

MAR 19960006: STONEY ISLAND

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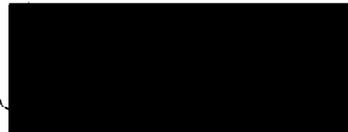
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Assessment Report
Site: 940767 Stoney Island Red Granite Prospect

Rich Capital Corporation

February 21, 1996

Report Prepared by:
Alex Keate



Director
Rich Capital Corporation

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Summary

Rich Capital Corporation identified with the help of Northern Alberta Granite a prospective granite quarry in northeastern Alberta. We commissioned the companies Geo-Engineering and John Godfrey and Sons to conduct a geological reconnaissance and evaluation of the granite prospect. Terms of reference for the study were to determine the feasibility of using the quarry rock as dimension stone and also to establish the tonnage available.

Introduction

It was determined that the red granite was a highly desirable stone. The site had good potential to be developed as a commercial-scale quarry supplying the building and construction, monument and tiling stone industries.

It was also determined that the Slave River was very close in proximity and was accessible by barge.

We decided that we would extract samples from the site and then evaluate the potential sales and thus the true economic potential of the site.

Location and Access

Please reference:

1. *Dr. John Godfrey's report - Figures for the Granite Quarry Test Site*
2. *Geo- Engineering report - Section 2 - Geological Setting*

Work Performed

Please reference:

1. *Dr. John Godfrey's report - Geological evaluation of the Stony Islands Site*
2. *Geo-Engineering report - Section 4 - Evaluation and Discussion*

Conclusions

Please reference

1. *Dr. John Godfrey's report - Section 10 - Overall conclusion and recommendations*
2. *Geo-Engineering report - Section 5 - Conclusion and recommendations*

RICH CAPITAL CORPORATION

**GEOLOGICAL EVALUATION
OF A
GRANITE ORNAMENTAL
BUILDING STONE PROSPECT
IN THE
PRECAMBRIAN SHIELD OF
NORTHEASTERN ALBERTA**

STONY ISLANDS, SLAVE RIVER, ALBERTA

by

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J.D. Sons & Associates Management Ltd.

Edmonton, Alberta

November 18, 1994

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RICH CAPITAL CORPORATION

GEOLOGICAL EVALUATION OF A GRANITE ORNAMENTAL BUILDING STONE PROSPECT IN THE PRECAMBRIAN SHIELD OF NORTHEASTERN ALBERTA

STONY ISLANDS, SLAVE RIVER, ALBERTA

1. Introduction

Rich Capital Corporation commissioned J. D. Sons & Associates Management Ltd. of Edmonton to undertake a brief evaluation of their test quarry site located in the Shield of Northeastern Alberta as a potential source of commercial granite ornamental building stone.

A field visit was made by John D. Godfrey, P.Geol.,PhD, of J.D. Sons & Associates Management Ltd. accompanied by Peter Keate and Elliott Martin, president and director respectively of Rich Capital Corporation. Fort Smith, N.W.T., was the base of operations and daily visits were made to the quarry site on three days October 23, 24, 25, 1994. Access was gained by driving south about 60 km along a good gravel road to Hay Camp in Wood Buffalo National Park and then 7 km downstream by boat crossing over to the east bank of the Slave River (Figure 1).

Ground conditions were near perfect for surface exploration as there had been no snow, the deciduous leaves had fallen and the weather was sunny.

A preliminary examination of Slave Granite rock exposures and a quarry site near to Fitzgerald (Godfrey and Langenberg, 1986) provided a useful orientation enabling the party to view and study numerous features characteristic of granite plutons and their desirability or unsuitability for ornamental building stone applications. This granite quarry has served as a supply of blasted rock fragments for crushing into aggregate.

2. General geology of the Precambrian Shield in Northeastern Alberta

About 3,600 square miles of Precambrian Shield were geologically mapped by the Alberta Research Council in the northeastern corner of Alberta during the years from 1957 to 1986 (Godfrey, 1986) (Figure 2). The mapping was undertaken to establish the geological nature, history and economic mineral potential of this virgin region. The results of this mapping-research program have been published in a series of coloured maps and reports released by the Alberta Research Council. Summaries of the research and economic mineral potential have also been published in several papers in the geological technical literature.

The Canadian Precambrian Shield underlies about two-thirds of Canada and is exposed over about half of it. The majority of Canada's metallic and non-metallic mineral wealth comes from the Shield.

The Shield of Northeastern Alberta lies within the geological Churchill Province, a belt of deeply eroded mountain roots formed 1.9 billion years ago, and having a northeasterly trending regional grain but with many local variations.

The rocks exposed in these roots include abundant granite gneisses and granitic plutons (metamorphic and plutonic igneous or the so-called "crystalline rocks") commonly with pendants and wallrocks of metamorphosed sedimentary and volcanic rocks situated between and within the granite plutons. This metamorphic-plutonic igneous complex forms a basement floor to the Western Canada Sedimentary basin. The majority of the ornamental building stone quarries of Central and Eastern Canada are situated within the Canadian Shield.

The last major geological event to affect much of the Canadian landscape was the Pleistocene Glaciation, lasting from about 2 million to 12,000 years ago. Since the retreat of the glaciers this glacially

eroded landscape has been subjected to weathering and erosion. However, little has changed on the exposed Shield of Alberta. The durability of the underlying crystalline rocks is demonstrated by the continued lack of soil and the lingering signs of glacial erosion - rounded rock outlines, striations, polish - which have withstood 12,000 years of weathering. This weathering has typically produced a skin some 2 to 5 mm thick of bleached rock immediately underlain by fresh unaltered rock suitable for extraction.

3. Recent interest in development of granite ornamental building stone rocks in the exposed Alberta Shield

Consequent upon the geological mapping program by the Alberta Research Council the attractive Fort Chipewyan Red Granite (Godfrey 1980) was studied and two sites selected for quarry testing as a building stone source. Later on, these quarry sites were incorporated into a new Cree Indian Reservation as part of the outstanding Federal Government land settlement claim.

In order to conveniently summarize and to display the wide variety of crystalline rocks to the interested public, John D. Godfrey obtained a grant from Alberta Public Works to create a catalogue of 34 slabs of selected representative rock types from the Alberta Shield. The intent was to attract attention from developers, architects and entrepreneurs to the development potential of these crystalline rocks exposed in the Shield of Northeastern Alberta.

Over the past 10 years several individuals and interest groups have attempted to establish a viable operation but, to the best of my knowledge, thus far to no avail.

4. History of work program at Stony Islands, Slave River Granite Quarry Site

The Stony Islands quarry test site (Figure 3, "Outcrop A" of Overend, 1994) is located in the W1/2 of Sections 12/13, Tp. 122, R.9, W4M, very close to the eastern bank of the Slave River, some 7 km north (downstream) from the Federal Government Station of Hay Camp. At this point the Precambrian Shield with a general incline of 40 feet per mile to the southwest, dips beneath the younger Devonian limestones seen to crop out in the western bank just downstream from Hay Camp. So in general, the last outcrops of Shield rocks proceeding westward are to be seen along the eastern margin of the Slave River, i.e. the river is generally coincident with the Precambrian/Devonian unconformity.

The mineral permit currently held by Rich Capital Corporation is bounded on the east side by the Range 8/9 boundary and extends as far west as Wood Buffalo National Park. In Township 119 this boundary extends a half township farther east. The north to south extent is from Township 124 to 118. With the aid of Northern Alberta Granite Ltd. the immediate focus of attention in the field within the mineral permit area has been three rock hillock "islands" surrounded by muskeg and situated close to the east bank of the Slave River (Figure 3, Godfrey 1987).

A field crew of 5 employees supervised by David McConnell has been opening up "Outcrop A" over a period of about 2 months (Figure 4). Equipment and supplies on site have consisted of a bulldozer equivalent in size to a D7, two front-end loaders each with a 22 ton capacity, a drill on rails with assorted lengths of steel rod and bits, three hand drills, two compressors, fuel storage tank, powder and blasting caps, and hand tools. A fully equipped trailer on site is adequate to accommodate two personnel.

A geotechnical consulting firm, Geo-Engineering (M.S.T.) Ltd. of Calgary, commissioned to conduct an evaluation of the quarry site and the feasibility of producing dimension stone, spent 3 days in the field on August 24, 25, 26, 1994. Their findings, reported by A. Overend, M.Eng., P.Eng., are contained in a report dated September 12, 1994. The main conclusions indicate the presence of a high quality attractive medium red granite and quarry development shows Outcrop A to have promise to become a commercial producer of building stone. Further exploration with core drilling is recommended at Outcrop A to be followed by detailed mapping and to repeat this cycle of exploration at Outcrops B and C.

Survey work by Geo-Engineering (M.S.T.) Ltd. shows that the elliptically-shaped Outcrop A has diameters of 292 x 375 feet (96 x 123 m) with a relief above the surrounding muskeg of 43 feet (13 m) (Figure 4). The muskeg is about 10 feet (3.3 m) above the Slave River.

5. Geological Evaluation of Stony Islands Site by J. D. Sons & Associates Management Ltd.

To satisfy the rigorous specifications demanded by architects and developers for ornamental granite building stone, and in view of the costly and intensive effort involved in quarrying rough stone blocks, the prospective quarry must be sited in the most promising part of an outcrop in order to favour the highest possible ratio of commercial-sized rough blocks vs. waste rock products. To meet these demands it becomes imperative that the initial field examination of a prospective production site also be rigorous, involving detailed, systematic study and mapping of all relevant features, both good and bad, of the prospective source materials. **The least expensive geological information is invariably available at surface and it should be thoroughly examined first to aid in the evaluation and decision making process.**

A critical evaluation of the ornamental building stone potential of an outcrop requires that a geologist examine the natural rock exposure under conditions similar to those under which the finished commercial product will be viewed. From this point-of-view we are fortunate over much of Canada. The naturally smooth rock surfaces (locally polished) left by the Pleistocene Glaciation where combined with removal of the existing vegetational cover of lichen, moss and shrubs by sluicing with a high-pressure water hose provides a continuously fully exposed clean rock surface - an ideal condition for the study and evaluation of a rock surface.

The writer was at the field site one month after the visit by A. Overend and therefore had the advantage of viewing a larger working face at the granite quarry. Although the working face of the quarry presented fresh granite, much detail was obscured by a layer of rock powder from the drilling-blasting operation. The adjoining natural outcrop surface was also covered by an almost continuous blanket of lichen, moss, and shrubs (Photograph 1). This vegetational cover very effectively obscured many of the subtle details and variations of mineralogy, colour and texture which are critical for an accurate assessment of the suitability of the granite for ornamental building stone applications.

Hydraulic sluicing (Photograph 2) of a selected portion of the outcrop removed the cover of lichen, moss and rock powder using a standard fire fighting Wajax pump and a 3" diameter hose taking water from the Slave River. Four hours of sluicing effectively cleaned off an area of about 8,000 square feet (744 square metres), representing approximately 5% of the outcrop projecting above the surrounding muskeg underlain by Slave Granite red phase. The quarry face (Photograph 3) was about 80 feet long x 10 feet maximum height.

Geological mapping of structural, textural and mineralogical features of the granite outcrop surface proceeded with the aid of a tape-measured, brunton compass controlled, temporary north-south, east-west grid using 20 foot centres (Figure 5).

6. Geological Study of OUTCROP A

6.1 Rock lithology

According to the classification established by the Alberta Research Council (Godfrey, 1986, 1987) this granite outcrop would be called Slave Granite red phase but it is transitional to Arch Lake Granite medium grained.

Mineralogy: The major minerals are: quartz 24 - 27%, potash feldspar 38 - 40%, plagioclase 27 - 29%, with minor amounts of biotite (chloritic), hornblende, epidote, muscovite and locally garnet.

Texture: Typically of medium grain and massive.

Colour: Medium to dark (hematite) red. (Chart)

Metamorphic foliation: Present to varied degrees, revealed by oriented clots of mafic minerals, patches of pale blue quartz, and ghost layering of mafic minerals.

6.2 Primary Flaws or Imperfections of Texture

Pegmatites: Are late formed, very coarse-grained (grains typically over 10 mm across) variations related to the host rock, which can occur as either irregular pods or as dykes intruding the host rock.

Irregular pods of pegmatite typically up to one foot across are common in the cleaned area of Outcrop A. Several pods are recorded on the detailed geology sketchmap (Figure 5), but many more are not shown.

Blue quartz patches: Occur as irregularly shaped aggregates of pale blue quartz which are typically oriented in the plane of metamorphic foliation.

These blue quartz pods are commonly seen in the quarry face (Photograph 4) because they are vertically aligned with the steeply dipping foliation which roughly parallels the present quarry working face.

Mafic mineral clots/aggregates: Mafic (dark) mineral clots which are typically seen as irregular streaks with a parallel to subparallel orientation in the foliation.

Outcrop A granite is characterized by a metamorphic grain due to the parallel arrangement of elongated mafic mineral clots within the steeply dipping foliation.

Metamorphic foliation or lineation: The post-cooling and consolidation phase of a granite may be followed by metamorphism and compressional stresses that cause the body to be deformed and plastically flow. In response to stress and flow mineral grains develop a preferred orientation, i.e. a metamorphic foliation or lineation, as related to platy or prismatic shaped grains, respectively.

A preferred mineral grain orientation is evident in this outcrop; it is generally steeply dipping and trends northerly. It will have a direct effect on the textural impression on the surface of cut slabs, depending on the orientation of the slab relative to the geometry of the metamorphic foliation.

Ghost gneissosity: Vague outlines of wispy layering reminiscent of metasedimentary banding. They are possible relics of the now granitized parent sedimentary materials and are typically associated with migmatites (mixtures of igneous and metamorphic rock complexes from a plutonic environment).

Swirled wispy layering has been noted in several places and is shown as migmatite in the detailed geology sketchmap, Figure 5.

Pyrite: This metallic mineral has a composition of iron sulphide which upon exposure to weathering becomes oxidized and results in streaky rusty iron stains down the rock face.

Several isolated pyrite crystals from 1 - 2mm across were seen in the quarry face. This low level of concentration should not be a problem in exposed cut slabs.

Xenoliths: "Foreign material" or inclusions pried out and carried up from the wallrock by a granite magma during its forceful upward intrusion.

In this region, xenoliths are typically of mafic (dark) mineral composition (e.g. amphibolite), and can be blocky and angular or deformed and curved in shape. Numerous folded xenoliths were mapped in the outcrop and are shown in Figure 5 and Photograph 5.

Xenoliths tend to be mechanically weak and where they are large and numerous enough they can influence the position of irregular stress fracturing in a rock. This situation is clearly evident in Outcrop A and is illustrated in Photograph 6 and Figure 5.

6.3 Secondary Flaws or Imperfections

A granite gaining mechanical strength in the late stages of cooling and solidification can fracture, thereby allowing hot mineralizing fluids to move along these new channelways and to deposit low-temperature minerals from solution into the fracture openings.

Epidote veinlets and leach zones: Steep, westerly dipping almost paper-thin fractures filled with pistachio green epidote are particularly evident in a 20 foot-wide section towards the northern end of the active quarry face. Typically, these epidote veinlets are accompanied by a zone of alteration and bleaching of the red feldspar which can extend for up to 10 mm on both sides of the vein

(Photograph 7). Equally important, these epidote veinlets (typically accompanied by chlorite) do not firmly cement the fractured rock together but they split easily to become another fracture surface.

Milky white quartz veins and veinlets: It is very common to find fracture openings filled with milky white quartz. The steep, westerly dipping fracture openings most notable in the southern half section of the quarry face, are most likely tectonically induced fractures, i.e. they formed as a result of stress and movements in the Earth's crust. Again, the quartz veins do not cement the fractured rock together, and the rock splits easily along the contact surfaces of the quartz vein to become another fracture (Photographs 8 and 9).

