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**ST. JOE CANADA, INC.
MATHESON AND EVELYN TOWNSHIPS
TIMMINS AREA, ONTARIO**

OVERBURDEN DRILLING REPORT

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MINING LANDS SECTION

BY
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OVERBURDEN DRILLING MANAGEMENT LIMITED
OCTOBER, 1983

*See
this report*



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INTRODUCTION

Location and Access

This report describes an overburden drilling program on a St. Joe Canada Inc. property located approximately twenty-five (25 km) northeast of Timmins in the northern portion of Matheson and the southern portion of Evelyn Townships (Figure 1). The property comprises 87 contiguous claims (Fig. 2; Table 1) in the Porcupine Mining Division, District of Cochrane.

Access to the property is gained from Highway 610 which branches off Highway 101 at Hoyle east of Timmins. From Highway 610, an all-weather gravel road runs north-south through the central portion of Matheson and Evelyn Townships. The overgrown Matheson-Evelyn boundary road provides direct access to eastern and western portions of the claim block.

Topography

The area under consideration is a topographically flat clay plain. Poor drainage of slightly lower lying areas results in the formation of bogs which support a growth of stunted spruce and alders. Poplar groves are present where saturation of the land is less intense. A number of clearings and abandoned buildings record minor farming activity in the past.

The Porcupine River runs through the western portion of Matheson Township and drains into Nighthawk Lake to the south. The eastern portion of the township is drained by the Frederick House River system which flows northward out of Nighthawk Lake.

Geology

Archean metavolcanic and metasedimentary rocks of the Abitibi greenstone belt floor the claim group. Quaternary sediments, comprising two till units with intervening and overlying glaciofluvial and glaciolacustrine sediments, blanket the area precluding direct examination of bedrock. Thus, knowledge of bedrock geology is largely gained from drill intersections and extrapolation of geology from nearby, more extensively explored Townships of the Timmins area.

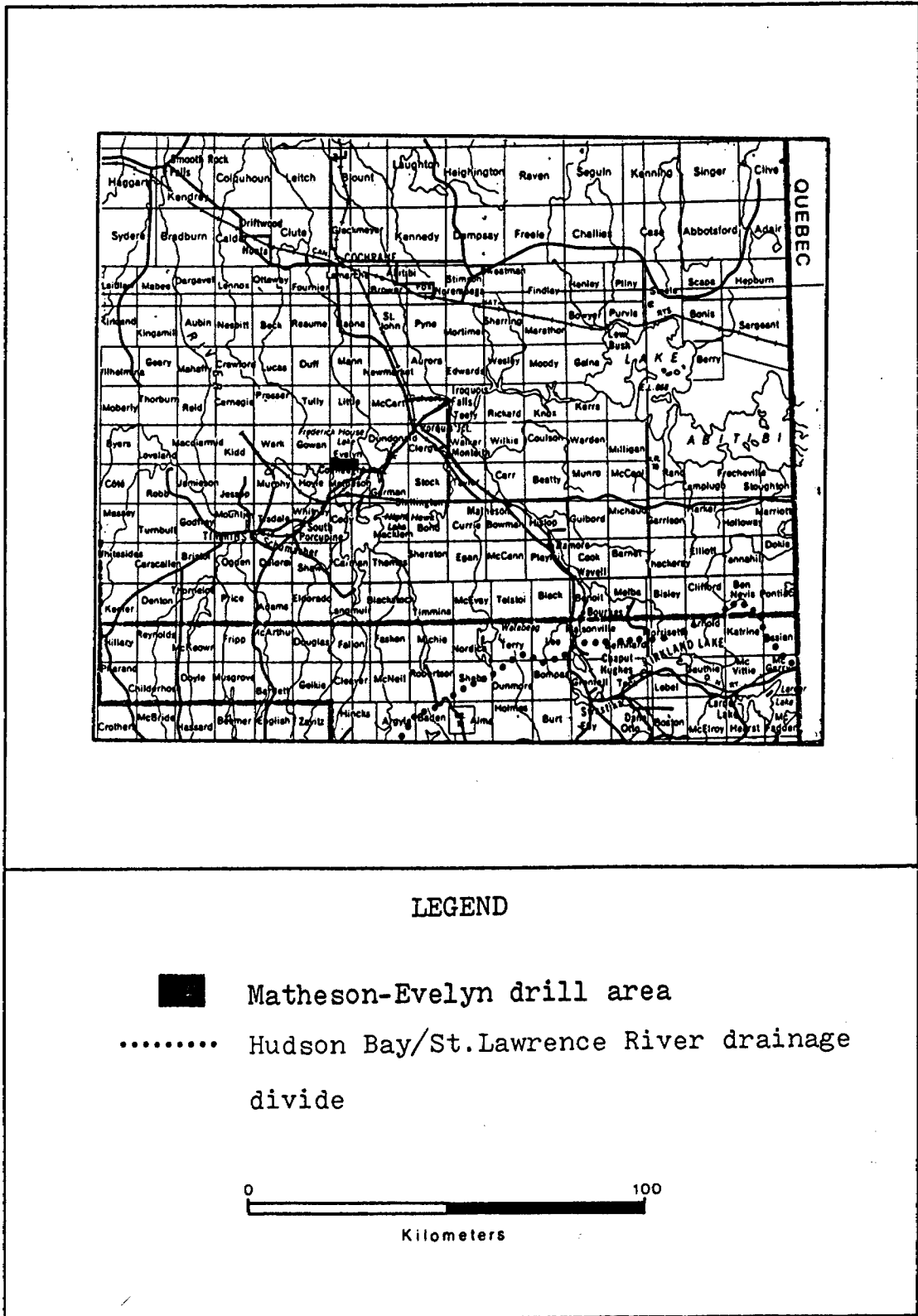


Fig.1-Property Location Map

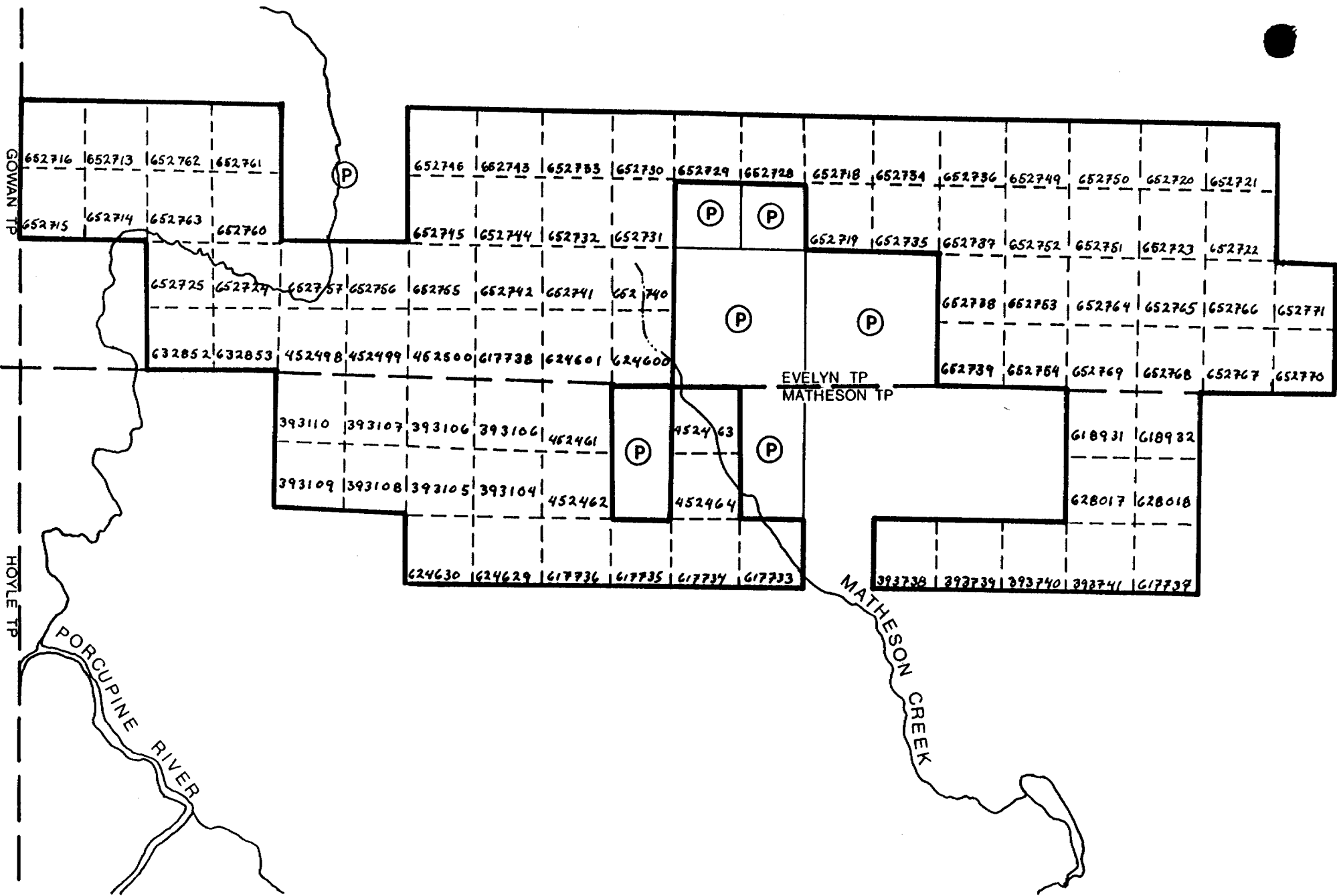


Fig.2-Property Map-St. Joe Canada Inc., Matheson and Evelyn Townships, Ontario

Claim Number	Hole Number	Meters Drilled		Depth of Hole (meters)	Samples Collected	
		Overburden	Bedrock		Overburden	Bedrock
393103	15	14	2.8	16.8	1	1
104	12	21	1.5	22.5	9	1
105	08	21	3	24	9	1
	13	19.5	1.5	21	7	1
	04	20.8	4.7	25.5	9	2
106						
107	02	37.2	1.8	39	21	1
	03	25.4	1.6	27	9	1
	16	26.8	1.7	28.5	13	1
	17	37.4	0.6	38	19	1
	20	31.1	1.5	32.6	5	1
	22	36.3	1.2	37.5	17	1
	23	37.8	1.2	39.0	4	1
108	21	32	1.4	33.4	5	1
109	25	22.5	1.5	24	7	1
110	18	25	1.5	26.5	1	1
	19	27	1.5	28.5	8	1
	26	20	1.5	21.5	8	1
738						
739						
740						
741	09	16.3	1.7	18	5	1
	10	18	1.5	19.5	7	1

Table 1 - Claim Numbers and Drilling Statistics

Claim Number	Hole Number	Meters Drilled		Depth of Hole (meters)	Samples Collected	
		Overburden	Bedrock		Overburden	Bedrock
452461	14	17.8	1.7	19.5	5	1
462						
463						
464						
498	27	37.2	0.9	38.1	16	1
	28	39.5	1.0	40.5	20	1
	29	34.6	1.4	36.0	15	1
	36	36.8	0.4	37.2	15	1
	37	38.8	1.7	40.5	17	1
	38	31.2	1.8	33.0	8	1
	39	32.2	1.8	34.0	12	2
	40	30	1.5	31.5	7	1
499	30	33.8	0.7	34.5	13	1
	31	27.3	0.5	27.8	9	1
	32	30	1.2	31.2	11	1
	33	26.3	0.7	27.0	9	1
	34	27.3	1.2	28.5	12	1
	35	30.1	0.9	31	14	1
	41	38.9	1.6	40.5	9	1
500						

Table 1 (Continued)

Claim Number	Hole Number	Meters Drilled		Depth of Hole (meters)	Samples Collected	
		Overburden	Bedrock		Overburden	Bedrock
617733						
734	24	39.9	0.8	40.7	19	1
735						
736	11	26.3	0.7	27.0	12	1
737						
738						
618931						
932						
624600						
601						
629	05	25.7	2.8	28.5	11	1
	06	21.9	0.6	22.5	11	1
	07	22.6	1.4	24.0	12	1
630						
628017						
018						
632852	01	22.4	1.6	24.0	5	1
853						

Table 1 - (Continued)

Claim Number	Hole Number	Meters Drilled		Depth of Hole (meters)	Samples Collected	
		Overburden	Bedrock		Overburden	Bedrock
652713						
714						
715						
716						
718						
719						
720						
721						
722						
723						
724						
725						
728						
729						
730						
731						
732						
733						
734						
735						
736						
737						
738						
739						
740						
741						

Table 1 - (Continued)

Claim Number	Hole Number	Meters Drilled		Depth of Hole (meters)	Samples Collected	
		Overburden	Bedrock		Overburden	Bedrock
652742						
743						
744						
745						
746						
749						
750						
751						
752						
753						
754						
755						
756						
757						
760						
761						
762						
763						
764						
765						
766						
767						
768						
769						
770						
771						
<u>TOTALS</u>						
87	41	1159.7	60.6	1220.3	426	43

Table 1 - (Continued)

Exploration History

Extensive mineral exploration has not been reported for the drill area (Hunt, Maharaj, 1980; Hunt, Richard, Carey, 1980). In the mid-sixties several junior mining companies and individuals undertook ground magnetometer and electromagnetic surveys (horizontal loop, vertical loop) over portions of what now comprises the St. Joe claims. No magnetic anomalies were indicated but numerous EM-conductors were reported. Follow-up work, if performed, has not been described.

The Principles of Overburden Exploration in Glaciated Areas

During the Pleistocene epoch of the Quaternary period, the crowns of all ore bodies that subcropped beneath the continental ice sheets of North America were eroded and were dispersed down-ice in the glacial debris. The dispersion mechanisms were systematic (Averill, 1978) and the resulting ore "trains" in the overburden are generally long, thin and narrow and most importantly are several hundred times larger than the parent ore bodies. These large trains can be used very effectively to locate the remaining roots of the ore bodies.

Because the dispersion trains originated at the base of the ice, they are either partly or entirely buried by younger, nonanomalous glacial debris. Many trains are confined to the bottom layer of glacial debris--the basal till. In fact, the sampling of glacial overburden for exploration purposes is commonly referred to as "basal till sampling". It is important to note, however, that in areas affected by multiple glaciations the bottom layer of debris in the overburden section may be only the lowermost of several stacked basal tills, and that a dispersion train may occur at any level within any one the basal till horizons. Consequently, the term "basal till sampling" is not synonymous with the collection of samples from the base of the overburden section. Moreover, the term is not strictly correct because significant glacial dispersion trains can occur in formations other than basal till.

From the foregoing statements, it can be seen that glacial dispersion and glacial stratigraphy are interdependent. Consequently, the effectiveness of overburden sampling as an exploration method is related to the ability of the

sampling equipment to deliver stratigraphic information from the unconsolidated glacial deposits. Most drills have been designed to sample bedrock and are unsuitable for overburden exploration, but the reverse circulation rotary system has been designed specifically for overburden sampling. This system employs a tricone bit and dual-tube rods, with the outer tube acting as a casing to prevent contamination of samples by material caving from overlying sections. Air and water are injected through the annulus between the outer and inner rods to deliver a continuous sample of the entire overburden section through the small inner rod. The sample is disturbed but returns to surface instantly, and the precise positions of stratigraphic contacts can be identified. Full sample recovery is possible in all formations regardless of porosity or consistency. Moreover, the hole diameter is sufficient (7.5 cm) to provide the large samples that are needed to compensate for the natural inhomogeneities of glacial debris. Overburden holes are extended 1.5 to 2 m into bedrock and the bedrock chip samples are used to determine overburden provenance and thereby define the directions of glacial transport. The inter-related bedrock and overburden data provide exceptionally comprehensive exploration coverage.

Most of the glacial overburden in Canada is fresh, and metals in the overburden occur in primary, mechanically dispersed minerals rather than in secondary chemical concentrations. While ore mineral dispersion trains are very large, they are also weak due to dilution by glacial transport and are difficult to identify from a normal "soil" analysis of the fine fraction of the samples. Consequently, heavy mineral concentrates are prepared to amplify the primary anomalies, and analysis of the fines is normally reserved for areas where significant post-glacial oxidation is evident. The heavy mineral concentrates are very sensitive, and special care must be taken to avoid the introduction of contaminants into the samples.

Expenditures

Final expenditures on completion of the program totalled \$ 81,396.34 (Appendix D). At \$15.00 per man day, 5426 days of work were performed on the St. Joe claims.

DRILLING AND SAMPLING

Reverse Circulation Drilling

The veneer of Quaternary sediments precluded direct observation and sampling of bedrock and till. To overcome this problem a reverse circulation drill rig was commissioned from Heath and Sherwood Drilling of Kirkland Lake for the sampling of buried till horizons and to provide bedrock intersections for lithologic determinations. In the periods September 27 - October 1 (1982), October 28 - November 3 (1982), and February 10-16 (1983) a total of one thousand two hundred twenty point three metres (1220.3m) of overburden and bedrock were drilled in forty-one (41) holes. Drilling cost exclusive of logging and sampling were \$52,006.54 or \$42.62 per metre.

Logging and Sampling

Reverse circulation drill holes were logged and sampled by Overburden Drilling Management Ltd. and St. Joe Canada, Inc. personnel. A two or three man crew consisting of a geologist and sampler(s) were on site for all drilling. Geologists K. MacNeil, R. Huneault and samplers J. Switzer, B. Berger, J. Smith, and P. Barry were responsible for logging and sample collection at various intervals during the course of the program.

Reverse circulation samples were collected in two 20 litre buckets coupled with a plastic tube. This procedure ensured a quiet settling environment thus reducing the loss of fines encountered if only one bucket was used and allowed to overflow. A 10-mesh (1700 micron) screen was used to discard the majority of rock cuttings and increase the proportion of fine material needed to identify and trace dispersion trains. The +10 rock cuttings were constantly monitored to discern any variations which could give clues to overburden stratigraphy, or for any clasts indicative of an environment suitable for gold mineralization. Approximately 20

percent of the cuttings were kept as a permanent record and for possible future reference.

Continuous samples of all clastic horizons (till, gravel, sand) were collected as well as bedrock chip samples. The typical sample interval was 1.5 metres. A total of 426 overburden samples and 43 bedrock samples (including one boulder sample and two bedrock samples processed as till) were collected. These samples were reduced to 7-9v kilograms with an aluminum scoop and packed in heavy plastic bags before being shipped in 20-litre metal pails to the ODM processing laboratory in Ottawa.

Sample Processing

All samples of till, sand, were gravel are processed according to the flow sheet illustrated in Figure 3. The procedures may be summarized as follows:

The bulk sample is weighed wet and a 250 gram split is obtained with a tube-type sampler for possible, later, geochemical analysis.

The remainder of the bulk sample is sieved at 1,700 microns, with the coarser (+1700 micron) fraction being stored. The -1700 micron split is then processed on a shaking table to prepare a preconcentrate. Processing of samples on the shaking table may also aid in stratigraphic interpretation as the degree of matrix sorting can indicate whether a sample is of glacial or glaciofluvial origin.

The preconcentrate is dried after which a heavy liquid separation in Methylene Iodide (Specific Gravity 3.3) is performed. The light fraction (S.G. 3.3) is stored and the heavy fraction undergoes a magnetic separation with a hand held retractable magnet to remove drill steel and magnetite. The remaining "clean" concentrate is split on a 3/4:1/4 basis with the larger fraction being sent for geochemical analysis. The 1/4 split is retained for possible binocular study and/or future check analysis. All other fractions of the original bulk sample except for the 3/4 heavy mineral split are also retained.

OVERBURDEN DRILLING MANAGEMENT LIMITED
SAMPLE PROCESSING FLOW SHEET

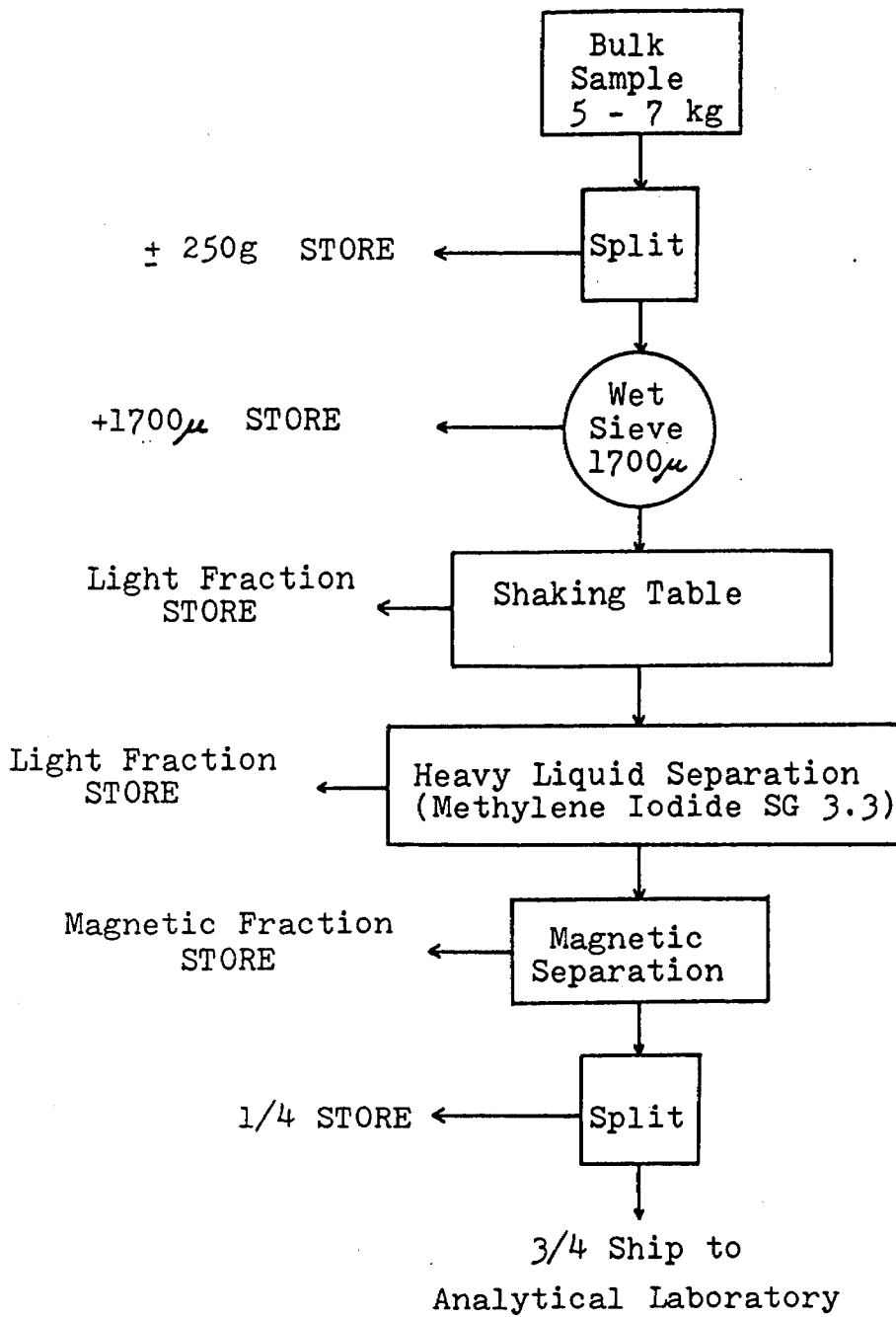


Fig.3-Sample Processing Flow Sheet

BEDROCK GEOLOGY

Regional Geology

The Timmins area is underlain by Archean rocks of the Abitibi greenstone belt. The Abitibi belt is composed of mafic to felsic volcanic complexes and associated intrusive bodies flanked by linear bands of metavolcanic and metasedimentary rocks. (Deptuck, Squair, Wierzbicki, 1982).

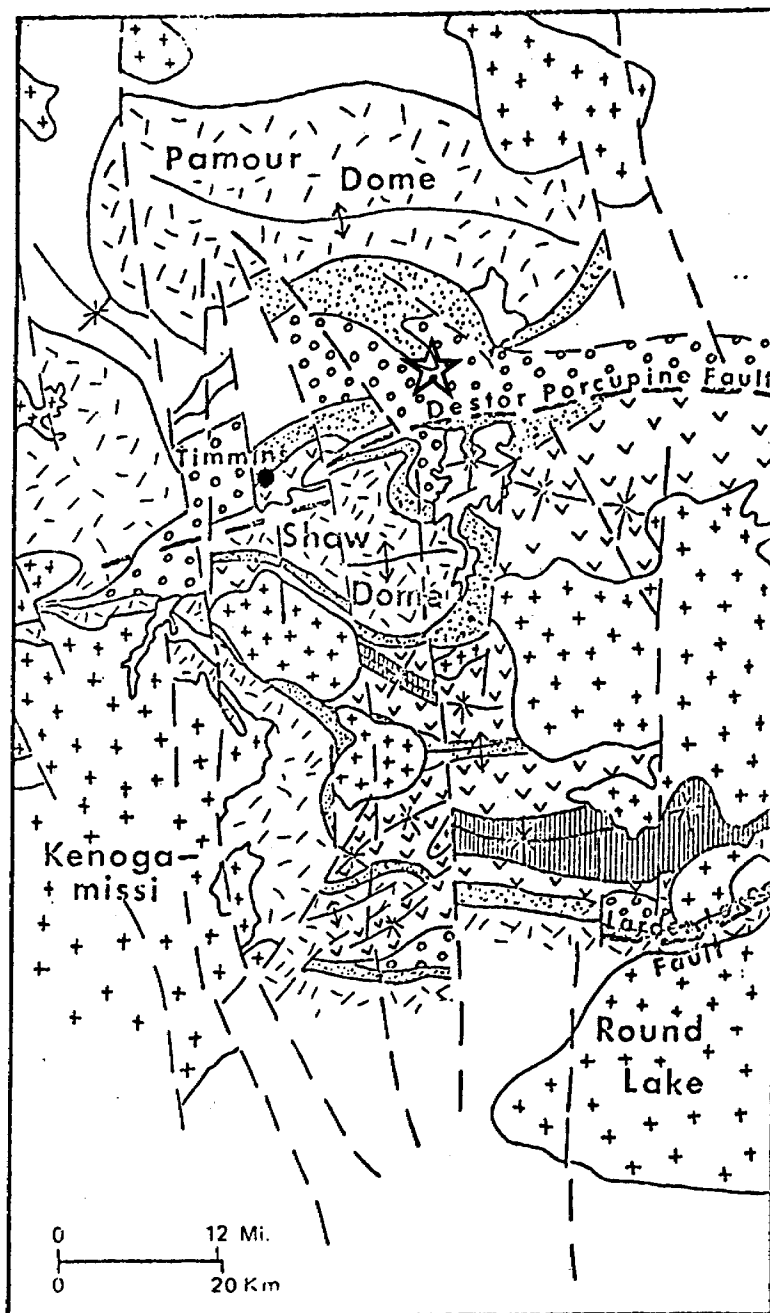
Metavolcanic rocks of the Timmins area are divided into two groups (super groups?) (Fig. 4) - the older Deloro Group and overlying Tisdale Group. Porcupine Group metasedimentary rocks also occur and are time equivalent to the upper portions of the Deloro Group and the entire Tisdale Group (Pyke, 1980).

The Deloro Group rocks are a calc-alkalic series consisting of predominately andesite and basalt in the lower portions and dacitic flows and dacitic to rhyolitic pyroclastics towards the top. (Pyke, *ibid*). Tholeiitic rocks are prominent only at the base of the group. Exposures of Deloro Group rocks are confined to structures such as the Shaw Dome and Pamour Dome or to the margins of granitic plutons which have domed the surrounding rocks. (Pyke 1978). The entire sequence is 4500 - 5000 metres thick.

The beginning of the Tisdale Group is marked by a major change in volcanism. Komatiitic rocks occur at the base of the sequence. These are overlain by a thick succession of tholeiitic basalts. The uppermost rocks of the group are of calc-alkalic affinity and consist primarily of dacitic volcanoclastics. The entire succession is approximately 5000 metres thick.


Porcupine Group metasediments form a turbidite sequence of approximately 3000 metres in thickness. The meta-sediments consist primarily of intercalated greywacke and siltstone with lesser amounts of conglomerate. (Pyke, 1980; 1982).

Along with the metavolcanics and metasediments, ultramafic intrusive rocks and quartz-feldspar porphyry bodies are present. The ultramafic intrusives appear to occur as sills predominately within the Deloro Group. Several sub-volcanic,




LEGEND

EARLY PRECAMBRIAN

 Porcupine Group


TISDALE SUPERGROUP

 Calc-alkalic suite

 Tholeiitic suite

 Komatiitic suite

DELORO SUPERGROUP

 Unsubdivided

 St. Joe Property

Fig.4-Regional Stratigraphy of the Timmins-Matachewan Area (after Pyke,1978)

quartz-feldspar porphyry bodies are present within a restricted stratigraphic interval (on or near the contact of the Deloro and Tisdale Groups). These porphyries may represent extrusive rhyolitic domes. (Pyke, 1978, 1982)

The major structural feature of the area is the Destor-Porcupine Fault. This lineament extends from the Kapuskasing Structure in the west to the Grenville front east of Val d'Or - a distance of approximately 450 kilometres. In the Noranda area, the fault merges with the Cadillac Break which is an eastward extension of the Larder Lake Break.

Gold deposits within the Timmins area appear spatially and genetically related to carbonatized portions of the komatiitic suite of volcanic rocks forming the basal portion of the Tisdale Group. Furthermore, a structural control is probable as most economically viable deposits occur in proximity to, and north of the Destor-Porcupine Fault. (Pyke, 1978).

The property under consideration in this report is underlain by Porcupine Group metasediments and minor Tisdale Group volcanics (Pyke, et al, 1971, Pyke 1978). The Destor-Porcupine Fault is located 10 km to the south.

Bedrock Geology of the Drill Area

Bedrock intersections from reverse circulation drilling reveal the area to be underlain by clastic sedimentary rocks and minor, intercalated intermediate volcanics (Fig. 5, Appendix C).

The sedimentary rocks comprise greywacke, arkose, and siltstone/argillite/phyllite. Schistosity, alteration and shearing obscure textures to varying extents in many of the samples. The coarser sediments are generally poorly sorted, porous rocks composed essentially of feldspar and quartz - the designations of greywacke and arkose are made primarily on the basis of mafic (chloritic) content. The porosity of the sediments is believed to be due to leaching of carbonate from the rocks. While many samples contain little or no carbonate, others contain 10-12% interstitial calcite indicating less pervasive chemical weathering. Pyrite is present in amounts ranging from 0-2%. It occurs as

disseminated cubic crystals. Some bedrock intersections are very soft and tend to be ground to gritty clay by the drill bit. The softness is due to the alteration, shearing, and surface weathering of the bedrock, or any combination of these.

Arkosic samples contain little mafic material and commonly appear to have undergone secondary processes (silicification, carbonatization) leading to difficulties in distinguishing texture. In these cases, the rock chips closely resemble light coloured intermediate volcanics.

Textural variations are slightly easier to observe in the greywacke samples although not to such an extent that their identification as sediments or volcanics is always obvious. The increased proportions of chloritic material accent the grain shapes and relationships. Chloritic material possibly represents the slightly metamorphosed equivalents of original matrix material or rock chips.

Finer grained sediments (siltstone/argillite/phyllite) are less common within the drill area. They range from relatively fresh, massive to poorly bedded (?) siltstone/argillite to soft, schistose to fissile, extensively altered and micaceous argillite/phyllite.

Intermediate volcanic rocks within the drill area form interbeds in the sedimentary unit. Their apparent lack of continuity precludes their use as marker horizons, however. These rocks are light grey to light green in colour, very fine-grained, schistose, and may locally contain feldspar phenocrysts. The groundmass is feldspathic, and mafic minerals (biotite, chlorite) form less than 15% of the samples. As with the sediments, these volcanic rocks contain small (1% or less) percentages of cubic, disseminated pyrite. Interstitial carbonate is present in amounts up to 20%. The abundance of carbonate, light colour of the rocks, and schistosity obscure textural variations and lend a similar appearance to the volcanics and some arkosic samples.

QUATERNARY GEOLOGY

Overburden Thickness

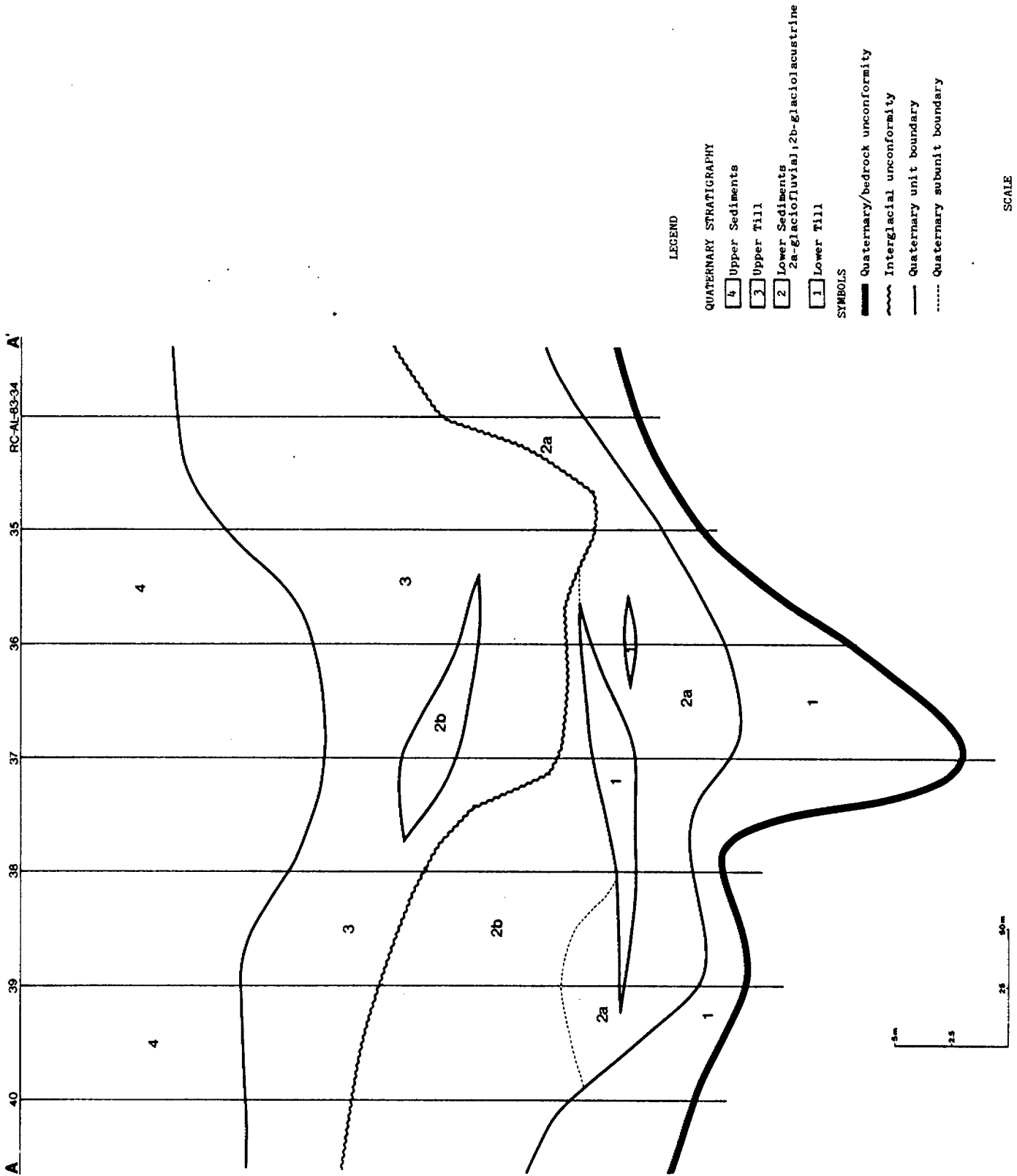
The bedrock formations in the Matheson-Evelyn drill area are mantled by 14 to 40 meters of glacial overburden. Since the surface topography of the area is flat, overburden thickness is directly sympathetic to bedrock topography.

Glacial History

Overburden Drilling Management has conducted numerous reverse circulation overburden drilling programs over the Abitibi belt, and by combining the three-dimensional drill data with surface information from the Glacial Map of Canada (Prest, 1968), has reconstructed the glacial history of the region in some detail. The classical Illinoian and Kansan periods of the northern United States are not recognized, but repeated glaciations within the Wisconsin period are evident. Several of these glaciations were substantial, but it is difficult to correlate events within certainty over the great expanse of the Abitibi greenstone belt. During each recession, a layer of till was deposited. In most recessions, a body of water equivalent to Lake Ojibway of the final recession immediately flooded the new till surface in the area between the Arctic/Atlantic continental drainage divide (Fig. 1) and the retreating glacier to the north. A thick wedge of lacustrine sediments was then deposited over the till. During the next ice advance, most of the unconsolidated sediments and till were eroded and recycled to form new till and sediment horizons.

Quaternary Stratigraphy of the Drill Area

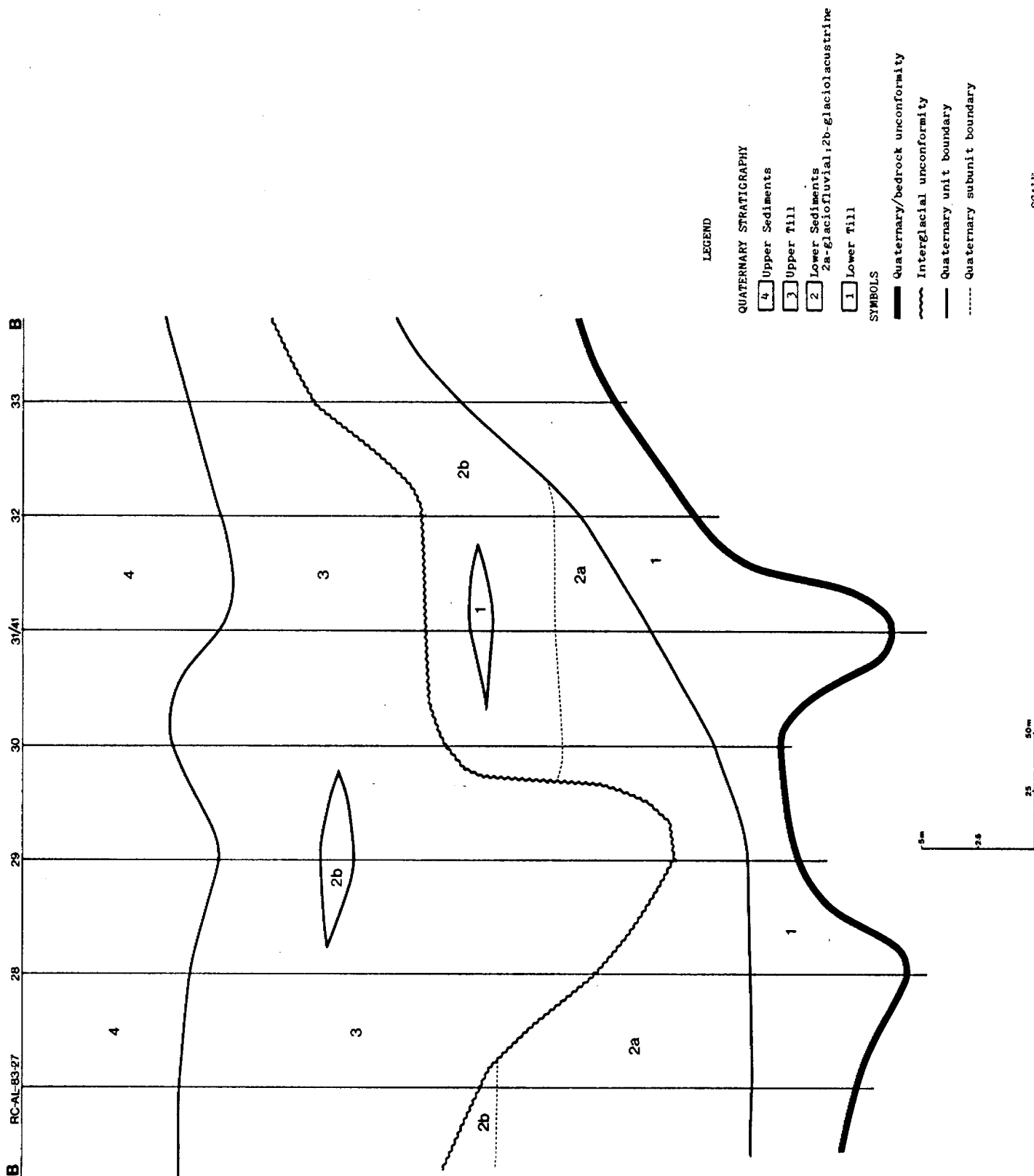
Profiles A-A' to E-E' (Figures 6 to 10) depict the Quaternary stratigraphy of the drill area. Profiles A-A' to C-C' are East-West sections sub-perpendicular to the direction of ice advance. Profiles D-D' to E-E' are oriented sub-parallel to the glacial advance. The direction of final ice-movement is believed to be along an azimuth of from 170° to 185° (Prest, *ibid*; Richard, 1982).



