MX-4-630).

The Klinker Opal property is accessible via the McGregor Creek forestry access road off the main Six Mile Creek Road situated some 13 kilometres south on Westside Road off Highway 97 N about 12 kilometres by road from Vernon, B. C. via Hwy. 97. The mining lease is centered at the 10.5 kilometer mark on the McGregor Creek Road. The south-eastern portion of the Klinker claim block is accessed via Naswhito Ck Road off Six Mile Road. Lack of maintenance on Naswhito Ck Road has resulted in washouts. The South western portion is accessed via Whiteman Creek and Bouleau Creek access Roads.

The northern, Ewer claim block, portion of the large OK Westside Property is accessed by a network of logging and recreational roads extending off Hwy 97N via Ingram Creek Road, Will Lake Rd (Pinaus Lake Road) and Knight Road and down to McGregor Creek Road which ties into the Klinker Claim Block access road system.

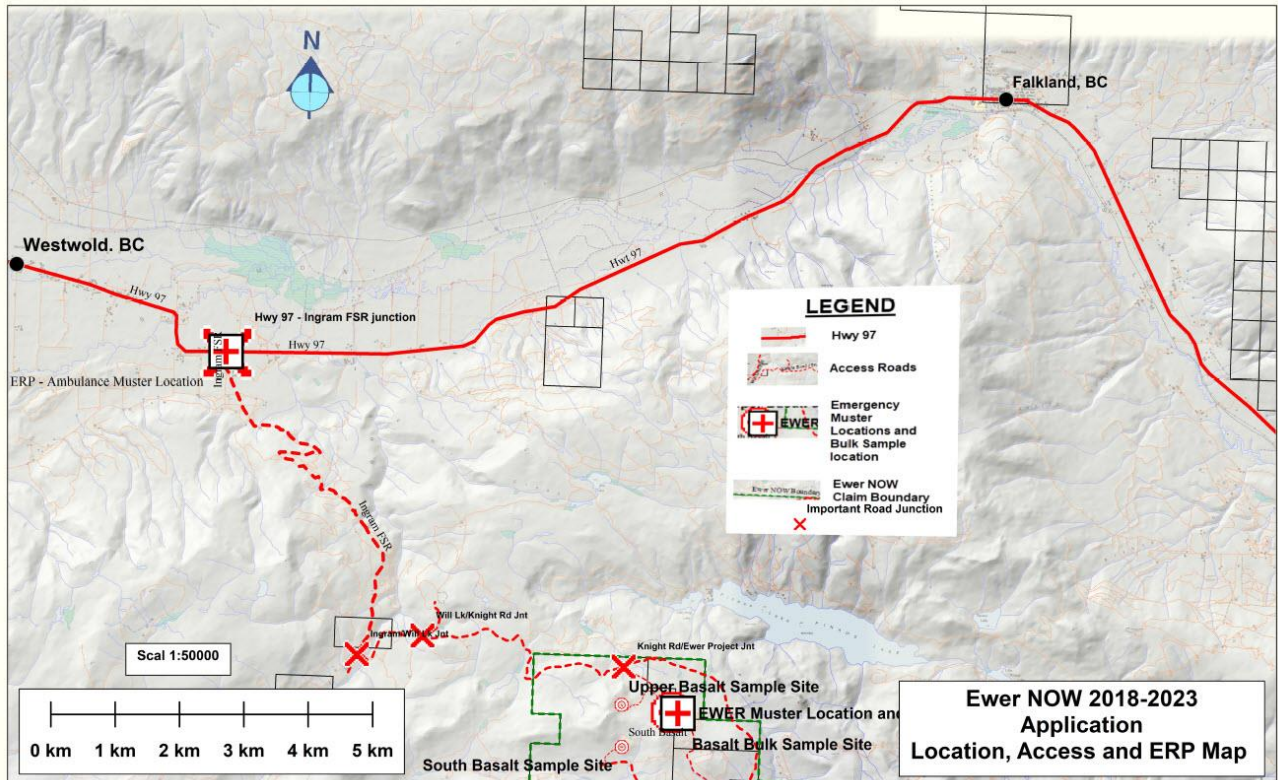
Most portions of the property are presently accessible via two-wheel drive during the period from early June to mid-October, but a 4-wheel drive vehicle is recommended for other parts of the property. Snow cover commences in mid-October and can last until late May.

**OK Westside Project Location and Access**  
**Klinker Property Access Map:**





## Ewer Property Access Map:



### Physiography and Vegetation:

The central portion of the Klinker/Ewer claim block in Lot 5251 which is situated 23 kms. North- west of Vernon BC. The claim block extends contiguously to cover ground from just south of Pinaus Lake in the north to Bouleau Lake in the south. The highest elevation on the property is just over 1300 metres which is situated in the central portion of the 4194.71 hectare claim block.

A major hydro powerline crossing the northern portion of the property originates at the Mica Dam and comes cross-country from the north-east past Enderby, passing south of Pinaus Lake enroute to the upper Salmon River Valley and Douglas Lake area between Westwold and Merritt B.C. and then on to the B.C. lower mainland. The power line right-of-way is clear cut for widths ranging from 80 to 120 metres.

The claim block is on crown land and no portion covers "private property". A great portion of the claim block was affected by pine beetle kill and has been clear-cut logged and replanted with dominantly Lodgepole Pine. Some localized stands of fir and spruce/balsam do occur.

The eastern half and northern portions are on crown land and have been selectively logged, probably prior to 1950. The crown land portions between Woods Lake west to the height of land has significant quantities of merchantable timber, mainly Douglas Fir with some Lodgepole Pine. Minor cedar balsam stands occur in low lying areas. Extensive steep rock cliffs and numerous other rock outcrops line both sides of Cain Creek.

**Property Description:**

The Klinker/Ewer property is comprised of 32 mineral tenures, including 31 claims and one mining lease; as listed below. See also the claim map for further information.

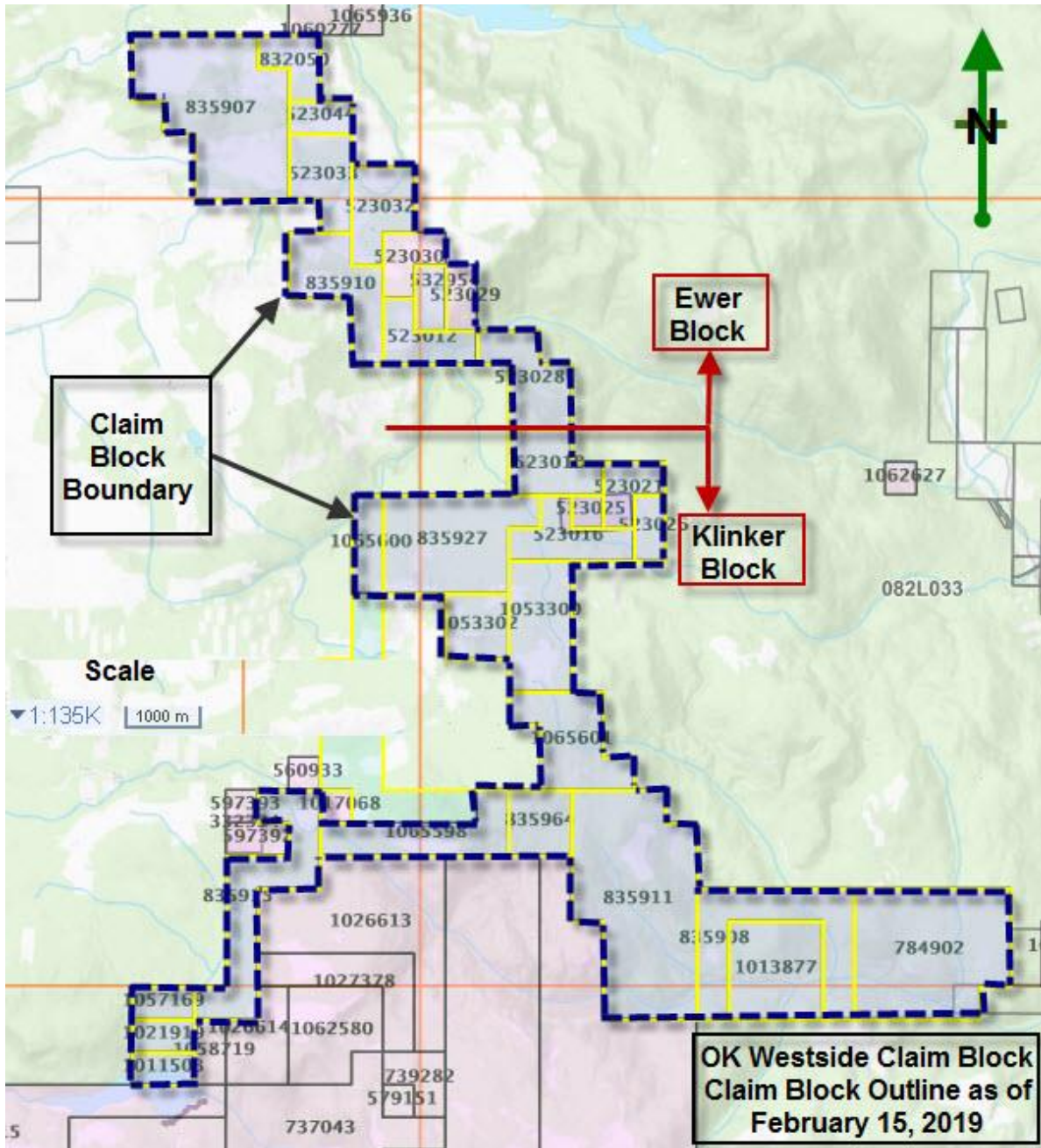
Title Number	Claim Name	Owner	Title Type	Title Sub Ty	Map Number	Issue Date	Good To Da	Status	Area (ha)
391569		129660 (100	Mineral	Lease	082L033	2002/MAY/1	2019/MAY/1	GOOD	50
523012		129660 (100	Mineral	Claim	082L	2005/NOV/3	2019/NOV/0	GOOD	82.4201
523016		129660 (100	Mineral	Claim	082L	2005/NOV/3	2019/NOV/0	GOOD	103.0787
523018		129660 (100	Mineral	Claim	082L	2005/NOV/3	2019/NOV/0	GOOD	103.0592
523021		129660 (100	Mineral	Claim	082L	2005/NOV/3	2019/NOV/0	GOOD	61.8393
523025		129660 (100	Mineral	Claim	082L	2005/NOV/3	2019/NOV/0	GOOD	20.614
523026		129660 (100	Mineral	Claim	082L	2005/NOV/3	2019/NOV/0	GOOD	41.2304
523028		129660 (100	Mineral	Claim	082L	2005/NOV/3	2019/NOV/0	GOOD	123.6432
523029		129660 (100	Mineral	Claim	082L	2005/NOV/3	2019/NOV/0	GOOD	41.2056
523030		129660 (100	Mineral	Claim	082L	2005/NOV/3	2019/NOV/0	GOOD	61.8021
523032		129660 (100	Mineral	Claim	082L	2005/NOV/3	2019/NOV/0	GOOD	102.9897
523033		129660 (100	Mineral	Claim	082L	2005/NOV/3	2019/NOV/0	GOOD	102.9809
523044		129660 (100	Mineral	Claim	082L	2005/NOV/3	2019/NOV/0	GOOD	41.1859
532954	NEWJR	129660 (100	Mineral	Claim	082L	2006/APR/24	2019/NOV/0	GOOD	41.206
784902	GATES 1	129660 (100	Mineral	Claim	082L	2010/JUN/02	2019/NOV/0	GOOD	392.1181
832050	BAS EXT.	129660 (100	Mineral	Claim	082L	2010/AUG/2	2019/NOV/0	GOOD	61.7684
835907	SPEC 1	129660 (100	Mineral	Claim	082L	2010/OCT/14	2019/NOV/0	GOOD	391.2559
835908	SPEC 2	129660 (100	Mineral	Claim	082L	2010/OCT/14	2019/NOV/0	GOOD	227.0081
835910	SPEC 4	129660 (100	Mineral	Claim	082L	2010/OCT/14	2019/NOV/0	GOOD	144.2151
835911	SPEC 5	129660 (100	Mineral	Claim	082L	2010/OCT/14	2019/NOV/0	GOOD	495.2374
835915	SPEC 6	129660 (100	Mineral	Claim	082L	2010/OCT/14	2019/NOV/0	GOOD	226.9845
835927	SPEC 8	129660 (100	Mineral	Claim	082L	2010/OCT/14	2019/NOV/0	GOOD	268.0092
835964	BAG 1	129660 (100	Mineral	Claim	082L	2010/OCT/14	2019/NOV/0	GOOD	82.5227
1011503	AL 1	129660 (100	Mineral	Claim	082L	2012/JUL/26	2020/JAN/01	GOOD	41.2884
1013877	SPUD 1	129660 (100	Mineral	Claim	082L	2012/OCT/20	2019/NOV/0	GOOD	185.7482
1021919	AL 2	129660 (100	Mineral	Claim	082L	2013/AUG/2	2020/JAN/01	GOOD	41.2848
1053300	PETE RD EXT	129660 (100	Mineral	Claim	082L	2017/JUL/22	2019/NOV/0	GOOD	164.9648
1053302	HAILSTONE	129660 (100	Mineral	Claim	082L	2017/JUL/22	2019/NOV/0	GOOD	82.4827
1057169	CONNECT	129660 (100	Mineral	Claim	082L	2017/DEC/22	2019/NOV/0	GOOD	41.2814
1065598	Dave West	129660 (100	Mineral	Claim	082L	2011/MAY/0	2019/NOV/0	GOOD	144.4201
1065600	Spec 8 Ext	129660 (100	Mineral	Claim	082L	2011/MAY/0	2019/NOV/0	GOOD	61.8488
1065601	NEW CONNE	129660 (100	Mineral	Claim	082L	2019/JAN/07	2020/JAN/07	GOOD	165.0114
								Claim Area -----	<b>4144.7051</b>
								Lease Area	<b>50.0000</b>
								<b>Total Tenured Area -----</b>	<b>4194.705</b>

The “owner of record” for the claims making up the Klinker & Ewer claim blocks is Robert W. Yorke-Hardy.

The expiry date shown herein reflects Event # 5727957 application of work supported by the filing of this report describing the ongoing fieldwork conducted during the 2018 season. The claims are recorded in the Kamloops Mining Division of British Columbia. The claims have been located in accordance with the requirements of the Mineral Act of the Province of British Columbia.



**Ewer-Klinker Group Claim Map:**



**Property History:**

Most of the claims cover ground which has been held previously by others at various times, but there has been no great amount of exploration work, and so the history is limited. Regionally, the first geological work was done by George M. Dawson and R.A Daly, followed in 1930-31 by C.E Cairnes and in 1959 by A.G. Jones (GSC Memoir 296). The current tenures have been held directly or indirectly by the current owner since November 30, 2006 or since subsequent staking.

## Exploration History:

Initial exploration in the area resulted from the discovery of placer gold on a number of creeks, including Naswhito (Siwash) Creek, Whiteman and Bouleau Creek, Equesis Creek, and Newport and Moffat Creeks. These creeks occupy steep, v-shaped valleys, and production has been mainly from bedrock gravels.

According to Assessment Report 28822 (for the Westmoreland Property) the first recorded mineral occurrence in the Vernon area was in the 1870s when placer gold was discovered in Whiteman Creek and Bouleau Creek. According to Assessment Report (AR) 19100, placer mining was carried out intermittently on Naswhito Creek between 1889 and 1959, and records from 1895 indicate a yearly output of 90 ounces of gold with a final production total estimated at 1650 ounces (Jones: 1959). Placer gold exploration and mining (through tunnels) was first reported in 1889. From 1915-18, hydraulic mining reportedly produced 19 kilograms of placer gold (Bulletin 28). Minor reported production during 1924-35 was about 1 kilogram.

At Naswhito Creek, Quaternary gravels host placer gold mineralization. At the base of a 60-metre thick sequence of gravels, sand and clay, 1 metre or so of rusty-weathering gravel hosts the best values, with the highest concentration occurring on bedrock. The fineness of the gold is reported to average about 840. The gravels extend to the north past Equesis Creek and cover an area of about 6 square kilometres.

At Equesis Creek, Quaternary gravels along the creek host placer gold mineralization. Good values are reported along sections of the creek, particularly in the vicinity of its junction with Musgrave Creek. NOTE: This location is also located just down-stream from where McGregor Creek and Ewer Creek, which drain the ground on either side of the Klinker Mining Lease; enter Equesis Creek.

Lode gold exploration has taken place on a number of showings, mainly hosted by older rocks below the Tertiary sediments and volcanic rocks. Some of the more important epithermal gold properties explored more recently are the Bouleau Creek area Brett, Vodd, and Boul showings.

Some of these are described briefly elsewhere in this report.

The most important mineral deposits in the area have been the gypsum/anhydrite deposits at Falkland which were in production for many years.

In 1991 gem grade precious opal was found near the headwaters of McGregor Creek by Glen Grywacheski and Robert Yorke-Hardy. The discovery has led to the development of a commercial gem opal business now based in Whistler, BC utilizing opal material from the Klinker Mining lease Tenure 391569 and the Claudia Zone on Tenures 523016 and 523025. The Klinker 1 and 2 claims were initially staked in July of 1991, following the forfeiture of the Rocket #1 claim. There was no work recorded on the Rocket #1. The Klinker claims were staked by R. Yorke-Hardy and G. Grywacheski. The original interest in this ground was the perceived potential for gold mineralization. At the time of staking an abundance of agate and some white common opal was noted. Later, Grywacheski discovered precious opal on the property. Gold prices dropped and precious opal prospect was pursued.

Opal extraction from the property from 1995 to 2003 was approximately 500 tonnes of rock, from which substantial precious opal has been recovered processed into jewellery

and test marketed. Exploration and development to date indicates additional precious opal is available to be mined and opal continues to be recovered from the earlier bulk sample to sustain current marketing efforts. Robert W. Yorke-Hardy (formerly Okanagan Opal Inc. and Spectral Gold Corporation) holds ownership of the Opal mineral lease (KLINKER) and full 100% rights, title and interest to explore this property for gold and other metallic minerals. Common opal and agate has long been known to occur in tertiary volcanic rocks in the region.

This entire region was heavily staked during a “staking rush” in 1988 which occurred as a result of gold discovered by Huntington Resources on the Brett property located farther to the south, on Whiteman Creek. No other mineral exploration has been noted in the area except on the Way 1 mineral claim located west of the Klinker/Ewer property. It saw grassroots exploration for gold in 1988-89 and is being retained by Big I Development, a Vancouver based junior mining company, because of this property’s potential to host Brett/Huntington epithermal type gold mineralization in the underlying Eocene volcanics.

Within the Kamloops volcanics, numerous agate, opal and obsidian showings are present in the area, including the productive Klinker precious opal deposit which occurs at the head of McGregor Creek in the center of the Westside claim block. The Klinker property was initially explored for gem opal and is still a source of this material. However, earlier, it was recognized from numerous placer gold workings on McGregor, Bouleau, and Naswhito and Whiteman Creeks (all flowing eastward from the Okanagan Highlands) that lode gold deposits must occur in the area. Epithermal gold veins have now been found at the Brett and Boul properties near Bouleau Creek and other locations. The Dave showing, within the Westside property, is believed to be an epithermal deposit.

R. W. Yorke-Hardy initially located the Klinker 1 and 2 mineral claims in 1991. Subsequent discovery of precious opal on these claims has resulted in extensive exploration and development work since that time. Klinker 1 & 2 were legally surveyed and taken to lease in 2002; mining lease Tenure 391569 (DL5251). Extensive exploration by Yorke-Hardy et al was conducted during the period 1991 to 2004.

Until 2017 first Okanagan Opal Inc and then Y-H Family Holdings Inc, was the registered owner of the mining lease and the Klinker/Ewer property holds the claims which cover an extensive Miocene aged(?) “lake basin environment” hosting layers of bentonite clay, Diatomaceous earth and minor “opalized” sediments interbedded with rhyolite tuff ash beds. These tenures are now owned by Robert Yorke-Hardy.