6.4 Fracture Characteristics

Brittle rocks fracture where stresses exceed the rock strength. Those fractures may result from (tectonic) stresses when the rock is deep inside the Earth and are related to crustal movements. Alternatively, they may form at a much later stage, after erosion has lowered the confining pressure of cover rocks and then the newly exposed rocks fracture in response to decompression (i.e. unloading). Fractures can be regular and therefore systematic, or they can be irregular and nonsystematic. Fractures vary in their length, "strength", and continuity and their surfaces may be arranged in either simple, branching or staggered (en echelon) patterns. Where there has been relative movement of rocks on either side of the fracture, the latter is then correctly referred to as a *fault*, not a fracture or a joint.

Vertical fractures: Can be related to either tectonic causes (e.g. shear zones) or the decompressional release of pressure and stress due to unloading. For systematic fractures in homogenous bedrock it is usual to find two sets of fractures arranged in an approximate orthogonal pattern. The latter arrangement in combination with strong clean fractures that are spaced 5 to 10 feet apart is very favourable for the extraction of commercial-sized blocks. Old fracture surfaces are

usually oxidized and mineral stained commonly with iron and/or manganese oxides from the presence of moisture.

Subhorizontal fractures: Are largely an expression of decompressional mechanics. Observations show that their orientation consistently reflects the shape and slope of the overlying topography, i.e. the expansion triggered uplift of the outer rock shells is controlled in detail by the slope angle of the overlying topography. Erosional unloading of the overlying rock means that decompressional relief will take place parallel to the existing topographic surface. The cross-section (Figure 6) shows a surface slope of 12° and the subhorizontal fractures exposed in the quarry face as far as 10 feet below surface reveal an identical and parallel slope. This subhorizontal fracture surface has been open to meteoric waters and intense oxidation has taken place on the fracture surface (Photograph 3). Quarry personnel commonly refer to these subhorizontal fractures as "bedding", an erroneous term insofar as the correct technical use of *bedding* refers to a primary *sedimentary* feature which is not related to igneous or metamorphic rocks.

Irregular (nonsystematic) fractures influenced by xenoliths: The development of some nonsystematic fractures has been influenced by the close distribution of basic xenoliths which introduce a mechanical weakness, as demonstrated in Photograph 6 and Figure 5.

7. Geological Outcrop Features as Related to Commercial-Sized Block Production from Outcrop A

- 7.1 A quarry development above the muskeg elevation would have the initial mechanical advantage of a side-hill mining operation using downslope subhorizontal fracture planes from the central high point where gravity should not present an unusual problem. However, excavation from a pit situated below the surrounding muskeg level would require lifting blocks and waste against gravity.

- 7.2 The too closely spaced and irregular distribution of fractures, both systematic and nonsystematic, places severe limitations on the possibility of producing economic quantities of commercial-sized ornamental granite blocks from zones 2, 3 and 4 (Figure 8).
- 7.3 The high concentration and distribution of various textural and mineralogical flaws would place severe restrictions on the amount of commercial quality rough blocks of granite building stone that could be won from this quarry in zones 2, 3 and 4. There is no technical basis to believe that the concentrations of any of the flaws would diminish with increasing depth below surface in terms of the limits of a typical quarry operation.
- 7.4 The easily accessible granite reserves from Outcrop A are limited and would indicate a projected short potential life for a building stone quarry operation. First of all, only about two-thirds of Outcrop A qualify as Slave Granite red phase material, based upon the field observations reported by Overend (Plate 1, 1994) the remainder is reinterpreted here as granitic metasedimentary rock (Figure 4).
- 7.5 Reserves calculation of the selected quality (i.e. zones 1 plus 5) of Slave Granite red phase exposed above the muskeg and most capable of producing commercial-sized rough blocks from Outcrop A are estimated at 46,000 short tons (equivalent to 560,000 cubic feet) assuming a quarry waste factor of 80% for the entire hillock underlain by Slave Granite.

Removal of 10 feet (3.3m) of muskeg around the perimeter of the outcrop would expose an estimated 71,500 short tons (equivalent to 866,000 cubic feet) of selected quality of Slave Granite red phase, i.e. exclusive of zones 2, 3, and 4, assuming a quarry waste factor of 80% for the entire hillock underlain by Slave Granite.

Selective mining to avoid the deleterious zones 2, 3 and 4 as outlined in Figure 8 could significantly increase the proportion of commercial-quality rough blocks.

8. Test Blocks

The purpose of test blocks:

1. Test for engineering properties in order to satisfy specifications for an ornamental granite building stone : compressive and shear strengths, specific gravity, porosity and permeability, resistance to abrasion, freeze-thaw reaction, etc.
2. Esthetic quality: Largely relates to colour and texture; architects recommend a minimum surface area of 1 square foot for an evaluation.
3. Workability under plant processing/manufacturing conditions and the quality of a variety of surface finishes presently used in standard commercial applications.

Note: It is essential before removal that test blocks be oriented with permanent markings *in situ* with respect to true north and a horizontal plane in order that the correct (i.e. most favourable) orientation be used for the cutting direction in the processing plant. There is usually a preferred cutting direction for granite rough blocks in that an inherent foliation or lineation (metamorphic or flow structure) may show up on the inside, even though it may not be immediately obvious on the external broken surfaces of the rough block.

9. Brief Geological Examination of OUTCROP B

A brief examination of this outcrop, situated about 0.5 miles north of Outcrop A on the east side of the Slave River (Figure 3) showed:

Rock lithology: Consists of high-grade quartzitic metasedimentary rock, with a significant granitic component which appears as a white -

grey granitoid with many discontinuous gneissic layers in accordance with its metasedimentary origin.

The northerly orientated metamorphic foliation is swirled in part and characteristically exhibits knots of garnet in an envelope of chloritic biotite.

Rusty zones and pyrite, and possibly other sulfides, are common; canary yellow uranium bloom (accompanied by the usual absence of lichen and moss) were noted at several locations.

Reserves: Although this outcrop is of similar size in plan view to that of Outcrop A it does not add to reserves of Slave Granite red phase because it is an entirely different rock type and its highly heterogeneous nature makes it unsuitable as a commercial building stone prospect.

10. Overall Conclusions and Recommendations

- 10.1 The target rock, Slave Granite red phase (possibly equivalent to Arch Lake Granite medium phase), is a very good quality attractive granite wherever flaws are absent. It is characterized by pale blue quartz, red and white feldspars, along with minor amounts of dark biotite and hornblende and which altogether give an overall warm medium-dark red colour to the rock.
- 10.2 Abundant, dispersed and varied types of rock flaws seriously affect the ability of this quarry site to produce a rock of uniform commercial grade quality from zones 2, 3, and 4 (Figure 8). Flaws include: dark xenoliths, pegmatites, patches of blue quartz, ghost or wispy gneissic layering, metamorphic foliation, discolouration and bleaching of red feldspar adjacent to epidote-filled fractures and zones of branching quartz veins and veinlets.

- 10.3 The pattern of systematic and nonsystematic vertical fractures is too closely spaced to allow for the consistent production of commercial-sized rough blocks, i.e. in the order of 20 to 30 tons each, particularly in zones 2, 3 and 4. These fractures appear to be of both tectonic and decompressional origins and therefore on average they can be expected to become wider spaced at depth.
- 10.4 The subhorizontal or "bedding fracture" pattern is too irregular and too closely spaced as exposed within the present 10 feet-high quarry face to allow for the production of commercial-sized blocks. The latter require minimum regular bedding fracture spacings of 4 to 5 feet. At deeper quarry levels these subhorizontal fracture spacings can be expected to become wider and perhaps more regular.
- 10.5 Available reserves for commercial-sized rough blocks at Outcrop A (Outcrop B cannot be included in this reserves calculation because it consists of granitic metasedimentary rock rather than the target rock of Slave Granite red phase) and allowing for an overall 80% quarry wastage factor, and including only that portion of Outcrop A which is underlain by Slave Granite red phase, then applying a bulk specific gravity of 2.64 gm/cc for this granite (Sprenke, Wavra, and Godfrey, 1986) yielding about 165 lbs/cubic foot;
- above the surrounding muskeg level, there would be about 560,000 cubic feet of usable commercial grade reserve, equivalent to 46,000 short tons; and,
 - extending the reserves estimate to include the outcrop 10 feet below the muskeg elevation, the usable commercial grade reserves becomes 866,000 cubic feet or 71,500 short tons.
- 10.6 Figure 3, an extract from a published Alberta Research Council map (Godfrey and Langenberg, 1987), shows a general north-trending, steeply inclined (vertical to steeply dipping west) metamorphic foliation and major east - west fault systems located 1 to 2 miles south of Stony Islands. Integrating this regional structural data indicates

that any foliation in the Slave Granite at the Stony Islands quarry site will tend to be perpendicular to these faults and the associated fractures.

This proposed spatial relationship is expressed at two scales:

a). Mapping of the cleaned quarry site (Figure 5) shows a zone of xenoliths and migmatitic gneissosity along a north - south alignment, i.e. parallel to the foliation, whereas the quartz and epidote veins/fracture system trends approximately east - west and therefore reflects the easterly oriented fault systems.

b). The recent examination of Block "C" reveals a perpendicular relationship between the metamorphic foliation plane and the epidote vein - fracture system.

10.7 Generalization of the basic geological details based on the mapping of the cleaned outcrop, presented in Figure 5, reveals an interesting zonation pattern that could be of considerable help in the modelling of building stone quarry development both at Stony Islands and elsewhere in the future (Figure 8). The short time devoted to the cleaning, surveying and geological mapping exercise means that some relevant geological details were probably not observed and recorded. More time spent in mapping details of the outcrop should give a better knowledge and understanding of some features. For example, delineation of zone 4, the epidote vein/fracture zone, where observations were essentially limited to the quarry working face.

The east - west trending zones (Figure 8) listed from south to north:

1. Orthogonal patterned major joints; (most productive zone)
2. Concentration of basic xenoliths; (waste material)
3. Concentration of quartz veins & shears; (waste material)
4. Concentration of epidote veins; (largely waste material)
5. Orthogonal patterned major joints; (most productive zone)

The differing geological character of the above zones probably reflects the different physical reactions to external crustal stresses during the cooling and consolidation phases of this granite pluton.

- 10.8 The implications of the generalisations presented in Figure 8 are of possible considerable importance in the economic exploitation of granitic plutons for building stone blocks, and point to the potential benefits of using a minor geological study in advance of relatively expensive quarry tests and development. Although straight-line extrapolations may be an over-simplification and can be misleading, for the sake of discussion, transpose the zoned pattern of flaws established by mapping of the cleaned quarry site (Figure 8) onto the larger scaled map of the quarry site (Figure 9). The latter plot clearly shows the spatial relationships of the zones of deleterious features (quartz and epidote veins, and xenoliths) and thereby effectively outlines the least affected and therefore the most prospective rock. **The identification and elimination of this waste rock area is a key step in the planning of quarry testing and especially for the long-term development-production within the most highly prospective part of this or any outcrop.**
- 10.9 The proximity of Outcrop A to the Slave River may present a concern regarding the possible influx of groundwater for a deep pit excavation. The edge of the outcrop is 300 feet from the river bank and the present quarry face is 500 feet away. The possibility of substantial seepage depends on the hydraulic conductivity through fracture systems and the hydraulic gradient in the groundwater system.
- 10.10 Although situated in a generally remote location the logistics for hauling out rough blocks remains feasible for much of both the summer and winter seasons. Navigation by barge on the Slave and Athabasca Rivers to Fort McMurray and then by road or rail to Edmonton in the summer, could be complemented by an ice bridge haul over the frozen Slave River and then by road to Edmonton in the winter.

10.11 The geological factors in terms of the abundance and general distribution of mineral and textural flaws plus the closely spaced fractures as defined in zones 2, 3 and 4 dictate that quarry production planning should take full advantage of the geological picture presented in Figure 8. **This geological study clearly shows that zones 2, 3 and 4 can be eliminated from any commercial block production expectations, and it is recommended that production planning focus on zones 1 and 5. A strong preference is given to zone 5 in view of its expected greater reserves potential as compared to that of zone 1.**

Before production planning proceeds it is strongly advised that the outcrop area in the extended zone 5 be cleared, cleaned and geologically evaluated (similar to that in the present study), in order that the most favourable location is delineated for quarry development.

10.12 A geological map of mineral showings published by the Alberta Research Council (Godfrey, 1986b) also shows several sites that are favourable for the development of building stone quarries. Most of these sites are presently located within mineral permit areas held by other parties. None of the identified sites lie within the permit now held by Rich Capital Corporation. In the long term, it could be advantageous for Rich Capital Corporation to monitor any ownership changes in these permits with a view to acquiring the sites.

Respectfully submitted,


John D. Godfrey, P.Geol., PhD

November 18, 1994


November 25, 1994

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DECLARATION

I, JOHN DERRICK GODFREY, of the Municipality of Edmonton, Alberta, do certify that:

- (1) I am a professional geologist, residing at [REDACTED] Edmonton, Alberta, T5R 0G4
- (2) I am a graduate of the University of Nottingham (1950) into a Bachelor of Science (B.Sc.) degree in the combined subjects of Geology and Physics; and a graduate of the University of Chicago with a Master of Science (M.S.) degree in Geology (1955) and a Doctor of Philosophy (Ph.D.) degree in Geology (1962).
- (3) I have practised my profession continuously since graduation whilst being employed by such agencies as The University of Chicago, The University of Alberta, the Alberta Research Council, and the Canadian International Development Agency. I have also undertaken numerous short-term independent projects and studies as a consultant during the past forty four (44) years.
- (4) I have no interest, either directly or indirectly, in the subject property reported in this document, nor do I expect to acquire or to receive any such interest.
- (5) I am a member in good standing of the Association of Professional Engineers, Geologists, and Geophysicists of Alberta, Edmonton.

