GEological REPORT

ON THE

RAVEN QUARRY PROPERTY

COGBURN CREEK AREA
NTS 92H / 12E
49° 34' N; 121° 40' W

on mineral claims

Raven 2-3 354554 – 55
Raven 4-7 352970 – 73
Raven 8-9 352976 – 77
Eagle 1-4 368301 – 04

By

Michael H. Sanguinetti, P. Eng.
Sanguinetti Engineering Ltd.
422 – 470 Granville Street
Vancouver, B.C.
V6C 1V5

For

Werner M. Streickek
Granite Creation & Stoneworks Ltd.
P.O. Box 901
Agassiz, B.C.
V0M 1A0

February 29th, 2000
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SUMMARY

The Raven property is situated on the Cogburn Creek Forest Access Road about 44 kilometres from the village of Harrison Lake. The property consists of twelve two-post mineral claims in the New Westminster Mining Division registered in the name of Werner M. Streicek. The property was first staked for dimension stone by Streicek in 1990. Small scale testing for dimension stone has been conducted since that time.

The work program conducted between December, 1999 and March, 2000 consisted of detailed geological mapping of the main quarry site and petrographic analysis of five samples.

The region is underlain by Cretaceous metasediments and metavolcanics of the Settler Schist which have been intruded by Early and Middle Cretaceous aged diorites and granodiorite of the Spuzzum intrusions. Irregular masses of ultramafic rock intrude all Cretaceous units.

The claims area covers outcrops of medium- to coarse-grained, black gabbro to norite referred to in this report as pyroxenite. The site of previous testing, on Raven 9 mineral claim, is black pyroxenite which has a defined grain or flow direction of 130° to 138° and widely spaced fractures. A prominent feature of the rock is the presence of lighter green-blue “veins” which impart a unique attractive feature to the rock on both broken or cut and polished surfaces. These “veins” are weakly silicified, matted-chlorite fracture fillings which have imparted a greater strength to the host pyroxenite than rock without “veining”. Five rock samples were submitted for petrographic descriptions. Further testing in the way of diamond drilling and test block extraction is warranted.

Respectfully submitted,

Sanguinetti Engineering Ltd.

Per: Michael H. Sanguinetti, P.Eng.

February 29th, 2000
Vancouver, B.C.
INTRODUCTION

This assessment report describes the principal quarry site on the Raven claim group. It has been written to comply with requirements of the Ministry of Energy and Mines for British Columbia.

The Raven and Eagle claims were staked in 1995 to cover outcrops of a unique black, medium-grained, mafic intrusive rock (gabbro to norite) composed essentially of pyroxenes and plagioclase. When quarried, cut and polished, the rock is distinctive as a dimension, tile or monument stone and is marketed under the commercial name Raven Black. The present work program consisted of detailed mapping of fractures and foliation at the proposed main quarry site and petrographic descriptions of five samples. This work is preparatory to a program of diamond drilling and test block extraction which are part of the market evaluation of the material.

LOCATION AND ACCESS

(Figure 1)

The Raven Property is located on NTS map sheet 92H/12E at approximately 49° 34'N and 121° 40'W [UTM N5491500, E597500]. This is east of Harrison Lake in the valley of Cogburn Creek. Access from the village of Harrison Hot Springs is 32 kilometres north via Harrison Lake East Forestry Road to Cogburn Creek road then 12 kilometres east along the Cogburn Creek Access Road to the site. A 4-wheel drive vehicle is required during the winter months. The area of the claims was logged at different times approximately 30 and 50 years ago and is now partially overgrown with cedar, hemlock and balsam. Numerous old logging spur roads exist over the claims area but these are mainly overgrown with alder and willows. Active logging operations are proceeding further up the Cogburn Creek valley.
PROPERTY
(Figure 2)

The Raven property consists of twelve claims situated in the New Westminster Mining Division. All claims are registered in the name of Mr. Werner M. Streicek and are shown on the following list. The current assessment filing is not accounted for in the expiry dates shown.