SCALE

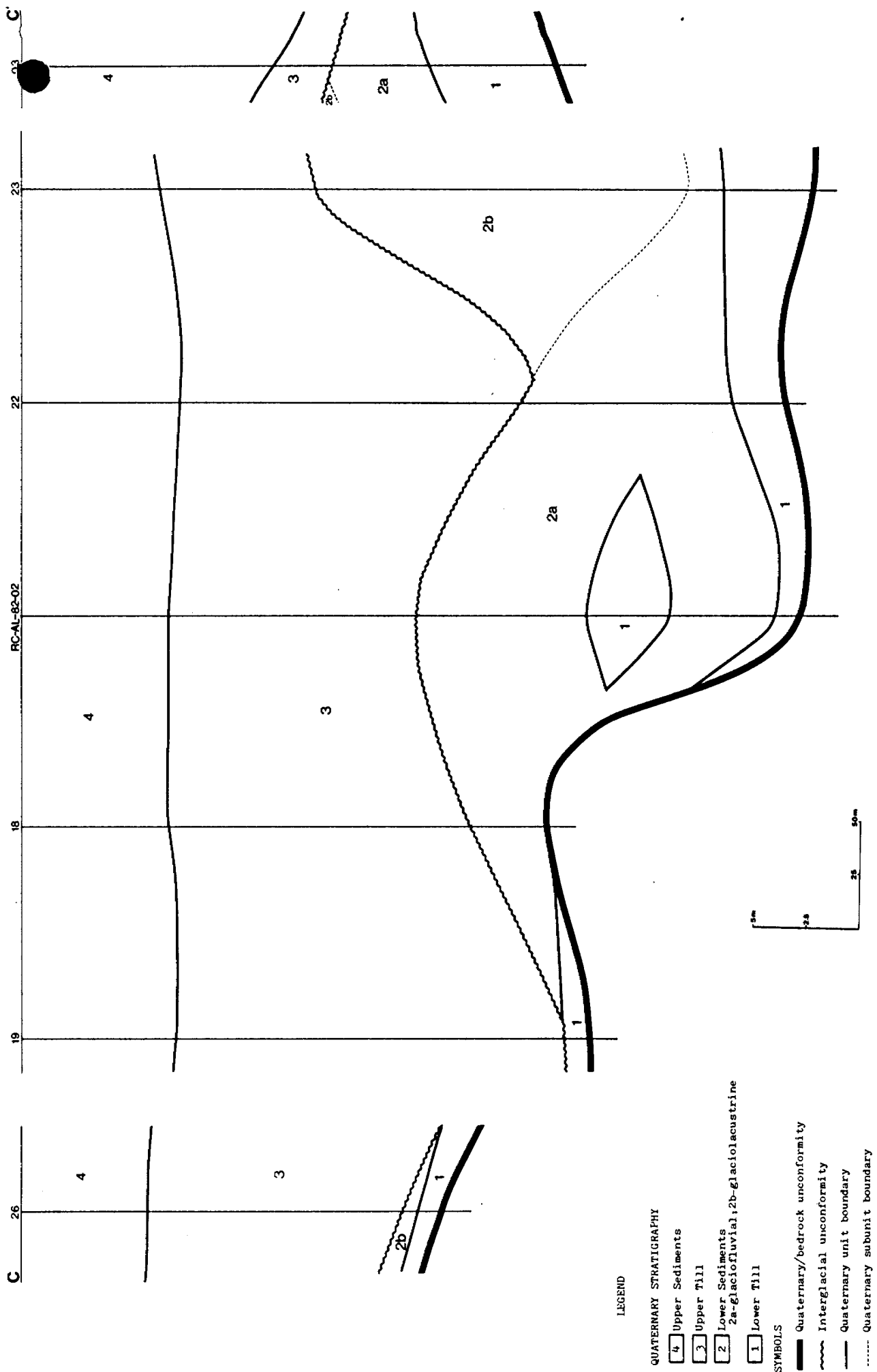
HOR. 1:2500 VERT. 1:250

Fig.6-Quaternary Stratigraphy of Profile A-A'



HOR. 1:2500 VERT. 1:250

Fig.7-Quaternary Stratigraphy of Profile B-B'



SCALE

HOR. 1:2500 VERT. 1:250

Fig.8-Quaternary Stratigraphy of Profile C-C'



Fig.9-Quaternary Stratigraphy of Profile D-D'

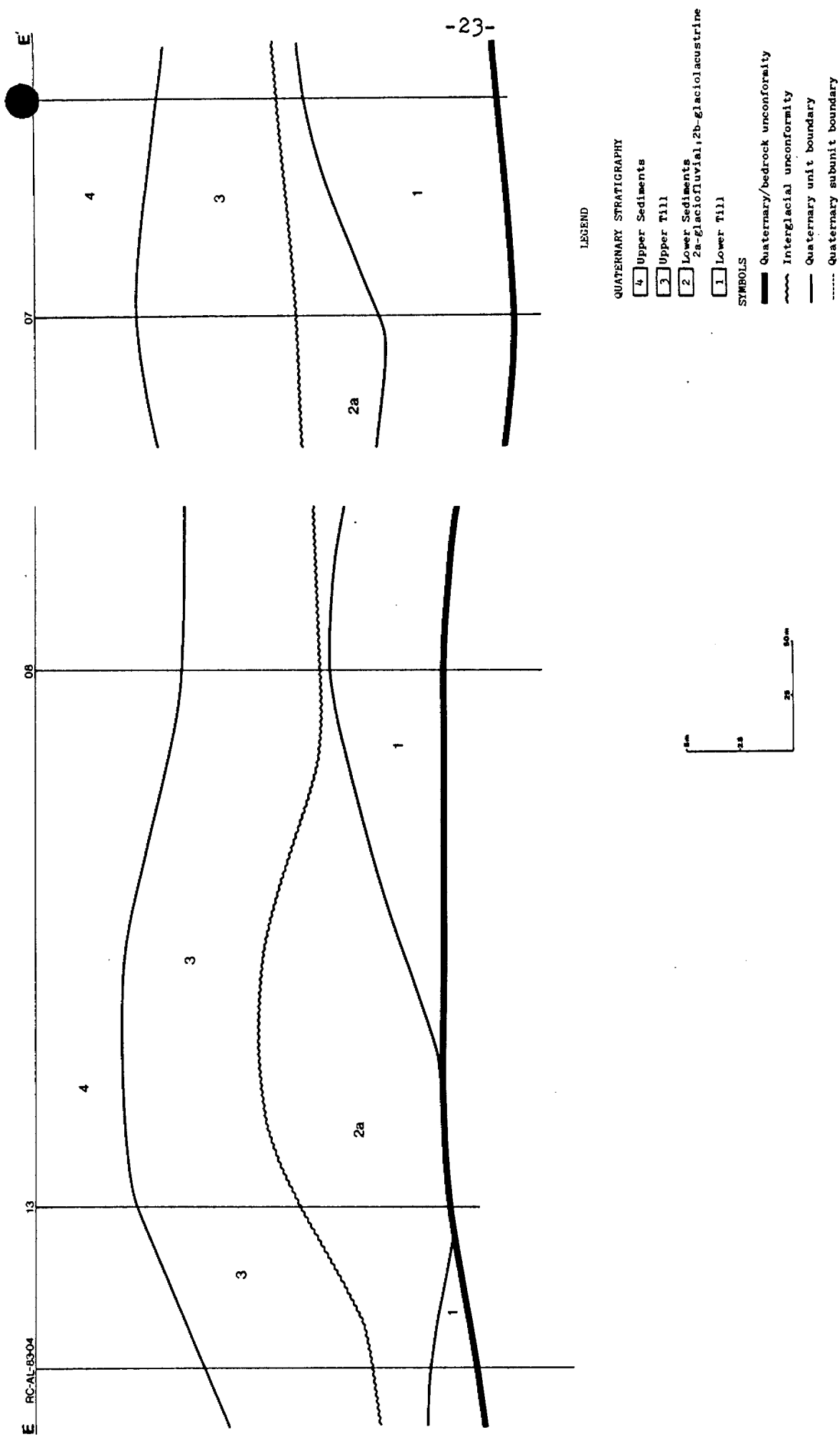


Fig.10-Quaternary Stratigraphy of Profile E-E'

Two periods of Wisconsin glaciation are represented. The tills deposited with the two recessions of the ice are commonly separated by glaciolacustrine and glaciofluvial sediments deposited in ancestral Lake Ojibway. With the recession of the final ice-sheet, Lake Ojibway waters inundated the area and lacustrine sediments were again deposited forming a "blanket" over the older till, glaciofluvial and glaciolacustrine deposits.

The following stratigraphic horizons are recognized:

- 1) Lower Till
- 2) Lower Sediments
- 3) Upper Till
- 4) Upper Sediments

1) Lower Till (Unit 1)

Lower Till is present in 80-85% of the drill holes. This unit contains cobble sized clasts in a grey sand/silt matrix. Clast composition ranges from 50-90% Abitibi belt volcanics and sediments and averages approximately 70%. Lesser amounts of intrusive material are present as well as 0-20% limestone derived from Paleozoic rocks of the James Bay Lowlands. The relatively high percentage of limestone present in the Lower Till (Upper Till is also enriched in limestone clasts) reflects the fact the ice sheets moved across the Hudson Bay area. This is in contrast to the Kirkland Lake area where ice moving out from a centre in Labrador did not scour the Paleozoic rocks of the James Bay Lowlands, and as a result, tills deposited are deficient in limestone.

2) Lower Sediments (Unit 2)

Glaciofluvial and glaciolacustrine sediments overlie the Lower Till. As evident from the Quaternary profiles (Figures 6 to 10) and drill hole logs (Appendix A) this unit is very variable in composition as well as thickness.

Glaciofluvial sediments (Unit 2a) comprise gravel and sand illustrating, in a general sense, a fining upwards sequence. This material is interpreted to be esker sediments laid down within an in-ice conduit of the same ice-sheet responsible for the deposition of the Lower Till. The gravel represents an early erosive stage of esker's life while sand members detail a lower energy

depositional stage. Clast composition of the gravel is similar to that of the Lower Till indicating a similar source.

The drill area occurs to the north of the Arctic-Atlantic drainage divide. To maintain its gradient on the northward dipping slope, the esker stream, by necessity, cut down through the ice to near the bedrock-ice interface. As a result of this, the Lower Till thins considerably, or is not present (hole 18) near the axis of the esker channel.

Sands marginal to the main esker system represent outwash material deposited in lake waters with the retreat of the ice-sheet.

Glaciolacustrine sediments (Unit 2b) consisting of fine, silty sands and grey clay overlie the glaciofluvial sediments or Lower Till. Within the drill area, this unit is very variable in thickness as well as lateral continuity.

Lenses of till, correlative with the Lower Till, are commonly observed overlain and underlain by glaciofluvial sediments (Holes 02, 17). Blocks of ice calving from the roof of the esker channel and subsequent melt-out of glacial debris is postulated to account for the erratic presence of these lenses.

Minor, thin patches of till enveloped in lacustrine clays result from melt-out of debris from detached ice blocks which have become lodged in the clay. Lacustrine sedimentation proceeds uninterrupted and caps the till with the disintegration of the ice.

3) Upper Till (Unit 3)

This unit as with the Lower Sediments, forms an extensive deposit of variable composition and thickness. It is present in all holes where it may, or may not, be underlain by older glacial and glaciolacustrine deposits. The main constraint as to the appearance of older units appears to be the depths of the holes - shallow holes tending to contain lesser amounts of, or no, Lower Sediments and/or Lower Till.

The matrix of the Upper Till varies from sandy/silty to clayey. This reflects the glacial abrasion of crystalline bedrock as well as reworking of underlying Unit 2 sediments. Cobble sized clasts are common. Limestone clasts are ubiquitous, as in the Lower Till. In general, intermediate-mafic volcanics and sediments form slightly lower percentages than in the Lower Till. The upper sections of till in many of the holes drilled on the 9+ OON and 12+OON tiers contain upwards of 65% granitic material with a corresponding decrease in volcanic-sediment proportions. The high component of intrusive material may indicate the presence of a small, undiscovered stock as the only other granitic rocks occur approximately 32 kilometres up-ice.

Minor, isolated, sections of clay (Figure 9) occur within the Upper Till. These clay lenses result from the "plucking" of large sections of the frozen Lower Sediments by the glacier and their subsequent deposition without the benefit of glacial mixing with other material contained in the ice.

4) Upper Sediments (Unit 4)

This unit, which is present in all holes, records deposition of lacustrine sediments in the final phase of Lake Ojibway. It consists essentially of soft, grey clay along with minor amounts of fine sand and silt. The lake sediments impart a flat, subdued topography to the drill area. Poor surface drainage gives rise to areas of swamp which may hinder the mobility of heavy equipment.

CONCLUSIONS

- 1) Bedrock intersections are primarily of sedimentary origin. Minor amounts of volcanics occur interbedded with the sediments.
- 2) Extensive alteration and shearing of all rock types is postulated due to the presence of secondary carbonate, silica(?) and pyrite and the soft, incompetent character of many bedrock samples. No base metal or gold mineralization was observed in bedrock samples, however.
- 3) Two till units are present, commonly separated by glaciolacustrine and/or glaciofluvial sediments. Younger glaciolacustrine clays and silts completely blanket older horizons. No mineralized clasts were isolated in till or gravel sections.

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CERTIFICATION

I, K.A. MACNEIL, AS AUTHOR OF THIS REPORT, DO HEREBY CERTIFY THAT:

1. I hold the degree of Bachelor of Science (1978) in Geology from St. Francis Xavier University.
2. I have direct knowledge of the information herein contained.
3. I am a consulting geologist with Overburden Drilling Management Limited, 3 Cleopatra Drive, Nepean, Ontario.
4. I have no interest in the property herein described.


K.A. MacNeil, B.Sc.

APPENDIX A
REVERSE CIRCULATION DRILL HOLE LOGS

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE Sept 27 1982 HOLE NO. RC-AL-82-01 LOCATION BL-0100E; 9r25N
 GEOLOGIST K. MacNeil DRILLER G. Hwang BIT NO. K-000436 BIT FOOTAGE 0-24
 SHIFT HOURS _____ MOVE TO HOLE 12:30-1:45
 TO _____ DRILL 2:30-5:00
 TOTAL HOURS _____ MECHANICAL DOWN TIME _____
 DRILLING PROBLEMS _____
 CONTRACT HOURS _____ OTHER Mobilization -12:30; 1:45-2:30 Setup; 5:30-6:15 To road; 6:15-6:45 To town
 MOVE TO NEXT HOLE 5:00-5:30

DEPTH IN METRES	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
0				0-0.3 Organic rich clay
1				
2				0.3-10.4 <u>Clay</u> : soft; non-gritty to 1.4 - clay is a beige color 1.4-10.4 clay is a grey color
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
			01	10.4-12.9 <u>Till</u> : grey, gritty clay (and fine sand) matrix - gritty clay predominant. till is cobbly in initial 0.5 metres, but below this only a few pebbles are seen clay composition - 60% volcanic sediments; 35% granitic or intrusive material
			02	
				12.9-19.3 <u>Clay</u> : grey; stiff, very difficult to penetrate; slight variations in tone of grey - variegated? minor gritty bands 18.0-19.3 minor silt and pebbles occur along with clay
			03	19.3-19.5 mafic volcanic boulder

**OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG**

DATE Sept 27 1982 HOLE NO. RC-AL-82-01 LOCATION _____
 GEOLOGIST _____ DRILLER _____ BIT NO. _____ BIT FOOTAGE _____
 SHIFT HOURS _____ MOVE TO HOLE _____
 _____ TO _____ DRILL _____
 TOTAL HOURS _____ MECHANICAL DOWN TIME _____
 _____ DRILLING PROBLEMS _____
 CONTRACT HOURS _____ OTHER _____
 _____ MOVE TO NEXT HOLE _____

DEPTH (METRES)	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
1		04		19.5 - 20.2 - <u>Till</u> :- grey, fine sand matrix; pebbly; chst composition - 65% dark colored volcanics/sediments; 25-30% intrusive material
2		05		20.2 - 20.4 mafic intrusive boulder
3				20.4 - 22.4 <u>Till</u> ; grey, fine sand matrix; cobbly - chsts more common than in till from 19.5 to 20.2; chst composition - 65% dark mafic/intermediate volcanics and sediments; 10-15% limestone; 15% intrusive material
4				22.4 - 24 <u>Bedrock</u> :- greywacke(?): black, fine-grained; schistose; minor pyrit along joint faces
5				
6				
7				
8				
9				
10				
11				
12				24 EOH
13				
14				
15				
16				
17				
18				
19				
20				

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE Sept 28 1982 HOLE NO. RC-A1-82-02 LOCATION L 12+00E ; 7+00N
 GEOLOGIST SUTTER DRILLER HOWE BIT NO. K200436 BIT FOOTAGE 24-63
 SHIFT HOURS MOVE TO HOLE 7:45-8:00
 TO _____ DRILL 8:00-8:30 1:45-5:15
 TOTAL HOURS MECHANICAL DOWN TIME 8:30-11:45 REPLACE RADIATOR
 DRILLING PROBLEMS _____
 CONTRACT HOURS OTHER TRAVEL 6:45-7:00 TO DRILL 7:00-7:45 5:30-6:15 6:15-6:45
 MOVE TO NEXT HOLE 5:15-5:30

DEPTH METRES	GRAPHIC LOG	INTERVAL	SAMPLE NO	DESCRIPTIVE LOG
1				0 - .5 ORGANICS, MUSKEG
2				.5 - 1.5 CLAY AND ORGANICS
3				1.5 - 7.0 CLAY
4				- Grey, smooth + soft
5				
6				
7				7.0 - 18.8 TILL
8			01	- Grey, fine sand matrix
9				- 40% vol. 60% granite, trace of limestone.
10			02	- pebbles
11			03	8.8 - 9.0 Boulder - coarse grained granite.
12				9.0 - 10.0 Gritty clay in matrix (grey).
13			04	55% vol. 1-2% limestone cobs
14			05	10.0 - 15.0 Gritty clay disappearing
15				15.0 - 18.0 90% volcanics + sediments
16			06	Trace sulfides.
17			07	18.0 - 18.8 80% grey, gritty clay balls.
18			08	1% volcanics
19			09	
20				18.8 - 27.0 SAND

**OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG**

DATE _____ 19____ HOLE NO. 86-45-82-02 LOCATION _____
 GEOLOGIST _____ DRILLER _____ BIT NO. _____ BIT FOOTAGE _____
 SHIFT HOURS _____ MOVE TO HOLE _____
 _____ TO _____ DRILL _____
 TOTAL HOURS _____ MECHANICAL DOWN TIME _____
 _____ DRILLING PROBLEMS _____
 CONTRACT HOURS _____ OTHER _____
 _____ MOVE TO NEXT HOLE _____

DEPTH IN METRES	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
1		10		18.8-22.1 Grey fine to medium grained
2		11		22.1-26.0 Minor light green siltstone
3		12		Minor grey-green, gritty clay balls.
4		13		Minor peb's.
5		14		26.0-27.0 Light green, soft, silty clay balls. (gritty)
6		15		27.0-31.0 TILL
7		16		Grey-green fine to medium sand matrix.
8		17		65% volcanics, 5-10% limestone.
9		18		Minor grey-green, gritty clay balls.
10		19		31.0-37.2 GRAVEL (COARSE TILL?)
11		20		Grey fine to medium sand matrix.
12		21		Cobbles
13		22		Extremely granular.
14				65-70% volcanics
15				5-10% limestone
16				37.2 BEDROCK → 39.0
17				Light to dark green sandstone
18				greywacke - medium grained;
19				schistose; altered, some ground to green clay.
20				Minor till fracture zone.
				Extensive quartz veining.

J. Smith

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE Sept 29 1982 HOLE NO. RC-AL-82-03 LOCATION L 16+00 E ; 6+75 N
 GEOLOGIST K. Marshall DRILLER G. Hawy BIT NO. 000433 BIT FOOTAGE 0-27
 SHIFT HOURS _____ MOVE TO HOLE 7:30 - 7:45
 _____ TO _____ DRILL 8:00 - 10:15
 TOTAL HOURS _____ MECHANICAL DOWN TIME _____
 _____ DRILLING PROBLEMS _____
 CONTRACT HOURS _____ OTHER 6:30-7:00 To bush roads; 7:00-7:30 to drill; 7:45-8:00 wait for water
 _____ MOVE TO NEXT HOLE _____

* New Bit *

DEPTH METRES	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
0				0-1.4 Organics & organic rich clay
1				
2				1.4-10 Clay: grey; soft; non-gritty
3				
4				9.8-10cm mafic intrusive cobble
5				
6				
7				
8				
9				
10				10-12.3 <u>Silt</u> : grey; very fine-grained
11				
12				
13		01		12.3-14.9 <u>Till</u> : grey fine sand matrix; cobbly; clast composition:-
14		02		50% mafic volcanics and sediments (very difficult to differentiate)
15				40% intrusive material
16		03		5% limestone
17				
18		04		14.9-19.3 <u>Sand</u> : grey; medium-grained; minor granules (+10)
19				
20		05		

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE Sept 29 1982 HOLE NO. RC-A1-02-03 LOCATION _____
 GEOLOGIST _____ DRILLER _____ BIT NO. _____ BIT FOOTAGE _____
 SHIFT HOURS _____ MOVE TO HOLE _____
 _____ TO _____ DRILL _____
 TOTAL HOURS _____ MECHANICAL DOWN TIME _____
 _____ DRILLING PROBLEMS _____
 CONTRACT HOURS _____ OTHER _____
 _____ MOVE TO NEXT HOLE _____

DEPTH METRES	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
1	○	05 (cont.)	19.3 - 24.8	Till: grey, gritty clay matrix (also some fine sand); till is generally pebbly with a few cobbles; clast composition: 65% volcanic and sediments 25% intrusive material 5-10% limestone
2	○	06		
3	○	07		
4	○	08		
5	○	09		
6	▨	10	24.8 - 25.4	Zone of broken bedrock plus sandy till(?) - 85% dark mafic volcanic (or sediment)
7	▨			
8			25.4 - 27	Bedrock: mafic volcanic or sediment: grey-green; schistose; medium grained
9				
10				
11			26.1 - 26.2	much of sample ground to green clay
12			26.2 - 27	bedrock lighter in color and fine grained; probably intermediate to mafic volcanic
13				
14				
15				
16				
17				
18				
19				
20				

27.0 EOH

**OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG**

DATE Sept 29 1982 HOLE NO. R6-06-82-04 LOCATION L 20+00E; 3+75N
 GEOLOGIST _____ DRILLER HOWE BIT NO. 20433 BIT FOOTAGE 27-52.5
 SHIFT HOURS _____ MOVE TO HOLE 10:15-10:45
 _____ TO _____ DRILL 11:00-12:30
 TOTAL HOURS _____ MECHANICAL DOWN TIME 10:45-11:00 PROBLM STARTING DRILL
 _____ DRILLING PROBLEMS _____
 CONTRACT HOURS _____ OTHER _____
 _____ MOVE TO NEXT HOLE _____

DEPTH IN METRES	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
1				0-1.5 ORGANICS - MUSKIEG
2				1.5-8.0 CLAY
3				Gray, soft + smooth
4				8.0-16.2 TILL
5				Gray, fine to medium sand matrix
6				60% volcanic's to 90% at 8.0m.
7				1-2% limestone
8				Cob's
9				10.0 - Gritty clay lumps starting to appear + continue to 8.0
10				Approx. 20%.
11				16.2-18.4 SAND
12				Gray fine to medium grained.
13				Minor peb's occurring.
14				18.4-20.8 TILL
15				Gray, fine to medium sand matrix.
16				80-90% volcanic's
17				3-5% limestone.
18				Cob's
19				Gray-green, gritty clay lumps, about 10%.
20				

**OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG**

DATE _____ 19 _____ HOLE NO. Rc-11-82-04 LOCATION _____
 GEOLOGIST _____ DRILLER _____ BIT NO. _____ BIT FOOTAGE _____
 SHIFT HOURS _____ MOVE TO HOLE _____
 _____ TO _____ DRILL _____
 TOTAL HOURS _____ MECHANICAL DOWN TIME _____
 _____ DRILLING PROBLEMS _____
 CONTRACT HOURS _____ OTHER _____
 _____ MOVE TO NEXT HOLE _____

DEPTH IN METRES	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
1		0.8		20.8 - 25.5 BEDROCK
2				Very soft sandstone, green to dark green altered to clay by bit grinding.
3				
4				24.0 Fracture in bedrock containing till?
5				24.0 Colour of bedrock changes to dark green. Bedrock altered to dark green gritty clay lumps.
6				
7				
8				
9				25.5 E.O.H.
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				

J. Smith

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE Sept 29 1982 HOLE NO. RC-AL-82-05 LOCATION L 24+00E; 1+25S
 GEOLOGIST K. MacNeil DRILLER G. Hawry BIT NO. 000433 BIT FOOTAGE 52.5 - ALG
 SHIFT HOURS _____ MOVE TO HOLE 12:30 - 1:06
 _____ TO _____ DRILL 1:45 - 4:15
 TOTAL HOURS _____ MECHANICAL DOWN TIME 1:00 - 1:45 - Fix leaky radiator hose
 DRILLING PROBLEMS _____
 CONTRACT HOURS _____ OTHER _____
 _____ MOVE TO NEXT HOLE _____

DEPTH IN METRES	GRAPHIC LOG	INTERVAL	SAMPLE NO	DESCRIPTIVE LOG
1				0-1.3 Organics
2				1.3-8.7 Clay: grey; soft; non-gritty
3				
4				
5				
6				
7				
8				
9				8.7 - 13 Till: grey, fine sand matrix; small cobbles; clast composition:-
10		01		50% dark volcanics and sediments
11		02		40% intrusives (mainly gabbro)
12		03		5% limestone
13				10.2 - appearance of grey gritty clay balls
14		04		11.7 - 11.9 boulder-gabbro
15				11.9 - 12.5 - only fine sand matrix no gritty clay
16		05		12.5 - 13 - minor gritty clay
17		06		13 - 25.7 Till: grey, gritty clay matrix; cobbly;
18				75% of clasts are mafic volcanics and sediments
19		07		below 15 m. - no cobbles and only minor small pebbles
20		08		

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REVERSE CIRCULATION DRILL HOLE LOG

DATE Sept 29 1982 HOLE NO. RC-AL-02-05 LOCATION _____
 GEOLOGIST _____ DRILLER _____ BIT NO. _____ BIT FOOTAGE _____
 SHIFT HOURS _____
 MOVE TO HOLE _____
 TO _____
 DRILL _____
 TOTAL HOURS _____
 MECHANICAL DOWN TIME _____
 DRILLING PROBLEMS _____
 CONTRACT HOURS _____
 OTHER _____
 MOVE TO NEXT HOLE _____

DEPTH IN METRES	GRAPHIC LOG	INTERVAL SAMPLE NO	DESCRIPTIVE LOG
1	○	08(Cont)	
2	○	09	
3	○	10	
4	○	11	
5	○	12	
6	△		25.7 - 28.5 <u>Bedrock: argillite /</u> <u>phyllite</u> - light gray to black in color; very fine grained; fissile; locally graphitic(?); much is ground to green-brown clay
7	△		
8	△		
9	△		
10	△		28.5 EOH
11	△		
12	△		
13	△		
14	△		
15	△		
16	△		
17	△		
18	△		
19	△		
20	△		

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE Sept 29 1982 HOLE NO. RC-AL-82-06 LOCATION L20+00E - 3+00S
 GEOLOGIST K. MacNeil DRILLER G. Hoag BIT NO. 000934 BIT FOOTAGE 0-22.5
 SHIFT HOURS _____ MOVE TO HOLE 4:15-4:36
 _____ TO _____ DRILL 4:30-6:00
 TOTAL HOURS _____ MECHANICAL DOWN TIME _____
 _____ DRILLING PROBLEMS _____
 CONTRACT HOURS _____ OTHER 6:00-7:00 To road; 7:00-7:30 To Timmins
 _____ MOVE TO NEXT HOLE _____

* New Bit *

DEPTH IN METRES	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
0				0-1.3 Organic & organic rich clay
1				1.3-5.8 Clay: soft; grey; non-gritty
2				
3				
4				
5				
6				5.8-21.9 Till: grey, fine sand matrix; cobbly; chst composition :- 50% mafic volcanics and sediments; 35% intrusive material; 5% limestone
7		01		
8		02		
9		03		
10				8.8 - minor gritty clay balls
11		04		11.5-12.5 - fine sand and minor granules
12				
13		05		13.5 - 14 - minor gritty clay balls
14				
15		06		14.5-16.2 - abundant return; matrix coarser than in till above - resembles gravel
16		07		
17				
18		08		19.3-20.0 boulder - intermediate volcanic
19				
20		09		

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE Sept 30 1982 HOLE NO. RC-AL-02-07 LOCATION L 20+00 E ; 2+00 S
 GEOLOGIST K. MacNeil DRILLER G. Hwang BIT NO. 000434 BIT FOOTAGE 22.5-46.5
 SHIFT HOURS _____ MOVE TO HOLE 8:00-8:15
 _____ TO _____ DRILL 8:15-10:30
 TOTAL HOURS _____ MECHANICAL DOWN TIME _____
 DRILLING PROBLEMS _____
 CONTRACT HOURS _____ OTHER 6:30-7:00 To road; 7:00-7:05 To dull; 7:15-7:30 Pick up water; 7:30-8:00
 _____ MOVE TO NEXT HOLE To drill

DEPTH IN METRES	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
0				0-1.0 Organics
1				1-4.8 Clay: soft; grey; non-gritty
2				
3				4.8-11 Till: grey, fine sand matrix - minor gritty clay balls; cobbly - largest cobbles tend to be granitic
4				clast composition: -
5				90% mafic volcanics and sediments
6			01	40% intrusive material
7				9.0-11.0 - 70%-85% granitic material due to cobbles
8			02	
9				11-12.3 Till: gritty clay matrix; minor pebbles
10			03	
11			04	
12			05	
13				12.3-16.2 Sand: grey, fine-grained;
14			06	12.3-12.5 - minor pebbles in sand - rubble till
15				15.8-15.9 - gritty clay
16			07	
17			08	16.2-16.6 boulders - intermediate volcanic
18				16.6-17.7 Till: grey, gritty clay matrix; pebbly; clast composition: - 60% dark mafic volcanics and sediments;
19			09	15% intrusive material
20			10	15% limestone

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE Sept 30 1982 HOLE NO. RC-AL-02-07 LOCATION _____
 GEOLOGIST _____ DRILLER _____ BIT NO. _____ BIT FOOTAGE _____
 SHIFT HOURS _____ MOVE TO HOLE _____
 _____ TO _____ DRILL _____
 TOTAL HOURS _____ MECHANICAL DOWN TIME _____
 DRILLING PROBLEMS _____
 CONTRACT HOURS _____ OTHER _____
 _____ MOVE TO NEXT HOLE _____

DEPTH IN METRES	GRAPHIC LOG	INTERVAL	SAMPLE NO	DESCRIPTIVE LOG
1	△	10		17.7 - 22.6 <u>Till</u> : Fine to medium grained sand matrix; cobbly; chert composition: 65% dark mafic volcanics and sediments 15-20% intrusive material 10% limestone * abundant return
2	△	11		
3	△	12		
4	△	13		22-3 - till much more difficult to penetrate, and the matrix appears slightly finer grained
5				22.6 - 24 <u>Bedrock</u> : sandstone / siltstone - very few rock chips - almost 100% ground to brown (oxidized) gritty clay; the few rock chips are medium grained, fissile, and very easily broken between fingers
6				
7				24.0 EOH
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				

**OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG**

DATE _____ 19 ____ HOLE NO. RL-AL-82-08 LOCATION _____
 GEOLOGIST _____ DRILLER _____ BIT NO. _____ BIT FOOTAGE _____
 SHIFT HOURS _____ MOVE TO HOLE _____
 _____ TO _____ DRILL _____
 TOTAL HOURS _____ MECHANICAL DOWN TIME _____
 _____ DRILLING PROBLEMS _____
 CONTRACT HOURS _____ OTHER _____
 _____ MOVE TO NEXT HOLE _____

DEPTH METRES	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG						
1			09	19.2-21.0 TILL + BEDROCK						
2				21.0-24.0 BEDROCK						
3			10	Grey to black sandstone and argillite ground to fine sand & clay.						
4				Sandstone is easily breakable & granule.						
5				Argillite is black & fissile (slightly graphitic??);						
6				white vein mineral - carbonat or Feldspar						
7										
8										
9				24 E04						
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										

J. Hutz

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE Sept 30 1982 HOLE NO. RC-AL-82-09 LOCATION L 12+00 E ; 3+00 S
 GEOLOGIST K. MacNeil DRILLER C. Howy BIT NO. 000435 BIT FOOTAGE 29-42
 SHIFT HOURS _____ MOVE TO HOLE 1:30 - 3:45
 _____ TO _____ DRILL 3:45 - 5:15
 TOTAL HOURS _____ MECHANICAL DOWN TIME _____
 DRILLING PROBLEMS _____
 CONTRACT HOURS _____ OTHER 5:15 - 6:00 To road; 6:00 - 6:30 To Timmins
 _____ MOVE TO NEXT HOLE _____

DEPTH IN METRES	GRAPHIC LOG	INTERVAL	SAMPLE NO	DESCRIPTIVE LOG
1				0 - 0.3 Organics
2				0.3 - 8 Clay: soft; non-gritty; beige to 1.7 metres; 1.7-8.0 - gray in color minor silt below 7.0 metres
3				
4				
5				
6				
7				
8				
9			01	8.0 - 15.9 Till: gray fine sand matrix - minor gritty clay balls; cobbly; clast composition: 65% volcanics and sediments 20-25% intrusive material 5% limestone
10			02	
11			03	10.5 - 10.6 - gritty, pebbly clay band
12			04	11.2 - below this level, gritty clay is more abundant but fine sand is present as well
13			05	below 13.8, fewer clay balls are present
14			06	
15				15.9 - 16.3 Mixed till and Bedrock
16				16.3 - 18.0 Bedrock: siltstone; green; poor fissility
17				
18				
19				
20				

18.0 EOH

**OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG**

DATE Oct 1 19 82 HOLE NO. PL-01-82-10 LOCATION L12700E - 37755
 GEOLOGIST _____ DRILLER HOWE BIT NO. 100435 BIT FOOTAGE 42-61.5
 SHIFT HOURS _____ MOVE TO HOLE 7:45 - 8:00
 _____ TO _____ DRILL 8:00 - 9:15
 TOTAL HOURS _____ MECHANICAL DOWN TIME 9:15 - 9:30 REPAIR FILTERS
 DRILLING PROBLEMS _____
 CONTRACT HOURS _____ OTHER 6:30 - 7:00 to road; 7:00 - 7:45 to drill 7:15 - 7:30 haul water
 _____ MOVE TO NEXT HOLE _____

DEPTH IN METRES	GRAPHIC LOG	INTERVAL	SAMPLE NO	DESCRIPTIVE LOG
1				0. - 0.5 ORGANICS
2				.5 - 6.8 CLAY Beige to 1.0m the turning grey. Soft and smooth. Minor silt 6.0 - 7.0.
3				
4				
5				
6				
7				6.8 - 18.0 TILL
8			61	Grey, fine to medium sand matrix.
9				Minor silt.
10			02	65% volcanic
11				2% limestone
12			03	Cob's + Peb's
13				12.0 - 90% volcanic
14			04	↓ 14.0 - 90% grey, gritty clay lumps.
15				↓
16			05	16.5 - Gritty clay lumps disappear.
17				↓
18			06	17.0 - 18.0 - Heavy grey sand matrix, fine to coarse grain, granules.
19			07	
20			08	18.0 - 19.5 BEDROCK Light to dark green argillite with black clasts. Mostly ground to clay. Minor fracturing throughout.

J. Smith

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE Oct 1 1982 HOLE NO. RC-A1-82-11 LOCATION L-29+00E, 2+25S
 GEOLOGIST K. MacNeil DRILLER G. Housy BIT NO. 000935 BIT FOOTAGE 61.5-88.5
 SHIFT HOURS _____ MOVE TO HOLE 9:30-11:30
 _____ TO _____ DRILL 11:30-2:15
 TOTAL HOURS _____ MECHANICAL DOWN TIME _____
 _____ DRILLING PROBLEMS _____
 CONTRACT HOURS _____ OTHER _____
 _____ MOVE TO NEXT HOLE _____

DEPTH IN METRES	GRAPHIC LOG	INTERVAL	SAMPLE NO	DESCRIPTIVE LOG
0				0-1 Organics & organic rich clay
1				1-7.7 Clay: grey, soft, non-gritty
2				below 6.0 m - minor fine sand
3				
4				7.7-10.6 Till: grey, fine sand matrix; cobbly; clast composition: - 50%
5				dark mafic volcanics and sediments; 35-40%
6				intrusive material; 5% limestone
7				9.0-10.6 minor gritty clay
8			01	
9				
10				
11			02	10.6-26.3 Till: grey, gritty clay matrix; till is cobbly, but pebbles are much more common; clast composition: 60% dark mafic volcanics and sediments
12				15-20% limestone
13			03	10% intrusive material
14			04	
15				
16			05	~13.7-15.0 - more fine sand in till matrix - more pebbles as well
17			06	
18				14.3-14.5 boulder
19			07	- below 15.0 metres, matrix is once again predominantly clay, and fewer cobbles are seen
20			08	17-17.2 sandy, pebbly band

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE Oct 1 1982 HOLE NO. RC-BL-82-11 LOCATION _____
 GEOLOGIST _____ DRILLER _____ BIT NO. _____ BIT FOOTAGE _____
 MOVE TO HOLE _____
 DRILL _____
 MECHANICAL DOWN TIME _____
 DRILLING PROBLEMS _____
 OTHER _____
 MOVE TO NEXT HOLE _____

DEPTH IN METRES	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
1	○	08(Cont.)		
2	○	09		
3	○	10		
4	○			29-3-24-6 sandy, pebbly band
5	○	11		
6	○	12		
7	○	13		26-3-27 <u>Bedrock</u> :- <u>sandstone/</u> <u>siltstone</u> - highly oxidized very soft - majority ground to brown clay
8				
9				
10				27 EOH
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				

**OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG**

DATE Oct 1 1982 HOLE NO. RC-76-92-12 LOCATION L241006 ; 1000N
 GEOLOGIST _____ DRILLER Howe BIT NO. 200438 BIT FOOTAGE 0-22.5
 SHIFT HOURS _____ MOVE TO HOLE 2:15 - 2:30
 _____ TO _____ DRILL 2:30 - 3:45
 TOTAL HOURS _____ MECHANICAL DOWN TIME _____
 _____ DRILLING PROBLEMS _____
 CONTRACT HOURS _____ OTHER _____
 _____ MOVE TO NEXT HOLE _____

* New Bit *

DEPTH IN METRES	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
0				0-1.0 ORGANICS
1				1.0-8.0 CLAY Grey, smooth & soft.
2				
3				
4				
5				
6				
7				
8				8.0-9.4 SILT Grey
9				
10			01	9.4-13.5 TILL Grey, fine to med. sand matrix. Minor clay balls (gritty).
11			02	60% volcanic 2-4% limestone Cob's + peb's.
12			03	
13			04	12.0 - 90% volcanic 5% limestone
14			05	13.5 Minor clay balls Few cob's.
15			06	13.5-14.0 SAND Grey, fine grained Few peb's.
16			07	14.0-15.0 TILL + BOULDER
17			08	15.0-18.4 SAND Grey, fine grained Minor peb's.
18				18.4-18.8 BOULDER
19				
20				

**OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG**

DATE _____ 19____ HOLE NO. RC-A-92-12 LOCATION _____
 GEOLOGIST _____ DRILLER _____ BIT NO. _____ BIT FOOTAGE _____
 SHIFT HOURS _____ MOVE TO HOLE _____
 _____ TO _____ DRILL _____
 TOTAL HOURS _____ MECHANICAL DOWN TIME _____
 _____ DRILLING PROBLEMS _____
 CONTRACT HOURS _____ OTHER _____
 _____ MOVE TO NEXT HOLE _____

DEPTH IN METRES	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
1	A. A.	09		19.8-21.0 TILL 90% grey, gritty clay lumps. Few cobb. Pebbles.
2		10		
3				21.0-22.5 BEDROCK Light to dark green argillite altered to clay. Minor quartz veining. <i>J. Switzer</i>
4				
5				
6				
7				
8				
9				
10				
11				
12				
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OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE Oct 1 19 82 HOLE NO. RC-AL-B2-13 LOCATION L 20+00E, 3+00N
 GEOLOGIST K. MacNeil DRILLER G. Howie BIT NO. 000938 BIT FOOTAGE 22.5-43.5
 SHIFT HOURS _____ MOVE TO HOLE 3:45-4:15
 _____ TO _____ DRILL 4:15-5:15
 TOTAL HOURS _____ MECHANICAL DOWN TIME _____
 _____ DRILLING PROBLEMS _____
 CONTRACT HOURS _____ OTHER 5:15-6:15 - Drill to road; 6:15-6:45 To Timmins
 _____ MOVE TO NEXT HOLE _____

DEPTH IN METRES	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
0				0 - 0.9 Organics
1				0.4 - 4 Clay: soft; non-gritty beige to 1.4 below 1.4, clay is grey below 2.0m, minor silt
2				
3				
4				4 - 4.8 Sand - grey; Fine grained
5				
6			01	4.8 - 12.5 Till: grey, Fine sand matrix; cobbly; clast composition:- 65% mafic volcanics and sediments 25% intrusive material 2-5% limestone
7				
8			02	
9				
10			03	at 7.3 - minor gritty clay
11				
12			04	12.5 - 17.2 Sand: - grey; Fine grained
13				
14				
15			05	
16				
17			06	17.2 - 18.3 - Fine sand, minor clay and pebbles - resembles till but may be pebbly & clayey horizons in sand
18			07	18.3 - 19.5 Sand - as above
19				
20			08	19.5 - 21 Bedrock: - sandstone / greywacke - minor siltstone?; dark green; fine to medium grained; some ground to dark green clay
21				

21 EOH

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE Oct 28, 29 1982
SHIFT HOURS _____
TO _____
TOTAL HOURS _____
CONTRACT HOURS _____

HOLE NO. AL-82-14 LOCATION 27+75E 6+50 N
GEOLOGIST B. Husonault DRILLER P. KUMLESKI BIT NO. A000014 BIT FOOTAGE 0-19.5
MOVE TO HOLE 7:45 → 8:30 Oct 29
DRILL 8:30-9:00, 11:15 → 11:30 Oct 28 / 8:00-10:15 Oct 29
MECHANICAL DOWN TIME 9:00 → 11:15; 11:30 → rest of day Oct 29 Compressor
DRILLING PROBLEMS pullay tapering pin.
OTHER TRAVEL: 7:30 → 7:45 Oct 29 / 7:15-7:30 (to site), 7:30 → 8:00 (to rig)
MOVE TO NEXT HOLE _____ Oct 29

DEPTH IN METRES	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
1				Spruce bush 0-1.0 muskeg, organics
2				1.0-9.0 Clay 1.0-8.5 - gray, soft, smooth 8.5-9.0 - slight grit - fine sand, gray beige
3				7.
4				9.0-10.8 Till - gritty clay matrix, grey - lots fine sand
5				9.0-10.2 - cobbly - 75% v/s, 15-20% Gr, Tr - 5% lime
6				(9.4-9.6 - Boulder - granitic, coarse grain, quartz rich)
7				10.2-10.8 - pebbly - 60-70% v/s, 15-20% Gr, 5-10% lime
8				(10.8-11.8 Boulder - granitic, coarse grain, Granite)
9				11.8-17.8 Till - fine sand matrix, gray beige
10				11.8-12.1 - pebbly, very compact - 80-90% v/s, 10-15% lime, 0-5% Gr.
11				(12.1-12.7 Sand) - fine grain - gray beige
12				12.7-14.1 - pebbly - 80-95% v/s 10-15% lime 0-5% Gr
13		01		14.1-15.6 - cobbly - 90-95% v/s 5-10% lime 0-5% Gr.
14		02		(15.6-16.2 Boulder) - grey green - fine grain - lots of pyrite ~1% - intermediate mafic v/s
15		03		16.2-17.8 - cobbly - 90-95% v/s 5-10% lime 0-5% Gr
16		04		17.8-19.5. BEDROCK - surface soft & ginded to clay → yellow-green - very weathered - quartz, phenocryst present in clay. - Grewacks.
17		05		
18		06		
19				
20				

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE Oct 29 1982 HOLE NO. A9-82-15 LOCATION L 23+95 6+04 N
 GEOLOGIST R. Hu... DRILLER P. RUMLESKI BIT NO. A000015 BIT FOOTAGE 19.5-36.3
 SHIFT HOURS _____ MOVE TO HOLE 10:15 - 10:45
 _____ TO _____ DRILL 10:45 - 12:45
 TOTAL HOURS _____ MECHANICAL DOWN TIME _____
 DRILLING PROBLEMS _____
 CONTRACT HOURS _____ OTHER _____
 _____ MOVE TO NEXT HOLE _____

DEPTH IN METRES	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
1				Space + Poplar bush
0-0.5				organics → muskeg.
0.5-5.1				Clay
0.5-2.4				- beige to gray beige - hard, smooth
2.4-4.0				- grey - soft, smooth
4.0-5.1				- accompanied by silt - grey beige.
5.1-10.1				Till
				- gritty clay matrix
				- grey
				- lots of fine sand
				- grey beige
5.1-6.1				- pebbly - 70-75% V/S 15-20% Gr 5-10% lime
6.1-8.3				- cobbly - 50-60% V/S 25-30% Gr 10-15% lime
8.3-9.0				- more gritty clay - pebbly - 75-80% V/S 15-20% Gr 5-10% lime
9.0-10.1				- cobbly - 60-65% V/S 30-35% Gr 5-10% lime
10.1-14.0				- fine sand matrix - grey-beige - very compact - cobbly - 90-95% V/S 5-10% lime 0-5% Gr
12.2-12.8				- Boulder → granitic
14.0-16.8				- Bedrock - grey-green - very fine grain - pyrite streaks - associated with quartz veins - shistose - intermediate mass volcanic.

