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JEGEL 103191

GEOLOGICAL INVESTIGATION
PROPOSED DOLOSTONE QUARRY
PART OF LOT 1 AND
ALL OF LOTS 2 AND 3, CONCESSION 11
GEOGRAPHIC TOWNSHIP OF EAST FLAMBOROUGH
CITY OF HAMILTON

Prepared For

LOWNDES HOLDINGS CORP.

By

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EXECUTIVE SUMMARY

The Proposed Dolostone Quarry site is located close to the eastern edge of a major geological structure known as the Michigan Basin. The erosional boundary of this structure to the east is the Niagara Escarpment, consisting of hard dolostones of the Amabel and Lockport Formations (north and east of Burlington, respectively). These rocks provide the highest quality dolostone in Ontario for the construction industry from quarries, such as the Lafarge Quarry at Dundas and the Dufferin Aggregates Quarry at Milton. The Proposed Dolostone Quarry is located approximately halfway between these quarries in the Amabel Formation.

An investigation by John Emery Geotechnical Engineering Limited during the months of October and November, 2003, established the average overburden depth at 2.4 m, with a range of 0.0 to 7.9 m, using 39 test pits. This will provide approximately 2.4 million cubic metres of topsoil, sandy gravel and sandy silt till for berms, landforms and progressive rehabilitation.

Twelve boreholes were drilled on the area of the proposed quarry, to depths varying from 35 to 45 m to establish the rock types, the suitability and the quantity of the rock. The boreholes were located at each corner of the site, as well as at the central portion. The rock cores from the boreholes were logged. Five boreholes were tested for physical properties in the certified geotechnical laboratory of John Emery Geotechnical Engineering Limited.

The top layer of the rock assemblage is a high quality Amabel Formation dolostone, at an average thickness of 32.6 m, with a range of 27 to 40 m. The Amabel dolostone can be separated into two levels at about the 270 masl elevation. At the top, there is an average 14 m thick layer, which tends to be somewhat porous and brittle, as some parts are of bioherm reef origin. Below this is an 18.6 m layer, which tends to be denser and harder (being of biostrome reef origin). On the basis of test results and core logs, both layers are acceptable for hot mix paving and concrete aggregate applications.

The average recovery of the cores was 95.36 percent. The core losses were mainly in the top 14 m, where the Amabel dolostone tends to be more brittle. No karst topography or karst features were detected.

The drilled area covers approximately 120 hectares. Based upon a 100 hectare active quarry area, with a 32.6 m average depth of the Amabel dolostone, this deposit contains approximately 32.6 million m^3 of this rock, which could produce approximately 83.6 million tonnes of high quality aggregate, assuming 95 percent recovery.

TABLE OF CONTENTS

GEOLOGICAL INVESTIGATION
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INTRODUCTION

John Emery Geotechnical Engineering Limited (JEGEL) was retained by Lowndes Holdings Corp. to undertake two investigations on the Proposed Dolostone Quarry site located in Part of Lot 1 and all of Lots 2 and 3, Concession 11, Geographic Township of East Flamborough, City of Hamilton (Appendix A).

During the months of October and November, 2003 an initial geotechnical investigation was carried out to study the overburden material covering the bedrock, establish its thickness, approximate quantity and its potential for use as construction aggregates, or other uses.

During February, March and April, 2004, a detailed geological investigation was undertaken. The purpose of the investigation is to determine the rock types, the potential suitability as construction aggregate, and approximate quantities of the rock types on the site. This report describes the findings of both investigations.

METHODOLOGY

The geotechnical and geological investigations consisted of the following components:

Geotechnical Investigation of the Site Overburden:

1. Various maps and reports were reviewed to obtain general information on the site physiography, surficial geology and soil information;
2. Stereoscopic pairs of aerial photographs were examined to identify landforms on the property for field investigation;

3. Backhoe excavation equipment provided by the owners was used to dig 39 test pits on the site;

4. Each test pit was logged by Zoltan Katona, P.Eng., Geological Engineer, JEGEL and, where necessary, samples were obtained from the return pile of the excavated material;

5. The samples were submitted to the certified testing laboratory of JEGEL to determine grain size distribution and to test for physical properties;

6. Maps of test pit locations, land surface contours (Map 1) and bedrock surface contours (Map 2) were prepared; and

7. Based on the surficial and soil information, the site plan, test pit logs and cross sections, an evaluation of overburden material was undertaken for suitability and usable estimated quantity.

Bedrock Investigation:

1. Various maps and reports were reviewed to obtain bedrock geology information;

2. Core drilling equipment provided by the owners was used to drill twelve boreholes through competent bedrock into underlying shale; cores for the full length of each borehole were retained in core boxes and stored in a trailer on the site; geological units were identified at each drill site by Zoltan Katona, P.Eng.; the cores were also examined for fractures by Jason Down, B.Sc. Environmental Technician, Gartner Lee Limited;

3. Cores from each borehole were transported from the proposed quarry site to JEGEL laboratory in Toronto, where they were logged by Zoltan Katona, P.Eng., with assistance provided by a JEGEL senior laboratory technician;

4. From the twelve cores, five representative sets were selected for quality testing;

5. The remaining seven cores, after logging, were returned to storage at the site;

6. The borehole logs, the laboratory test results, available technical data and past experience were analysed and conclusions were made regarding the suitability of each sample, as well as each stratigraphic unit for construction aggregate uses; and

7. Using the borehole logs, the laboratory test data and the site plan, the potential for aggregate quantity for each rock formation was estimated.

SURFICIAL MATERIALS

Several publications were reviewed by JEGEL to provide background information for the proposed quarry site [for complete List of References at the end of this Report].

Regional Physiography and Surficial Geology

The Aggregate Resources Inventory of the Regional Municipality of Hamilton-Wentworth [10] indicates an irregular shaped outwash deposit with shallow (3 to 6 m) of overburden on the southern part of the site. It is classified as a secondary significant deposit. The Quaternary Geology Map of the Hamilton-Cambridge Areas [7] also shows an outwash gravel deposit in approximately at the same part of the site. To the north and east the outwash is bordered by an outcrop complex, a combination of bouldery till and bedrock ridges. To the west, exposed bedrock is indicated. At the north-eastern part, peat and excessively wet to saturated organic silt ("muck") are shown.

The Soil Map of Wentworth County [11] describes three types of soils. The first soil type is located in two irregular shaped areas corresponding roughly over the outwash area shown on the Quaternary Geology maps. These areas contain moderately stony Burford loam, with the parent material consisting of well-drained gravel and with slopes of 6 to 9 percent. Surrounding these areas, in the lower part of the land, the second soil type is described as an exceedingly stony Dumphries loam, with well-drained gravely sandy loam till as the parent material and with slopes also of 6 to 9 percent. The third soil type was identified at the north part of the property and consists of poorly drained, excessively wet to saturated organic silt ("muck").

The Quaternary Geology of Ontario Southern Map Sheet [2] shows the property as a bedrock area having a thin layer of drift. The Ontario Geological Survey, Physiography of Southern Ontario [3] depicts the site as a limestone plain. According to this publication, the Proposed Dolostone Quarry is located in the Flamborough Plain Physiographic Region. This whole region is characterized by shallow glacial drift over dolostone bedrock, with numerous

generally east-west and southeast-northwest aligned drumlins and occasional low-lying swampy areas. The regional land surface is gently rolling, except on the bedrock plain at the eastern part, where it is generally flat. In that part of the region, the bedrock is covered by only a thin layer of overburden.

The land surface was strongly influenced by the Lake Ontario Ice Lobe of the Laurentide Ice Sheet, about 13,000 years ago. The ice lobe scraped some of the bedrock surfaces clean during its advance and left deposits of ground moraine tills and melt-out tills in the form of till sheets and drumlins in other parts, during its melting period. These deposits are referred to as the Wentworth till. It is a strongly calcareous sandy silt till in the north part (i.e. in the vicinity of the site) and a clayey silt to silty clay till in the south part, along the Lake Erie shore. It tends to be stony, with numerous large boulders in the northern areas, such as on the property site [1]. The till is also associated with some outwash gravels, as a result of dead-ice melting and some lacustrine sands and silts in lower areas. The latter are most likely the deposits of Glacial Lakes Warren and Whittlesey. Good soil for agriculture is rare, mainly due to the stony nature of the surface of the land.

Physiography and Overburden at the Site

The land surface on the site may be characterized as a low profile dome with gently sloping sides. The main features of the land surface are low rolling hills, with the exception of the northerly part, where the land is generally flat (Map 1, Appendix B). The hilly terrain was formed from deposits of Wentworth till, as well as bedrock knobs with thin overburden. In the northerly part, the deposition appears to be lacustrine sand and silt, overlain by recent peat and excessively wet to saturated organic silt. In the southern part, there is a gently south sloping valley that is filled with bouldery material. With minor exceptions, such as in the vicinity of Test Pits 1, 3, 6, 14, 16, 17, 30, 32 and 33, the land surface is bedrock controlled (Map 2, Appendix C).

A power equipment investigation was carried out on the property. A total of 39 test pits were excavated with two track-mounted backhoes. Test Pits 1 to 33 were excavated with a Koehring 366, having a 1 ¼ cu. yd. bucket. Test Pits 34 to 39 were excavated with a Hitachi Ex 120-5, having a ¾ cu. yd. bucket. . The glacial drift on the site was found to be thin, at an average of about 2.4 m deep, with a range of 0 to 7.9 m. Bedrock was reached in every test pit, except in Test Pits 32 and 33.

The investigation resulted in the discovery of three types of deposits on the site. In the area around Boreholes 1, 2, 3, 11, 16, 20, 22, 24, 25, 34 and 39 good to fair quality calcareous gravel, clean and silty sand were found. This material is generally concentrated on 13 hectares in the southern part of the property and two outlying areas, 4 hectares in the north-eastern and 4.5 hectares in the south-eastern part, a total of 21.5 hectares. Some sections of this material tend to be bouldery. Due to the high silt content in some of the sands, this material is interpreted as result of a slow melting process during the stagnant stage of the Lake Ontario Lobe and is identified as a melt-out till, with some outwash parts. This material, in some places, is overlain by a thin layer of dense sandy silt till. The majority of this area has been cultivated and has been used for agriculture.

The second type of material is a sandy, bouldery silt till, found in Test Pits 4 through 10, 12, through 15, 17, 18, 19, 21, 23, 26 through 33, 35, 36A, 36B, 37 and 38. It was noted that in Test Pits 4, 29, 34 and 35, the material was extremely bouldery. In Test Pits 10, 11, 12, 21, 27, 29, 31, 37, 38 and 39, the dolostone bedrock is so close to the surface that the backhoes exposed broken weathered rock at or just below the existing ground surface. At Test Pit 12A, the bedrock outcrops at the surface. In Test Pits 33 and 36A, a lacustrine type stratified sandy silt was found, indicating that some parts of the area was inundated by a glacial lake, most likely Lake Whittlesey, after the melting of the glacial ice. Water was found at the bottom of Test Pits 1, 24, 26, 33, 36A and 36B.

The laboratory test results and test pit logs indicate that the melt-out/outwash area on the property contains aggregate material which could be used as sub-base aggregate, such as Select

Subgrade Material and selectively some parts as Granular B, providing that the large boulders are removed or crushed. The petrographic analyses and other physical tests show that the gravel and cobble sized material is of fair quality, and is potentially capable of producing material suitable for granular uses, but not for concrete or hot mix asphalt paving applications. The bouldery portions of this material may be used as Granular A material, if boulders smaller than about 500 mm are crushed and added to improve the overall quality of the crushed sand and gravel. The sandy silt till is suitable for use as general fill subject to its moisture content being maintained within ± 2 percent of its optimum Standard Proctor optimum moisture content. The lacustrine sandy silt material is considered to be somewhat frost susceptible and therefore should not be used as structural fill above the frost line, i.e. within 1.2 m of final subgrade level, due to its potential for frost heaving. The excessively wet to saturated organic silt at the northern part has no value for aggregate purposes.