<table>
<thead>
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<td>354554</td>
<td>APRIL 2, 2001</td>
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<td>RAVEN 9</td>
<td>352977</td>
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<td>EAGLE 1</td>
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HISTORY

The ultramafic rocks of the Texas Creek area and west across to the area of the Cogburn Creek valley have been explored for copper, nickel and platinum group metals during the 1930's and the 1970's. While no significant sulphide deposits associated with the diorite, gabbro and ultramafic rocks were located within the Cogburn Creek - Settler Creek area, the presence of the ultramafic rocks was noted. The Raven and Eagle claims, that cover outcrops of medium-grained ultramafics, were first staked in 1990 and tested for their dimension stone properties by W. Streicek. Since that date work has consisted of small-scale sampling and the quarrying, in 1996, of a series of large test blocks.
WORK PROGRAM

The work program conducted between December 21st, 1999 and March 28th, 2000 consisted of detailed mapping of the well-exposed outcrop on Raven 9 mineral claim and the collection of five samples for petrographic analysis. In addition, a logging spur on the Raven 2 and Eagle 2 claims was examined for outcrop and proposed diamond drill sites were selected. Attention was directed towards examining the outcrops for sections where standard size blocks could be quarried without undue loss due to fracturing, shearing and sulphide mineral content. The dimensions of a standard quarry block are defined as 4'6" x 5'8" x 9'4" or 1.372m x 1.725m x 2.844m.

GEOLOGY
(Figures 3, 4, 5 and Appendix "D")

REGIONAL GEOLOGY
The central Cogburn Creek area east of Harrison Lake is underlain by metasediments and metavolcanics of the Cretaceous Settler Schist which have been intruded by Early and Middle Cretaceous aged diorite, quartz diorite and granodiorite assigned to the Spuzzum Intrusions. Irregular masses of ultramafic rock intrude all of the Cretaceous units. Members of the Settler Schist include quartz-muscovite(-garnet) schist and hornblende and hornblende-feldspar schist and phyllite (GSC Map 41-1989, Hope (West-Half) and Minfile). Regional north to northwest trending structures have been mapped in the area (Figure 3) between the Fraser River (including the Yale, Hope and Hozameen faults), and Harrison Lake. In addition, the predominant structural directions of smaller faults, shearing and folding and the lineation of lithological units and younger intrusive bodies between the Fraser River and Harrison Lake are to the north and northwest.

PROPERTY GEOLOGY
The area of the Raven and Eagle claims is situated on the north side of Cogburn Creek near the junction with Settler Creek. It is underlain by medium- to coarse-grained, black gabbro to norite, referred to in this report as pyroxenite (Petrographic Samples “A”, “B”, “C” and “E”). A description by the Trade Development Corporation in 1996 describes the rock type as “Black Granite” and a petrographic composition of “Pyroxene Gabbro”. The Specific Gravity is reported as 3.08.

There is approximately 25 to 40 percent outcrop exposed along logging road cuts and on steep, south facing cliffs. In outcrops examined the pyroxenite appears as a series of thick, fine- to coarse-grained flows or as a layered intrusion.

The outcrop from which test blocks had been previously quarried on Raven 9 claim was mapped in detail (Figure 4). The predominant flow direction or grain of this outcrop is measured as 130° to 138°. Widely spaced fractures were mapped of which the dominant
direction is 155° to 160° with a steep dip of 68° to the west. Spacing between these fractures is from 3 to 14 metres. However, spacing between fractures is wide enough and their frequency low enough to permit the efficient quarrying of standard sized blocks without undue waste. An easterly striking fracture was mapped at 066° with a dip of 59° to the southeast.

Compositions of four specimens from this outcrop were described in hand specimens and in thin sections in a report prepared by Leonard Gal, P.Geo., of Cardinal Exploration Ltd. (Appendix “D”). Samples A to C are gabbronorite and norite composed essentially of orthopyroxene, plagioclase and clinopyroxene. However, as noted above, the rock is referred to as “pyroxenite”. This pyroxenite outcrop (Figure 4) contains a small inclusion of pale grey-green tuff on the east side, probably as a xenolith (Petrographic Sample D). The crude layering around the xenolith appears as distorted flow layering or banding. Throughout, a weak alignment of the larger clinopyroxene crystals was noted. This alignment gives the cut rock surface a unique reflective luster.