[REDACTED]
John D. Godfrey, P. Geol., PhD

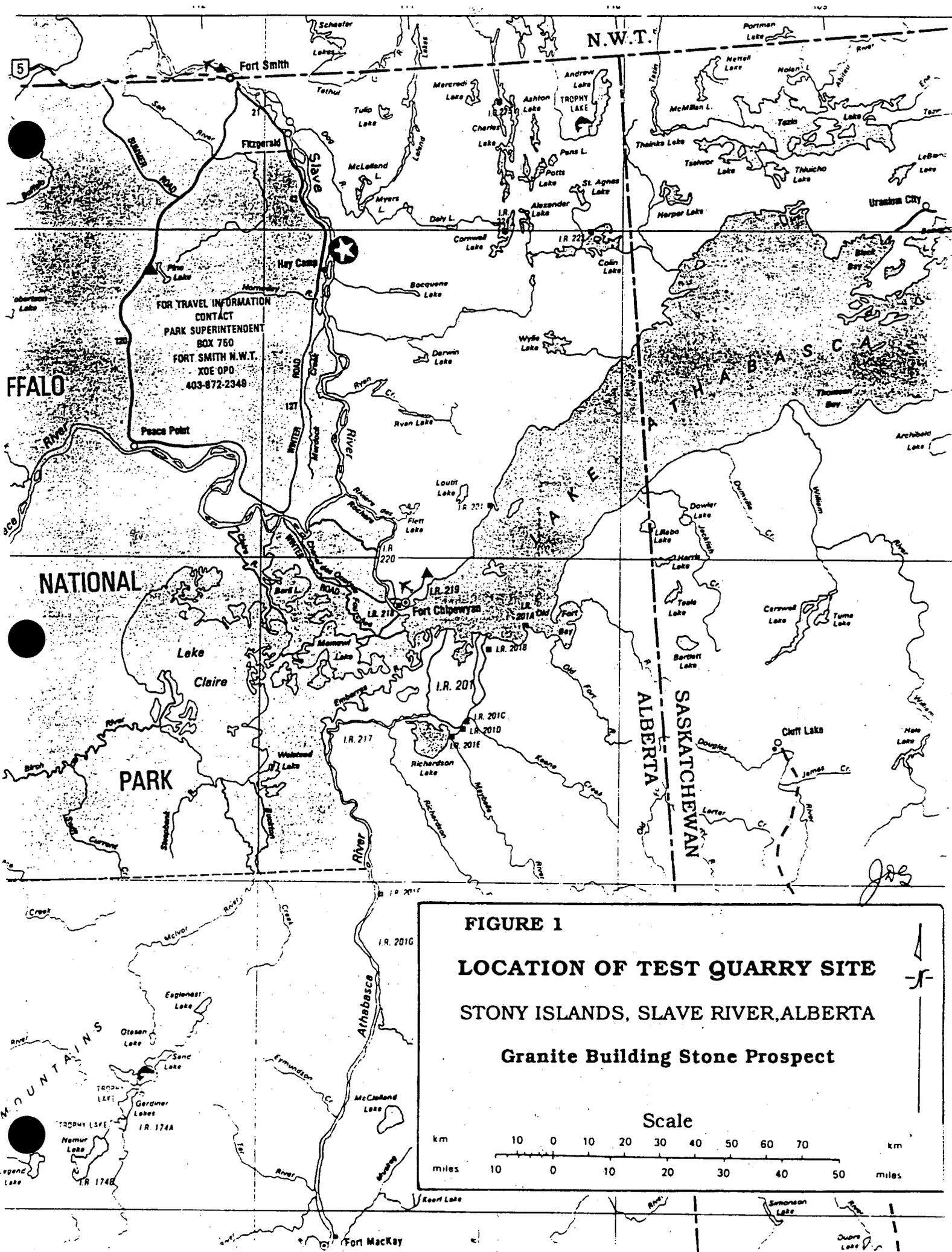
Dated at the City of Edmonton

in the Province of Alberta

this 18th day of November, 1994

Figures for the Granite Quarry Test Site

Stony Islands Slave River, Alberta



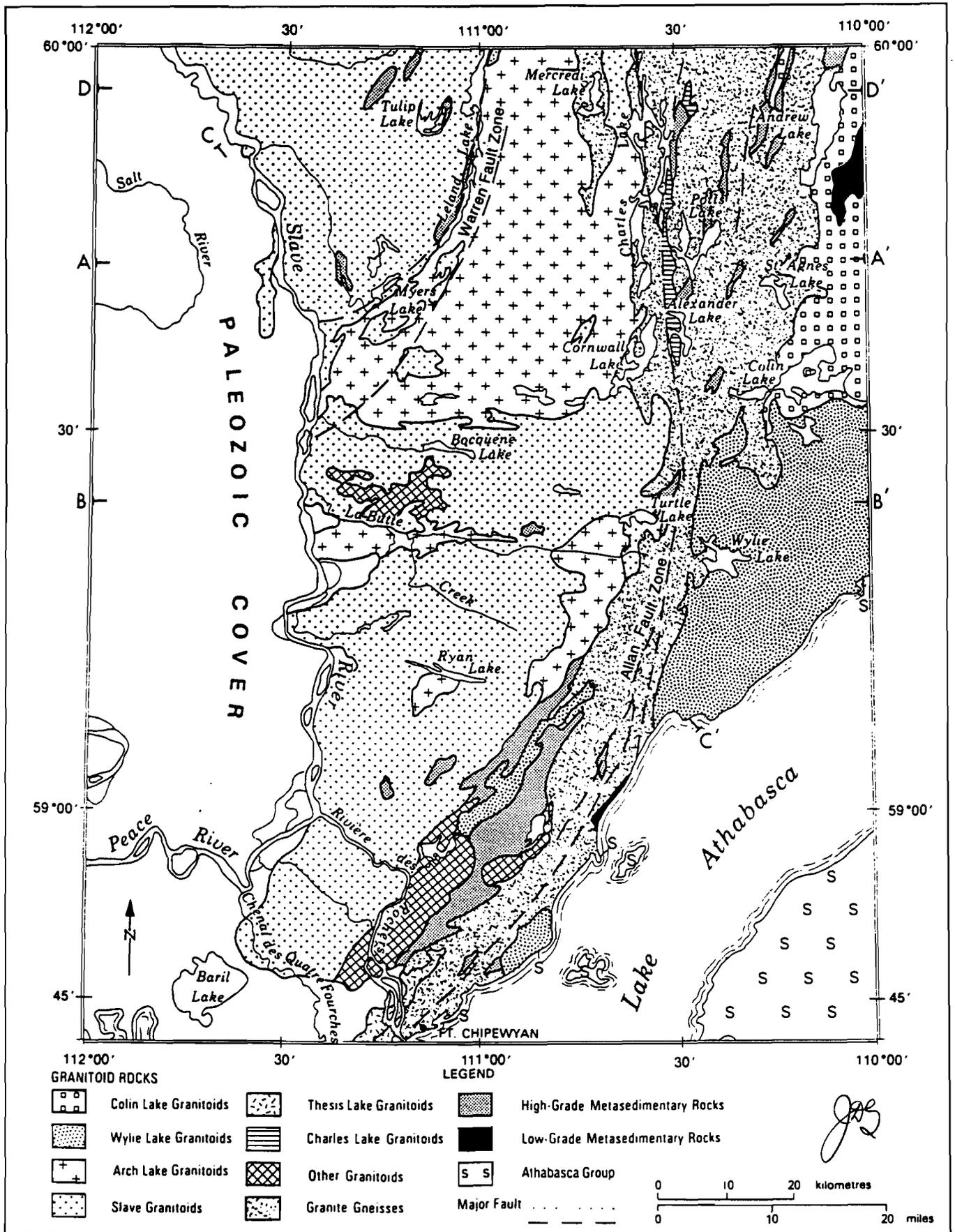


Figure 2. Simplified geological map of the Alberta Shield (Langenberg and Nielsen, 1982).

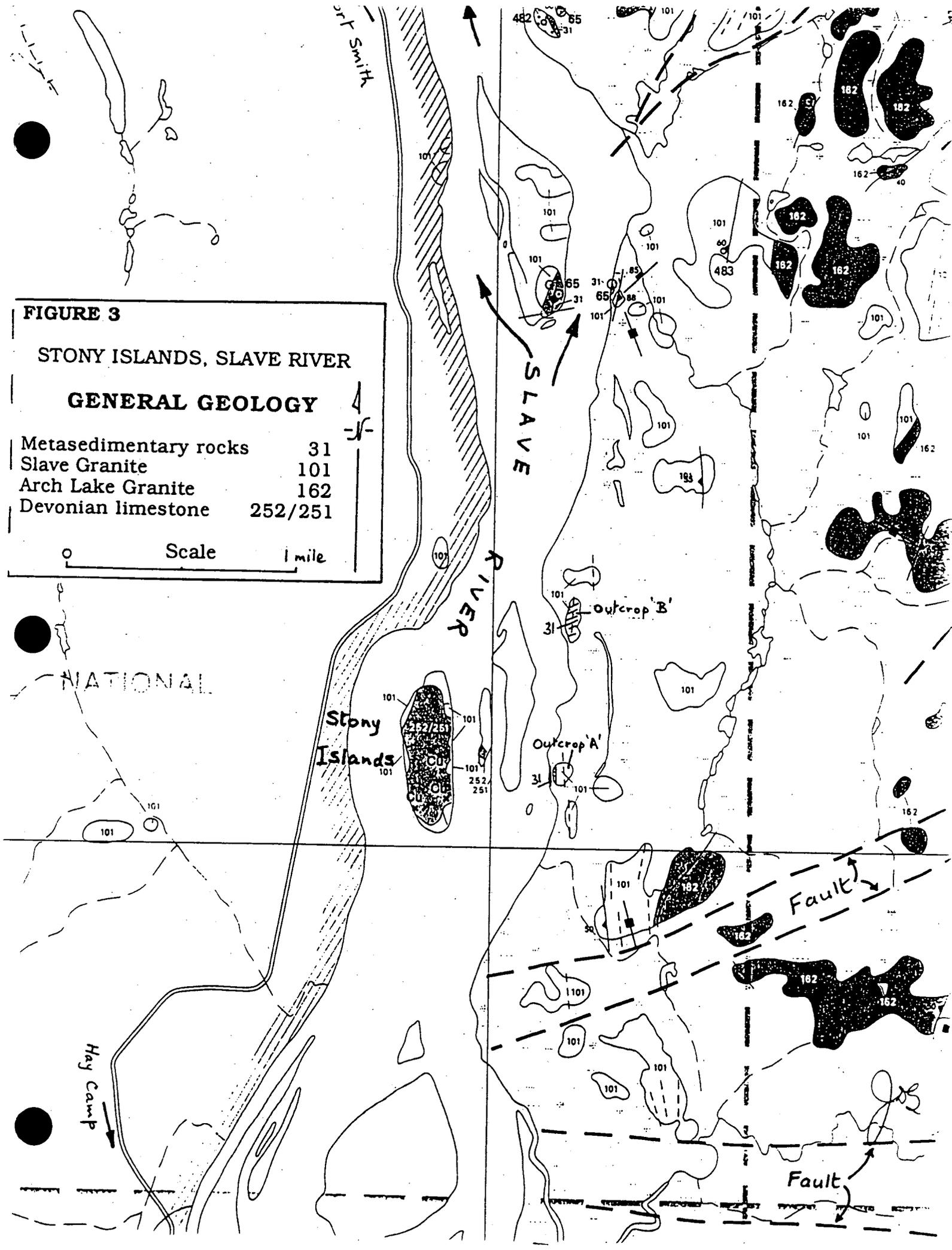
FIGURE 3

STONY ISLANDS, SLAVE RIVER

GENERAL GEOLOGY

Metasedimentary rocks	31
Slave Granite	101
Arch Lake Granite	162
Devonian limestone	252/251

Scale 1 mile



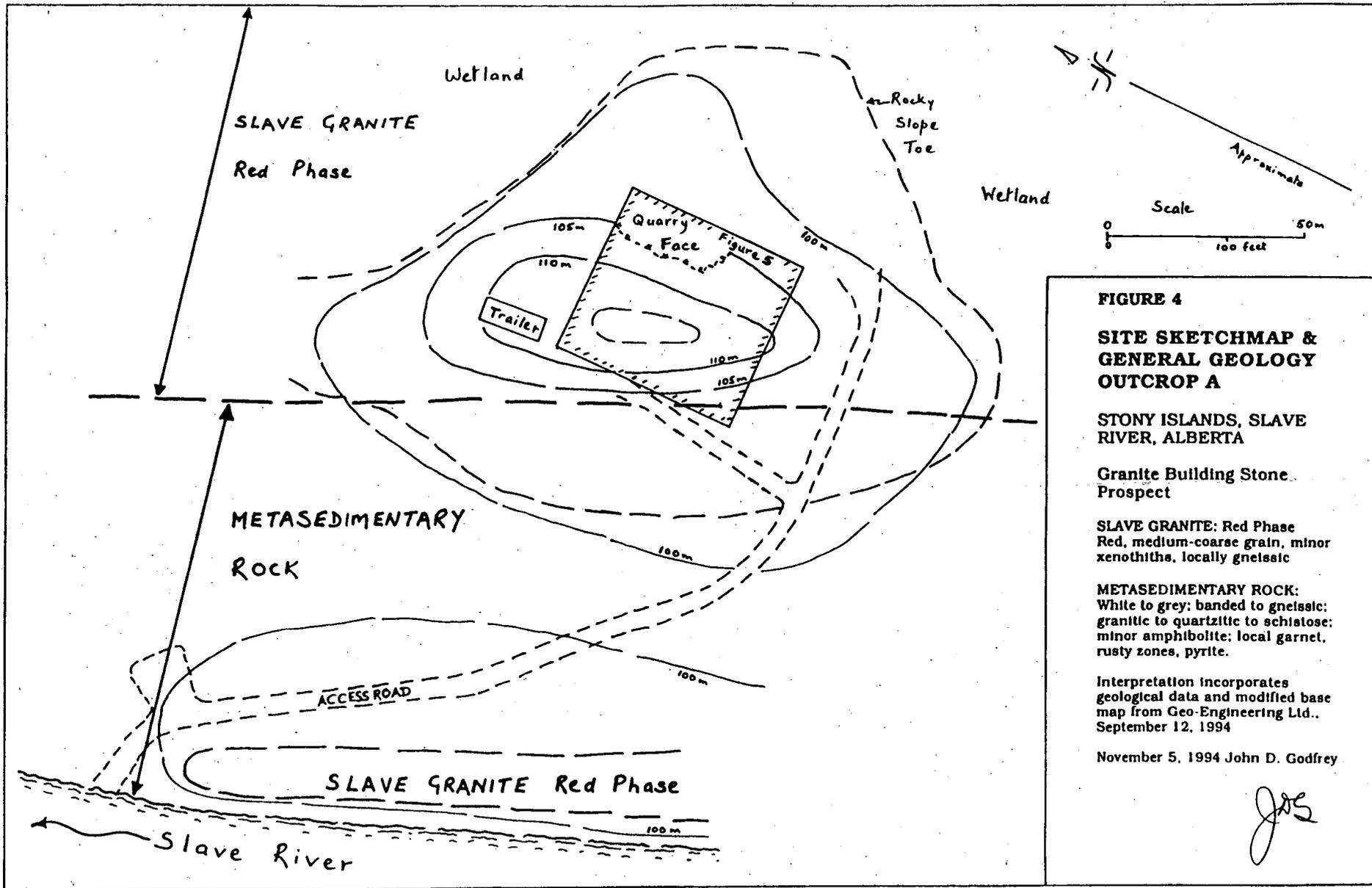


FIGURE 4
SITE SKETCHMAP & GENERAL GEOLOGY OUTCROP A

STONY ISLANDS, SLAVE RIVER, ALBERTA

Granite Building Stone Prospect

SLAVE GRANITE: Red Phase
 Red, medium-coarse grain, minor xenoliths, locally gneissic

METASEDIMENTARY ROCK:
 White to grey; banded to gneissic; granitic to quartzitic to schistose; minor amphibolite; local garnet, rusty zones, pyrite.