Perhaps the component of the overburden of potentially greatest value is the gravely parts that can be used for roads within the site and the till material can be utilized as berm material along the edge of the property, as well as for rehabilitation work in depleted areas of the proposed quarry. The topsoil could also be used for these purposes.

The quantity of the materials, with the exception of topsoil, was estimated by multiplying the average material thickness in test pits (in metres), with the estimated area of the material (in hectares) and multiplying the result with the factor of 17,700 (a factor of 17,700 is the tonnes in hectare area 1 metre deep, as shown in the Ontario Geological Survey Aggregate Resource Inventories for municipalities). The quantity of topsoil was calculated using the same method, except that a factor of 15,000 was used to account for its lower unit weight.

Based upon a 100 hectare active quarry area, the total estimated overburden material is:

Topsoil:	249,600 m3, or 374,400 tonnes, or 10.4% of the total
Sand/gravel:	333,600 m3, or 590,472 tonnes, or 13.9% of the total
Till:	1,816,800 m3, or 3,215,736 tonnes, or 75.7% of the total
Total:	2,400,000 m^3, or 4,180,608 tonnes, or approximately 2.4 million m^3, or 4.2 million tonnes.

REGIONAL BEDROCK GEOLOGY

The proposed quarry site is located close to the eastern edge of a major geological structure known as the Michigan Basin. The centre of this shallow Paleozoic basin is situated in the middle of the State of Michigan. Its erosional edge in Ontario is the Niagara Escarpment, starting at Niagara Falls, tracking westerly on the Niagara Peninsula and changing direction to the north as far as Collingwood, then turning in a north-westerly direction along Georgian Bay through the Bruce Peninsula, then across Manitoulin Island. (The escarpment can be traced further through Upper Michigan, then southwesterly along the west shore of Lake Michigan). The escarpment is caused by the presence of hard, weather resistant 420 million years old dolostones of the Middle Silurian Amabel and Lockport Formations (north and east of Burlington, respectively). The thickness of these formations in the region varies from as low as 12 m, in the old Nelson Aggregates, Burlington Quarry, on Kerns Road [4], to 32 metres for the Amabel Formation and up to 40 metres of the Lockport Formation. The proposed quarry appears to be located in an area where the Amabel formation is thickest, ranging from 27 to 40 m. It should be noted that the proposed quarry site is not located within the Niagara Escarpment Plan Area.

The Amabel Formation is part of a series of barrier reefs along the edge of the Michigan Basin, while the Lockport Formation is a dolostone formed in a lateral facies from lime mud precipitation and fossil debris. Both of these formations contain rock that can produce high quality construction aggregates. Examples of sources for these materials are the Lafarge Quarry at Dundas in the Lockport Formation and the Dufferin Aggregates Milton Quarry in the Amabel Formation. Both of these quarries produce aggregates suitable for high strength concrete, as well as concrete paving [4, 5, 6, 8, 10 and 12].

The older geologic units, underlying the Lockport Formation, in descending order, are the Lower Silurian aged Reynales, Thorold, Grimsby, Cabot Head, Manitoulin and Whirlpool Formations. The same formations also underlie the Amabel Formation, with the exception of the Thorold and Grimsby. Amongst these, only the Reynales and Manitoulin Formations have any

significance for construction aggregates. Rock from these formations may be used for the production of Granular Base and Sub-base aggregates, providing they can be extracted economically.

The Guelph Formation overlies both the Amabel and Lockport Formations in the southern and western parts of the region. It is very pure limestone that may be used for metallurgical purpose and for chemical lime as in the Lafarge Dundas Quarry. No Guelph Formation limestone was proven at the porposed quarry site.

SITE STRATIGRAPHY

Twelve boreholes were drilled on the site to depths varying from 35 to 45 metres, to establish rock types, suitability and quantity of the bedrock. The boreholes were located at each corner of the property, as well as at the central portion (Map 3, Appendix D). Cores of 7.62 cm (3 inch) diameter were taken from the entire length of each borehole. The cores were stored on site, in a trailer. Each core was transported to the JEGEL laboratory in Toronto and where it was logged. The core logs are shown in Appendix E.

On the basis of the logs, three rock types were established:

The top part is a hard dolostone of the Amabel Formation, with an average thickness of 32.6 metres and a thickness range of 27.23 to 40.03 metres. This formation can be separated into two levels at about Elevation 270 masl. Above this level, at an average thickness of 14 metres, the rock is a light brownish grey fine crystalline, fossiliferous dolostone, being of calcirudite to calcarenite origin , thin to thick bedded with low to high porosity, having some brittle sections. This layer was most likely formed in bioherm reefs, which are mounds or dome-like masses of reef rock composed of sedentary organisms, such as brachiopods and crinoids in a carbonate matrix. Below Elevation 270 masl, there is an average 18.6 metre thick layer of light to dark bluish grey, fine crystalline, fossiliferous dolostone, being of calcirudite to calcarenite origin,

medium to massive bedded. This lower layer is denser and somewhat less porous than the upper layer. It is most likely part of a biostrome reef, which is a massive tabular deposit, containing large amounts of fossil debris in the carbonate matrix, which was deposited in calmer waters;

Below the Amabel Formation there is an average two metre thick greenish to dark grey, calcilutite, thin bedded dolostone of the Reynales Formation, which has aphanitic texture, with no porosity, very low fossil content and numerous thin shale partings. This formation, most likely was deposited in deeper water, as indicated by its shale content;

The lowest rock type reached by the boreholes is the dark green to maroon, massive to fissile calcareous shale of the Cabot Head Formation. This formation was deposited in deep waters and contains some thin layers of sandstone. Only the top few metres of this thick formation was penetrated by the drilling and its lower contact was not reached.

The formations lie on each other conformably. The attitude of the bedding can be described as dipping gently (about two to three percent) to the southwest, generally towards the centre of the Michigan Basin. The wide range of the thickness of the top layer of the Amabel Formation in the boreholes is caused by the undulating bedrock surface below the overburden. The thickness of the lower level of the Amabel is generally even as the top of the underlying Reynales Formation is nearly flat.

The average recovery of the cores is about 95.36%. The core losses were mainly in the upper 14 metres of the Amabel dolostone, where the dolostone tends to be more brittle than in the underlying 18.6 metre thick layer. No karst topography or features were detected in the rock assemblage.

BEDROCK QUALITY

A whole rock chemical analysis was carried out at JEGEL's request by X-RAL (Appendix F) and confirms that the chemical composition of the Amabel dolostone at the subject site is very similar to the Amabel dolostone in the Halton Crushed Stone Quarry at Milton [5].

Of the twelve boreholes on the site, five representative core sets were selected for quality testing. Four of these are located approximately at the four corners of the site (Boreholes B, Hydro 1, Hydro 8, Hydro 9). Borehole F was also selected near the centre, because it is at the highest elevation of bedrock, therefore at its location the longest core could be obtained.

The selected boreholes, after logging, were vertically sawn in half longitudinally in the JEGEL laboratory. Each longitudinal half was separated into three sections, according to visual petrographic and quality evaluation: the top bioherm layer of the Amabel dolostone as the first, the lower biostrome layer of the Amabel dolostone as the second, and the lowest Reynales dolostone as the third. The sections were crushed and submitted as samples for physical testing by the JEGEL laboratory. The other vertical halves of the cores were sent back for storage on the proposed quarry site. Due to the two metre thickness of the Reynales Formation, the sections from Hydro Boreholes 1, 8 and 9 were combined into one sample, in order to have a more complete testing program for this formation.

Tables 1, 2 and 3 (presented in Appendix G) show the results of the physical testing. Based on these and the logging of the cores, the full depth of the Amabel dolostone are considered suitable for hot mix asphalt paving and structural concrete, coarse and fine aggregates, similar to aggregates produced from the Lafarge Dundas and Dufferin Aggregates Milton quarries. All petrographic numbers, unconfined freeze-thaw, magnesium sulphate soundness and micro-Deval abrasion coarse and fine aggregate losses are within the specification requirements for these uses. The average of the absorption for hot mix asphalt paving and the average of the micro-Deval Abrasion losses for the upper 14 metres of the Amabel Formation are also within specification requirements, but the absorption values for Borehole B, Hydro 8 and

the micro-Deval Abrasion, fine aggregate for Boreholes B and F are slightly outside specifications. These outside values are caused by the somewhat porous and brittle nature of the rock in this layer. The brittleness is indicated by the higher Los Angeles abrasion losses of Borehole F and Hydro 8, compared to the remainder values for this test. Such discrepancies could be corrected by selective processing methods. It is anticipated that this upper layer would produce a higher amount of fine aggregate during processing. After processing both coarse and fine aggregates produced from this rock layer would be within specification limits for hot mix asphalt paving and concrete aggregates. It is important to note that no chert or quartz were observed in any of the Amabel cores, therefore it would be reasonable to assume that the aggregate produced from this formation would not be alkali-aggregate reactive, when used in Portland cement concrete.

The approximately 2 m thick layer of the Reynales Formation failed to meet specification requirements for hot mix asphalt paving and concrete aggregates, but did meet the requirements for Granular A and Granular B Type II.

ESTIMATED BEDROCK QUANTITIES

The drilled area covers approximately 120 hectares (296 acres). Based upon a 100 hectare excavation area, with a 32.6 metre average depth of the Amabel dolostone, this area is estimated to contain approximately 32.6 million m^3 of this rock, which could produce approximately 83.6 million tonnes of high quality aggregate, assuming 95 percent recovery.

The Reynales dolostone contains about 2.0 million m^3 of rock, which could produce about 5.1 million tonnes of medium quality rock, assuming 95 percent recovery.

CONCLUSIONS

As a result of the initial geotechnical investigation and detailed geological investigation at this site, the following conclusions were developed:

1. The average overburden on the site is 2.4 metres with a range of 0.0 to 7.9 metres. The materials found during the surficial investigation based upon a 100 hectare active quarry area are:

   249,600 m^3, or 374,400 tonnes of topsoil
   333,600 m^3, or 590,472 tonnes of sand and gravel
   1,816,800 m^3, or 3,215,736 tonnes of till.

   The sand and gravel material would be suitable for select sub-grade and granular materials. This could be useful for road building within the site; the till material and the topsoil could be used as berm material along the edges of the site and for rehabilitation work in depleted areas of the proposed quarry;

2. The site contains an average 32.6 metres of Amabel Formation dolostone, which is a source for the production of hot mix asphalt paving, structural concrete and concrete paving coarse aggregates. The quantity of material is estimated to be approximately 32.6 million m^3 that could produce about 83.6 million tonnes of aggregate, assuming 95 percent recovery;

3. The site also contains the two metre thick Reynales Formation dolostone, which could produce Granular A and Granular B Type II aggregates. The quantity of this material is about 2 million m^3, that could produce 5.1 million tonnes of aggregate, assuming 95 percent recovery; and

4. The main rock type is the provincially significant Amabel dolostone, considered to be the highest quality dolostone in Ontario, meeting the physical properties for hot mix asphalt paving, structural concrete and concrete paving aggregates. At this site, the Amabel dolostone has considerable thickness with relatively thin overburden. This proposed quarry should be an important source for the needed excellent quality aggregate for the Greater Golden Horseshoe Area.