Three prominent “veins” with widths of 1 to 3 cms., 10 to 12 cms. and 18 to 20 cms. and numerous thin, 1 mm. to 3 cms. veins were mapped. On the weathered surface these “veins” have weathered out above the pyroxenite surface in gentle relief due to their slightly higher silica content. On close examination of the outcrop surface a series of narrow (1 mm to 2 mm) “veins”, striking at 070° to 075°, is apparent on the weathered surface. A petrographic description from a section cut across a “vein” (Sample “B”) showed the “vein” to be a fracture which had been filled and healed with a fine-grained fibrous aggregate of chlorite, with weak green-blue pleochroism (change in colour as rotated in plane-polarized light), as well as fine opaques and a little quartz. It was noted that these healed, vein-filled fractures imparted a greater strength to the host pyroxenite than rock without “veining”. In outcrop and in hand specimen these “veins” have a slightly paler bluish cast which gives the rock a unique and attractive feature.

Outcrops noted on a spur logging road and on steep bluffs approximately 1800 metres west of the quarry site were also examined as possible drill sites. Seven possible diamond drill sites were visited and samples collected from some of the outcrops. One sample submitted for petrographic description (Sample E) is described as a gabbronorite and is slightly more felsic than samples from the main quarry site. On an outcrop scale, the rocks from both locations appear very similar, with both principal foliation and fracture directions the same. The thin bluish chlorite “veining” is also present. Pyroxenite outcroppings over a series of 2 to 4 metre high bluffs east of the first switchback (Figure 5) show a common, wide-spaced (greater than 3 metres), jointing pattern at 240° to 260° with a steep southerly dip. Detailed examination of this area for suitable quarry stone is warranted.
RAVEN QUARRY PROJECT
CUGBURN CREEK
OUTCROP SKETCH MAP
AND TEST BLOCK SITE
RAVEN 9 CLAIM
JANUARY, 2000

LEGEND

- LAYERING, FOLIATION
- LAYERING of harder/fine-grained pyroxenite
- FAULTING, FRACTURING with strike/dip direction
- "TRENCH" of fissure filled with matrix material
- Unrelated intrusion
- "PYROCLASTIC" Casso to Travle, Outcrop
- A RETROGRAPHIC SAMPLE SITE

FEB 29 2000

WASTE AND PARTIAL BLOCKS

0 1 2 3 m

FIGURE 4
RAVEN QUARRY PROJECT
COGBURN CREEK
SKETCH MAP OF PROPOSED DRILL SITES
EAGLE AND RAVEN CLAIMS
JANUARY, 2000

FIGURE 5

LEGEND

PROPOSED DRILL HOLE
PYROXENITE OUTCROP
PETROGRAPHIC SAMPLE SITE
APPENDIX "A"

STATEMENT OF COSTS

The following costs were incurred during the course of the work described in this report.

- Professional Services, M.H. Sanguinetti, P.Eng. 3 d @ $550/d $1,650.00
- Cardinal Exploration, (Petrography), L. Gal, P. Geo. 317.36
- Vehicle use and expense, 1 d @ $75/d 75.00
- Fuel, Oil 52.00
- Report preparation, drafting, photos 288.92
- Applicable GST on report and professional fees 126.00

**TOTAL COSTS INCURRED:** $2,509.28
WRITER'S CERTIFICATE

I, Michael H. Sanguinetti, of West Vancouver, British Columbia hereby certify that:

1. I am a geologist residing at 5479 Keith Road and employed by Sanguinetti Engineering Ltd. of 422-470 Granville Street, Vancouver, B.C.

2. I am a graduate of the University of British Columbia, B.Sc., in 1965, and have practiced my profession since that time in Canada, the United States, Mexico, Bolivia, Peru and Venezuela.

3. I am a member of the Association of Professional Engineers and Geoscientists of the Province of British Columbia.

4. I am the author of this report to Granite Creation & Stoneworks Ltd.

5. This report is based on a study of published reports on the Cogburn Creek area and on personal visits to the property in 1995, 1998 and December, 1999.

6. I have no direct or indirect interest in the claims or securities of Granite Creation & Stoneworks Ltd.

SANGUINETTI ENGINEERING LTD.