Interpretation incorporates geological data and modified base map from Geo-Engineering Ltd., September 12, 1994

November 5, 1994 John D. Godfrey

JDS

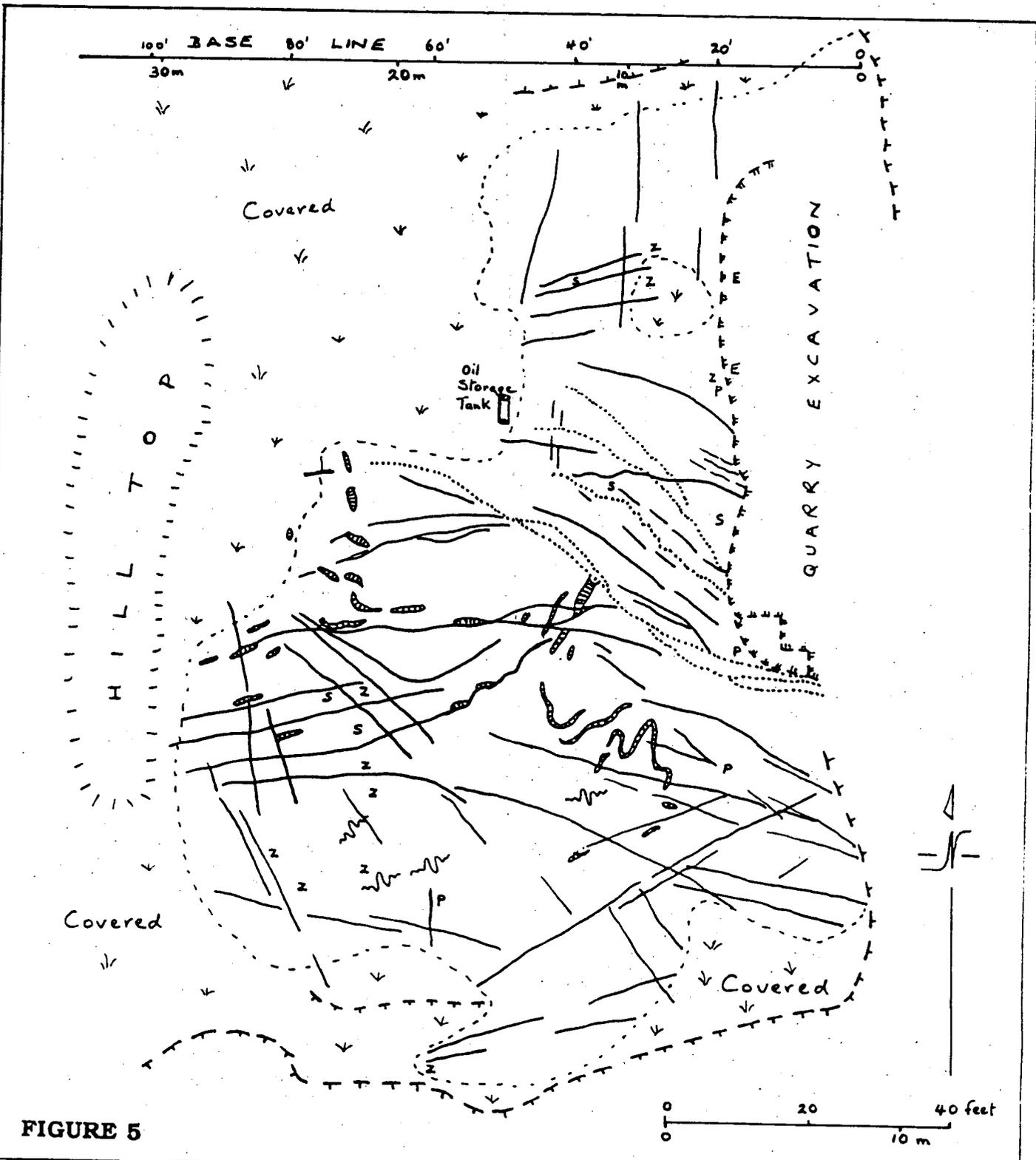


FIGURE 5

Epidote veinlets, typically with bleached zone	E	Major joints, steeply dipping	GEOLOGICAL SKETCHMAP OUTCROP A <i>Jag</i>
Pegmatite	P	Natural steep slope	
Milky quartz stringers (1 - 4mm thick)	S	Quarry excavation	
Blue quartz patches in foliation	Z	Vegetation cover (lichen, moss)	
Xenoliths, basic (dark)		Magnetic declination 26° East	
Migmatite, swirled gneissic banding		John D. Godfrey Oct. 31, 1994	STONY ISLANDS, SLAVE RIVER, ALBERTA
Milky quartz veins (5 - 100mm thick)		Granite Building Stone Prospect	

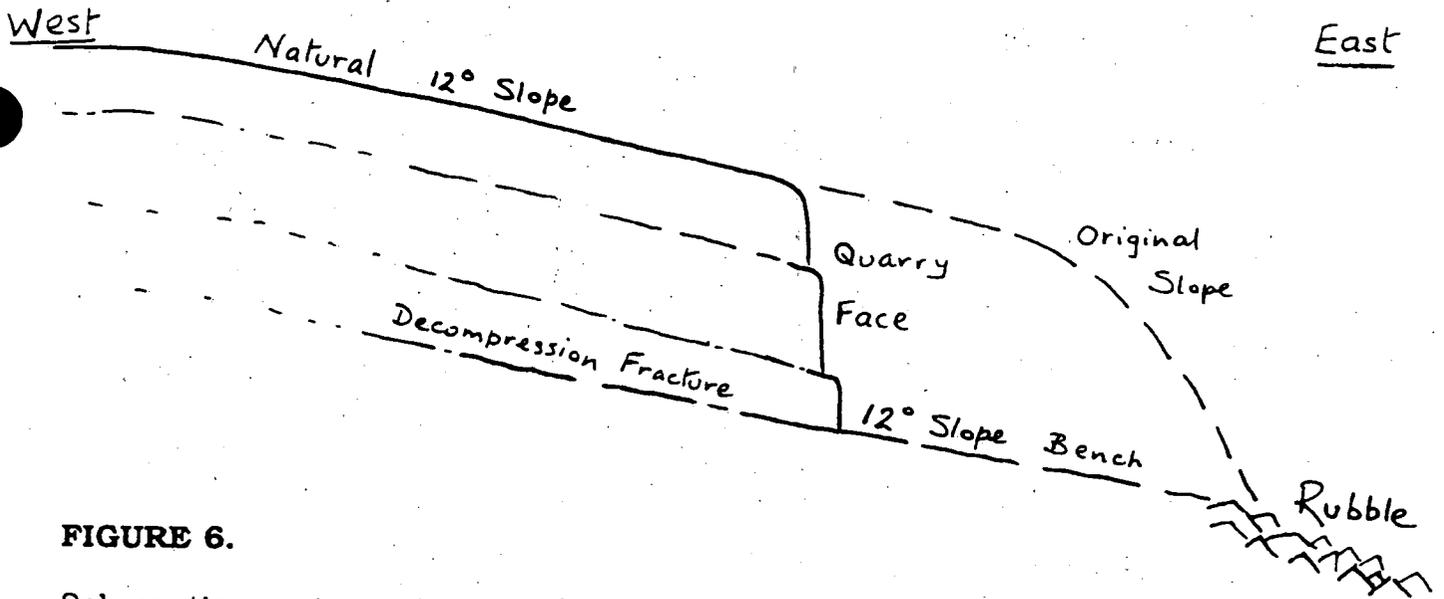


FIGURE 6.

Schematic, west - east, vertical cross-section through quarry working face of Outcrop A, illustrating close relationship between 12° slopes of topography and the underlying decompressional subhorizontal fractures (i.e. "bench").

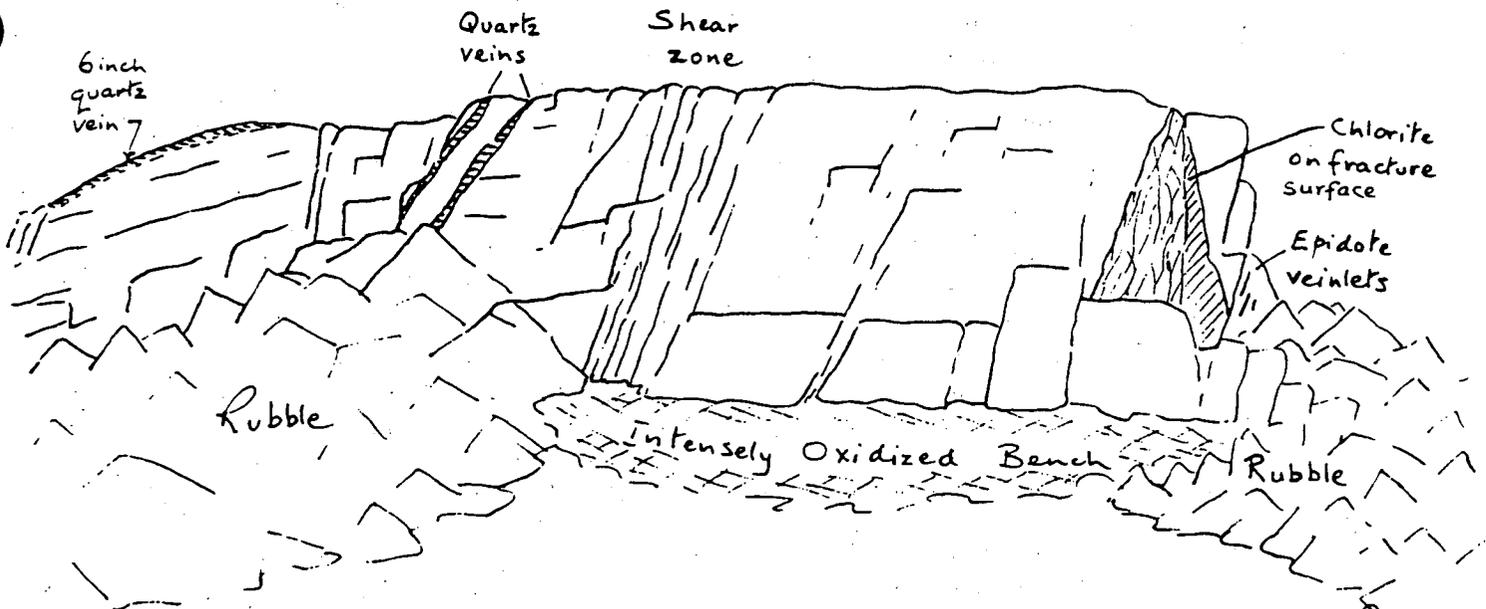
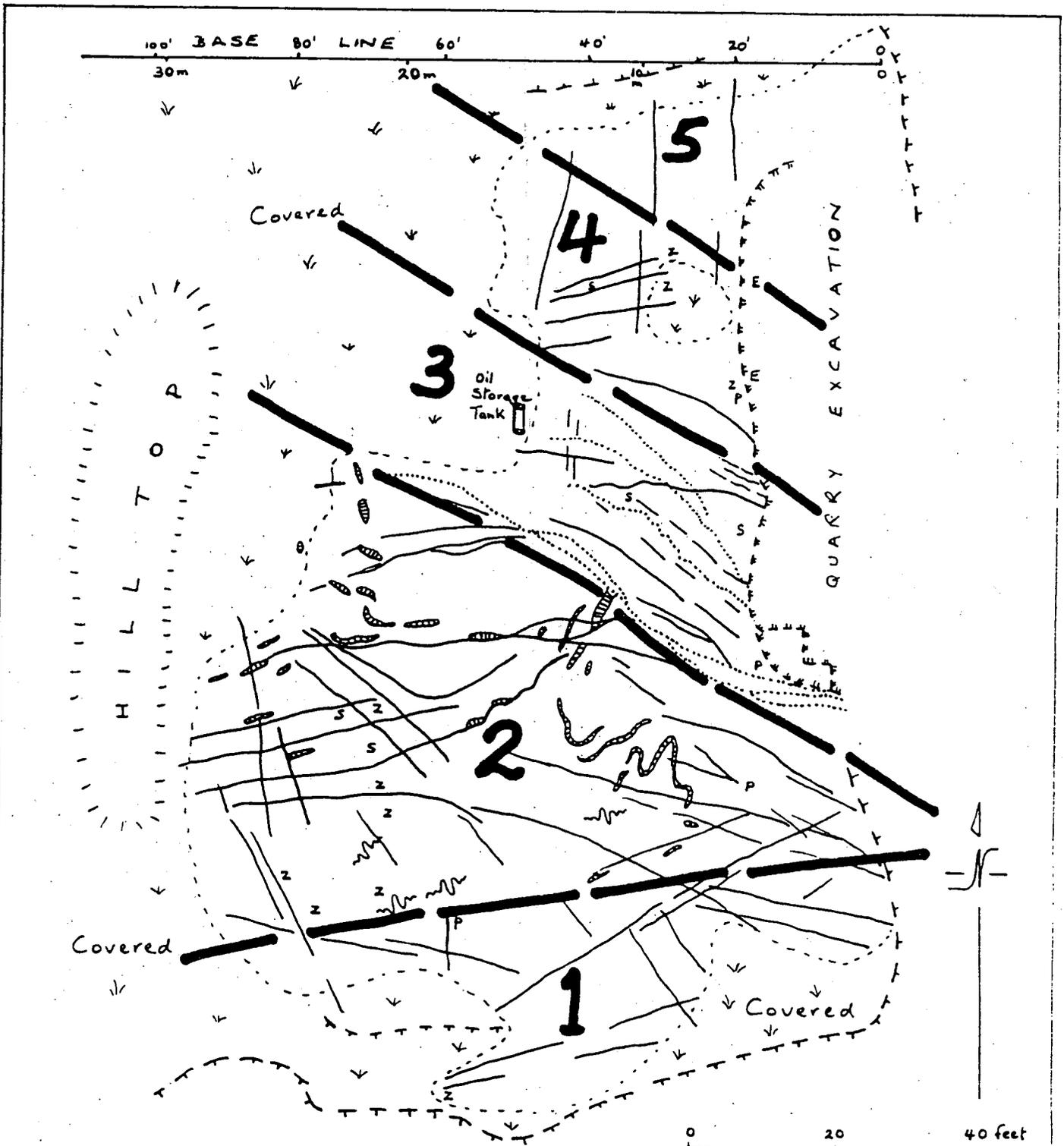


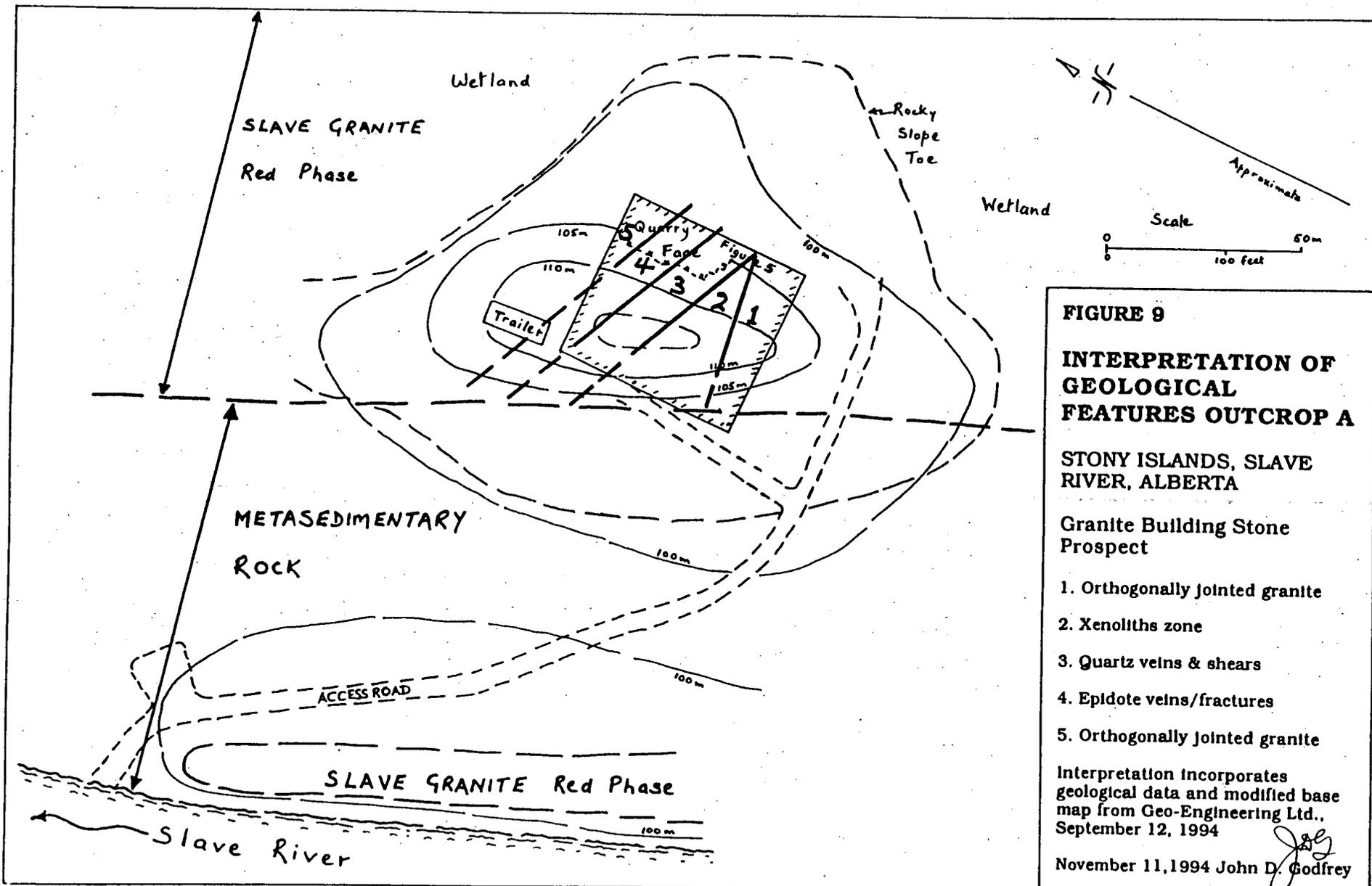
FIGURE 7.