JOHN EMERY GEOTECHNICAL ENGINEERING LIMITED

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REFERENCES

1. Barnett, P.J., 1992 Quaternary Geology of Ontario; in Geology of Ontario, Ontario Geological Survey, Special Volume 4, Part 2, pp 1011-1088. pp. 1018, 1019, 1046 and 1047, Figures 21.8, 21.22, 21.32, 21.35, 21.41 and 21.56 e.

2. Barnett, P.J., Cowan, W.R. and Henry, A.P., 1991. Quaternary Geology of Ontario, southern sheet; Ontario Geological Survey, Map 2556, scale 1:1,000,000.

3. Chapman, L.J. and Putnam, D.F. (1984) The Physiography of Southern Ontario, Ontario Geological Survey, Special Volume 2, 270 p, accompanied by Map P2715 (coloured), scale: 1:600,000, pp. 113, 129 and 130, figures 11g, 19.

4. Derry Mitchener Booth and Wahl, The Limestone Industries of Ontario, Volume III – Limestone Industries and Resources of Central and Southwestern Ontario; Ontario Ministry of Natural Resources, Land Management Branch, 175 p, 1989.

5. Hewitt, D.F. and Voss, M.A., The Limestone Industries of Ontario, Ontario Department of Mines, Industrial Minerals Report 5, 177p, 1960.

6. Johnson, M.D., Armstrong, D.K., Sanford, B.V., Telford, P.G. and Rutka, M.A., 1992, Paleozoic and Mesozoic Geology of Ontario, Ontario Geological Survey, Special Volume 4, pp 947-956.

7. Karrow, P.F., 1987: Quaternary Geology of the Hamilton-Cambridge Area, Southern Ontario; Ontario Geological Survey Report 255, 94p. Accompanied by Maps 2508 and 2509, scale 1: 50,000 and 4 charts.

8. Liberty, B.A. and Bond, I.J. 1972, Paleozoic Geology, Hamilton, Southern Ontario, Ontario Division of Mines. Map 2029, scale 1:63,360.

9. Ontario Geological Survey, 1991. Bedrock Geology of Ontario, Southern Sheet; Ontario Geological Survey, Map 2544, scale: 1:1,000,000.

10. Ontario Geological Survey, 1984: Aggregate Resources Inventory of the Regional Municipality of Hamilton-Wentworth; Ontario Geological Survey, Aggregate Resources Inventory Paper 50, 53p., 6 tables, 6 maps, scale 1:50,000.

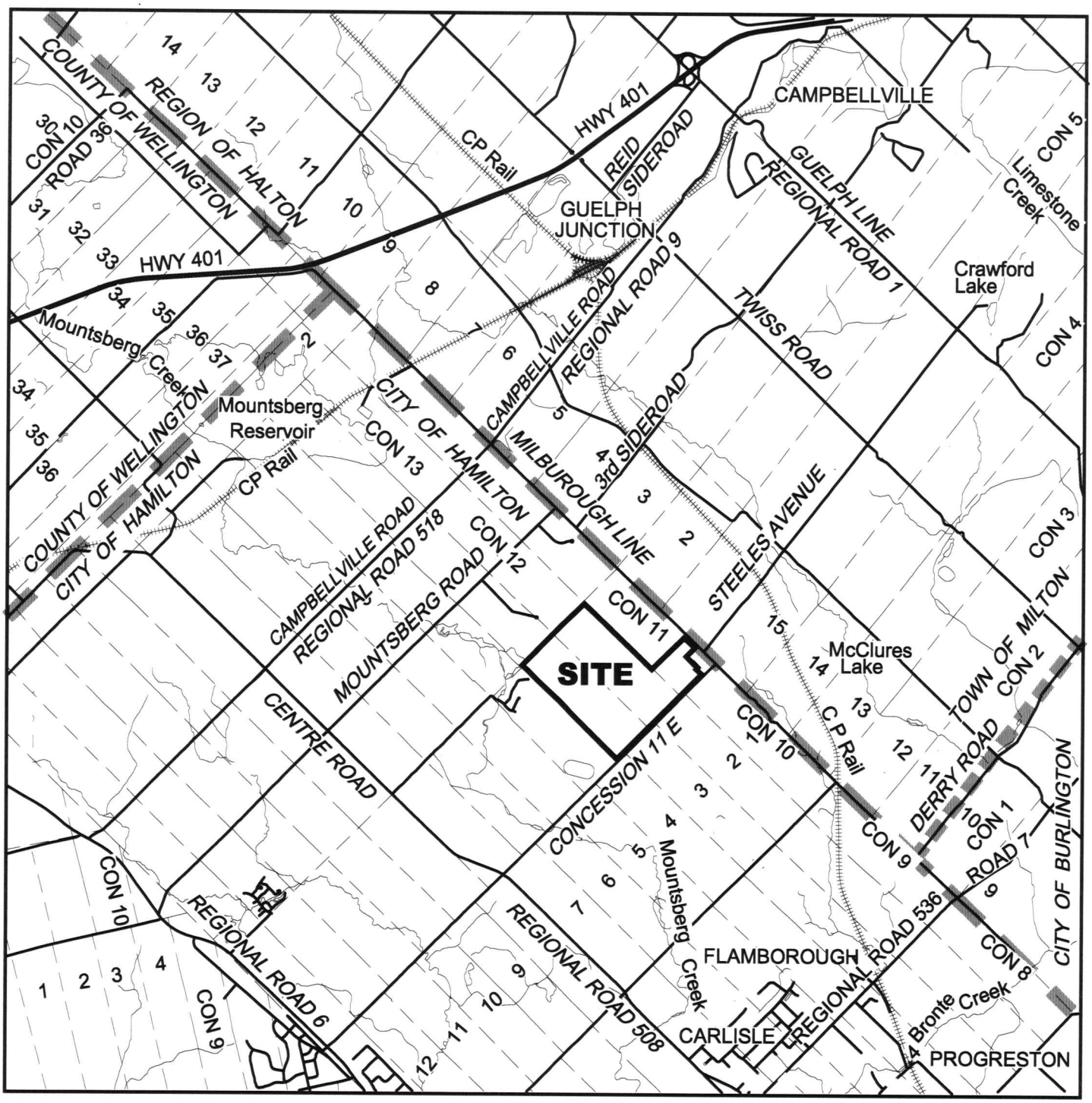
11. Present, E.W., R.E. Wicklund, Soils Research Institute and B.C. Matthews, Ontario Agricultural College, University of Guelph, Guelph, Ontario, 1965, Report 32 of the Ontario Soil Survey, Canada Department of Agriculture, Toronto. 72 p. pp. 15, 16, 17, 18, 28, 42, 59 and 61. Accompanied by Soil Map of Wentworth County, coloured, scale 1:63,360.

12. Telford, P.G., 1979, Paleozoic Geology of the Cambridge Area, Southern Ontario, Ontario Geological Survey Prelim. Map 1983, Geological Ser., scale 1:50,000. Geology 1975, 1976. Compilation 1978, Ministry of Natural Resources.

APPENDICES

APPENDIX A

KEY MAP



NORTH

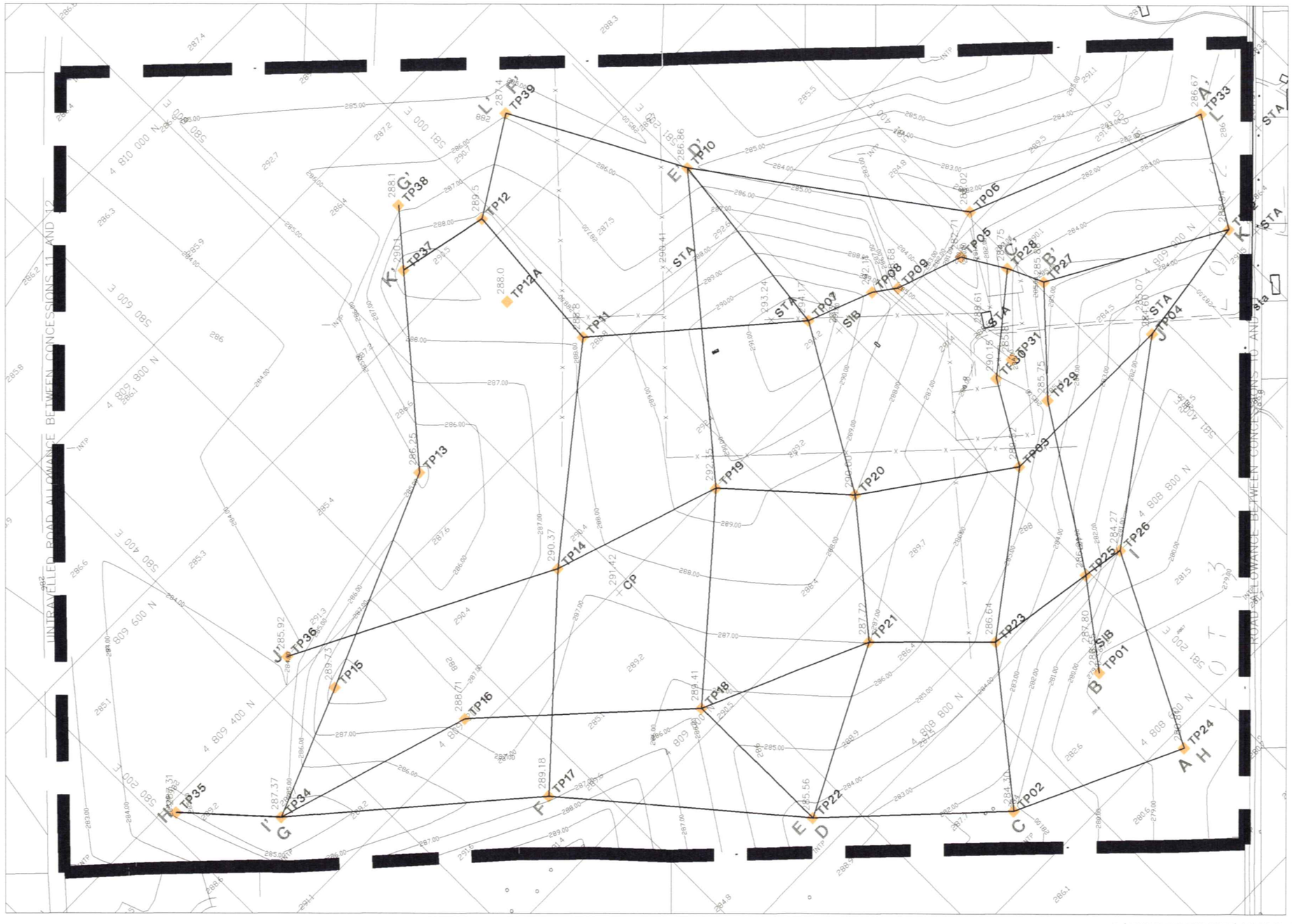
KEY MAP

Scale: 1 : 60,000

Lowndes Holdings Corp.
PROPOSED DOLOSTONE QUARRY, August 2004

APPENDIX B
MAP 1 TEST PITS

MAP 2 DOLOSTONE BEDROCK CONTOURS



1. TEST PIT LOG INFORMATION WAS COMPILED FROM THE LOGS PREPARED BY ZOLTAN L. KATONA, GEOLOGICAL ENGINEER, NOVEMBER 13 2003