[Signature]

per: M. H. Sanguinetti, P.Eng.

February 29th, 2000
Vancouver, B.C.
REFERENCES


Govt. of B.C., 1995 Geol. Surv. Branch, Mineral Resources Division, Minfile Reports for NTS 092H12E and W.
APPENDIX “D”

PETROGRAPHIC DESCRIPTIONS

BY

LEONARD GAL, P.GEO.
3 February, 2000

Mr. Michael Sanguinetti
Sanguinetti Engineering Ltd.

Dear Mike,

Attached are brief petrographic descriptions of five rock samples taken from the Raven quarry near Harrison Lake. Samples A to C are similar mafic intrusive rocks (gabbros and norites) composed of essentially orthopyroxene, plagioclase and clinopyroxene. Sample E is similar but with more plagioclase and less mafic minerals. Sample D is a fine grained volcanioclastic rock, probably a water-lain tuff. Anisotropic fabrics were observed in samples A, and possibly C, with the weak alignment of larger clinopyroxene crystals. In sample E, a very weak alignment of mafic mineral agglomerations was apparent. Sample D of course displayed thin bedding. Minor secondary minerals included biotite and chlorite in most samples. The "fractures" observed in outcrop are found to be filled with randomly oriented, fine grained and fibrous aggregates of chlorite.

Yours truly,

Leonard Gal P.Geo.

Encl.
PETROGRAPHIC REPORT: RAVEN QUARRY SAMPLES

SAMPLE: A
ROCK NAME: clinopyroxene Norite (Gabbonorite)

ESTIMATED MODE:

<table>
<thead>
<tr>
<th>Mineral</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Orthopyroxene</td>
<td>50%</td>
</tr>
<tr>
<td>Plagioclase</td>
<td>25%</td>
</tr>
<tr>
<td>Clinopyroxene</td>
<td>20%</td>
</tr>
<tr>
<td>Biotite (secondary)</td>
<td>5%</td>
</tr>
<tr>
<td>Chlorite (secondary)</td>
<td>&lt;1%</td>
</tr>
<tr>
<td>Opaques</td>
<td>&lt;1%</td>
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Overall the rock has no preferred fabric, except for the weak alignment of the larger clinopyroxene crystals.

Orthopyroxene occurs mainly as smaller subhedral to locally euhedral grains, and was probably crystallized first. The orthopyroxene contains occasional opaque inclusions. Biotite rims some grains, but most orthopyroxene appears fresh and unaltered as smallish, clear grains.

Plagioclase is interstitial to orthopyroxene. Crystal shapes are anhedral (against orthopyroxene) to subhedral (against other plagioclase). Regular albite twinning and occasional Carlsbad twins were observed. The twin lamellae were locally bent or deformed, and observed undulose extinction also indicated some crystal strain. The plagioclase crystals are slightly turbid from fine inclusions. Crystallization was definitely after orthopyroxene. Plagioclase composition, estimated from extinction angles in Albite twins, was greater than An50, which is reasonable for a gabbroic intrusive.

Clinopyroxene crystals are anhedral to subhedral. The mineral is partly interstitial to orthopyroxene, but also occurs as some larger, subhedral prisms. The clinopyroxene grains have extinction angles of close to 45°, indicating that they are probably augite. Clinopyroxene grains display slightly undulose extinction indicating strain, and also have fine exsolution lamellae. Clinopyroxene generally have abundant inclusions of plagioclase, opaques, and biotite. Clinopyroxene crystals are locally embayed (resorbed?) by both orthopyroxene and plagioclase, although plagioclase is generally anhedral against biotite. They commonly show partial replacement by biotite, indicated by biotite rims on some grains and by biotite inclusions, possibly along intra-crystal cracks. The larger clinopyroxene crystals, which account for maybe 5% of the rock volume and are up to 3mm long, are subhedral prisms and display a weak preferred orientation.

Biotite occurs as a secondary phase, interstitial to and partially rimming orthopyroxene and more commonly clinopyroxene, and also as small inclusions within clinopyroxene.