Also, an occurrence of palagonite is recorded on the west flank of Tuktakamin Mtn. north of Pinaus Lake.

Recent years have seen exploration and bulk sampling on columnar basalt in the north-west part of the claims and confirmation of DE noted by Read in 1995, Zeolites and quartz veining/stockworks.

A permit to extract a bulk sample of columnar basalt has been applied for. To date, under a previous permit approximately 2500 tonnes of this basalt has been extracted and stockpiled. It is estimated that between 1000 and 2000 tonnes remains stockpiled on site. A 110 tonne sample was moved off sight in 2018. This material is being test marketed for various landscape and decorative stone applications.

Exploration for DE has been commenced and is planned to continue in 2019.

## **GEOLOGICAL SETTING**

### **Regional Geology**

Regional Geology as modified from Klinker Property - AR 24370 by R. W. Yorke Hardy.

The geology of the Westside Ok area was mapped and interpreted by Dr. Peter Read Ph.D., during the 1994 field seasons and is reported in the MEMPR Geological Fieldwork 1995 Report in an article titled "Industrial Mineral Potential of the Tertiary Rocks, Vernon (Map Sheet 82L) and adjacent map areas"; as is summarized below. Although Read's comments initially applied to the Klinker claim, the writer believes this discussion is valid for the larger Westside claim block:

The Klinker (and Westside) claims are underlain by mostly volcanic rocks of the **Eocene Kamloops Group** that form a broad upright syncline that extends 150 kilometres north-northeast from Trepanier on the west side of Okanagan Lake to the east of Kamloops. The inward dipping limbs of this syncline are exposed in crosscutting valleys including Whiteman Creek to the south and west and Ewer to the north. The limbs of this syncline are offset by north to northeast striking high angle, west-side down normal faults with offsets up to 100 metres within an airfall tuff lens as recorded by Read 1995. Estekwalan and Tuktakamin mountains to the north of the Klinker Claims represent the highest peaks with exposures of volcanic rocks that have a minimum thickness of 600 metres.

The oldest rocks in the vicinity of the Klinker Claims are exposed in Ewer Creek to the north of the property and approximately 500 metres to the east of the Discovery Pit. These basement rocks consist of gently west dipping grey green andesite flows and lapilli tuff of the **Harper Ranch Group** of Late Paleozoic age that are overlain on the Klinker Claims by Eocene **Dewdrops Flats Formation** rocks that host precious opal. This formation consists of augite-olivine basaltic and andesitic flows, interflow breccia and minor basaltic tuff. This sequence on the Klinker Claims consists of 200 metres of mostly breccia and lahar with minor flows. The Dewdrop Flats Formation is overlain to the north and within Ewer Creek by a thin sequence of opalized tuffaceous shale and siltstone at the base of the Bouleau Member of the Kamloops Group that extends at least 4 kilometres and is up to 30 metres in thickness, (Read 1995).

### **DEPOSIT TYPES**

Initially, the Klinker property was explored for gem opal, and is still a source of this material. However, earlier, it was recognized from numerous placer gold workings on McGregor, Bouleau, and Naswhito and Whiteman Creeks (all flowing eastward from the Okanagan Highlands) that lode gold deposits must occur in the area. Some of these have now been found at the Brett property, Bouleau Creek and many other locations where epithermal gold and silver have been identified. The Agate/Opal occurrences are possibly high-level manifestations of epithermal activity.

In addition to the gem grade opal and epithermal gold/silver properties, other deposits such as skarn copper, copper-molybdenum and molybdenum porphyry deposits are present in the area. The target sought by the property owner, based on the satellite multi-element spectral analysis signatures obtained to date, is epithermal gold-silver, but other targets will be kept in mind if sampling data suggests other targets may be present.

The best deposit model for gold mineralization on the Ewer-Klinker properties is the low-sulphide epithermal model. This would involve the flow of gold-bearing silica solutions



through the volcanic pile, generally along strong structural elements (Faults fractures) and could result in vein or disseminated gold in quartz veins or silicified zones.

Two large basalt/ryholite volcanic cores have been identified. Both host deposits of columnar basalt. The ‘Lady King Basalt’ core area is being sampled to determine commercial viability of its use as landscape/decorative rock.

Multiple occurrences of Diatomaceous Earth have been noted in association with ancient lake-bottom clay rich sediments. Testing for commercial viability is proposed.

Occurrences of zeolites have been identified in the area south and west of the Klinker opal deposit and to the east of the ‘Claudia’ precious opal showings.

### **SUMMARY OF DOCUMENTED REGIONAL MINERALIZATION**

Aside from the known occurrence of precious opal on the Klinker Mining Lease, many “showings of agate and opal are found in the area.

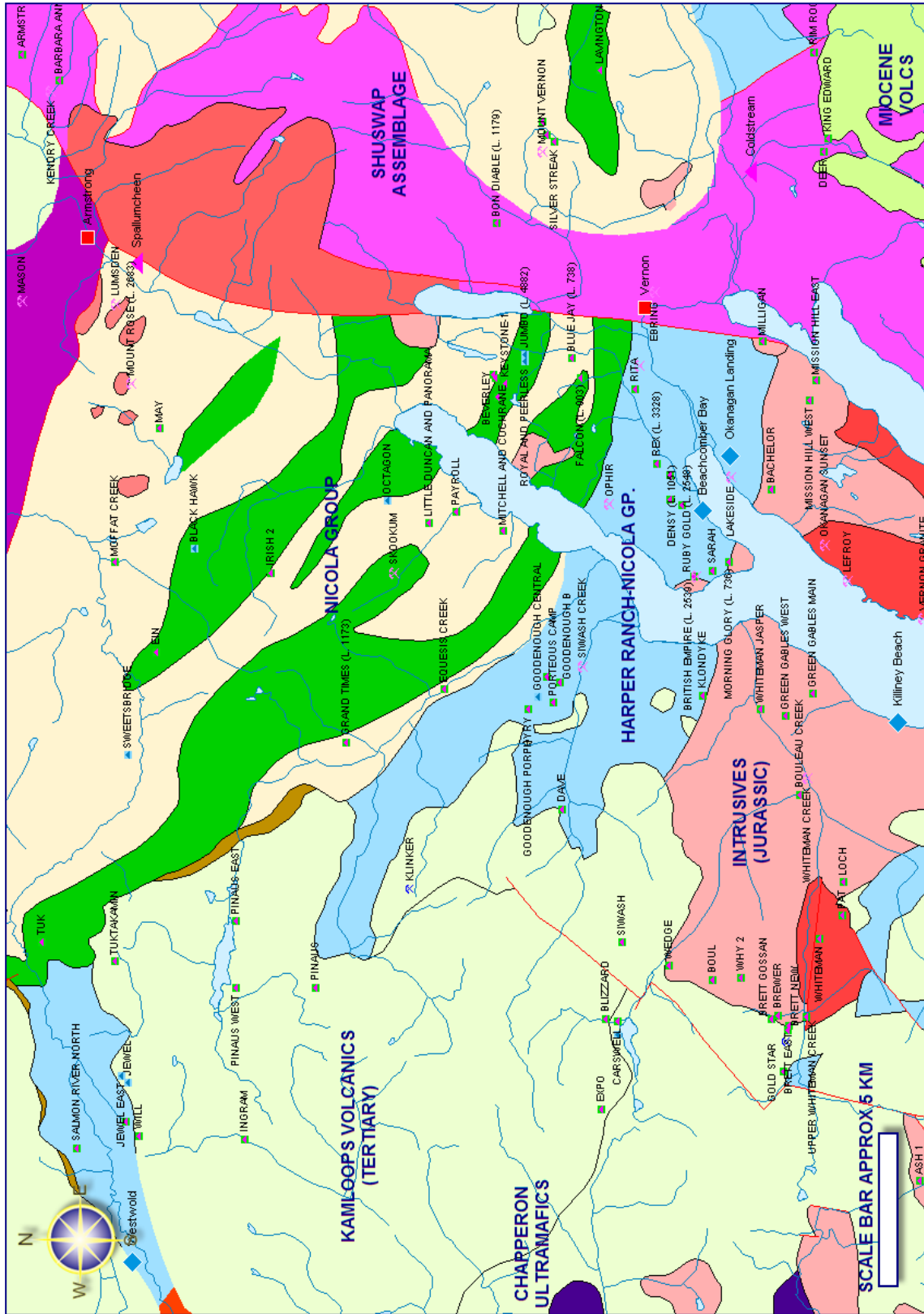
Minfile showings actually within or very near to the subject claims are shown below. Those shaded in yellow are within the Westside claim blocks:

<b>Minfile Number</b>	<b>Minfile Name</b>	<b>Easting NAD83</b>	<b>Northing NAD83</b>	<b>Commodity</b>
82L SW 159	PINAUS	314319	5585782	DIATOMITE
082LSW125	KLINKER	317616	5581648	PRECIOUS OPAL
082LSW116	DAVE	319875	5575387	GOLD
082LSW023	EXPO	308326	5575297	SILVER, AGATE
082LSW122	PINAUS WEST	314704	5588860	AGATE, GEMSTONES
082LSW102	PINAUS EAST	317221	5588525	AGATE, GEMSTONES
082LSW104	INGRAM	308929	5589221	AGATE, GEMSTONES
082L SW 065	JEWEL	311648	5593452	COPPER, GOLD, SILVER

Other properties noted from Minfile are given in the following table; these are near the subject claims but are on ground held by others.:

<b>Minfile Number</b>	<b>Minfile Name</b>	<b>Easting NAD83</b>	<b>Northing NAD83</b>	<b>Commodity</b>
082LSW047	Brewer	311018	5568027	Au, Ag, Cu, Pb, Zn
082LSW084	Brett East	310570	5567672	Au
082LSW110	Brett	310002	5567878	Au, Ag
082LSW130	Gold Star	308860	5568105	Au, Ag
082LSW131	Brett New	310412	5567709	Au
082LSW132	Brett Gossan	310890	5568310	Au, Ag
082LSW151	Upper Whiteman Creek	310822	5566952	Au
082LSW157	Why 2	312630	5569300	Au, Ag
082LSW046	Nash Siwash	314549	5573715	Au, Ag
082LSW069	Boul	312688	5570380	Au, Ag
082LSW073	Wedge	313419	5571993	Au, Ag
082LSW105	Blizzard	311732	5574711	Opal, Agate, Gemstones
082LSW109	Carswell	311577	5574253	Agate, Gemstones, Ag
082LSW144	Rubinca Mine	311083	5574302	Agate, Gemstones, Ag

# REGIONAL GEOLOGY AND SHOWINGS



## **Property Geology**

Evidence of epithermal alteration, alunite, Diatomaceous Earth, various clay minerals, and opal/agate veining have been located at numerous locations throughout the OK West Property. Two large volcanic extrusive centers comprised of columnar basalt and rhyolite have been located.

Epithermal texture such as brecciation with open spaced fillings, drusy cavities, crustification, symmetrical banding has been noted, consistent with epithermal characteristics. The type of alteration presently being encountered would suggest that economic mineralization, if present, may be encountered at some depth below the current levels of exposure. Strong structural features occur coincident with alteration zones and with multi-element spectral 'anomalies'. Weakly anomalous values for minerals which are often considered to be trace elements for epithermal mineralization (As, Sb, Hg) have been located at several locations. Particulate native gold was observed in opal and nontronite during scanning electron microscope work conducted on the Klinker precious opal deposit (Kruber Thesis, 2000 – private report). Also, small flakes and specks of gold were observed in panned concentrate samples taken from streams draining 'Spectral Clusters'. These areas are being mapped and prospected in more detail. The known mineralization at the Expo and Dave Minfile showings and the newly identified Gates Zone is being proposed for trenching. A float sample of semi-massive arsenopyrite was found at the Gates Zone in 2018.

Property Geology is in part derived from a discussion in an assessment report specifically for the Klinker (opal) property - AR 24370).

According to Read (1995) the Klinker Claims (now a Mineral Lease) are underlain by the basal 100 metres of the **Dewdrop Flats Formation** of the Kamloops Group consisting of aphanitic and porphyritic augite-olivine basalt and basaltic andesite flows and tephra.

These volcanoclastics include a belt of predominantly northwesterly trending lahars, volcanic breccia and lapilli tuffaceous sediments and flows that are overlain by a sequence of cream colored weathered tuffaceous shale and waterlain rhyolite ash with an estimated thickness of 30 metres that contains diatoms, palynomorphs, plant and fish fossils. Locally, this sequence has been altered to a grey vitreous opaline chert that may represent a sinter deposit which represents the base of the Bouleau Member (Read 1995). Diatomaceous earth has been exposed and sampled in a dug-out north and west of the Caramel Pit within the opal workings.

Late Paleozoic grey green meta-andesites of the **Harper Ranch Group** that outcrop several hundred metres to the east of the Discovery Zone and to the north of the property along the bottom of Ewer Creek form the basement underlying the Eocene, which gently dips to the west.

Precious opal exposed during excavation of the Discovery, Bluebird and Caramel Pits is hosted mostly in a mixture of high energy lahar and volcanic breccia that is differentially weathered and consists of monolithologic sediments with angular to rounded clasts of basalt, in part vesicular, aphanitic and porphyritic that range in size from approximately 5 cms to 1.5 metres in diameter.

The clasts are supported in a green to brown locally friable, porous lapilli tuff matrix that consists of angular to sub-rounded grains including igneous rock fragments, minor

hematite, manganese and sub-angular bleached fragments. The lapilli matrix material which wraps around clasts, form irregular well stratified beds that dip gently to the southwest at 15 to 22 degrees. These lapilli lenses develop locally as interbedded sequences up to 2 metres in thickness. Mapable units of interbedded lahars and tuff have been identified in each of the excavated areas. Correlation of the geology between these excavated outcrops is difficult due to overburden cover and the discontinuous nature and irregularity of the locally interbedded sediments.

The composition of the individual lahars varies within the mapped area. Locally, bleached, salmon pink to rusty red coloured mixtures of clast supported lahar and volcanic breccia with clasts from one centimetre to five centimetres are hematized and less differentially weathered. These outcrop in the Caramel and Caramel Extension Pits and in exposures north of the Bluebird, north and east of the Discovery Zone area and the Red Rock zone. They consist of between 80 to 90% clasts set in a lapilli tuffaceous matrix. Small pebble sized clasts infill between the larger clasts. About 90% of the clasts are basaltic of which 40% are vesicular and zeolitized.

At other locations, the lahars contain up to 50% bleached clasts as exposed in the Caramel Pit. Exposures of fresh grey-green coloured andesitibasaltic lahar with angular to rounded clasts underlie the high energy lahars exposed at surface in the East Discovery Cut. Minor calcite infills some vesicles and may be a result of replacement of detrital grains during diagenesis of the basic material.

Zeolitization is more prevalent in the more clast supported lahar, breccia mixtures north and east of the Caramel Zone and commonly occurs infilling vesicles rather than filling fractures. The extent of zeolitization has not been fully determined but may be related to the proximity to faulting and related fracturing. Zeolites are in close proximity to north-south faulting on the west side of the Bluebird zone and coat opalized surfaces of cavities infilled with agate. Further geological mapping is recommended to determine whether concentrations of zeolites can be located. Zeolitization is prevalent in the area to the east of the Claudia Zone.

Diatomaceous earth has been discovered at the main basalt bulk sampling area on tenure 835907 and has been located at many other locations extending the length of the ancient lake basin interpreted by Penner and Mollard in 1996 (see outline in maps following).

### **Structural Geology and Faulting:**

#### **Klinker Opal Area (Inside Mining Lease):**

The basal basaltic lahars on the Klinker Claims form a series of flows with beds striking between 300 to 320 degrees and dipping gently to the southwest at 15 to 22 degrees. Within these lahars are small sill like flows, fresher basaltic intrusions up to approximately four metres in width that extend from the east side of the Caramel Pit to a little north of the Bluebird Pit at approximately 2+50N, 0+60W. The matrix supported lahars may represent the margins or leading edges of the flows within a sub aerial environment and are important because they appear to be the main host for the opal. Also, the areas of noticeable hematite alteration may represent the contact margins or tops of subsequent flows in a sub aqueous terrane.

Faulting may be expressed topographically in the form of minor linear troughs which are occupied by bodies of water and dense brush, vegetation cover. Exposed precious opal bearing host rocks in the Bluebird Zone and Discovery Zone are bounded to the east and west by north-south trending faults. To the east side of the 1995 Discovery Cut, a 010

degree trending right lateral strike-slip fault dips 81 degrees to the northwest and plunges approximately 25 degrees to the southwest. The slickensided surfaces are coated with manganese and minor chlorite. The amount of offset is undetermined. A strike-slip fault dips steeply to the west at the Bluebird zone. Slickensides trend 005 degrees and plunge 20 degrees to the south and are also coated with manganese and chlorite. The amount of movement here is undetermined. Similar strike-slip 020 degree faulting is evident at the 1477 Bench Open Cut associated with significant opalized host rock.

The most important fracture sets that are opal bearing include those that strike at between 300 to 340 degrees, 040 to 080 degrees, 350 to 360 degrees, and 020 degrees all having steep dips with the greatest concentrations of opal forming at the fault intersections in the hanging wall of the crosscutting fractures. White common opal tends to form above the main precious opal horizon and can act as a marker horizon in some exposures.

Silica emplacement in the form of both precious and common opal is possibly restricted by the effectiveness of the impermeable nature of fresher volcanic clasts that act as damming fronts so that most of the opal within the volcanoclastic rocks occurs as a vesicle infill within scoriaceous clasts, as a cement within the matrix and as an infill along fractures between clasts and fractures that crosscut through the clasts. Greater concentrations of opal occur at the intersection of crosscutting fractures within the more permeable highly weathered basalts in the Discovery and Bluebird Zones where more abundant voids and openings are formed by possible dissolution of the host. Some of these void spaces form up to 5% of the open cut faces in the Caramel, Bluebird and Discovery Pit at or along fault surfaces and are infilled with subhorizontal interlayered jelly opal and common white opal.

Other fractures that are infilled with precious opal appear curved, irregular and discontinuous especially in the eastern portion of the Discovery Zone area. 040 degree structures are splays off the northerly striking fractures crosscut by 360 degree fractures. These fracture sets are closely spaced in the thinly bedded sediments and may represent dilational fractures associated with compaction. 080 degree fractures are discontinuous fractures infilled with agate in the Discovery Zone vary in width from a few millimetres up to 2 cms and extend for distances up to 50 cms. Other fractures part infilled with precious and common opal appear as irregular hairline to 2 to 5 mm. northerly trending veinlets.

In the Discovery Zone, most of the clasts within the detailed mapped grid areas are composed of fresh vesicular basalt. Fresh surfaces were obtained from breaking bleached clasts. On surface, agate appears more widespread than common opal. Precious opal is restricted to the main fracture sets and vesicular clasts within, or in close proximity to the intersection of these fractures which suggests that opal formed after the deposition of the clasts.

The timing of vein development has not been fully determined and is likely related to regional stresses. The formation of opal and zeolitization appears post movement as evidenced along 020 degree slickensided surfaces in the 1477 Bench open-cut and also appears post emplacement of small basaltic flows.

Possible slumping in the lahars along the exposed portion of this north-south fault may indicate that movement along the southwest dipping lahars is to the southwest and basining of these volcanoclastics is to the northwest. Also, these sequences may be volumetrically greater in the vicinity of the Klinker and Ewer mineral claims. Footwall sediments along this north easterly trending fault include purple clast supported breccia that exhibits 020 degree fracturing with minor Agate and Zeolite infillings that are void of opal.

Silica veining is largely single stage with minor second stage veining that exhibits internal stratification of the silica. The plane of deposition is not parallel to bedding attitudes of the lahars but is instead sub horizontal suggesting deposition at some time after formation and tilting of the lahars. The veins appear irregular and discontinuous having varying thicknesses.

Vein deflection and ponding around clasts is evident with very minor detexturing. Veins are clean walled other than extensive manganese coating fracture surfaces and solution channels both through and around the clasts.