TEST PITS
1-39

0 50 100 150 200 250 meters

Scale 1:5000

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info@clipsham.com

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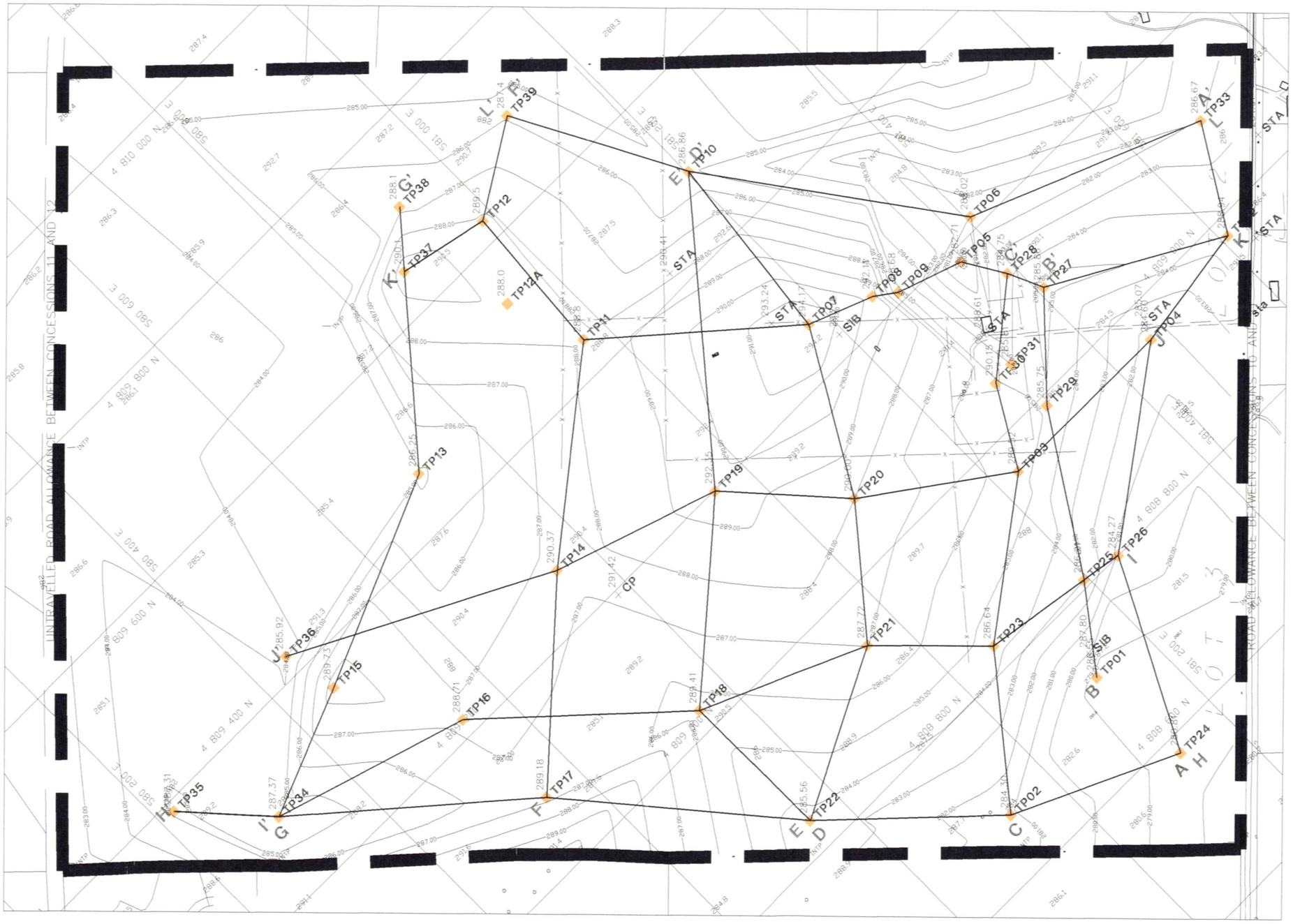
APPENDIX C
MAP 2 DOLOSTONE BEDROCK SURFACE CONTOURS

MAP 2 DOLOSTONE BEDROCK CONTOURS



1. TEST PIT LOG INFORMATION WAS COMPILED FROM THE LOGS PREPARED BY ZOLTAN L. KATONA, GEOLOGICAL ENGINEER, NOVEMBER 13 2003

TEST PITS
1-39

0 50 100 150 200 250 meters

Scale 1:5000

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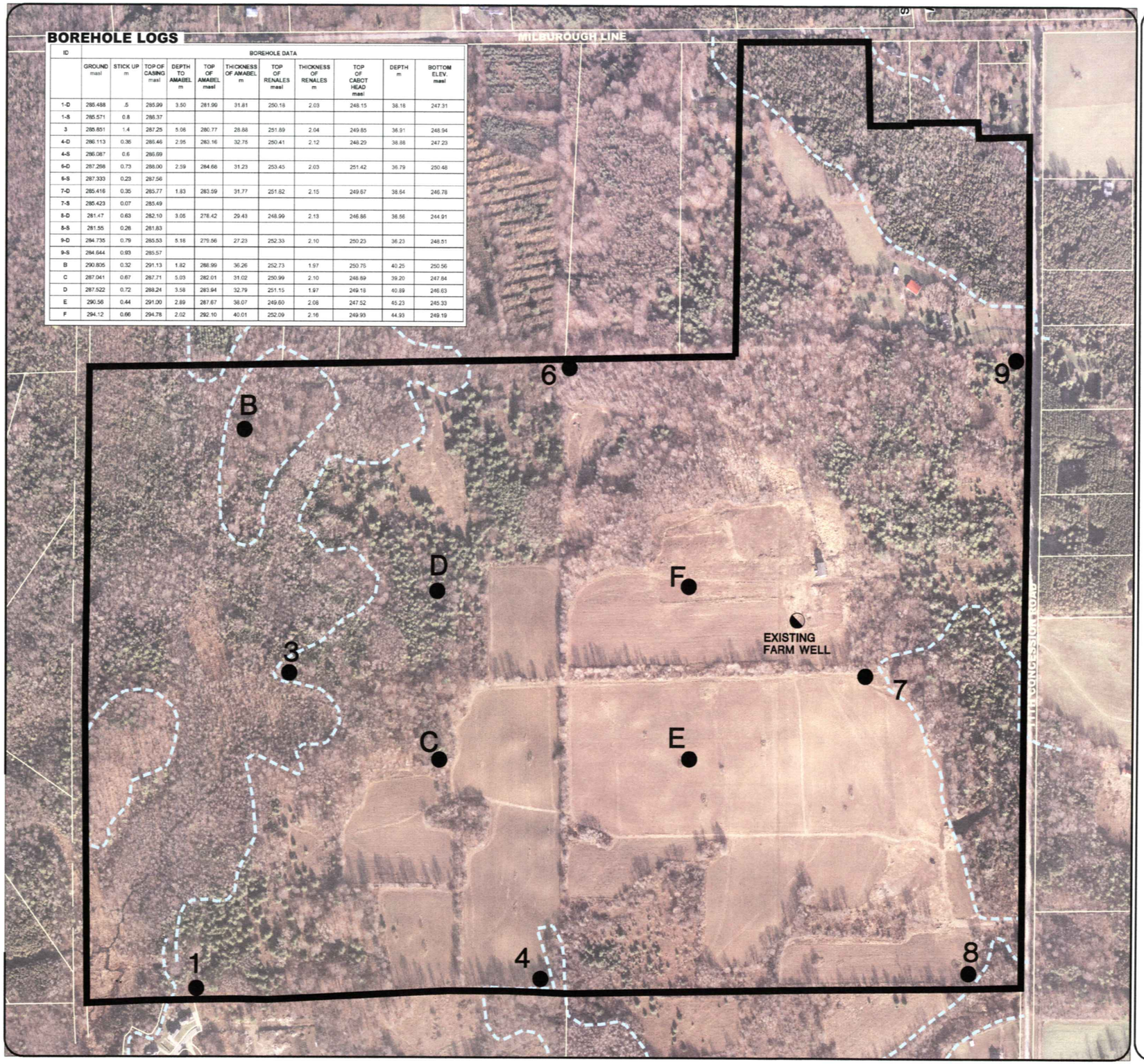
APPENDIX D
MAP 3 BOREHOLE LOCATIONS

BOREHOLE LOGS

ID	BOREHOLE DATA											
	GROUND masl	STICK UP m	TOP OF CASING masl	DEPTH TO AMABEL m	TOP OF AMABEL masl	THICKNESS OF AMABEL m	TOP OF RENALES masl	THICKNESS OF RENALES m	TOP OF CABOT HEAD masl	DEPTH m	BOTTOM ELEV. masl
1-D	285.488	.5	285.99	3.50	281.99	31.81	250.18	2.03	248.15	38.18	247.31
1-S	285.571	0.8	286.37								
3	285.851	1.4	287.25	5.06	280.77	28.88	251.89	2.04	249.85	36.91	248.94
4-D	286.113	0.36	286.46	2.95	283.16	32.75	250.41	2.12	248.29	38.88	247.23
4-S	286.087	0.6	286.69								
6-D	287.298	0.73	288.00	2.59	284.66	31.23	253.45	2.03	251.42	36.79	250.48
6-S	287.333	0.23	287.56								
7-D	285.416	0.35	285.77	1.83	283.59	31.77	251.82	2.15	249.67	38.64	246.78
7-S	285.423	0.07	285.49								
8-D	281.47	0.63	282.10	3.05	278.42	29.43	248.99	2.13	246.86	36.56	244.91
8-S	281.55	0.28	281.83								
9-D	284.735	0.79	285.53	5.18	279.56	27.23	252.33	2.10	250.23	36.23	248.51
9-S	284.644	0.93	285.57								
B	290.805	0.32	291.13	1.82	288.99	36.26	252.73	1.97	250.75	40.25	250.56
C	287.041	0.67	287.71	5.03	282.01	31.02	250.99	2.10	248.89	39.20	247.84
D	287.522	0.72	288.24	3.58	283.94	32.79	251.15	1.97	249.18	40.89	246.63
E	290.56	0.44	291.00	2.89	287.67	38.07	249.60	2.08	247.52	45.23	245.33
F	294.12	0.66	294.78	2.02	292.10	40.01	252.09	2.16	249.93	44.93	249.19



LEGEND

- BOUNDARY OF SITE
- HRCA FILL LINE
- EXISTING BOREHOLE

LOWNDES HOLDINGS

15-6400 MILLCREEK DRIVE, MISSISSAUGA, ONTARIO

PROPOSED DOLOSTONE QUARRY

PART OF LOT 1, LOT 2 AND 3
CONCESSION 11
GEOGRAPHIC TOWNSHIP OF
EAST FLAMBOROUGH
CITY OF HAMILTON

MAP 3
BOREHOLE LOCATIONS

PROJECT: LOWNFLAM
DRAWN: T.M.L. (On Autocad)
CHECKED: R.J.L.
PLOTTED: 20 JULY 2004

AMENDMENT NO.