Reimherant

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE Oct 29 1981 HOLE NO. AL-82-1a LOCATION L16+00E 6+00 N
 GEOLOGIST R. Hunsault DRILLER P. Bumbucki BIT NO. R64504 BIT FOOTAGE 0-23.5
 SHIFT HOURS _____ MOVE TO HOLE 12:45-1:15
 _____ TO _____ DRILL 1:15-5:00
 TOTAL HOURS _____ MECHANICAL DOWN TIME 5:15-5:45 (service rig)
 DRILLING PROBLEMS _____
 CONTRACT HOURS _____ OTHER Travel 5:45-6:15 (to road), 6:15-6:45 (to town)
 _____ MOVE TO NEXT HOLE _____

DEPTH IN METRES	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
1				Spruce bush
1				0-1.2 muskeg - organics
1.2				1.2-9.5 Clay
1.2				1.2-1.6 - grey - clay + organics
1.2				- hard, smooth
1.6				1.6-9.5 - grey, soft, smooth
9.5				9.5-10.4 Sand & Silt
9.5				- gradational interbedding
9.5				- grey beige
10.4				10.4-12.1 Till
10.4				- gritty clay balls, grey matrix
10.4				10.4-12.0 cobbly - 65-70% v/s, 20-25% Gr, 5-10% shime
12.0				12.0-12.1 - minor (+10) few pebbles v/s
11.0				(11.0-11.4 Boulder)
11.0				- volcanic - dark green
11.0				- fine grain
11.0				- basalt.
12.1				(12.1-12.8 Boulder)
12.1				- fine grain light green
12.1				- intermediate mafic v/s
12.1				- tr. pyrite.
12.8				12.8-13.5 Till
12.8				- fine sand, grey beige
12.8				matrix
12.8				12.8-14.7 - cobbly - 70-75% v/s
12.8				15-20% shime
12.8				5-10% Gr
12.8				- occasional gritty clay balls.
14.7				14.7-18.5 - cobbly - 85-90% v/s
14.7				10-15% shime
14.7				0-5% Gr
18.5				18.5-21.0 Sand.
18.5				18.5-19.0 - fine + med sand
18.5				interbedding
18.5				- few thin beds of
18.5				hard smooth clay
18.5				- grey beige
18.5				- few pebbles.

R. Hunsault

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE Oct 29 1982 HOLE NO. AL-82-16 LOCATION _____
 GEOLOGIST _____ DRILLER _____ BIT NO. _____ BIT FOOTAGE _____
 SHIFT HOURS _____ MOVE TO HOLE _____
 _____ TO _____ DRILL _____
 TOTAL HOURS _____ MECHANICAL DOWN TIME _____
 _____ DRILLING PROBLEMS _____
 CONTRACT HOURS _____ OTHER _____
 _____ MOVE TO NEXT HOLE _____

DEPTH IN METRES	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
21		09		19.2 - 20.2 - silt & fine sand - gradational interbedding - grey beige
22		10		20.2 - 20.4 - Till - silt matrix - grey beige
23		11		- pebbly - 70% V/s. - 20% lime - 10% Gr.
24		12		
25		13		20.4 - 21.0 - Silt & fine sand - gradational interbedding - grey beige - few thin grey hard smooth clay beds.
26		14		
27				21.0 - 26.8 Till - fine sand matrix
28				21.0 - 23.1 - pebbly 80-85% V/s. sediments 10-15% lime Tr. 5% Gr - large pebs or cobbly in some short intervals
29				23.1 - 24.1 - few gritty clay balls (23.8-24.1) - less (to some) matrix - pebbly - 60% V/s. sediments - 30% lime - 5% Gr
30				24.1 - 26.8 - very compact. - cobbly - 90-95% V/s. sediments 5-10% lime Tr. Gr. - for short intervals matrix med sand -> looks like gravel.
31				26.8 - 28.5 BEDROCK. 26.8-27.1 - very soft - must grind to clay 27.1-28.5 - gradually getting larger chips, fresher, less abundant. - greenish brown porous to greenish yellow fresh. - shistose - few quartz, mica, calcite - greywacke.

R. Heneault

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE Oct 30 1982 HOLE NO. AL-82-17 LOCATION L 12+00E 8+00 N
 GEOLOGIST R. Humeault DRILLER P. Rymleski BIT NO. 864504 BIT FOOTAGE 28.5-66.5
 SHIFT HOURS 8:15 - 8:45
 MOVE TO HOLE 10:30 - 4:45
 DRILL 10:30 - 4:45
 TOTAL HOURS
 MECHANICAL DOWN TIME 8:45-10:30 oil leak & replace split hose.
 DRILLING PROBLEMS
 CONTRACT HOURS OTHER TRAVEL: 6:30 - 6:45 (to site); 7:45 - 8:15 (lunch) / 5:00 - 5:45 (return)
 MOVE TO NEXT HOLE 4:45 - 5:00 5:45 - 6:00 (return)

DEPTH IN METRES	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
0				Spence bush
0 - 1.1				muskeg.
1.1 - 6.4				Clay
1.1 - 1.2				- grey beige, hard, smooth
1.2 - 6.4				- grey, soft, smooth
6.4 - 7.7				Till
				- grey beige, fine sand matrix
				- pebbly - 60% V/s, 30% Gr, 10% lime
7.7 - 8.9				Sand
				- grey beige.
				- fine to medium
8.9 - 19.1				Till
				- grey, gritty clay matrix
8.9 - 10.4				pebbly - 80-90% V/s
				5-10% lime
				0-5% Gr
10.4 - 13.5				cobbly - 70-75% V/s
				10-15% lime
				10-15% Gr.
13.5 - 13.7				Sand → fine
				→ grey beige
				→ few pebb.
13.7 - 17.2				Cobbly - 85-90% V/s
				5-10% lime
14.5 - 17.0				few (10) lots matrix
				0-5% Gr.
				- occasionally pebbly for short intervals
17.2 - 17.4				Boulder
				- dark green
				- med green
				- Diabase.
17.4 - 17.5				cobbly
17.5 - 17.8				Boulder
				- fine grain
				- light green
				- intermediate mafic volcanic
17.8 - 19.1				few (10) cobbly.
19.1 - 20.2				Clay - grey, hard smooth.

R. Humeault

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE Oct 20 1982 HOLE NO. AL-82-17 LOCATION _____
 GEOLOGIST _____ DRILLER _____ BIT NO. _____ BIT FOOTAGE _____
 SHIFT HOURS _____ MOVE TO HOLE _____
 _____ TO _____ DRILL _____
 TOTAL HOURS _____ MECHANICAL DOWN TIME _____
 DRILLING PROBLEMS _____
 CONTRACT HOURS _____ OTHER _____
 MOVE TO NEXT HOLE _____

DEPTH IN METRES	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
19.2		19.2 - 20.4	07	Till - silty clay, grey sand, - pebbles 10% V/S
20.4		20.4 - 21.0		Sand - gray beige - fine - few thin pb beds.
21.0		21.0 - 22.9	08	Till - gray green fine sand matrix - pebbly - 60% V/S - very compact
22.9		22.9 - 23.6	09	Sand - fine, gray green - few thin clay beds hard, smooth, gray.
23.6		23.6 - 37.4	10	Dabris flow? - mostly gravel interbedded with sands. Few till beds
23.6		23.6 - 24.8	11	gravel - med sand matrix - gray beige - pebbly - 60-65% V/S
24.8		24.8 - 26.0	12	Sand - fine - medium - gray beige - gray green - interbedded.
26.0		26.0 - 26.7	13	Till - med sand matrix - gray beige - pebbly 65% V/S
26.7		26.7 - 28.4	14	Gravel (as above gravel)
28.4		28.4 - 28.8	15	Sand - coarse sand - gray beige - granular.
28.8		28.8 - 30.0	16	Till - fine sand matrix - gray beige - pebbly 60-70% V/S, 15-20% lime - very compact 5-10% Gr.
30.0		30.0 - 32.0	18	Gravel (as above gravel but larger pebs. in most compact)
32.0		32.0 - 36.6	19	Gravel (as above gravel but congl. at times - 7-15% V/S - sed. 10-15% lime 0-5% Gr.
36.6		36.6 - 37.4	20	Till - gray beige fine sand matrix - large pebs - 60-65% V/S - sed 20-30% lime Tr - 5% Gr.

37.4 - 38.0 Bedrock (first 10cm dark green) - light green, fine grain - very fine pyrite in most chips - intermediate matrix V/S. R. Humeault.

E.O.H before full bedrock depth because of bit wear out & hole tightness.

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE Oct 31 1982 HOLE NO. AL-72-17 LOCATION L 11+00 E 3+00 N
 GEOLOGIST P. Hurreault DRILLER P. Bussalini BIT NO. 265651 BIT FOOTAGE 0-26.5
 SHIFT HOURS _____ MOVE TO HOLE _____
 _____ TO _____ DRILL 8:30 → 10:30
 TOTAL HOURS _____ MECHANICAL DOWN TIME _____
 DRILLING PROBLEMS _____
 CONTRACT HOURS _____ OTHER SAVED: 7:30-7:45 (to site); 7:45-8:30 (to rig)
 _____ MOVE TO NEXT HOLE 10:30 → 10:45

DEPTH IN METRES	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
1				5 paces bush.
2				0-0.5 - organics + beige clay
3				0.5-7.0 Clay
4				0.5-1.8 - gray, hard, smooth
5				1.8-7.0 - gray, soft, smooth
6				7.0-16.3 Till
7				- gritty clay matrix
8				- grey, 60-85% V/S
9				- cobbly 30-35% Gr
10				5-10% hime
11				(7.8-8.2 Boulder
12				- light green, fine grain
13				- intermediate matric V/S)
14				8.2-11.5 Till
15				- gray beige, fine sand matrix
16				8.2-10.6 pebbly - 70% V/S, 15% Gr, 10% hime
17				10.6-11.5 pebbly - 50% V/S, 35% Gr, 10% hime
18				11.5-16.3 Till
19				- gray gritty clay matrix
20				11.5-13.6 cobbly, 70-75% V/S
				10-15% Gr
				10-15% hime
				13.6-16.3 - pebbly:
				- just a few pebs
				- lots of matrix
				- 80-85% V/S, 5-10% hime
				Tr - 5% Gr.
				16.3-16.5 Clay
				- gray, hard, smooth
				16.5-21.5 Till
				- gritty clay matrix
				- grey
				- lots of matrix
				- pebbly -
				- just a few pebs
				90-95% V/S
				5-10% hime
				Tr Gr.
				(19.4-19.5 - intermediate matric)
				volcanic cobble.
				- contained lots of pyrite
				= 2% fine grain pyrite

P. Hurreault

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE Oct 31 1982 HOLE NO. SL-52-13 LOCATION _____
 GEOLOGIST _____ DRILLER _____ BIT NO. _____ BIT FOOTAGE _____
 SHIFT HOURS _____ MOVE TO HOLE _____
 _____ TO _____ DRILL _____
 TOTAL HOURS _____ MECHANICAL DOWN TIME _____
 DRILLING PROBLEMS _____
 CONTRACT HOURS _____ OTHER _____
 MOVE TO NEXT HOLE _____

DEPTH IN METRES	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
21	[Hand-drawn graphic log showing sand and till patterns]			21.5-25.0 Sand.
22				21.5-24.0 - grey-beige - fine - few thin (few cm.) till - grey gritty clay matrix - few pebs.
23				
24				
25				
26				
27				
28				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				

O1

O2

E.O.H.

J. Dumont

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE Oct 31 1982 HOLE NO. RL-56-1 LOCATION L 10+00 E 6+75 N
 GEOLOGIST R. Duncan DRILLER P. Runtestki BIT NO. 245451 BIT FOOTAGE 26.5-55.0
 SHIFT HOURS _____ MOVE TO HOLE _____
 TO _____ DRILL 10:45-12:45
 TOTAL HOURS _____ MECHANICAL DOWN TIME _____
 DRILLING PROBLEMS _____
 CONTRACT HOURS _____ OTHER _____
 MOVE TO NEXT HOLE _____

DEPTH IN METRES	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
0				Spruce bush.
0-1.2				Muskeg
1.2-7.4				Clay
1.2-1.4				clay + organics
				- grey, hard, smooth
1.4-7.4				smooth, soft, grey
7.4-20.0				Till
				- gritty clay matrix
				- grey
7.4-7.7				pebbly
7.7-11.8				cobbly
11.8-12.3				lots of matrix
				- few cobs
12.3-13.2				Boulder
				- granitic - rich in quartz
				- biotite
13.2-13.9				Cobbly
				80-85% Vls
				10-15% lime
				0.5% Gr
13.9-20.0				
				- lots of matrix
				- few pebs
				- few cobs
				- 90-95% Vls
				5-10% lime
				Tr Gr
15.4-15.5				Clay
				- grey, hard
				- smooth

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE Oct 31 1982 HOLE NO. A1-82-19 LOCATION _____
 GEOLOGIST _____ DRILLER _____ BIT NO. _____ BIT FOOTAGE _____
 SHIFT HOURS _____ MOVE TO HOLE _____
 _____ TO _____ DRILL _____
 TOTAL HOURS _____ MECHANICAL DOWN TIME _____
 _____ DRILLING PROBLEMS _____
 CONTRACT HOURS _____ OTHER _____
 _____ MOVE TO NEXT HOLE _____

DEPTH METRES	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
1		20.0 - 20.2	05	Clay - grey, hard, smooth - slightly gritty at times
2		20.2 - 26.0	06	Till - grey gritty clay matrix - gritty clay balls abundant - pebbly most of the way but a few cobbles - 80-85% Vls, med. sh. - 5-10% lime - 0-5% Gr
3		26.0 - 26.6	09	Till - fine sand matrix - grey beige - very few gritty clay balls. - cobbly -> 85-90% Vls + med. sh. 10-15% lime Tr. Gr.
4		26.6 - 27.0		Gravel - grey beige med. sand matrix. - cobbly - 70-75% Vls + med. sh. 5-10% lime 10-15% Gr.
5		27.0 - 28.5		Bedrock. - light green to yellow green. - shistose - weathered, porous - lots of quartz phenocrysts - Graywacke.
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				

R. Humeant

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE Oct 31 1982 HOLE NO. AL-82-20 LOCATION L 12+00 E 6+00 N
 GEOLOGIST R. Humeault DRILLER P. Bumseski BIT NO. B65651 BIT FOOTAGE 55 m 93.6
 SHIFT HOURS MOVE TO HOLE 12:45-1:00
 TO DRILL 1:00-4:00
 TOTAL HOURS MECHANICAL DOWN TIME
 DRILLING PROBLEMS
 CONTRACT HOURS OTHER
 MOVE TO NEXT HOLE

DEPTH METRES	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG						
0				Surface bush						
0-1.0				mus Red						
1.0-7.5				Clay						
1.0-1.1				mixed with organics						
1.1-2.0				gray, hard, smooth						
2.0-7.5				gray, soft, smooth						
7.5-10.4				Till						
7.5-8.6				gitty clay matrix						
8.6-9.4				60% V/S						
9.4-10.2				35% Gr						
10.2-13.0				5% lime						
11.5-12.2				lots of gitty clay balls						
13.0-13.7				pebbly - 55-60% V/S						
13.7-13.8				30-35% Gr						
13.8-15.4				10-15% lime						
15.4-16.4				just a few gitty clay balls, lots of fine sand						
16.4-22.2				pebbly - 55-60% V/S						
22.2				30-35% Gr						
22.2				10-15% lime						
				(11.5-12.2 Boulder)						
				coarse grain						
				granitic						
				granite						
				13.0-13.7 - fine sand matrix, grey beige						
				pebbly 55-60% V/S						
				25-30% Gr						
				10-15% lime						
				13.7-13.8 - gitty clay balls, gray						
				matrix very abundant						
				pebbly mainly V/S						
				13.8-15.4 - grey beige fine sand matrix						
				very compact						
				pebbly - 60-75% V/S						
				possibly very large pieces						
				5-10% lime						
				0-5% Gr						
				15.4-16.4 - grey gitty clay matrix						
				matrix very abundant						
				pebbly, mainly V/S						
				16.4-22.2 Clay						
				grey, very hard, smooth						
				(16.4-16.6 - less gitty)						

R. Humeault

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE Oct 31 1982
SHIFT HOURS _____ TO _____
TOTAL HOURS _____
CONTRACT HOURS _____

HOLE NO. AL-82-20 LOCATION _____
GEOLOGIST _____ DRILLER _____ BIT NO. _____ BIT FOOTAGE _____
MOVE TO HOLE _____
DRILL _____
MECHANICAL DOWN TIME _____
DRILLING PROBLEMS _____
OTHER _____
MOVE TO NEXT HOLE _____

DEPTH IN METRES	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
21		22.2 - 23.0		Till - grey beige silt matrix - pebbly, very compact - 60% v/s, 30% Gr, 10% lime
23		23.0 - 27.0	01	Sand - grey beige, fine - few pebb, mostly v/s - few very thin, hard smooth grey clay beds.
27		27.0 - 31.1	02	Till - fine sand matrix - grey beige
27.0		27.0 - 28.0	03	pebbly - 70-75% v/s 15-20% lime
28.0		28.0 - 30.6	04	cobbly - 85-90% v/s 0-5% Gr
30.6		30.6 - 31.1	05	cobby - very large cobbles - 95% v/s, 5% lime, Tr, Gr.
31.1		31.1 - 32.6	06	Bedrock. - light green to grey green - fine grain - shistose - small quartz veins accompanied by pyrite - Greywacke.

R. Humeault

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE Oct 31 1982 HOLE NO. AL-82-21 LOCATION L 12+00 E 2+75 N
 GEOLOGIST R. Hunsault DRILLER P. Rumbold BIT NO. B65452 BIT FOOTAGE 0-33.4
 SHIFT HOURS MOVE TO HOLE 4:00-4:15
 TO DRILL 4:15-6:45 pm
 TOTAL HOURS MECHANICAL DOWN TIME
 DRILLING PROBLEMS
 CONTRACT HOURS OTHER TRAVEL: 7:00-7:45 (to road), 7:45-8:00 pm (to town)
 MOVE TO NEXT HOLE 6:45-7:00 pm

DEPTH IN METRES	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
0				alders, spruce bush
0-1.1				mushy
1.1-9.2				Clay
1.1-1.2				- with organics
				- grey beige, hard smooth
1.2-9.2				- grey, soft, smooth
9.2-14.4				Till
9.2-9.4				- grey, gritty clay matrix (few)
				- lots of fine sand
				- cobbly - 60-65% v/s
				30-35% Gr
				0-5% lime
9.4-12.0				- gritty clay balls, grey matrix
				- matrix abundant
				- few pebs - 70-75% v/s
				15-20% Gr
				0-5% lime
12.0-14.4				- grey gritty clay balls
				- matrix abundant
				- cobbly - 70-75% v/s
				15-20% Gr
				0-5% lime
14.4-24.0				Clay
				- grey
				- very hard (compact)
				- smooth
				- rubber appearance

P. Rumbold

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE Oct 31 1982 HOLE NO. AL-82-21 LOCATION _____
 GEOLOGIST _____ DRILLER _____ BIT NO. _____ BIT FOOTAGE _____
 SHIFT HOURS _____ MOVE TO HOLE _____
 _____ TO _____ DRILL _____
 TOTAL HOURS _____ MECHANICAL DOWN TIME _____
 _____ DRILLING PROBLEMS _____
 CONTRACT HOURS _____ OTHER _____
 _____ MOVE TO NEXT HOLE _____

DEPTH METRES	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
21				
22				
23				
24				
25				
26			01	24.0-24.2 Till - grey beige silt matrix - pebbly => 90% V/S 10% Gr Tr Ls
27				
28			02	24.2-27.2 Silt - grey beige - few thin clay beds grey, hard, smooth - few pebs, mostly V/S
29				
30			03	27.2-31.0 Till 27.2-27.6 - grey beige silt matrix - cobbly 65-70% V/S + metased 20-25% Gr 0-5% lime
31			04	(27.6-27.8 Boulder, granitic, med grain) pick in quartz
32			05	27.8-31.0 - grey beige fine sand matrix - cobbly - pebbly for very short intervals & large pebs - 80-85% V/S + metased 5-10% Gr 5-10% lime
33			06	(31.0-31.5 Boulder - partly quinded to yellow green clay. - broken up bedrock - Grey wacke
34				
15				
16				
17				
18				
19				
20				
				31.5-32.0 Till - grey beige fine sand matrix - cobbly 80-85% V/S + metased. 10-15% lime 0-5% Gr.
				32.0-33.4 Bedrock - mostly quinded to yellowish green clay. - few small chips show weathering => porosity - silty stone - lots of quartz grain in clay => quartz phenocryst! - Grey wacke

J. Hume

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE Nov 1 19 82 HOLE NO. AL-82-22 LOCATION L 13+00 E G+75 N
 GEOLOGIST R. Humeault DRILLER P. Rumliski BIT NO. 865652 BIT FOOTAGE 23.4-30.9
 SHIFT HOURS 8:00 - 8:15
 TO 8:15 - 11:30
 TOTAL HOURS _____ MECHANICAL DOWN TIME _____
 DRILLING PROBLEMS _____
 CONTRACT HOURS _____ OTHER Travel 6:45 - 7:00 (to site); 7:00 - 8:00 (to drill)
 MOVE TO NEXT HOLE _____

DEPTH METRES	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
0				Spencer + Alders.
0-1.0				much Reg.
1.0-7.5				Clay
1.0-1.1				grey beige, hard smooth
1.1-1.8				grey, hard smooth
1.8-7.5				grey, soft, smooth
7.5-21.0				Till
				- grey gritty clay matrix
7.5-8.0				- few gritty clay balls
				- lots of grey beige fine sand
				- pebbly 65% v/s, 30% Gr, 5% lime
8.0-8.8				- more gritty clay
				- cobbly 65% v/s, 30% Gr, 5% lime
8.8-10.0				- gritty clay very abundant
				- just a few cobbles
10.0-14.0				- gritty clay sparse
				- lots of grey beige fine sand
				- cobbly 55% v/s, 40% Gr, 5% lime
14.0-14.9				- gritty clay abundant
				- cobbly
14.9-15.2				- few gritty clay balls
				- lots fine sand
				- cobbly
15.2-16.0			01	- lots gritty clay balls
				- few pebbles
				- mostly v/s + lime
16.0-16.2			02	- few cobs
				- v/s + meta sed, Granitic
16.2-18.6			03	- lots of gritty clay balls
				- few pebbles
				- mostly v/s
				- occasional cob.
18.6-19.2			04	- cobs more frequent
19.2-21.0			05	- lots of gritty clay balls
				- few pebs
				- occasional cob.
			06	
			07	

R. Humeault

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE Nov 1 1982 HOLE NO. AL-82-22 LOCATION _____
 GEOLOGIST _____ DRILLER _____ BIT NO. _____ BIT FOOTAGE _____
 SHIFT HOURS _____ MOVE TO HOLE _____
 _____ TO _____ DRILL _____
 TOTAL HOURS _____ MECHANICAL DOWN TIME _____
 _____ DRILLING PROBLEMS _____
 CONTRACT HOURS _____ OTHER _____
 _____ MOVE TO NEXT HOLE _____

DEPTH IN METRES	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
21.0			07	21.0 - 21.1 Clay - grey, hard, smooth
21.1			08	21.1 - 21.6 Till - gritty clay matrix - few pebb, few cobs. - mostly V/S
21.6			09	21.6 - 21.8 Sand - grey beige, medium - thin clay beds, hard, smooth grey.
21.8			10	21.8 - 23.8 Till - grey beige fine sand matrix - very pebbly 60-65% V/S + meta sed compact 20-25% lime 0-5% Granite
23.8			12	23.8 - 33.8 Sand & Gravel - interbedded sand and gravels. 23.8-24.0 - Sand - med grain, grey beige 24.0-26.8 - Gravel - coarse grey beige sand matrix - pebbly, compact. 26.8-27.1 Sand - grey beige, medium. 27.1-28.9 Gravel - coarse grey beige sand matrix - pebbly, less compact. 28.9-30.0 Sand - grey beige, fine - occasional peb. 30.0-32.2 Gravel - med sand matrix - grey beige - pebbly, compact. 32.2-32.4 Sand - grey beige, medium 32.4-32.9 Gravel - med sand matrix - grey beige - pebbly, compact. 32.9-33.8 Sand, grey beige, fine 33.8-35.6 Till - fine sand matrix, grey beige - cobbly, 90-95% V/S + meta sed 0-5% lime, Tr Gr.
35.6			18	35.6 - 36.0 Boulder - light green, fine grain - intermediate, mafic V/S
36.0			17	36.0 - 36.3 Till (as above 27.8-35.6)
36.3			16	36.3 - 37.5 Bedrock. 36.3-37.0 - partly grinded to clay → see some quartz phenocryst in clay! - yellow green - some pyrite cubes (<10 size) - chips are brownish green, siltose, porous → Grey wacke. 37.0-37.5 - light green, fine grain → looks like intermediate mafic V/S

J. Hunsant

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE Nov 19 82 HOLE NO. AL-82-23 LOCATION L 14+05 E 6+75 N
 GEOLOGIST R Humeault DRILLER P. Ruzaleski BIT NO. B65653 BIT FOOTAGE 0-39.0
 SHIFT HOURS MOVE TO HOLE 11:30 - 11:45
 TO DRILL 11:45 → 12:00 ; 12:30 - 4:15
 TOTAL HOURS MECHANICAL DOWN TIME
 CONTRACT HOURS DRILLING PROBLEMS 1A:00-12:30 rods clogged pull up 10.5m. of rods.
 OTHER Clean tanks 4:15 → 4:30 ; Travel: 5:15 → 5:45 (TO ROAD)
MOVE TO NEXT HOLE 4:30-5:15 5:45 → 6:30 (TO TOWN)

DEPTH METRES	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
0				Spruce bush.
0-1.1				muskeg, organic
1.1-6.5				Clay.
1.1-1.2				grey beige, hard smooth
1.2-1.6				grey, hard smooth
1.6-6.5				grey, soft, smooth.
6.5-14.0				Till
6.5-10.4				-grey gritty clay balls matrix
6.5-10.4				pebbly - 70-75% V/S
6.5-10.4				10-15% Gr
6.5-10.4				5-10% lime
10.4-11.7				cobbly - 60-65% V/S
10.4-11.7				20-25% Gr
10.4-11.7				5-10% lime
11.7-12.1				-less gritty clay balls
11.7-12.1				-lots of grey beige fine sand
11.7-12.1				-cobbly
12.1-14.0				-increasingly more
12.1-14.0				and more gritty clay
12.1-14.0				balls.
12.1-14.0				-just a few pebs
12.1-14.0				-occasional cob.
12.1-14.0				70-75% V/S
12.1-14.0				10-15% lime
12.1-14.0				10-15% Gr.
14.0-22.2				Clay
14.0-22.2				-grey
14.0-22.2				-very hard, rubber look
14.0-22.2				-smooth.

R. Humeault

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE Nov 1 19 82 HOLE NO. AL-82-23 LOCATION _____
 GEOLOGIST _____ DRILLER _____ BIT NO. _____ BIT FOOTAGE _____
 SHIFT HOURS _____ MOVE TO HOLE _____
 TO _____ DRILL _____
 TOTAL HOURS _____ MECHANICAL DOWN TIME _____
 DRILLING PROBLEMS _____
 CONTRACT HOURS _____ OTHER _____
 MOVE TO NEXT HOLE _____

DEPTH METRES	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
21				22.2-25.4 Clay + silt. - clay is grey, hard, smooth - silt, grey beige - occasional peb (v/s)
22				
23				25.4-32.0 Silt + Sand - interbedded - grey beige - sand is fine - few thin clay beds grey hard smooth. (30.5-32.0 occasional peb)
24				
25				
26				32.0-33.4 Sand - fine, grey beige - few very thin till horizms. - thickest horizon @ 32.9-33.2
27				
28				
29				33.4-37.8 Till. - grey beige fine sand matrix - very compact.
30				33.4-36.2- Cobble - 75-80% v/s. meta-sed 10-15% lime 5-10% Granite
31				
32				36.2-37.8- pebbly (% same as obs above) - matrix slightly coarser for small intervals; - few cobs.
33		01		
34		02		37.8-39.0 Bedrock.
35				37.8-38.2 - broken up on surface - partly rounded to clay greenish yellow.
36		03		38.2-38.6- chips dark green - med grain - porous - shistose - Greywacke.
37		04		
38		05		38.6-39.0 - light green chips - fine grain to med. (looks like intermediate mafic v/s?) - probably fresh greywacke
39				
40				

38.2-

P. Wilmers

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE Nov 2, 3 19 82 HOLE NO. AL-82-24 LOCATION L32+00 E 1+25 S
 GEOLOGIST R. Hamault DRILLER P. Runkel BIT NO. 865653 BIT FOOTAGE 39.0-39.7
 SHIFT HOURS _____ MOVE TO HOLE 11:00 → 11:15 (Nov 2)
 _____ TO _____ DRILL 9:00 → 1:00 (NOV 3)
 TOTAL HOURS _____ MECHANICAL DOWN TIME 7:15 → 10:45 Fix GO TRACK GAUICH ; 11:15 → rest of day
 _____ DRILLING PROBLEMS GO TRACK TRACK and compressor pulley. (NOV 2)
 CONTRACT HOURS _____ OTHER Travel 7:00 → 7:15 (to site); 10:45 → 11:00 (to drill) (NOV 2)
 _____ 6:45-7:00 (to site); 7:00-7:15 (to drill) (NOV 2)
 → NOV 3 → 7:15-9:00 → put compressor pulley back.

IN METRES	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
1				Poplars + Spruce bush
2				0-0.1 organics
3			01	0.1-1.0 Clay 0.1-0.2 beige, hard, smooth 0.2-1.0 grey hard, smooth
4			02	1.0-2.5 Till - grey beige fine sand matrix - cobbly - 50% V/s 45% Gr 5% lime.
5			03	2.5-39.2 Till - gritty clay matrix.
6			04	2.5-3.2 - beige gritty clay balls - cobbly, 60% V/s, 35% Gr, 5% lime
7			05	3.2-4.4 - grey gritty clay balls - cobbly, 60% V/s, 35% Gr, 5% lime
8			06	(4.4-5.0 Boulder) - granitic med grain - rich in quartz, feldspar biotite
9			07	5.0-7.2 - grey gritty clay balls - cobbly - 80-85% V/s 10-15% Lime 0-5% Gr. - matrix becoming more abundant with depth.
10			08	7.2-16.2 - grey gritty clay balls abundant. - few pebs, few cobs
11			09	(16.2-16.4 Boulder) - as above boulder
12			10	16.4-21.0 - grey gritty clay balls abundant - few pebs, V/s, Gr, lime - few cobs, mostly Gr.

R. Hamault

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE Nov 2 1982 HOLE NO. AL-82-24 LOCATION _____
 GEOLOGIST _____ DRILLER _____ BIT NO. _____ BIT FOOTAGE _____
 SHIFT HOURS _____ MOVE TO HOLE _____
 _____ TO _____ DRILL _____
 TOTAL HOURS _____ MECHANICAL DOWN TIME _____
 _____ DRILLING PROBLEMS _____
 CONTRACT HOURS _____ OTHER _____
 _____ MOVE TO NEXT HOLE _____

DEPTH METRES	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
21		10 ft		21.0 - 39.2 - gray gritty clay balls - few pebs - more cobs.
22		11		
23				
24		12		
25				
26				
27		13		
28				
29		14		
30				
31				
32		15		
33				
34		16		
35				
36		17		
37				
38		18		39.2 - 39.6 - Clay - dark gray - hard, smooth
39				39.6 - 39.9 Till - gray gritty clay matrix - cobbly - 90-95% 1/8" meta sed. 0-5% lime.
40		19		

J. Hurault

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE Nov. 3 1982 HOLE NO. A1-92-24 LOCATION _____
 GEOLOGIST _____ DRILLER _____ BIT NO. _____ BIT FOOTAGE _____
 SHIFT HOURS _____ MOVE TO HOLE _____
 _____ TO _____ DRILL _____
 TOTAL HOURS _____ MECHANICAL DOWN TIME _____
 _____ DRILLING PROBLEMS _____
 CONTRACT HOURS _____ OTHER _____
 _____ MOVE TO NEXT HOLE _____

20

DEPTH IN METRES	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
			20	39.9-40.7 Bedrock.
41				39.9-40.4 - dark green to grey green
42				- shistose.
43				- fine grain
44				- seams to be bedded.
45				grey green - grey wacke
46				fine grain
47				dark green - argillite
48				- chrys. grain
49				40.4-40.7 - light green
50				- med grain
51				- fresher than above
52				- Graywacke
53				* Did not go full 1.5 m in bedrock because bit worn.
54				
55				
56				
57				
58				
59				
60				

J. L. [Signature]

**OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG**

DATE NOV 3 1982 HOLE NO. AL-82-25 LOCATION L8400 E 2425 N
 GEOLOGIST R. Keneault DRILLER R. Rasmussen BIT NO. B65654 BIT FOOTAGE 0-22.5
 SHIFT HOURS _____ MOVE TO HOLE 1:00 - 2:30
 _____ TO _____ DRILL 2:30 - 4:30
 TOTAL HOURS _____ MECHANICAL DOWN TIME _____
 _____ DRILLING PROBLEMS _____
 CONTRACT HOURS _____ OTHER TRAVEL -> 5:00-5:30 (to road); 5:30-6:00 (to road)
 _____ MOVE TO NEXT HOLE 4:30 -> 5:00

DEPTH IN METRES	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
0				Spruce bush (swamp)
0.2				0-0.2 mushy.
0.8				0.2-0.8 Clay & organics, dark brown
1.4				0.8-1.4 Clay, beige, soft, smooth
6.6				1.4-6.6 Clay - soft, smooth - grey - greasy texture
7.1				6.6-7.1 Till - fine sand, grey beige matrix - pebbly, 65% v/s, 35% Gr, Tr lime
22.5				7.1-22.5 Till - grey gilty clay matrix
8.0		01		7.1-8.0 - pebbly - 55% v/s, 40% Gr 5% lime.
9.3				8.0-9.3 - cobbly - 55% v/s, 40% Gr 5% lime
10.0		02		9.3-10.0 - very compact - very cobbly - 65% v/s 30% Gr 5% lime
13.9		04		10.0-13.9 - less compact - cobbly, 65% v/s, 30% Gr, 5% lime - gilty clay balls varying in abundance
22.5		03		13.9-22.5 - grey, gilty clay matrix, very abundant. - just a few pebs - few cobs; mostly v/s.
11.8		06		(11.8 - 12.0 Boulder) - greywacke, dark green - fine grain
12.8		07		(12.8 - 13.0 Boulder) - granitic - rich in quartz - med grain.

R. Keneault

**OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG**

DATE NOV 3 1982 HOLE NO. AL-82-25 LOCATION _____
 GEOLOGIST _____ DRILLER _____ BIT NO. _____ BIT FOOTAGE _____
 SHIFT HOURS _____ MOVE TO HOLE _____
 _____ TO _____ DRILL _____
 TOTAL HOURS _____ MECHANICAL DOWN TIME _____
 _____ DRILLING PROBLEMS _____
 CONTRACT HOURS _____ OTHER _____
 _____ MOVE TO NEXT HOLE _____

DEPTH IN METRES	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				

22.5-24.0 Bedrock
 22.5-22.6 - fine grain
 - light green, shistose
 - lots of pyrite
 22.6-24.0 - medium grain
 - darker green
 - shistose
 - quartz phenocrysts
 - Greynish

R. Harcourt

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE NOV 3 1982 HOLE NO. AL-82-26 LOCATION L8+00 E 6+90 N
 GEOLOGIST R. [unclear] DRILLER P. [unclear] BIT NO. B45654 BIT FOOTAGE 225-440
 SHIFT HOURS _____ MOVE TO HOLE _____
 _____ TO _____ DRILL 7:45-9:30
 TOTAL HOURS _____ MECHANICAL DOWN TIME _____
 DRILLING PROBLEMS _____
 CONTRACT HOURS _____ OTHER Travel: 6:45-7:00 (to site); 7:00-7:45 (to rig); 10:30-10:45 (to town)
 _____ MOVE TO NEXT HOLE 9:30-10:30
 _____ OUT.