Sketch of geological features exposed in 10 feet high quarry working face of Outcrop A.



LEGEND see below and Figure 9

<p>Epidote veinlets, typically with bleached zone</p> <p>Pegmatite</p> <p>Milky quartz stringers (1 - 4mm thick)</p> <p>Blue quartz patches in foliation</p> <p>Xenoliths, basic (dark)</p> <p>Migmatite; swirled gneissic banding</p> <p>Milky quartz veins (5 - 100mm thick)</p>	<p>E</p> <p>P</p> <p>S</p> <p>Z</p> <p>✓</p> <p>~</p> <p>⋯</p>	<p>Major joints, steeply dipping</p> <p>Natural steep slope</p> <p>Quarry excavation</p> <p>Vegetation cover (lichen, moss)</p> <p>Magnetic declination 26° East</p> <p>John D. Godfrey Oct. 31, 1994</p>	<p>FIGURE 8</p> <p>ZONATION OF FLAWS IN OUTCROP A</p> <p>STONY ISLANDS SLAVE RIVER, ALBERTA</p> <p>Granite Building Stone Prospect</p>
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Photographs of the Granite Quarry Test Site

Stony Islands Slave River, Alberta



Photograph 1. A natural outcrop on the glaciated quarry hillock. The character of the underlying bedrock remains hidden by a blanket of vegetational cover of lichen and moss.



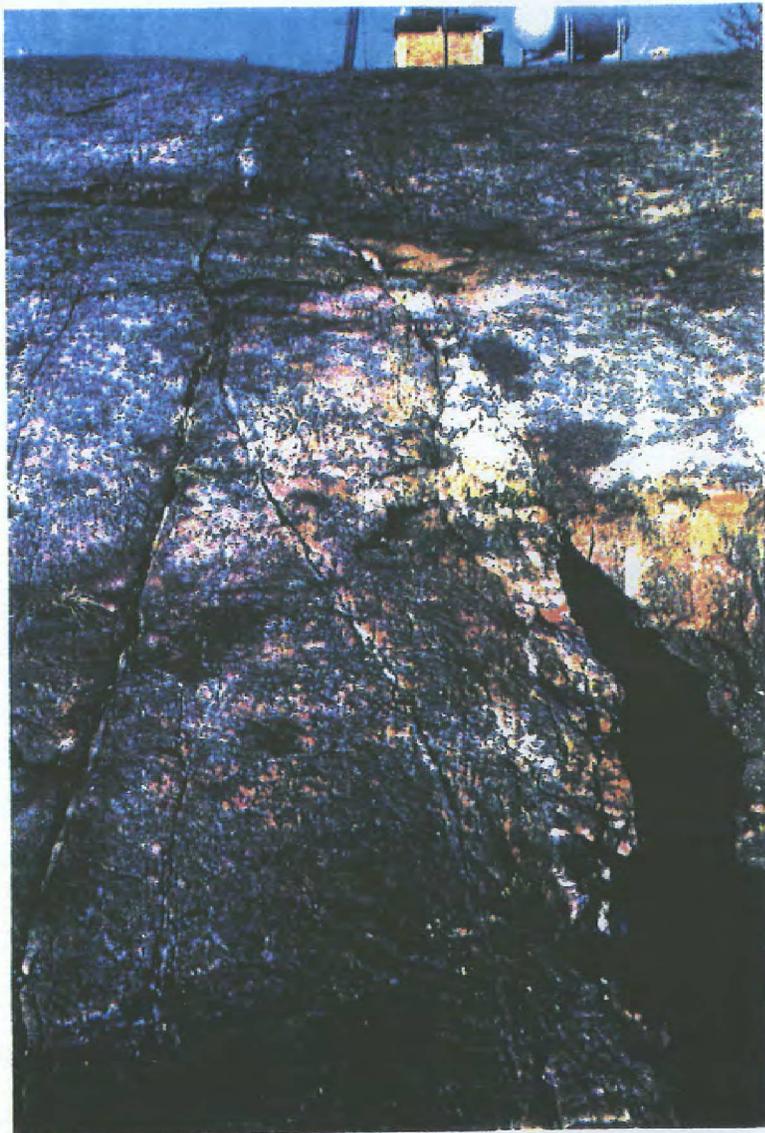
Photograph 2. View looking east from quarry hilltop; high-pressure water washing of the glacially eroded and smoothed outcrop, ideal for the study of textural and structural details of the granite prospect. Note the waste rock pile from quarry development, and the surrounding muskeg lowland.



Photograph 3. View looking west along the south flank of the quarry hillock. Glacial erosion has left a generally smooth and rounded rocky landscape. Note the parallel striations (erosional scratches) in the right foreground indicating the direction of ice sheet flow away from the camera.



Photograph 4. Location 20 to 30 feet southwest of the south end of the active quarry face (Figure 5); showing several long thin contorted xenoliths (dark) within the granite.



Photograph 5. Looking westerly from the extreme southern edge of the active quarry face, (visible at right-hand side of the photograph), showing a set of branching westerly fractures, some with a milky white quartz vein.



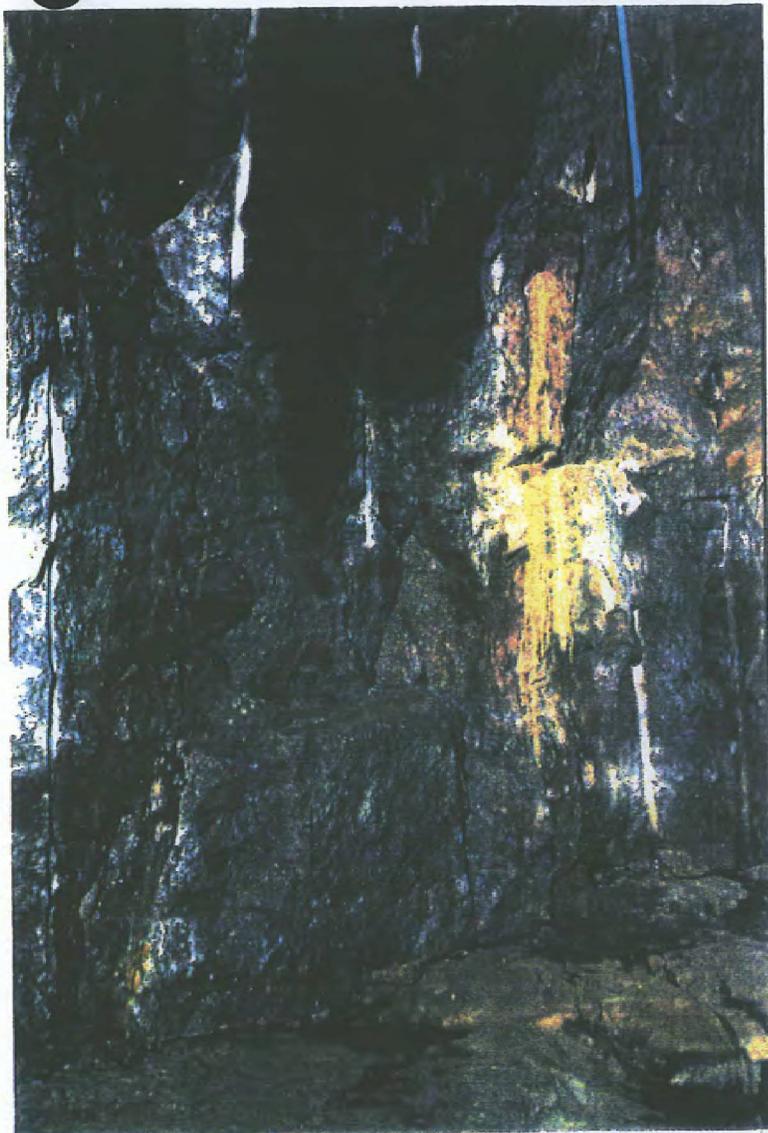
Photograph 6. Location 40 feet westsouthwest of the south end of the active quarry face (Figure 5); three large, elongated xenolith blocks (dark) are connected by an irregularly shaped fracture.



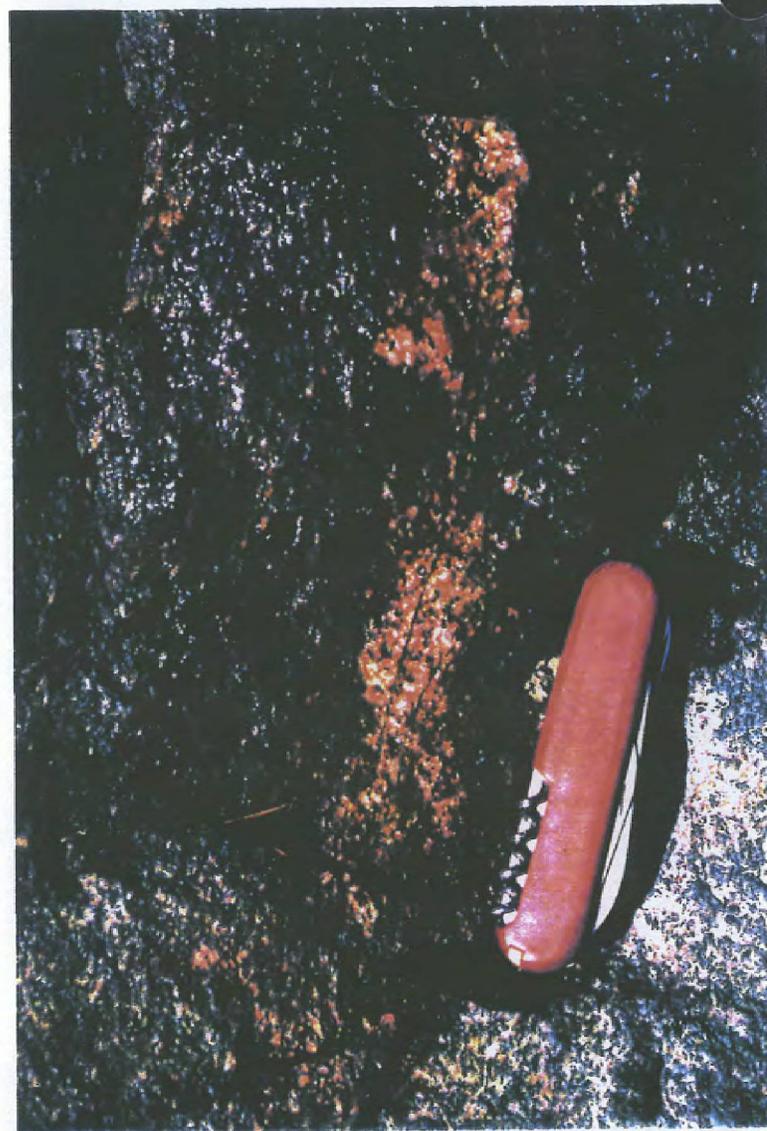
Photograph 7. Active quarry face (maximum 10 feet high) at the east side of the granite hillock. Rock rubble is pushed away from the quarry face; note major subhorizontal decompressional fracture forming a bench and working platform on the quarry floor; dark areas of quarry face are wet from water washing of outcrop above; thin white quartz vein (see photograph 8 for detail) exposed at extreme L.H.S. of quarry face. The outcrop surface and the 10 foot-deep decompressional fracture, are parallel and slope south.



Photograph 8. View of active quarry face at extreme south end (see L.H.S. of photograph 7); two prominent milky white quartz veins dip southward.



Photograph 9. Active quarry face, shows detail on R.H.S. of photograph 7; note good separation along the intensely oxidized (rusty) subhorizontal fracture at base of the quarry face; discontinuous, subhorizontal parallel fractures form small ledges; a zone of closely spaced vertical shear fractures are at the extreme L.H.S. of the photograph; drill holes and wet areas (dark) mark the quarry face.



Photograph 10. Detail towards the north end of the quarry face in the epidote vein - fracture zone; showing a green epidote veinlet enclosed by a two-inch wide bleach (alteration) zone where typically red feldspar is now pink.



Photograph 11. Detail at quarry face; showing a discontinuous, subhorizontal fracture forming ledge to support the penknife; patches of pale blue quartz are aligned within the metamorphic gneissic foliation of the Slave Granite; subtle foliation in the granite is best displayed in the lower half at the L.H.S. of the photograph.



Photograph 12. On the east bank of the Slave River; a quarry block of Slave Granite red phase is inspected by Peter Keate and Elliott Martin, Rich Capital Corporation.

**SLAVE RIVER
GRANITE PROSPECT**

**REPORT
ON
GEOLOGICAL RECONNAISSANCE
AND EVALUATION**

Prepared for:
RICH CAPITAL CORPORATION
Richmond, B.C.

Prepared by:
GEO-ENGINEERING (M.S.T.) LTD.
Calgary, Alberta

September 1994
G637

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1.0 INTRODUCTION

Rich Capital Corporation, in association with Northern Alberta Granite Ltd., has identified a prospective granite quarry in northeastern Alberta. The site is located on the east bank of the barge-accessible Slave River, some 30 miles southeast of Fort Smith, on the Northwest Territories/Alberta border (See Figure 1). Fort Smith is some 300 miles northeast of Edmonton, Alberta.

The site is located within the W1/2 of Sections 12/13, 122-9-W4M. Salt River Concrete's commercial gravel operation, which exports high-grade crushed aggregate around the world, is situated on Myers Lake, some 7 miles to the northeast. Current access from Fort Smith to the site is via a 35 mile gravelled road to Hay Camp, then 5 miles downstream by riverboat.

Geo-Engineering (M.S.T.) Ltd. was commissioned by Rich Capital Corporation to conduct a geological reconnaissance and evaluation of the granite prospect. Terms of reference for the study, contained in a proposal dated July 21, 1994, were to determine the feasibility of using the quarry rock as dimension stone and also to establish the tonnage available.

Authorization to proceed with the work was received from Mr. Peter Keate, President, Rich Capital Corporation, by letter dated August 4, 1994.