No.	DATE	DESCRIPTION	APP'D

AMENDMENTS

NORTH

0 15 30 60 150m 300

1 : 3,000

1 : 6,000 @ 11x17"

LONG ENVIRONMENTAL CONSULTANTS INC.
Environmental Engineers and Planners
Orangeville, Ontario

APPENDIX E
BOREHOLE LOGS

JOHN EMERY GEOTECHNICAL ENGINEERING LIMITED

CORE LOG

JEGEL: 103191 **CLIENT/JOB:** Lowndes Holdings Corp. **DATE:** March 1, 2004

JEGEL ID#: 8419 **SAMPLE DESCRIPTION:**

Project: Lowndes Quarry	Orientation: Vertical	Collar Elevator (m) 291.1	Datum NA	Borehole No.: B
Location: East Flamborough	Date Started: Feb 24, 04	Completed: Feb 25, 04	Logged: ZK/JY	Drawing No. B-1
290.81 to 288.99m Till overburden	Drilling Agency: Keith Lang	Drill Type: Water Well	Core Barrel & Bit Design: 6", Carbide	

Elevation (m)	Depth (m)	Symbol	General Description	Fracture Characteristics: Number of Sets	Type	Orientation	Spacing	Roughness	Filling	Aperture	Weathering	Strength	Fracture Frequency	Run #	RQD %	Core Recovery %	Core Size/Casing
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
289	288.99	Amabel Formation	Dolostone, medium light grey to light grey, medium crystalline to aphanitic, calcarenite with sections of coquinoid calcarenite, highly fossiliferous (crinoids, brachiopods), medium bedded, highly porous.	2		Horizontal and 45°	2 to 140 cm					Hard		#1	97.4	100	3"
288																	
287														#2			
286	286.16		Dolostone, ligh brownish grey to light grey, fine crystalline to aphanitic, calcarenite with occasional coquinoid calcarenite sections, highly fossiliferous (crinoids, brachiopods), medium bedded, highly porous. (Continued on next page)	2		Horizontal and 45°	1 to 62 cm					Hard		#3	95.2	100	3"
285																	
284														#4			
283																	

Comments: **Technician:** ZK/JY **Checked By:** MHM

Form S/A 1.30-1 **Revised May 31, 2004**

CORE LOG
(Continued)

Project: Lowndes Quarry	Orientation: Vertical	Collar Elevator (m) 291.1	Datum NA	Borehole No.: B
Location: East Flamborough	Date Started: Feb 24, 04	Completed: Feb 25, 04	Logged: ZK/JY	Drawing No. B-2
290.81 to 288.99m Till overburden	Drilling Agency: Keith Lang	Drill Type: Water Well	Core Barrel & Bit Design: 6", Carbide	

Elevation (m)	Depth (m)	Symbol	General Description	Fracture Characteristics							Weathering	Strength	Fracture Frequency	Run #	RQD %	Core Recovery %	Core Size/Casing
				Number of Sets	Type	Orientation	Spacing	Roughness	Filling	Aperture							
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
283																	
			(Continued) Same as above.											#5			
282																	
281				2		Horizontal and 45°	2 to 40 cm					Hard		#6	97.4	100	3"
280														#7			
	279.28	Amabel Formation															
279			Dolostone, medium to dark bluish grey, fine crystalline to aphanitic, calcarenite to calcirudite, fossiliferous (crinoids, brachiopods), low porosity, (Continued on next page)														
				2		Horizontal and 45°	1 to 88 cm					Hard		#8	96.2	100	3"
278																	
277																	

CORE LOG
(Continued)

Project: Lowndes Quarry	Orientation: Vertical	Collar Elevator (m) 291.1	Datum NA	Borehole No.: B
Location: East Flamborough	Date Started: Feb 24, 04	Completed: Feb 25, 04	Logged: ZK/JY	Drawing No. B-3
290.8 to 288.99m –Till overburden	Drilling Agency: Keith Lang	Drill Type: Water Well	Core Barrel & Bit Design: 6", Carbide	

Elevation (m)	Depth (m)	Symbol	General Description	Fracture Characteristics							Weathering	Strength	Fracture Frequency	Run #	RQD %	Core Recovery %	Core Size/Casing
				Number of Sets	Type	Orientation	Spacing	Roughness	Filling	Aperture							
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
253	252.73	Reynales Formation	Dolostone with shale partings, greenish grey to medium to dark grey, fine crystalline to aphanitic, very fine pyrite crystals throughout, medium to thick bedded.	1		Horizontal	to 53 cm		Few mm			Hard		#25	90.4	100	3"
252																	
251	250.76	Head Formatio	Shale, medium grey to dark green, thinly laminated, lower end is not detected.	1		Horizontal	1 to 7 cm		Few mm			Hard		#26	0	100	3"
	250.56		Bottom of hole														
250																	
249																	
248																	
247																	

CORE LOG
(Continued)

Project: Lowndes Quarry	Orientation: Vertical	Collar Elevator (m) 291.1	Datum NA	Borehole No.: B
Location: East Flamborough	Date Started: Feb 24, 04	Completed: Feb 25, 04	Logged: K/JY	Drawing No. B-4
290.8 to 288.99m –Till overburden	Drilling Agency: Keith Lang	Drill Type: Water Well	Core Barrel & Bit Design: 6", Carbide	

Elevation (m)	Depth (m)	Symbol	General Description	Fracture Characteristics							Weathering	Strength	Fracture Frequency	Run #	RQD %	Core Recovery %	Core Size/Casing
				Number of Sets	Type	Orientation	Spacing	Roughness	Filling	Aperture							
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
277		Amabel Formation	(Continued) thin shale seam from 276.28 to 275.88 m, stylolites at 273.79 and at 273.61 m, bedding varies from medium to thick and to massive bedded, fine crystalline in fossil imprints.	2		Horizontal and 45°	1 to 88 cm					Hard		#9			
276														#10	96.2	100	3"
275																	
274																	
	273.56		Dolostone, light to medium grey, fine crystalline to aphanitic, low porosity, fossilifeous (crinoids), core is broken, thin bedded, lost 64 cm core.	-		-	-					Hard		#11	0	31.0	3"
273																	
	272.63		Dolostone, medium bluish grey to light grey, fine crystalline to aphanitic, porosity varies from low to none, calcarenite to calcisiltite, medium to thick bedded.	2		Horizontal and 45°	3 to 64 cm					Hard			67.1	100	3"
272																	
	271.6		Dolostone, light grey to light bluish grey, fine crystalline to aphanitic, low porosity, occasional fossilifeous (crinoids), core is broken, thin bedded, lost 28 cm core, bedding can not be detected due to broken core.									Hard		#12	0	60.5	3"
271	270.9																

CORE LOG
(Continued)

Project: Lowndes Quarry	Orientation: Vertical	Collar Elevator (m) 291.1	Datum NA	Borehole No.: B
Location: East Flamborough	Date Started: Feb 24, 04	Completed: Feb 25, 04	Logged: ZK/JY	Drawing No. B-5
290.8 to 288.99m –Till overburden	Drilling Agency: Keith Lang	Drill Type: Water Well	Core Barrel & Bit Design: 6", Carbide	

Elevation (m)	Depth (m)	Symbol	General Description	Fracture Characteristics							Weathering	Strength	Fracture Frequency	Run #	RQD %	Core Recovery %	Core Size/Casing
				Number of Sets	Type	Orientation	Spacing	Roughness	Filling	Aperture							
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
271	270.84	Amabel Formation	Dolostone, light grey to dark bluish grey, mottled, fine crystalline to aphanitic, low porosity, calcisiltite fracture from 270.84 to 270.74 m, 2 cm vugs at 269.93, and 269.56 m, calcarenite to calcirudite, fossiliferous (crinoids), medium bedded.	2		Horizontal and 30°	3 to 42 cm					Hard		#13	93.0	100	3"
270																	
269	268.87		Dolostone, medium to dark bluish grey, mottled, fine crystalline to aphanitic, slightly argillaceous, calcirudite to calcarenite, fossiliferous (crinoids), low porosity, medium to thick bedded, stylolites at 267.94, 267.93, 266.69, 266.51,266.07 and 265.97 m, medium bedded.	1		Horizontal	12 to 56 cm					Hard		#14	100	100	3"
268																	
267														#15			
266	265.93		Dolostone, medium to light grey, fine crystalline to aphanitic, dense, calcarenite to calcisiltite, no porositys, stylolites at 265.91, 265.84, 265.76, 265.7, and 265.42m, medium bedded, low fossil content.	1		Horizontal	13 to 30 cm					Hard		#16	100	100	3"
	265.32																
265	264.76		Dolostone, medium bluish grey, coarse crystalline to aphanitic, calcirudite to coquinoid calcarenite, highly fossiliferous (crinoids), 5 cm diameter vugs from 264.44 to 264.07 m, medium bedded, lost 15cm core.	1		Horizontal	15 to 24cm					Hard to medium hard			100	73.2	3"

CORE LOG
(Continued)

Project: Lowndes Quarry	Orientation: Vertical	Collar Elevator (m) 291.1	Datum NA	Borehole No.: B
Location: East Flamborough	Date Started: Feb 24, 04	Completed: Feb 25, 04	Logged: ZK/JY	Drawing No. B-6
290.8 to 288.99m –Till overburden	Drilling Agency: Keith Lang	Drill Type: Water Well	Core Barrel & Bit Design: 6", Carbide	

Elevation (m)	Depth (m)	Symbol	General Description	Fracture Characteristics: Number of Sets	Type	Orientation	Spacing	Roughness	Filling	Aperture	Weathering	Strength	Fracture Frequency	Run #	RQD %	Core Recovery %	Core Size/Casing
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
265																	
	264.76		Dolostone, medium grey, fine crystalline, calcarenite, low fossil content, 4 to 6 cm diameter vugs from 264.08 to 264.0 m, 3 cm shale seam at 264.12 m, thin to medium bedded.	1		Horizontal	2 to 25 cm					Hard			29.6	100	3"
	264.12		Dolostone, medium to light bluish grey, fine to medium crystalline to aphanitic, calcarenite to calcisiltite, highly porous from 260.82 to 260.58m, low to medium porosity, except coquinoid calcarenite from 259.11 to 253.64 m, low to medium fossil content (crinoids), calcite crystals on fossil moulds, stylolites at 262.75, 259.31 and 258.58 m, thick to massive bedded.											#17			
264																	
														#18			
263																	
262																	
		Amabel Formation	(Continued on next page)	2		Horizontal and 30°	2 to 102 cm					Hard		#19	97.4	100	3"
261																	
260														#20			
259																	

CORE LOG
(Continued)

Project: Lowndes Quarry	Orientation: Vertical	Collar Elevator (m) 291.1	Datum NA	Borehole No.: B
Location: East Flamborough	Date Started: Feb 24, 04	Completed: Feb 25, 04	Logged: ZK/JY	Drawing No. B-7
290.8 to 288.99m –Till overburden	Drilling Agency: Keith Lang	Drill Type: Water Well	Core Barrel & Bit Design: 6", Carbide	

Elevation (m)	Depth (m)	Symbol	General Description	Fracture Characteristics: Number of Sets	Type	Orientation	Spacing	Roughness	Filling	Aperture	Weathering	Strength	Fracture Frequency	Run #	RQD %	Core Recovery %	Core Size/Casing
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
259			(Continued) Same as above.	2		Horizontal and 30°	2 to 102 cm					Hard		#21	97.4	100	3"
258	257.3	Amabel Formation	Dolostone, medium grey, fine crystalline to aphanitic, fine calcite crystals in fossil moulds, low porosity, dense, low fossil content, thick to massive bedded, calcarenite, stylolites at 257.2, 256.49, 255.02, 254.82, 254.73, 254.59 and 254.37 m.	1		Horizontal	5 to 110 cm					Hard		#22 #23	98.1	100	3"
257																	
256																	
255																	
254	254.22		Dolostone, light grey to medium bluish grey, fine crystalline to aphanitic, calcarenite to calcisiltite, fine calcite crystals in fossil moulds, low porosity, dense, low fossil content, a 5 cm vug at 253.19 m which contains calcite and sulphide crystals and a 2 cm vug at 252.96 m with calcites, medium to thick bedded.	1		Horizontal	4 to 48cm					Hard		#24	96.6	100	3"
253	252.73																