DEPTH METRES	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG						
1				Fr. pine bush.						
0.1-0.1				muckey, organic						
0.1-6.0				Clay						
0.1-1.2				with organics						
				- beige, hard, smooth						
1.2-6.0				- grey, soft, smooth						
6.0-6.2				Till						
				- fine sand matrix						
				- grey beige, pebbly						
6.2-6.6				Boulder						
				- dark green, med grain						
				- Grey wacke						
6.6-8.4			01	Till						
				- fine sand matrix, grey beige						
				- pebbly - 55% v/s, 40% Gr, 5% lime						
8.4-16.0			02	Till						
				- gritty clay matrix						
9.4-11.7				- grey beige gritty clay balls						
				- pebbly - 65% v/s, 30% Gr, 5% lime						
11.7-16.0			03	- grey gritty clay balls						
				- cobbly - 65% v/s, 20% Gr, 15% lime						
16.0-17.9			04	Gravel						
				- medium grey beige sand matrix						
				- pebbly - 65% v/s, 15% Gr, 20% lime						
				meta sed.						
17.9-18.2			05	Till						
				- fine sand matrix, grey beige						
				- pebbly - 65% v/s, 15% Gr, 20% lime						
				meta sed.						
19.2-19.0			06	Clay						
				- light green, soft, smooth						
				- slightly gritty (18.8-19.0)						
19.0-20.0			07	Till						
				- grey beige fine sand matrix						
				- cobbly - 70% v/s + meta sed.						
				5% Gravel						
				20% lime						

J. [unclear]

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE Feb 10 1983 HOLE NO. PC-AL-93-27 LOCATION L 11+00E - 9+00N
 GEOLOGIST R. MacNeil DRILLER P. Kowalski BIT NO. 3-65577 BIT FOOTAGE 0-38.1
 SHIFT HOURS _____ MOVE TO HOLE _____
 _____ TO _____ DRILL 10:15-2:15
 TOTAL HOURS _____ MECHANICAL DOWN TIME _____
 _____ DRILLING PROBLEMS _____
 CONTRACT HOURS _____ OTHER 7:00-7:30 Te dull; 7:30-9:00 change bit; 9:00-9:30 stick bits;
 _____ MOVE TO NEXT HOLE - 9:30-10:00 set up / showed; 10:00-10:15 wait for water

* New Bit * New Sub *

DEPTH METRES	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
0				0-1.0 Organic
1				
2				1.0 - 7.0 <u>Clay</u> :- soft; non-gritty brown to 2.0 m gray from 2.0-7.0
3				
4				
5				
6				
7				7.0 - 14.2 <u>Till</u> :- gray, fine sand matrix; cobbly; clast composition :- 40% intermediate - mafic volcanic sediment (% may be high) 45% intrusives 5-10% limestone
8		01		
9				
10		02		
11				
12		03		11.8-12.0 minor gritty gray clay
13				
14		04		
15				
16		05		13.6-14.2 gritty clay common
17				
18		06		
19				
20		07		14.2-18.8 <u>Till</u> :- gray, gritty clay matrix; a few pebbles
		08		18.8-19.2 boulder - volcanic or sediment; gray
		09		19.2 - 19.5 <u>Clay</u> :- gray; compact

**OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG**

DATE Feb 10 1983 HOLE NO. RC-AB-23-27 LOCATION L 11405 - 900N
 GEOLOGIST _____ DRILLER _____ BIT NO. _____ BIT FOOTAGE _____
 SHIFT HOURS _____ MOVE TO HOLE _____
 _____ TO _____ DRILL _____
 TOTAL HOURS _____ MECHANICAL DOWN TIME _____
 _____ DRILLING PROBLEMS _____
 CONTRACT HOURS _____ OTHER _____
 _____ MOVE TO NEXT HOLE _____

DEPTH METRES	GRAPHIC LOG	INTERVAL	SAMPLE NO	DESCRIPTIVE LOG
19.5	△	19.5-20.6	09	<u>Till</u> :- grey fine sand matrix; pebbly
20.6	●	20.6-21.3	10	<u>Clay</u> :- grey compact
21.3	○	21.3-32.6	10	<u>Sand</u> :- grey; fine to medium grained
25.5	○			below 25.5 - minor gravel & granular coarse sand
28.5	○			below 28.5 - fine sand - minor pebbly & granular sand
32.6	△	32.6-37.2	13	<u>Till</u> :- grey, fine to medium sand matrix (slight darker color & matrix) cobbly; - appears gravelly to 34.5 - below this fine sand is more apparent; cleft composition:- 60% intermediate mafic volcanic & sediment 25% intrusives 10% limestone
37.2	△	37.2-38.1	17	<u>Bedrock</u> :- intermediate mafic volcanic:- light green; fine grained; minor pyrite; 92.0% at 37.8

38.1 EOH
(127')

**OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG**

DATE Feb 10 19 HOLE NO. RC-AL-03-28 LOCATION L 11+50E ; 9+00N
 GEOLOGIST K. MacNeil DRILLER P. Kumbur BIT NO. B65577 BIT FOOTAGE 381-78.6
 SHIFT HOURS _____ MOVE TO HOLE 2:15-2:30
 _____ TO _____ DRILL 2:30-7:15
 TOTAL HOURS _____ MECHANICAL DOWN TIME _____
 _____ DRILLING PROBLEMS _____
 CONTRACT HOURS _____ OTHER 7:15-7:45 To Toronto
 _____ MOVE TO NEXT HOLE _____

DEPTH IN METRES	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
0				0 - 7.5 <u>Clay</u> - (minor organic at surface) - brown in color to 1.6 - grey from 1.6 - 7.5
7.5				7.5 - 14.2 <u>Till</u> - grey, fine sand matrix; cobbly; chert composition - 20% intermediate - mafic volcanic & sediment 65% intrusive 10% limestone 9.0-10 - gritty clay present 14.0-14.2 gritty, grey clay more abundant
14.2				14.2 - 25.6 <u>Till</u> - grey, gritty clay matrix (fine sand present as well); cobbly; chert composition difficult to determine 18-19 a minor fine sand & chert

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE Feb 10 1983
SHIFT HOURS _____ TO _____
TOTAL HOURS _____
CONTRACT HOURS _____

HOLE NO. RC-AL-03-20 LOCATION L 1150E - 9700N
GEOLOGIST _____ DRILLER _____ BIT NO. _____ BIT FOOTAGE _____
MOVE TO HOLE _____
DRILL _____
MECHANICAL DOWN TIME _____
DRILLING PROBLEMS _____
OTHER _____
MOVE TO NEXT HOLE _____

DEPTH IN METRES	GRAPHIC LOG	INTERVAL	SAMPLE NO	DESCRIPTIVE LOG
21	△	09		- below 21.0 - minor zones of non-gritty clay
2	△	10		- fewer pebbles below 20.0
3	△	11		21.9 - 22.5 little grit; few or no pebbles
4	△	11		22.5 - 24 - more grit
25	△	12		24 - 25 little grit
6	△	12		25.6 - 32.9 <u>Sand</u> :- grey; fine to medium grained
7	△	13		28.5 - 36 minor pebbles, granules
8	△	13		
9	△	13		
30	△	14		
31	△	14		
32	△	15		32.9 - 39.5 <u>Till</u> :- grey, fine to medium grained sand matrix; abundant cobbles; clast composition -
33	△	15		65% intermediate mafic volcanics & sediments
34	△	16		15% intrusives
35	△	16		10% limestone
36	△	17		* no lights when logging lower portion of till bedrock
37	△	18		39.5 - 40.5 <u>Bedrock</u> :- intermediate mafic volcanic :- light to medium green color; fine grained
38	△	19		
39	△	19		
40	△	20		
41	△	21		
41	△	21		40.5 EOH (135')

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE Feb 11 1983 HOLE NO. RC-PL-83-29 LOCATION 6 12+00E - 9+00N
 GEOLOGIST K. MacNeil DRILLER P. Rumbach BIT NO. 40216 BIT FOOTAGE 0-36
 SHIFT HOURS _____ MOVE TO HOLE _____
 _____ TO _____ DRILL 9:45-1:00
 TOTAL HOURS _____ MECHANICAL DOWN TIME _____
 DRILLING PROBLEMS _____
 CONTRACT HOURS _____ OTHER 6:45-7:15 To drill; 7:15-8:30 Fuel up / change bit use in Fuel filter;
 _____ MOVE TO NEXT HOLE 8:30-9:45 set up / haul out; wait for water

* New Bit *

DEPTH METRES	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
1				0-8.9 <u>Clay</u> (many organics at surface) - brown initially - grey in color down hole
2				
3				
4				
5				
6				
7				
8				
9				8.9-13.8 <u>Till</u> :- grey, fine sand matrix; cobby; clast composition - 20% intermediate - mafic volcanic sediments 60% intrusives 10% limestone
10			01	
11			02	
12			03	9.0-9.4 <u>boulder</u> - granite
13				10.3-10.4 minor grey gritty clay
14				13.3-13.8 grey gritty clay present
15			04	
16				13.8-14.8 <u>Clay</u> :- grey; compact; slight amount of grit initially
17			05	
18				14.8-22.3 <u>Till</u> :- grey, gritty clay matrix; cobby; clast composition - 60% intermediate - mafic volcanic sediments - below 15.5 - abundant fine sand as well as gritty clay
19			06	
20			07	

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

Page 2 of 2

DATE Feb 11 1983
SHIFT HOURS _____
TO _____
TOTAL HOURS _____
CONTRACT HOURS _____

HOLE NO. RC-AL-83-29 LOCATION L 12+00E - 9+00N
GEOLOGIST _____ DRILLER _____ BIT NO. _____ BIT FOOTAGE _____
MOVE TO HOLE _____
DRILL _____
MECHANICAL DOWN TIME _____
DRILLING PROBLEMS _____
OTHER _____
MOVE TO NEXT HOLE _____

DEPTH (IN METRES)	GRAPHIC LOG	INTERVAL	SAMPLE NO	DESCRIPTIVE LOG
21		07		
2		08		22.3-26 Till :- grey, fine sand matrix - minor quartz clay; cobbly;
3		09		75% intermediate-mafic volcanic & sediments
4		10		
25		11		26 - 29.3 Till :- grey quartz clay matrix; a few pebbles & cobbles
6		12		
7		13		29.3 - 32.3 Sand :- grey; fine grained
8		14		
9		15		32.3 - 34.6 Till :- grey, fine sand matrix, cobbly; clay composition; 75% intermediate-mafic volcanic & sediments
30		16		15% intrusives
31				2% (or less) limestone
32				34.6 - 36 Bedrock :- intermediate-mafic volcanic (may be a sediment?); - medium grey-green; fine grained; schistose; appears granular
33				
34				
35				
36				
37				
38				
39				
40				

- bags number to 15 - noted discrepancy in numbering of sample 11

34 FOH
(120')

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE Feb 11 1983 HOLE NO. RC-AL-03-30 LOCATION L12+50 E -9+00N
 GEOLOGIST K. MacNeil DRILLER P. Rumbakis BIT NO. 40216 BIT FOOTAGE 36-70.5
 SHIFT HOURS _____ MOVE TO HOLE _____
 _____ TO _____ DRILL 1:00 - 4:45
 TOTAL HOURS _____ MECHANICAL DOWN TIME _____
 DRILLING PROBLEMS _____
 CONTRACT HOURS _____ OTHER 4:45 - 5:00 clean tank for maintenance
 _____ MOVE TO NEXT HOLE _____

DEPTH IN METRES	GRAPHIC LOG	INTERVAL	SAMPLE NO	DESCRIPTIVE LOG
0				0-6.7 <u>Clay</u> :- dark brown-black to 1.0 1.0-1.4 - brown in color 1.4-6.7 grey in color
6.7				6.7-15.1 <u>Till</u> :- grey; fine sand matrix; cobbly; clast composition :- 20-25% intermediate mafic volcanics 55% intrusive 5% limestone 9.6-9.8 - minor gritty clay 13.2-13.5 " " " 13.9-14.1 " " " 14.2-14.4 <u>boulders</u> - intermediate volcanic
15.1				15.1-18.6 <u>Till</u> :- grey gritty clay matrix (fine sand present throughout) cobbly; clast composition - 75% intermediate mafic volcanics & siltstones 10-15% intrusive <5% limestone
18.6				18.6-22.5 <u>Clay</u> :- grey; compact

OVERBURDEN DRILLING MANAGEMENT LIMITED
 REVERSE CIRCULATION DRILL HOLE LOG

Page 2 of 2

DATE Feb 11 1983 HOLE NO. RC-AL-83-35 LOCATION L 12+50E - 9+00N
 GEOLOGIST _____ DRILLER _____ BIT NO. _____ BIT FOOTAGE _____
 SHIFT HOURS _____ MOVE TO HOLE _____
 TO _____ DRILL _____
 TOTAL HOURS _____ MECHANICAL DOWN TIME _____
 DRILLING PROBLEMS _____
 CONTRACT HOURS _____ OTHER _____
 MOVE TO NEXT HOLE _____

DEPTH IN METRES	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
21				
22				
23				
24				
25				
26				
27				
28				
29				
30				
31				
32				
33				
34				
35				
36				
37				
38				
39				
40				

22.5 - 30.8 Sand :- grey,
 fine to medium
 grained; minor clay
 bands & pebbles

23.8 - 24.2 clay

30.8 - 33.8 Till :- grey, fine
 sand matrix; cobbly;
 clast composition
 75% intermediate -
 mafic volcanic &
 sediments
 15-20% intrusives
 - 2% limestone

33.8 - 34.5 Bedrock :- intermediate -
mafic volcanic :-
 light grey-green;
 fine to medium
 grained; schistose;
 appears granular
 sediment?

34.5 EOH
 (115)

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE Feb 12 1983 HOLE NO. RC-AL-83-31 LOCATION L 13+00 E - 9+00 N
 GEOLOGIST P. Barry DRILLER Kukeskic BIT NO. 40224 BIT FOOTAGE 0-27.8
 SHIFT HOURS _____ MOVE TO HOLE _____
 _____ TO _____ DRILL 10:30 - 1:30
 TOTAL HOURS _____ MECHANICAL DOWN TIME 7:30-9:00 BIT WATER TANK ON STOP; Fix wheel on John Deere
 DRILLING PROBLEMS _____
 CONTRACT HOURS _____ OTHER 7:00-7:30 TO DRILL; 9:00-10:30 WAIT FOR WATER
 MOVE TO NEXT HOLE _____

DEPTH IN METRES	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
0				0-0.5 ORGANICS
1				0.5-8.8 <u>CLAY</u> , grey (occ. blue patches) non-gritty, compact
2				
3				
4				
5				
6				
7				
8				
9				8.8-18.1 <u>TILL</u> : grey fine sand matrix; Cobbly; CLAY composition 55% intru- sives. 40% mafic volcanics 2% limestone
10		01		
11		02		
12		03		
13		04		
14		05		15.5-15.7 gritty clay lumps grey clay-silt-sand matrix 50% intrusives, minor calcareates
15		06		
16				17.8 - gritty clay lumps 80% mafics, grey silt matrix
17				18.1-20.0 <u>CLAY</u> , grey, non-gritty, compact
18				19.1-19.3 gritty clay lumps
19				
20				

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE Feb 12 1983 HOLE NO. Be-Al-83-31 LOCATION L. 13+00 E . 9+00 N
 GEOLOGIST _____ DRILLER _____ BIT NO. _____ BIT FOOTAGE _____
 SHIFT HOURS _____ MOVE TO HOLE _____
 _____ TO _____ DRILL _____
 TOTAL HOURS _____ MECHANICAL DOWN TIME _____
 _____ DRILLING PROBLEMS _____
 CONTRACT HOURS _____ OTHER _____
 _____ MOVE TO NEXT HOLE _____

DEPTH IN METRES	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
21		20-21	07	<u>TILL</u> : grey silty clay matrix, pebbly dark green volcanic clasts
22		21.0-23.8		<u>CLAY</u> grey-blue, non-clayey, soft
23		23.8		pebbly horizon, dark green matrix (minor white) clasts
24		23.8-27.1	08	<u>SAND</u> , beige-grey fine sand
25		27.1-27.3	09	<u>TILL</u> , grey silty fine sand matrix cobbles, 85% dark green matrix
26		27.3-27.8		<u>BEDROCK ??</u> dark green mafic volcanic, fine grained minor white
27		27.8		EOH (92)
28				* ROD STUCK OFF AT COUPLING LOST 1 ROD, 1 SUB, 1 BIT, DOWN HOLE.
29				
30				
31				
12				
13				
14				
15				
16				
17				
18				
19				
20				

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE Feb 17 19 83 HOLE NO. RC-AL-23-41 LOCATION Re-Drill of RC-AL-23-31 43+00E 9+00N
 GEOLOGIST K. MacNeil DRILLER Rumleskie BIT NO. 665471 BIT FOOTAGE 31.5-
 SHIFT HOURS _____ MOVE TO HOLE _____
 _____ TO _____ DRILL 7:30 - 1:00
 TOTAL HOURS _____ MECHANICAL DOWN TIME 4:00 - 5:00 Bolts on Drive Shaft Broken.
 DRILLING PROBLEMS _____
 CONTRACT HOURS _____ OTHER 6:30 - 7:00 To Drill; 7:00 - 7:30 Fuel-up/start-up; 1:00 - 1:30 Clean Trips/Wait
 MOVE TO NEXT HOLE 1:30 - 4:00 While Drill to Loading Area change

DEPTH METRES	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
21				Re-Drill of #31 - BEGIN LOGGING AND SAMPLING AT SAND/CLAYEY TILL CONTACT
22				
23				
24				24.0 - 28.1 SAND ? FINE GRAINED
25				CLAY BAND COMMON BELOW 27.0
26				
27				
28				28.1 - 38.9 TILL
29				grey FINE SAND MATRIX; COBBLY
30				CLAST COMP -
31				75% INT. ALKALIC VOLC. & SECS.
32				10-15% INTRUSIVES
33				45% LIMESTONE
34				29.0 - 29.2 INT. FELSIC VOLC. BULDER
35				LIGHT GREY GREEN, HARD, MASSIVE
36				below 32.0 25% INTRUSIVES
37				37.3 GABBRO BULDER
38				below 37.5 MATRIX DARKER GREY COLOR.
39				38.9. PROPOCK; SEDIMENT (SANDSTONE)
40				DARK GREEN; FINE TO MED. GRAINED
40.5				SCHISTOSE; EASILY EXFOL. BETWEEN FINGERS
				APPEARS GRANULAR, MINOR QUARTZ VEINING.
				SOME GROUND TO LIGHT GREEN CLAY

Use Super Poly

EOH
40.5
(135)

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE Feb. 12 1983 HOLE NO. RC-AE-83-32 LOCATION L 13 + 50E - 9 + 00 N
 GEOLOGIST P. BARRY DRILLER P. RUDOLPH BIT NO. 40223 BIT FOOTAGE 0-31.2
 SHIFT HOURS _____ MOVE TO HOLE 1:30 - 1:45
 _____ TO _____ DRILL 1:45 - 5:45
 TOTAL HOURS _____ MECHANICAL DOWN TIME _____
 DRILLING PROBLEMS _____
 CONTRACT HOURS _____ OTHER 5:45 - 6:00 CLEAN TIME, etc. 6:00 - 6:30 TRAVEL TO HOTEL
 _____ MOVE TO NEXT HOLE _____

* New Bit, New SAG

DEPTH IN METRES	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
0				0-1.5 ORGANICS
1				
2				1.5-8.8. <u>CLAY</u> , grey-soft, non-bulky
3				
4				
5				
6				
7				
8				
9				8.8-13.8 <u>TILL</u> - grey-beige silty sand matrix 30% INTRUSIVES 2% LIMESTONE
10		01		
11		02		GENITIC BANDS, 5% LIMESTONE
12				12.5-13.0 75% DUNE GREEN MATRIS
13		03		
14				13.8 <u>TILL</u> : grey, gritty clay lumps, hard. 40% LIMESTONE 40% GRANITICS occ. MAFIC BOWDOL
15		04		
16		05		15.0-17.0 - FEW CLASTS.
17				17.0-18.0 grey clay - FINE SAND matrix, pebbly (occ. clasts) 80% MAFIC
18		06		
19				18.0-23.8. <u>CLAY</u> blue-green, soft.
20				

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE Feb. 12 1983 HOLE NO. RC-AL-83-32 LOCATION L 13750 E . 9400 N
 GEOLOGIST P. Gandy DRILLER _____ BIT NO. _____ BIT FOOTAGE _____
 MOVE TO HOLE _____
 DRILL _____
 MECHANICAL DOWN TIME _____
 DRILLING PROBLEMS _____
 OTHER _____
 MOVE TO NEXT HOLE _____

DEPTH IN METRES	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
21				
22				
23				
24		07		23.8 - 25.0 <u>SAND</u> - fine sand, beige. occasional gritty clay
25		08		25.0 - 25.7 <u>Till</u> grey, silty fine sand matrix coarsely, 30% intrusives minor calcareous hard clay inclusions
26		09		25.3 - 25.7 GRANITE BANDS
27				
28		10		25.7 - 27.0 <u>Till</u> beige fine sand matrix coarsely, 40% intrusives 30% mafic volcanic clasts (minor white)
29		11		27.0 - 28.5 AS ABOVE + 10% LIMESTONE
30		12		28.5 - 30 - Mostly (90%) DARK GREEN MAFIC VOLCANICS + MINOR PYRITE
31				
32				30.0 - 31.2 <u>BEDROCK</u> intercalated mafic volcanic fine grained, minor pyrite TRACE CALCAREOUS.
13				
14				
15				
16				31.2 EOH (104')
17				
18				
19				
20				

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

Page 1 of 2

DATE Feb 13 1983 HOLE NO. RC-AH-83-33 LOCATION L 14+00E - 9+00N
 GEOLOGIST Mark Hill DRILLER P. K. White BIT NO. 40223 BIT FOOTAGE 31.2 - 58.2
 SHIFT HOURS _____ MOVE TO HOLE 8:30 - 8:45
 _____ TO _____ DRILL 9:30 - 1:15
 TOTAL HOURS _____ MECHANICAL DOWN TIME _____
 CONTRACT HOURS _____ DRILLING PROBLEMS _____
 _____ OTHER 7:30 - 8:00 To drill; 8:00 - 8:30 full up; 8:45 - 9:30 wait for water
 _____ MOVE TO NEXT HOLE _____

DEPTH IN METRES	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
0				0 - 1.4 Organics
1				1.4 - 7.3 <u>Clay</u> :- gray; soft; non-gritty
2				
3				
4				
5				
6				
7				7.3 - 13 <u>Till</u> :- gray, fine sand matrix; cobbly; chert composition: 25-30% imbedded mafic volcanics & sediments 55% intrusives 5-10% limestone
8		01		
9				
10		02		
11				
12		03		7.7 - 8.2 - minor gray gritty clay 11.8 - 11.9 " " " "
13				12.2 - 13 - gray gritty clay matrix (mixed silt & clay?); cobbly
14		04		
15				13 - 19.6 <u>Clay</u> :- gray, compact
16				
17				
18				
19				- below 19.0 - minor grit & pebbles
20				19.6 - 19.9 <u>boulders</u> :- granite

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

Page 2 of 2

DATE Feb 13 1983 HOLE NO. RC-AL-83-33 LOCATION L-14+00E, 9+00N
 GEOLOGIST _____ DRILLER _____ BIT NO. _____ BIT FOOTAGE _____
 SHIFT HOURS _____ MOVE TO HOLE _____
 _____ TO _____ DRILL _____
 TOTAL HOURS _____ MECHANICAL DOWN TIME _____
 _____ DRILLING PROBLEMS _____
 CONTRACT HOURS _____ OTHER _____
 _____ MOVE TO NEXT HOLE _____

DEPTH IN METRES	GRAPHIC LOG	INTERVAL SAMPLE NO.	DESCRIPTIVE LOG
2.1	0.0	05	19.9 - 26.3 <u>Till</u> :- gray, fine sand matrix; cobby; block composition - 55% intermediate-mafic volcanic & sedimentary 20-25% intrusives 5-10% limestone 23.3 - 23.8 - predominantly fine sand; minor pebbles 24.8 - 25.1(?) - slightly coarser matrix - gravelly 26.3 - 27 <u>Bedrock</u> :- <u>intermediate -</u> <u>mafic volcanic</u> :- medium grey-green; fine grained; massive 27 EOH (90')
2	0.0	06	
3	0.0	07	
4	0.0	08	
2.5	0.0	09	
6	0.0	10	
7			
8			
9			
30			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

Page 1 of 2

DATE Feb 13 1983 HOLE NO. RC-92-83-34 LOCATION _____
 GEOLOGIST K. Macklin DRILLER P. Rudulovic BIT NO. 40228 BIT FOOTAGE 0-28.5
 SHIFT HOURS _____ MOVE TO HOLE 1:15 - 1:30
 _____ TO _____ DRILL 1:30 - 4:45
 TOTAL HOURS _____ MECHANICAL DOWN TIME _____
 _____ DRILLING PROBLEMS _____
 CONTRACT HOURS _____ OTHER 4:45 - 5:00 clean tanks / maintenance
 _____ MOVE TO NEXT HOLE _____

* New Bit *

DEPTH IN METRES	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
1				0-1 Organics
2				1.0 - 7.0 Clay :- brown - beige in color initially; grey in color down hole
3				4.5 - 7.0 siltstone - little return
4				
5				
6				
7				7.0 - ~18.6 Till :- grey, fine sand matrix; cobbly; clast composition -
8			01	50% intermediate - mafic volcanics & sediments
9			02	30% intrusives
10			03	10% limestone
11				- may be more sedimentary clasts below 13.5
12			04	13.6 - 13.8 boulders - siltstone
13			05	14.2 - 14.4 - minor grey gritty clay
14			06	- below 15.5 - minor grey gritty clay
15			07	- below 17 - fine to medium grained sand matrix - pebbly
16			08	
17			09	~18.6 - 24.9 Sand :- grey; fine to medium grained; minor pebbles
18				
19				
20				

OVERBURDEN DRILLING MANAGEMENT LIMITED
 REVERSE CIRCULATION DRILL HOLE LOG

Page 2 of 2

DATE Feb 13 1983

HOLE NO. RC-AZ-03-34 LOCATION _____

SHIFT HOURS _____
 TO _____

GEOLOGIST _____ DRILLER _____ BIT NO. _____ BIT FOOTAGE _____

TOTAL HOURS _____

MOVE TO HOLE _____
 DRILL _____

CONTRACT HOURS _____

MECHANICAL DOWN TIME _____

DRILLING PROBLEMS _____

OTHER _____

MOVE TO NEXT HOLE _____

DEPTH IN METRES	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
21			09	- below 23 - abundant granular & pebbly sands
2				
3				
4			10	
5				
6			11	24.9 - 27.3 <u>Till</u> :- grey, fine sand matrix; cobbly; clast composition.
7			12	70% intermediate-mafic volcanics & sediments
8			13	15-20% intrusives
9				<5% limestone
30				27.3 - 28.5 <u>Bedrock</u> :- intermediate-mafic volcanic :- grey; fine grained; poorly schistose(?);
11				
12				
13				
14				28.5 E04
15				(95')
16				
17				
18				
19				
20				

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

Page 1 of 2

DATE Feb 14 1983 HOLE NO. RC-AK-83-35 LOCATION _____
 GEOLOGIST K. MacNeil DRILLER P. Kumbhari BIT NO. 40228 BIT FOOTAGE 28.5-38.8
 MOVE TO HOLE 9:00-9:15 40225 0-31
 DRILL 10:30-2:45
 MECHANICAL DOWN TIME _____
 DRILLING PROBLEMS _____
 OTHER 6:45-8:30 To drill - driller's touch stuck; 8:30-9:00 Full up
~~MOVE TO NEXT HOLE~~ 9:15-10:30 wait for water

* New Bit *

DEPTH IN METRES	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
0				0-1.5 Organics
1				
2				1.5 - 9.0 <u>Clay</u> :- gray; soft; non-gritty
3				- silt present (?) below 4.5
4				
5				
6				
7				
8				
9				9.0 - 13.6 <u>Till</u> :- gray, fine sand matrix; cobbly; clast composition
10		01		
11		02		25% intermediate-mafic volcanics & sediments
12				55-60% intrusives
13		03		5% limestone
14		04		* 10.3 - core lost. F bit - pull rods & change bit *
15				10.8 - 11.5 minor grey gritty clay
16		05		11.5 - 13.0 - pebbly
17				below 12.5 - grey gritty clay present
18		06		13.6 - 25.8 <u>Till</u> :- gray, gritty clay matrix (fine sand common as well); pebbly; clast composition -
19		07		65-70% intermediate-mafic volcanics & sediments
20		08		15% intrusives
				5-10% limestone
				- below 16.0 - till is cobbly

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

Page 2 of 2

DATE Feb 14 1983 HOLE NO. RC-AL-83-35 LOCATION _____
 GEOLOGIST _____ DRILLER _____ BIT NO. _____ BIT FOOTAGE _____
 SHIFT HOURS _____ MOVE TO HOLE _____
 _____ TO _____ DRILL _____
 TOTAL HOURS _____ MECHANICAL DOWN TIME _____
 _____ DRILLING PROBLEMS _____
 CONTRACT HOURS _____ OTHER _____
 _____ MOVE TO NEXT HOLE _____

DEPTH IN METRES	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
21		08-09		19.5 - 22.5 - fine sand more common; zones where matrix is either fine sand or gritty clay + fine sand
22		09-10		- below 22.5 - gritty clay matrix more common
23		10-11		23.8 - 24.6 boulder - intermediate - felsic volcanic
24		11-12		25.8 - ~28.2 Sand :- grey; fine grained
25		12-13		~28.2 - 30.1 Till :- grey, fine sand matrix; cobbly; chert composition -
26		13-14		70% intermediate mafic volcanic & sediments
27		14-15		15-20% intrusives
28		15-16		5-10% limestone
29		16-17		30.1 - 31 Bedrock :- intermediate - (mafic) volcanic :- grey, fine grained; massive; to 10% fine, disseminated pyrite
30		17-18		31 EOH (103')
31		18-19		- cone mount worn on bit
32		19-20		
33		20-21		
34		21-22		
35		22-23		
36		23-24		
37		24-25		
38		25-26		
39		26-27		
40		27-28		

OVERBURDEN DRILLING MANAGEMENT LIMITED
 REVERSE CIRCULATION DRILL HOLE LOG

Page 1 of 3

DATE Feb 14 1983
 SHIFT HOURS _____
 _____ TO _____
 TOTAL HOURS _____
 CONTRACT HOURS _____

HOLE NO. RC-AL-83-36 LOCATION _____
 GEOLOGIST K. MacNeil DRILLER F. Rumbold BIT NO. 40227 BIT FOOTAGE 0-39.2
 MOVE TO HOLE _____
 DRILL 2:45-6:30
 MECHANICAL DOWN TIME _____
 DRILLING PROBLEMS _____
 OTHER 6:30-7:00 clean tanks / maintenance ; 7:00-7:30 To Hotel
 MOVE TO NEXT HOLE _____

* New Bit *

DEPTH IN METRES	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
1				0-2.6 Organic
2				
3				2.6-13 Clay :- grey; soft; non-gritty
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				13.0 - 24.2 Till :- gritty clay & fine sand matrix; cobbly; clast composition - 75% intermediate mafic volcanic sediments 10-15% igneous 5-10% limestone
14		01		
15		02		
16				
17		03		13.0-13.4 fine sand matrix
18				13.4-19.6 gritty clay & fine sand matrix
19		04		14.0-15.1 boulder-gabbro
20		05		pebbly below 17.5- less fine sand in matrix
				19.6-20.5 clay - grey; compact; plastic

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

Page 2 of 3

DATE Feb 14 1993 HOLE NO. RC-AL-03-36 LOCATION _____
 GEOLOGIST _____ DRILLER _____ BIT NO. _____ BIT FOOTAGE _____
 SHIFT HOURS _____ MOVE TO HOLE _____
 TO _____ DRILL _____
 TOTAL HOURS _____ MECHANICAL DOWN TIME _____
 DRILLING PROBLEMS _____
 CONTRACT HOURS _____ OTHER _____
 MOVE TO NEXT HOLE _____

DEPTH IN METRES	GRAPHIC LOG	INTERVAL	SAMPLE NO	DESCRIPTIVE LOG
21		05		20.5 - 22.4 till as above - gritty clay matrix - pebbly
22		06		22.4 - 23 fine sand more common
23		07		23 - 23.4 boulder - intermediate volcanic or sediment contains pyrit
24		08		23.4 - 24.2 till
25		08		24.2 - 25 Sand / Silt - grey; very fine grained; minor pebbles
26		08		25 - 25.6 Till - fine sand matrix ?? - pebbly sand ??
27		09		
28		10		25.6 - 27 Gravel - medium to coarse sand matrix; pebbly; exact composition 70-75% intermediate-mafic volcanic or sediments
29		11		
30		12		27 - 27.5 Till - (fine sand & pebbles) ??
31		13		27.5 - 30 Gravel - as from 25.6 - 27
32		14		
33		15		30 - 31 predominantly fine sand & pebbles - till like
34		16		
35				
36				
37				
38				
39				
40				

OVERBURDEN DRILLING MANAGEMENT LIMITED
 REVERSE CIRCULATION DRILL HOLE LOG

Page 3 of 3

DATE Feb 14 1983 HOLE NO. RC-AL-83-36 LOCATION _____
 GEOLOGIST _____ DRILLER _____ BIT NO. _____ BIT FOOTAGE _____
 SHIFT HOURS _____
 _____ TO _____ MOVE TO HOLE _____
 TOTAL HOURS _____ DRILL _____
 _____ MECHANICAL DOWN TIME _____
 CONTRACT HOURS _____ DRILLING PROBLEMS _____
 _____ OTHER _____
 _____ MOVE TO NEXT HOLE _____

DEPTH IN METRES	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG						
1										
2										
3										
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										

31.3 - 36.8 Till :- grey, fine
 sand matrix; pebbly;
 clast composition -
 70% intermediate-
 mafic volcanic &
 sediments
 20% intrusives
 2-5% limestone

36.8 - 39.2 Bedrock :- intermediate-
 mafic volcanic; - grey,
 fine grained, massive

39.2 EOH
 (124')
 - poor lighting - Fluorescent light
 broken
 - rods very tight in hole

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE FEB 15 1983 HOLE NO. RC-A683-37 LOCATION TL-12700N - 12 +50 E
 GEOLOGIST P. CANEY DRILLER JUNESKI BIT NO. 40215 BIT FOOTAGE 0-40.5
 SHIFT HOURS _____ MOVE TO HOLE _____
 TO _____ DRILL 7:45 - 13:15
 TOTAL HOURS _____ MECHANICAL DOWN TIME _____
 DRILLING PROBLEMS _____
 CONTRACT HOURS _____ OTHER 6:20-7:00 TO D.C.L.; 7:00-7:30 START-UP/ETX; 7:30-7:45 SET-UP/TWAVEG
 MOVE TO NEXT HOLE _____

NEW BIT

DEPTH IN METRES	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
0				0-2.5 ORGANIC (DARK BROWN)
2.5				2.5-13.5 CLAY grey, soft
13.5				13.5-17.0 TILL hard gritty clay lumps
15.1			01	15.1-15.2 grey FINE SAND MATRIX, pebbly 4% GRANITES
15.2			02	15.2-16.5 - grey soft CLAY 15.2-16.5 - grey soft CLAY, COBBLES
17.0			03	75% MAPICS 2% LIMESTONE
17.0				17.0-19.6 CLAY, grey, compact
19.6			04	19.6- TILL; grey, silty SAND MATRIX COBBLY, 75% MAPICS & INT. MAPIC VOLCANICS

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE FEB 15 1983 HOLE NO. R-AL23-37 LOCATION TL-12+00 N - 12+50 E
 GEOLOGIST _____ DRILLER _____ BIT NO. _____ BIT FOOTAGE _____
 SHIFT HOURS _____ MOVE TO HOLE _____
 _____ TO _____ DRILL _____
 TOTAL HOURS _____ MECHANICAL PROBLEMS DOWN TIME _____
 _____ DRILLING PROBLEMS _____
 CONTRACT HOURS _____ OTHER _____
 _____ MOVE TO NEXT HOLE _____

DEPTH IN METRES	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
21			04	<u>TILL</u> ; (Clay till), gray clay lumps Clay silt matrix, pebbly, occ. cobble. 75% mafic volc. 5% Limestone
22			05	
23			23-24	85% mafic volc. 2% Limestone
24			24-24.1	Metasedimentary boulder (dark gray)
25			24-25.6	Clay, gray - soft.
26			25.6-27.5	<u>TILL</u> , gray, gray clay lumps (some dark gray-blue patches in clay) silty fine sand matrix, cobbley
27			27.5-29.6	<u>SAND</u> , fine sand
28			29.6-31.5	<u>GRAVEL</u> coarse sand, pebbly (occ. cobble)
29			31.5-	<u>TILL</u> , gray, fine sand matrix, cobbley - 50% intrusives 15% Limestone
30			33-34.5	70% mafic volcanics 10% Limestone
31			34.5-36.0	75% int. mafic volc. 5% Limestone
32			34.6	Limestone boulder
33			36.0-37.5	80% int. mafic volc. 5% Limestone
34			39-40	occ. boulder (metasediment) (calcarenite)
35			16	

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE Feb 15 1983 HOLE NO. R. AL B-37 LOCATION TL 12+00 N 12+50 E
 GEOLOGIST _____ DRILLER _____ BIT NO. _____ BIT FOOTAGE _____
 SHIFT HOURS _____ MOVE TO HOLE _____
 _____ TO _____ DRILL _____
 TOTAL HOURS _____ MECHANICAL DOWN TIME _____
 _____ DRILLING PROBLEMS _____
 CONTRACT HOURS _____ OTHER _____
 _____ MOVE TO NEXT HOLE _____

DEPTH IN METRES	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
41		16		40-41.8 Till, grey fine sand matrix, poorly occ. Cobble 80% matrix. 10c.
42		17		41.8 Bedrock - Dark green, fine grained Mafic volcanic ?? Metasedimentary (greywacke)?? Tr. Calc., very soft, friable
44		18		(EOH) 43.5
5				* actually hit bedrock at 38.8 EOH 40.5 COUNTED EXTRA ROD
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE Feb 15 1983 HOLE NO. Rc-Al-83-38 LOCATION _____
 GEOLOGIST K. MacNeil DRILLER Kullosie BIT NO. B-65472 BIT FOOTAGE 0-33
 SHIFT HOURS _____ MOVE TO HOLE _____
 TO _____ DRILL 2⁰⁰ - 6²⁰ pm.
 TOTAL HOURS _____ MECHANICAL DOWN TIME _____
 DRILLING PROBLEMS _____
 CONTRACT HOURS _____ OTHER 1.5-2⁰⁰ wait for bits to arrive from K.L.; 6³⁰-7⁰⁰ slow up / maintenance
 MOVE TO NEXT HOLE 7⁰⁰ - 7²⁰ to Timmins

* New Bit *

DEPTH METRES	GRAPHIC LOG	INTERVAL	SAMPLE NO	DESCRIPTIVE LOG
0-2.0				<u>Olanic</u>
2.0-12.0				<u>Clay</u> , grey, soft, non-gummy
12.0-18.1			01	<u>Till</u> , grey, silty fine sand matrix, Cobble 40% intrusives
12.5-15.0			02	grey silty clay lumps silty sand matrix, pebbly 30% intrusives 5% limestone
15.0-16.5			03	clayey, silty fine sand matrix Cobble 40% intrusives 10% limestone
16.5-18.1			04	gummy clay lumps 30% intrusives
18.1-25.0				<u>Clay</u> , grey, compact, non-gummy

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

DATE Feb 15 1983

HOLE NO. RC-AL-83-38 LOCATION _____

SHIFT HOURS _____ TO _____

GEOLOGIST _____ DRILLER _____ BIT NO. _____ BIT FOOTAGE _____

TOTAL HOURS _____

MOVE TO HOLE _____

CONTRACT HOURS _____

DRILL _____

MECHANICAL DOWN TIME _____

DRILLING PROBLEMS _____

OTHER _____

MOVE TO NEXT HOLE _____

DEPTH IN METRES	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
24				18.1-25.0 <u>CLAY</u> , grey, compact, low-brillity
25				25.0-26.7 <u>SAND/SILT</u> , initially fine sand but quickly turns to silt (passes through both buckets) minor pebbles
26		05		26.7-27.8 <u>TILL-LIKE</u> grey silty fine sand, pebbly 80% matrix.
27		06		27.8-30.1 <u>GRAVEL / PEBBLY SANDS</u> med. to coarse sand matrix some fine sand & pebbles.
28		07		30.1-31.2 <u>TILL</u> silty fine sand matrix COBBLY 40% intrusives 10% limestone
29		08		31.2 <u>Bedrock</u> ; mafic volcanic or sediment; mud is ground to green clay, rock is soft dark colored, fine grained appears granitic
30		09		
31				
32				
33				
34				
15				
16				
17				
18				(EOH 33) 110'
19				
20				

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

Page 1 of 3

DATE Feb 16 1983 HOLE NO. RC-AL-83-39 LOCATION _____
 GEOLOGIST K. Mac Nest DRILLER P. Rumbic BIT NO. B-65472 BIT FOOTAGE 33-67
 SHIFT HOURS _____ MOVE TO HOLE _____
 _____ TO _____ DRILL _____
 TOTAL HOURS _____ MECHANICAL DOWN TIME _____
 _____ DRILLING PROBLEMS _____
 CONTRACT HOURS _____ OTHER _____
 _____ MOVE TO NEXT HOLE _____

DEPTH METRES	GRAPHIC LOG	INTERVAL	SAMPLE NO	DESCRIPTIVE LOG
0				0-1.0 Organics
1				1.0-9.8 <u>Clay</u> :- gray; soft; non-gritty
2				
3				
4				
5				
6				
7				
8				
9				
10				9.8-16.2 <u>Till</u> :- gray, fine sand matrix; cobbly; clast composition - 20% intermediate mafic volcanics & sediments 65-75% rhyolite 5-10% limestone
11			01	
12			02	
13			03	
14			04	10.4-10.8 - matrix of gritty clay & fine sand
15			05	
16				12.8 minor gritty clay 13.2 " " "
17				- below 15.1 - common gritty clay - Fewer cobbles
18				
19				16.2-24 <u>Clay</u> :- gray; compact; plastic
20				

OVERBURDEN DRILLING MANAGEMENT LIMITED
REVERSE CIRCULATION DRILL HOLE LOG

Page 2 of 3

DATE Feb 16 1983 HOLE NO. RC-AL-83-39 LOCATION _____
 GEOLOGIST _____ DRILLER _____ BIT NO. _____ BIT FOOTAGE _____
 SHIFT HOURS _____ MOVE TO HOLE _____
 _____ TO _____ DRILL _____
 TOTAL HOURS _____ MECHANICAL DOWN TIME _____
 _____ DRILLING PROBLEMS _____
 CONTRACT HOURS _____ OTHER _____
 _____ MOVE TO NEXT HOLE _____