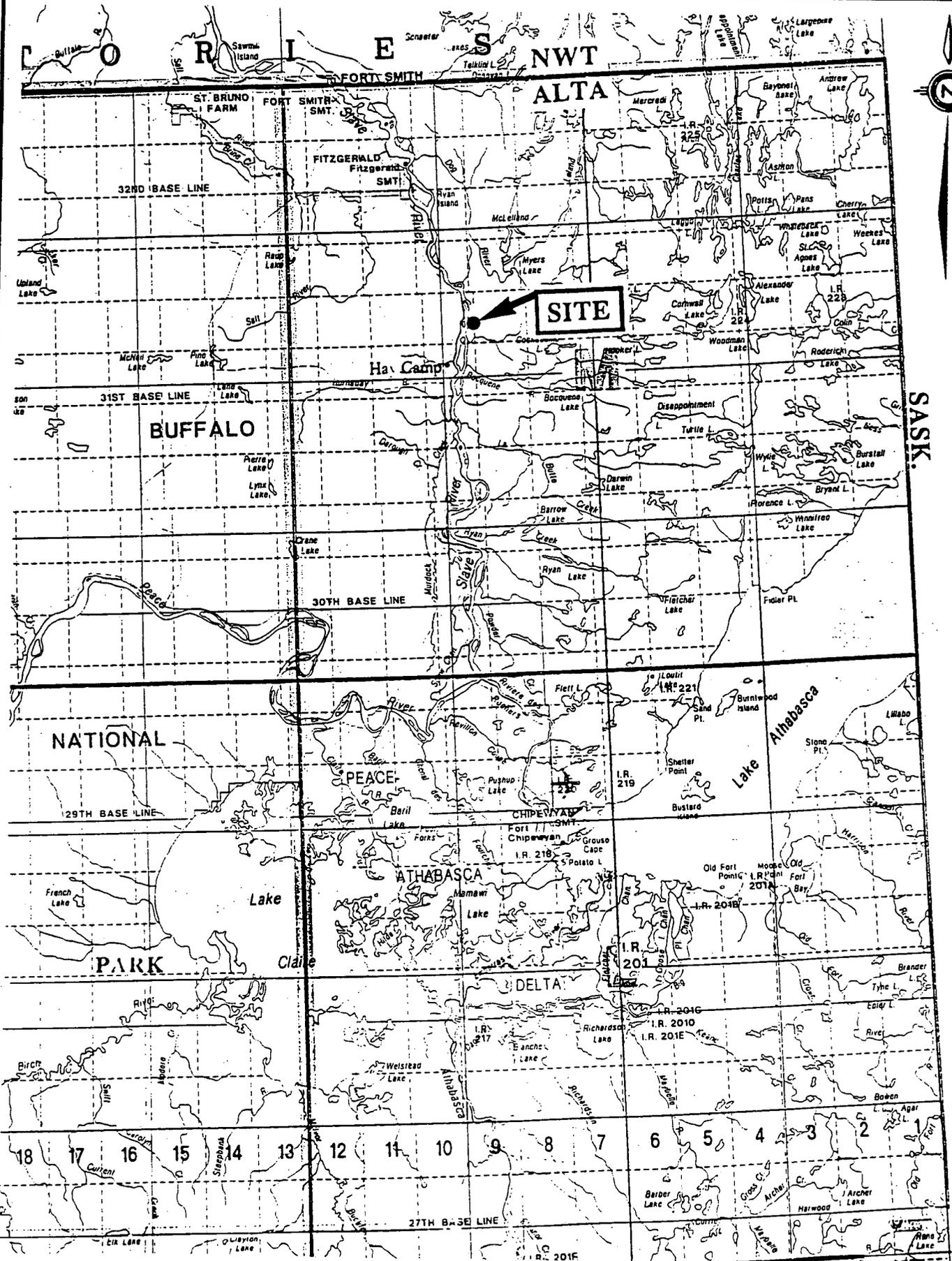
The following report is based on the results of a field reconnaissance conducted at the site between August 24 and 26, 1994, together with a review of pertinent geological literature. Our findings are presented below.

2.0 GEOLOGICAL SETTING

Physiographically, the site is located on the western margin of the Canadian Shield, in the Kazan Upland unit¹. Terrain in the general area is characterized by elevated bedrock-controlled hills and ridges, surrounded by extensive swampy lowlands. Elevations range from approximately 650 to 700 ft. a.s.l.

Geologically, the east side of the Slave River comprises igneous and metamorphic rocks forming the Churchill Structural Province, which is one of the westernmost units of the vast

¹ Atlas of Alberta. Government and Alberta and the University of Alberta, Edmonton, 1969.



LOCATION MAP

SCALE: 1:1 000 000

FIGURE 1

Precambrian Shield. Generalized regional geology of the Alberta portion of the Shield is shown on Figure 2.

Bedrock in the vicinity of the site belongs to the Slave Granitoids plutonic complex², believed to have been formed by partial melting, segregation and remobilization of the protolithic granite gneiss/metasediment basement rock.

The Slave Granitoids consist of five subunits as follows: Slave Granite Phase, Mafic Slave Granite Phase, Red Slave Granite Phase, Speckled Slave Granite Phase and Slave PQ Granite Phase. It also includes numerous intermediate lithologic phases and gradations to the Arch Lake Granitoids.

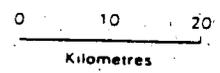
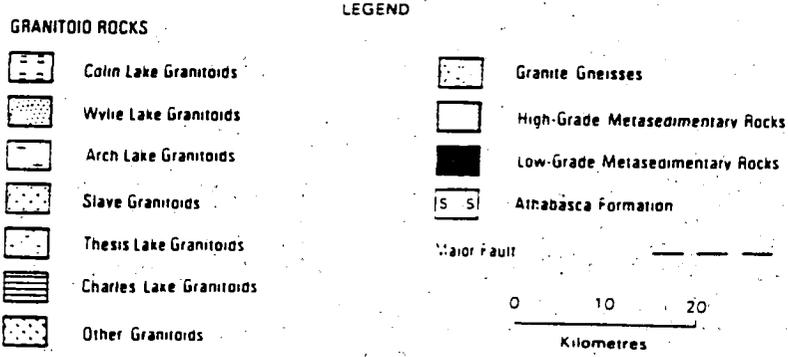
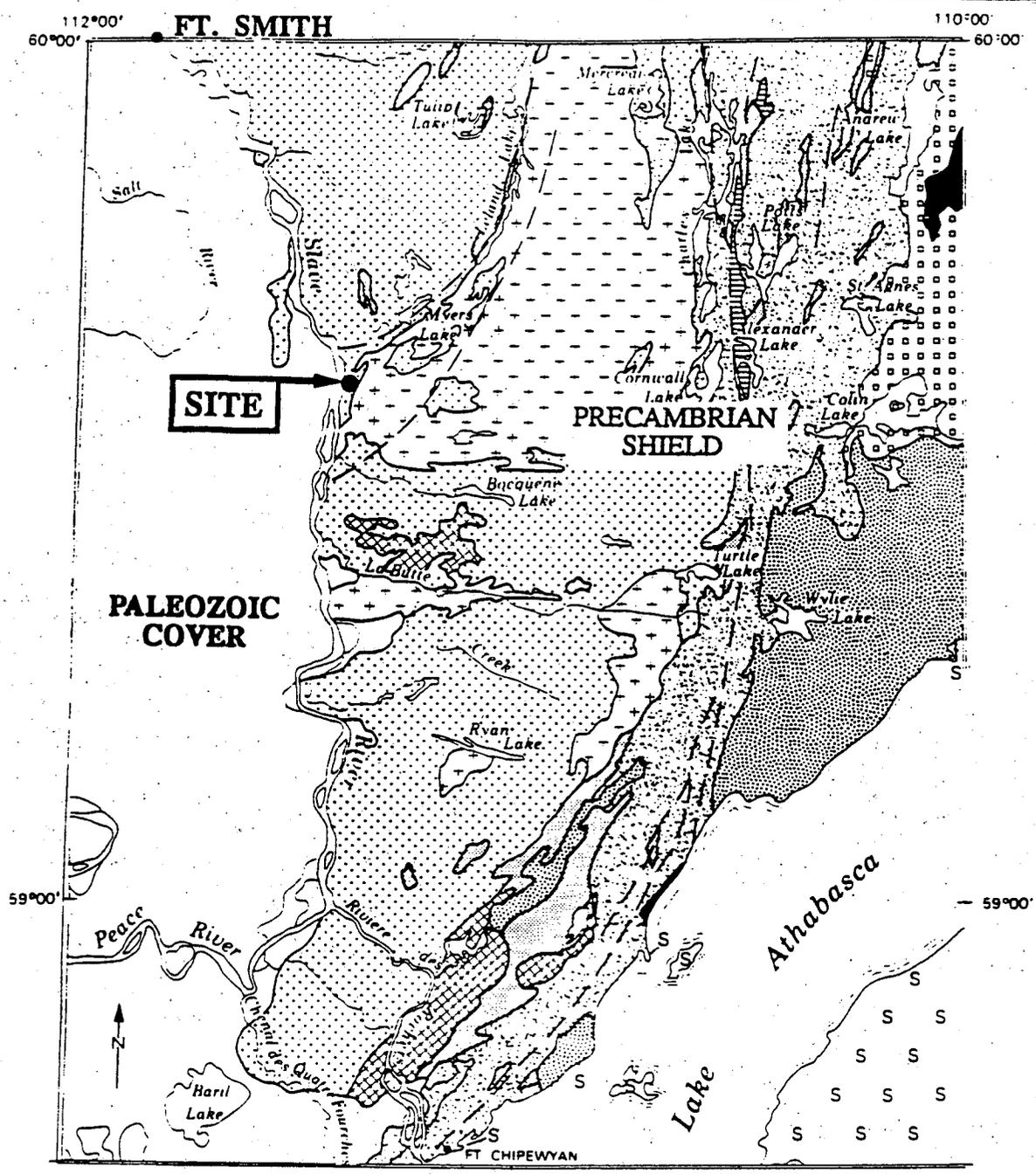
3.0 SITE DESCRIPTION

The prospective quarry site encompasses an approximate 1650 ft. wide by 6500 ft. long rectangular strip of land (parallel and adjacent to the Slave River) which is estimated to contain between 60 to 70 million tons of potential mineable reserves. There are at least three large surface exposures of granitic-type rock within the area. These have been designated, for discussion purposes, as Outcrops A, B and C.

The field work concentrated on Outcrop A, which is presently undergoing a drilling and blasting program to secure suitably-sized rock blocks for trial cutting and testing. Outcrop B, located some 3500 ft. north (downstream) of Outcrop A, was also briefly examined during the course of the work. Outcrop C, located approximately 1000 ft. east of Outcrop A, and other smaller outcrops in the area, were not inspected at this time. Observations made during the field reconnaissance are presented below.

Outcrop A consists of an approximately 500 ft. diameter, bedrock-controlled hillock, which protrudes some 30 to 40 ft. above the surrounding swampy terrain. A surveyed plan map of the hillock is shown on Plate 1. A general view of the hillock (including the recently exposed rock face) is shown on Photo 1, in Appendix A.

² Godfrey, J.D. and Langenberg, C.W. "Geology of the Myere-Daly Lakes District, Alberta". Alberta Research Council, Earth Sciences Report 84-6.



After. Langenberg, C.W. "Polyphase Deformation in the Canadian Shield of Northeastern Alberta, Alberta Research Council Bulletin 45 - 1983.

GENERALIZED REGIONAL GEOLOGY

FIGURE 2

Large glacially smoothed and rounded, lichen-covered outcroppings of granite occur on the top and on the slopes of the hillock (See Photo 2). The granite is an attractive medium red in colour (comparable to Indian Red), with a medium-grained texture and a slight foliation (Photos 3 and 4). Some light red, pink, white and grey-coloured varieties are also evident. The rock mass contains occasional thin quartzitic veins and dark coloured inclusions (Photo 5).

The general description of the rock appears to be consistent with that assigned to the Red Slave Granite Phase of the Slave Granitoids complex. Mineralogically², the red granite is composed of 38% potash feldspar, 33% plagioclase and 24% quartz with minor minerals (biotite, chlorite, hornblende, etc.) forming the remainder.

Strength-wise, the rock is classified as very strong, i.e. equivalent compressive strengths in the order of 27,500 psi, based on Schmidt hammer testing of the exposed outcrops. This value is within the normally accepted strength range for dimension stone.

Structurally, the granite rock mass is dissected by a number of naturally occurring discontinuities. Macroscopic discontinuities consist of two, near-orthogonal subvertical joint sets, referred to as "headers", a series of discontinuous subhorizontal joints and a number of irregular, random joints. Other minor features, such as microfractures and shear zones, may also be present in the rock mass.

The macroscopic discontinuities are easily discernible on natural outcroppings and exposed rock faces. The two main subvertical joint sets (Photo 6) are relatively continuous and can be followed for quite a distance. The average orientations of these joints, as measured on the surface, are as follows:

- N 5° E, dipping 90° (approx.)
- N 85° E, dipping 90° (approx.)

The spacing of the two main joint sets was determined by conducting surface tape surveys perpendicular to the joint planes. Data collected from the surveys are presented below:

	Set 1 (5°/90°)	Set 2 (85°/90°)
Number of Observations	14	34
Range of Spacing	1.5 - 18 ft.	1 - 16 ft.
Average Spacing	8 ft.	5.5 ft.

Major subhorizontal joints (often referred to as "sheets or beds") are not well-developed, at least in the upper 8 to 10 ft. of the deposit, however, short discontinuous subhorizontal joints are evident in the exposed rock faces. Spacings of these near-surface features, based on vertical tape surveys, range from 0.5 to 2.5 ft., with an average of about 1.3 ft.

Minor random joints were also observed in the rock mass. These discontinuous, moderate to high angle features generally occur between the main subvertical joint sets, effectively reducing the near-surface spacing.

The concentration of subhorizontal joints and random joints in the near-surface zone is believed to result from decompression (stress-relief) and weathering (freeze-thaw and wetting-drying) effects. Based on past experience at other quarries, the frequency of these features usually decreases with depth.

Examination of the near-surface joints reveals their surfaces are generally partially to completely stained or coated with a variety of weathering and/or alteration products. The stains and coatings are highly variable in colour, ranging from whitish and yellowish to brownish and reddish. The joint surfaces are generally planar and smooth to rough. A few are stepped or undulating.

Surface exposures of other rock types, i.e. foliated granodiorites and dark coloured metasediments, were observed along the river bank and locally along the access road. These units, for the most part, occur outside of the site, within the 150 ft. wide environmental reserve established along the river.

Outcrop B is located some 3500 ft. north of Outcrop A and approximately parallels the river. Extensive granitic outcrops occur in an area approximately 1000 ft. long and 150 ft. wide. The outcrops form a series of 15 to 35 ft. high, moderately to steeply sided rock

bluffs, which overlook a broad swampy lowland to the east. Typical views of the area are shown on Photos 7 and 8.

The exposed rock is described as medium to coarse grained, very strong, light red to pinkish red granite, which tends to become lighter coloured to the north. It contains occasional quartzitic stringers and dark coloured inclusions and exhibits a moderate foliation, with associated minor gneissic-like bands. Weathering has given the rock a pinkish appearance at the surface.

Based on the description of the outcrops, it is believed that rocks at Outcrop B belong to either the Slave PQ Granite Phase or the Speckled Slave Granite Phase of the Slave Granitoids complex. Mineralogically, these phases are similar to other phases of the Slave Granitoids. No surface tape surveys were conducted at Outcrop B, however, the rock mass appears to have similar structural patterns as those measured at Outcrop A.

Foliated granodiorites and dark coloured metasediments are also exposed along the river bank at the south end of Outcrop B, however, this within the environmental reserve.

4.0 EVALUATION AND DISCUSSION

The granite at the Slave River site has a medium-grained, homogeneous texture and a relatively uniform, aesthetically pleasing, medium red colour which, in our opinion, would be a highly desirable commodity in the building and construction, monument and tiling stone industries. There are also marketable pink, grey and white shades at the site.

The continued availability of large, unflawed blocks is the key element of any successful building stone quarry. It is our understanding that blocks in the order of 20 to 25 tons (which correspond to an average size of 5 ft. x 5.5 ft. x 10 ft.) are necessary for large-scale commercial production.

The recoverable block size is governed by the presence of natural discontinuities within the rock mass. Other features, such as microfractures, small shear zones, etc., may also occur but these are expected to be minor. An evaluation of the discontinuities is presented below.

The average block size at the site is primarily controlled by the spacing of three roughly orthogonal discontinuity systems. These include the two main subvertical joint sets ("headers") as well as discontinuous subhorizontal joints.

Based on surface measurements of the spacings of the major joint sets, the average spacings are 9 ft. and 5.5 ft. for sets 1 and 2, respectively. The average spacing at depth of the discontinuous subhorizontal joints as well as the random joints, however, cannot be effectively determined, based on the current level of information.

The frequency of the subhorizontal joints and random joints, as well as other near-surface features, usually decreases with depth due to reduced decompression and weathering effects. This phenomenon has been observed at rock quarries throughout the world.

Provided that these subhorizontal and random joints decrease with depth, the feasibility of obtaining commercial-sized quarry blocks, i.e. 20 to 25 tons (5 ft. x 5.5 ft. x 10 ft.), from this site appears good, in our opinion. A general "rule of thumb" in the granite quarry industry is that the maximum amount of waste rock or overburden that most quarry operators would consider removing is about 25 ft., however, each site is unique.