Opaque phases are generally irregularly shaped, interstitial to silicates. In addition they occur as inclusions within the pyroxene minerals. Other minor accessory minerals are probably present but were not specifically identified.
SAMPLE: B
ROCK NAME: Gabbronorite (Clinopyroxene Norite)

ESTIMATED MODE:

- Orthopyroxene: 40%
- Plagioclase: 30%
- Clinopyroxene: 25%
- Biotite (secondary): 4%
- Chlorite (secondary): in late fracture
- Opaques: 1%

Overall the rock displayed a rather isotropic fabric. The specimen is very similar to sample A.

Orthopyroxene occurs as rather small grains, mostly subhedral; and is probably the first crystallized phase.

Clinopyroxene (again probably augite) is slightly coarser grained than the orthopyroxene, but there are no larger prismatic crystals as in sample A. The clinopyroxene grains abut against the orthopyroxene, and locally include small orthopyroxene remnants (?). Exsolution lamellae are common within the clinopyroxene. Clinopyroxene probably crystallized after orthopyroxene, about the same time as the plagioclase.

Plagioclase occurs as an interstitial phase again. Extinction angles on twins indicate a composition of approximately An₆₀.

Biotite occurs again as a replacement mineral, chiefly after clinopyroxene. The biotite is irregularly shaped, interstitial and often occurs at plagioclase-clinopyroxene grain boundaries. It also rims pyroxene grains and occurs as inclusions within clinopyroxene, and rarely, orthopyroxene.

The thin section was cut across a fracture. This feature was also observed in the hand specimen and also reported from outcrops. The fracture is filled by a fine grained, randomly oriented fibrous aggregate of chlorite, with weak green-blue pleochroism. Fine opaques and a little quartz also occur. The fracture appears to be a break at crystal boundaries, subsequently filled by chlorite. However, there is some replacement of pyroxene (and plagioclase?) crystal by chlorite at the fracture margins. Total replacement of clinopyroxene by chlorite and opaque minerals was locally observed, indicated by a concentration of fine opaque minerals.
SAMPLE: C  
ROCK NAME: Gabbronorite (Orthopyroxene Gabbro)

**ESTIMATED MODE:**
- Orthopyroxene: 27%
- Plagioclase: 35%
- Clinopyroxene: 35%
- Biotite (secondary): 2%
- Chlorite (secondary): in late fracture mainly
- Opaques: 1%

This sample is again similar to A and B, with perhaps a weak preferred alignment of the larger clinopyroxene crystals.

Orthopyroxene is less common than in samples A and B. The grains are anhedral to subhedral, mostly smallish crystals. The small crystals tend to form loose agglomerations. The orthopyroxene are locally embayed by plagioclase, and embay clinopyroxene crystals.

Plagioclase is interstitial to the orthopyroxene aggregates, but form clean crystal boundaries against other plagioclase. Plagioclase is also interstitial to the clinopyroxene, and also embays it locally. Albite twins are ubiquitous as in the other samples. And the twins are often deformed. Undulose extinction is a further indication of strain. Extinction angles on twin planes indicate compositions of at least An_{50}.

Clinopyroxene is generally coarser in grain size than orthopyroxene, although it appears to have crystallized later as in the other samples. Again, exsolution lamellae are common, as are inclusions of plagioclase and secondary biotite. Often the latter are concentrated along cleavage planes (micro-cracks?) in the clinopyroxene. There are relatively few large (2-4mm) clinopyroxene crystals (3% of rock volume), but these appear to be weakly aligned.

Biotite occurs interstitially, surrounding (replacing) clinopyroxene grains and also as inclusions within clinopyroxene.

Opaque minerals are rare outside of the fracture (see below), as irregular interstitial bodies and as inclusions and within intra-crystalline fractures.

As in sample B, a fracture is apparent in the slide. Again, the fracture is filled with a fine-grained fibrous aggregate of randomly oriented chlorite, fine opaques, and a little quartz. Opaque grains are concentrated where a clinopyroxene grain has been partially or totally replaced.
SAMPLE: D
ROCK NAME: Vitric ash tuff

ESTIMATED MODE: Phenocrysts: chiefly plagioclase: 3%
Altered glass, ash: 97%

The sample is thin bedded, fine grained, iron oxide and chlorite altered. It is probably an altered, water-lain tuff.