CORE LOG
(Continued)

Project: Lowndes Quarry	Orientation: Vertical	Collar Elevator (m) 291.1	Datum NA	Borehole No.: B
Location: East Flamborough	Date Started: Feb 24, 04	Completed: Feb 25, 04	Logged: ZK/JY	Drawing No. B-8
290.8 to 288.99m –Till overburden	Drilling Agency: Keith Lang	Drill Type: Water Well	Core Barrel & Bit Design: 6", Carbide	

Elevation (m)	Depth (m)	Symbol	General Description	Fracture Characteristics							Weathering	Strength	Fracture Frequency	Run #	RQD %	Core Recovery %	Core Size/Casing
				Number of Sets	Type	Orientation	Spacing	Roughness	Filling	Aperture							
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
253	252.73	Reynales Formation	Dolostone with shale partings, greenish grey to medium to dark grey, fine crystalline to aphanitic, very fine pyrite crystals throughout, medium to thick bedded.	1		Horizontal	to 53 cm		Few mm			Hard		#25	90.4	100	3"
252																	
251	250.76	Head Formatio	Shale, medium grey to dark green, thinly laminated, lower end is not detected.	1		Horizontal	1 to 7 cm		Few mm			Hard		#26	0	100	3"
	250.56		Terminated														
250																	
249																	
248																	
247																	

JOHN EMERY GEOTECHNICAL ENGINEERING LIMITED

CORE LOG

JEGEL: 103191 **CLIENT/JOB:** Lowndes Holdings Corp. **DATE:** March 8, 2004

JEGEL ID#: 8427 **SAMPLE DESCRIPTION:**

Project: Lowndes Quarry	Orientation: Vertical	Collar Elevator (m) 287.7	Datum NA	Borehole No.: C
Location: East Flamborough	Date Started: Feb 18, 04	Completed: Feb 18, 04	Logged: ZK/JY	Drawing No. C-1
287.04 to 282.0m –Till overburden	Drilling Agency: Keith Lang	Drill Type: Water Well	Core Barrel & Bit Design: 6", Carbide	

Elevation (m)	Depth (m)	Symbol	General Description	Fracture Characteristics: Number of Sets	Type	Orientation	Spacing	Roughness	Filling	Aperture	Weathering	Strength	Fracture Frequency	Run #	RQD %	Core Recovery %	Core Size/Casing
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
282	282.01	Amabel Formation	Dolostone, light brown to light brownish grey, occasional yellowish brown, fine crystalline, calcarenite to calcirudite, highly fossiliferous, mostly fine fragments, some brachiopods, porous, medium to thick bedded, core is badly broken from 281.29 to 281.18 m and from 277.64 to 277.29 m, 80 cm core lost, mainly at this location, lost 51 cm core. (Continued on next page)	1		Horizontal	2 to 73 cm					Hard		#1 #2 #3 #4	94.0	90.6	3"
281																	
280																	
279																	
278																	
277																	
276																	

Comments: **Technician:** ZK/JY **Checked By:** MHM

Form S/A 1.30-1 **Revised May 31, 2004**

CORE LOG
(Continued)

Project: Lowndes Quarry	Orientation: Vertical	Collar Elevator (m) 287.7	Datum NA	Borehole No.: C
Location: East Flamborough	Date Started: Feb 18, 04	Completed: Feb 18, 04	Logged: ZK/JY	Drawing No. C-2
287.04 to 282.0m –Till overburden	Drilling Agency: Keith Lang	Drill Type: Water Well	Core Barrel & Bit Design: 6", Carbide	

Elevation (m)	Depth (m)	Symbol	General Description	Fracture Characteristics							Weathering	Strength	Fracture Frequency	Run #	RQD %	Core Recovery %	Core Size/Casing
				Number of Sets	Type	Orientation	Spacing	Roughness	Filling	Aperture							
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
276			(Continued) Same as above	1		Horizontal	2 to 73 cm					Hard		#5	94.0	90.6	3"
275																	
274														#6			
	273.46	Amabel Formation	Dolostone, light to medium grey with a dark grey, slightly argillaceous section from 267.23 to 266.88 m,light brownish grey in top 1.82 m and light brownish grey from 266.73 to 266.50 m, 266.3 to 266.02 m and from 265.78 to 265.33 m, fine to medium crystalline, calcirudite with coquinoid calcarenite from 268.17 to 266.55 m and from 266.04 to 260.91 m, porous, highly fossiliferous, mainly crinoids, a 3 cm vug located a 257.7, (Continued on next page)													
273				1		Horizontal	2 to 120 cm					Hard		#7	96.2	98.6	3"
272																	
271														#8			
270																	

CORE LOG
(Continued)

Project: Lowndes Quarry	Orientation: Vertical	Collar Elevator (m) 287.7	Datum NA	Borehole No.: C
Location: East Flamborough	Date Started: Feb 18, 04	Completed: Feb 18, 04	Logged: ZK/JY	Drawing No. C-3
287.04 to 282.0m –Till overburden	Drilling Agency: Keith Lang	Drill Type: Water Well	Core Barrel & Bit Design: 6", Carbide	

Elevation (m)	Depth (m)	Symbol	General Description	Fracture Characteristics							Weathering	Strength	Fracture Frequency	Run #	RQD %	Core Recovery %	Core Size/Casing
				Number of Sets	Type	Orientation	Spacing	Roughness	Filling	Aperture							
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
270		Amabel Formation	(Continued) stylolites at 266.76, 262.26, 262.12, 261.05, 260.58, 260.43, 260.41, 260.02, 259.78, 259.68, and 258.98m, medium to massive bedded, 23 cm core lost at horizontal fractures.	1		Horizontal	2 to 120 cm					Hard		#9	96.2	98.6	3"
269																	
268														#10			
267														#11			
266																	
265														#12			
264																	

CORE LOG
(Continued)

Project: Lowndes Quarry	Orientation: Vertical	Collar Elevator (m) 287.7	Datum NA	Borehole No.: C
Location: East Flamborough	Date Started: Feb 18, 04	Completed: Feb 18, 04	Logged: ZK/JY	Drawing No. C-4
287.04 to 282.0m –Till overburden	Drilling Agency: Keith Lang	Drill Type: Water Well	Core Barrel & Bit Design: 6", Carbide	

Elevation (m)	Depth (m)	Symbol	General Description	Fracture Characteristics							Weathering	Strength	Fracture Frequency	Run #	RQD %	Core Recovery %	Core Size/Casing
				Number of Sets	Type	Orientation	Spacing	Roughness	Filling	Aperture							
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
264		Amabel Formation	(Continued) Same as above.	1		Horizontal	2 to 120 cm					Hard		#13 #14 #15 #16	96.2	98.6	3"
263																	
262																	
261																	
260																	
259																	
258																	

CORE LOG
(Continued)

Project: Lowndes Quarry	Orientation: Vertical	Collar Elevator (m) 287.7	Datum NA	Borehole No.: C
Location: East Flamborough	Date Started: Feb 18, 04	Completed: Feb 18, 04	Logged: ZK/JY	Drawing No. C-5
287.04 to 282.0m –Till overburden	Drilling Agency: Keith Lang	Drill Type: Water Well	Core Barrel & Bit Design: 6", Carbide	

Elevation (m)	Depth (m)	Symbol	General Description	Fracture Characteristics							Weathering	Strength	Fracture Frequency	Run #	RQD %	Core Recovery %	Core Size/Casing
				Number of Sets	Type	Orientation	Spacing	Roughness	Filling	Aperture							
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
258			(Continued) Same as above.	1		Horizontal	2 to 120 cm					Hard		#17	96.2	98.6	3"
257	256.59		Dolostone, medium grey, fine crystalline, calcarenite, occasional fossils, low porosity, 61 cm core is lost from 256.17to 255.56 m, core is broken throughout.	-		-	1 to 15 cm					Hard		#18	10.7	71.4	3"
256																	
255		Amabel Formation												#19			
	254.47		Dolostone, medium grey, fine crystalline, calcarenite to calcirudite, fossiliferous, occasional fine pyrite crystals, medium to thick bedded, a 4 cm vug at 253.23 m.	1		Horizontal	18 to 64 cm					Hard			100	100	3"
254																	
	253.59		Dolostone, light to medium grey, fine crystalline, calcarenite, low fossil content, low porosity, occasional fine pyrite crystals, medium to thick bedded, core is broken from 253.59 to 253.49 m, stylolites at 252.79, 252.24 and 251.18 m, 15 cm core is lost. (Continued on next page)	1		Horizontal	3 to 66 cm					Hard		#20	87.7	94.2	3"
253																	
252																	

CORE LOG
(Continued)

Project: Lowndes Quarry	Orientation: Vertical	Collar Elevator (m) 287.7	Datum NA	Borehole No.: C
Location: East Flamborough	Date Started: Feb 18, 04	Completed: Feb 18, 04	Logged: ZK/JY	Drawing No. C-6
287.04 to 282.0m –Till overburden	Drilling Agency: Keith Lang	Drill Type: Water Well	Core Barrel & Bit Design: 6", Carbide	

Elevation (m)	Depth (m)	Symbol	General Description	Fracture Characteristics							Weathering	Strength	Fracture Frequency	Run #	RQD %	Core Recovery %	Core Size/Casing
				Number of Sets	Type	Orientation	Spacing	Roughness	Filling	Aperture							
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
252		Amabel Formation	(Continued) Same as above.	1		Horizontal	3 to 66 cm					Hard		#21	87.7	94.2	3"
251	250.99																
250		Reynales Formation	Dolostone with shale partings, greenish grey, fine crystalline to aphanitic, calcilutite, medium to thick bedded, hard to medium hard with softer shale sections, occasional fine pyrite crystals.	1		Horizontal	1 to 56 cm					Hard to medium hard		#22	87.1	100	3"
249	248.89																
248		Cabot Head Formation	Shale, dark greenish grey, thin bedded, lower contact is not detected.	1		Horizontal	2 to 10 cm					Soft		#23	0	100	3"
	247.84		Terminated														
247																	
246																	

JOHN EMERY GEOTECHNICAL ENGINEERING LIMITED

CORE LOG

JEGEL: 103191 **CLIENT/JOB:** Lowndes Holdings Corp. **DATE:** April 14, 2004

JEGEL ID#: 8420 **SAMPLE DESCRIPTION:**

Project: Lowndes Quarry	Orientation: Vertical	Collar Elevator (m) 288.24	Datum NA	Borehole No. D
Location: East Flamborough	Date Started: Feb 16, 04	Completed: Feb 16, 04	Logged: ZK/JY	Drawing No. D-1
287.52 to 283.94m Till overburden	Drilling Agency: Keith Lang	Drill Type: Water Well	Core Barrel & Bit Design: 6", Carbide	