Red granite deposits tend to be generally more fractured than other coloured granites that are quarried for dimension stone. As a result, quarries in red granite deposits generally have higher waste factors (exceeding 35 percent). These factors tend to increase the cost of the extracted blocks and enhance the desirability of finding a massive red granite to quarry.

Currently, no information has been obtained at the site with respect to the depth and lateral extension of the granite body. Without this information, the total mineable reserves cannot be determined. However, provided that the extent and quality of the rock is proven, then the total mineable reserves are estimated to be in the order of 60 to 70 million tons.

5.0 CONCLUSIONS AND RECOMMENDATIONS

The medium red granite outcropping at the Slave River prospect is a highly desirable stone, comparable to the popular Indian Red. With subsurface confirmation that the reserves can be routinely quarried in market-sized blocks, i.e. 20 to 25 tons, this site has a good potential to be developed as a commercial-scale quarry supplying the building and construction, monument and tiling stone industries.

We recommend that a staged program of 4 to 6 diamond core holes be drilled to depths of up to 200 ft., initially at Outcrop A, and then repeated at the other outcrop areas. Several of the holes should be drilled at an angle of 45 degrees to assess the vertical jointing at depth. Detailed surface mapping and documentation of structural patterns at Outcrops B and C is also recommended, prior to drilling in those areas.

The additional information would allow an accurate estimate of the mineable reserves of the granite rock to be made and confirm the average block size to be expected.

6.0 CLOSURE

A geological reconnaissance and evaluation of rock conditions at the site of the Slave River granite prospect has been carried out. The work included field mapping and surveying, compilation and evaluation of collected data, and review of available technical literature.

Based on the results of the work, the development of the prospect appears promising. The work to date confirms the presence of an attractive medium red granite, which, in our opinion, would be a highly desirable commodity in the building and construction, monument and tiling stone industries.

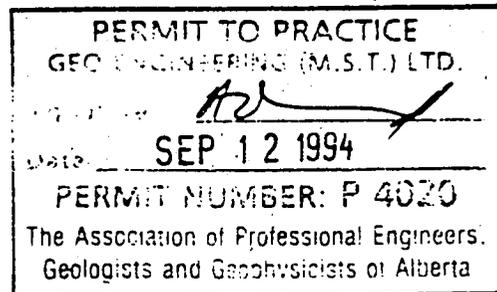
Due to its close proximity to the barge-accessible Slave River, the quality of the exposed granite in the outcrops and the apparent extent of the prospect area, further exploration is recommended as soon as possible in order to determine the true economic potential of this site.

Respectfully submitted,

GEO-ENGINEERING (M.S.T.) LTD.

A circular seal for a Professional Engineer in Alberta. The outer ring contains the text "PROFESSIONAL ENGINEER ALBERTA". The inner circle features a signature and the name "A.H. OVEREND". Below the seal, the text reads "A. Overend, M.Eng., P.Eng. Senior Geotechnical Engineer".

AO/hh
G637

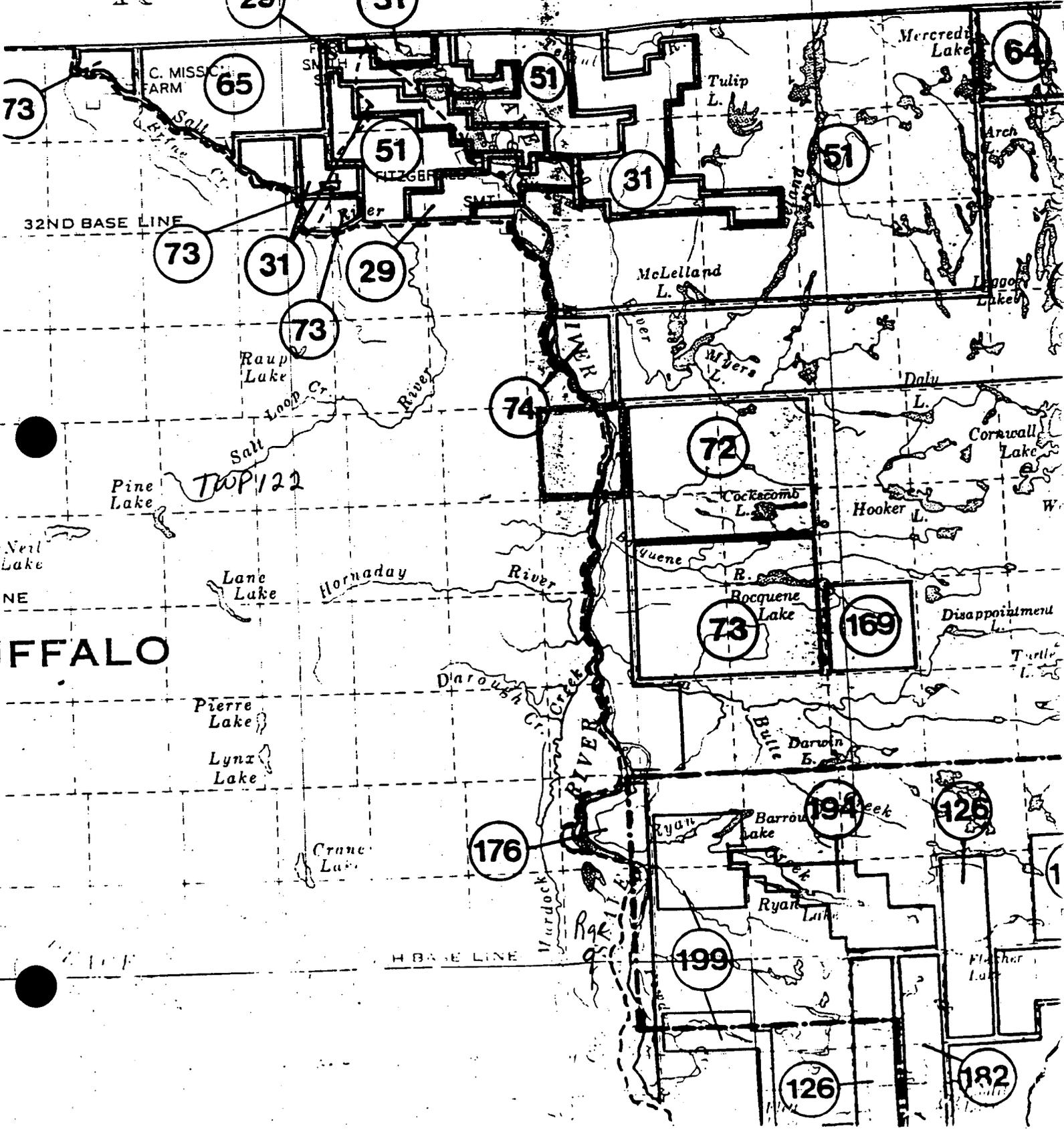
A rectangular stamp with a double border. The text inside reads: "PERMIT TO PRACTICE GEO-ENGINEERING (M.S.T.) LTD." followed by a signature, "Date: SEP 12 1994", and "PERMIT NUMBER: P 4020". At the bottom, it says "The Association of Professional Engineers, Geologists and Geophysicists of Alberta".

112°

111°

MAP PERMIT BOUNDARIES
TOWNSHIP 122R9

R I E S



APPENDIX A
SELECTED PHOTOGRAPHS

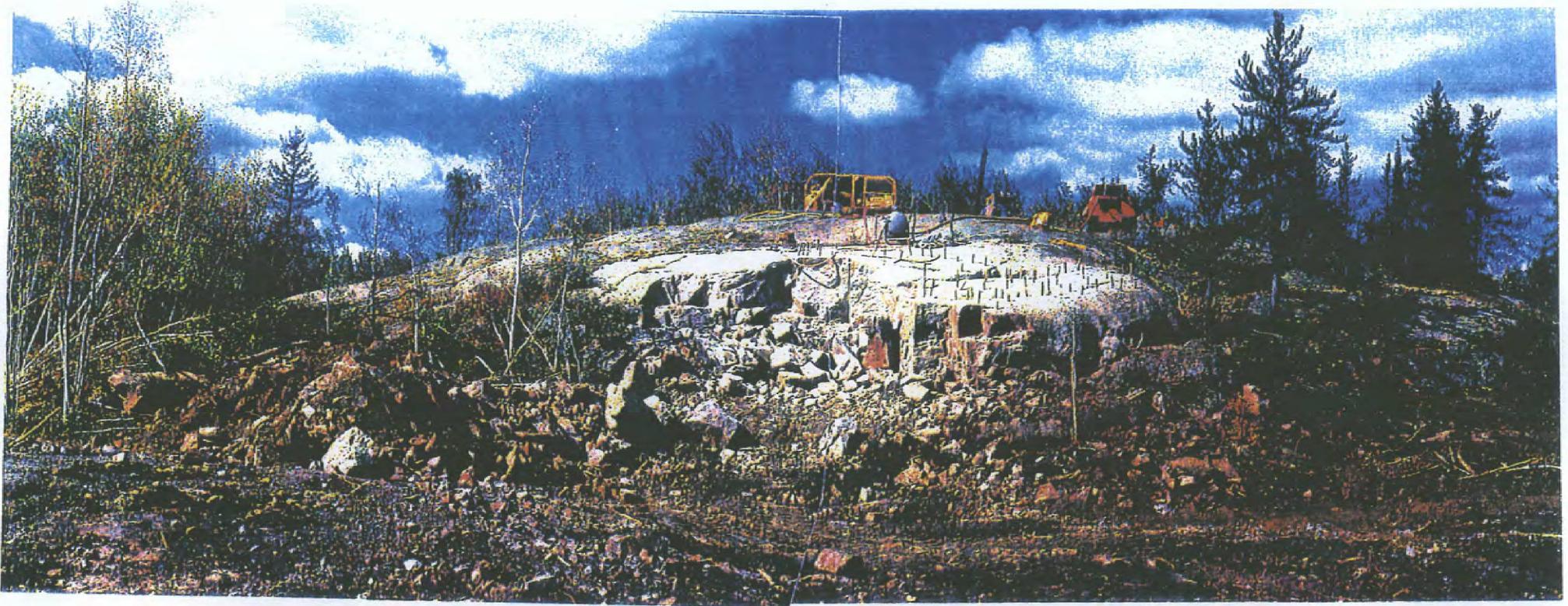


Photo 1: View of granite hillock looking west from the working bench. Initial drilling and blasting is being undertaken to obtain approximately 0.5 x 0.5 x 1.0 m sized blocks for trial cutting and testing (Outcrop A).



Photo 2: Side view of hillock showing glacially smoothed, lichen-covered granite surface (Outcrop A).



Photo 3: Granite block, approximate size 0.3 m x 0.6 m x 1.0 m.



Photo 4: Fragment of freshly exposed medium red granite.



Photo 5: Close-up view of light-coloured quartz stringer. Some of the joints post-date the quartz infilling.



Photo 6: Typical view of surface discontinuities. Orientations of the two main near-orthogonal joint sets are shown by dashed lines.



Photo 7: Typical view of glacially smoothed and rounded lichen-covered granite outcrops (Outcrop B).



Photo 8: View of elevated bedrock-controlled outcrops (in foreground) and grassy, swampy lowlands (in background).



Photo 9: View of typical pinkish red granite at Outcrop B.



Photo 10: Close-up view of quartz veining in light-coloured granite at Outcrop B.

THE RICH CAPITAL GROUP OF COMPANIES

February 23, 1996

Brian Hudson
Manager, Mineral Claims
ALBERTA ENERGY
Petroleum Plaza - North Tower
9945 - 108 Street
Edmonton, AB
T5K 2G6

Re: Stoney Islands, Slave River, Alberta

Dear Mr. Hudson:

Please accept this letter as confirmation that the attached Annual Financial Report of Rich Capital Corporation dated March 31, 1995 and the Rich Granite Corporation balance sheet dated October 31, 1995 are true figures and represent the expenditures incurred.

Sincerely,

RICH CAPITAL CORPORATION


Peter Keate

PK:ak

Enclosure

RICH GRANITE CORPORATION
Balance Sheet
October 31, 1994

ASSETS

CURRENT

GST Recoverable \$ 9,003.66

FIXED

Equipment 11,306.74

\$ 20,310.40

LIABILITIES

CURRENT

Bank overdraft \$ 349.08

Accounts Payable 68,761.81

Expenses in excess of advances 3,743.27

Accounts Payable-Payroll 5,475.88

Vacation Payable 1,334.94

Receiver General Payable 11,119.94

Shareholders' Loan 95,000.00

185,784.92

SHAREHOLDERS' EQUITY

Share Capital 0.00

Deficit (165,474.52)

(165,474.52)

\$ 20,310.40

RICH GRANITE CORPORATION
 INCOME Aug 1, 1994 TO Oct 31, 1994

REVENUE

REVENUE	0.00
TOTAL REVENUE	<u>0.00</u>

EXPENSE

PROJECT COSTS:

Accommodation	3,488.04
Auto Lease & Mileage	5,379.03
Barging	34,111.64
Equipment	10,083.55
Explosives	1,502.75
Fuel	15,567.99
Groceries	2,249.34
Incidentals	1,890.00
Helicopter	1,401.87
Insurance	2,850.00
Licences, fees	100.00
Meals	545.63
Rent	2,616.82
Repairs	4,107.19
Supplies	255.96
Travel	3,066.26
Casual Labour	250.00 ✓
Consulting	30,402.73 ✓
Wages	33,373.50
Payroll costs (UIC, CPP)	1,986.39
Payroll costs (Vac Pay)	1,334.94
Workmens Compensation	<u>1,874.78</u>
	<u>158,438.41</u>
	158,438.41

ADMINISTRATION

Bank-Service charges	240.70
Bank-Interest	3.84
Bookkeeping/Office	815.19
Courier	16.79
Legal	1,891.22
Telephone	<u>4,068.37</u>
	<u>7,036.11</u>
	7,036.11

TOTAL EXPENSE 165,474.52

INCOME 165,474.52-
 =====

RICH CAPITAL CORPORATION
QUARTERLY REPORT
for the year ended March 31, 1995

Schedule A: Financial Information

(see consolidated financial statements attached)

Schedule B: Supplementary Information

1. For the current fiscal year-to-date:

- a) Deferred Exploration Costs
- b) Deferred Development Costs
- c) Costs of Sales
- d) General and Administrative Expenses

(see consolidated financial statements attached)

Aggregate amount of expenditures made to parties not at arm's length

\$ 337,652

2. For the quarter under review:

- a) There were no common shares issued during the quarter.
- b) There were no options granted during the quarter.