Evidence of pure agate nodules found on surface more abundantly to the south and east of the Discovery Zone and the contiguous Sunglass Zone was believed to be a result of their erosion from the lahars hosting agate and opal or from younger overlying tuffaceous shales and waterlain rhyolite ash sequences. However, this agate has now been found in-situ extending south and east of the Discovery and Sunglass Zones.

Known opal occurrences are more fully described in Assessment Report # 24370) with the main concentrations, and all known precious opal occurrences; being in the vicinity of the Discovery, Bluebird, Caramel, Caramel Extension.

Mapping and prospecting outside the mining lease has determined that the lahar debris flows, the main opal host rock, extends beyond the limits of the mining lease which replaces the original Klinker 1 and 2 claims; on to the outlying claims.

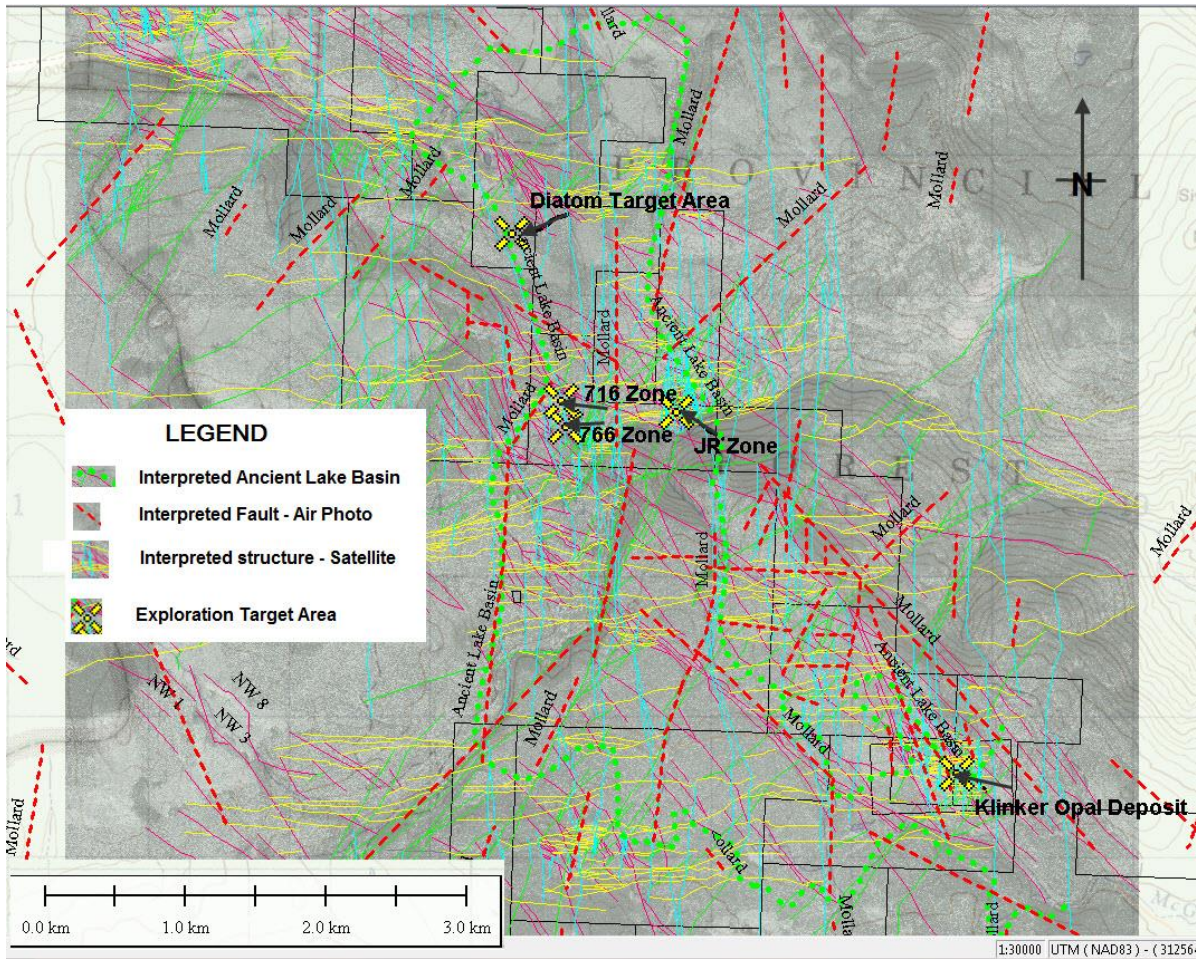
In 2017 work was conducted on the Claudia Zone just outside the north-west corner of the mining lease. Common opal and Precious opal were found in some vugs fractures. Some pieces of precious opal have been cut into gemstones which indicates the material is stable to cut. Further work to sample the precious opal from this occurrence is planned.

### **Area Outside Mining Lease:**

At the JR Zone, veins and cavity fillings of brown opaline material and agate were exposed in 2016-17 and agate/silica filled brecciated zone at the 716 and 766 Zones associated with northerly trending structures associated with rhyolitic volcanics reported by Read 1995.

Evidence of fine-grained pyrite has been noted at the 716 showing and rusty remnants of sulphides, magnetite and possible flecks of free gold where panned from crushed material from veins at the JR zone. The concentration of northerly trending lineations (see map below) at the JR Zone appear to correlate with faults and fractures located on the ground Throughout a large portion of the claim block. These structural trends are consistent with those mapped in detail on the Klinker property. See property wide structural interpretations on map below. Note the outline of an ancient paleo lake basin as mapped by Mollard.





No exposures of plutonic igneous rocks have been identified within the northern portion of the claim block.

Narrow dykes of plutonic rocks have been located on the Dave claim and appear to be associated with a stockwork of quartz veins. Minor sulphide mineralization has been noted. Work is planned to trench and map at the Quartz stockwork area at Dave zone (Tenure 1013877) and to explore quartz and calcite veining at the Gates Zone (Tenure 784902) is planned. Discovery of mineralized float at the Gates zone in 2018 consisted of altered quartz vein material with heavy arsenopyrite (strong garlic odor).

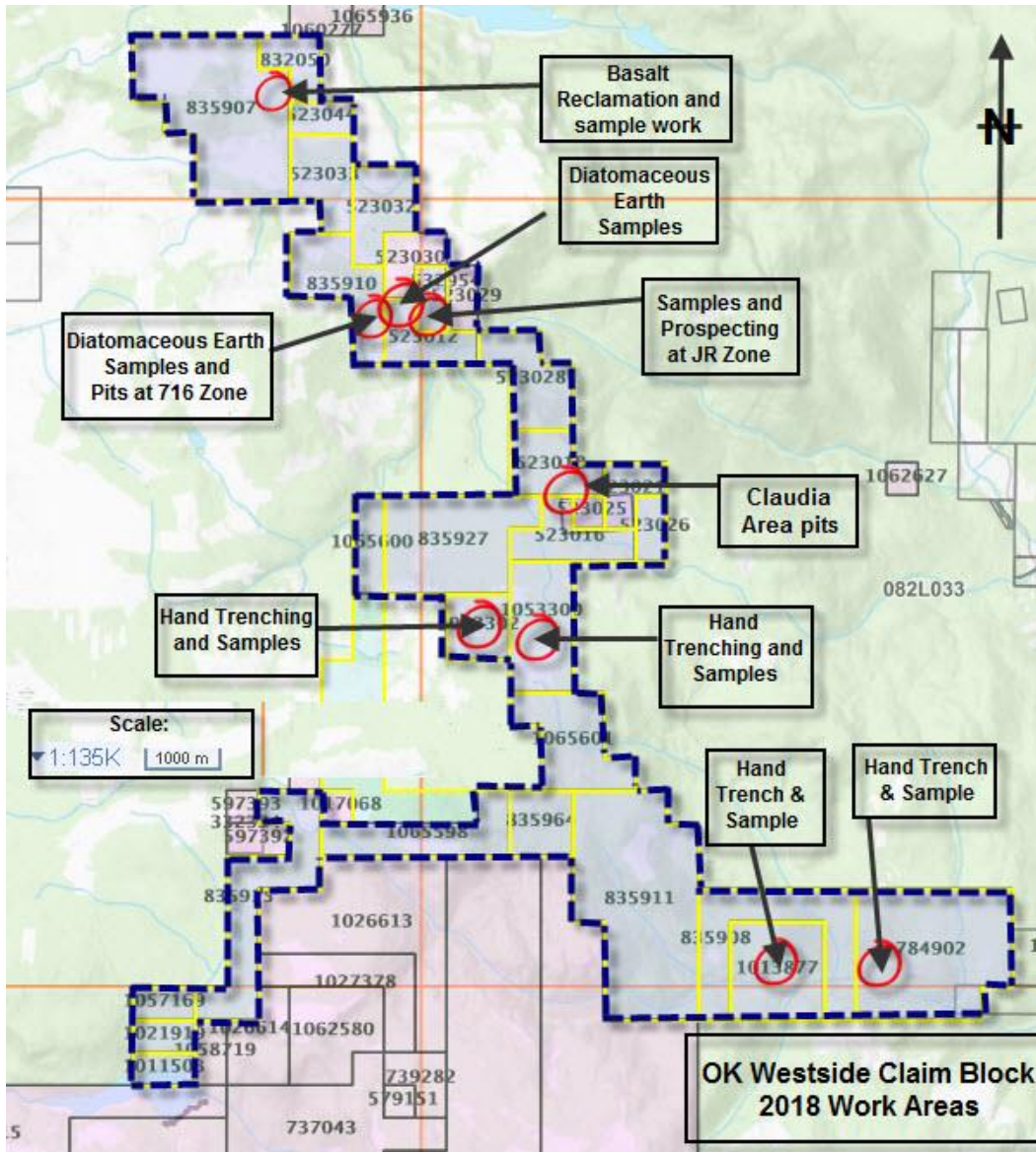
Known plutonic rocks on other properties referenced in the historic work conducted by Chevron Minerals, Prosperity Gold Corp and Golden Porphyrite Ltd. are confined to the extreme southwest part of these historic properties where granite and granodiorite of the Jurassic Valhalla pluton occur along Bouleau Creek.

Read (1995) relates these to Ingram stocks southwesterly from Falkland. Discussions of local geology for other parts of the property are derived from various Assessment Reports.

**2018 Assessment Work Description and Discussion:**

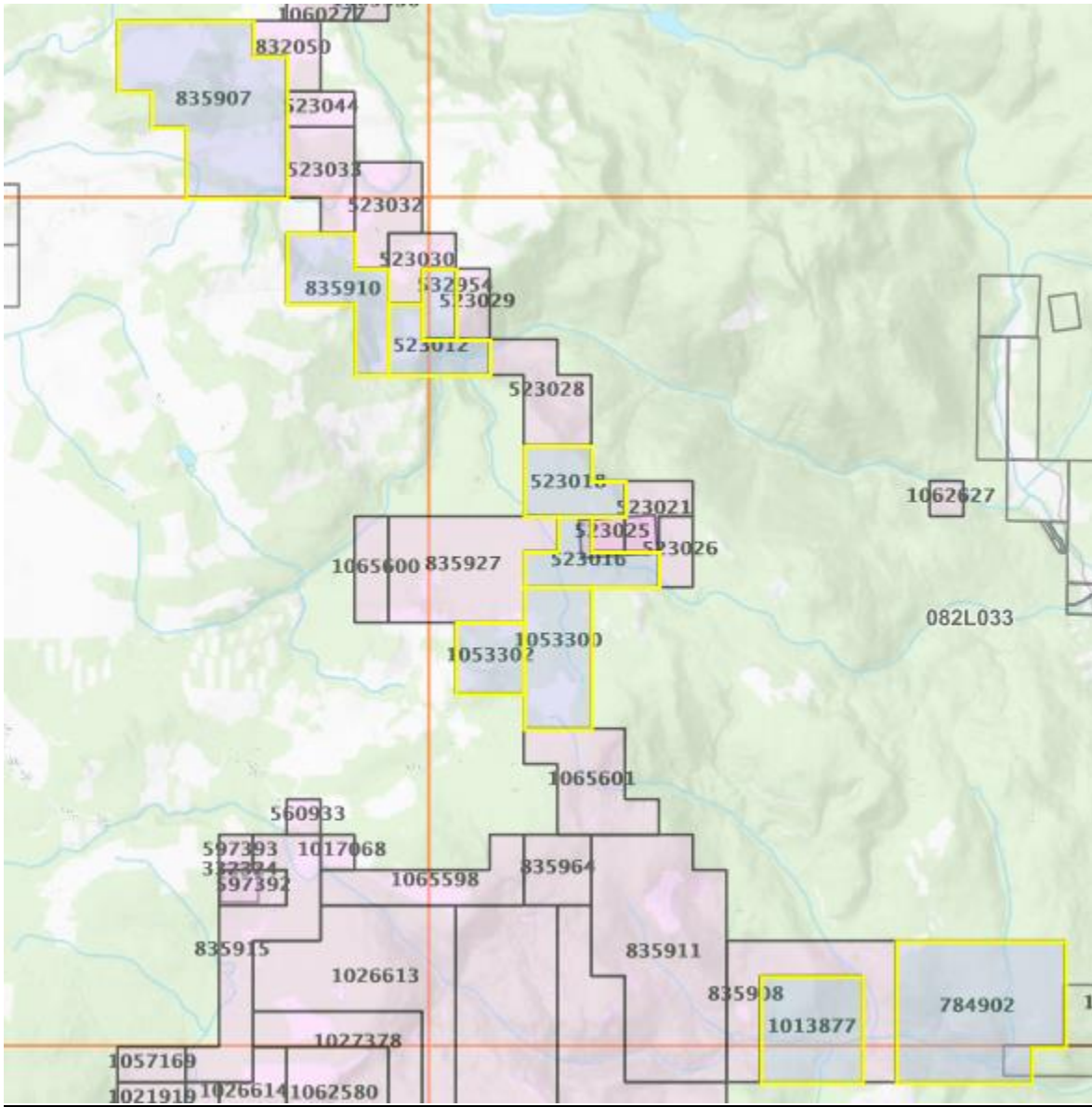
The 2018 work was conducted on Tenure #'s 523012, 523016, 523018 523025, 523032, 532954, 784902, 835907, 835910, 835927, 1013877, 1053300 & 1053302.

A total, after final tabulation, \$83,775 of assessment work was conducted in 2018. Of this amount \$40,000 was initially file for assessment credits. Additional net \$15,730.02 funds from PAC brought total work applied to \$55,730.02 under Event 5727957.



Map shows claim locations and work locations.



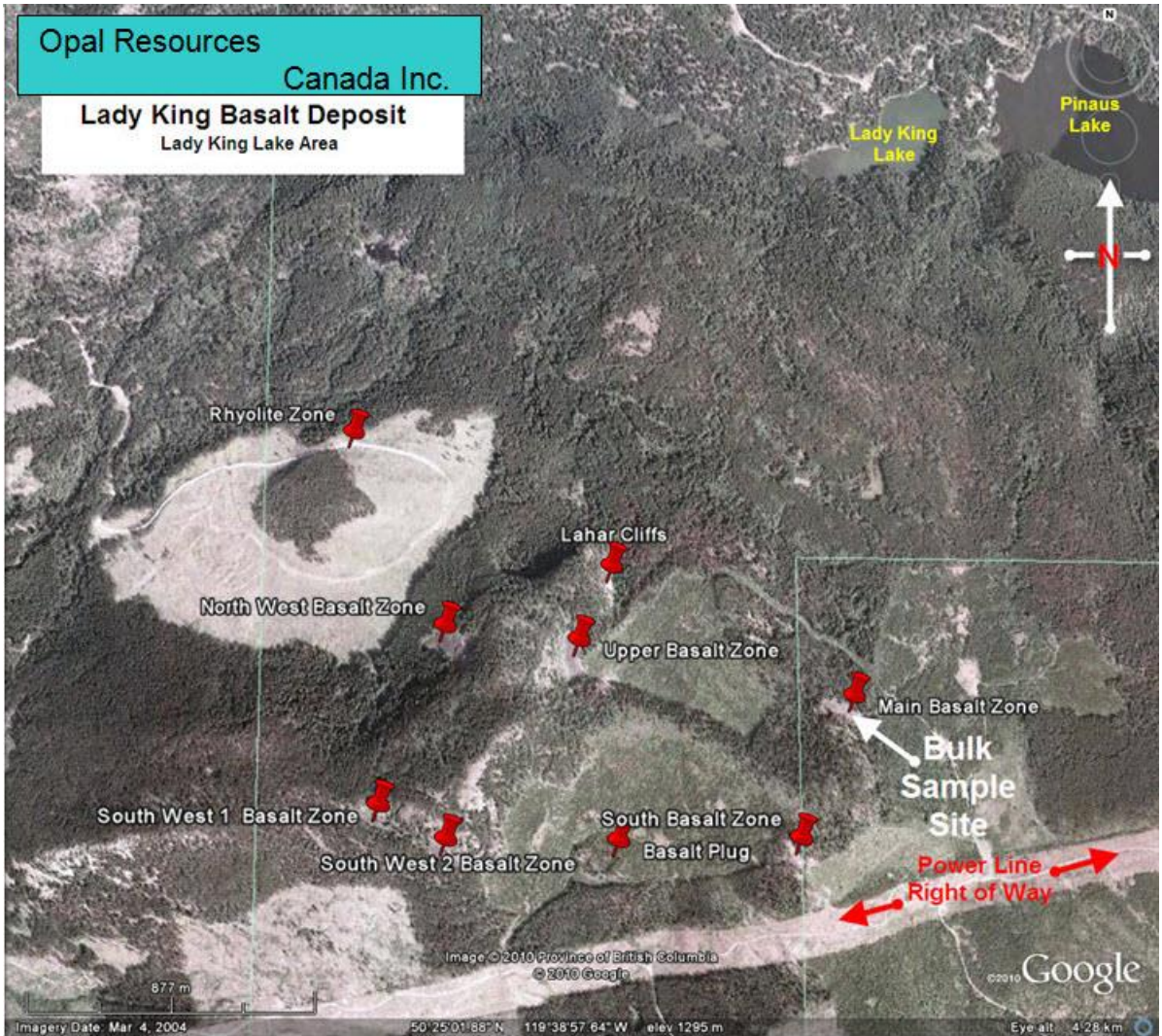


Tenures Worked on are 523012, 5223016, 523018, 523025, 532954, 784902, 835907, 835910, 1013877, 1053300, 1053302 as outlined above.

**Ewer MX-4-630 Area – Sample Basalt Area – Tenure 835907:**

Two volcanic extrusive centers (plugs or pipes) have been identified. A large deposit of columnar basalt occur on Tenure 835907 is being bulk sampled and other occurrences of columnar basalt on Tenures 835910, 523033, 835027 & 1053302 are being explored.

The northern basalt occurrence is being referred to as the Lady King Basalt deposit and is comprised of basalt, rhyolite and lahar. Most of the basalt is ‘columnar’, as is some of the rhyolite. The columnar basalt has potential commercial viability. Six readily accessible talus debris areas are exposed. The basalt plug appears to be greater than one kilometer in circumference. Bulk sampling and test pitting are proposed.