Elevation (m)	Depth (m)	Symbol	General Description	Fracture Characteristics: Number of Sets	Type	Orientation	Spacing	Roughness	Filling	Aperture	Weathering	Strength	Fracture Frequency	Run #	RQD %	Core Recovery %	Core Size/Casing
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
285																	
			Dolostone, light to medium brownish grey, fine crystalline to aphanitic with some medium crystalline parts throughout, calcirudite, highly fossiliferous (crinoids, brachiopods), porous, medium to thick bedded.											#1			
284	283.94																
														#2	85.0	100	3"
283				2		Horizontal and 45°	2 to 64 cm					Hard					
282																	
														#3			
281																	
	280.46	Amabel Formation	Dolostone, light brownish grey to light brown, aphanitic to fine crystalline, calcarenite with some calcirudite sections, specifically from 276.17 to 276.04 m, fossiliferous (mainly brachiopods, some crinoids), low porosity to dense, (Continued on next page)														
280				3		Horizontal, 45°, and vertical	2 to 68 cm					Hard		#4	90.5	93.1	3 "
279																	

Comments: **Technician:** ZK/JY **Checked By:** MHM

CORE LOG
(Continued)

Project: Lowndes Quarry	Orientation: Vertical	Collar Elevator (m) 288.24	Datum NA	Borehole No. D
Location: East Flamborough	Date Started: Feb 16, 04	Completed: Feb 16, 04	Logged: ZK/JY	Drawing No. D-2
287.52 to 283.94m Till overburden	Drilling Agency: Keith Lang	Drill Type: Water Well	Core Barrel & Bit Design: 6", Carbide	

Elevation (m)	Depth (m)	Symbol	General Description	Fracture Characteristics							Weathering	Strength	Fracture Frequency	Run #	RQD %	Core Recovery %	Core Size/Casing
				Number of Sets	Type	Orientation	Spacing	Roughness	Filling	Aperture							
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
279 278 277 276 275 274 273		Amabel Formation	(Continued) it is estimated that lost core is from 279.87 to 279.39m, and from 272.21 to 272.08 m, medium brown clay staining in fractures at 279.87m, and 279.39 m, a near vertical fracture from 276.6 to 276.17 m, from 275.37 to 274.92 m, and from 273.81 to 273.47 m, core is broken from 272.16 to 272.08 m, medium to thick bedded, total core lost is 61 cm. (Continued on next page)	2		Horizontal, 45°, and vertical	2 to 68cm					Hard		#5 #6 #7 #8	90.5	93.1	3 "

CORE LOG
(Continued)

Project: Lowndes Quarry	Orientation: Vertical	Collar Elevator (m) 288.24	Datum NA	Borehole No. D
Location: East Flamborough	Date Started: Feb 16, 04	Completed: Feb 16, 04	Logged: ZK/JY	Drawing No. D-3
287.52 to 283.94m Till overburden	Drilling Agency: Keith Lang	Drill Type: Water Well	Core Barrel & Bit Design: 6", Carbide	

Elevation (m)	Depth (m)	Symbol	General Description	Fracture Characteristics: Number of Sets	Type	Orientation	Spacing	Roughness	Filling	Aperture	Weathering	Strength	Fracture Frequency	Run #	RQD %	Core Recovery %	Core Size/Casing
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
273			(Continued) Same as above.	3		Horizontal, 45°, vertical	2 to 68 cm					Hard		#9	90.5	93.1	3 "
272	271.65	Amabel Formation	Dolostone, medium to dark bluish grey, fine crystalline, calcarenite to calcirudite, fossiliferous (mainly crinoids), dense to low porosity, light brown clay coating on fractures from 270.29 to 270.09 m, stylolites at 268.07, 267.94, 267.74, 266.35, and 265.15 m, a 2cm vug from 266.48 to 266.46 m, a 4 cm vug from 266.35 to 266.31 m, a 5 cm vug from 265.7 to 265.65 m, thick to massive bedded. (Continued on next page)	3		Horizontal and 30°	2 to 175 cm					Hard		#10 #11 #12	95.2	100	3 "
271																	
270																	
269																	
268																	
267																	

CORE LOG
(Continued)

Project: Lowndes Quarry	Orientation: Vertical	Collar Elevator (m) 288.2	Datum NA	Borehole No. D
Location: East Flamborough	Date Started: Feb 16, 04	Completed: Feb 16, 04	Logged: ZK/JY	Drawing No. D-4
287.52 to 283.94m Till overburden	Drilling Agency: Keith Lang	Drill Type: Water Well	Core Barrel & Bit Design: 6", Carbide	

Elevation (m)	Depth (m)	Symbol	General Description	Fracture Characteristics: Number of Sets	Type	Orientation	Spacing	Roughness	Filling	Aperture	Weathering	Strength	Fracture Frequency	Run #	RQD %	Core Recovery %	Core Size/Casing
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
267			(Continued) Same as above.	2		Horizontal and 30°	2 to 175 cm					Hard		#13	95.2	100	3 "
266																	
265	265.02	Amabel Formation	Dolostone, light to medium bluish grey, fine to medium crystalline, coquinoid calcarenite, high fossil content, great abundance of crinoids, low porosity, stylolites at 264.66, 264.33, 264.02, 263.62, 263.1, 260.76, 259.49, 258.55, 258.19, 257.99, and 257.15 m, thick to massive bedded. (Continued on next page)	2		Horizontal and 30°	4 to 150 cm					Hard		#14 #15 #16	94.8	100	3 "
264																	
263																	
262																	
261																	

CORE LOG
(Continued)

Project: Lowndes Quarry	Orientation: Vertical	Collar Elevator (m) 288.24	Datum NA	Borehole No. D
Location: East Flamborough	Date Started: Feb 16, 04	Completed: Feb 16, 04	Logged: ZK/JY	Drawing No. D-5
287.52 to 283.94m Till overburden	Drilling Agency: Keith Lang	Drill Type: Water Well	Core Barrel & Bit Design: 6", Carbide	

Elevation (m)	Depth (m)	Symbol	General Description	Fracture Characteristics: Number of Sets	Type	Orientation	Spacing	Roughness	Filling	Aperture	Weathering	Strength	Fracture Frequency	Run #	RQD %	Core Recovery %	Core Size/Casing
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
261			(Continued) Same as above.											#17			
260																	
259				2		Horizontal and 30°	2 to 150cm					Hard		#18	94.8	100	3 "
258		Amabel Formation															
257	257.13		Dolostone, light grey, fine to medium crystalline, calcarenite to calcirudite, fossiliferous (small crinoids and occasional bivalves), low porosity to dense, a 2 cm vug from 256.28 to 256.26 m, a 1 cm vug at 252.29 m, a 2 cm vug from 252.0 to 251.98 m, stylolites at 256.67, 256.47, 255.36, 255.19, 254.89, 254.11, 253.75, (Continued on next page)	2		Horizontal and 45°	2 to 76 cm					Hard		#19			
256																	
255														#20	95.5	100	3 "

CORE LOG
(Continued)

Project: Lowndes Quarry	Orientation: Vertical	Collar Elevator (m) 288.24	Datum NA	Borehole No. D
Location: East Flamborough	Date Started: Feb 17, 04	Completed: Feb 17, 04	Logged: ZK/JY	Drawing No. D-6
287.52 to 283.94m Till overburden	Drilling Agency: Keith Lang	Drill Type: Water Well	Core Barrel & Bit Design: 6", Carbide	

Elevation (m)	Depth (m)	Symbol	General Description	Fracture Characteristics: Number of Sets	Type	Orientation	Spacing	Roughness	Filling	Aperture	Weathering	Strength	Fracture Frequency	Run #	RQD %	Core Recovery %	Core Size/Casing
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
255		Amabel Formation	(Continued) 253.08, 252.96, 252.90, 252.83, 252.64, 252.20, 251.84, 251.79, and 251.43 m, 4 cm gypsum and selenite lens from 251.54 to 251.49 m, some fine pyrite crystal around edge of lens, a 1cm and a 4 cm thick dark grey slightly shaley beds including fine pyrite crystals at 254.24 m, and from 253.93 to 253.89 m, a few millimetric shale seams at 252.60 and 251.59 m, medium to thick bedded.	2		Horizontal and 45°	2 to 76cm					Hard		#21 #22	95.5	100	3 "
254																	
253																	
252																	
251	251.15	Reynales Formation	Dolostone with shale partings, medium to dark greenish grey to dark grey, aphanitic, calcilutite, numerous millimetric undulating shale seams, some small (1 cm) pyrite blebs throughout, especially at bottom 20 cm, where several vertical fractures are filled with pyrite, a 3cm dark green shale seam from 250.50 to 250.48 m, medium to thick bedded, medium hard, except lower 20 cm is hard.	1		Horizontal	3 to 65 cm					Medium hard to hard		#23	78.7	100	3 "
250																	
249	249.18	Cabot Head Formation	Shale, the 1.35 m top is dark greenish grey, lower 1.18 m is maroon, massive to fissile, (Continued on next page)	1		Horizontal	1 to 17 cm					Soft		#24	17.3	100	3 "

CORE LOG
(Continued)

Project: Lowndes Quarry	Orientation: Vertical	Collar Elevator (m) 288.24	Datum NA	Borehole No. D
Location: East Flamborough	Date Started: Feb 16, 04	Completed: Feb 16, 04	Logged: ZK/JY	Drawing No. D-7
287.52 to 283.94m Till overburden	Drilling Agency: Keith Lang	Drill Type: Water Well	Core Barrel & Bit Design: 6", Carbide	

Elevation (m)	Depth (m)	Symbol	General Description	Fracture Characteristics							Weathering	Strength	Fracture Frequency	Run #	RQD %	Core Recovery %	Core Size/Casing
				Number of Sets	Type	Orientation	Spacing	Roughness	Filling	Aperture							
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
249	249.18	Cabot Head Formation	(Continued) several light brown to light grey fine grained sandstone lays from 247.97 to 247.94 m, from 247.84 to 247.78 m, 247.28 to 247.25m, and 246.89 to 246.86 m, thin bedded, did not reach lower contact.	1		Horizontal	1 to 17cm					Soft		#25	17.3	100	3 "
248																	
247																	
	246.63		Terminated.											#26			
246																	
245																	
244																	
243																	

JOHN EMERY GEOTECHNICAL ENGINEERING LIMITED

CORE LOG

JEGEL: 103191 **CLIENT/JOB:** Lowndes Holdings Corp. **DATE:** March 3, 2004

JEGEL ID#: 8420 **SAMPLE DESCRIPTION:**

Project: Lowndes Quarry	Orientation: Vertical	Collar Elevator (m) 291.0	Datum NA	Borehole No.: E
Location: East Flamborough	Date Started: Feb 20, 04	Completed: Feb 20, 04	Logged: ZK/JY	Drawing No. E-1
290.56 to 287.67m Till overburden	Drilling Agency: Keith Lang	Drill Type: Water Well	Core Barrel & Bit Design: 6", Carbide	

Elevation (m)	Depth (m)	Symbol	General Description	Fracture Characteristics: Number of Sets	Type	Orientation	Spacing	Roughness	Filling	Aperture	Weathering	Strength	Fracture Frequency	Run #	RQD %	Core Recovery %	Core Size/Casing
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
288	287.67	Amabel Formation	Dolostone, light brownish grey to light grey, mottled, occasional light brown staining at horizontal fractures, a medium brown clayey surface at 279.03 m, fine to medium crystalline to aphanitic, fine calcite crystals in fossil imprints, medium to thick bedded, calcarenite to calcirudite, with occasional several cm thick coquinoid calcarenite at horizontal fractures, fossiliferous (brachiopods, bivalves), medium porosity. (Continued on next page)	2		Horizontal and 20°	4 to 50 cm					Hard		#1 #2 #3 #4	90.3	100	3 "
287																	
286																	
285																	
284																	
283																	
282																	