DEPTH METRES	GRAPHIC LOG	INTERVAL	SAMPLE NO	DESCRIPTIVE LOG
21				
22				
23				
24				
25		06		24 - 24.3 <u>Sand / Pebbles / Clay</u>
26		07		24.3 - 25 <u>Sand - grey; fine grained</u>
27		08		25 - 25.3 <u>Sand / Pebbles / Clay</u>
28		09		25.3 - 26.2 <u>Pebbly sand (till-like)</u>
29		10		26.2 - 26.7 <u>Sand - minor pebbles</u>
30		11		26.7 - 27.2 <u>Till(?) - fine sand matrix; cobbly</u>
31		12		75% intermediate-mafic volcanic & sediments
32		13		27.2 - 28.5 <u>Sand - medium to coarse grained; granule</u>
33		14		28.5 - 30.3 <u>Gravel</u> :- medium to coarse sand & granules; pebbly (a few cobbles); clast composition - 65% intermediate-mafic volcanic & sediments 10-15% limestone 10-15% intrusives
34				
35				
36				
37				
38				30.3 - 32.2 <u>Till</u> :- grey, fine sand matrix; cobbly; clast composition - 70% int-mafic volcanic & sediments 15-20% intrusives 5-10% limestone
39				
40				- below 31.3 - abundant rock chips of white volcanic with dark phenocrysts (bedrock)

OVERBURDEN DRILLING MANAGEMENT LIMITED
 REVERSE CIRCULATION DRILL HOLE LOG

Page 3/3

DATE Feb 16 1983

HOLE NO. PC-AL-83-39 LOCATION _____

SHIFT HOURS
 _____ TO _____

GEOLOGIST _____ DRILLER _____ BIT NO. _____ BIT FOOTAGE _____

TOTAL HOURS

MOVE TO HOLE _____

DRILL _____

CONTRACT HOURS

MECHANICAL DOWN TIME _____

DRILLING PROBLEMS _____

OTHER _____

MOVE TO NEXT HOLE _____

DEPTH IN METRES	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				

32.2 - 34 Breccia :- intermediate -
Felsic volcanic

32.2-33.3 light grey white;
 fine grained to aphanitic
 groundmass with dark
 colored phenocrysts; locally
 schistose & laminated;
 locally calcareous &
 disseminated pyrite

33.3-33.5 - Felsic
volcanic (rhyolite) -
 white-grey; very fine
 grained; massive;
 disseminated pyrite;
 minor quartz

33.5-34 - similar to
 breccia of 32.2-33.3 -
 possibly fine grained

34 EOH
 (13')

OVERBURDEN DRILLING MANAGEMENT LIMITED
 REVERSE CIRCULATION DRILL HOLE LOG

Page 1 of 2

DATE Feb 16 1983 HOLE NO. RC-AL-83-48 LOCATION TL-12+00N - L 11+00E
 GEOLOGIST K. M. Hall DRILLER P. R. Laska BIT NO. B-65971 BIT FOOTAGE 0-36.5
 SHIFT HOURS _____ MOVE TO HOLE _____
 _____ TO _____ DRILL 12:15-4:00
 TOTAL HOURS _____ MECHANICAL DOWN TIME _____
 DRILLING PROBLEMS _____
 CONTRACT HOURS _____ OTHER 4:00-4:15 cleanup/maintenance ; 5:00-5:30 To Timmins
 _____ MOVE TO NEXT HOLE 4:15-5:00

New Bit

DEPTH IN METRES	GRAPHIC LOG	INTERVAL	SAMPLE NO.	DESCRIPTIVE LOG
0				0-1.0 Organics
1				1.0 - 10 Clay :- grey; soft; non-gritty
2				
3				
4				
5				
6				
7				
8				
9				
10				10-14.8 Till :- grey, fine sand matrix: cobbly; clast composition: 65% intermediate-grained volcanics & conglomerates 15% intrusives 5-10% limestone
11			01	
12			02	
13			03	
14				11.0-11.1 minor grey gritty clay
15				12.1 " " " "
16				13.1 " " " "
17				13.4-14.8 " " " "
18				- below 14.6 - gritty clay predominant over sand below 14.6
19				14.8 - 22.6 Clay :- grey; compact; plastic
20				15.8-16.2 sandy, pebbly zone

OVERBURDEN DRILLING MANAGEMENT LIMITED
 REVERSE CIRCULATION DRILL HOLE LOG

Page 2 of 2

DATE Feb 16 1983 HOLE NO. RC-A1-83-40 LOCATION _____
 GEOLOGIST _____ DRILLER _____ BIT NO. _____ BIT FOOTAGE _____
 SHIFT HOURS _____ MOVE TO HOLE _____
 _____ TO _____ DRILL _____
 TOTAL HOURS _____ MECHANICAL DOWN TIME _____
 DRILLING PROBLEMS _____
 CONTRACT HOURS _____ OTHER _____
 _____ MOVE TO NEXT HOLE _____

DEPTH METRES	GRAPHIC LOG	INTERVAL	SAMPLE NO	DESCRIPTIVE LOG
21				
22				
23				22.6 - 24.5 clay, fine sand, pebbles, - grading into <u>Silt</u>
24				
25			04	24.5 - 25.3 <u>Till</u> :- fine sand (pebbly sand?) matrix; cobbly; clast composition - 70% intermediate - mafic volcanic sediments 10% igneous 10% limestone
26			05	
27			06	
28			07	25.3 - 25.7 <u>Gravel</u> :- medium to coarse sand matrix
29			08	
30				25.7 - 30 <u>Till</u> :- fine to medium sand matrix; - very slow penetration rate below 27.0
31				29.3 - 30.0 - abundant gutters resembling bedrock
32				30.0 - 31.5 <u>Bedrock</u> :- <u>siltstone</u> (?) very fine grained; green; poorly fossil; translucent - below 30.5 - rock lighter in color - below 31 - quartz & carbonate veinlets present - return contains abundant fines from overlying till
33				
34				
35				
36				
37				
38				
39				
40				

31.5 EOH
 (105')

APPENDIX B
SAMPLING PROCESSING LOGS AND SAMPLE WEIGHTS

OVERBURDEN DRILLING MANAGEMENT LIMITED
LABORATORY SAMPLE LOG

Number assigned to sample in the field															Sample Number	
Weight of whole sample as received from the field less a 250 gram representative split (geochem)															Table Split	Weight (kg. wet)
Weight of sample greater than 10 mesh															+10 Rock Chips	
Weight of sample less than 10 mesh. This portion is fed across the shaking table.															-10 Table Feed	
Dry weight of heavy mineral split recovered from the shaking table															Table Conc	Weight (grams dry)
Weight of shaking table concentrate less than 3.3 specific gravity.															M.I. Lights	
Weight of table concentrate heavier than 3.3 specific gravity with magnetic fraction removed															Non-mag	
Magnetic fraction of heavy mineral concentrate															Mag	
Description and size (in microns) of gold grains visible on the shaking table															V.G.	Grains
Description of texture: e.g. granules, cobbles, pebbles Clast percentages Presence of other materials: e.g. pure clay clumps wood chips															+10	Description
Description: e.g. sorted, unsorted, colour, texture															Matrix	
Description: Till, Gravel, Sand																Classification

OVERBURDEN DRILLING MANAGEMENT LIMITED
LABORATORY SAMPLE LOG

Sample Number	Weight (kg. wet)			Weight (grams dry)				Grains V.G.	Description		Classification
	Table Split	+10 Rock Chips	-10 Table Feed	Table Conc	M.I. Lights	Non-mag	Mag		+10	Matrix	
RC-AL-BZ-02-15	8.6	1.4	7.2	108.1	86.8	11.6	9.7		Granules 60% v/s 30% lime	Sorted - coarse, grey with grey-green silt	Sand
16	8.9	0.6	8.3	125.1	99.1	16.5	9.5		Cobs 90% v/s 4% lime	Unsorted grey beige with grey silt	Till
17	9.2	0.9	8.3	67.3	39.9	18.8	8.6		Pbs 45% Gr 45% v/s 10% lime	Unsorted grey beige with grey green silt	Till
18	9.3	1.6	7.7	124.7	81.8	24.5	18.4		Pbs and granules 75% v/s 5% lime	Sorted - coarse grey beige	Gravel
19	9.1	1.6	7.5	96.0	67.5	18.9	9.6		Pbs and granules 75% v/s 10% lime	"	Gravel
20	9.0	2.5	6.5	80.7	48.9	21.5	10.3		Pbs & granules 75% v/s 15% lime	Sorted - coarse grey beige with grey green silt	Gravel
21	8.8	1.6	7.2	211.9	172.6	22.0	17.3		Pbs & granules 80% v/s 10% lime	Unsorted grey beige with grey green silt	Till
03-01	8.5	1.2	7.3	179.2	133.7	30.6	14.9		Pbs - granules 30% v/s 45% Gr 5% lime	Unsorted beige with silt	Till
02	8.7	1.1	7.6	220.3	171.0	32.7	16.6		"	Sorted - medium coarse, beige	Gravel
03	7.9	Few grams	7.9	221.8	191.8	22.0	8.0		Pbs & granules	Sorted - medium beige	Sand
04	8.4	Few grams	8.4	204.1	174.6	22.4	7.1		Granules	"	Sand
05	6.9	1.0	5.9	123.2	96.6	19.9	6.7		Cobs 80% v/s 3% lime	Unsorted - grey with clay	Till
06	6.1	0.6	5.5	101.6	84.8	12.1	4.7		"	"	Till
07	5.8	0.8	5.0	88.4	68.0	14.8	5.6		Pbs 70% v/s 10% lime	"	Till
08	4.9	0.8	4.1	105.6	86.5	13.4	5.7		Cobs 80% v/s 10% lime	Unsorted, grey green with clay	Till
09	6.4	0.7	5.7	135.0	110.6	17.9	6.5		Cobs 90% v/s 5% lime	Unsorted, green with clay	Till
04-01	7.5	2.4	5.1	207.7	174.5	22.1	11.1		Pbs & granules 50% Gr 48% v/s 2% lime	Unsorted - grey beige	Till
02	8.7	2.4	6.3	174.9	132.4	30.7	11.8		Pbs & granules 5 C.I.S. 60% Gr 35% v/s 5% lime	Unsorted, grey beige with clay	Till
03	9.1	2.4	6.7	187.1	158.5	20.7	7.9		Pbs & granules 70% v/s 5% lime	Unsorted, grey green with clay	Till

OVERBURDEN DRILLING MANAGEMENT LIMITED
LABORATORY SAMPLE LOG

Sample Number	Weight (kg. wet)			Weight (grams dry)				Grains V.G.	Description		Classification
	Table Split	+ 10 Rock Chips	- 10 Table Feed	Table Conc	M.I. Lights	Non-mag	Mag		+ 10	Matrix	
RC-AL-82-04-04	8.5	4.0	4.5	131.7	112.7	14.4	4.6		Pbs 30% Gr 60% v/s 10% lime	Sorted - medium coarse, gray green	Gravel
05	7.8	3.0	4.8	115.8	100.4	10.3	5.1		Pbs 70% v/s 15% lime	Unsorted, grey with grey green clay	Till
06	6.9	Few grains	6.9	153.0	110.2	31.6	11.2		—	Sorted - Fine, grey beige	Sand
07	7.9	Few grains	7.9	167.7	109.3	42.7	15.7		—	"	Sand
08	4.2	0.6	3.6	91.9	75.5	12.0	4.4		Cobs 70% v/s 10% lime	Unsorted grey with clay	Till
09	7.1	0.6	6.5	172.9	140.4	23.6	8.9		Cobs 80% v/s 10% lime	Unsorted grey with grey-green clay	Till
10	6.5	1.2	5.3	105.4	96.7	6.8	1.9		Cobs 95% v/s 3% lime	Unsorted - grey green with green clay	Bedrock with Minor Till
05-01	7.5	1.7	5.8	163.0	130.0	23.0	10.0		Cobs 40% v/s 46% Gr 20% lime	Unsorted grey with clay	Till
02	7.4	0.8	6.6	134.7	110.2	17.5	7.0		Cobs 60% v/s 30% Gr 10% lime	"	Till
03	6.8	1.0	5.8	127.1	103.5	16.6	7.0		Cobs 75% v/s 10% lime	Unsorted - grey green with grey clay	Till
04	6.6	1.1	5.5	133.0	115.4	11.9	5.7		Cobs 5C1s 70% v/s 15% lime	"	Till
05	5.9	0.3	5.6	65.6	59.3	4.3	2.0		Pbs 2 granules 50% v/s 35% Gr 15% lime	Unsorted - grey beige with clay	Till
06	6.9	0.5	6.4	74.6	52.7	14.8	7.1		Pbs 30% GCLs 40% v/s 20% lime	Unsorted grey with clay	Till
07	5.8	0.5	5.3	72.2	62.8	6.2	3.2		Pbs 15% GCLs 50% v/s 15% lime	Unsorted - grey beige with clay	Till
08	6.5	0.7	5.8	110.1	97.5	8.5	4.1		Pbs GCLs 60% v/s 20% lime	Unsorted - grey with clay	Till
09	4.6	0.5	4.1	77.6	71.1	4.3	2.2		Pbs GCLs 40% v/s 40% lime	Unsorted grey beige with clay	Till
10	5.7	0.5	5.2	91.4	84.3	4.6	2.5		Pbs GCLs 60% v/s 25% lime	"	Till
11	5.8	0.7	5.1	65.1	58.2	4.6	2.3		Pbs 5C1s 50% v/s 25% Gr 25% lime	"	Till
06-01	7.8	0.7	7.1	105.4	69.3	28.1	8.0		Pbs 2 granules 35% v/s 60% Gr 5% lime	Unsorted - grey beige with grey clay	Till

OVERBURDEN DRILLING MANAGEMENT LIMITED
LABORATORY SAMPLE LOG

Sample Number	Weight (kg. wet)			Weight (grams dry)				Grains V.G.	Description		Classification
	Table Split	+10 Rock Chips	-10 Table Feed	Table Conc	M.I. Lights	Non-mag	Mag		+ 10	Matrix	
RC-AL-82-06-02	8.1	0.8	7.3	116.7	80.9	27.4	8.4		Pbs and granules 70% Gr 5% lime	Unsorted - grey - beige with grey clay	Till
03	7.3	0.7	6.6	157.9	114.7	31.0	12.2		Pbs 50% v/s 49% Gr 1% lime	Unsorted, grey with clay	Till
04	7.9	40.1	7.9	166.9	122.2	28.2	16.5		Pbs & granules 50% v/s 50% Gr to lime	Sorted, Fine grey with clay	Sand
05	7.6	1.9	5.7	142.5	98.9	30.8	12.8		Cobs & granules 70% v/s 30% Gr to lime	Unsorted, grey-green with clay	Till
06	8.4	2.2	6.2	191.4	171.6	14.0	5.8		Pbs & granules 60% v/s 25% lime	Sorted - coarse grey-green	Gravel
07	8.5	1.9	6.6	64.4	38.6	17.4	8.4		Cobs 60% v/s 25% lime	"	Gravel
08	8.3	1.5	6.8	140.9	105.3	23.7	11.9		Cobs 70% v/s 3% lime	Unsorted, grey with silt	Till
09	8.5	1.3	7.2	277.3	225.1	35.5	16.7		Cobs 70% v/s 5% lime	"	Till
10	7.8	0.4	7.4	130.8	90.6	29.0	11.2		Cobs 95% v/s to lime	Sorted, Fine - medium grey with silt	Sand and Boulder
11	7.8	0.1	7.7	158.0	116.7	31.2	10.1		Cobs 95% v/s	Sorted, Fine grey with clay	Sand and Boulder
07-01	7.7	0.6	7.1	158.2	120.9	29.7	7.6		Cobs 65% v/s 2% lime	Unsorted grey with silt	Till
02	7.1	0.7	6.4	115.4	85.6	23.1	6.7		Cobs 40% v/s 60% Gr to lime	"	Till
03	7.4	0.8	6.6	139.6	105.4	25.2	9.0		Cobs 85% Gr to lime	"	Till
04	4.5	0.4	4.1	105.5	90.0	11.7	3.8		Cobs GCLs 95% Gr to lime	"	Till
05	6.2	0.6	5.6	116.3	89.2	19.5	7.6		Cobs GCLs 65% v/s 5% lime	"	Till
06	6.7	0	6.7	244.6	210.8	23.3	15.5		-	Sorted - Fine grey with silt	Sand
07	3.2	0.1	3.1	125.3	111.5	8.0	5.8		Cobs GCLs 90% v/s to lime	Sorted - Fine grey with clay	Sand and Minor Till
08	7.2	1.2	6.0	168.3	149.2	14.0	5.1		Cobs 70% v/s 5% lime	Unsorted, grey-beige with clay	Till
09	7.5	1.2	6.3	186.1	162.0	17.7	6.4		"	Unsorted, grey beige with silt	Till

OVERBURDEN DRILLING MANAGEMENT LIMITED
LABORATORY SAMPLE LOG

Sample Number	Weight (kg. wet)			Weight (grams dry)				Grains V.G.	Description		Classification
	Table Split	+10 Rock Chips	-10 Table Feed	Table Conc	M.I. Lights	Non-mag	Mag		+ 10	Matrix	
RC-AL-B2-07-10	7.5	0.8	6.7	208.7	178.7	21.2	8.8		Cobs 70% up 5% down	Unsorted, grey-biige with grey silt	Till
11	8.0	1.1	6.9	174.1	136.4	29.6	13.1		"	"	Till
12	8.3	0.4	7.9	120.0	60.1	43.8	16.1		"	Unsorted, grey-biige with silt	Till
08-01	6.4	0.8	5.6	132.8	106.3	19.9	6.6		Cobs 65% up 5% down	"	Till
02	7.0	0.5	6.5	186.1	161.2	18.7	6.2		Cobs GCLs 47% up 50% Gr 3% lime	"	Till
03	7.3	0.5	6.8	182.5	145.4	23.4	13.7		"	"	Till
04	6.9	0.8	6.1	126.3	68.4	38.0	19.9		Cobs 70% up 3% down	"	Till
05	7.7	0.4	7.3	213.9	180.0	22.9	11.0		"	"	Till
06	8.1	0.2	7.9	158.8	136.2	16.6	6.0		Cobs 90% up 5% down	"	Till
07	8.1	0.6	7.5	142.8	108.0	25.0	9.8		Peb 75% up 10% down	"	Till
08	5.6	0.8	4.8	82.6	62.2	15.7	4.7		Cobs 90% up 5% down	"	Till
09	3.5	0.3	3.2	74.6	59.9	10.9	3.8		Peb 80% up 5% down	Unsorted, grey-biige with silt, minor green clay	Till
09-01	8.7	0.5	8.2	161.6	134.0	21.0	6.6		Peb 75% up 5% down	Unsorted, grey biige with silt	Till
02	7.0	0.8	6.2	127.5	105.6	16.3	5.6		Cobs 70% up 5% down	Unsorted, grey biige with clay	Till
03	7.4	0.9	6.5	127.5	97.2	21.8	8.5		Cobs 30% up 65% Gr 5% lime	Unsorted, grey-biige with silt	Till
04	7.2	0.6	6.6	101.2	64.9	28.0	8.3		Cobs 71% Gr 25% up 19% lime	"	Till
05	7.7	1.9	5.8	114.0	91.4	16.9	5.7		Cobs 85% up 19% down	"	Till
10-01	7.7	0.5	7.2	174.7	144.5	22.6	7.6		Peb 50% up 75% Gr 5% lime	Sorted, fine-medium grey biige	Sand
02	7.1	0.6	6.5	189.6	164.0	17.8	7.8		Cobs 30% up 65% Gr 5% lime	Unsorted, grey-biige with silt	Till

OVERBURDEN DRILLING MANAGEMENT LIMITED
LABORATORY SAMPLE LOG

Sample Number	Weight (kg. wet)			Weight (grams dry)				Grains V.G.	Description		Classification
	Table Split	+ 10 Rock Chips	- 10 Table Feed	Table Conc	M.I. Lights	Non-mag	Mag		+ 10	Matrix	
RC-AL-82-10-03	8.0	1.3	6.7	122.5	85.9	27.3	9.3		Cobs 30% v/s 60% Gr 10% lime	Unsorted, gray beige with silt	Till
04	6.8	0.6	6.2	148.4	124.0	18.7	5.7		Pebbs 49% v/s 50% Gr 1% lime	"	Till
05	6.3	0.5	5.8	142.8	116.7	20.2	5.9		Pebbs 70% v/s 1% lime	Unsorted, gray beige with clay	Till
06	8.0	0.5	7.5	199.1	172.0	20.4	6.7		"	"	Till
07	7.6	0.2	7.4	181.0	162.0	15.1	3.9		Cob 80% v/s 10% lime	Sorted, coarse- medium, gray-beige	Sand
11-01	7.7	0.8	6.9	171.6	143.2	21.2	7.2		Pebbs 50% v/s 45% Gr 5% lime	Unsorted, gray beige with silt	Till
02	6.2	0.5	5.7	110.5	98.4	8.4	3.7		Cobs 55% v/s 40% lime	Unsorted, gray beige with clay	Till
03	5.5	0.5	5.0	115.0	103.8	7.3	3.9		Pebbs 50% v/s 40% lime	"	Till
04	5.8	0.4	5.4	81.1	70.4	7.7	3.0		Pebbs 65% v/s 30% lime	"	Till
05	5.2	0.3	4.9	99.7	87.6	8.2	3.9		Cobs 75% v/s 15% lime	"	Till
06	4.5	0.2	4.3	72.9	61.8	8.4	2.7		Pebbs 50% v/s 45% lime	"	Till
07	4.5	0.2	4.3	120.2	114.4	4.4	1.4		Pebbs 60% v/s 35% lime	"	Till
08	4.7	0.2	4.5	142.8	137.0	4.2	1.6		"	"	Till
09	4.6	0.2	4.4	121.9	115.5	4.7	1.7		Pebbs 75% v/s 20% lime	"	Till
10	6.1	0.6	5.5	127.5	116.0	8.6	2.9		Pebbs 50% v/s 45% lime	"	Till
11	6.0	0.3	5.7	117.5	96.6	14.3	6.6		Cobs 90% v/s 5% lime	"	Till
12	7.3	<0.1	7.3	212.0	191.9	12.9	7.2		Pebbs & granules 60% v/s 30% Gr 10% lime	Sorted - fine-medium gray with clay	Sand
12-01	7.8	1.2	6.6	125.8	98.1	19.7	8.0		Cobs 50% v/s 45% Gr 5% lime	Unsorted, gray beige with silt	Till
02	8.1	1.6	6.5	132.1	100.5	22.1	9.5		Cobs 80% v/s 10% lime	"	Till

OVERBURDEN DRILLING MANAGEMENT LIMITED

LABORATORY SAMPLE LOG

Sample Number	Weight (kg. wet)			Weight (grams dry)				Grains V.G.	Description		Classification
	Table Split	+10 Rock Chips	-10 Table Feed	Table Conc	M.I. Lights	Non-mag	Mag		+ 10	Matrix	
RC-AL-82											
21-01	6.9	0.1	6.8	158.6	131.8	17.2	9.6		Pcbs 1% lime 97% v/s	Sorted fine beige with clay	SAND
02	6.4	1.0	5.4	172.2	136.4	25.5	10.3		Cobs 5% lime 90% v/s	Unsorted gray-beige with silt	TILL
03	7.4	1.7	5.7	125.1	68.3	44.2	12.6		Cobs 10% lime 70% v/s	"	TILL
04	5.1	1.2	3.9	82.3	57.0	19.8	5.5		Cobs 3% lime 85% v/s	Unsorted gray-beige with clay	TILL
05	6.4	0.4	6.0	130.6	75.7	44.0	10.9		"	Unsorted gray-beige with green clay	TILL
14-01	9.1	3.1	6.0	179.0	154.1	17.9	7.0		Pcbs 16 granules 30% lime 60% v/s	Unsorted gray-beige with silt	TILL
02	8.4	3.2	5.2	102.0	86.8	7.3	7.9		Cobs 10% lime 85% v/s	"	TILL
03	9.3	1.6	7.7	114.9	97.1	13.1	4.7		Cobs 7% lime 90% v/s	"	TILL
04	8.6	2.7	5.9	115.4	81.6	24.1	9.7		"	"	TILL
05	8.7	0.8	7.9	140.3	105.9	25.1	9.3		"	"	TILL
15-01	6.5	2.0	6.5	289.4	271.9	12.2	5.3		Pcbs 15% lime 75% v/s	Sorted fine gray beige with silt	SAND
16-01	7.0	0.7	6.3	202.5	169.8	24.1	9.6		Pcbs 30% lime 40% v/s	Unsorted gray-beige with silt	TILL
02	7.8	0.7	7.1	140.8	109.2	23.1	9.5		Cobs 10% lime 75% Gr. 60% v/s	"	TILL
03	7.9	0.7	7.2	174.2	141.4	24.3	8.5		Cobs 10% lime 80% v/s	"	TILL
04	9.0	1.3	7.7	183.7	112.9	25.2	45.6		Cobs 10% lime 60% v/s	"	TILL
05	8.2	1.3	6.9	164.0	137.6	18.0	8.4		Pcbs 5% lime 80% v/s	"	TILL
06	9.4	1.5	7.9	144.1	88.2	37.2	18.7		Pcbs 10% lime 80% v/s	"	TILL
07	9.2	1.5	7.7	131.2	87.6	29.5	14.1		"	"	TILL
08	6.1	2.0	6.1	97.6	51.4	31.6	14.6		Pcbs 25% lime 50% v/s	Sorted fine gray beige with clay	SAND

OVERBURDEN DRILLING MANAGEMENT LIMITED

LABORATORY SAMPLE LOG

Sample Number	Weight (kg. wet)			Weight (grams dry)				Grains V.G.	Description		Classification
	Table Split	+10 Rock Chips	-10 Table Feed	Table Conc	M.I. Lights	Non-mag	Mag		+10	Matrix	
RC-A1-82 16-09	7.9	40.1	7.9	65.3	44.8	14.5	6.0		Pebbs	Sorted fine med. grey-beige with clay	SAND
10	8.3	1.1	7.2	110.9	75.7	23.9	11.3		Pebbs 20% lime 70% v/s	Unsorted grey-beige with clay & silt	TILL
11	8.3	0.7	7.6	101.6	68.6	22.3	10.7		"	"	TILL
12	8.2	1.8	6.4	198.9	161.2	26.4	11.3		Cobs 10% lime 75% v/s	"	TILL
13	7.7	1.8	5.9	122.2	86.8	24.1	11.3		"	Unsorted grey-green with silt	TILL
17-01	5.4	0.5	4.9	84.0	64.5	14.2	5.3		Pebbs + Granules 60% G.C. 5% lime	Unsorted beige with clay & silt	TILL
02	6.6	0.5	6.1	71.3	51.5	13.0	6.8		Cobs G.C.'s 60% G.C. 15% lime	"	TILL
03	6.1	0.4	5.7	71.8	53.9	12.4	5.5		Cobs 70% G.C. 15% lime	"	TILL
04	5.2	0.3	4.9	69.5	53.5	11.7	4.3		Pebbs G.C.'s 60% G.C. 5% lime	"	TILL
05	5.7	0.2	5.5	72.6	56.4	12.4	3.8		Pebbs 5% lime G.C.'s 70% v/s	"	TILL
06	6.5	0.6	5.9	82.3	60.8	14.3	7.2		Pebbs 5% lime G.C.'s 75% v/s	"	TILL
07	7.1	0.6	6.5	72.4	27.9	26.9	17.6		Pebbs 20% lime 70% v/s	Unsorted grey-beige with silt	TILL
08	6.5	0.6	5.9	86.1	50.7	21.4	13.8		Pebbs 45% lime 50% v/s	"	TILL
09	7.7	Few Granules	7.7	122.8	94.8	20.2	7.8		Granules	Sorted coarse to med. grey-beige	SAND
10	7.4	0.2	7.2	151.3	124.5	19.6	7.2		Pebbs + 45% lime granules 50% v/s	Sorted coarse grey-beige	SAND
11	12.0	2.3	9.7	141.2	96.8	31.7	12.7		Pebbs + 45% lime granules 45% v/s	Sorted coarse grey-beige with silt	SAND
12	7.3	1.1	6.2	172.8	144.3	18.0	10.5		Pebbs + 20% lime granules 60% v/s	"	SAND
13	6.6	0.8	5.8	249.1	219.4	18.1	11.6		Pebbs + 20% lime granules 70% v/s	"	SAND
14	7.4	1.7	5.7	182.3	154.8	16.7	10.8		Pebbs + 20% lime granules 65% v/s	"	SAND

OVERBURDEN DRILLING MANAGEMENT LIMITED
LABORATORY SAMPLE LOG

Sample Number	Weight (kg. wet)			Weight (grams dry)				Grains V.G.	Description		Classification
	Table Split	+10 Rock Chips	-10 Table Feed	Table Conc	M.I. Lights	Non-mag	Mag		+ 10	Matrix	
17-15	8.8	2.0	6.8	218.0	1715	26.5	20.0		Peb's 20% lime Granules 70% v/s	Sorted coarse gray-beige with silt	SAND
16	7.8	2.3	5.5	113.1	81.9	17.6	13.6		"	"	SAND
17	7.8	2.4	5.4	220.8	182.2	23.3	15.3		"	"	SAND
18	7.7	2.2	5.5	204.6	168.7	20.3	15.6		Peb's + 30% lime Granules 40% v/s	"	SAND
19	7.2	2.1	5.1	196.3	161.6	20.2	14.5		Peb's 25% lime Granules 70% v/s	"	SAND
19-01	7.2	0.1	7.1	169.0	145.5	15.7	7.8		Peb's + Granules GCL's	Sorted medium gray beige with silt	SAND
19-01	6.6	0.5	6.1	170.5	142.2	20.9	7.4		Peb's 10% lime 65% Gr. GCL's	Unsorted beige with gray clay	TILL
02	6.0	0.4	5.6	187.6	169.9	13.9	3.8		Peb's 15% lime GCL's 45% v/s	Unsorted gray-beige with clay	TILL
03	6.3	0.4	5.9	146.7	129.8	12.9	4.0		Peb's 10% lime GCL's 75% v/s	"	TILL
04	9.3	0.6	8.7	143.1	114.8	21.6	6.7		"	"	TILL
05	6.6	0.5	6.1	112.8	88.3	19.5	5.0		Peb's 5% lime GCL's 95% v/s	"	TILL
06	7.2	0.8	6.4	118.6	89.0	21.8	7.8		Peb's 15% lime GCL's 80% v/s	"	TILL
07	7.8	0.8	7.0	133.3	98.5	25.2	9.6		"	"	TILL
08	7.8	2.5	5.3	149.2	105.6	31.7	11.9		Peb's 10% lime 85% v/s	Unsorted with silt gray-beige	TILL
20-01	6.9	20.1	6.9	208.6	154.4	36.9	17.3		Peb's 20% lime GCL's	Sorted fine gray-beige	SAND
02	6.4	Few Granules	6.4	40.5	83.2	25.7	14.8		Granules	"	SAND
03	8.4	1.7	6.7	167.5	98.4	44.3	24.8		Peb's 15% lime 80% v/s	Unsorted gray beige with silt	TILL
04	7.1	1.0	6.1	227.5	169.4	38.3	19.8		Peb's 15% lime 75% v/s	"	TILL
05	7.7	0.9	6.8	131.4	96.3	24.1	11.0		Cobs 10% lime 85% v/s	"	TILL

OVERBURDEN DRILLING MANAGEMENT LIMITED
LABORATORY SAMPLE LOG

Sample Number	Weight (kg. wet)			Weight (grams dry)				Grains V.G.	Description		Classification
	Table Spilt	+10 Rock Chips	-10 Table Feed	Table Conc	M.I. Lights	Non-mag	Mag		+10	Matrix	
Ri-AL 82 22-01	6.9	0.6	6.3	150.2	120.0	22.5	7.7		Cobs 10% lime 50% Gr.	Unsorted large with silt	TILL
02	5.7	0.6	5.1	139.1	112.5	19.4	7.2		Cobs 5% lime 60% Gr.	"	TILL
03	6.5	0.5	6.0	219.5	191.1	21.0	7.4		Cobs 10% lime 50% Gr.	Unsorted large with grey-buff clay	TILL
04	7.3	2.0	5.3	202.4	155.1	30.0	17.3		Peb's 20% lime GCL's 45% v/s	Unsorted grey-buff with clay	TILL
05	8.0	1.0	7.0	83.5	48.3	20.7	14.5		Cobs 5% lime GCL's 50% v/s	Unsorted large with silt & clay	TILL
06	7.0	1.0	6.0	90.9	61.3	19.8	9.8		Peb's 5% lime GCL's 30% v/s	"	TILL
07	7.2	0.4	6.8	80.5	53.7	17.5	9.3		Cobs 1% lime 90% Gr. GCL's	"	TILL
08	7.0	0.6	6.4	94.6	70.0	15.2	9.4		Peb's 1% lime 80% Gr. GCL's	"	TILL
09	7.1	0.7	6.4	95.8	73.0	13.1	9.7		Peb's & Granules 15% lime 50% v/s	Sorted fine - coarse buff grey	SAND
10	6.7	4.1	2.6	145.5	128.2	10.0	7.3		Peb's & Granules 30% lime 40% v/s	"	GRAVEL
11	6.9	2.2	4.7	100.1	86.6	8.7	4.8		"	Unsorted grey buff	TILL
12	7.4	0.4	7.0	105.7	77.2	17.9	10.6		Peb's 30% lime 40% v/s	Unsorted grey-buff with silt	TILL
13	7.6	0.4	7.2	174.0	152.2	17.1	4.7		"	Unsorted buff	TILL
14	8.0	2.8	5.2	161.2	150.3	7.2	3.7		Peb's & Granules 25% lime 40% v/s	Unsorted grey-buff	TILL
15	8.1	Few Peb's	8.1	174.6	123.4	36.5	14.7		Peb's	Sorted fine - med. buff	SAND
16	8.0	0.9	7.1	156.5	121.3	23.6	11.6		Peb's 10% lime 60% v/s	Unsorted buff	TILL
17	4.5	2.0	2.5	63.6	51.2	9.4	3.0		Cobs 15% lime 70% v/s	Unsorted grey-green	TILL & BEDROCK
23-01	7.8	Few Cobs	7.8	62.4	39.8	10.5	12.1		Cobs	Sorted fine grey buff with silt	SAND
02	6.6	0.4	6.2	66.1	37.2	17.1	11.8		Cobs 1% lime 90% v/s	Unsorted grey-green with silt	TILL

OVERBURDEN DRILLING MANAGEMENT LIMITED
LABORATORY SAMPLE LOG

Sample Number	Weight (kg. wet)			Weight (grams dry)				Grains V.G.	Description		Classification
	Table Split	+10 Rock Chips	-10 Table Feed	Table Conc	M.I. Lights	Non-mag	Mag		+ 10	Matrix	
PC-91-22 23.03	7.4	1.5	5.9	107.5	74.3	18.0	10.2		Cobs + Granules 20% lime 45% v/s	Unsorted gray-benge with silt	Till
04	7.7	1.2	6.5	98.5	68.1	20.3	10.1		"	"	Till
24.01 02	8.0 5.5	0.7 0.7	7.3 4.8	92.0 98.0	66.2 81.5	18.0 13.1	7.8 3.4		Cobs 1/2 lime 85% Gr. Cobs 1/2 lime 70% Gr.	Unsorted beige with silt "	Till Till
03	6.3	0.5	5.8	97.0	76.8	15.0	5.2		Cobs 3/4 lime 60% Gr.	"	Till
04	7.2	0.4	6.8	192.0	153.8	22.1	6.1		Pcbs + Granules 60% Gr. Tr. lime	Unsorted gray-benge with clay	Till
05	7.2	0.5	6.7	169.6	141.2	22.4	6.0		Pcbs 70% Gr. Tr. lime	"	Till
06	7.3	0.5	6.8	143.9	118.2	20.1	5.6		"	"	Till
07	7.4	0.4	7.0	133.3	100.9	24.7	7.7		"	"	Till
08	6.8	0.5	6.3	132.8	111.1	16.1	5.6		Cobs Tr. lime 60% v/s	"	Till
09	7.2	0.4	6.8	173.9	150.0	17.8	6.1		Pcbs Tr. lime 60% v/s	"	Till
10	7.6	0.3	7.3	147.1	120.3	20.0	6.8		Pcbs + Granules Tr. lime 55% v/s	"	Till
11	7.5	0.4	7.1	159.9	129.0	23.7	7.2		Pcbs + Granules 2 1/2 lime 55% v/s	"	Till
12	7.8	0.4	7.4	148.4	112.8	26.1	9.5		Pcbs + Granules 60% Gr. 2 1/2 lime	"	Till
13	7.7	0.4	7.3	166.8	132.8	24.8	9.2		Pcbs 70% Gr. Tr. lime	"	Till
14	7.4	0.3	7.1	105.7	76.4	21.8	7.5		Pcbs 60% Gr. Tr. lime	"	Till
15	7.6	0.3	7.3	138.4	111.6	20.7	6.1		Pcbs + Granules 60% Gr. 1 1/2 lime	"	Till
16	7.8	0.3	7.5	119.8	91.3	22.4	6.1		"	"	Till
17	7.3	0.3	7.0	150.2	121.4	23.1	5.7		Pcbs Tr. lime 55% v/s	"	Till

OVERBURDEN DRILLING MANAGEMENT LIMITED
LABORATORY SAMPLE LOG

Sample Number	Weight (kg. wet)			Weight (grams dry)				Grains V.G.	Description		Classification
	Table Split	+10 Rock Chips	-10 Table Feed	Table Conc	M.I. Lights	Non-mag	Mag		+10	Matrix	
RC-AL-83-27-01	7.6	0.5	7.1	171.2	140.5	21.2	9.5		Cobs 60% v/s 10% lime	Unsorted grey beige with clay	TILL
02	7.5	0.5	7.0	150.5	116.9	25.5	8.1		Cobs 50% v/s 35% Gr 15% lime	"	TILL
03	7.1	0.4	6.7	104.2	85.1	12.5	6.6		"	"	TILL
04	5.9	0.3	5.6	168.8	145.5	16.8	6.5		Cobs 30% v/s 55% Gr 15% lime	"	TILL
05	7.3	0.2	7.1	157.1	135.1	16.1	5.9		Cobs 30% v/s 55% Gr GCLs 15% lime	"	TILL
06	6.5	0.3	6.2	170.8	148.1	16.9	5.8		Pebbs 30% v/s 55% Gr GCLs 15% lime	"	TILL
07	6.0	0.5	5.5	169.1	152.6	12.5	4.0		Cobs 90% v/s GCLs 2% lime	"	TILL
08	4.5	0.2	4.3	121.4	107.9	10.4	3.1		Cobs 75% v/s GCLs 5% lime	"	TILL
09	4.0	0.3	3.7	115.5	99.0	11.9	4.6		Cobs 75% v/s SCIS 2% lime	"	TILL
10	7.6	tr	7.6	79.1	54.5	15.5	9.1		—	Sorted - fine beige with silt	SAND
11	7.0	<0.1	7.0	76.2	52.0	15.6	8.6		Pebbs 60% v/s GCLs tr lime	Sorted - fine grey beige with silt	SAND
12	7.7	0.3	7.4	119.8	95.0	16.7	8.1		Pebbs 60% v/s 10% lime	"	SAND
13	7.3	Few Grains	7.3	92.9	61.4	18.8	12.7		—	"	SAND
14	7.3	1.7	5.6	166.9	147.8	14.5	4.6		Pebbs 75% v/s 10-15% lime	Unsorted grey beige with silt	TILL
15	7.4	1.3	6.1	124.1	95.3	20.0	8.8		"	Unsorted grey with silt	TILL
16	6.9	1.5	5.4	96.3	62.0	23.7	10.6		Pebbs 80% v/s 10% lime	"	TILL
28-01	7.1	0.8	6.3	110.0	83.5	18.7	7.8		Cobs 60% v/s 10% lime	Unsorted beige with silt	TILL
02	7.0	0.6	6.4	118.9	78.7	29.0	11.2		Pebbs 40% v/s 50% Gr 5% lime	Unsorted beige with grey beige clay	TILL
03	7.5	0.4	7.1	141.6	105.6	26.0	10.0		Pebbs 35% v/s 50% Gr 5-10% lime	"	TILL

OVERBURDEN DRILLING MANAGEMENT LIMITED
LABORATORY SAMPLE LOG

Sample Number	Weight (kg. wet)			Weight (grams dry)				Grains V.G.	Description		Classification
	Table Split	+10 Rock Chlps	-10 Table Feed	Table Conc	M.I. Lights	Non-mag	Mag		+ 10	Matrix	
RC-AL-83-28-04	6.9	0.4	6.5	140.9	114.8	19.1	7.0		Cobs 10% Lime 70% Gr 15% v/s	Unsorted beige with beige grey clay	TILL
05	6.3	0.4	5.9	94.3	70.2	17.5	6.6		P.b.s GCl's 50% Gr 30% v/s 10% lime	"	TILL
06	6.0	0.4	5.6	86.6	70.0	12.9	3.7		P.b.s GCl's 50% v/s 5% lime	Unsorted beige grey with grey clay	TILL
07	6.9	0.4	6.5	116.1	94.0	16.4	5.7		P.b.s 70% v/s 1% lime	"	TILL
08	6.5	1.0	5.5	87.5	68.4	14.2	4.9		P.b.s GCl's 80% v/s + lime	"	TILL
09	6.2	Few Grains	6.2	95.4	81.2	9.9	4.3		P.b.s GCl's 75% v/s 1% lime	Sorted - fine grey beige with clay	SAND
10	5.6	Few Grains	5.6	127.9	117.5	7.8	2.6		"	"	SAND
11	5.4	Few Grains	5.4	117.6	108.0	7.3	2.3		"	"	SAND
12	5.7	Few Grains	5.7	94.1	90.6	2.5	1.0		P.b.s GCl's 75% v/s + lime	"	SAND
13	7.6	Few Grains	7.6	96.5	69.6	18.1	8.8		Granules	Sorted - fine beige grey with clay	SAND
14	6.9	Few Grains	6.9	101.9	79.5	13.6	8.8		P.b.s 75% v/s 10% lime	"	SAND
15	7.2	Few Grains	7.2	82.8	58.4	13.3	11.1		"	"	SAND
16	6.0	0.8	5.2	110.7	66.1	29.7	14.9		P.b.s 70% v/s 10% lime	Unsorted grey green with silt	TILL
17	8.2	2.1	6.1	154.4	107.6	28.4	18.4		P.b.s 60% v/s 10% lime	"	TILL
18	7.5	0.8	6.7	155.8	110.5	28.0	17.3		"	Unsorted grey green with clay	TILL
19	7.8	1.1	6.7	126.0	82.7	26.7	16.6		"	"	TILL
20	7.0	0.3	6.7	123.5	85.1	24.6	13.8		Cobs 85% v/s	"	TILL
29-14	7.1	0.6	6.5		75.1	22.5	13.2		Cobs 85% v/s + lime	Unsorted grey beige with clay	TILL
30-11	7.4	0.6	6.8		65.2	13.4	6.8		Cobs 85% v/s 5% lime	"	TILL