Phenocrysts are rare, euhedral to subhedral, and comprise dominantly (75%) plagioclase. A reliable composition estimate could not be made.

Rare subhedral clinopyroxene (?) phenocrysts occur, mostly altered to fine aggregates of chlorite.

Possible anhedral quartz phenocrysts were identified in two cases, and appeared resorbed.

Opaque minerals are very rare, comprising <<1% by volume of the rock

The rock groundmass is composed of mostly iron oxide stained, cloudy, fine-grained devitrified glass ash grains and spherules. The tuff was probably water lain, due to its fine-grained and fine bedded nature. No relict glass shards were seen. Some spherulitic structures were identified, probably individual ash grains. Abundant chlorite was recognized in the groundmass, as irregular and ragged masses, locally interstitial to the spherules and ash grains. Very fine-grained matrix carbonate was also possibly identified. Very fine-grained biotite was possibly identified in some strongly iron stained layers, indicated by its birefringence. No microlites were identified, although there are many deformed lath-shaped bodies that are optically anisotropic. These however, are probably some sort of ash or glass fragment.

Bedding is on a very fine scale, and is evidenced by differential iron oxide staining, and amount and size (?) of ash (spherules). Some beds are only weakly iron stained, and comprise fine ash spherules in a chlorite-dominated matrix. Some spherules are themselves chloritized, while others are rimmed by iron oxide. The strongest iron staining is in thin layers that are very fine grained.
SAMPLE: E  
ROCK NAME: Gabbronorite

ESTIMATED MODE:  
Orthopyroxene: 15%  
Plagioclase: 70%  
Clinopyroxene: 10%  
Opaques 5%

This rock is related to samples A, B and C, but is more felsic. On the microscopic scale, a very weakly defined lineation (foliation?) is apparent in the alignment of pyroxene crystal aggregates.

Orthopyroxene occurs as small subhedral crystals, commonly clumped together in agglomerations. The crystals are clear, and relatively unaltered.

Clinopyroxene are generally slightly larger than orthopyroxene, and the two minerals are closely associated. The clinopyroxene are cloudy, with fine inclusions. The largest clinopyroxene crystals have abundant plagioclase inclusions. The clinopyroxene is probably augite, based on extinction angles, and mineral associations. The clinopyroxene has traces of chlorite (+/- biotite) alteration associated. The orthopyroxene-clinopyroxene mineral agglomerations are preferentially elongated, but the overall anisotropy of the rock is very weak.

Plagioclase feldspar surrounds the pyroxene aggregates, and crystallized after the pyroxenes. As in the other samples, the plagioclase crystals are faintly cloudy or turbid. Compositional estimates from extinction angles range from An_{55} to An_{80}.

Opaque minerals are more common here than in the other samples, and are generally associated with aggregates of pyroxene crystals. They occur as mainly anhedral, irregular “blobs”, but some euhedral crystal shapes were also observed (possibly magnetite octahedra).

A minor amount of clear, high relief grains of some accessory mineral (possibly apatite) were observed.

Minor biotite and chlorite were observed along one side of the thin section, probably occurring along a fracture that formed one boundary to the thin section. Biotite and chlorite are very rare elsewhere throughout the thin section area.
Notes on hand samples:

A: medium grained. Pyroxene phenocrysts 2.5-3mm in finer grained matrix of pyroxene and plagioclase. Grey, slight greenish fresh colour. Perhaps weak alignment of pyroxene crystals, would not say foliation. Fabric really looks more or less isotropic. Moderately magnetic.

B: similar to A, cut by veinlet of slightly lighter green rock. Has very slight foliation or spesced fractures. Also fine fractures parallel to main "veinlet". Moderately magnetic.

C: Similar to A, B. Also moderately magnetic. Perhaps more plagioclase. Still pyroxene to about 3mm. 2 sets of fractures again, here slightly more well developed. Trace Fe oxide stain.

D: Fine grained, grey colour; buff weathered surface. Some layering (flow??) texture apparent. (or maybe bedding, if its sedimentary. Very weakly magnetic (possibly). The bedding is curvilinear rather than planar.

E: Similar to A,B, C but finer grained, maybe less pyroxene, more plagioclase. Moderately magnetic.