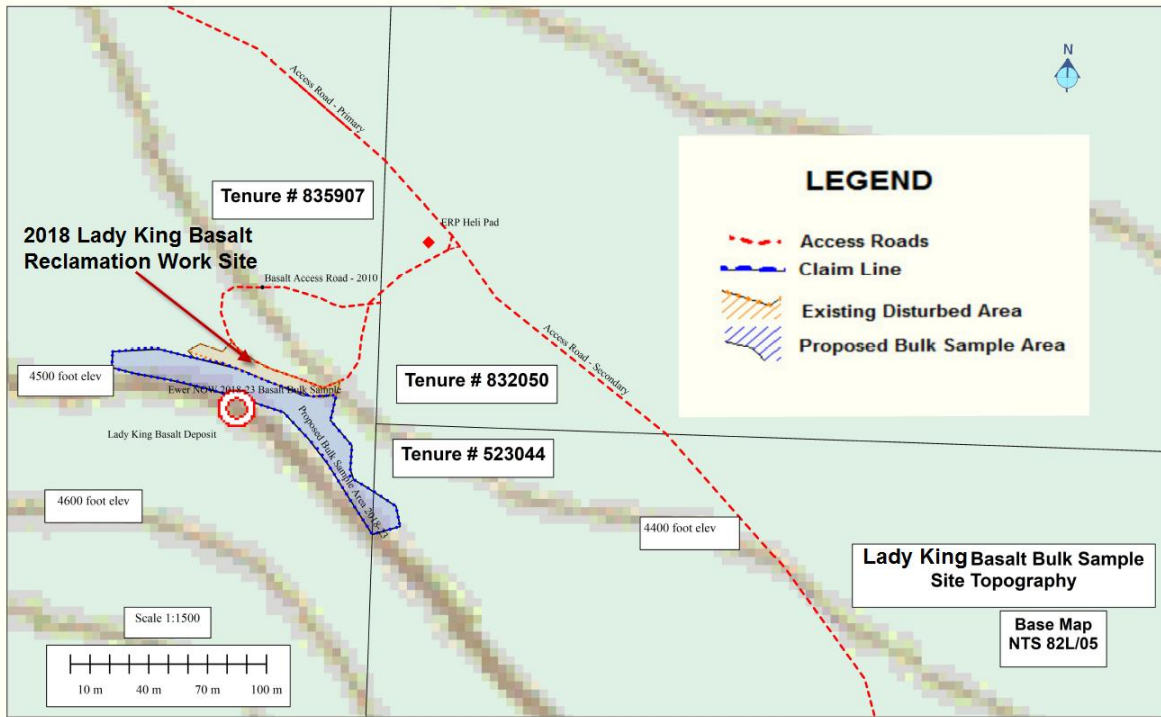
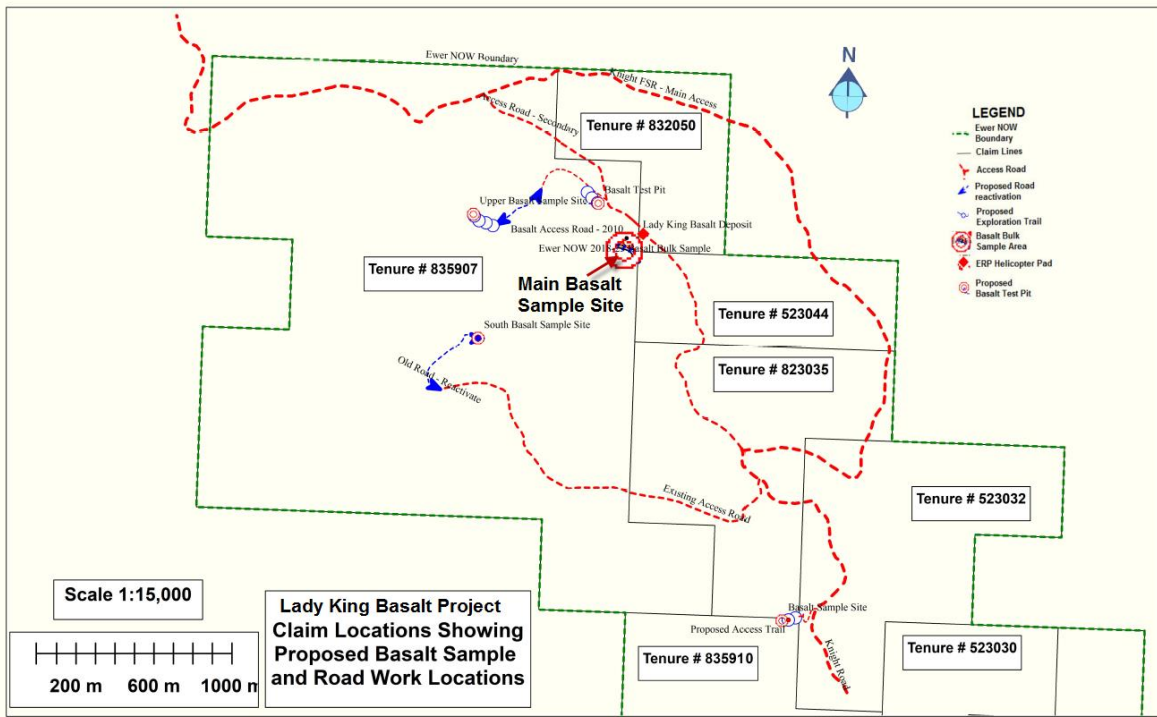


North Basalt Plug Satellite Overview Image

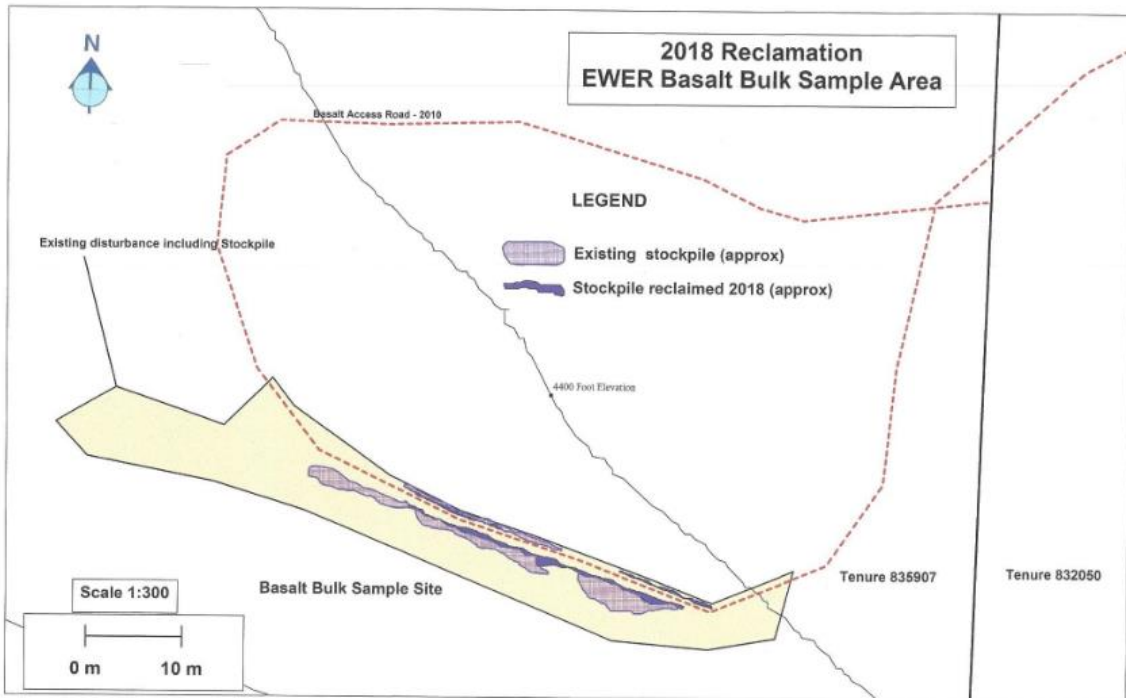
Mechanical reclamation work was conducted under MX-4-630 on Tenure 835907 over the period from on September 16, 2018 to November 29, 2018 using a JD 325 skid steer with both bucket and back hoe attachments. 110 tonnes of material was transported off the property for market testing. No new disturbance was conducted here in 2018.

The Second Volcanic plug is located on Tenures 1053302 and 835927 to the south west of the Klinker opal deposit. See Pete Zone work area information below.





In total 110 tonnes of columnar basalt material was removed from the stockpiled material in 2018 and was deemed as part reclamation. There was no new disturbance. Approximately 0.01 Ha was reclaimed. See map below for outline of existing disturbance, approximate stockpiles and area reclaimed in 2018.



**Dioptra Image 2 – NW ½ of Scree Pile Looking West**





**Dioptra Image 1 – SE ½ of Scree Pile Looking S**  
 West edge of stockpile is at extreme right.



This picture and the two above show the low angle of deposition/repose of in-situ segments of this deposit. The columns in this deposit range from 4 inches to 20 inches in thickness and columns up to 8 feet in length have been recovered.





Columns were loaded using a JD 325 Skid Steer and transported using tandem axle dump trucks with pup trailers which will haul approximately 25 tonnes, tridem axle trucks and pup which will haul up to 30 tonnes or tandem axle 20 foot trailers towed by 4x4 pick-up.

Longer columns are handled individually, carefully using straps or slings to avoid damage/breaking. These types of columns are most often used in special water-feature landscape installations such as the one pictured above.

Although fairly commonly used in the BC lower mainland and particularly in Whistler, BC columnar basalt material is seldom used in the rapidly developing Okanagan. The location of this large deposit, has good road access and is situated less than 15 kilometres from Hwy 97; a one hour haul from Vernon or Kamloops, BC indicates this deposit can be commercially viable if competitively priced. Evaluation and market testing is an on going activity.

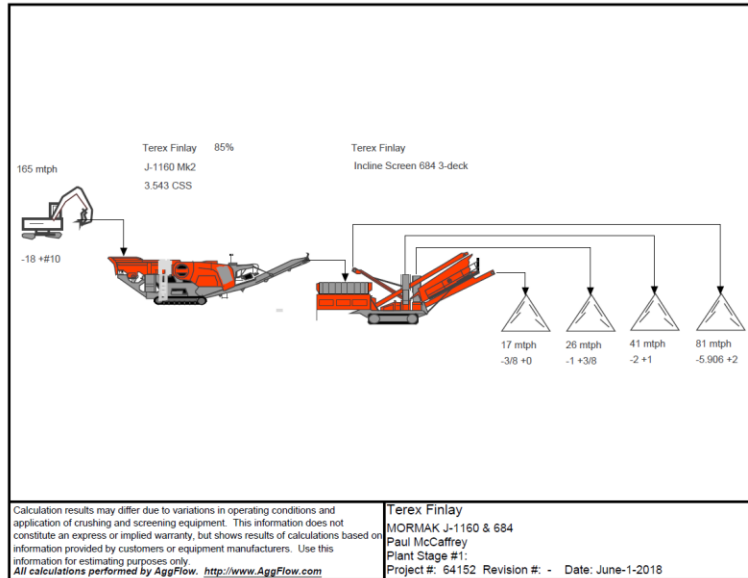


Smaller 18 inch lengths or less are plentiful and readily available for collection at the main Lady King Basalt site. This size material amenable for to use as hand built landscape features

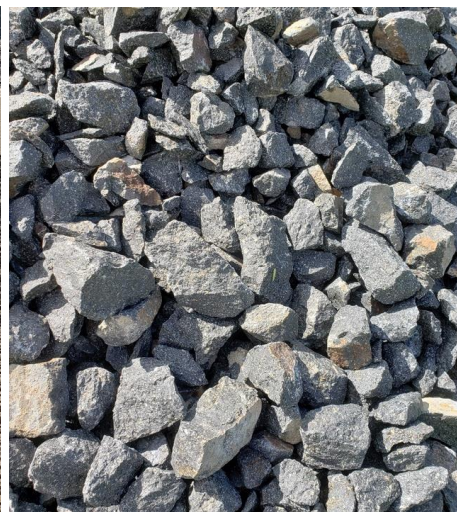


such as walls and rock gardens; or, it can be crushed for use as “Fire Proof” landscaping ground cover as a step towards Fire Smart Preparedness. A 10 to 12 tonne sample was crushed in May 2018 as a test sample and product marketing sample.

The above aggregate flow sheet was prepared by Mormak which shows their crushing screening plant could yield up to 165 tonnes per hour or 1320 tonnes per 8 hour day. Pending permit application proposes processing a 5 to 7 day test to produce a cumulative 7000 tonnes of various sized aggregate for minus 3 inch landscape ground cover at a cost of ~\$20,000 or ~\$3.00/ tonne for the crusher rental.



Adding labour, loader/excavator rental of \$10/ tonne and \$15/ tonne for trucking, the delivered cost for crushed basalt should be in the range of \$30 to \$35/ tonne or less. The 2018 retail market price for crushed basalt was upwards of \$75/ tonne.



The above pictured crushed basalt material marketed locally in 2018 is believed to be from a source on the Aberdeen Plateau south east of Vernon.

The above Lady King Basalt material is much 'blacker' and being somewhat crystalline is texturally more attractive than what was being sold in 2018.

Other basalt samples tested in 2018 were used to create fountains/gurglers to be used for landscape features. These items are some of the more than 150 pieces ranging in length from 10 inches to 36 inches were created for market testing in 2018.





A Second Volcanic plug pictured below is located on Tenure 1053302 to the south west of the Klinker opal deposit and extends onto 835927. See Pete Zone work information and maps with photo locations below.



**Picture 1**



**Picture 2**

This volcanic plug located south-west of the Klinker opal deposit is called Hailstone Mountain. The columns are near vertical in this deposit contrasting to the much lower angle of deposition in the Lady King columnar basalt deposit located on Tenure 835907 located to the north.

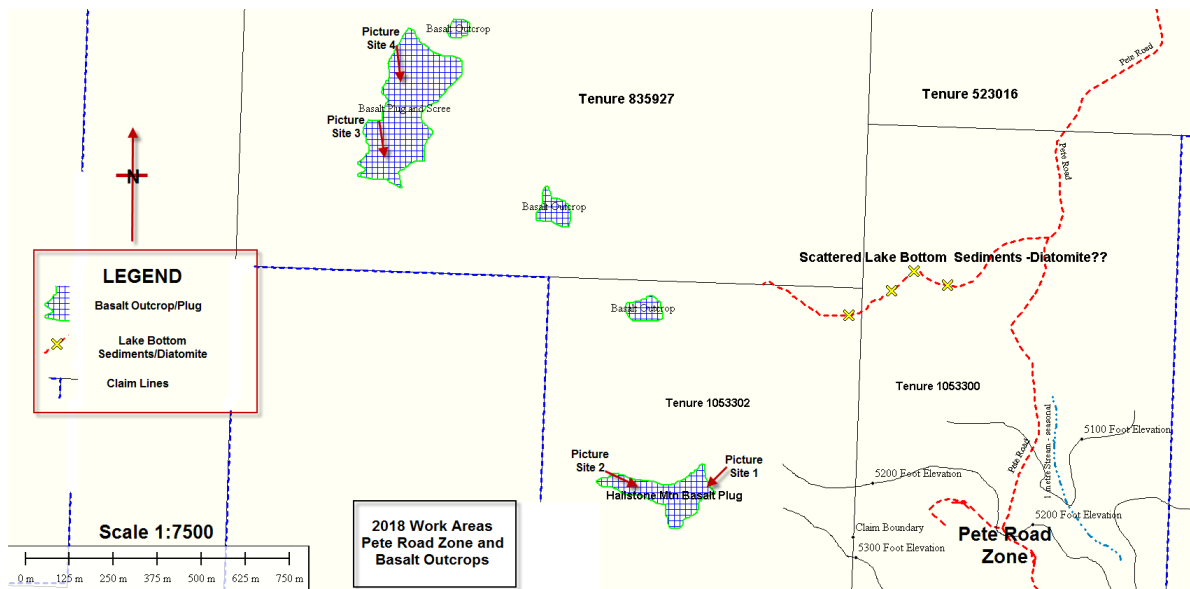
---

**Pete Zone Area Work 2018:**

Exposures of intensely fragmented black and brown rhyolite along these roads indicates the potential for a large source potential of landscape material. Bulk sampling by hand yielded several containers of material for testing and market evaluation.



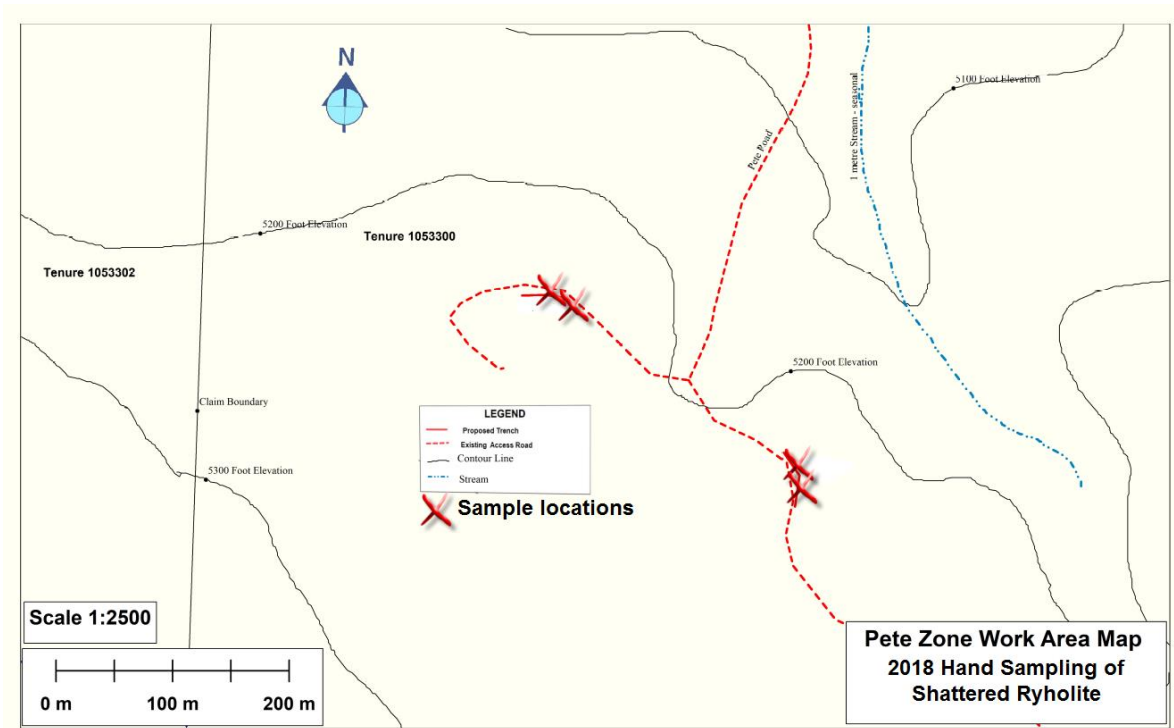
On June 10, 2018 nine (9) three-gallon pails, three from each of the various potential 'landscape products'; were collected by hand and taken to local landscaper supply companies for market evaluation. Larger samples will be collected once permitting is completed.



South Basalt Area Map

The map below shows proposed sample sites to test the fragmented material mentioned above, which occur on Tenure 1053300.





Also, briefly prospected other basalt exposures pictured below which occur on Tenure 835927 and occurrences of lake bottom sediments.