OVERBURDEN DRILLING MANAGEMENT LIMITED
LABORATORY SAMPLE LOG

Sample Number	Weight (kg. wet)			Weight (grams dry)				Grains V.G.	Description		Classification
	Table Split	+10 Rock Chips	-10 Table Feed	Table Conc	M.I. Lights	Non-mag	Mag		† 10	Matrix	
RC-AL-83-30-12	7.9	0.8	7.1	121.3	87.0	20.3	14.0		Cobs 85% v/s 10% lime	Unsorted grey beige with silt	TILL
13	7.3	1.8	5.5	104.1	69.2	19.7	15.2		Cobs 90% v/s tr lime	Unsorted grey green with clay	TILL
31-09	6.8	Few Grains	6.8	134.9	94.3	20.1	20.5		Pcbs 90% v/s tr lime	Sorted: fine grey beige with grey clay	SAND
32-08	7.1	Few Grains	7.1	112.8	80.2	17.7	14.9		Granules 75% Gr tr lime	Sorted: fine grey beige with beige-grey clay	SAND
09	7.8	1.2	6.6	148.8	113.2	21.9	13.7		Pcbs 75% v/s 10% lime	Unsorted beige grey with clay	TILL
10	7.5	1.0	6.5	141.4	100.7	28.1	12.6		"	"	TILL
11	7.8	0.6	7.2	127.8	98.0	21.1	8.7		Cobs 85% v/s 5% lime	Unsorted grey green with beige grey clay	TILL
33-05	7.2	2.4	4.8	153.3	99.5	35.7	18.1		Cobs 75% v/s 10% lime	Unsorted grey beige with silt	TILL
06	7.7	1.6	6.1	252.7	116.1	78.5	58.1		Cobs 70% v/s 10-15% lime	"	TILL
07	7.6	1.5	6.1	263.8	150.7	57.6	55.5		"	"	TILL
08	7.1	0.3	6.8	140.7	95.4	28.1	17.2		Pcbs 75% v/s 10% lime	"	TILL
09	8.2	0.5	7.7	191.4	151.4	26.1	13.9		"	"	TILL
34-11	7.2	0.3	6.9	138.8	103.5	24.8	10.5		Pcbs 80% v/s 10% lime	Unsorted grey beige with clay	TILL
12	6.9	0.3	6.6	129.3	98.2	22.9	8.2		Pcbs 85% v/s 10% lime	"	TILL
35-13	7.9	0.6	7.3	154.7	127.5	18.9	8.3		Pcbs 75% v/s 10% lime	"	TILL
14	6.2	0.4	5.8	106.6	80.4	19.5	6.7		"	"	TILL
36-11	8.0	1.1	6.9	118.2	86.9	21.0	10.3		Pcbs 65% v/s 15% lime	Unsorted beige with grey beige clay	TILL
12	7.2	0.7	6.5	136.7	97.2	28.5	11.0		Pcbs 70% v/s 15% lime	"	TILL
13	7.8	1.1	6.7	168.5	120.0	35.9	12.6		Pcbs 65% v/s 10% lime	Unsorted grey beige with clay	TILL

OVERBURDEN DRILLING MANAGEMENT LIMITED
LABORATORY SAMPLE LOG

Sample Number	Weight (kg. wet)			Weight (grams dry)				Grains V.G.	Description		Classification
	Table Split	+10 Rock Chips	-10 Table Feed	Table Conc	M.I. Lights	Non-mag	Mag		+ 10	Matrix	
RC-AL-83-36-14	7.8	0.4	7.4	117.9	75.2	30.8	11.9		Pebs 65% v/s 10% lime	Unsorted grey beige with clay	TILL
15	7.8	0.9	6.9	176.1	135.5	31.6	9.0		Cobs 80% v/s 8% lime	"	TILL
37-11	8.3	1.9	6.4	173.5	133.2	28.4	11.9		Pebs 60% v/s 15% lime	"	TILL
12	8.3	1.0	7.3	190.3	140.1	34.6	15.6		Cobs 60% v/s 15% lime	"	TILL
13	8.3	0.4	7.9	251.7	200.6	37.9	13.2		Cobs 80% v/s 5% lime	"	TILL
14	8.3	0.5	7.8	179.9	132.3	33.5	14.1		Cobs 85% v/s 3% lime	"	TILL
15	8.1	1.6	6.5	122.0	88.2	24.2	9.6		Cobs 75% v/s 5% lime	"	TILL
16	8.0	0.5	7.5	118.0	81.2	28.1	8.7		"	"	TILL
17	8.1	0.3	7.8	141.1	99.7	30.6	10.8		Pebs 75% v/s 2% lime	Unsorted green grey with clay	TILL
38-08	8.4	0.4	8.0	201.6	171.7	20.4	9.5		Pebs 75% v/s 10% lime	Sorted - coarse green beige with clay	SAND
39-10	8.2	1.3	6.9	198.3	167.7	21.1	9.5		"	Sorted - coarse green beige with silt	GRAVEL
11	8.1	1.3	6.8	195.3	155.5	30.5	9.3		Cobs 75% v/s 10% lime	Unsorted grey beige with silt	TILL
12	7.5	0.2	7.3	129.7	112.7	12.4	4.6		Pebs 85% v/s 5% lime	Unsorted grey beige with clay	TILL
40-04	6.1	2.1	4.0	154.8	133.9	15.7	5.2		Cobs G.C.I.s 80% v/s 15% lime	Unsorted grey beige with beige clay	TILL
05	8.3	1.9	6.4	213.7	179.3	30.4	4.0		Cobs 80% v/s 15% lime	Unsorted grey beige with clay	TILL
06	8.1	2.0	6.1	162.2	127.0	24.8	10.4		"	"	TILL
07	8.3	1.1	7.2	221.7	184.2	27.1	10.4		"	Unsorted grey beige with silt	TILL
41-01	7.8	0.9	6.9	178.6	127.0	32.7	18.9		"	"	TILL
02	7.7	0.7	7.0	112.2	66.5	29.2	16.5		Cobs 75% v/s 15% lime	"	TILL

OVERBURDEN DRILLING MANAGEMENT LIMITED
LABORATORY SAMPLE LOG

Sample Number	Weight (kg. wet)			Weight (grams dry)				Grains V.G.	Description		Classification
	Table Split	+10 Rock Chips	-10 Table Feed	Table Conc	M.I. Lights	Non-mag	Mag		+ 10	Matrix	
RC-AL-83-41-03	8.4	1.8	6.6	199.5	152.7	35.5	11.3		Cobs 80% v/s 15% lime	Unsorted grey beige with silt	TILL
04	8.3	1.3	7.0	180.3	123.2	38.7	18.4		Pebs 75% v/s 10% lime	"	TILL
05	8.2	1.8	6.4	112.5	81.9	21.7	8.9		Cobs 80% v/s 10% lime	Unsorted grey green with silt	TILL
06	6.2	0.5	5.7	166.0	134.2	23.5	8.3		Pebs 75% v/s 10% lime	Unsorted grey beige with green grey clay	TILL
07	7.2	0.2	7.0	109.3	76.5	22.8	10.0		"	"	TILL
08	7.8	0.3	7.5	158.1	114.7	27.6	15.8		Pebs 80-85% v/s 5% lime	"	TILL
09	7.8	1.4	6.4	182.9	142.2	28.1	12.6		Cobs 80% v/s 10% lime	"	TILL
29-01	6.9	0.7	6.2	153.9	125.0	21.0	7.9		Cobs 75% v/s 5% lime	Unsorted beige with silt	TILL
02	7.3	0.2	7.1	147.9	112.9	24.7	10.3		Pebs 50% v/s 10% lime 1/2 G	Unsorted grey beige with silt	TILL
03	7.0	0.5	6.5	243.9	208.4	26.7	8.8		"	"	TILL
04	5.8	0.4	5.4	139.2	115.3	19.4	4.5		Cobs GCl 85% v/s 5% lime	Unsorted grey beige with clay	TILL
05	6.5	0.9	5.6	124.7	99.2	19.8	5.7		"	"	TILL
06	7.1	0.8	6.3	81.4	52.4	20.2	8.8		"	"	TILL
07	6.5	0.4	6.1	161.1	133.2	20.7	7.2		Pebs GCl 85% v/s 5% lime	"	TILL
08	6.8	0.9	5.9	218.6	182.6	27.1	8.9		Cobs 85% v/s tr lime	"	TILL
09	6.7	0.7	6.0	116.3	85.3	23.4	7.6		Cobs 85% v/s 5% lime	Unsorted grey beige with silt	TILL
?	8.1	1.8	6.3	215.6	161.1	37.3	17.2		"	Unsorted beige with clay	TILL
10	5.9	0.4	5.5	221.3	200.3	16.7	4.3		Pebs GCl 85% v/s 2% lime	"	TILL

OVERBURDEN DRILLING MANAGEMENT LIMITED
LABORATORY SAMPLE LOG

Sample Number	Weight (kg. wet)			Weight (grams dry)				Grains V.G.	Description		Classification
	Table Split	+10 Rock Chips	-10 Table Feed	Table Conc	M.I. Lights	Non-mag	Mag		+ 10	Matrix	
RC-AL-83-29-11	5.2	0.3	4.9	114.4	98.1	13.2	3.1		Cobs GCl's 85% v/s 2% lime	Unsorted grey beige with clay	TILL
12	3.1	0.2	2.9	82.3	64.7	13.2	4.4		Peb's GCl's 85% v/s 2% lime	"	TILL
13	6.4	Few Grains	6.4	124.0	90.7	17.6	15.7		Peb's + granules	Sorted green-beige with clay	SAND
30-01	7.2	0.4	6.8	92.4	64.4	20.7	7.3		Peb's 50% v/s 10% lime 40% Gr	Unsorted grey-beige with silt	TILL
02	6.4	0.4	6.0	157.2	131.5	18.2	7.5		Peb's 25% v/s 10% lime 65% Gr	"	TILL
03	6.3	0.3	6.0	180.6	160.5	14.5	5.6		Peb's 15% v/s 5% lime 80% Gr	"	TILL
04	5.6	0.7	4.9	103.0	82.7	15.2	5.1		Peb's 15% v/s 15% lime 70% Gr	"	TILL
05	6.2	0.3	5.9	158.6	131.5	20.4	6.7		Peb's 70% v/s tr lime	"	TILL
06	4.1	0.8	3.3	213.8	200.3	10.8	2.7		Cobs 85% v/s tr lime	Unsorted grey-beige with clay	TILL
07	5.3	0.5	4.8	191.5	174.2	13.6	3.7		Peb's 70% v/s tr lime	"	TILL
08	6.8	Few Pebbles	6.8	176.3	128.8	31.2	16.3		Peb's SCl's	Sorted - fine grey beige with clay	SAND
09	7.1	Few Granules	7.1	168.5	131.4	24.3	12.8		Granules	Sorted - medium beige	SAND
10	6.5	Few Granules	6.5	140.1	104.7	20.2	15.2		Granules SCl's	Sorted - fine grey beige with clay	SAND
31-01	8.4	1.0	7.4	191.3	161.3	19.2	10.8		Cobs 45% v/s 5% lime 50% Gr	Unsorted beige with silt	TILL
02	8.6	0.4	8.2	178.9	148.5	21.1	9.3		Peb's 50% v/s 15% lime 35% Gr	Unsorted beige with clay	TILL
03	7.7	0.3	7.4	181.5	155.6	18.1	7.8		Peb's 50% v/s 10% lime 40% Gr	Unsorted beige with silt	TILL
04	8.3	0.3	8.0	241.0	210.2	21.0	9.8		"	"	TILL
05	8.3	0.4	7.9	116.5	102.8	9.7	4.0		Peb's 70% v/s 10% lime	"	TILL
06	6.6	0.4	6.2	111.0	83.0	17.5	10.5		Peb's GCl's 60% v/s 10% lime 30% Gr	Unsorted beige with clay	TILL

OVERBURDEN DRILLING MANAGEMENT LIMITED
LABORATORY SAMPLE LOG

Sample Number	Weight (kg. wet)			Weight (grams dry)				Grains V.G.	Description		Classification
	Table Split	+10 Rock Chips	-10 Table Feed	Table Conc	M.I. Lights	Non-mag	Mag		+ 10	Matrix	
RC-AL-83-31-07	6.2	0.5	5.7	90.1	76.3	10.4	3.4		Pebbs GCl's 70% u/s 10% lime	Unsorted beige with clay	TILL
08	6.8	Few Grains	6.8	89.0	58.0	20.2	10.8		—	Sorted - fine beige with clay	SAND
32-01	8.4	1.5	6.9	135.1	111.1	16.1	7.9		Cobs 60% u/s 10% lime 30% Gr	Unsorted - beige with silt	TILL
02	7.4	0.3	7.1	182.3	160.9	14.0	7.4		Pebbs 30% u/s 10% lime 60% Gr	"	TILL
03	8.3	0.8	7.5	204.0	189.5	6.5	8.0		Pebbs 60% u/s 10% lime 30% Gr	"	TILL
04	8.2	0.4	7.8	155.8	146.1	3.2	6.5		Pebbs 80% u/s 5% lime	"	TILL
05	5.0	0.6	4.4	164.2	146.4	13.1	4.7		Cobs GCl's 90% u/s 5% lime	Unsorted beige with clay	TILL
06	7.1	0.5	6.6	247.7	229.4	13.1	5.2		Pebbs 90% u/s 5% lime	"	TILL
07	8.2	0.2	8.0	157.0	126.8	14.8	15.4		Granules SCl's	Sorted grey beige Fine	SAND
33-01	7.1	0.6	6.5	219.5	199.5	15.0	5.0		Pebbs SCl's 55% u/s 10% lime 35% Gr	Unsorted grey beige with silt	TILL
02	8.0	0.2	7.8	217.5	193.8	17.6	6.1		Granules 25% u/s 5% lime 70% Gr	Unsorted grey-beige	TILL
03	7.4	0.2	7.2	317.9	294.0	15.3	8.6		Granules GCl's 25% u/s 5% lime 70% Gr	Unsorted grey-beige with silt	TILL
04	6.8	0.6	6.2	243.2	228.7	12.6	1.9		Pebbs GCl's 50% u/s 10% lime 40% Gr	Unsorted grey beige with grey clay	TILL
34-01	8.0	0.4	7.6	291.7	269.8	16.8	5.1		Pebbs GCl's 60% u/s 5% lime 35% Gr	Unsorted grey beige with clay	TILL
02	8.0	0.8	7.2	268.9	240.7	20.3	7.9		Cobs 50% u/s 5% lime 45% Gr	"	TILL
03	7.4	0.6	6.8	210.8	190.7	14.5	5.6		Cobs 45% u/s 5% lime 50% Gr	"	TILL
04	7.4	0.6	6.8	110.2	86.6	16.5	7.1		Cobs 45% u/s 10% lime 45% Gr	Unsorted grey beige with silt	TILL
05	8.0	0.8	7.2	113.0	93.9	13.7	5.4		Cobs 90% u/s tr lime	Unsorted grey beige with clay	TILL
06	6.3	0.7	5.6	155.9	140.7	11.3	3.9		"	Unsorted grey beige with silt	TILL

OVERBURDEN DRILLING MANAGEMENT LIMITED
LABORATORY SAMPLE LOG

Sample Number	Weight (kg. wet)			Weight (grams dry)				Grains V.G.	Description		Classification
	Table Spill	+10 Rock Chips	-10 Table Feed	Table Conc	M.I. Lights	Non-mag	Mag		+ 10	Matrix	
RC-AL-83-34-07	7.5	0.9	6.6	171.7	153.1	13.3	5.3		Cobs 85% u/s SCLs 10% lime	Unsorted grey beige with silt	TILL
08	7.6	0.5	7.1	125.8	97.9	20.4	7.5		Peb's 90% u/s 5% lime	Unsorted beige with silt	TILL
09	7.8	Few Grains	7.8	149.2	120.8	21.0	7.4		—	Sorted - medium beige with silt	SAND
10	7.4	0.2	7.2	182.8	151.5	20.8	10.5		Peb's 90% u/s tr Gr 10% lime	"	SAND
35-01	8.5	1.0	7.5	184.3	134.0	31.8	18.5		Cobs 75% u/s 15% Gr 10% lime	Unsorted grey beige with silt	TILL
02	7.6	0.6	7.0	152.1	120.4	22.1	9.6		Cobs 75% u/s 15% lime 10% Gr	Unsorted grey beige with beige clay	TILL
03	7.3	0.7	6.6	104.0	77.4	16.8	9.8		Cobs 80% u/s 10% lime 10% Gr	"	TILL
04	7.4	0.4	7.0	96.3	69.3	18.5	8.5		Peb's 90% u/s GCLs 5% lime	"	TILL
05	7.1	0.6	6.5	101.8	79.7	16.2	5.9		"	"	TILL
06	7.1	1.2	5.9	97.8	78.0	11.9	7.9		Peb's 95% u/s tr lime 5% Gr	"	TILL
07	7.1	1.3	5.8	212.1	185.1	21.6	5.4		Cob's 70% u/s GCL's 20% tr. lime	Unsorted grey-beige with clay	TILL
08	7.4	0.6	6.8	176.2	137.7	30.3	8.2		Cob's 85% u/s 10% GCL's tr. lime	"	TILL
09	7.3	1.0	6.3	170.9	139.7	23.8	7.4		Cob's 80% u/s 15% GCL's tr. lime	"	TILL
10	7.5	0.7	6.8	161.0	119.8	31.1	10.1		Cob's 80% u/s 10% GCL's tr. lime	"	TILL
11	5.5	1.0	4.5	118.9	92.1	19.3	7.5		Cob's 60% u/s tr. lime	"	TILL
12	7.2	2.0	7.2	198.5	155.7	31.2	11.6		Peb's	Sorted beige med with grey-beige clay	SAND
36-01	7.6	0.8	6.8	152.8	119.1	24.5	9.2		Cob's 50% Gr 5% GCL's tr. lime	Unsorted grey-beige with clay	TILL
02	4.9	0.5	4.4	116.2	84.6	20.3	11.3		Cob's 50% Gr 15% GCL's	"	TILL
03	5.6	0.8	4.8	130.8	111.9	15.3	3.6		Cob's 70% u/s 5% GCL's tr. lime	"	TILL

OVERBURDEN DRILLING MANAGEMENT LIMITED
LABORATORY SAMPLE LOG

Sample Number	Weight (kg wet)			Weight (grams dry)				Grains V.G.	Description		Classification
	Table Split	+10 Rock Chips	-10 Table Feed	Table Conc	M.I. Lights	Non-mag	Mag		+10	Matrix	
RE-AL-83-36-01	45	0.5	4.0	114.7	101.9	10.2	2.6		Cob's 15% GCL's 70% v/s 4% lime	Unsorted grey-beige with clay	TILL
05	3.3	0.2	3.1	83.3	78.7	3.4	1.2		Peb's 40% GCL's 30% v/s	Unsorted grey with grey-white clay	TILL
06	6.0	0.7	5.3	130.8	120.8	7.4	2.6		Peb's 70% GCL's 15% v/s 4% lime	"	TILL
07	5.1	0.6	4.5	146.2	131.6	11.3	3.3		Cob's 5% GCL's 90% v/s 4% lime	"	TILL
08	4.8	0.8	4.0	136.1	114.9	14.5	6.7		Cob's 15% GCL's 70% v/s 2% lime	"	TILL
09	7.0	1.6	5.4	178.6	145.2	24.0	9.4		Peb's 60% v/s 5% lime	Unsorted grey-beige with silt + clay	TILL
10	8.0	1.5	6.5	179.6	145.8	22.0	11.8		Peb's 50% v/s 10% lime	Unsorted grey-beige with silt	TILL
37-01	7.4	0.5	6.9	138.3	122.2	11.8	4.3		Peb's 30% Gr. 50% SCL's	Unsorted grey-beige with clay + silt	TILL
02	6.2	0.5	5.7	132.0	114.2	13.7	4.1		Cob's 10% SCL's 75% v/s 4% lime	"	TILL
03	7.2	0.6	6.6	132.3	112.2	15.3	4.8		Cob's 30% v/s 50% GCL's	"	TILL
04	4.9	0.5	4.4	108.8	99.5	7.1	2.2		Cob's 40% v/s 2% lime	"	TILL
05	7.0	0.4	6.6	117.6	102.8	12.6	2.2		Cob's 40% GCL's 40% v/s 10% lime	Unsorted grey-beige with clay	TILL
06	4.5	0.4	4.1	125.2	113.5	7.9	3.8		Cob's 30% GCL's 40% v/s 2% lime	"	TILL
07	6.9	0.3	6.6	159.5	138.8	16.6	4.1		Cob's 30% GCL's 70% v/s	"	TILL
08	3.6	0.1	3.5	142.8	125.4	11.5	5.9		Peb's 60% v/s	"	TILL
09	7.2	0.6	6.6	184.8	130.8	40.2	13.8		Peb's 55% v/s 5% lime	"	TILL
10	8.0	1.9	6.1	217.9	166.3	33.9	17.7		Cob's 60% v/s 5% lime	"	TILL
38-01	8.0	1.8	6.2	232.6	172.8	41.3	18.5		Cob's 70% Gr. 1% lime	"	TILL
02	7.8	0.4	7.4	172.3	135.6	26.3	10.4		Cob's 95% Gr.	"	TILL

OVERBURDEN DRILLING MANAGEMENT LIMITED
LABORATORY SAMPLE LOG

Sample Number	Weight (kg wet)			Weight (grams dry)				Grains V.G.	Description		Classification
	Table Split	+10 Rock Chips	-10 Table Feed	Table Conc	M.I. Lights	Non-mag	Mag		+10	Matrix	
RL-AL-83-38-03	6.7	0.5	6.2	148.3	124.1	17.3	6.9		Cob's 60% v/s 11% lime	Unsorted grey-beige with clay	TILL
04	3.8	0.5	3.3	172.4	161.3	7.9	3.2		Cob's 50% v/s 4% lime	"	TILL
05	7.9	0.6	7.3	139.2	83.7	36.1	19.4		Cob's 85% v/s 1% lime	"	TILL
06	8.3	2.2	6.1	159.4	139.5	14.5	5.4		Cob's 50% v/s 10% lime	Unsorted grey-beige with silt	TILL
07	8.2	2.0	6.2	174.8	139.1	23.4	12.3		Cob's 60% v/s 10% lime	Unsorted grey-beige with clay	TILL
39-01	7.6	1.4	6.2	155.3	112.0	31.2	12.1		Cob's 60% Gr. 2% lime	Unsorted grey-beige with silt	TILL
02	8.0	1.5	6.5	144.1	117.5	20.1	6.5		Cob's 65% Gr. 10% lime	Unsorted beige with silt + clay	TILL
03	8.3	1.0	7.3	141.0	109.8	22.7	8.5		"	"	TILL
04	7.4	0.7	6.7	143.6	116.0	20.8	6.8		Cob's 60% Gr. 1% lime	"	TILL
05	7.1	0.7	6.4	134.9	108.4	19.5	7.0		Cob's 40% Gr. 5% lime 30% GCL's	"	TILL
06	7.7	0.3	7.4	149.4	108.7	26.8	13.9		Cob's 75% v/s 4% lime	Unsorted grey-beige with clay	TILL
07	7.5	0.8	6.7	211.4	146.4	41.8	23.2		Cob's 75% v/s 5% lime	"	TILL
08	7.8	0.5	7.3	185.0	173.3	8.5	3.2		Peb's 50% v/s 5% lime	"	TILL
09	8.5	2.5	6.0	195.5	175.6	15.3	4.6		Peb's 50% v/s 10% lime	Unsorted grey-beige with silt	TILL
13	4.9	0.2	4.7	211.8	199.0	10.4	2.4		Cob's 99% Gr. boulder?	"	TILL
40-01	7.6	0.7	6.9	197.9	176.6	14.9	6.4		Cob's 55% Gr. 10% lime	Unsorted grey-beige with clay	TILL
02	7.7	0.5	7.2	260.2	235.8	18.0	6.4		Cob's 60% Gr. 2% lime	"	TILL
03	7.6	0.4	7.2	243.4	218.0	18.7	6.7		Cob's 70% Gr. 15% lime	Unsorted beige with grey-beige clay	TILL

APPENDIX C
BEDROCK CHIP SAMPLE LOGS

SAMPLE NUMBER	COLOR	STRUCTURE	GRAIN SIZE (mm)	TEXTURE	MINERALOGY				NAME
					Silicates	Carbonates	Sulphides	Other	
AL-82-01-06	black	schistose	0.05 (some fine and some coarser material)	coarse, poorly sorted material - greywacke; very fine grained material - argillite	- abundant mafic material in patches dark color to rock	5% - interstitial	pyrite - <1%; disseminated and cubic		greywacke/argillite
AL-82-02-22	grey-green	poorly schistose; 5% vein quartz	<0.1mm	moderately well to poorly sorted	Feldspar, 20% quartz, <5% chlorite, minor sericite/muscovite				arkose
AL-82-03-10	grey-green	massive to poorly schistose	0.1-0.2	well sorted	Feldspar, 20% quartz, 10% chlorite	trace			greywacke/arkose
AL-82-04-11	light grey-green	massive to poorly schistose	0.1-0.5	moderately to poorly sorted; much of sample ground to clay	Feldspar, 25% quartz, to 10% chlorite				greywacke/arkose
AL-82-05-12	beige/blackish to grey	schistose to fissile	<0.05	silky sheen on foliation surfaces (phyllite) - remnant "coats" of pyrite occur in darker colored, less altered argillite/phyllite		some chips are calcareous			argillite/phyllite

SAMPLE NUMBER	COLOR	STRUCTURE	GRAIN SIZE (mm)	TEXTURE	MINERALOGY				NAME
					Silicates	Carbonates	Sulphides	Other	
AL-82-06-12	beige-grey to beige-green (oxidized)	schistose	0.1-1.0	poorly sorted	Feldspar, 10-15% quartz, < 5% chlorite, 1% sericite/muscovite				arkose
AL-82-07-13	beige-oxidized	abundant sand		and very few rock chips - appears to be a very fine-grained sediment					argillite(?)
AL-82-08-10	grey	massive	0.1-1	poorly sorted; angular Feldspar and quartz grains	Feldspar, 25% quartz, 5-7% chlorite, minor muscovite/sericite				arkose
AL-82-09-06	grey	schistose - fissile	<< 0.05	too fine-grained			< 1% pyrite - cubic, desmineralized		siltstone/argillite
AL-82-10-08	grey-white	schistose	< 0.01-1.3	moderately to poorly sorted	Feldspar - 55% quartz - 30% chlorite - 2%	10% carbonate interstitial	pyrite - < 1% cubic, desmineralized		arkose

SAMPLE NUMBER	COLOR	STRUCTURE	GRAIN SIZE (mm)	TEXTURE	MINERALOGY				NAME
					Silicates	Carbonates	Sulphides	Other	
AL-82-14-06		abundant foreign material - soft, sericitic, vein or		appears fill-like; most common rock chips are yellow-beige, carbonaceous material - carbonate common - original rock type unknown				schistose,	(sediment?)
AL-82-15-02	light-grey	schistose	<0.05	porphyritic; 15% light grey-white, subhedral feldspar phenocrysts to 0.7 mm in a feldspathic groundmass	Feldspathic	5-10% slow reacting, interstitial carbonate	<1% pyrite-desemminated, cubic		intermediate volcanic
AL-82-16-14	grey	schistose	0.1-	unsorted	Feldspar, 15-20% quartz, <10% chlorite, minor amount of biotite, muscovite/sericite				greywacke
AL-82-17-20	grey to light green-grey	very poorly schistose	0.1-0.2	moderately well sorted; light color obscures grain relationships/texture	Feldspar, 10-15% quartz, minor chlorite	5-7% carbonate, interstitial	1% pyrite-cubic, desemminated		arkose
AL-82-18-02	light-grey	massive to very poorly schistose	aphanitic		Feldspathic	10-12% interstitial carbonate - minor carbonate veins	pyrite-1% - cubic, desemminated		intermediate volcanic

SAMPLE NUMBER	COLOR	STRUCTURE	GRAIN SIZE (mm)	TEXTURE	MINERALOGY				NAME
					Silicates	Carbonates	Sulphides	Other	
AL-82-19-09	grey to yellowish-white	schistose	0.1-3	unsorted; secondary silica as cement(?) obscures grain boundaries	Feldspar, 25% quartz, <5% chlorite				arkose
AL-82-20-06	light-grey	massive to poorly schistose	0.1	indistinct	undifferentiated quartz and feldspar	-12% carbonate- interstitial -1% quartz- carbonate veinlets	pyrite - <1%; cubic, desemminated		arkose
AL-82-21-06	grey-white to yellowish (oxidized)	schistose; 5% quartz vein material	very fine-grained	rock is highly sheared, schistose, altered and oxidized, volcanic - dark chlorite "spots" to 1.0mm; common white muscovite feldspar	trace, fine-grained, possibly micaceous	trace	pyrite - 2% desemminated 2mm vein quartz		sediment or volcanic - little sample on which to make judgement
AL-82-22-18	grey-green	poorly schistose; minor quartz vein material	0.1	moderately well sorted	Feldspar, 15-25% quartz, 5-8% chlorite, minor mica	trace carbonate with quartz in veins			arkose (greywacke)
AL-82-23-05	light grey green	massive to poorly schistose	<0.1	indistinct; appears granular & moderately well sorted	Feldspar, 25-30% quartz, to 5% chlorite (local concentrations)				arkose

SAMPLE NUMBER	COLOR	STRUCTURE	GRAIN SIZE (mm)	TEXTURE	MINERALOGY				NAME
					Silicates	Carbonates	Sulphides	Other	
AL-83-27-17	light grey-green	well foliated to schistose; porous (2-5%); 5% vein quartz	0.05-0.5	poorly sorted	grey feldspar, 30% quartz, 10-15% chlorite	3-5% slow-reacting	1% finely disseminated pyrite		greywacke
AL-83-28-21	light grey-green	schistose, pebbly, porous (1-3%);	0.1-3.0	poorly sorted	grey feldspar, 30% quartz, 15% biotite / chlorite	none	trace pyrite		greywacke
AL-83-29-15	light grey-green	schistose	0.05-0.3	poorly sorted	grey feldspar, 20-30% quartz, 15% chlorite	none	trace cubic pyrite		greywacke
AL-83-30-14	light grey-green	schistose	<0.05-0.3	poorly sorted	grey feldspar, 20-30% quartz, 15-20% chlorite	2% slow-reacting, disseminated carbonate	trace pyrite	trace trace tourmaline	greywacke
AL-83-31	No Bedrock Sample - Hole redrilled as				AL-83-41				

SAMPLE NUMBER	COLOR	STRUCTURE	GRAIN SIZE (mm)	TEXTURE	MINERALOGY				NAME
					Silicates	Carbonates	Sulphides	Other	
AL-83 32-12	light grey-green	schistose; porous (1-2%)	0.05-0.5	poorly sorted	grey feldspar, 30% quartz, 15% chlorite	trace calcite	trace pyrite	rare trace tourmaline	greywacke
AL-83- 33-10	light grey-green	well foliated to schistose	0.05-0.5	poorly sorted	grey feldspar, 20% quartz, 15% chlorite	3% desmineralized calcite	0.5% finely desmineralized pyrite		greywacke
AL-83 34-13	light grey-green	schistose	<0.05-0.2	not apparent	undifferentiated feldspar and quartz with 15-30% chlorite	15% interstitial calcite	1-2% cubic, desmineralized pyrite		argillite/ greywacke
AL-83 35-15	light grey-green	foliated, bedded; 1-2% vein quartz/calcite	0.05-0.3	moderately sorted, grain size varies between chips (beds)	grey feldspar, 30% quartz, 10-15% biotite/chlorite	5% interstitial calcite	2% cubic, desmineralized pyrite		greywacke
AL-83- 36-16	mottled grey and pink	foliated	0.1	well sorted; few pink feldspar-quartz segregations of grain size 0.5mm, possibly igneous rather than sedimentary	pink feldspar, 50% quartz, 10-15% biotite	trace calcite		0.1% finely desmineralized magnetite	arkose or felsite (possibly a boulder - only a 0.4m sample)

SAMPLE NUMBER	COLOR	STRUCTURE	GRAIN SIZE (mm)	TEXTURE	MINERALOGY				NAME
					Silicates	Carbonates	Sulphides	Other	
AL-83-37-18	light grey green	well foliated; sand grains; pebbles rounded; porous (1-2%)	0.05-4.0	poorly sorted	grey feldspar, 20% quartz, 15% chlorite				greywacke
AL-83-38-09	light grey- green	schistose; porous (5-10%)	0.05-0.3	poorly sorted	grey feldspar, 20% quartz, 20% chlorite				greywacke
AL-83-39-14	pale grey to white	compact; foliated; 10% quartz/carbonate veining; bleached white zones adjacent to veins constitute 80% of sample	< 0.1	igneous; equigranular	white feldspar, little or no quartz (soft); 0-10% biotite/ chlorite (more in bleached zones)	20-30% slow- reacting interstitial carbonate	1-2% cubic, desmineralized pyrite		Felsite or dacite
AL-83-40-08	grey (60% of chips) with white bleached zones	foliated	< 0.1	igneous; equigranular	white feldspar, little or no quartz (soft); 0-10% biotite/ chlorite (more in bleached zones)	10-20% slow reacting interstitial carbonate	0.3% desmineralized, cubic pyrite		Felsite or dacite
AL-83-41-10	pale grey- green	schistose; porous (1-2%)	0.05-1.0	poorly sorted	grey feldspar, 30% quartz, 20% chlorite		trace pyrite		greywacke

APPENDIX D
COST SUMMARY
REVERSE CIRCULATION DRILL PROGRAM

REVERSE CIRCULATION DRILLING PROGRAM

<u>Item</u>	<u>Company</u>	<u>Invoice No. or Date</u>	<u>\$Amount</u>
Drilling (all inclusive)	H&S	No. 9848	10,709.32 ✓
	H&S	No. 9869	1,966.68 ✓
	H&S	No. 9890	6,592.91 ✓
	H&S	No. 9900	6,235.51 ✓
	H&S	No. 0029	21,510.42 ✓
	H&S	No. 0055	<u>4,991.70</u> ✓
			52,006.54
Drill supervision, logging and sampling	ODM	Oct. 21/82	3,630.00 ✓
	ODM	Nov. 09/82	2,470.00 ✓
	ODM	Mar. 01/83	<u>4,500.00</u> ✓
			10,600.00
Sample Processing	ODM	Oct. 21/82	3,360.50 ✓
	ODM	Nov. 09/82	3,244.50 ✓
	ODM	Mar. 01/83	2,715.50 ✓
	ODM	Apr. 04/83	1,014.00 ✓
	ODM	Jan. 03/83	<u>1,196.00</u> ✓
			11,530.50
Consulting Services (data interpretation, H&S invoice review)	ODM	Oct. 25/82	735.00 ✓
	ODM	Dec. 31/82	144.00 ✓
	ODM	Mar. 1/83	79.00 ✓
	ODM	Apr. 04/83	<u>210.00</u> ✓
			1,168.00
Expenses (room & board, field supplies, travel, shipping)	ODM	Oct. 21/82	2,110.46 ✓
	ODM	Oct. 25/82	294.98 ✓
	ODM	Nov. 09/82	1,119.31 ✓
	ODM	Dec. 31/82	194.10 ✓
	ODM	Mar. 01/82	<u>2,372.45</u> ✓
			6,091.30
GRAND TOTAL			<u><u>\$81,396.34</u></u>

REVERSE CIRCULATION DRILLING PROGRAM

<u>Item</u>	<u>Company</u>	<u>Invoice No. or Date</u>	<u>\$Amount</u>
Drilling (all inclusive)	H&S	No. 9848	10,709.32
	H&S	No. 9869	1,966.68
	H&S	No. 9890	6,592.91
	H&S	No. 9900	6,235.51
	H&S	No. 0029	21,510.42
	H&S	No. 0055	4,991.70
			52,006.54
Drill supervision, logging and sampling (Consultants)	ODM	Oct. 21/82	3,630.00
	ODM	Nov. 09/82	2,470.00
	ODM	Mar. 01/83	4,500.00
			10,600.00
Sample Processing (Laboratory Services)	ODM	Oct. 21/82	3,360.50
	ODM	Nov. 09/82	3,244.50
	ODM	Mar. 01/83	2,715.50
	ODM	Apr. 04/83	1,014.00
	ODM	Jun. 03/83	1,196.00
			11,530.50
Consulting Services (data interpretation, H&S invoice review)	ODM	Oct. 25/82	735.00
	ODM	Dec. 31/82	144.00
	ODM	Mar. 1/83	79.00
	ODM	Apr. 04/83	210.00
			1,168.00
Expenses (room & board, field supplies, travel, shipping)	ODM	Oct. 21/82	2,110.46
	ODM	Oct. 25/82	294.98
	ODM	Nov. 09/82	1,119.31
	ODM	Dec. 31/82	194.10
	ODM	Mar. 01/82	2,372.45
			6,091.30
GRAND TOTAL			\$81,396.34

ST. JOE CANADA INC

159 Bay Street

Ontario M5J 1J7
TORONTO

No. 1645

October 28 1982

PAY TO
THE ORDER OF

Overburden Drilling Management

\$ 100.00

The sum of One Hundred Dollars

100 DOLLARS

TO

CANADIAN IMPERIAL BANK OF COMMERCE

MAIN BRANCH - COMMERCE COURT
TORONTO, ONTARIO
M5J 1J9

[Signature]

⑆00000⑆

ST. JOE CANADA INC.

159 Bay Street, Suite 614, Toronto, Ontario M5J 1J7

N^o 1645

TORONTO October 29 1982

PAY TO THE ORDER OF Overburden Drilling Management \$ 9,100.96

100 DOLLARS

TO
CANADIAN IMPERIAL BANK OF COMMERCE
MAIN BRANCH - COMMERCE COURT
TORONTO, ONTARIO
M5L 1J9

PER: [Signature]

⑆0000 200 10⑆ 7 10 14 70 10⑆

ENDORSEMENT OF ATTACHED CHEQUE IS SUFFICIENT RECEIPT

DETACH AT PERFORATION

DATE	INVOICE REFERENCE	BALANCE	DISTRIBUTION A/C No.	AMOUNT
------	-------------------	---------	----------------------	--------

	Supervision and sample prep	9,100.96	812-79809	9,100.96
--	-----------------------------	----------	-----------	----------

CD90

MAILING ADDRESS

USE ZIP CODE

3 Chespatia Drive
Nepean Ontario
K2G 3M9

- Return Check-Copy to Requestor.
- Enclose Attached Cover Letter.
- Other Instructions.

Requested By: [Signature]

Approved By: [Signature]

OVERBURDEN DRILLING MANAGEMENT LIMITED
ST. JOE CANADA INC.

3 CLEOPATRA DRIVE, NEPEAN, ONTARIO K2G 3M9

ATTENTION: <i>JAS</i>		READ:	
PROJECT: <i>JAS</i>		FILE:	
OCT 25 1982			
REFERRED TO	WH	READ BY	J.I
<i>WJ</i>		<i>Dud 10/28/82</i>	
<i>JAS</i>			
NOTES: <i>OK if add weight add up</i>			

October 21, 1982

To: St. Joe Canada Inc.
159 Bay Street
Toronto, Ontario
M5J 1J7

Re: Allerston Property, Matheson Twp.
Reverse Circulation Phase I, September 25 - October 01, 1982

Laboratory Services:

Bedrock: 13 samples @ 2.50	32.50
Overburden samples: 128 @ 26.00	3,328.00
Panning: 2 samples @ no charge	0.00
	\$3,360.50

Consulting Services:

K. MacNeil/J Switzer as per attached summary and receipts	3,150.00
	480.00
	3,630.00

Expenses:

Travel	619.66
Shipping	490.80
	1,110.46

Mobilization and Demobilization
Ottawa plus truck and Sampling
equipment rental for *Oct 25/82*
October 01, 1982
2000 x 50%

ST. JOE CANADA INC.		
Request or Purchase Order <i>WJ</i>		
Authorized By <i>JAS</i>		
Cost Centre / Project #	Account #	Amount
<i>812</i>	<i>79809</i>	<i>9,100</i>
Cheque #		Total <i>9,100²⁶</i>

INVOICE TOTAL:

1,000.00

\$9,100.96

Averill
N. Averill
General Manager

ST. JOE CANADA INC.

159 Bay Street, Suite 614, Toronto, Ontario M5J 1J7

N° 1677

9 8 2

TORONTO November 3 19 82

PAY TO THE ORDER OF Overburden Drilling Management Ltd.,

\$ 17,238.08

The sum of 17,238 dol's 08 cts

100 DOLLARS

CANADIAN IMPERIAL BANK OF COMMERCE
MAIN BRANCH - COMMERCE COURT
TORONTO, ONTARIO
M5L 1J9

Roy Jones

⑆00002⑆010⑆

⑆1⑆1⑆4⑆7⑆1⑆0⑆

⑆0001723808⑆

⑆1⑆1⑆1⑆1⑆1⑆1⑆

ST. JOE CANADA INC.