3. As at the end of the quarter:

- a) See Note 8 to the consolidated financial statements
- b) See Note 8 to the consolidated financial statements
- c) Total number of shares in escrow at the end of the quarter were 750,000 common shares
- d) Directors - Peter Keate, Alex Keate, Sean O'Neill, Victor Montague, Ken Dubeta

Schedule C: Management Discussion

(see attached)

RICH CAPITAL CORPORATION
CONSOLIDATED STATEMENT OF LOSS AND DEFICIT
for the year ended March 31, 1995

	<u>1995</u>	<u>1994</u>
Revenue		
Sales	\$ 89,282	\$ 128,019
Less: costs of sales - Schedule I	<u>73,809</u>	<u>139,036</u>
Gross profit (loss)	15,473	(11,017)
Sundry revenue	<u>-</u>	<u>110</u>
	<u>15,473</u>	<u>(10,907)</u>
Administrative Expenses		
Amortization	3,540	3,827
Automobile	15,149	5,654
Bad debts	4,041	(1,496)
Bank charges	2,950	1,592
Consulting fees - Note 7	120,000	50,000
Filing fees	6,798	5,024
Insurance	2,135	4,156
Interest expense - Note 7	1,485	10,759
Management fees - Note 7	164,067	102,333
Office costs	36,052	8,617
Professional fees	80,456	66,604
Promotion and marketing	60,479	89,556
Rent	23,870	24,035
Telephone	22,140	9,298
Transfer agent fees	10,176	4,562
Travel and entertainment	71,703	49,439
Utilities	2,335	1,082
Wages and benefits - Note 7	<u>61,876</u>	<u>36,875</u>
	<u>689,252</u>	<u>471,917</u>
Loss for the year before other:	<u>673,779</u>	<u>482,824</u>
Other		
Gain on write-off of accounts payable	-	(14,568)
Loss on disposal of inventory	-	25,700
Non-controlling interest share of loss	(13,695)	-
	<u>(13,695)</u>	<u>11,132</u>
Net loss for the year	660,084	493,956
Deficit, beginning of the year	<u>1,496,107</u>	<u>1,002,151</u>
Deficit, end of the year	\$ <u>2,156,191</u>	\$ <u>1,496,107</u>

SEE ACCOMPANYING NOTES

RICH CAPITAL CORPORATION
CONSOLIDATED STATEMENT OF CHANGES IN FINANCIAL POSITION
for the year ended March 31, 1995

	<u>1995</u>	<u>1994</u>
Operating Activities		
Net loss for the year	\$(660,084)	\$(493,956)
Charges to income not affecting cash:		
Amortization	4,246	3,827
Gain on write-off of accounts payable	-	(14,568)
Non-controlling interest share of loss	(13,695)	-
	<u>(669,533)</u>	<u>(504,697)</u>
Change in non-cash working capital balances related to operations:		
Trade receivables and advances	(15,477)	12,696
Subscriptions receivable	16,000	(16,000)
Inventory	15,000	64,870
Prepaid expenses and deposits	(8,393)	(2,001)
Accounts payable	<u>94,257</u>	<u>33,680</u>
	<u>(568,146)</u>	<u>(411,452)</u>
Financing Activities		
Proceeds from issuance of share capital	1,053,405	510,820
Non-controlling interest	63,000	-
Repayment of bank loans	-	(82,500)
Increase (decrease) in due to related parties	(250,794)	<u>49,298</u>
	<u>865,611</u>	<u>477,618</u>
Investing Activities		
Patent application	(721)	-
Acquisition of capital assets	(14,885)	(2,006)
Deferred exploration costs	(198,268)	-
Deferred development costs	<u>(68,366)</u>	-
	<u>(282,240)</u>	<u>(2,006)</u>
Net increase in cash during the year	15,225	64,160
Cash, beginning of the year	<u>70,858</u>	<u>6,698</u>
Cash, end of the year	<u>\$ 86,083</u>	<u>\$ 70,858</u>

SEE ACCOMPANYING NOTES

RICH CAPITAL CORPORATION
SCHEDULE I
COSTS OF SALES
for the year ended March 31, 1995

	<u>1995</u>	<u>1994</u>
Inventory, beginning of the year	\$ 66,165	\$ 131,035
Add: Direct production costs		
Freight	3,190	2,720
Obsolete inventory	15,000	7,500
Purchases	8,071	21,679
Sub-contracts	17,548	27,267
Wages and employee benefits - Note 7	<u>15,000</u>	<u>15,000</u>
	124,974	205,201
Less: Inventory, end of the year	<u>51,165</u>	<u>66,165</u>
	<u>\$ 73,809</u>	<u>\$ 139,036</u>

SEE ACCOMPANYING NOTES

RICH CAPITAL CORPORATION
NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS
March 31, 1995

Note 1 Nature and Continuance of Operations

The company is in the business of manufacturing and servicing car wash equipment, developing and marketing dry air filter products, and the exploration and development of resource property interests.

These consolidated financial statements have been prepared on a going concern basis. The company has a working capital deficiency of \$57,553 at March 31, 1995. Its ability to continue as a going concern is dependent upon the ability of the company to generate profitable operations in the future and/or to obtain the necessary financing to meet its obligations and repay its liabilities arising from normal business operations when they come due.

The company is incorporated under the British Columbia Company Act.

Note 2 Summary of Significant Accounting Policies

(a) Principles of Consolidation

These consolidated financial statements include the accounts of the company and its wholly owned subsidiaries, Rich Capital Manufacturing Corp., Rich Capital Technologies Corp. and Rich Capital Resources Inc. and its 51% owned subsidiary, Rich Granite Corporation. All intercompany transactions have been eliminated.

(b) Inventory

Inventory is valued at the lower of cost and net realizable value using the first-in, first-out method.

(c) Capital Assets and Amortization

Capital assets are recorded at cost. Amortization of capital assets is calculated using the diminishing-balance method at the rate of 20% per annum. In the year of acquisition, amortization is taken at one-half normal rates.

(d) Resource Properties and Deferred Exploration Costs

The acquisition of resource properties are recorded at cost. Exploration and development costs relating to these properties are deferred until (i) the properties are brought into production, at which time the costs are amortized on the unit of production basis, or (ii) the properties are abandoned or sold, at which time the costs are written off. Resource properties are abandoned, when the claims are no longer in good standing or the agreements covering the claims are in default, and in either case management has determined that abandonment is appropriate.

(e) Deferred Development Costs

Development costs relating to the dry air filter products, which in the company's view have a clearly defined future market, are deferred until commercial production commences, at which time the costs will be amortized on a straight line basis over five years, or until the project is abandoned, at which time the costs or remaining costs will be written-off. Revenues realized during the pre-production period are recorded as a reduction of the deferred development costs.

Note 2 Summary of Significant Accounting Policies - (cont'd)

(f) Values

The amounts shown for resource properties and deferred exploration expenses to date do not necessarily represent present or future values.

(f) Revenue Recognition

The company recognizes its sales using the completed job method of accounting.

(g) Loss Per Share

Loss per share figures are calculated based on the weighted average number of shares outstanding during the year.

	<u>1995</u>	<u>1994</u>
Basic loss per share	\$ <u>0.04</u>	\$ <u>0.04</u>

Note 3 Investment in Subsidiary

Rich Granite Corporation ("Granite") was incorporated for the purpose of exploring and developing the company's mineral claims located in Northern Alberta. These claims have been identified to contain granite mineralization. The company, through its wholly owned subsidiary, Rich Capital Resources Inc., acquired a 51% interest in the common shares of Granite for \$510. The company has accounted for this combination by the purchase method of accounting and its financial statements have been consolidated with the company's financial statement.

The results of Granite's operations are included in the consolidated financial statements from May 16, 1994, the date of its incorporation, to March 31, 1995.

The company contributed a further \$109,093 during the period from incorporation to March 31, 1995.

Note 4 Capital Assets

	<u>Cost</u>	<u>Accumulated Amortization</u>	<u>Net Carrying Amount</u>	
			<u>1995</u>	<u>1994</u>
Office equipment	\$ 14,279	\$ 7,411	\$ 6,868	\$ 3,149
Shop equipment	56,040	47,351	8,689	13,161
Moveable mining equipment	<u>12,098</u>	<u>706</u>	<u>11,392</u>	<u>-</u>
	\$ <u>82,417</u>	\$ <u>55,468</u>	\$ <u>26,949</u>	\$ <u>16,310</u>

Note 5 Resource Property and Deferred Exploration Costs

The company leases the mineral rights on eight claims located in Northern Alberta.

	<u>1995</u>	<u>1994</u>
<u>Resource property costs</u>	\$ <u>3,600</u>	\$ <u>3,600</u>

Deferred exploration costs

During the year ended March 31, 1995, the company incurred the following costs with respect to the exploration of its resource property:

Amortization of capital assets	706	-
Consulting	30,465	-
Management fees	21,400	-
Barging	48,294	-
Wages and benefits	38,607	-
Fuel	14,298	-
Travel, accommodation and meals	18,845	-
Equipment rental	10,631	-
Repairs and supplies	7,183	-
Insurance	2,850	-
Miscellaneous	<u>4,989</u>	<u>-</u>
	<u>198,268</u>	<u>-</u>
	\$ <u>201,868</u>	\$ <u>3,600</u>

Note 6 Deferred Development Costs

During the year ended March 31, 1995 the company incurred the following costs with respect to the development of its dry air filter products:

	<u>1995</u>	<u>1994</u>
Parts and supplies	\$ 4,268	\$ -
Subcontracts	30,763	-
Wages and benefits	<u>37,536</u>	<u>-</u>
	72,567	-
Less: pre-production sales	<u>(4,201)</u>	<u>-</u>
	\$ <u>68,366</u>	\$ <u>-</u>

Note 7 Related Party Transactions - Notes 8 and 9

During the year ended March 31, 1995 the company was charged the following expenses by related parties:

	<u>1995</u>	<u>1994</u>
Consulting	\$ 120,000	\$ 50,000
Cost of sales - wages	15,000	15,000
Management fees	155,667	102,333
Wages and benefits	<u>45,500</u>	<u>32,000</u>
	336,167	199,333
Interest expense	<u>1,485</u>	<u>1,929</u>
	<u>\$ 337,652</u>	<u>\$ 201,262</u>

Amounts due from a related party are unsecured, non-interest bearing advances and have no specific terms for repayment. The related party is a partnership managed by directors of the company.

Amounts due to related parties are unsecured, non-interest bearing advances and have no specific terms for repayment. The related parties are directors of the company and companies controlled by directors of the company.

Note 8 Share Capital - Note 12

Authorized:

100,000,000 common shares without par value

Issued:	<u>#</u>	<u>\$</u>
Balance, beginning of the year	13,957,553	1,309,923
Issued during the year		
For Cash:		
Share purchase options - at \$0.15	386,000	57,900
- at \$0.16	200,000	32,000
- at \$0.21	800,000	168,000
- at \$0.25	106,500	26,625
Share purchase warrants - at \$0.16	1,068,000	170,880
Private placement - at \$0.43	930,232	400,000
For Debt settlement - at \$0.198	1,000,000	198,000
Less: cancellation of escrow shares	<u>(3,000,000)</u>	<u>-</u>
Balance, end of the year	<u>15,448,285</u>	<u>2,363,328</u>

Note 8 Share Capital - Note 12 - (cont'd)

Escrow:

At March 31, 1995, 750,000 shares are held in escrow. The release of these shares is subject to the direction or determination of the relevant regulatory authorities.

Commitments:

(a) Share Purchase Options

At March 31, 1995 there were employee share purchase options outstanding to purchase a total of 1,511,500 common shares as follows:

9,000	shares at \$0.15 per share, expiring May 26, 1996
343,500	shares at \$0.25 per share, expiring June 15, 1996
750,000	shares at \$0.88 per share, expiring September 15, 1996
400,000	shares at \$1.08 per share, expiring September 25, 1996
<u>9,000</u>	shares at \$0.15 per share, expiring December 18, 1996

1,511,500

(b) Share Purchase Warrants

At March 31, 1995 there were share purchase warrants outstanding to purchase a total of 1,414,232 common shares as follows:

484,000	shares at \$0.19 per share, expiring November 24, 1995
930,232	shares at \$0.43 per share, expiring August 1995
<u> </u>	or at \$0.50 per share, expiring August 1996

1,414,232

A director of the company owns 116,279 warrants of the above noted 930,232 warrants.

(c) Subsidiary Share Commitment

The company has an agreement with a director of Rich Capital Technologies Corp. ("Technologies") whereby the director has the option to purchase a 40% interest in Technologies. If the option is exercised, Technologies will issue additional shares equal to 40% of its outstanding capital for consideration of \$40,000. This option expires October 31, 1995, but may be extended upon directors approval.

Note 9 Commitments and Contingencies - Note 8

Commitments

(a) Management Services Agreement

The company has entered into a management services agreement with a director of Rich Capital Technologies Corp. for a period of five years beginning November 1, 1993. The agreement calls for remuneration of \$80,000 in the first year, \$96,000 in the second year and \$120,000 in the third year, at which time the agreement will be reviewed. Also included in the agreement is a provision for compensation based on 10% of pre-tax income if greater than the above base salaries, to a maximum of \$200,000 per year.

(b) Licence Agreement

During the year the company entered into a master licence agreement with a related company for the North American marketing rights to its dry air filter products, the patent for which is pending. The term of the licence is fifteen years with an option for a further five years. At the time of commercial production, the company is committed to the purchase of molds and equipment and to providing no less than \$250,000 of working capital.

(c) Lease Commitments

The future minimum lease payments are as follows for the years ending March 31:

1996	\$ 37,165
1997	38,410
1998	30,226
1999	<u>4,720</u>
	\$ <u>110,521</u>

Contingencies

Two claims have been filed against certain individuals and companies including Rich Capital Corporation for payment regarding share purchase options of Rich Capital Corporation exercised in prior years.

The amount of the loss to Rich Capital Corporation, if any, cannot be reasonably estimated.

Note 9 Commitments and Contingencies - (cont'd)

Management is of the opinion that the claims are without foundation or merit, and that Rich Capital Corporation will be successful in its defence of these claims.

Any material settlements resulting from the resolution of these claims will be accounted for as a prior period adjustment.

Note 10 Corporation Income Tax Loss Carry-Forwards

The company has accumulated non-capital losses totalling \$1,735,670 which are available to offset taxable income of future years. These losses expire as follows:

1996	\$ 864
1997	157,385
1998	205,825
1999	50,205
2000	212,761
2001	489,497
2002	<u>619,133</u>
	<u>\$ 1,735,670</u>

The company has accumulated net capital losses in the amount of \$24,979. This amount may be carried forward indefinitely and may be applied against future taxable capital gains.

The company has accumulated scientific research expenditures and resource property and exploration costs that are being carried forward indefinitely and may be applied against future taxable income at various rates per year. The amount of these expenditures carried forward is \$412,195.

The company has investment tax credits of \$13,673. These credits are eligible for a 10 year carry-forward, and will expire on December 31, 2005.

The potential tax benefit of these losses and expenditures, if any, has not been recorded in the financial statements.

Note 11 Segmented Information

The company operates in three business segments:

Manufacturing and servicing car wash equipment ("Car Wash")
Developing and marketing dry air filter products ("Air Filter")
Exploration and development of resource property interests ("Resource Property")

	<u>1995</u>	<u>1994</u>
Revenue		
Car Wash	\$ <u>89,282</u>	\$ <u>128,019</u>
Operating profit (loss)		
Car Wash	\$ <u>15,473</u>	\$ (<u>11,017</u>)
Administration expenses		
Car Wash	\$ 147,542	\$ 169,346
Air Filter	301,623	102,059
Resource property	28,975	-
General corporate	<u>193,877</u>	<u>207,708</u>
	\$ <u>672,017</u>	\$ <u>479,113</u>
Amortization of capital assets		
Car Wash	\$ 2,727	\$ 3,290
General corporate	<u>813</u>	<u>536</u>
	3,540	3,826
Resource property (included with deferred exploration costs)	<u>706</u>	-
	\$ <u>4,246</u>	\$ <u>3,826</u>
Identifiable assets		
Car Wash	\$ 120,542	\$ 109,079
Air Filter	82,722	19,278
Resource property	210,281	-
General corporate	<u>80,231</u>	<u>63,239</u>
	\$ <u>493,776</u>	\$ <u>191,596</u>
Capital expenditure		
Air Filter	\$ 69,087	\$ 2,006
Resource property	<u>210,366</u>	-
	\$ <u>279,453</u>	\$ <u>2,006</u>

Note 12 Subsequent Events

Subsequent to March 31, 1995, the company issued the following common shares pursuant to:

	<u>#</u>	<u>\$</u>
Share purchase options - at \$0.25	327,000	81,750
Share purchase warrants - at \$0.19	<u>167,000</u>	<u>31,730</u>
	<u>494,000</u>	<u>113,480</u>

\$15,000 is unpaid with respect to the exercise of the share purchase options at \$0.25 per share.

Subsequent to March 31, 1995, the company received subscriptions of \$200,000 with respect to a proposed private placement of 740,741 units at \$0.3375 per unit. Each unit will include one common share and one share purchase warrant entitling the holder thereof to purchase an additional common share at \$0.3375 per share in the first year or at \$0.3881 in the second year. This private placement is subject to regulatory filing and approval.

Note 13 Comparative Figures

Certain 1994 comparative figures have been restated in order to comply with the financial statement presentation adopted for 1995.