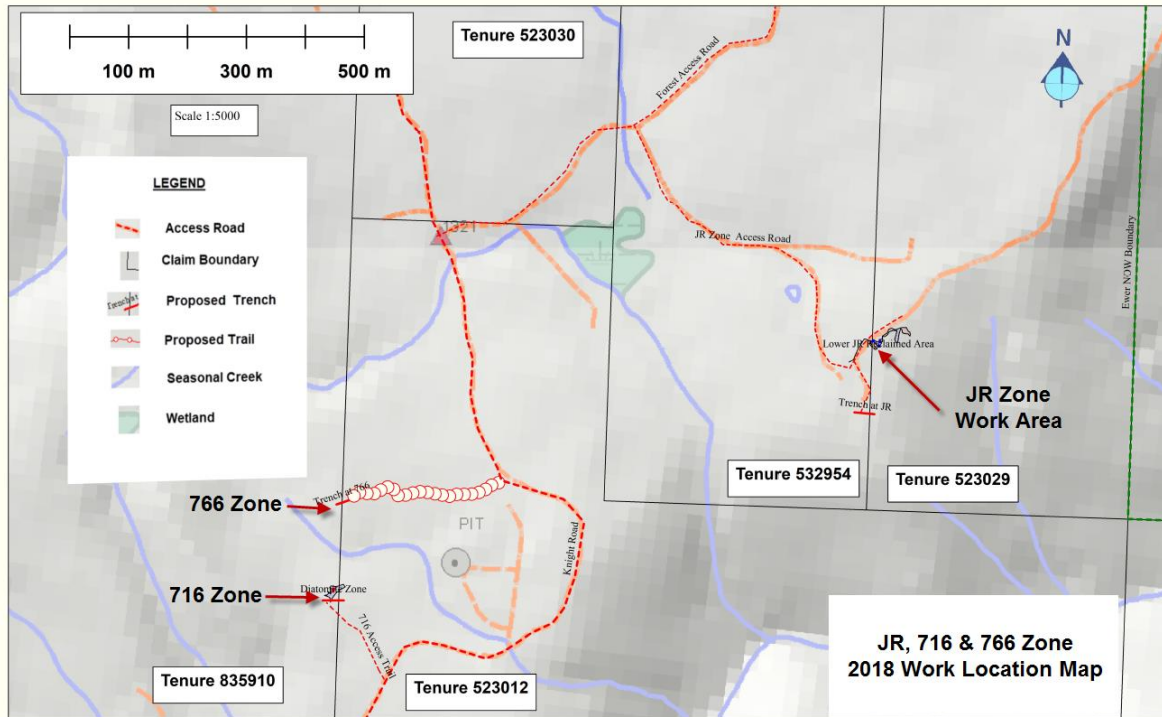
**Picture Site 3**



**Picture Site 4**

## 716 and JR Area – Tenures 835910, 523029 & 532954

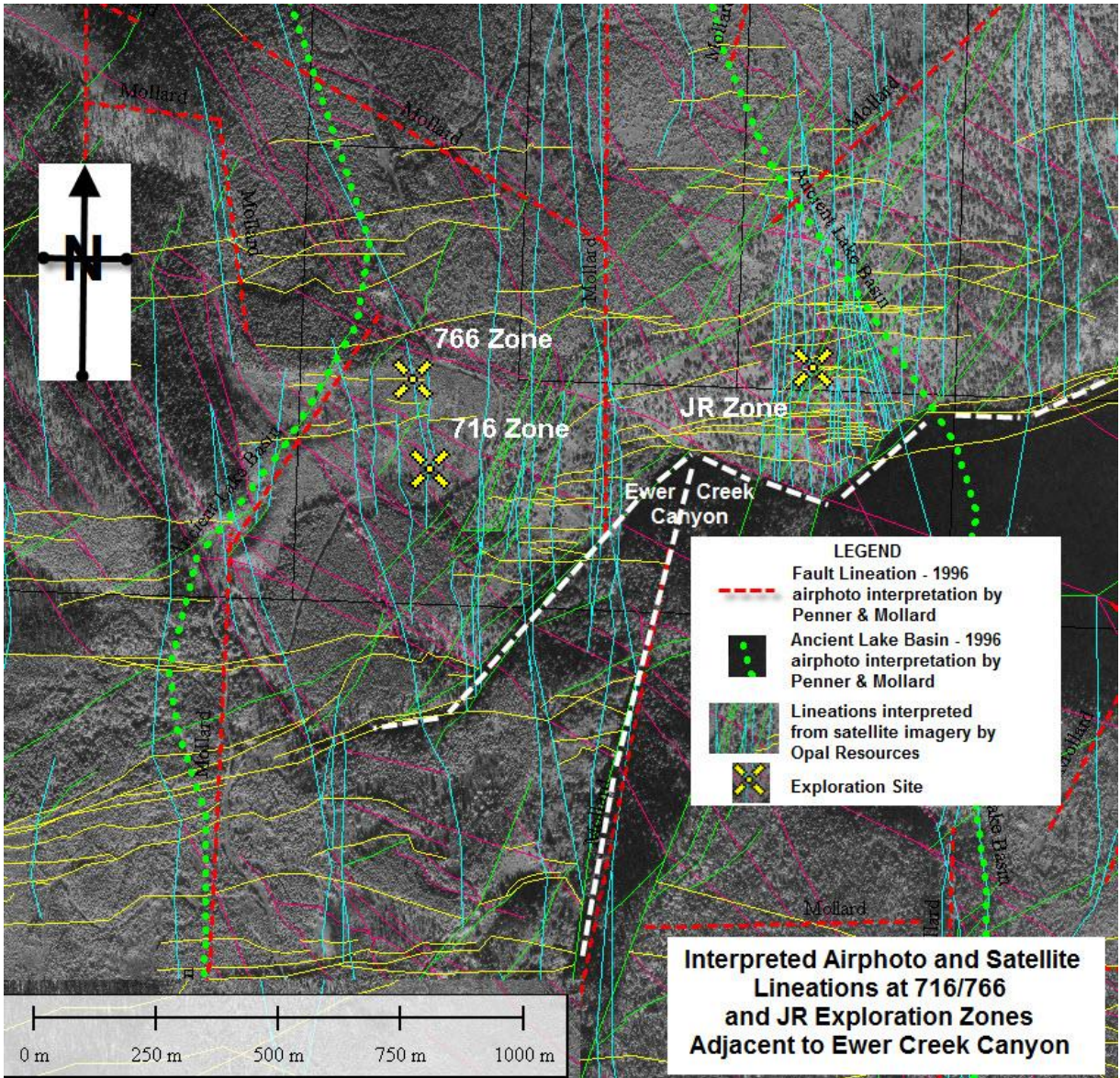
The work on the Ewer project consisted of hand reclamation work in the form of road rehabilitation, trench back filling and side-cast contouring in the 716 and JR Zones. No new mechanical disturbance was committed.



Peter Read (Regional Survey – Report # 25361) has described the various rock units in the northern portions of the area of interest. See also geological mapping and descriptions in AR 24909. Read noted an occurrence of Diatomite in the above referenced Regional Survey report. The area outlined as an ancient Lake Basin on the map below is considered prospective for occurrence of Diatomaceous Earth.

A rhyolitic volcanic assemblage was identified in this vicinity of the 716 Zone by Read; but the silica infillings of fractures and pyritization discussed below were not reference by Read.

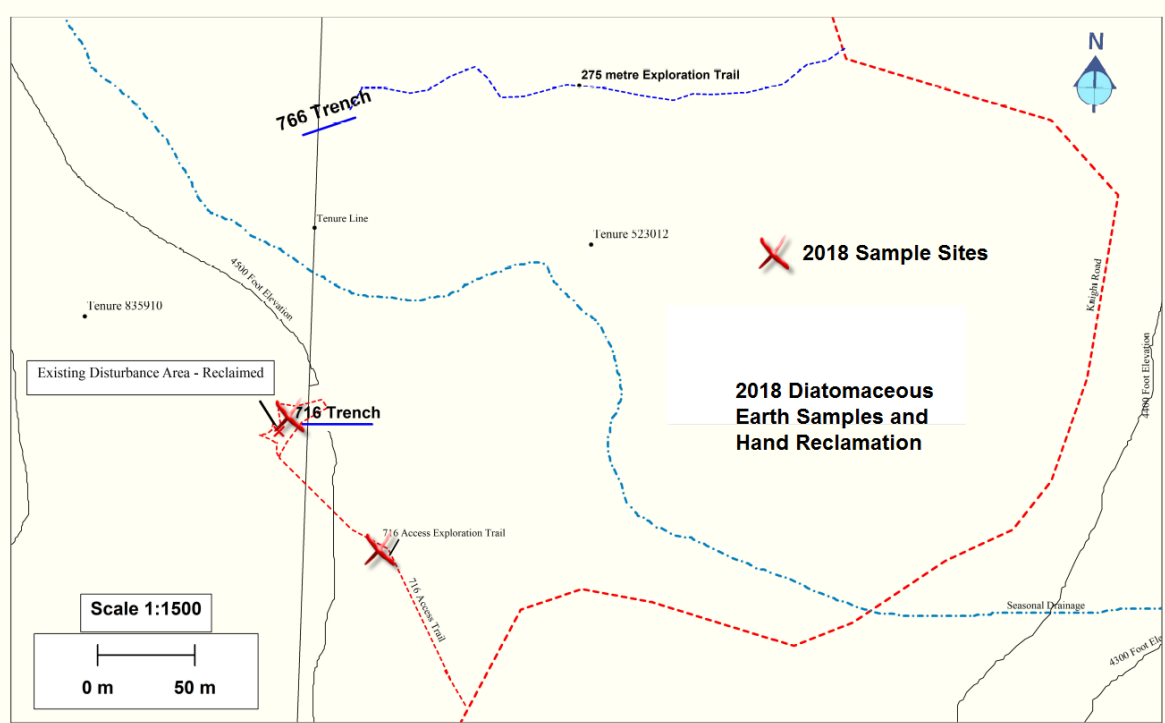




## **716 Zone**

During 2017 activity a layer of D.E. was discovered. This was sampled on July 8, 2018 and the open trench was partially backfilled by hand. The exposed white diatomaceous earth layer varies from approximately 10 cms to 15 cms thick.

In the photo-map above three sets of northerly trending and one set of east-west lineations (faults/lithological contacts??) appear to cluster in this area on satellite imagery. These orientations are similar to the structural controls mapped extensively at the Klinker Opal mine site. Several areas of concentration appear on the image map above. Two of these areas of lineation concentration are the 716/766 Zone and the JR Zone.



Grab samples taken in 2017 from the northerly trending fracture fillings of agate and some common opal in fractured rhyolitic volcanics at the 716 and 766 Zones were cut on a diamond saw and polished on a flat lap machine. It appears there have been several stages of silicification and minor pyrite mineralization on the infilled fractures. The finely disseminated iron pyrite is recommended for assaying for gold.

Work at the JR Zone has located Quartz/agate/opal veins which occur in fractured volcanics with rusty remnants of what appear to be iron-based minerals. Panned concentrates show some magnetite but other non-magnetic heavy dark minerals and one small particle of what might be gold. Samples have been prepared to submit for assay.



**JR Zone**

Non-mechanical physical and technical work in 2018 was comprised mainly of cleaning trenches for mapping and sampling. Samples of quartz vein/agate and opalized material were taken for processing and testing.

Initial panning of clean-up material gathered after cutting several pieces of this vein material on a diamond saw showed multiple small flecks of metallic material which may be free gold. Altered material collected along the vein at the upper JR trench was panned and dark heavy minerals and what appears to be one small fleck of gold were recovered. This requires confirmation; but if true, will be a very significant discovery. Work related to examining the cut pieces under binocular microscope is about to commence.

It is recommended that some 32 element ICP plus gold assays should be conducted.



Cavity fillings of brown opaline material and agate at Central and lower JR Zone trenches



Large Cavity filling of botryoidal agate at upper JR trench





Botryoidal agate and quartz/agate vein material at upper JR trench



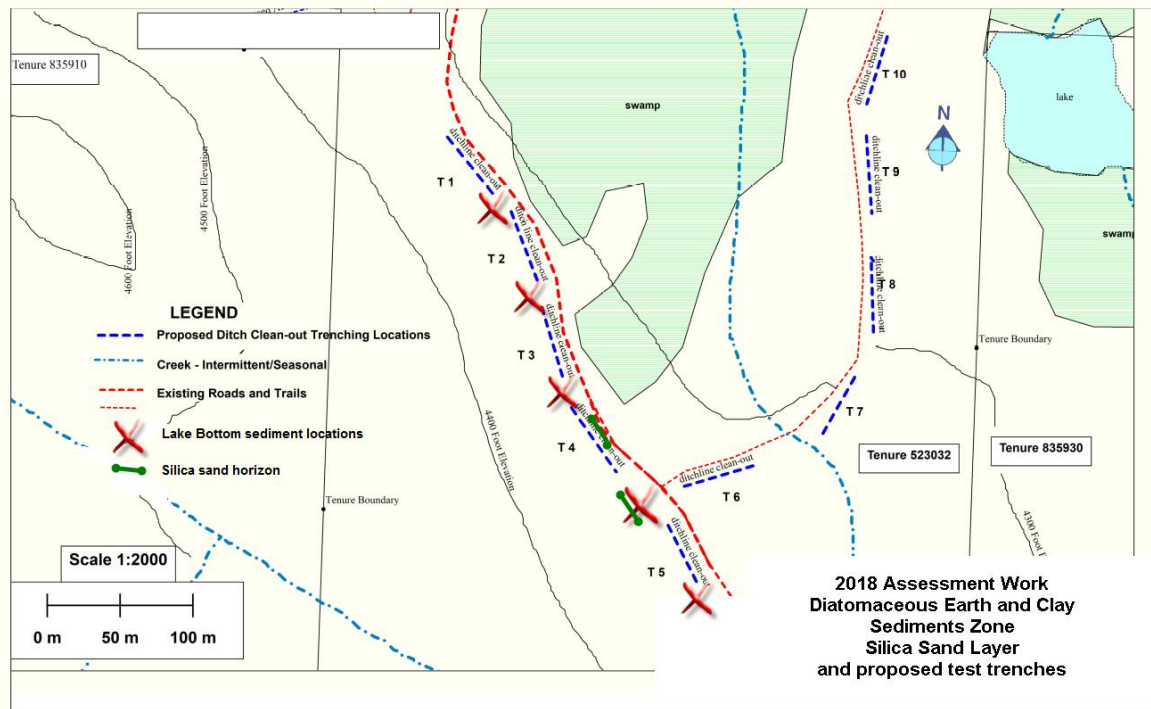
Quartz/Agate vein material located during cleaning of the JR Zone trenches for mapping



## Diatomaceous Earth Testing 2018 – Tenures 523032

Read 1995 noted Diatomite in the vicinity of Tenure 523032. A thick sequence of lake bottom sediments is exposed in the road cut and a layer of nearly pure silica sand appears to lay on top of this sequence; however, the area above this is covered with overburden. These sediments are dominantly comprised of clay minerals and some thin opaline layers there are irregular layers of white Diatomite included in the sequence.

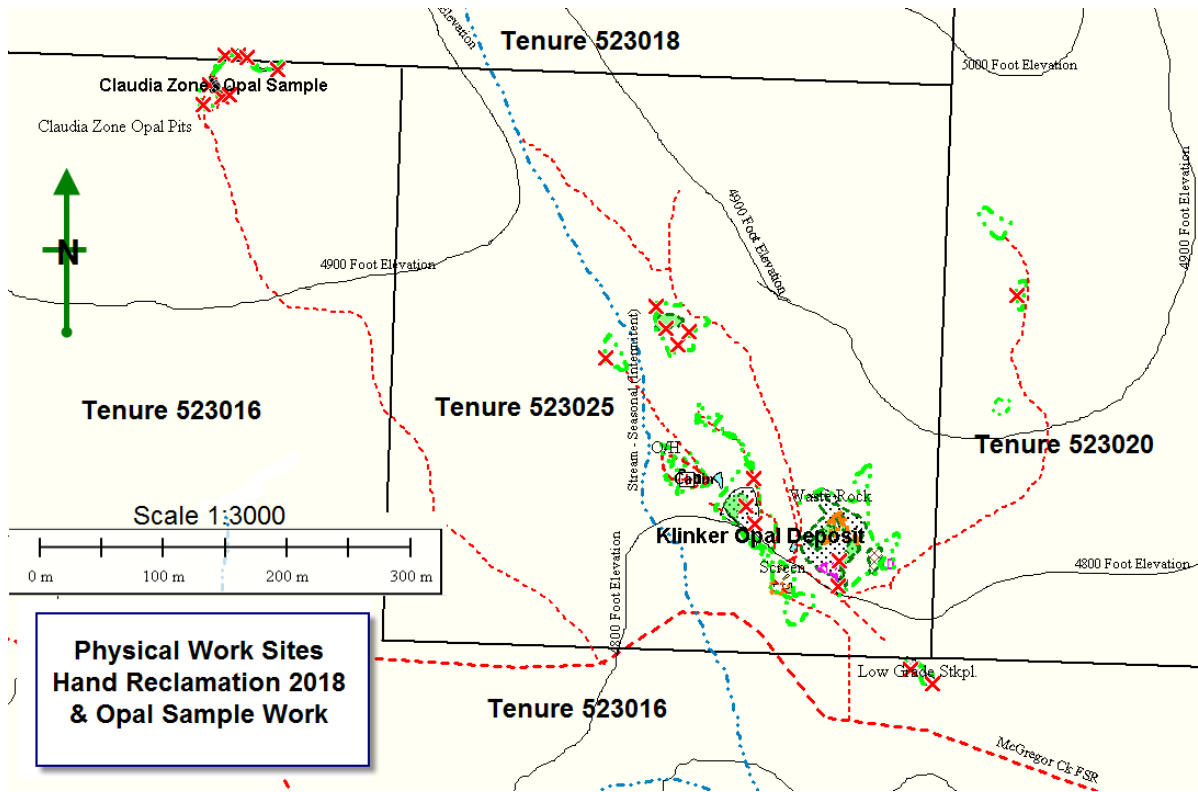
The silica sand as sampled has some clay contamination which readily washed out. This material was examined under binocular microscope and the transparent to translucent grains appear to have been molten; i.e. smooth-edged versus irregular grains.



## Claudia/Klinker Zone – Hand Reclamation and Opal Sampling – Tenures 523016, 523018, 523025, 523020

Non-mechanical work during the period June 23 to August 28, 2018 hand contouring of the dump areas was conducted by workers collecting opal and agate specimens. Thirty-three (33) person-days of physical work.

While searching for opal and agate the material on the dumps adjacent to past excavation at the Claudia Zone, the Bluebird, Caramel and Discovery pits and low-grade stockpile was hand contoured and spread out during this period of activity.



X – Physical work hand reclamation sites    Existing Disturbed Areas

Shovel, grub-hoe and Manual hammer and chisel work to locate and examine side cast rock at various open-cuts for agate/opalized material to be used as lapidary stone. Agate, common opal with sporadic precious opal was found during this activity.

Additional samples of cuttable pieces of precious opal were collected from the Claudia Pit, the Claudia North Pit and in the northern section of the Claudia SE Pit.

Several precious opal, common opal and agate cabochons were cut from the material collected from these activities.

Opal sampling and sorting from existing stockpiles in 2018 was conducted manually at the sample sorting site on the Klinker opal minesite from material gathered over the past several years. Approximately 6 tonnes of material was sorted.

In 2018 only manual physical work was conducted on stockpiles of the remaining unsorted material. Mechanical sorting, consisting of running stockpiled material through the screening/sorting plant can resume once permitting is in place.

**Opal Sorting and Sampling Activities/Methodology**

In 2018 a total of 22 man days were spent sampling opal from dumps and stockpiles at the Klinker opal site. Approximately 6 tonnes of previously stockpiled material were sorted and sampled for opal/agate. Some previously recovered opal/agate material was further worked into finished gemstones in order to determine gemstone value.

Typical mining industry extraction and concentrating techniques would result in

destruction of the opal. There is no mechanical or chemical means of releasing opal from the host rock and capturing/concentrating the opal. Each piece of rock needs to be visually examined to determine opal content prior to further processing by hand cutting, grinding and polishing. Even small concentrations of colorful opal can be utilized.

All of the stockpiled material processed has to be clean/cleaned, dried and hand sorted to detect and extract the contained opal material. Most of this sampling and sorting work activity in 2018 was conducted by R. W. Yorke-Hardy.

The rock is hand sorted down to 60-80 mesh sizes to collect all of the precious and semi-precious opal and agate. Follow-up sorting, grading, gemstone cutting and valuation is conducted off site.

The collected opal bearing material, the process referred to as “sampling” techniques currently being used, have evolved over time since 1994 and have proven to be the only way to test this opal deposit. In this way the overall value of the Opal can be assessed.

The opal gathering and sorting methods, having been developed and used since our first program in 1994, have proven over time to be the only effective and most efficient technique for gathering opal to analyze. Test marketing is currently being conducted out of a gallery in Whistler part owned by Chris Yorke-Hardy.

Unlike exploring for other minerals, it is not possible to grab an opal rock sample and have it crushed, pulverized and assayed to determine its valuable mineral content; i.e. precious opal gemstone material. This action would destroy these opal gemstones.