159 Bay Street, Suite 614, Toronto, Ontario M5J 1J7

Nº 1677

TORONTO November 3 19 82

PAY TO THE ORDER OF Overburden Drilling Management Ltd.,

\$ 17,238.08

100 DOLLARS

TO
CANADIAN IMPERIAL BANK OF COMMERCE
MAIN BRANCH - COMMERCE COURT
TORONTO, ONTARIO
M5L 1J9

PER: [Signature]

⑆000020010⑆ 710147010⑆

ENDORSEMENT OF ATTACHED CHEQUE IS SUFFICIENT RECEIPT

DETACH AT PERFORATION

DATE	INVOICE REFERENCE	BALANCE	DISTRIBUTION A/C No.	AMOUNT
	Matheson Township	1,029.98	615-24901	1,029.98
	Melba Township	17,238.03	615-24901	17,238.10

[Handwritten Signature]

MAILING ADDRESS

USE ZIP CODE

3 Chopatua Rd
Nepean Ontario
K2G 3M9

- Return Check-Copy to Requestor.
- Enclose Attached Cover-Letter.
- Other Instructions.

Requested By: [Signature]

Approved By: [Signature]

OVERBURDEN DRILLING MANAGEMENT LIMITED

3 CLEOPATRA DRIVE, NEPEAN, ONTARIO K2G 3M9 (613) 226-1774

October 25, 1982


To: St. Joe Canada Inc.
159 Bay Street
Toronto, Ontario
M5J 1J7

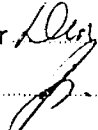
Re: Matheson Township
Reverse Circulation Phase 1

Consulting Services:
S. Averill (as per attached) 735.00

Equipment rental:
54 cans @ 4.75 + 15% 294.98

Invoice Total: \$1,029.98


N. Averill
General Manager

ST. JOE CANADA INC.		
Date	4/00 2/82	
Request or Purchase Order	100	
Authorized By		
Cost Centre		
Project #	Account #	Amount
815	79809	1025.98
815	79805	16,208.10
Cheque #	Total 17238.08	

ST. JOE CANADA INC.

159 Bay Street, Suite 604, Toronto, Ontario M5J 1J7

N° 1784

TORONTO November 17 19 82

PAY TO THE ORDER OF Overburden Drilling Management Limited

\$ 16,831.81

The sum of Six Thousand Eight Hundred and Thirty One Dollars

TO CANADIAN IMPERIAL BANK OF COMMERCE
MAIN BRANCH - COMMERCE COURT
TORONTO, ONTARIO
MSL 1J9



00002 20010

0000683181

ST. JOE CANADA INC.

159 Bay Street, Suite 614, Toronto, Ontario M5J 1J7

N^o 1781

TORONTO November 17 19 82

PAY TO
THE ORDER OF

82

Overburden Drilling Management Limited

\$ 6,831.81

100 DOLLARS

TO
CANADIAN IMPERIAL BANK OF COMMERCE
MAIN BRANCH - COMMERCE COURT
TORONTO, ONTARIO
MSL 1J9

PER: _____

⑆00002⑆010⑆

⑆1⑆1⑆4⑆7⑆1⑆0⑆⑆

ENDORSEMENT OF ATTACHED CHEQUE IS SUFFICIENT RECEIPT

DETACH AT PERFORATION

DATE

INVOICE REFERENCE

BALANCE

DISTRIBUTION A/C No.

AMOUNT

Re: Matheson Township
Phase II

6,831.81

812-79808

6,831.81

These costs relate to
overburden drilling by
Heath and Sherwood completed
in October 1982 and are therefore
incurred

OP 96

MAILING ADDRESS

USE ZIP CODE

3 Cleopatra Drive
Nepean, Ontario
K2G 3M9

- Return Check-Copy to Requestor.
- Enclose Attached Cover Letter.
- Other Instructions.

Requested By: D. Malloy

Approved By: [Signature]

OVERBURDEN DRILLING MANAGEMENT LIMITED

3 CLEOPATRA DRIVE, NEPEAN, ONTARIO K2G 3M9 (613) 226-1774

November 09, 1982

To: St. Joe Canada Inc.
159 Bay Street, # 614
Toronto, Ontario
M5J 1J7

Re: Matheson Township Phase II

ST. JOE CANADA INC.		
Date	Nov 12 / 82	
Request or Purchase Order	DM	
Authorized By	[Signature]	
Cost Centre / Project #	Account #	Amount
812	79809	6,831.81
	Accum	
Cheque #		Total 6833.81 [Signature]

Laboratory Services:	
Holes #14 to 26 (13 holes)	
112 overburden samples -prepare heavy mineral concentrates plus gold counts @ 26.00	2,912.00 u
Bedrock samples 13 @ 2.50	32.50 u
Provision for panning in excess of 5% of overburden samples 20 @ 15.00	<u>300.00 u</u>
	\$3,244.50 u ✓
Consulting Services:	
R. Huneault: (9.5 @ 260.00	\$2,470.00 u ✓
Expenses:	
Travel	476.77
Shipping	<u>316.85</u>
	\$793.62 u
Field Supplies:	
rental of sampling equipment 10 days @ 10.00	100.00
sampling bags 200 @ 0.15 + 15%	34.50
shipping containers 35 @ 4.75 + 15%	<u>191.19</u>
	\$325.69 u
INVOICE TOTAL:	\$6,833.81 u .

[Signature]
N. Averill
General Manager

ST. JOE CANADA INC.

159 Bay Street, Suite 614, Toronto, Ontario M5J 1J7

No. 1963

TORONTO January 6 1983

PAY TO THE ORDER OF Overburden Drilling Management Limited \$ 12,557.14

ST. JOE CANADA INC. TWENTY FIVE HUNDRED AND NO/100 DOLLARS

TO
CANADIAN IMPERIAL BANK OF COMMERCE
MAIN BRANCH - COMMERCE COURT
TORONTO, ONTARIO
MSL 119

PER: *Roy Joe*

⑆00002⑆010⑆ ⑆1⑆14⑆7⑆10⑆ ⑆0001255714⑆

MANAGEMENT LIMITED

3 CLEOPATRA DRIVE, NEPEAN, ONTARIO K2G 3M9 (613) 226-1774

December 31, 1982

To: St. Joe Canada Inc.
159 Bay Street, #614
Toronto, Ontario
M5J 1J7

Re: Matheson Township Phase II,
Reverse Circulation

Expenses: as per attached summary and receipts 192.10

Outstanding from November 09, 1982 invoice 2.00

INVOICE TOTAL: \$194.10

N. Averill
N. Averill
General Manager

ST. JOE CANADA INC.		
Date	Jan 6 / 83	
Request for	Purchase Order	
Authorized By	<i>[Signature]</i>	
Cost Centre /		
Project #	Account #	Amount
812	79809	194.10
Cheque #	Total 194.10	

W.M.

December 31, 1982

To: St. Joe Canada Inc.
159 Bay Street, #614
Toronto, Ontario
M5J 1J7

Re: Review of Heath and Sherwood Invoices
Reverse Circulation Melba I & II
Reverse Circulation Matheson I & II

Consulting Services:

N. Averill as per attached summary

\$288.00

144.00

N. Averill
General Manager

ST. JOE CANADA INC.

~~159 Bay Street, Suite 614, Toronto, Ontario M5J 1J7~~

111 Richmond St. W. Suite 418, Toronto M5H 2J4

No. 2243

TORONTO March 11 1983

PAY TO THE ORDER OF Overburden Drilling Management Limited

\$ 9,666.95

ST. JOE CANADA INC. 9,666 and 95/100

DOLLARS

TO
CANADIAN IMPERIAL BANK OF COMMERCE
MAIN BRANCH - COMMERCE COURT
TORONTO, ONTARIO
MSL 1J9

PER: *Ray June*

⑈0000

7 1 1 4 7 1 0 1 1

⑈0000966695⑈

March 01, 1983

To: St. Joe Canada Inc.
159 Bay Street, #614
Toronto, Ontario
M5J 1J7

Re: Allerston Property
Reverse Circulation Program #083-10

Laboratory Services (to Feb. 28, 1983):

Overburden: 103 samples plus gold count @ 26.00/sample	2,678.00
Bedrock: 15 @ 2.50	<u>37.50</u>
Panning for gold: 3 @ no charge	2,715.50

Consulting Services:

K. MacNeil/P. Barry	4,500.00
S. Averill	35.00
N. Averill	<u>44.00</u>
	4,579.00

Equipment Rental:

Sampling equipment 10 days @ 10.00	100.00
Generator: 10 days @ 10.00	100.00
Truck: 10 days @ 40.00	400.00
Mileage: Wavell-Hoyle-Wavell 140 miles @ .40	<u>56.00</u>
	656.00

Field Supplies:

35 shipping containers @ 4.75 + 15%	191.19
-------------------------------------	--------

Expenses:

shipping	590.90
travel	540.60
"	12.88
"	<u>380.68</u>
	1,525.26

INVOICE TOTAL:

N. Averill
N. Averill
General Manager

ST. JOE CANADA INC.		
Date	<i>March 4, 1983</i>	
Request or Purchase Order	<i>DM</i>	
Authorized By	<i>[Signature]</i>	
Cost Centre / Project #	Account #	Amount
<i>812</i>	<i>79809</i>	<i>9666.95</i>
Cheque #	Total	

\$9,666.95

OK
[Signature]

CERTIFIED
APR 15 1983
CANADIAN
BANK OF COMMERCIAL

ST. JOE CANADA INC

ORDER OF CERTIFICATION
Coverburden Drilling Management Ltd

No. 2354

1983

\$ 28,840.24

CANADA No. 28,840.24

28 DOLLARS

ACCOUNT NUMBER CHANGED

09 300 16
DUE TO CERTIFICATION

220788000

3 CLEOPATRA DRIVE, NEPEAN, ONTARIO K2G 3M9 (613) 226-1774

April 04, 1983

To: St. Joe Canada Inc.
#418, 111 Richmond Street West
Toronto, Ontario
M5H 2H4

Re: Allerston Property
Reverse Circulation Program #08317

Consulting Services:

S. Averill


210.00


Laboratory Services:

39 overburden samples @ 26.00

1,014.00

\$1,224.00


N. Averill
General Manager

ST. JOE CANADA INC.		
Date	Apr 6/83	
Request or Purchase Order	LCM	
Authorized By		
Cost Centre / Project #	Account #	Amount
812	79809	1,224. ⁰⁰
.....
.....
.....
Cheque #	Total 1,224. ⁰⁰	

St. Joe Canada Inc.
111 RICHMOND STREET WEST, SUITE 418
TORONTO, ONTARIO M5H 2J4

CANADIAN IMPERIAL
BANK OF COMMERCE
MAIN BRANCH - COMMERCE COURT
TORONTO, ONTARIO M5L 1J9

No 2639

CHEQUE NO.

ST. JOE CANADA INC. 2,964 dol's 89cts

DATE
June 9, 1983

AMOUNT
2,964.89

PAY
TO THE
ORDER
OF

Overburden Drilling Management Limited

ST. JOE CANADA INC

Ray Jura

AUTHORIZED SIGNATURE

⑆00002⑆010⑆

71⑆147⑆10⑆

⑆0000296489⑆

Inv. #08337	3,749.01	815-76303	3,749.01 ✓
Inv. #08337	5,321.71	819-76303	1,572.70 ✓
Inv. #08314*	1,768.89	815-79809	(3,552.82)
Inv. #08336	2,964.89	812-79809	1,196.00

* Duplicate payment re: chq#2454 dated April 27/83
& cheq.#2531 dated May 12/83 (copies attached)

CD 151

<p>St. Joe Canada Inc. 111 RICHMOND STREET WEST SUITE 112 TORONTO, ONTARIO M5H 2J4</p>	<p>CANADIAN IMPERIAL BANK OF COMMERCE MAIN BRANCH - COMMERCE COURT TORONTO, ONTARIO M5H 1J9</p>	<p>No 2539</p>
		<p>CHEQUE NO.</p>
<p>ST. JOE CANADA INC. 2,964.89</p>	<p>DATE June 9, 1983</p>	<p>AMOUNT 2,964.89</p>
<p>Overburden Drilling Management Limited</p>	<p>ST JOE CANADA INC</p>	
<p>NOT-NEGOTIABLE</p>		
<p>AUTHORIZED SIGNATURE</p>		

Y
TO THE
ORDER
OF

⑆00002⑆010⑆ 71⑆⑆47⑆⑆10⑆

TOTAL:				

Mailing Address: 3 Claytons Rd
Windsor Ont
K2G 3m9
Date Mailed: _____

Requested by: L. Malloy
Approved by: [Signature]



OVERBURDEN DRILLING MANAGEMENT LIMITED

3 GLENDORA DRIVE, NEPEAN, ONTARIO K2B 3M9 (613) 226-1774

June 03, 1983

To: Mr. David Molloy
St. Joe Canada Inc.
#418, 111 Richmond Street West
Toronto, Ontario
M5H 2H4

Re: Laboratory Services
RC-AL Series, Invoice #08336

46 overburden samples
prepare heavy mineral concentrates
plus gold count @ 26.00 \$1,196.00

1 panned @ N/C

N. Averill

1. 108

ST. JOE CANADA INC.

69 Bay Street, Toronto, Ontario, M5H 2Y1

TORONTO, October 25, 1982

PAY TO THE ORDER OF Heath & Sheppard

\$ 27,489.96

THE SUM OF TWENTY SEVEN THOUSAND FOUR HUNDRED AND EIGHTY NINE AND 96/100 DOLLARS

TO: CANADIAN IMPERIAL BANK OF COMMERCE
MAIN BRANCH - COMMERCE COURT
TORONTO, ONTARIO M5H 1J9

[Handwritten Signature]

0000 0000 0000 0000

ST. JOE CANADA INC.

159 Bay Street, Suite 614, Toronto, Ontario M5J 1J7

N° 1570

TORONTO, October 25, 19 82

PAY TO THE ORDER OF Heath & Sherwood Drilling \$ 27,448.96

The sum of 27,448.96 DOLLARS

TO: CANADIAN IMPERIAL BANK OF COMMERCE
 MAIN BRANCH - COMMERCE COURT
 5 TORONTO, ONTARIO
 M5L 1J9

PER: *Ray June*

⑆000020010⑆ 71114710

ENDORSEMENT OF ATTACHED CHECK IS SUFFICIENT RECEIPT

DETACH AT PERFORATION

DATE	INVOICE REFERENCE	BALANCE	DISTRIBUTION A/C No.	AMOUNT
	Inv. # 9869	1,966.68	812-79809	1,966.68 ✓
	Inv. # 9869	27,448.96	815-79809	25,482.28

CD84

MAILING ADDRESS

USE ZIP CODE

*Suite 908, 40 University Ave
 Toronto Ontario
 M5S 1T1*

- Return Check-Copy to Requestor.
- Enclose Attached Cover Letter.
- Other Instructions.

Requested By: *101*

Approved By: *[Signature]*

suite 908, 40 university avenue,

toronto, ontario,
M5J 1T1

October 19th, 1982

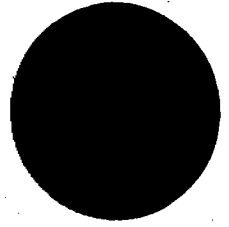
Canada Inc.,
Bay Street, Suite 614,
Toronto, Ontario.
MSJ 1J7

Invoice No. 9869
D.O. 450
Project No. 82-088

in account with

heath & sherwood drilling

division of challenger international services ltd.



terms: net cash 15 days after date of invoice

hole no.	to cover diamond drilling for the period October 1st-15th, 1982					
	from	to	footage completed	rate		
Reverse circulation rotary drilling program near Timmins and Kirkland Lake, Ontario.						
RC-AL82-10	0	65	65	2.50	162.50 ✓	
	Rig Hours		3.75	108.15	405.56 ✓	568.06
11	0	90	90	2.50	225.00 ✓	
	Rig Hours		3.0	108.15	324.45 ✓	549.45
12	0	75	75	2.50	187.50 ✓	
	Rig Hours		1.5	108.15	162.22 ✓	349.72
13	0	70	70	2.50	175.00 ✓	
	Rig Hours		3.0	108.15	324.45 ✓	499.45
Moving from final hole (Hoyle) to the end of the truck road						
	Rig Hours		1.0	108.15		108.15
Move from Hoyle to Wavell						
	Man Hours		14.25	20.00		285.00
RC-MB82-14	0	125	125	2.50	312.50 ✓	
	Rig Hours		4.0	108.15	432.60 ✓	745.10
15	0	55	55	2.50	137.50 ✓	
	Rig Hours		3.5	108.15	378.52 ✓	516.02
16	0	70	70	2.50	175.00 ✓	
	Rig Hours		4.25	108.15	459.63 ✓	634.63
17	0	61	61	2.50	152.50 ✓	
	Rig Hours		4.25	108.15	459.63 ✓	612.13
18	0	65	65	2.50	162.50 ✓	
	Rig Hours		3.25	108.15	351.48 ✓	513.98
19	0	70	70	2.50	175.00 ✓	
	Rig Hours		4.75	108.15	513.71 ✓	688.71
20	0	60	60	2.50	150.00 ✓	
	Rig Hours		2.0	108.15	216.30 ✓	366.30
21	0	35	35	2.50	87.50 ✓	
	Rig Hours		2.25	108.15	243.33 ✓	330.83
22	0	21	21	2.50	52.50 ✓	
	Rig Hours		1.5	108.15	162.22 ✓	214.72
23	0	40	40	2.50	100.00 ✓	
	Rig Hours		1.5	108.15	162.22 ✓	262.22

ST. JOE CANADA INC.

159 Bay Street, Suite 614 Toronto, Ontario M5J 1J7

N° 1678

TORONTO November 3 1982

PAY TO THE ORDER OF

Heath & Sherwood Drilling

\$ 20,885.87

The sum of 20,885 and 87/100 DOLLARS

CANADIAN IMPERIAL BANK OF COMMERCE
MAIN BRANCH - COMMERCE COURT
TORONTO, ONTARIO
M5L 1J9

Roy Jones

⑈00002⑈010⑈ 71⑈147⑈10⑈ ⑈0002088587⑈

ST. JOE CANADA INC.

159 Bay Street, Suite 614, Toronto, Ontario M5J 1J7

N^o 1678

TORONTO November 3 1982

PAY TO THE ORDER OF 82 Heath & Sherwood Drilling \$ 20,835.87

100 DOLLARS

TO
CANADIAN IMPERIAL BANK OF COMMERCE
MAIN BRANCH - COMMERCE COURT
TORONTO, ONTARIO
M5L 1J9

PER: [Signature]

⑆0000 20010⑆ 71 14 70 10⑆

ENDORSEMENT OF ATTACHED CHEQUE IS SUFFICIENT RECEIPT

DETACH AT PERFORATION

DATE	INVOICE REFERENCE	BALANCE	DISTRIBUTION A/C No.	AMOUNT
	Invoice # 3390	14,232.96	815-24901	14,232.96
	3890	20,835.37	812-24901	6,592.91 ✓

[Handwritten initials]

MAILING ADDRESS

USE ZIP CODE

Suite 908
40 University Ave
Toronto M5J 1T1

- Return Check-Copy to Requestor.
- Enclose Attached Cover Letter.
- Other Instructions.

Requested By: [Signature]

Approved By: [Signature]

St. Joe Canada Inc.
Request For Check

Date _____

Payee:

Hall + Sherwood Building

Check Amount:

\$ 20 885.87
(Total of \$ amounts below)

FOR ACCOUNTING USE

Bank S/NAME: _____

MATHEMATICAL ACCURACY VERIFIED _____
APPROVAL VERIFIED _____
CODING VERIFIED _____
SUPPORTING DOCUMENTS IN AGREEMENT _____
NOTE: _____

CC-A/C Number	Description for Check Voucher (To 30 characters)	\$ Balance	Amount for post only
2490 815-79809	Inv # 9890	14,292.96	14,292.96
2490 812-79809	"	20885.87	6592.91

Approved
MA 37

MAILING ADDRESS

USE ZIP CODE

Suite 908
40 University Ave
Toronto M5S 1T1

- Return Check-Copy to Requestor.
- Enclose Attached Cover Letter.
- Other Instructions.

Requested By: COM

Approved By: _____

ST. JOE CANADA INC.

Date 7.10.80

Request or
Purchase Order Q M

Authorized By [Signature]

Cost Centre /
Project # Account # Amount

Project #	Account #	Amount
515-71809 →		20,885.87
512-79809 →		6,592.91
Cheque #		Total <u>20,885.87</u>

* See details below

suite 908, 40 university avenue,

*See dates below

toronto, ontario,
MSJ 111

November 1st, 1982

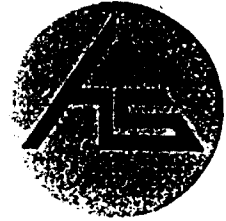
to
St. Joe Canada Inc.,
Suite 614, - 159 Bay Street,
Toronto, Ontario.
MSJ 1J7

Invoice No. 9890
D.O. 450
Project No. 82-088

in account with

heath & sherwood drilling

division of challenger international services ltd.



terms: net cash 15 days after date of invoice

hole no.	from	to	footage completed	rate	
to cover diamond drilling for the period October 16th-31st, 1982 *					
Reverse circulation rotary drilling program near Timmins and Kirkland Lake, Ontario.					
RCMB82-33	0	77	77	2.50	192.50
	Rig Hrs.		5	108.15	540.75
34	0	55	55	2.50	137.50
	Rig Hrs.		3.5	108.15	378.52
35	0	95	95	2.50	237.50
	Rig Hrs.		4.5	108.15	486.67
36	0	137	137	2.50	342.50
	Rig Hrs.		2.5	108.15	270.37
37	0	35	35	2.50	87.50
	Rig Hrs.		1.5	108.15	162.22
38	0	20	20	2.50	50.00
	Rig Hrs.		2	108.15	216.30
39	0	100	100	2.50	250.00
	Rig Hrs.		2	108.15	216.30
Moving from final hole (Wavel) to the end of the truck road					
Oct. 18th	Rig Hrs.		3	108.15	324.45
Oct. 19th	Rig Hrs.		2	108.15	216.30
Move from Wavel to Kirkland Lake					
Oct. 19th	Man hrs.		6	20.00	120.00
	Float rental				135.00
Move from Kirkland Lake to Hoyle (2nd phase)					
Oct. 26th	Man Hrs.		15	20.00	300.00
	Float rental				202.50
	Trucking 258 Km.		.75		193.50
RC-AL82-14	0	65	65	2.50	162.50
	Rig Hrs.		4	108.15	432.60
15	0	56	56	2.50	140.00
	Rig Hrs.		2.5	108.15	270.37
16	0	95	95	2.50	237.50
	Rig Hrs.		5	108.15	540.75

a & o. e.

suite 908, 40 university avenue,

toronto, ontario,
M5J 1T1

November 1st, 1982

Page -2-

Invoice No. 9890

In account with

heath & sherwood drilling

division of challenger international services ltd.



terms: net cash 15 days after date of invoice

hole no.	to cover diamond drilling for the period					
	<u>from</u>	<u>to</u>	<u>footage completed</u>		<u>rate</u>	
RC-AL82-17	0	126	126	2.50	315.00	
	Rig Hrs.		6.5	108.15	702.97	1,017.97
18	0	87	87	2.50	217.50	
	Rig Hrs.		2	108.15	216.30	433.80
19	0	95	95	2.50	237.50	
	Rig Hrs.		2.5	108.15	270.37	507.87
20	0	108	108	2.50	270.00	
	Rig Hrs.		3	108.15	324.45	594.45
21	0	111	111	2.50	277.50	
	Rig Hrs.		3	108.15	324.45	601.95
<u>Daily travel of Crew</u>						
Oct. 16th			5			
	Less		$\frac{1}{4}$			
			4 x 3 men	12 man hrs.		
Oct. 17th			5			
	Less		$\frac{1}{4}$			
			4 x 3 men	12 man hrs.		
Oct. 18th			3.5			
	Less		$\frac{1}{2.5}$			
			2.5 x 3 men	7.5 man hrs.		
Oct. 19th			2			
	Less		$\frac{1}{1}$			
			1 x 3 men	3 man hrs.		
Oct. 29th			2			
	Less		$\frac{1}{1}$			
			1 x 3 men	3 man hrs.		
Oct. 30th			2.5			
	Less		$\frac{1}{1.5}$			
			1.5 x 3 men	4.5 man hrs.		
Oct. 31st			2			
	Less		$\frac{1}{1}$			
			1 x 3 men	3 man hrs.	10.5 man hrs	
				$\frac{3}{45}$	20.00	
					x 20.00	900.00
<u>Rig servicing and mechanical downtime</u>						
Oct. 16th			1 hr.			
					= 210	

suite 908, 40 university avenue,

toronto, ontario,
M5J 1T1

November 1st, 1982

Invoice No. 9890

to Page -3-

in account with

heath & sherwood drilling

division of challenger international services ltd.



terms: net cash 15 days after date of invoice

hole no.	<u>to cover diamond drilling for the period</u>				
	<u>from</u>	<u>to</u>	<u>footage completed</u>	<u>rate</u>	
Oct. 17th			1 hr.		
Oct. 19th			1.5		
Oct. 27th			11		
Oct. 28th			9		
Oct. 30th			1.5		
			25 hrs		
			$21.5 \text{ hrs} \times 15 \frac{5}{10} = 32.25 \text{ hrs} \times 108.15$		
			<u>348.78</u>		
			Total drill operating hours 54.5		
			15% of 54.5	8.175	108.15
					884.13
			<u>Water Hauling</u>		
Oct. 16th			6 hrs.		
Oct. 17th			7		
Oct. 18th			8		
Oct. 28th			1		
Oct. 29th			10		
Oct. 30th			7		
Oct. 31st			10.5		
			49.5 hrs.	18.90	
			$28.5 \text{ hrs} \times 18.90 = 538.65$		
					935.55
			<u>Down hole Consumables</u>		
9 only			2-15/16" tricone carbide button bits Nos. A000010, A000012, A000015, A000019, A000020, A000021, B-64504, B65651, B65652		776.25
					6,986.25
3 only			2.75" bit subs		301.30
					903.90
30 yards			Crushed rock to repair road on Stadnick farm		471.50
					8,361.65
			<u>Adjustments to previous invoice</u>		
			Invoice No. 9848		
			<u>Move from Wavell to Hoyle</u>		
			Man Hrs.	17.25	20.00
					345.00
			should be: move included in lump sum		
			mobilization therefore no charge		
					<u>0</u>
					(345.00)

suite 908, 40 university avenue,

toronto, ontario,
M5J 1T1

November 1st, 1982

Invoice No. 9890

to

Page -4-

in account with

heath & sherwood drilling

division of challenger international services ltd.



Terms: net cash 15 days after date of invoice

hole no.	to cover diamond drilling for the period					
	<u>from</u>	<u>to</u>	<u>footage completed</u>	<u>rate</u>		
	Invoice 9869					
	Move from Hoyle to Wavell					
	additional charges:					
				Float rental	225.00	
			258 Km.	Trucking	.75	418.50
					<u>193.50</u>	
	<u>Water Hauling</u>					
Oct. 4th			2.5 hrs.			
Oct. 5th			7			
Oct. 6th			8.5			
Oct. 7th			8			
Oct. 8th			7			
Oct. 9th			<u>6</u>			
			39 hrs.	18.90	737.10	
	Should be		39 hrs.	12.00	<u>468.00</u>	(269.10)
	Difference in rate due to a IHC 500 Skidder was used on these days rather than the Nodwell GT-1000					
						<u>\$20,885.87</u>

ST. JOE CANADA INC.

159 Bay Street, Suite 614, Toronto, Ontario M5J 1J7

No. 2174

TORONTO February 22 1983

PAY TO THE ORDER OF Heath & Sherwood Drilling

ST. JOE CANADA INC. \$2,468.35

\$ 42,468.35 DOLLARS

TO CANADIAN IMPERIAL BANK OF COMMERCE
MAIN BRANCH - COMMERCE COURT
TORONTO, ONTARIO
MSL 1J9

Ray Jones

⑆00002⑆

⑆0004246835⑆

11/10/83
29

5445 Yonge Street,

willowdale, ontario, February 18th, 1983

M2N 5S1

to **St. Joe Canada Inc.,**
 Suite 614 - 159 Bay Street,
 Toronto, Ontario.
 M5J 1J7

invoice **N^o 29**
 d.o. no. 465
 project no. 83-007

in account with

heath & sherwood drilling

division of challenger international services ltd.



terms: net cash 15 days after date of invoice

hole no.	from	to	footage completed	rate	
	to cover diamond drilling for the period <u>February 1st-15th, 1983</u>				
	Reverse circulation rotary drilling program near Kirkland Lake and Timmins, Ontario.				
	<u>Footage</u>				
RC-MB-83-72			100 ft.		
73			45		
74			150		
75			122		
76			85		
77			115		
78			122		
79			70		
80			60		
81			135		
82			90		
83			70		
RC-AL-83-27			127		
28			135		
29			120		
30			115		
31			92		
32			104		
33			90		
34			95		
35			35		
36			124		
37			135		
38			110		
			<u>2549 ft.</u>		
				2.50	6,372.50
				<i>ms. team - 1983</i>	
				<i>2.50 x 1389.1 = 3462.5</i>	
	<u>Drilling Operating Hours.</u>				
		<u>Drilling</u>	<u>Moving</u>	<u>Mechanical</u>	
Feb. 1st		4.5	1.5	2.5	
3rd		5.5	3.5		
4th		5	2		
5th		5		1	
6th		5	3		
7th		6	1		

5445 Yonge Street,

willowdale, ontario, February 18th, 1983
M2N 5S1

to

invoice no. 29
d.o. no. 465
project no. 83-007

Page -2-

in account with

heath & sherwood drilling
division of challenger international services ltd.



terms: net cash 15 days after date of invoice

hole no.	to cover diamond drilling for the period					
	from	to	footage completed	rate		
	Feb. 8th	4	7.5			
	9th		9.5	2		
	10th	10	.5	1.5		
	11th	7.5	.5	.5		
	12th	8		1.5		
	13th	7.5	.5	.5		
	14th	9				
	15th	10	1			
		87	30.5	9.5		
	Drilling hours		87	119.20	x 52	6,198.40
	Moving Hours		30.5	119.20	x 12	3,635.60
	Mechanical Hours		9.5	119.20	x 6	1,132.40
						7,966.40
						10,370.40
	<u>Daily travel in excess of one hour</u>					
	Feb. 3rd		.5 excess hours			
	4th		1			
	6th		.5			
	7th		1.5			
	3 Men at		2.5 = 7.5	20.00		150.00
	<u>Water Hauling</u>					
	Feb. 1st		6 hrs.			
	3rd		9			
	4th		8			
	5th		6			
	6th		9			
	7th		8.5			
	8th		7.5			
	10th		10.5			
	11th		9.5			
	12th		9.5			
	13th		9			
	14th		10.5			
	15th		12			
			115 hrs.	18.90	x 61	2,173.50
						2,173.50

5445 Yonge Street,

willowdale, ontario, February 18th, 1983
M2N 5S1

to Page -3-

invoice no. 29
d.o. no. 465
project no. 83-007

in account with
heath & sherwood drilling
division of challenger international services ltd.



terms: net cash 15 days after date of invoice

hole no.	to cover diamond drilling for the period	from	to	footage completed	rate		
15 only	<u>Down Hole consumables</u>						
	2-15/16" tricone carbide button bits						
	Nos. B-65422, B-65423, B-65472,						
	B-65543, B-65544, B-65577, B-65665,						
	B-65666, 40215, 40216, 40223, 40224,						
	40225, 40227, 40228			776.25			11,643.75
6 only	2.75" bit subs			301.30			1,807.80
4 only	2.75" x 10 ft. dual tube rods			339.25			1,357.00
	<u>Snowmobiles</u>						
Feb. 1-8	2 machines for 8 days		16 days				
Feb. 9-15	1 machine for 7 days		7				
			23 days	38.00	X 7	266	874.00
	<u>Camp accommodation for Company's crew</u>						
	Feb. 1st-9th		9 days	30.00			270.00
	<u>Meals:</u>						
	K. MacNeil		25				
	K. Elcomb		3				
	P. Barry		23				
			51 meals	7.00			357.00
	<u>Watchman</u>						
	Feb. 10th-15th		6 days	85.00			510.00
	<u>Equipment Standby</u>						
	Standby charge for having timberjack at Wavel camp site:						
	Jan. 24th - Feb. 9th		17 days	27.00			459.00
	<u>Special Operations</u>						
	Moving camps February 1st:						
	L. Rumleskie		3 hrs.				
	M. Lajoie		3				
	J. Howg		3				
	G. Howg		12				
	C. Leblanc		12				
			33 man hrs.	20.00			660.00

Handwritten notes:
54,377.00
Bates
Com. Summed
2051.62

5445 Yonge Street,

willowdale, ontario, February 18th, 1983
M2N 5S1

to

invoice no. 29
d.o. no. 465
project no. 83-007

Page -4-

in account with

heath & sherwood drilling

division of challenger international services ltd.



terms: net cash 15 days after date of invoice

hole no.	to cover diamond drilling for the period					
	<u>from</u>	<u>to</u>	<u>footage completed</u>	<u>rate</u>		
	Plowing roads February 12th:					
	Labour		6 hrs.	20.00	<i>Mathew - 120.00</i>	120.00
	Timberjack		6 hrs.	18.90	<i>113.40</i>	113.40
	<u>Third Party charges</u>					
	Leo Alaire and Sons Ltd.				<i>233.40</i>	
	Invoice No. T-83-02-01 re snow plowing					
						<u>462.00</u>
						<u>\$42,468.35</u>

111010E 9400

ST. JOE CANADA INC.

159 Bay Street, Suite 501 Toronto, Ontario M5J 1J7

No. 1729

Toronto November 11 1982

PAY TO THE ORDER OF Heath & Sherwood Dral

\$ 6,235.51

the sum of **SIX THOUSAND TWO HUNDRED THIRTY FIVE AND 51/100 DOLLARS**

TO CANADIAN IMPERIAL BANK OF COMMERCE
MAIN BRANCH - COMMERCE COURT
TORONTO, ONTARIO
M5L 1J9

PER: *Roy Jure*

⑆00002⑆

⑆0000623551⑆

ST. JOE CANADA INC.

159 Bay Street, Suite 614, Toronto, Ontario M5J 1J7

N^o 1729

TORONTO November 11 19 82

PAY TO THE ORDER OF Heath & Sherwood Drilling

\$ 6,235.51

100 DOLLARS

TO
CANADIAN IMPERIAL BANK OF COMMERCE
MAIN BRANCH - COMMERCE COURT
TORONTO, ONTARIO
M5L 1J9

PER: _____

⑆00002⑆010⑆ 71⑆147⑆10⑆

ENDORSEMENT OF ATTACHED CHEQUE IS SUFFICIENT RECEIPT

DETACH AT PERFORATION

DATE	INVOICE REFERENCE	BALANCE	DISTRIBUTION A/C No.	AMOUNT
	19900	1,235.51	010-77000	6,235.51

0095

St. Joe Canada Inc.
Request For Check

Date

Payee:
Health - Sherwood Muller's

Check Amount:
\$ 6235.⁵¹
(Total of \$ amounts below)

FOR ACCOUNTING USE

Bank S/NAME: _____

MATHEMATICAL ACCURACY VERIFIED _____
 APPROVAL VERIFIED _____
 CODING VERIFIED _____
 SUPPORTING DOCUMENTS IN AGREEMENT _____
 NOTE: _____

CC-A/C Number	Description for Check Voucher (To 30 characters)	\$ Balance	Amount for post only
<u>812-79809</u>	<u>Inv # 9900</u>	<u>6235.⁵¹</u>	<u>6235.⁵²</u>
		<u>Bell</u>	

MAILING ADDRESS
USE ZIP CODE

Suite 908
40 University Ave
Toronto Ontario
M5T 1T1

Mailed Nov 11/82
LCW

Return Check-Copy to Requestor.
 Enclose Attached Cover Letter.
 Other Instructions.

Requested By: D. Malloy
 Approved By: [Signature]

suite 908, 40 university avenue,

toronto, ontario, November 10th, 1982
M5J 1T1

to St. Joe Canada Inc.,
Suite 614 - 159 Bay Street,
Toronto, Ontario.
M5J 1J7

Invoice No. 9900
D.O. 450
Project No. 82-088

in account with

heath & sherwood drilling

division of challenger international services ltd.



terms: net cash 15 days after date of invoice

hole no.	to cover diamond drilling for the period November 1st-4th, 1982					
	<u>from</u>	<u>to</u>	<u>footage completed</u>	<u>rate</u>		
	Reverse circulation rotary drilling program near Timmins and Kirkland Lake, Ontario.					
RC-AL82-22	0	124	124	2.50	310.00	
	Rig hrs.		3.5	108.15	378.52	688.52
23	0	129	129	2.50	322.50	
	Rig hrs.		5.5	108.15	594.82	917.32
24	0	136	136	2.50	340.00	
	Rig hrs.		6.0	108.15	648.90	988.90
25	0	80	80	2.50	200.00	
	Rig hrs.		2.0	108.15	216.30	416.30
26	0	71	71	2.50	177.50	
	Rig hrs.		1.5	108.15	162.22	339.72
	<u>Daily travel of crew</u>					
Nov. 1st			2.5			
	Less		1.0			
			1.5 x 3 men	4.5 man hrs.		
Nov. 2nd			1.0			
	Less		1.0			
			0			
Nov. 3rd			2.0			
	Less		1.0			
			1.0 x 3 men	3.0 man hrs.		
Nov. 4th			1.0			
	Less		1.0			
			0			
				7.5 man hrs.	20.00	150.00
	<u>Rig servicing and mechanical downtime</u>					
Nov. 2nd			11.5 hrs.			
Nov. 3rd			1.5			
			13 hrs.			
	Total drill operating hours 19.5					
	15% of 19.5 3 rig hrs.					
				108.15		324.45

suite 908, 40 university avenue,

toronto, ontario,
M5J 1T1

November 10th, 1982

Invoice No. 9900

to Page -2-

in account with

heath & sherwood drilling

division of challenger international services ltd.



terms: net cash 15 days after date of invoice

hole no.	to cover diamond drilling for the period	from	to	footage completed	rate	
	<u>Water Hauling</u>					
Nov. 1st				9 hrs.		
Nov. 2nd				0		
Nov. 3rd				8		
Nov. 4th				1.5		
				18.5	18.90	349.65
	<u>Moving from final hole to the end of the truck road</u>					
Nov. 4th	Rig hrs.		1		108.15	108.15
	<u>Demobilization - Fixed Sum</u>					400.00
	<u>Down hole consumables</u>					
2 only	2-15/15" tricone carbide button bits Nos. B65653, B65654				776.25	1,552.50
						<i>1966</i> \$6,235.51

ST. JOE CANADA INC.

Date: *Nov 11*

Request or Purchase Order: *[Signature]*

Authorized By: *[Signature]*

Cost Centre:

Project #	Account #	Amount
<i>812</i>	<i>79809</i>	<i>6235.51</i>

Cheque # _____ Total: *6235.51*

ST. JOE CANADA INC.

159 Bay Street, Suite 614, Toronto, Ontario M5J 1J7

N° 1501

TORONTO October 13 19 82

PAY TO THE ORDER OF Heath & Sherwood Drilling \$ 24,170.19

The sum of 24,170.19 Cts 100 DOLLARS

TO
CANADIAN IMPERIAL BANK OF COMMERCE
MAIN BRANCH - COMMERCE COURT
TORONTO, ONTARIO
M5L 1J9

PER: Nancy Jones

⑆00002⑆010⑆ 71⑆147⑆10⑆

ENDORSEMENT OF ATTACHED CHEQUE IS SUFFICIENT RECEIPT

DETACH AT PERFORATION

DATE	INVOICE REFERENCE	BALANCE	DISTRIBUTION A/C No.	AMOUNT
	Inv. No. 9849	7,954.10	815-79809	7,954.10 ✓
	Proj No. 82-088	13,156.66	812-79809	5,202.56
		24,170.19	812/815-79809	11,013.53
			812-5506.76	
			815-5,506.77	
			(C-08)	5262.56
				5306.76
			812 Total =	10,709.32

MAILING ADDRESS

USE ZIP CODE

Suite 908
40 University Ave
Toronto Ont
M5J 1T1

- Return Check-Copy to Requestor.
- Enclose Attached Cover Letter.
- Other Instructions.

Requested By: [Signature]
Approved By: [Signature]

St. Joe Canada Inc.
Request For Check

Date _____

Payee:

Hearn & Sherwood Delling

Check Amount:

\$ 24,170.19
(Total of \$ amounts below)

FOR ACCOUNTING USE

Bank S/NAME: _____

MATHEMATICAL ACCURACY VERIFIED _____
APPROVAL VERIFIED _____
CODING VERIFIED _____
SUPPORTING DOCUMENTS IN AGREEMENT _____
NOTE: _____

CC-A/C Number	Description for Check Voucher (To 30 characters)	\$ Balance	Amount for post only
815-79809	Inv. No 9849	7954.10	7954.10
812-79809	Prd. No 82-088	13156.66	13156.66
812/815-79809		24170.19	11,013.53

MAILING ADDRESS

USE ZIP CODE

Suite 908
40 University Ave
Toronto Ont
M5J 1T1

- Return Check-Copy to Requestor.
- Enclose Attached Cover Letter.
- Other Instructions.

Requested By: Dn

Approved By: [Signature]

ST. JOE, INDIANA
Oct. 7/88
L.M.
H.

215-	79507	7954.10
312.	79507	5202.56
812	79507	11013.53

211.19

977-750
22 94690

suite 908, 40 university avenue,

Toronto, Ontario,
M5J 1T1

October 5th, 1982

to

St. Joe Canada Inc.,
159 Bay Street, Suite 614,
Toronto, Ontario.
MSJ 1J7.