Furthermore, there is no chemical or mechanical method of collecting opal and no analytical method to determine grade of an opal. In order to evaluate the various opal deposit(s) on the property it is necessary to separate the opal bearing material from waste rock “physically” using a person’s hands and eyes. This process involves carefully breaking and/or cutting larger rocks down to expose and segregate the contained opal; this followed by opal cutting prior to having a gemstone that can be “valued” and used in jewellery creation.

Only at the cut stone stage can the true value of the gemstone be determined and it is only at this stage when the economic potential of this deposit, and likely any precious opal deposit, can be assessed.

Another issue regarding market development is market awareness and price awareness. Unlike diamonds and other precious gemstones and metals there is not a commodities market for opal. There are international standards for grading and pricing opal but much of the valuation is subjective.

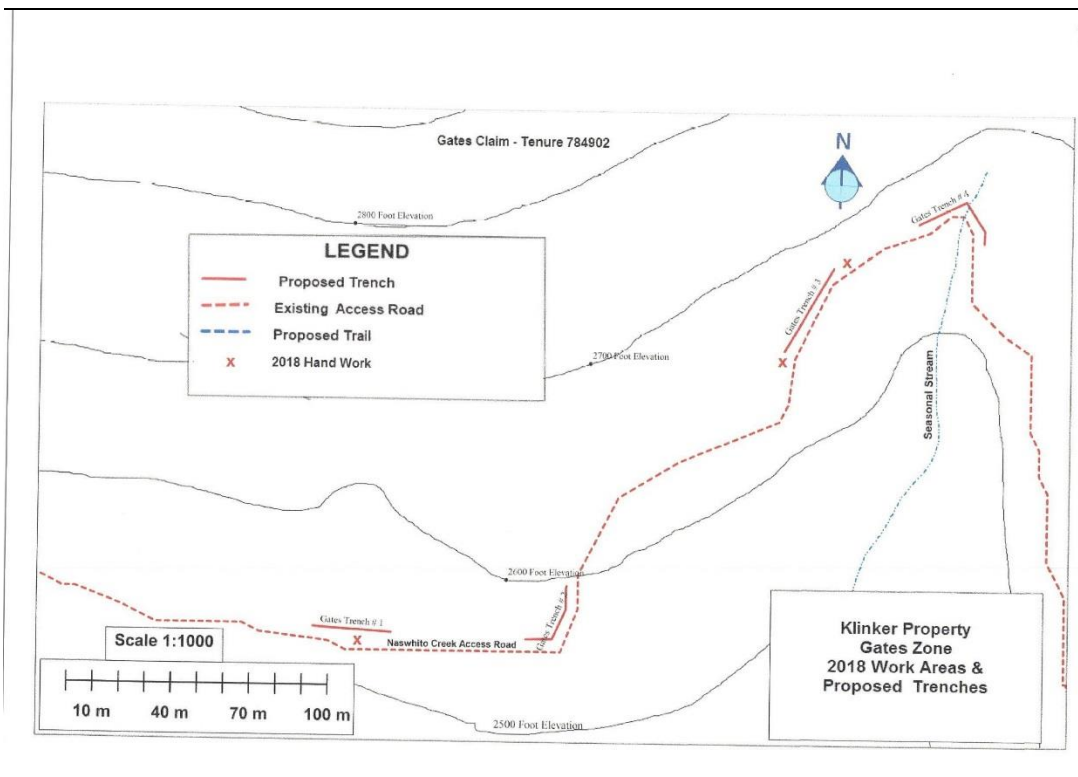
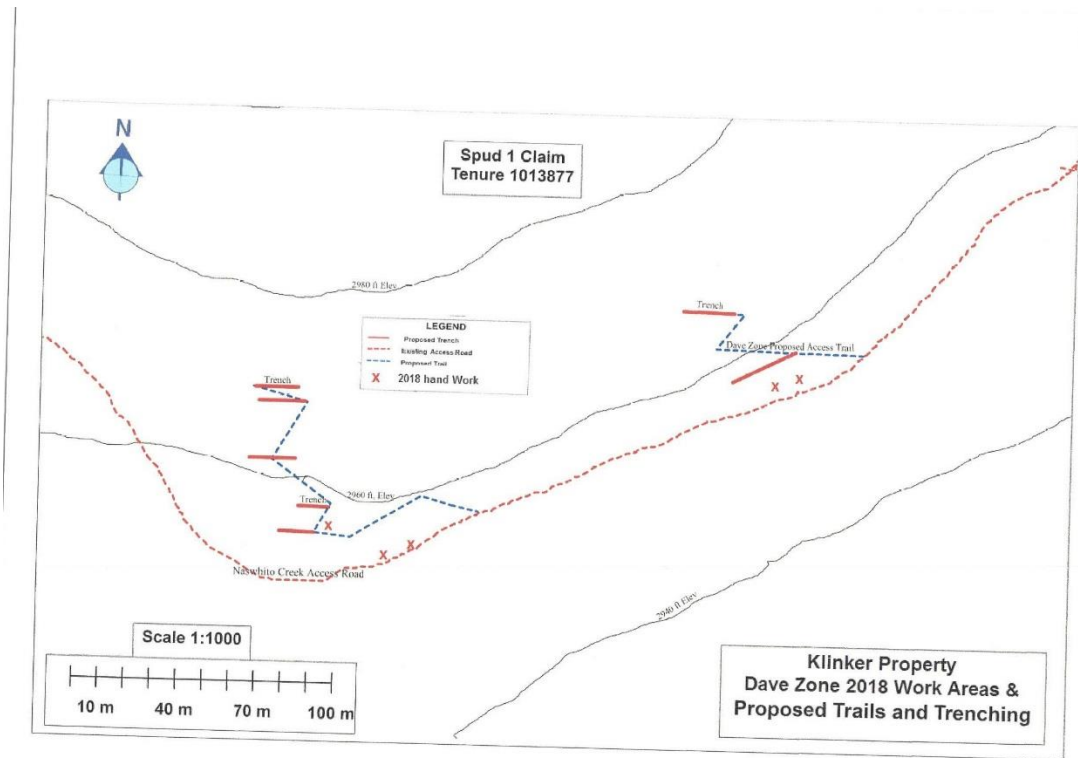
This opal collection activity in the field is not considered “analysis of a mineral or rock sample including a bulk sample to assess characteristics pertinent to the assessment of a mineral resource”. Rather, the physical activity of gathering the opal bearing material does not provide any determination of value or grade i.e. “assess characteristics pertinent to the assessment of a mineral resource”. This part of our activity simply enables us to physically acquire/obtain the opal bearing material in a form which will then allow said opal bearing material to be examined obtaining a preliminary visual verification and to then proceed to the analysis/valuation process in order to “assess characteristics pertinent to the assessment of a mineral resource”. This technique is the only one available.

Klinker Opal deposit and adjacent analysis is an on-going activity. Current Bulk Sample permitting application is being processed to allow a 1000 tonne bulk sample to be extracted. Since 1994 approximately 600 tonnes of opal bearing material has been extracted. Of this extracted amount approximately 200 tonnes remains to be sorted and sampled.

---

## Dave and Gates 2018 Work Area – Tenures 1013877 and 784902

One field day was spent prospecting areas planned for trenching once permits are obtained. Samples were collected for pan sampling. One piece of semi-massive arsenopyrite in granular quartz material was located at the Gates Zone.



**Equipment/Supplies Used:**

Site transportation of personnel and materials was conducted by F350 – crew cab. A second F350 – crew cab was on site as an emergency vehicle during mechanical operations. Supplies and equipment included required fire tools and Level 2 first aid equipment. Hand tools used consisted of shovels, picks, power saw, chains and slings.

A JD 325 skid steer and attachments (including backhoe with stationary thumb and two buckets) were transported to the site and were used to conduct reclamation work. F 350 pickups were used to haul equipment, supplies and personnel.

A total of 76 vehicle days at an assessed cost of \$6,330. A 20 ft tandem axel trailer was used within the property to haul skid steer c/w attachments and sampled opal bearing material, for transporting sampled basalt and for mob & de-mob of equipment. Opal Resources Canada Inc.'s stationary man-camp was used from June 16, 2018 to October 25, 2018.

Contract trucking was used to haul loads of basalt from the main basalt sample site as part of the reclamation work program. Tri-Axle truck and pup and tandem axle dump trucks were used.



2010 JD 325 with backhoe attachment used for reclamation and basalt sampling/testing.



Opal cutting and processing is conducted using diamond saws, diamond grinding and polishing wheels.



## **Conclusions and Recommendations**

Precious opal proximal to the north-west corner of Lot 5251 had been located but had not been mechanically physically explored. Similarly, ground to the immediate south may also be a favourable location for precious opal if the clast supported lahars extend to the south. An excavator with hydraulic hammer should be used to open a one to two meter deep trenches/pits in the area of the main three Claudia pits.

It is recommended that these opal showings be further explored given the apparent positive results of the 2017 program. Further processing of sampled material is required to obtain final determination of economic value and to relate that value back to the overall value of the deposit.

The development of additional precious opal occurrences corroborated in 2016 and 2017 will enhance the economic potential of the overall Okanagan Opal Business being pursued. The greatest deterrent to commercialization remains lack of financing to further develop the product line and to develop the market for finished product.

Exploration in the Ewer/Klinker claim block to date has resulted in discovery of a number of agate, silica and jasper alteration areas, some of which are associated with the contact of volcanic lahars with a broad, lake sediment unit indicative of a near-surface spring environment. It is anticipated that further precious opal may also be discovered. Removal of overburden with a small track mounted excavator is recommended to expose precious opal bearing outcrop.

The potential for ground covered by the claims to host epithermal gold mineralization associated with Tertiary volcanics has not been fully assessed. The location of a Quartz/Agate vein system at the JR Zone in 2017 indicates the potential for free gold mineralization. Further evaluation of the possible gold potential of the property is required.

The extensive quartz stockwork and zone of calcite veining at the Dave Zone is recommended for physical work to further explore and sample these zones.

An extensive deposit of Columnar Basalt has been identified. Bulk sampled material is being test marketed. A detailed product development, market study and selling campaign is justified. Potentially extensive occurrences of diatomaceous earth at the main basalt showing and the surrounding region warrants further testing and exploration. Removal of overburden with a small track mounted excavator is recommended to expose DE zones.

### **Additional Recommendations**

- Data review of all mineral deposit information from Assessment reports available of Minfile/Map Place and ARIS
- Preliminary sampling over targets, to include heavy mineral (pan) sampling, stream sediment, soil, biogeochemical and rock sampling with concurrent prospecting
- If rock sampling is positive for gold/silver, detailed work may include soil grids, trenching, magnetometer, VLF-EM and possibly IP surveys
- Review of adjacent mineral deposits and showings which might be held by others
- Any targets which develop from this first phase would be diamond drilled, in a second phase of exploration.

**Cost Statement:**

All equipment used is owned by Opal Resources Canada Inc. and was charged out in accordance with the following "Comparative Cost Sheet". This chart compares 'ORCI' rates charged out for assessment work activities and the rates charged are below 2017 Blue Book Rates.

Detailed daily cost, personnel and activity sheets are provided starting on Page 46 to 49 following the Summarized Cost Statement sheet on Page 45.

Rental equipment - Item	4 week rental rate	prorated daily charged	2016-17 Blue Book Hourly Allowed	2016-17 Blue Book Prorated Daily	Differential	Comment
20# Hydraulic chipping hammer	350	12.50		20.80	8.30	versus blue book pneumatic chipping hammer based on 4 - 10 ft lengths versus air hose
40 ft hydraulic hose	160	5.71				
pressure regulator	120	4.29				
couplers - hammer to skid steer	30	1.07		3.45	2.38	Chipping Bit
Accessory - mol point	30	1.07				estimate based on 15 per 1.00 thousandth inch wear
14" wet tub saw	480	17.14				
Accessory - diamond blade	50	1.79				
7" wet tub saw	270	9.64				
Accessory - diamond blade	30	1.07				estimate based on 15 per 1.00 thousandth inch wear
1 - 4500 watt generator	500	17.86		55.60	37.74	plus fuel and lubricants
24" bar chain saw	375	13.39		29.55	16.16	plus fuel and lubricants
2 - 1 1/2" Hi pressure pumps	1200	42.86		38.90	-3.96	plus fuel and lubricants
2 - 1 1/2" Intake Hoses		0.00		0.00	0.00	
2 - 1 1/2" discharge Hoses - 300ft		5.00		9.63	4.63	
150' - 1 1/2" Fire Hose	80	2.86		11.25	8.39	3.75x3
Fire Hose nozzle	45	1.61				
325 JD Skid Steer	3120	111.43	35.65	285.20	173.77	without operator plus fuel and lubricants, insurance estimate based on power trencher
9 ft. backhoe attachment	750	26.79		12.50	8.21	
tooth bucket for Skid steer	120	4.29				
smooth bucket for skid steer	150	5.36				
pallet forks for skid steer	200	7.14				
16 ft equipment trailer	160	5.71		49.20	43.49	
20 ft equipment trailer	200	7.14		67.50	60.36	
300 gal water tank on trailer		20.00		46.60	26.60	16.40 for tank+31.20 for trailer
1000 gal water tank		5.00		21.25	16.25	
5000 # winch		5.00				
Yamaha 450 ATV	1500	50.00		52.83	2.83	
1st Aid gear - WCB	500	17.86		43.87	26.01	Level 3 first aid room 160.92 - 117.05 ETV - vehicle
Radio Equipment - WCB		25.00				
Emergency Transport vehicle		117.05				1 ton F350 crew cab with canopy plus fuel and lubricants, insurance and licensing as applicable
5% contingency		545.62				
		27.28				
<b>Total</b>		<b>572.90</b>			<b>431.17</b>	<b>Additional Differential based on Blue Book 2016-17 rates</b>
		<b>Charged out Rate</b>			<b>971.17</b>	<b>Rate using Blue Book</b>

Communication in camp

- 1 two-way radio – base station in camp
- 1 two-way radio – mobile in truck
- 1 two-way radio – hand held
- Satellite internet communication system, Skype phone, computer & monitor

**Comparative Cost Sheet**

## **COST STATEMENT SUMMARY**

See detailed Cost Breakdown following this Page:

**COST STATEMENT 2018 Exploration Program: Klinker and Ewer**  
**PROGRAM COST SUMMARY: March 20, 2018 to November 29, 2018**

**2018 Work Program For Assessment - Costs**

Date	Personnel	Description	Work Performed	Wages	Veh. Desc.	Vehicle Cost	Food & Accom	Tools/Equip Cost	Fuel Charge	Equipment Used	Property	Tenure #	Activity and comments	Total
20-Mar	Bob Yorke-Hardy	Technologist	Basalt Program	\$450	F 360	\$393	\$50				Ewer		Travel to ORCI Office from Whistler Shop	\$893
	Matt Yorke-Hardy	Supervisor	Basalt Program	\$240	F350	\$24	\$100				Ewer		Plan & Set up sampling area	\$564
	Gord Slicer	Supervisor	Basalt Program	\$280			\$50				Ewer		Plan & Set up sampling area	\$330
21-Mar	Bob Yorke-Hardy	Technologist	Basalt Program	\$450	F 360						Ewer		Plan & Set up sampling area	\$550
	Matt Yorke-Hardy	Labourer	Basalt Program	\$240	F350	\$24	\$50				Ewer		Plan & Set up sampling area	\$314
	Gord Slicer	Supervisor	Basalt Program	\$280			\$100				Ewer		Plan & Set up sampling area	\$380
22-Mar	Bob Yorke-Hardy	Technologist	Basalt Program	\$450	F 360		\$50				Ewer		Plan & Set up sampling area	\$500
	Matt Yorke-Hardy	Labourer	Basalt Program	\$240	F350	\$24	\$100				Ewer		Plan & Set up sampling area	\$360
	Gord Slicer	Supervisor	Basalt Program	\$280			\$50				Ewer		Plan & Set up sampling area	\$340
23-Mar	Bob Yorke-Hardy	Technologist	Basalt Program	\$450	F 360	\$393	\$50				Ewer		Travel to Whistler - deliver Sample	\$893
	Matt Yorke-Hardy	Labourer	Basalt Program	\$240	F 360		\$50				Ewer		Sampling Basalt	\$350
	Gord Slicer	Supervisor	Basalt Program	\$280			\$100				Ewer		Sampling Basalt	\$380
24-Mar	Matt Yorke-Hardy	Labourer	Basalt Program	\$240	F350	\$24	\$50				Hi Hammer drillbits		Sampling Basalt	\$374
	Gord Slicer	Supervisor	Basalt Program	\$280			\$100				Hi Hammer drillbits		Sampling Basalt	\$380
25-Mar	Matt Yorke-Hardy	Labourer	Basalt Program	\$240	F350	\$24	\$50				Hi Hammer drillbits		Sampling Basalt	\$374
	Gord Slicer	Supervisor	Basalt Program	\$280			\$100				Hi Hammer drillbits		Sampling Basalt	\$380
26-Mar	Matt Yorke-Hardy	Labourer	Basalt Program	\$240	F350	\$24	\$50				Hi Hammer drillbits		Sampling Basalt	\$374
	Gord Slicer	Supervisor	Basalt Program	\$280			\$100				Hi Hammer drillbits		Sampling Basalt	\$380
27-Mar	Matt Yorke-Hardy	Labourer	Basalt Program	\$240	F350	\$24	\$50				Hi Hammer drillbits		Sampling Basalt	\$374
	Gord Slicer	Supervisor	Basalt Program	\$280			\$100				Hi Hammer drillbits		Sampling Basalt	\$380
28-Mar	Matt Yorke-Hardy	Labourer	Basalt Program	\$240	F350	\$24	\$50				Hi Hammer drillbits		Sampling Basalt	\$374
	Gord Slicer	Supervisor	Basalt Program	\$280			\$100				Hi Hammer drillbits		Sampling Basalt	\$380
29-Mar	Matt Yorke-Hardy	Labourer	Basalt Program	\$240	F350	\$24	\$50				Hi Hammer drillbits		Sampling Basalt	\$374
	Gord Slicer	Supervisor	Basalt Program	\$280			\$100				Hi Hammer drillbits		Sampling Basalt	\$380
30-Mar	Matt Yorke-Hardy	Labourer	Basalt Program	\$240	F350	\$24	\$50				Hi Hammer drillbits		Sampling Basalt	\$374
	Gord Slicer	Supervisor	Basalt Program	\$280			\$100				Hi Hammer drillbits		Sampling Basalt	\$380
31-Mar	Matt Yorke-Hardy	Labourer	Basalt Program	\$240	F350	\$24	\$50				Hi Hammer drillbits		Sampling Basalt	\$374
	Gord Slicer	Supervisor	Basalt Program	\$280			\$100				Hi Hammer drillbits		Sampling Basalt	\$380
01-Apr	Matt Yorke-Hardy	Labourer	Basalt Program	\$240	F350	\$24	\$50				Hi Hammer drillbits		Sampling Basalt	\$374
	Gord Slicer	Supervisor	Basalt Program	\$280			\$100				Hi Hammer drillbits		Sampling Basalt	\$380
02-Apr	Matt Yorke-Hardy	Labourer	Basalt Program	\$240	F350	\$24	\$50				Hi Hammer drillbits		Sampling Basalt	\$374
	Gord Slicer	Supervisor	Basalt Program	\$280			\$100				Hi Hammer drillbits		Sampling Basalt	\$380
03-Apr	Matt Yorke-Hardy	Labourer	Basalt Program	\$240	F350	\$24	\$50				Hi Hammer drillbits		Sampling Basalt	\$374
	Gord Slicer	Supervisor	Basalt Program	\$280			\$100				Hi Hammer drillbits		Sampling Basalt	\$380
04-Apr	Matt Yorke-Hardy	Labourer	Basalt Program	\$240	F350	\$24	\$50				Hi Hammer drillbits		Sampling Basalt	\$374
	Gord Slicer	Supervisor	Basalt Program	\$280			\$100				Hi Hammer drillbits		Sampling Basalt	\$380
05-Apr	Matt Yorke-Hardy	Labourer	Basalt Program	\$240	F350	\$24	\$50				Hi Hammer drillbits		Sampling Basalt	\$374
	Gord Slicer	Supervisor	Basalt Program	\$280			\$100				Hi Hammer drillbits		Sampling Basalt	\$380
	Bob Yorke-Hardy	Technologist	Opal Quality Tests	\$450	F350	\$152	\$100				Klinker		Opal cutting	\$732
	Chris Yorke-Hardy	Cutter	Gem Cutter	\$320			\$100				machine and saw		Opal cutting	\$420
06-Apr	Matt Yorke-Hardy	Labourer	Basalt Program	\$240	F350	\$24	\$50				Hi Hammer drillbits		Sampling Basalt	\$374
	Gord Slicer	Supervisor	Basalt Program	\$280			\$100				Hi Hammer drillbits		Sampling Basalt	\$380
	Bob Yorke-Hardy	Technologist	Opal Quality Tests	\$450	F350	\$11	\$100				Klinker		Opal cutting	\$591
	Chris Yorke-Hardy	Cutter	Gem Cutter	\$320			\$100				machine and saw		Opal cutting	\$420
07-Apr	Matt Yorke-Hardy	Labourer	Basalt Program	\$240	F350	\$24	\$50				Hi Hammer drillbits		Sampling Basalt	\$374
	Gord Slicer	Supervisor	Basalt Program	\$280			\$100				Hi Hammer drillbits		Sampling Basalt	\$380
	Bob Yorke-Hardy	Technologist	Opal Quality Tests	\$450	F350	\$116	\$100				Klinker		Opal cutting	\$696
	Chris Yorke-Hardy	Cutter	Gem Cutter	\$320			\$100				machine and saw		Opal cutting	\$420
08-Apr	Matt Yorke-Hardy	Labourer	Basalt Program	\$240	F350	\$24	\$50				Hi Hammer drillbits		Sampling Basalt	\$374
	Gord Slicer	Supervisor	Basalt Program	\$280			\$100				Hi Hammer drillbits		Sampling Basalt	\$380
	Bob Yorke-Hardy	Technologist	Opal Quality Tests	\$450	F350	\$152	\$100				Klinker		Opal cutting	\$732
	Chris Yorke-Hardy	Cutter	Gem Cutter	\$320			\$100				machine and saw		Opal cutting	\$420
09-Apr	Matt Yorke-Hardy	Labourer	Basalt Program	\$240	F350	\$24	\$50				Hi Hammer drillbits		Sampling Basalt	\$374
	Gord Slicer	Supervisor	Basalt Program	\$280			\$100				Hi Hammer drillbits		Sampling Basalt	\$380
	Bob Yorke-Hardy	Technologist	Opal Quality Tests	\$450	F350	\$75	\$100				Klinker		Opal cutting	\$655
	Chris Yorke-Hardy	Cutter	Gem Cutter	\$320			\$100				machine and saw		Opal cutting	\$420
10-Apr	Matt Yorke-Hardy	Labourer	Basalt Program	\$240	F350	\$30	\$50				Hi Hammer drillbits		Sampling Basalt	\$393
	Gord Slicer	Supervisor	Basalt Program	\$280			\$100				Hi Hammer drillbits		Sampling Basalt	\$380

2018 Work Program For Assessment - Costs

Mob and Reclamation		2018 Work Program For Assessment - Costs										Total		
Date	Personnel	Description	Work Performed	Wages	Veh. Desc.	Vehicle Cost	Food & Accom.	Tools/Equip Cost	Fuel Charge	Equipment Used	Property	Tenure #	Activity and comments	Total
11-Apr	Matt Yorkie-Hardy	Labourer	Basalt Program	\$240	F350	\$30	\$50	\$73		JD 225 & 20' trailer	Ewer		Sample Delivery	\$393
	Gord Silzer	Supervisor	Basalt Program	\$280			\$100				Ewer		Sample Delivery	\$380
12-Apr	Matt Yorkie-Hardy	Labourer	Basalt Program	\$240	F350	\$30	\$50	\$73		JD 225 & 20' trailer	Ewer		Sample Delivery	\$393
	Gord Silzer	Supervisor	Basalt Program	\$280			\$100				Ewer		Sample Delivery	\$380
13-Apr	Matt Yorkie-Hardy	Labourer	Basalt Program	\$240	F350	\$24	\$50	\$60		J0325 Ssd Steer.	Ewer		Sampling Basalt	\$374
	Gord Silzer	Supervisor	Basalt Program	\$280			\$100			Hill Hammer drills	Ewer		Sampling Basalt	\$380
16-Apr	Gord Silzer	Supervisor	Basalt Program	\$350			\$100	\$60		J0325 Ssd Steer.	Ewer		Sampling Basalt	\$510
17-Apr	Gord Silzer	Supervisor	Basalt Program	\$350			\$100	\$60		Hill Hammer drills	Ewer		Sampling Basalt	\$450
18-Apr	Gord Silzer	Supervisor	Basalt Program	\$350			\$100	\$60		J0325 Ssd Steer.	Ewer		Sampling Basalt	\$510
19-Apr	Gord Silzer	Supervisor	Basalt Program	\$350			\$100	\$60		Hill Hammer drills	Ewer		Sampling Basalt	\$450
20-Apr	Gord Silzer	Supervisor	Basalt Program	\$350			\$100	\$60		Hill Hammer drills	Ewer		Sampling Basalt	\$450
23-Apr	Bob Yorkie-Hardy	Technologist	Basalt Program	\$450	F 350	\$322	\$50				Ewer		Travel to ORCI Office from Whistler Shop	\$822
24-Apr	Bob Yorkie-Hardy	Technologist	Basalt Program	\$450	F 350	\$24	\$50				Ewer		Prospecting	\$524
25-Apr	Bob Yorkie-Hardy	Technologist	Basalt Program	\$450	F 350	\$24	\$50				Ewer		Prospecting	\$524
26-Apr	Bob Yorkie-Hardy	Technologist	Basalt Program	\$450	F 350	\$30	\$50	\$73		JD 225 & 20' trailer	Ewer		Sample Delivery	\$378
30-Apr	Bob Yorkie-Hardy	Technologist	Recon Dave Project	\$225	F 350	\$61	\$50				Dave		Recon	\$336
30-Apr	Gord Silzer	Supervisor	Recon Dave Project	\$175			\$100				Dave		Panning	\$275
05-May	Bob Yorkie-Hardy	Technologist	Basalt Program	\$350	F 350	\$346	\$50				Ewer/Klinker		Check equip	\$846
05-May	Gord Silzer	Supervisor	Basalt Program	\$350			\$100				Ewer/Klinker		Check equip	\$450
11-May	Bob Yorkie-Hardy	Technologist	Basalt Program	\$450	F 350	\$70	\$50				Ewer		Recon Basalt - check site and plan	\$570
11-May	Gord Silzer	Supervisor	Basalt Program	\$350			\$100				Ewer		Recon Basalt - check site and plan	\$450
19-May	Bob Yorkie-Hardy	Technologist	Basalt Program	\$450	F 350	\$83	\$50	\$73		JD 225 & 20' trailer	Ewer		Sample Delivery	\$656
19-May	Gord Silzer	Supervisor	Basalt Program	\$350			\$100				Ewer		Sample Delivery	\$450
20-May	Bob Yorkie-Hardy	Technologist	Basalt Program	\$450	F 350	\$96	\$50				Ewer		Access New Basalt site	\$596
20-May	Gord Silzer	Supervisor	Basalt Program	\$350			\$100				Ewer		Beaver Pond area - pan sample	\$450
22-May	Baird Bros	Trucking	Basalt Program	\$350			\$0						Crushing Test	\$300
22-May	Mormac	Crushing	Basalt Program	\$450	F 350	\$96	\$50	\$71		Tandem Dump Truck	Ewer		Crushing Test	\$500
22-May	Bob Yorkie-Hardy	Technologist	Basalt Program	\$240			\$50			Terex J1180 Crusher	Ewer		Crushing Test	\$667
22-May	Matt Yorkie-Hardy	Labourer	Basalt Program	\$240			\$50			JD 225	Ewer		Crushing Test	\$290
23-May	Bob Yorkie-Hardy	Technologist	Basalt Program	\$450	F 350	\$83	\$50				Ewer		Prospecting/panning	\$583
23-May	Gord Silzer	Supervisor	Basalt Program	\$350			\$100				Ewer		Prospecting/panning	\$450
24-May	Bob Yorkie-Hardy	Technologist	Basalt Program	\$450	F 350	\$49	\$50	\$73		JD 225 & 20' trailer	Ewer		Sample Delivery	\$622
24-May	Gord Silzer	Supervisor	Basalt Program	\$350			\$100				Ewer		Sample Delivery	\$450
27-May	Bob Yorkie-Hardy	Technologist	Opal Program	\$280	F 350	\$67	\$50				Ewer		Check roads and camp	\$380
27-May	Gord Silzer	Supervisor	Opal Program	\$280			\$100				Klinker		Check roads and camp	\$380
27-May	Gord Silzer	Supervisor	Opal Program	\$280			\$100				Ewer		Pete road	\$524
10-Jun	Bob Yorkie-Hardy	Technologist	Basalt Program	\$450	F 350	\$24	\$50	\$36		JD 225	Ewer		Sample Delivery	\$565
15-Jun	Bob Yorkie-Hardy	Technologist	Basalt Program	\$450	F 350	\$30	\$50				Ewer		Open Camp	\$617
16-Jun	Bob Yorkie-Hardy	Technologist	Opal Program	\$450	F 350	\$67	\$100	\$73		JD 225, 20' Trailer	Ewer		Sample Delivery	\$453
16-Jun	Matt Yorkie-Hardy	Labourer	Sample Program	\$250	F350	\$30	\$100				Ewer		Sample Delivery	\$637
23-Jun	Bob Yorkie-Hardy	Technologist	Opal/Basalt	\$450	F 350	\$87	\$100				Klinker/Ewer		Prospecting	\$500
23-Jun	German Geologists	Minerologist	Opal/Basalt	\$450			\$50				Klinker/Ewer		Prospecting	\$500
24-Jun	Bob Yorkie-Hardy	Technologist	Opal Program	\$450	F 350	\$111	\$100				Klinker		Opal sample/sort	\$661
24-Jun	Pederson, Hart	Labourers	Opal Program	\$280			\$0				Klinker		Dump Reclamation	\$280
24-Jun	Vallican, Steeves	Labourers	Opal Program	\$280			\$0				Klinker		Dump Reclamation	\$280
24-Jun	Switzer	Labourers	Opal Program	\$280			\$0				Klinker		Dump Reclamation	\$280
24-Jun	Bob Yorkie-Hardy	Technologist	Opal Program	\$450	F 350	\$111	\$100				Klinker		Opal sample/sort	\$661
07-Jul	Bob Yorkie-Hardy	Technologist	Opal Program	\$450	F 350	\$111	\$100				Klinker		Dump Reclamation	\$280
07-Jul	Carner, Glieni	Labourers	Opal Program	\$280			\$0				Klinker		Opal sample/sort	\$661
08-Jul	Bob Yorkie-Hardy	Technologist	Sample Program	\$450	F 350	\$99	\$100	\$222		JD 225, 20' Trailer	Ewer		Dump Reclamation	\$280
08-Jul	Matt Yorkie-Hardy	Labourer	Sample Program	\$240			\$50				Ewer		Sample Basalt	\$871
13-Jul	Matt Yorkie-Hardy	Supervisor	Opal Program	\$350	F 350	\$59	\$50				Ewer		Sample sample/sort	\$290
13-Jul	Somjai, Noppiloul	Labourers	Opal Program	\$280			\$0				Klinker		Dump Reclamation	\$280
13-Jul	Joeb	Labourers	Opal Program	\$280			\$0				Klinker		Dump Reclamation	\$280
22-Jul	Matt Yorkie-Hardy	Supervisor	Opal Program	\$350	F 350	\$59	\$50				Klinker		Opal sample/sort	\$459
22-Jul	Klassen	Labourers	Opal Program	\$280			\$0				Klinker		Dump Reclamation	\$280
28-Jul	Matt Yorkie-Hardy	Supervisor	Opal Program	\$350	F 350	\$59	\$50				Klinker		Opal sample/sort	\$459
28-Jul	Brooks, Kormendy	Labourers	Opal Program	\$280			\$0				Klinker		Dump Reclamation	\$280
28-Jul	Foster, Norbeck	Labourers	Opal Program	\$280			\$0				Klinker		Dump Reclamation	\$280
29-Jul	Matt Yorkie-Hardy	Supervisor	Opal Program	\$350	F 350	\$59	\$50				Klinker		Opal sample/sort	\$459
29-Jul	Hutchison, Clouter	Labourers	Opal Program	\$280			\$0				Klinker		Dump Reclamation	\$280
11-Aug	Matt Yorkie-Hardy	Supervisor	Opal Program	\$350	F 350	\$59	\$50				Klinker		Opal sample/sort	\$459
11-Aug	Potvin	Labourers	Opal Program	\$280			\$0				Klinker		Dump Reclamation	\$280



**2018 Work Program For Assessment - Costs**

Mob and Reclamation		Work Performed		Wages	Veh. Desc.	Vehicle Cost	Food & Accom.	Tools/Equip. Cost	Fuel Charge	Equipment Used	Property	Tenure #	Activity and comments	Total
Date	Personnel	Description	Work Performed	Wages	Veh. Desc.	Vehicle Cost	Food & Accom.	Tools/Equip. Cost	Fuel Charge	Equipment Used	Property	Tenure #	Activity and comments	Total
17-Aug	Bob Yorke-Hardy	Technologist	Opal Program	\$450	F 350	\$59	\$100				Klinker		Sampling Opal	\$609
17-Aug	Bucerska, Samordzi	Labourers	Opal Program	\$280			\$0				Klinker		Dump Reclamation	\$280
17-Aug	Kena, MacFadden	Labourers	Opal Program	\$280			\$0				Klinker		Dump Reclamation	\$280
17-Aug	Milnes, Davis	Labourers	Opal Program	\$280			\$0				Klinker		Dump Reclamation	\$280
20-Aug	Bob Yorke-Hardy	Technologist	Opal Program	\$450	F 350	\$111	\$100				Klinker/Ewer		Sampling Opal/Diatomite	\$661
20-Aug	Van de Camp	Labourers	Opal Program	\$280			\$0				Klinker/Ewer		Reclamation	\$280
24-Aug	Bob Yorke-Hardy	Technologist	Opal Program	\$450	F 350	\$59	\$100				Klinker		Sampling Opal	\$609
24-Aug	Hutmacher	Labourers	Opal Program	\$280			\$0				Klinker		Dump Reclamation	\$280
24-Aug	Fell, Fell	Labourers	Opal Program	\$280			\$0				Klinker		Dump Reclamation	\$280
28-Aug	Bob Yorke-Hardy	Technologist	Opal Program	\$450	F 350	\$59	\$100				Klinker		Sampling Opal	\$609
28-Aug	Reid, Gounder, Fink	Labourers	Opal Program	\$280			\$0				Klinker		Dump Reclamation	\$280
28-Aug	Lutsenko, Antipova	Labourers	Opal Program	\$280			\$0				Klinker		Dump Reclamation	\$280
29-Aug	Bob Yorke-Hardy	Technologist	Opal Program	\$450	F 350	\$59	\$100				Klinker		Sampling Opal	\$609
29-Aug	Neilsen, Neilsen	Labourers	Opal Program	\$280			\$0				Klinker		Dump Reclamation	\$280
03-Sep	Bob Yorke-Hardy	Technologist	Opal Program	\$450	F 350	\$111	\$100				Klinker/Ewer		Sampling Opal/Diatomite	\$661
03-Sep	Haakon, Andial	Labourers	Opal Program	\$280			\$0				Klinker/Ewer		Reclamation	\$280
16-Sep	Bob Yorke-Hardy	Technologist	Sample Program	\$450	F 350	\$136	\$100	\$436			Ewer Reclamation		Mob Skidsteer to Basalt	\$1,121
16-Sep	Matt Yorke-Hardy	Labourer	Sample Program	\$240			\$50				Ewer Reclamation		Load Trailer at Basalt	\$290
17-Sep	Bob Yorke-Hardy	Technologist	Sample Program	\$450	F 350	\$467	\$100	\$293			Ewer Reclamation		Sample Delivery - Lillooet	\$1,310
17-Sep	Matt Yorke-Hardy	Labourer	Sample Program	\$240			\$50				Ewer Reclamation		Sample Delivery - Lillooet	\$290
19-Sep	Bob Yorke-Hardy	Technologist	Opal Program	\$450	F 350	\$111	\$100				Klinker/Ewer		Sampling Opal/Diatomite	\$661
19-Sep	Johnson, Williams	Labourers	Opal Program	\$280			\$0				Klinker/Ewer		Reclamation	\$280
20-Sep	Bob Yorke-Hardy	Technologist	Sample Program	\$450	F 350	\$136	\$100	\$293			Ewer Reclamation		Sort Basalt	\$979
20-Sep	Matt Yorke-Hardy	Labourer	Sample Program	\$240			\$50				Ewer Reclamation		Load Trailer at Basalt	\$290
21-Sep	Bob Yorke-Hardy	Technologist	Sample Program	\$450	F 350	\$136	\$100	\$293			Ewer Reclamation		Sort Basalt	\$979
21-Sep	Matt Yorke-Hardy	Labourer	Sample Program	\$240			\$50				Ewer Reclamation		Load Trailer at Basalt	\$290
25-Sep	Bob Yorke-Hardy	Technologist	Sample Program	\$450	F 350	\$136	\$100	\$436			Ewer Reclamation		Recover Backhoe attachment from Klinker	\$1,121
25-Sep	Matt Yorke-Hardy	Labourer	Sample Program	\$240			\$50				Ewer Reclamation		Sort Basalt	\$290
07-Oct	Westridge	Trucking	Sample Program	\$450	F 350	\$136	\$100	\$436	\$2,402		Truck & Pup		Truck & Pup - deliver Lillooet	\$4,402
07-Oct	Bob Yorke-Hardy	Technologist	Sample Program	\$450	F 350	\$136	\$100	\$436			Ewer Reclamation		Load Trailer at Basalt	\$1,121
07-Oct	Matt Yorke-Hardy	Labourer	Sample Program	\$240			\$50				Ewer Reclamation		Sort Basalt	\$290
15-Oct	Kelly	Trucking	Sample Program	\$450	F 350	\$136	\$100	\$436	\$740		Truck & Pup		Truck & Pup - deliver Otter Lake Xroad Yal	\$2,740
14-Oct	Bob Yorke-Hardy	Technologist	Sample Program	\$450	F 350	\$136	\$100	\$436			Ewer Reclamation		Sort Basalt	\$1,121
14-Oct	Matt Yorke-Hardy	Labourer	Sample Program	\$240			\$50				Ewer Reclamation		Sort Basalt	\$290
15-Oct	Westridge	Trucking	Sample Program	\$450	F 350	\$136	\$100	\$436	\$2,702		Truck & Pup		Truck & Pup - deliver Lillooet	\$2,702
15-Oct	Matt Yorke-Hardy	Labourer	Sample Program	\$240			\$50				Ewer Reclamation		Load Skid Steer and attachments	\$290
15-Oct	Bob Yorke-Hardy	Technologist	Sample Program	\$450	F 350	\$136	\$100	\$222			Ewer Reclamation		De-mob Backhoe and attachments	\$907
25-Oct	Bob Yorke-Hardy	Technologist	Opal Program	\$450	F 350	\$137	\$50	\$163			Klinker		Close/Winterize Klinker Camp	\$450
29-Nov	Bob Yorke-Hardy	Technologist	Sample Program	\$450	F 350	\$137	\$50	\$163			Ewer Reclamation		Sample Basalt - by hand	\$800
29-Nov	Matt Yorke-Hardy	Labourer	Sample Program	\$240			\$50				Ewer Reclamation		Sample Basalt - by hand	\$290
Jan 20 to Mar 18 - 10 days		Technologist	Report	\$4,500										\$4,500
<b>Totals</b>				<b>\$50,995</b>		<b>\$6,330</b>	<b>\$10,050</b>	<b>\$11,901</b>					<b>Cumulative Total Work &gt;&gt;&gt;&gt;</b>	<b>\$83,775</b>

Transportation Total \$6,330  
% of Total Work 7.56 %

Total Person Days Worked = 176	
Person Days Mob/De-Mob	5
Person Days Reclamation on Ewer	9
Person Days Reclamation on Klinker	33
Person Days Technical -	
77 Basalt Sample Work	
22 Opal Sample Work	
10 Report	
20 Other [project planning, crushing, panning, prospecting]	
176 Total # man-days	

## Statement of Qualifications

I, Robert W. Yorke-Hardy, of Vernon, British Columbia, do hereby certify that:

1. I am a Mining Technologist residing at 684 Otter Lake Crossroad, Armstrong, British Columbia. I have accumulated 53 years of experience in the Mining/Mineral Exploration and related Industries. I, directly, indirectly or through Opal Resources Canada Inc., have provided management and technical expertise and exploration/development services on the Klinker/Ewer Project (OK Westside Project) since 2009.
2. I am a graduate of the British Columbia Institute of Technology, Burnaby, British Columbia and I have practiced my profession for 51 years. I am a past charter member of the Association of Applied Science Technologists and Technicians of British Columbia. I am a past member and director of the B.C. and Yukon Chamber of Mines.
3. I, Robert Yorke-Hardy, am the sole shareholder, Director and Officer of the Company Opal Resources Canada Inc.
4. Robert Yorke-Hardy and his wife Alana Yorke-Hardy owned and operated Y-H Technical Services Ltd. (YHT) of P.O. Box 298, Vernon, B.C., a mineral exploration services company; until its closure August 31, 2000. YHT or the Yorke-Hardy's provided all technical and managerial services to Okanagan Opal Inc. (later named Spectral Gold Corporation) from 2003 to 2016.
5. I, Robert Yorke-Hardy, am the only individual with sufficient first hand technical knowledge and detailed background information regarding the day to day operations of the comprehensive Okanagan Opal Business able to provide the information and details required to affordably conduct this work and assess the project potential.
6. This Report is based on knowledge and experience I have personally gained about the Okanagan Opal Business, the Klinker Opal Project and the Lady King Basalt project (jointly the OK Westside Project) over the period from 1991 to the present; having personally spearheaded this project each step of the way from initial discovery to development readiness and marketing. This report is based on work performed by myself, under my direction or by others while in my presence.