Invoice No. 9848
D.O. 450
Project No. 82-088

in account with

heath & sherwood drilling

division of challenger international services ltd.



terms: net cash 15 days after date of invoice

hole no.	to cover diamond drilling for the period September 20th-30th, 1982				
	<u>from</u>	<u>to</u>	<u>footage completed</u>	<u>rate</u>	
	Reverse circulation rotary drilling program near Timmins and Kirkland Lake, Ontario.				
	Mobilization - Lump Sum				400.00
	Moving from end of the truck road to the first drill hole (Wavell)				
	Rig Hours	4 only		108.15	432.60
GM	RC-MB82-01	0 75	75	2.50	187.50
	Rig Hours		4.75	108.15	513.71
	RC-MB82-02	0 106	106	2.50	265.00
	Rig Hours		8.5	108.15	919.28
	RC-MB82-03	0 92	92	2.50	230.00
	Rig Hours		2.25	108.15	243.34
	RC-MB82-04	0 95	95	2.50	237.50
	Rig Hours		2.25	108.15	243.34
	RC-MB82-05	0 42	42	2.50	105.00
	Rig Hours		1.25	108.15	135.19
	RC-MB82-06	0 72	72	2.50	180.00
	Rig Hours		1.25	108.15	135.19
	RC-MB82-07	0 81	81	2.50	202.50
	Rig Hours		1.5	108.15	162.23
	RC-MB82-08	0 65	65	2.50	162.50
	Rig Hours		2	108.15	216.30
	RC-MB82-09	0 68	68	2.50	170.00
	Rig Hours		1.75	108.15	189.26
	RC-MB82-10	0 156	156	2.50	390.00
	Rig Hours		5.25	108.15	567.79
	RC-MB82-11	0 70	70	2.50	175.00
	Rig Hours		1.5	108.15	162.23
	RC-MB82-12	0 137	137	2.50	342.50
	Rig Hours		3.5	108.15	378.53
	RC-MB82-13	0 70	70	2.50	175.00
	Rig Hours		1.5	108.15	162.23
	Moving from final hole (Wavell) to the end of the truck road.				
	Rig Hours		2.5	108.15	270.38

suite 908, 40 university avenue,

toronto, ontario, October 5th, 1982
MSJ 171

Invoice No. 9848

to

Page -2-

in account with

heath & sherwood drilling

division of challenger international services ltd.



terms: net cash 15 days after date of invoice

hole no.	to cover diamond drilling for the period					
	<u>from</u>	<u>to</u>	<u>footage completed</u>	<u>rate</u>		
<i>All</i>	Move from Wavell to Hoyle					
			Man Hours	17.25	20.00	345.00
RC-AL82-01	0	80	80	2.50	200.00	
			Rig Hours	4	108.15	432.60
RC-AL82-02	0	130	130	2.50	325.00	
			Rig Hours	4.5	108.15	486.68
RC-AL82-03	0	90	90	2.50	225.00	
			Rig Hours	2.75	108.15	297.41
RC-AL82-04	0	85	85	2.50	212.50	
			Rig Hours	1.75	108.15	189.26
RC-AL82-05	0	95	95	2.50	237.50	
			Rig Hours	3	108.15	324.45
RC-AL82-06	0	75	75	2.50	187.50	
			Rig Hours	1.25	108.15	135.19
RC-AL-82-07	0	80	80	2.50	200.00	
			Rig Hours	3.5	108.15	378.53
RC-AL82-08	0	80	80	2.50	200.00	
			Rig Hours	4.75	108.15	513.71
RC-AL82-09	0	60	60	2.50	150.00	
			Rig Hours	1.5	108.15	162.23
	<u>Daily Travel of Crew</u>					
	Sept. 20th	2.5				
	Less	$\frac{1}{4}$	1.5 x 3 men	4.5	man hrs.	
	Sept. 21st	4				
	Less	$\frac{1}{4}$	3 x 3 men	9	"	
	Sept. 22nd	4				
	Less	$\frac{1}{4}$	3 x 3 men	9	"	
	Sept. 23rd	4				
	Less	$\frac{1}{4}$	3 x 3 men	9	"	
	Sept. 24th	3.5				
	Less	$\frac{1}{4}$	2.5 x 3 men	7.5	"	
	Sept. 27th	1.5				
	Less	$\frac{1}{4}$.5 x 3 men	1.5	"	
	Sept. 28th	2				
	Less	$\frac{1}{4}$	1 x 3 men	3	"	
	Sept. 29th	2.5				
	Less	$\frac{1}{4}$	1.5 x 3 men	4.5	"	

e. & o. e.

suite 908, 40 university avenue,

toronto, ontario, October 5th, 1982
MSJ 711

to Page -3-

Invoice No. 9848

in account with
heath & sherwood drilling
division of challenger international services ltd.



terms: net cash 15 days after date of invoice

hole no.	to cover diamond drilling for the period					
	from	to	footage completed	rate		
172	Sept. 20th	2.25				
	Less	<u>1</u>	1.25 x 3 men	<u>3.75</u>		
				51.75	x	20.00
						1,035.00
	<u>Rig Servicing</u>					
	Sept. 24th		.25 rig hrs.			
	Sept. 25th		8			
	Sept. 28th		5.5			
	Sept. 29th		<u>1.5</u>			
			15.25			
	Total drill operating hours 70.75					
	15% of 70.75		10.61		108.15	1,147.47
	<u>Water Hauling</u>					
	Sept. 20th		4 hrs.			
	Sept. 21st		8			
	Sept. 22nd		8			
	Sept. 23rd		10.5			
	Sept. 24th		9.5			
	Sept. 27th		3.75			
	Sept. 28th		10			
	Sept. 29th		10.5			
	Sept. 30th		<u>9.75</u>			
			74 hrs.		x	18.90
						1,398.60
	<u>Down hole consumables</u>					
	2-15/16" Tricone carbide button bits.				776.25	6,210.00
	Bit Nos. B-63429, B-63433, B-63434, K-000432 to K-000436 incl.				578.00	
	2.75" bit subs				233.00	
	Litres Super Poly 2000				301.30	1,205.20
				8.63		17.26
						\$24,170.19

ST. JOE CANADA INC.

159 Bay Street, Suite 817, Toronto, Ontario M5L 1J7

111 Richmond St. W., Suite 418, Toronto M5H 2J4 No. 2245

C 8 6 1 6 0 TORONTO March 11 1983

PAY TO

THE ORDER OF Heath & Sherwood Drilling

\$ 22,461.30

ST. JOE CANADA INC. 22,461.30 DOLLARS

CANADIAN IMPERIAL BANK OF COMMERCE

MAIN BRANCH - COMMERCE COURT
TORONTO, ONTARIO
M5L 1J9

Way Jane

00002246130

Croque 2245 - Heath & Sherwood

353' x 2.5 = \$ 882.50

drilling hrs. 16 x 119.20 = 1,907.20

Moving hrs. 3 x 119.20 = 357.60

Mech. hrs. 4 x 119.20 = 476.80

water haul. 16.5 hrs x 18.90 = 311.85

snare mile 2 x 38 = 76.00

Watchman 2 days x 85 = \$170.00

Mobilization

190.00

182.25

337.50

100.00

\$4,991.70

80

812

-

4,991.70

should be

815

-

17,469.60

ST. JOE CANADA INC.

~~159 Bay Street, Suite 614, Toronto, Ontario M5J 1J7~~

111 Richmond St. W., Suite 110, Toronto M5H 2J4

N° 8817

TORONTO March 11 1983

PAY TO THE ORDER OF Heath & Sherwood Drilling \$ 22,151.30

ST. JOE CANADA INC. 2246160's 30cts

100 DOLLARS

TO
CANADIAN IMPERIAL BANK OF COMMERCE
MAIN BRANCH - COMMERCE COURT
TORONTO, ONTARIO
MSL 1J9

PER: [Signature]

⑆00002⑆010⑆ 710147010⑆

ENDORSEMENT OF ATTACHED CHEQUE IS SUFFICIENT RECEIPT

DETACH AT PERFORMANCE

DATE	INVOICE REFERENCE	BALANCE	DISTRIBUTION A/C No.	AMOUNT
Mar. 83		22,151.30	815-70003 812- shc.	22,151.30

CD/26.
2/25/84
Sept 30/83
(See attachment)

telephone 416-229-4040

telex 06-986543

5445 Yonge Street,

willowdale, ontario, March 8th, 1983
M2N 5S1

to St. Joe Canada Inc.,
Suite 614-159 Bay Street,
Toronto, Ontario.
M5J 1J7

invoice **No 55**
d.o. no. 465
project no. 83-007

in account with

heath & sherwood drilling

division of challenger international services ltd.



terms: net cash 15 days after date of invoice

hole no.	to cover diamond drilling for the period <u>February 16th-28th, 1983</u>				
	<u>from</u>	<u>to</u>	<u>footage completed</u>	<u>rate</u>	
	Reverse circulation rotary drilling program near Kirkland Lake and Timmins, Ontario.				
	<u>Footage</u>				
RC-AL-83-39			113'		
40			105		
41			135		
RC-MB-83-84			24		
85			93		
86			115		
87			93		
88			115		
89			115		
90			103		
91			110		
92			93		
			<u>1214 ft.</u>	2.50	3,035.00
	<u>Drill Operating Hours</u>				
		<u>Drilling</u>	<u>Moving</u>	<u>Mechanical</u>	
Feb. 16th		9.5	.5		
17th		6.5	2.5	4	
24th			7		
25th		8.75		.25	
26th		8.75		.25	
27th		9.25		.5	
28th		9.25		.25	
		<u>52</u>	<u>10</u>	<u>5.25</u>	
Drilling Hours		52	16	119.20	6,198.40
Moving Hours		10	3.0	119.20	1,192.00
Mechanical Hours		5.25	4	119.20	625.80
					<u>7,016.20</u>
	<u>Daily Travel in excess of one hour</u>				
Feb. 28th			.25 excess hours		
3 men at	.25 =		.75	20.00	
					150.00 15.00 ✓

5445 Yonge Street,

willowdale, ontario,
M2N 5S1

March 8th, 1983

to Page -2-

invoice no. 55
d.o. no. 465
project no. 83-007

in account with

heath & sherwood drilling

division of challenger international services ltd.



terms: net cash 15 days after date of invoice

hole no.	to cover diamond drilling for the period	from	to	footage completed	rate	
	<u>Water Hauling</u>					
	Feb. 16th			10 hrs.	16.5 x 18.90 = 311.85	
	17th			6.5		
	25th			10.75		
	26th			9.75		
	27th			9.5		
	28th			10		
				56.5 hrs.	18.90	1,067.85
	<u>Down Hole Consumables</u>					
7 only	2-15/16" tricone carbide button bits Nos. B-65407, B-65408, B-65471, B-65473, B-65475, B-65476, B-65479				776.25	5,433.75
3 only	2.75" bit subs				301.30	903.90
3 only	2.75" x 10 ft. dual tube rods				339.25	1,017.75
	<u>Snowmobiles</u>					
Feb. 16 & 17	1 Machine for 2 days			2 days		
Feb. 24-28	2 machines for 5 days			10		
				12 days	38.00	456.00
	<u>Camp accommodation for Company's crew</u>					
	Feb. 23rd-28th			6 days	30.00	180.00
	<u>Meals:</u>					
	K. MacNeil			16		
	I. Lowg-Wylee			16		
				32 meals	7.00	224.00
	<u>Watchman</u>					
	Feb. 16th-20th			5 days	85.00	425.00
	<u>Special Operations</u>					
	Moving camps February 20th:					
	A. Bouchard			8 hrs.		
	F. Morin			9		
				17 man hrs.	20.00	340.00
	Timberjack			6 hrs.	18.90	113.40
	5 Ton truck			9 hrs.	12.50	112.50

5445 Yonge Street,

willowdale, ontario, March 8th, 1983
- M2N 5S1

to

invoice no. 55
d.o. no. 465
project no. 83-007

Page -3-

in account with

heath & sherwood drilling
division of challenger international services ltd.



terms: net cash 15 days after date of invoice

hole no.	to cover diamond drilling for the period	from	to	footage completed	rate	
	Plow roads February 23rd:					
	J. Dudgeon			8 hrs.	20.00	160.00
	Timberjack			8	18.90	151.20
	<u>Moving between Wavell and Hoyle</u>					
Feb. 9th	Bolduc Mattagami transport invoice 14718 covering moving Nodwell from Wavell to Hoyle					190.00
Feb. 9th	Bolduc Mattagami transport invoice 14722 covering moving Bulldozer from Wavell to Hoyle					182.25
Feb. 17th	Nelson Bros. Construction invoice covering moving Nodwell from Hoyle to Kirkland Lake					337.50
Feb. 19th	Our Unit 101 moved Bulldozer from Hoyle to Kirkland Lake			80 miles	1.25	100.00
						<u>22,461.30</u> ✓

ST. JOE CANADA INC.

Date Mar. 11/83

Request or Purchase Order [Signature]

Authorized By [Signature]

Cost Centre / Project # 815 Account # 79809 Amount 22,461.30

Cheque # _____ Total 22,461.30 [Signature]

INVOICE

BOLDUC MATTAGAMI TRANSPORT LIMITED

HWY 101 WEST

TELEPHONE 267-2108

P.O. BOX 912

TIMMINS, ONTARIO P4N 7H1

SOLD TO:

Heath & Sherwood
P.O. Box 998
Kirkland Lake, Ontario
P2N 3L3



DATE February 21, 1983

YOUR ORDER NO. ~~XXXXXX~~ 15157

INVOICE No. 14718

TERMS

DATE	DESCRIPTION	DEBIT	CREDIT	BALANCE
Feb. 9/83	Bill of Lading No. 21508 Move Nodwell from Wavell Road to Ice Chest Road on Hwy. 610 4 hrs. @ 44.50 Oversize Permit	 178.00 <u>12.00</u>		 <u>\$190.00</u>

HEATH & SHERWOOD BILLING				
ACCT NO.	DATE	CLERK	BY	DATE
100465	4/12			Feb 25/83
		AM		



INVOICE

BOLDUC MATTAGAMI TRANSPORT LIMITED

HWY 101 WEST

TELEPHONE 267-2108

P.O. BOX 912

TIMMINS, ONTARIO P4N 7H1

SOLD TO:

Heath & Sherwood
P.O. Box 998
Kirkland Lake, Ontario
P2N 3L3



DATE February 21, 1983

YOUR ORDER NO. 15157

INVOICE No. 14722

TERMS

DATE	DESCRIPTION	DEBIT	CREDIT	BALANCE
Feb.9/83	Bill of Lading No. 21431 Move JD-450 Bulldozer & Fuel Tank from Wavell to Ice Chest Lake Road 4.5 hrs. @ 40.50	<u>182.25</u>		<u>\$182.25</u>

BOLDUC MATTAGAMI TRANSPORT LIMITED					
ACCOUNT	DATE	DEBIT	CREDIT	PAID	RECEIVED
100465	4412				
	<i>Om</i>				
					<i>P.L. 25/83</i>

NELSON BROS. CONSTRUCTION CO. LIMITED

EQUIPMENT RENTALS

4 McCHESNEY DRIVE

KIRKLAND LAKE, ONTARIO, P2N 3H7

P.O. BOX 244

SOLD TO HEATH & SHERWOOD DRILLING

DATE February 17th, 1983.

P. O. BOX 998

INVOICE NO. _____

KIRKLAND LAKE, ONTARIO.

TERMS: ACCOUNTS DUE WHEN RENDERED

Purchase order #15287F
Float - pick up Rodwell at Hoyle
7½ hrs. @ \$45.00 hr.

\$337.50

100465	4412 2602 M			
--------	------------------------------	--	--	--

Raw 2/83

SCHEDULE B

The work was performed on the following claims:

P 393103
P 393104
P 393105

P 393107
P 393108
P 393109
P 393110
P 393741
P 452461
P 452498
P 452499
P 617734
P 617736
P 624629
P 632852

James Bruce

SCHEDULE A

<u>Claim No.</u>	<u>Expenditure Days Credits</u>	<u>Claim No.</u>	<u>Expenditure Days Credits</u>
393103	60	652730	60
393104	60	652731	60
393105	60	652732	60
393106	60	652733	60
393107	60	652734	60
393108	60	652735	60
393109	60	652736	60
393110	60	652737	60
393738	60	652738	60
393739	60	652739	60
393740	60	652740	60
393741	60	652741	60
452461	60	652742	60
452462	60	652743	60
452463	60	652744	60
452464	60	652745	60
452498	60	652746	60
452499	60	652749	60
452500	60	652750	60
617733	60	652751	60
617734	60	652752	60
617735	60	652753	60
617736	60	652754	60
617737	60	652755	60
617738	60	652756	60
618931	60	652757	60
618932	60	652760	60
624600	60	652761	60
624601	60	652762	60
624629	60	652763	60
624630	60	652764	60
628017	60	652765	60
628018	60	652766	60
632852	60	652767	60
632853	60	652768	60
652713	60	652769	60
652714	60	652770	60
652715	60	652771	60
652716	60		
652718	60		
652719	60		
652720	60		
652721	60		
652722	60		
652723	60		
652724	60		
652725	60		
652728	60		
652729	60		

James Busio



Mining Lands Comments

okay.

To: Geophysics

Comments

Approved Wish to see again with corrections Date Signature

To: Geology - Expenditures Mr. C Krusta

Comments

Approved Wish to see again with corrections Date Dec 22/93 Signature CKrusta

To: Geochemistry

Comments

L.D.

Approved Wish to see again with corrections Date Signature

To: Mining Lands Section, Room 6462, Whitney Block. (Tel: 5-1380)

1983 11 08

2.5979

Mining Recorder
Ministry of Natural Resources
60 Wilson Avenue
Timmins, Ontario
P4N 2S7

Dear Sir:

We have received data for Overburden Drilling submitted under Section 77(19) of the Mining Act R.S.O. 1980 for mining claims P 393103 et al in the Townships of Matheson and Evelyn.

This material will be examined and assessed and a statement of assessment work credits will be issued.

We do not have a copy of the report of work which is normally filed by you prior to the submission of this technical data. Please forward a copy as soon as possible.

Yours very truly,

E.F. Anderson
Director
Land Management Branch

Whitney Block, Room 6643
Queen's Park
Toronto, Ontario
M7A 1W3
Phone: (416)965-1380

A. Barr:mc

cc: St. Joe Canada Inc
Suite 418
111 Richmond Street West
Toronto, Ontario
M5H 2J4

Initial Check

Dec 7, 1983 MEA

Assessed

Dec 23, 1983

Approved Reports of Work
sent out

Notice of Intent filed

Approval after Notice of Intent
sent out

Duplicate sent to Resident
Geologist

Duplicate sent to A.F.R.O.

Evelyn Twp.

2-5979

THE TOWNSHIP OF
OF
MATHESON

DISTRICT OF
COCHRANE

PORCUPINE
MINING DIVISION

SCALE: 1-INCH=40 CHAINS

LEGEND

- PATENTED LAND (P)
- CROWN LAND SALE (S) or (C.S.)
- LEASES (L)
- LOCATED LAND (Loc.)
- LICENSE OF OCCUPATION (L.O.)
- MINING RIGHTS ONLY (M.R.O.)
- SURFACE RIGHTS ONLY (S.R.O.)
- ROADS (—)
- IMPROVED ROADS (—)
- KING'S HIGHWAYS (—)
- RAILWAYS (—)
- POWER LINES (—)
- MARSH OR MUSKEG (—)
- MINES (—)

NOTES

Reserve Flooding Rights to 903' Contour to H.E.P.C. on Frederick House River.

400' Surface rights reservation around all lakes & rivers.

This township lies within the Municipality of CITY OF TIMMINS.

RESERVATIONS:

SAND AND GRAVEL

- (Q) QUARRY PERMIT
- (G) MNR GRAVEL RESERVE FILE 24648

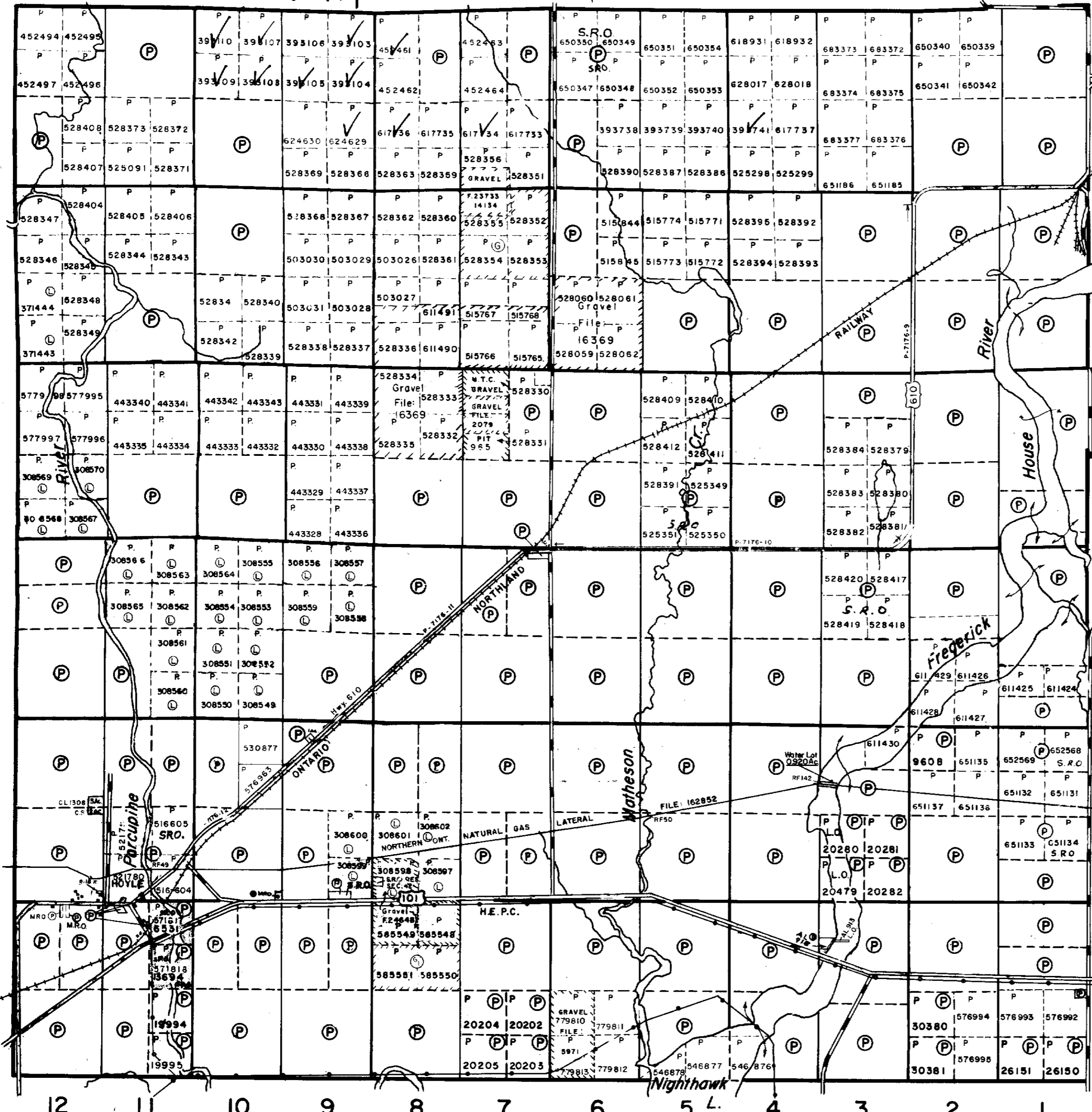
PLAN NO.- M-297

ONTARIO
MINISTRY OF NATURAL RESOURCES

SURVEY AND MAPPING BRANCH

Hoyle Twp.

German Twp.

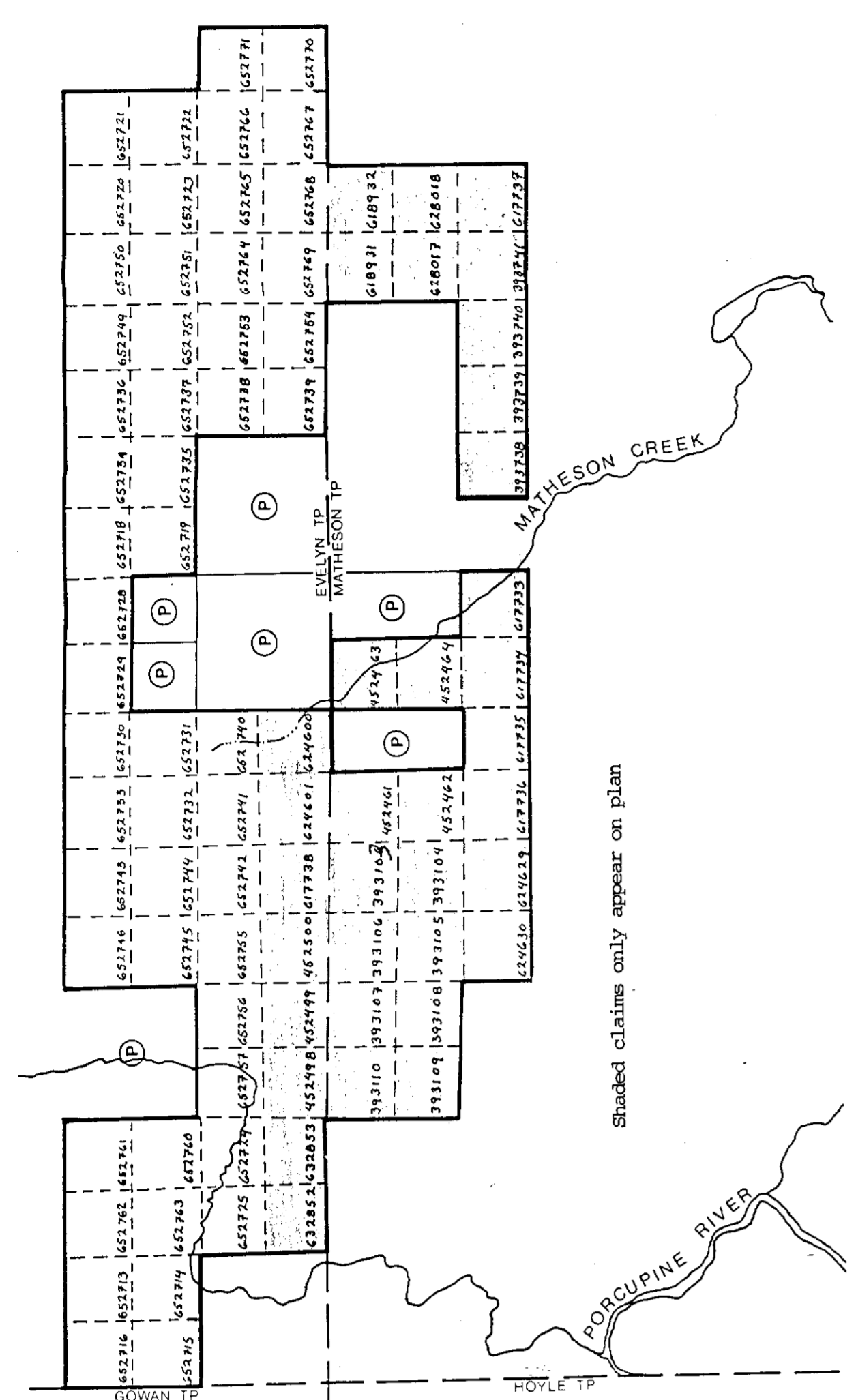
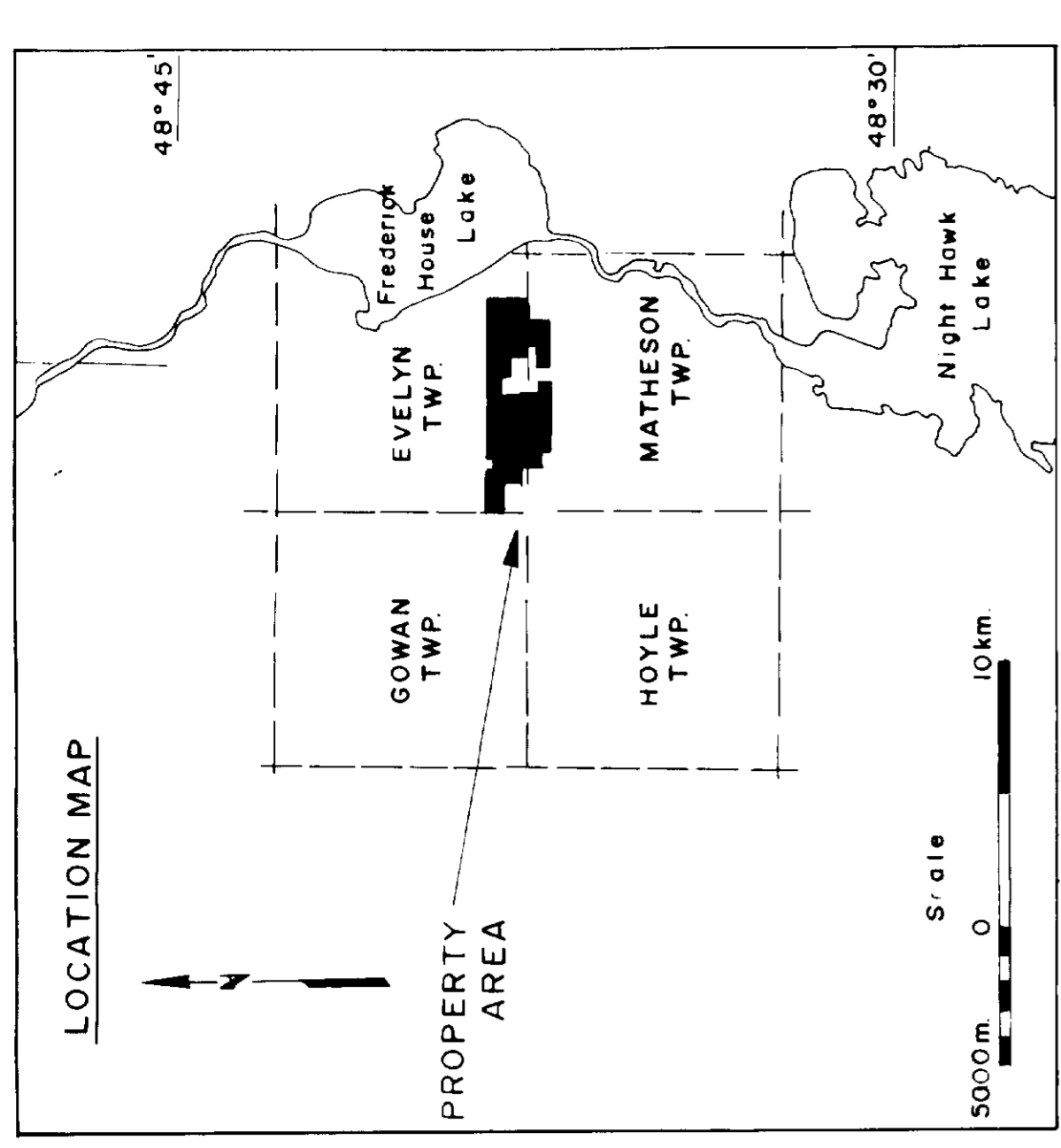


42A11NE0596 2-5979 EVELYN

200

Cody Twp.

DATE OF ISSUE
DEC 30 1993
MINISTRY OF NATURAL RESOURCES
ONTARIO

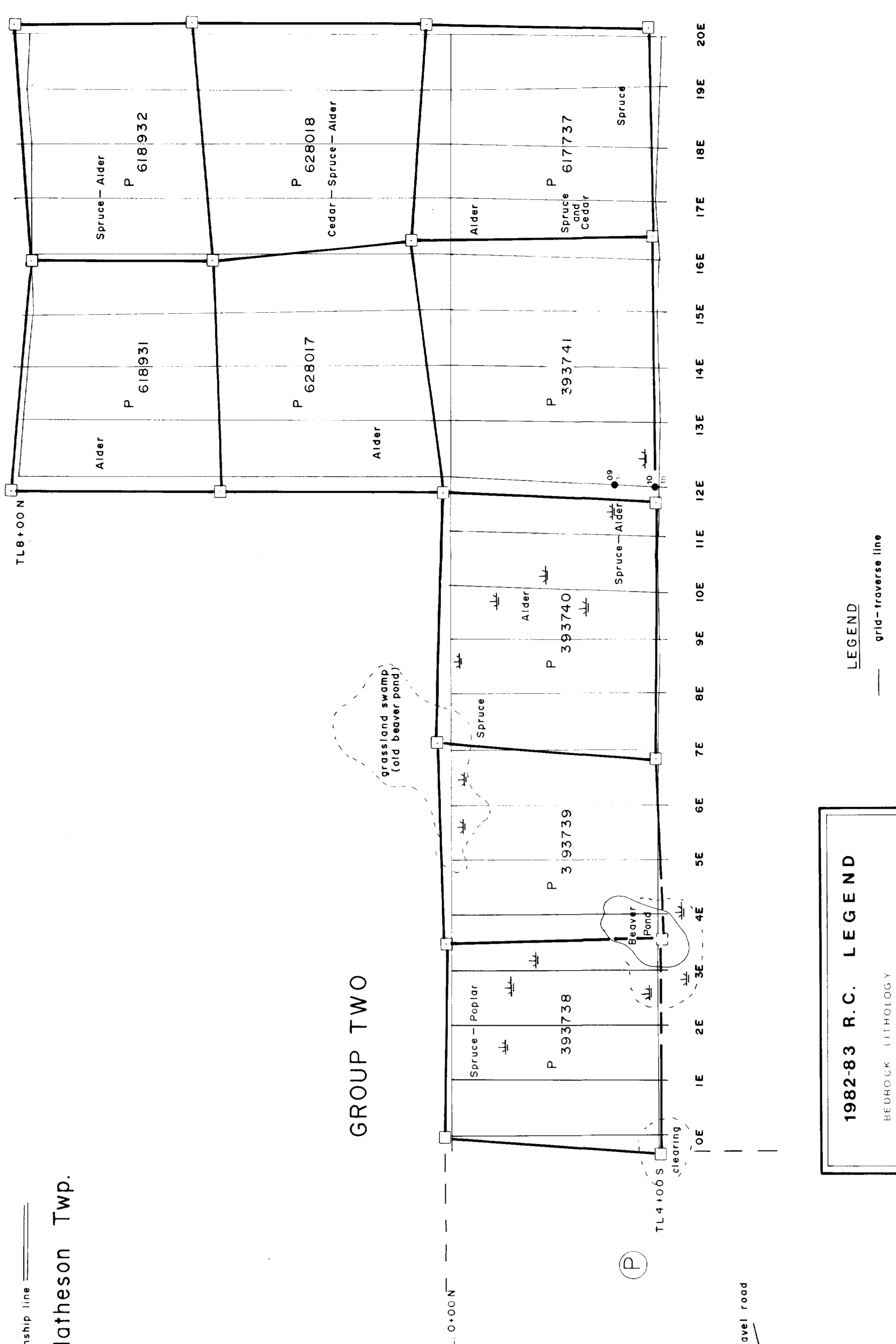


GROUP ONE



Evelyn Twp.
Matheson Twp.

GROUP TWO



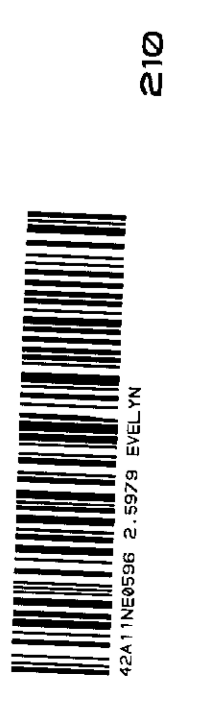
1982-83 R.C. LEGEND

BEUROCK LITHOLOGY

- Metasandstone
- Metasandstone to siltstone, ls. shaly
- Tranquilly/Sylvia
- S.Y.M. BEDS
- R.C. Well Hole No. 5, Bedrock Unit 1
- Index line for Quaternary section

LEGEND

- grid-inverse line
- unlocated/located claim post
- unlocated/located claim line
- patented land
- swamp
- bush road



Little Twp.

THE TOWNSHIP OF
OF

EVELYN

DISTRICT OF
COCHRANE
PORCUPINE
MINING DIVISION

SCALE: 1-INCH= 40 CHAINS

LEGEND

- PATENTED LAND (P)
- CROWN LAND SALE (S or C.S.)
- LEASES (L)
- LOCATED LAND (Loc.)
- LICENSE OF OCCUPATION (L.O.)
- MINING RIGHTS ONLY (M.R.O.)
- SURFACE RIGHTS ONLY (S.R.O.)
- ROADS
- IMPROVED ROADS
- KING'S HIGHWAYS
- RAILWAYS
- POWER LINES
- MARSH OR MUSKEG
- MINES

NOTES

This township lies within the Municipality of CITY of TIMMINS.

Withdrawn from staking under Section of the Mining Act (R.S.O. 1970)

File	Date	Disposition
W.28/75 134839	4/6/75	S.R.O.
W.19/78 188543	10/16/78	S.R.O.
W.66/83 171506	18/11/83	S.R. & M.R.
Public Access Res. 136416	9/7/58	S.R.O.
M.N.R. Reserve, S.R.O.	25/7/58,	File 160705
Public Access Res., S.R.O.	8/11/56	File 134836
Public Access Res., S.R.O.	20/9/56	File 134833

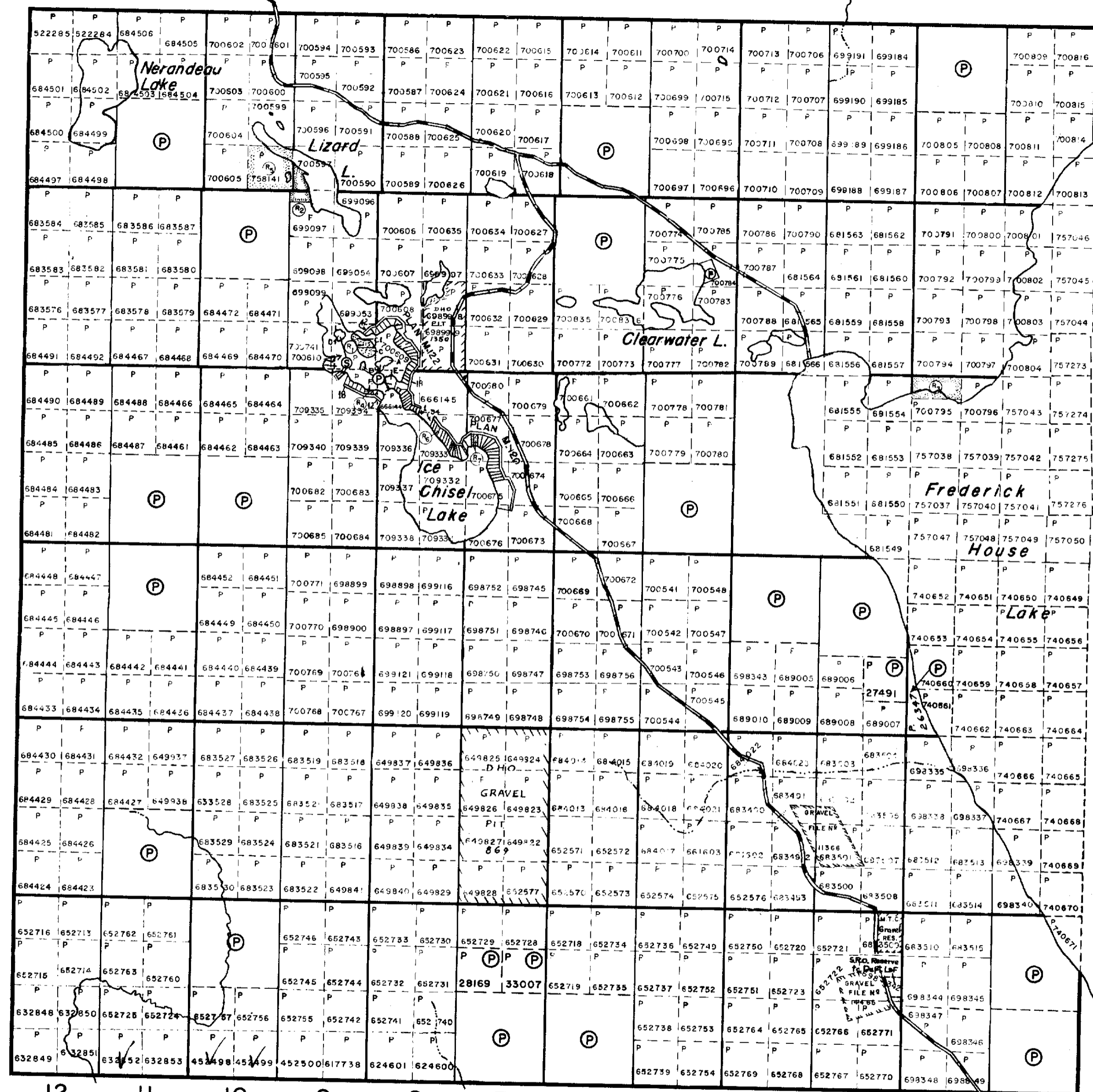
400' Surface rights reservation around all lakes & rivers.
Flooding Rights Reserved to 903' Contour to H.E.P.C. Around Frederick House Lake.

PLAN NO.- M-277

ONTARIO
MINISTRY OF NATURAL RESOURCES
SURVEYS AND MAPPING BRANCH

Gowan Twp.

Dundonald Twp.



12 11 10 9 8 7 6 5 4 3 2 1

2.5977

Matheson Twp.

DATE OF ISSUE
JUNE 3 1994
MINISTRY OF NATURAL RESOURCES
TORONTO