---

R. W. Yorke-Hardy, Mining Technologist April 15, 2019

## **BIBLIOGRAPHY**

- Carter,N.C.(1990): Geological Report on the NASH Property, Vernon Mining Division, British Columbia, BCMEMPR Assessment Report 20226
- Carter,N.C.(1994): Geochemical Report On The Nash Property, (Siwash 2,3,4,5 Mineral Claims), Vernon Mining Division, British Columbia Date : August 24,1994
- Church , B. N. ( 1979): Tertiary Stratigraphy and Resources Potential in South central British Columbia; in Geological Fieldwork 1978, B.C. Ministry of Energy, Mines & Pet. Res., Paper 1979-I. pages 7-15.
- Church , B.N. (1980): Geology of the Terrace Mountain Tertiary Outlier; B.C. Ministry of Energy, Mines & Pet. Res., Revised Preliminary Map 37.
- Gruenwald,W.(1984): Geological and Geochemical Report on the Brett Claims, Vernon Mining Division, B.C., BCMEMPR Assessment Report 13649
- Hicks,Ken(1993): Geochemical Report on the NASH Property, Vernon Mining Division, draft private report for Prosperity Gold Corporation.
- Jones, A.G. (1959): Vernon Map-area, British Columbia; Geological Survey of Canada, Memoir 296, 186 pages
- Longe,R.V.(1984): VODD Claims - Prospecting and Soil Sampling, Vernon Mining Division, B.C., BCMEMPR Assessment Report 14223
- McCallum,M.E.(1990): Geologic Assessment of the NASH Project, Vernon Area, British Columbia, private report for Prosperity Gold Corporation, January 1990.
- McLeod, James (1987); Geochemical Report, Expo Mineral Claims, Okanagan Lake (West) Area, Nicola Mining Division, B. C. for PACIFIC NORTHWEST RESOURCES INC. October 7, 1987.
- Nelles, David M.(?984): Assessment Report on Geological, Prospecting and Geochemical Surveys, NASH Claim Group, Vernon Mining Division, B.C., BCMEMPR Assessment Report 12030.
- Read, P.B. (1996): Industrial Mineral Potential of the Tertiary Rocks, Vernon (82L) and Adjacent Map Areas; in Geological Fieldwork 1995, B. Grant and J.M. Newell Editors, B.C. Ministry of Energy, Mines & Pet. Res., Paper 1996-1. pages 207-218.
- Robb, Warren A., (2004); Technical Report, A Summary Of The Exploration Programs And Results On The Brett Gold Property, Vernon, British Columbia, Vernon Mining District NTS Map No. 082I/04e With Recommendations For Further Exploration, prepared for: Running Fox Resources Corp. dated April 21 ,2004
- Smith, R.D. (1978): The Geology of the Harper Ranch Group; Unpublished M. SC. Thesis, University of British Columbia.
- Awram, D. (1996): The Characteristics and Formation of Opals from the Klinker Deposit, Vernon, British Columbia, unpublished B.Sc. Thesis, University of British Columbia 62 pages.

Church, B.N. (1982): Notes on the Penticton Group, A Progress Report on a New Stratigraphic Subdivision of the Tertiary in South-central British Columbia; in Geological Fieldwork 1981, B.C. Ministry of Energy, Mines and Petroleum Resources, Paper 1981-1, pages 12-16.

Penner, L, and Mollard, J. (1996): Air-photo Study of the Klinker Property and Surrounding Area; unpublished report, Okanagan Opal Inc., 12 pages.

Read, P.B. (1996a): Industrial Mineral Potential of the Tertiary Rocks, Vernon (82L) and Adjacent Map Area, in Geological Fieldwork 1995 B. Grant and McNeill, Editors, B.C. Ministry of Energy, Mines and Petroleum Resources Paper 1996-1 pages 207-218.

Simandl, G.J. Hancock K.D., Callaghan, B., Paradis, S. and Yorke-Hardy, R. (1997): Klinker Precious Opal Deposit, South Central British Columbia, Canada -Field Observations and Potential Deposit-Scale Controls; British Columbia Ministry of Energy and Mines, Geological Fieldwork 1996, pages 321-327.

Paradis, S. Townsend, J. and Simandl, G.J. (1999a): Sediment-hosted Precious Opal; In G.J. Simandl, Z.D. Hora and D.V. Lefebure, Editors, Selected British Columbia Mineral Deposit Profiles, Volume 3, Industrial Minerals and Gemstones, British Columbia Ministry of Energy and Mines, pages 119-122.

Paradis, S., Simandl, G.J. and Sabina (1999b): Volcanic hosted Precious Opal; In G.J. Simandl, Z.D. Hora and D.V. Lefebure, Editors, Selected British Columbia Mineral Deposit Profiles, Volume 3, Industrial Minerals and Gemstones, British Columbia Ministry of Energy and Mines, pages 133-136.

Mark, David G, (1989): Report On Rock And Stream Sediment Geochemistry Sampling On The Dave Claim Group, Naswhito Creek, North Okanagan Lake Area, Vernon Mining Division, British Columbia, dated October 1989.

Wetherill, J.F. (1989): Geological, Geophysical and Geochemical Report on the NASH Property, Vernon Mining Division, B.C., BCMEMPR Assessment Report 1910.



## APPENDIX I

Extract from

Leo Lindinger an independent P. Geo. from Kamloops prepared a report entitled:  
“REPORT ON WHOLE ROCK, MULTIELEMENT ANALYSES DELETERIOUS  
ELEMENT COMPOSITION AND ACID ROCK GENERATING POTENTIAL”

This report was on the basalt from the Lady King Basalt Bulk Sample Site. A copy of the “Analytical Results and Discussion” section from Page 8 of said report is attached below:

8

### ANALYTICAL RESULTS AND DISCUSSION

Upon receipt of the analytical results from the multielement analyses on June 8, 2018 the author determined that the samples were similar enough, especially in the rock forming and low deleterious elements to have the lab take subsamples of the rejects, combine them into one sample and submitting the combined sample for whole rock analyses and “ARD” determination with sulphur assay. The results were obtained on June 25, 2018. See Appendix 1 for complete analytical results.

The ARD results indicate that the sample has a paste Ph of 8.17 and is therefore acid consuming and has a below 0.01% sulphur content. The multielement analyses reported 0.1ppm or less cadmium, 1.7 ppm of less beryllium, 30 ppb or less mercury, 0.07 ppm or less bismuth, 0.9 ppm or less arsenic, below 0.1 ppm antimony, below 8 ppm lead, below 9.1 ppm thorium and below 2.8 ppm uranium.

The scree pile at 170 metres long by an average 30 metres wide by and estimated minimum 4 metres deep contains about 20,000 cubic metres of scree material. At a minimum density of 1.8 this calculates to nearly 37,000 tonnes. The stockpile has an area of 70 square metres and a minimum average height of 1.0 metre. The calculates out to about 125 tonnes.

#### NOTE:

Upon review of the above volume to weight calculations the writer questions their accuracy. The weight estimate appears to have been based on standard ‘broken basalt’ weights available from internet site (i.e. Aqua-Calc.com) conversion tables. It appears a solid basalt conversion would be more accurate for this material.

In 2019 two tri-axle truck and pup loads with a weight capacity of 30 tonnes per load and one tandem axle truck load with a weight capacity of 13 tonnes of basalt were removed from the stockpile as part of the site reclamation process. Additional material was transported on flat-deck trailers. Based in weigh scale readings for one of the tri-axle truck and pup loads of over 35 tonnes it is estimated the material moved in 2018 and previously had a total weight of ~110 tonnes. It is estimated that the material removed was between 5% and 10% of the existing stockpile. The writer has estimated the current stockpile at 2000 tonnes. Although this estimate may be high the stockpile weight calculation must exceed 1000 tonnes versus 125 tonnes which sum would represent a mere 4 more tri-axle truck and pup loads.

## APPENDIX II

### MINFILE DESCRIPTIONS FOR THE PROPERTY

#### **MINFILE No 082LSW125**

#### **Name KLINKER, OKANAGAN OPAL, KLINKER OPAL Mining Division Vernon**

BCGS Map 082L033

Status Developed Prospect NTS Map 082L05E Latitude 50° 21' 31"

N UTM 11 (NAD 83)

Longitude 119° 33' 51" W Northing 5581648

Easting 317616

Commodities Opal, Gemstones, Agate Deposit Types Q11 : Volcanic-hosted opal Tectonic Belt Intermontane  
Terrane Overlap Assemblage, Harper Ranch

Capsule Geology The Klinker showing is located 23 kilometres west-northwest of Vernon, north of McGregor Creek.

In this area, Upper Triassic to Lower Jurassic Nicola Group sedimentary and volcanic rocks unconformably overlie sedimentary and volcanic rocks of the Devonian to Triassic Harper Ranch Group. These units are intruded by Middle Jurassic granitic rocks. Extensive Eocene Kamloops Group and Penticton Group volcanic and sedimentary rocks overlie the older units.

The Klinker property covers several concentrations of precious opal developed in the basal 100 metres of the Kamloops Group. The host rock is a volcanic breccia-lahar complex composed of angular to rounded clasts of andesite and basalt ranging from 0.2 to 0.6 metre in diameter in a lapilli tuff matrix. In the lahar, the tuff has bedding which swirls around the clasts. Lapilli tuff lenses up to 5 metres thick develop locally and indicate that the volcanic succession dips 20 to 30 degrees to the west. Thin andesite or basalt flows and intrusions up to 4 metres thick are scattered throughout. On McGregor Creek Forestry Access Road, about 500 metres east of the discovery pit, outcrops of grey-green meta-andesite flows and lapilli tuffs of probable Late Paleozoic age form the basement which dips gently westward and underlies the valley bottom of Ewer Creek north of the property.

On the property, precious opal, agate and common opal fill fractures in the Eocene rocks and permeate podiform rock masses which are up to 0.5 metre in diameter in the lahars. The rock masses are smaller in the lapilli tuffs and absent in the flows or intrusions. Precious opal-filled fractures preferentially develop in sets with the following three preferred strikes: 025 +/- 10 degrees, 070 +/- 10 degrees and 330 +/- 15 degrees; all sets have steep dips. The podiform rock masses commonly form beside or across opal-filled fractures. In the masses, precious opal fills voids developed during the formation of the host rock, and later openings apparently formed by local dissolution of the host. Here and there the precious opal, agate and common opal have layering which is subhorizontal even in subvertically oriented fracture fillings. The presence of this subhorizontal layering in these materials, which is not subparallel to the orientation of the gently west-dipping lapilli tuff, implies that the precious opal, agate and common opal precipitated after the beds were tilted.

Of the six shallow pits exposing the precious opal on the Klinker property, the discovery pit is the largest at 2100 square metres, and together with the smaller Bluebird pit, probably the richest because of subequally developed podiform masses and fracture fillings. A right-lateral strike-slip fault dips 80 degrees northwest (slickensides trend/plunge 195/25S), passes along the eastern side of the pit, and offsets the lahars an indeterminate amount. In the other shallow pits, the Tripod, Red Rock and the Caramel and its extension, podiform masses in the lahars developed at the expense of fracture fillings. A lapilli tuff underlies the eastern side of the Caramel pit. Outside the pit areas, the primary openings of the rock are either mostly empty or less commonly filled with agate, common opal, chabazite - a highly hydrated zeolite, and other unidentified zeolites (P. Read, personal communication, 1995).

The opal is white, orange or red, with some fire-green and fire-orange opal reported. Most of the precious opal is described as having a light orange base, is clear and full of colour. At surface the opal is hydrophane, but becomes more solid at shallow depths. The banded agate has grey, white and clear bands. The opal was discovered in 1991.

Besides precious opal, common opal and agate at the Klinker deposit, there are other fracture-fill minerals which include non-precious facet-grade opal, quartz, celadonite, amorphous manganese oxides, clinoptilolite, heulandite, stilbite, jarosite, clays and rarely, calcite. Non-precious, facet-grade opal is typically orange and honey coloured, similar to Mexican "fire opal". Common opals occur as transparent, translucent and opaque types in white, honey, brown, amber, orange and grey colours. Quartz can occur as small, inward facing, terminated crystals within vugs. X-ray diffraction analysis notes that kutnahorite and saponite co-exist with opal. Opal from the Klinker property is classified as opal-CT, using Jones and Segnit's (1971) grade classification. Most stones from deposits with precious and common opal are classified as opal-A (Frye, 1981).

Okanagan Opal Inc. conducted test pitting and some rockhound sales transpired (Information Circular 1996-1, page 20).

There was enough volume of commercial grade opal excavated during the 1994 season's bulk sampling program to provide the raw material necessary to start a small scale gemstone cutting and retail sales business. Sorting, grading and cutting of finished gemstones began on a limited scale in November 1994 and continued through to late December 1994. This program re-commenced in January 1, 1995 and is scheduled to produce sufficient quality and quantity of finished 'opal product' to commence a local retail sales operation by May 1, 1995 (Assessment Report 24606).

Small scale test mining and market was ongoing in 1996. Okanagan took a 316.5-tonne bulk sample of opal-bearing material from test pits. The company has set up a workshop and retail outlet at Vernon where opal jewelry and specimens are produced and sold.

EM EXPL 1996-A24,D5,D7; 1997-40

**EMPR ASS RPT 24370, \*24606**

EMPR FIELDWORK 1982, pp. 89-92; 1987, pp. 55-58; 1988, pp. 355-363; \*1997, pp. 321-327; 1998-1, p. 24

EMPR INF CIRC 1995-9, p. 20; 1996-1, p. 20; 1997-1, p. 23 EMPR MAP 37;  
5214G; 7216G

EMPR OF 1989-5; 1990-30

EMPR PF (In 082LSW General - Claim Map, 1966; Cab & Crystal article "We truly can be thankful" by R.W. Yorke-Hardy, Vol. 3 Number 6, 1991; \*Property description, P. Read, 1995; Gem & Mineral Federation of Canada Newsletter, Spring 1999, Vol.18, No.2, pp. 10-12; Okanagan Opal Inc. Website (Feb. 1999): Company History & Information, 5 p.; Yorke-Hardy, Bob (Spring 2000) Okanagan Opal - Successful development at the Klinker Opal Deposit, Volume 1, Number 2, 3 pages; Yorke-Hardy, Bob (Winter/Spring 1999): Precious Opals in Canada, Volume 3, Number 1, 3 pages) EMPR RGS 1976

GSC MEM 296

GSC OF 637; 736; 2167 GSC P 89-1E, pp. 51-60

CIM '97 Vancouver Program, April 27-30, 1997, p. 61

WWW <http://www.opalscanada.com>; <http://www.gemnews.net>; <http://www.canadianrockhound.com> Lapidary Journal \*February 1993, pp. 63-66

**MINFILE No 082LSW159**

**Name PINAUS Mining Division Vernon**

BCGS Map 082L032

Status Showing NTS Map 082L05E Latitude 50° 23'

41" N UTM 11 (NAD 83)

Longitude 119° 36' 45" W Northing 5585782

Easting 314319

Commodities Diatomite Deposit Types F06 : Lacustrine diatomite Tectonic Belt

Intermontane Terrane Quesnel

Capsule Geology At the Pinaus showing, waterlain, tuffaceous (rhyolite ash) shale and siltstone lie at the base of a rhyolite succession which passes upwards into rhyolite tephra and flows. The Diatomaceous earth locally develops at the base of this succession.

These Diatomaceous rocks are absorbant, light in colour and weight, and contain a mixture of tuffaceous debris and diatom filaments. The age of these rocks appears to be Miocene based on preliminary evaluations of well preserved fossil leaves and pollen grains (personal communication in 1996 with L. Donaldson, Okanagan College). This would make the rhyolitic succession part of the Miocene Chilcotin Group.

Bibliography GSC MEM 296 GSC OF

481; 637

GSC P 89-1E pp. 51-60

Church, B.N. (1996): The Geological Setting of Industrial Minerals, Precious Stones and Au-Ag Veins in Tertiary Outliers of the Okanagan-Boundary District (82E, 82L) (in press).

**MINFILE No 082LSW116****Name DAVE, DAVE 2 Mining Division Vernon**

BCGS Map 082L033

Status Showing NTS Map 082L05E Latitude 50° 18'

11" N UTM 11 (NAD 83)

Longitude 119° 31' 46" W Northing 5575387

Easting 319875

Commodities Gold Deposit Types

Tectonic Belt Intermontane Terrane Harper Ranch

Capsule Geology The Dave showing is located 18 kilometres west-northwest of Vernon, north of Naswhito Creek.

In this area, Upper Triassic to Lower Jurassic Nicola Group sedimentary and volcanic rocks unconformably overlie sedimentary and volcanic rocks of the Devonian to Triassic Harper Ranch Group. These units are intruded by Middle Jurassic granitic rocks. Extensive Eocene Penticton Group volcanic and sedimentary rocks overlie the older units.

A quartz vein in Harper Ranch Group tuffs and volcanic rocks hosts gold mineralization. The vuggy vein is hematite and limonite stained. A 6.5-metre chip sample analysed 5.73 grams per tonne gold (5730 parts per billion) (Assessment Report 19152).

In 1988-89, Geotronic Surveys Ltd. carried out geological mapping.

Bibliography EMPR ASS RPT \*19152

EMPR FIELDWORK 1982, pp. 89-92; 1987, pp. 55-58; 1988, pp. 355-363; 2000, pp. 191-222 EMPR MAP 37, 5214G, 7216G

EMPR OF 1989-5, 1990-30

EMPR PF (In 082LSW General - Claim Map, 1966) EMPR RGS 1976

GSC MEM 296

GSC OF 637, 736, 2167 GSC P 89-

1E pp. 51-60