Comments: **Technician:** ZK/JY **Checked By:** MHM

Form S/A 1.30-1 **Revised May 31, 2004**

CORE LOG
(Continued

Project: Lowndes Quarry	Orientation: Vertical	Collar Elevator (m) 296.54	Datum NA	Borehole No. E
Location: East Flamborough	Date Started: Feb 20, 04	Completed: Feb 20, 04	Logged: ZK/JY	Drawing No. E-2
296.1 to 293.21m –Till overburden	Drilling Agency: Keith Lang	Drill Type: Water Well	Core Barrel & Bit Design: 6", Carbide	

Elevation (m)	Depth (m)	Symbol	General Description	Fracture Characteristics: Number of Sets	Type	Orientation	Spacing	Roughness	Filling	Aperture	Weathering	Strength	Fracture Frequency	Run #	RQD %	Core Recovery %	Core Size/Casing
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
282			(Continued) Same as above.											#5			
281				2		Horizontal and 20°	4 to 50 cm					Hard			90.3	100	3 "
280														#6			
279	278.68	Amabel Formation	Dolostone, light grey to light brownish grey, fine crystalline to aphanitic, calcarenite with occasional calcirudite sections, fine calcite crystals in fossil moulds, fossiliferous (crinoids, and hexacorals), low porosity, medium to thick bedded.											#7			
278				2		Horizontal and 45°	5 to 50 cm					Hard			84.5	100	3 "
277														#8			
276	281.24																

CORE LOG
(Continued

Project: Lowndes Quarry	Orientation: Vertical	Collar Elevator (m) 296.54	Datum NA	Borehole No. E
Location: East Flamborough	Date Started: Feb 20, 04	Completed: Feb 20, 04	Logged: ZK/JY	Drawing No. E-3
296.1 to 293.21m –Till overburden	Drilling Agency: Keith Lang	Drill Type: Water Well	Core Barrel & Bit Design: 6", Carbide	

Elevation (m)	Depth (m)	Symbol	General Description	Fracture Characteristics: Number of Sets	Type	Orientation	Spacing	Roughness	Filling	Aperture	Weathering	Strength	Fracture Frequency	Run #	RQD %	Core Recovery %	Core Size/Casing
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
276	275.7	Amabel Formation	Dolostone, medium bluish grey to light brownish grey, mottled, fine crystalline to aphanitic, fine calcite crystals in fossil moulds, thick to massive bedded, calcarenite to calcirudite with occasional coquinoid calcarenite, fossiliferous (crinoids, brachiopods), low porosity, except coquinoid section from 275.42 to 275.06 m.	2		Horizontal and 45°	2 to 86 cm					Hard		# 9	92.4	100	3 "
275																	
274														#10			
273	272.68		Dolostone, light grey with light brown clay surface, most of core is broken, fine crystalline to aphanitic, medium bedded, fine calcite crystals in fossil moulds, calcarenite to calcirudite, fossiliferous (crinoids, bivalves), low porosity, lost 60 cm of core.	1		Horizontal	1 to 26 cm					Hard		#11	60.7	31.8	3 "
272	271.8		Dolostone, light grey to light brownish grey, fine crystalline to aphanitic, fine calcite crystals on fossil moulds, calcarenite to calcirudite, low porosity, medium to thick bedding, fossiliferous (crinoids, brachiopods).	1		Horizontal	15 to 96 cm					Hard			100	100	3 "
271	270.72		Dolostone, medium to dark bluish grey, fine crystalline to aphanitic, fine calcite crystals in fossil moulds, fossiliferous, low porosity, thick bedded, stylolites at 270.39 and 270.12m.	2		Horizontal and 45°C	10 to 67 cm					Hard		#12	100	100	3 "
270	269.58																

CORE LOG
(Continued

Project: Lowndes Quarry	Orientation: Vertical	Collar Elevator (m) 296.5	Datum NA	Borehole No.: E
Location: East Flamborough	Date Started: Feb 20, 04	Completed: Feb 20, 04	Logged: ZK/JY	Drawing No. E-4
296.1 to 293.21m –Till overburden	Drilling Agency: Keith Lang	Drill Type: Water Well	Core Barrel & Bit Design: 6", Carbide	

Elevation (m)	Depth (m)	Symbol	General Description	Fracture Characteristics							Weathering	Strength	Fracture Frequency	Run #	RQD %	Core Recovery %	Core Size/Casing
				Number of Sets	Type	Orientation	Spacing	Roughness	Filling	Aperture							
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
270																	
	269.58		Dolostone, light brownish grey to light bluish grey, fine crystalline to aphanitic, fine calcite crystals in fossil moulds, calcarenite to calcirudite, fossiliferous (bivalves), porosity varies from low to medium, medium to massive bedded, core is broken between 269.11 to 268.91 m.	2		Horizontal and 30°	2 to 107 cm					Hard		#13	83.6	100	3"
269																	
268																	
	267.51		Dolostone, medium to dark bluish grey, fine crystalline to aphanitic, slightly argillaceous, calcarenite to calcirudite, fine calcite crystals in fossil moulds, fossiliferous (bivalves, brachiopods), low porosity, medium to thick bedded, stylolite at 267.43 m, a few milimetric thick shale seam at 266.74 m.	2		Horizontal and 30°	15 to 58 cm					Hard		#14	100	100	3"
267																	
	266.31	Amabel Formation	Dolostone, light brownish grey to medium bluish grey, fine crystalline to aphanitic, calcarenite to calcirudite, conqinoid calcarenite sections from 65.62 to 265.42 m, from 264.75 to 264.72 m, from 264.5 to 264.33 m, and from 263.64 to 263.56 m, medium to high porosity, fossiliferous (crinoids, brachiopods), medium to thick bedded. (Continued on next page)	2		Horizontal and 30°	4 to 48 cm					Hard		#15 #16	89.1	100	3"
266																	
265																	
264																	

CORE LOG
(Continued

Project: Lowndes Quarry	Orientation: Vertical	Collar Elevator (m) 296.5	Datum NA	Borehole No. E
Location: East Flamborough	Date Started: Feb 20, 04	Completed: Feb 20, 04	Logged: ZK/JY	Drawing No. E-5
296.1 to 296.21m –Till overburden	Drilling Agency: Keith Lang	Drill Type: Water Well	Core Barrel & Bit Design: 6", Carbide	

Elevation (m)	Depth (m)	Symbol	General Description	Fracture Characteristics: Number of Sets	Type	Orientation	Spacing	Roughness	Filling	Aperture	Weathering	Strength	Fracture Frequency	Run #	RQD %	Core Recovery %	Core Size/Casing
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
264			(Continued) Same as above.	2		Horizontal and 30°	4 to 48 cm					Hard			89.1	100	3 "
	263.2																
263		Amabel Formation	Dolostone, light brownish grey to light bluish grey, fine crystalline to aphanitic with some medium crystals, calcarenite with some calcirudite, coquinoid section from 262.79 to 262.65 m and from 262.47 to 262.27 m, core is broken from 261.34 to 260.64 m, thin to medium bedded, a 48 cm cavity at the end of the section fossiliferous (crinoids, bivalves), a soft brittle section 261.97 to 261.93 m, lost 48 cm at the end of section.	2		Horizontal and 30°	2 to 40 cm					Hard to medium hard		#17 #18 #19	43.0	84.3	3"
262																	
261																	
	260.15																
260			Dolostone, light brownish grey to light bluish grey, fine crystalline to aphanitic with some medium crystals, calcarenite, moderately fossiliferous (crinoids, brachiopods), low porosity, medium bedded, a near vertical fracture from 259.72 to 258.93 m, core is badly broken, from 251.84 to 258.84 m, lost 84 cm core. (Continued on next page)	2		Horizontal and 30°	3 to 38 cm					Hard		#20	74.0	100	3"
259																	
258																	

CORE LOG
(Continued

Project: Lowndes Quarry	Orientation: Vertical	Collar Elevator (m) 296.5	Datum NA	Borehole No.: E
Location: East Flamborough	Date Started: Feb 20, 04	Completed: Feb 20, 04	Logged: ZK/JY	Drawing No. E-6
296.1 to 293.21m –Till overburden	Drilling Agency: Keith Lang	Drill Type: Water Well	Core Barrel & Bit Design: 6 ", Carbide	

Elevation (m)	Depth (m)	Symbol	General Description	Fracture Characteristics							Weathering	Strength	Fracture Frequency	Run #	RQD %	Core Recovery %	Core Size/Casing
				Number of Sets	Type	Orientation	Spacing	Roughness	Filling	Aperture							
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
258			(Continued) Same as above.	2		Horizontal and 30°	3 to 38 cm					Hard		#21	93.7	94.1	3"
257	256.92		Dolostone, medium bluish grey to meium brownish grey, fine crystalline to aphanitic, calcrenite, low porosity, low fossil content (crinoids, bivalves), stylolites at 256.04, 255.57, 255.01, 253.59, 253.48, 253.42, 253.07, 252.47, 252.31, 252.08, 251.21, 251.12, 250.9 and 250.03 m, medium to massive bedding. (Continued on next page)													
256														#22			
255		Amabel Formation															
254				2		Horizontal and 45°	1 to 63 cm					Hard		#23	95.1	100	3"
253																	
252														#24			

CORE LOG
(Continued

Project: Lowndes Quarry	Orientation: Vertical	Collar Elevator (m) 296.5	Datum NA	Borehole No.: E
Location: East Flamborough	Date Started: Feb 20, 04	Completed: Feb 20, 04	Logged: ZK/JY	Drawing No. E-7
296.1 to 293.21m –Till overburden	Drilling Agency: Keith Lang	Drill Type: Water Well	Core Barrel & Bit Design: 6", Carbide	

Elevation (m)	Depth (m)	Symbol	General Description	Fracture Characteristics: Number of Sets	Type	Orientation	Spacing	Roughness	Filling	Aperture	Weathering	Strength	Fracture Frequency	Run #	RQD %	Core Recovery %	Core Size/Casing
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
252			(Continued)														
			Same as above.											#25			
251		Amabel Formation		2		Horizontal and 45°	1 to 63 cm					Hard			95.1	100	3"
250																	
	249.6													#26			
		Reynales Formation	Dolostone with shale partings, greenish grey to medium to dark grey, fine crystalline to aphanitic, occasional fine pyrite crystals, medium to thick bedded, dense, low porosity,														
249				1		Horizontal	4 to 38 cm					Hard to medium hard			93.1	100	3"
248														#27			
	247.52																
		Cabot Head Formation	Shale, dark grey to light greenish grey to dark green, maroon sandstone layers from 245.97 to 245.92 m, and from 245.61 to 245.33 m, thin to medium bedded, lower contact is not detected.														
247				1		Horizontal	3 to 13 cm					Soft			56.2	100	3"
246														#28			
	245.33		Terminated														

JOHN EMERY GEOTECHNICAL ENGINEERING LIMITED

CORE LOG

JEGEL: 103191 **CLIENT/JOB:** Lowndes Holdings Corp. **DATE:** February 27, 2004

JEGEL ID#: 8415 **SAMPLE DESCRIPTION:** Sample 1A (2.0-23.2m); 2A (23.2- 42.0m); 3A (42.0 – 44.0m)

Project: Lowndes Quarry	Orientation: Vertical	Collar Elevator (m) 294.78	Datum NA	Borehole No. F
Location: East Flamborough	Date Started: Feb 19, 04	Completed: Feb 19, 04	Logged: ZK/JY	Drawing No. F-1
294.12 to 292.12m Till overburden	Drilling Agency: Keith Lang	Drill Type: Water Well	Core Barrel & Bit Design: 6", Carbide	

Elevation (m)	Depth (m)	Symbol	General Description	Fracture Characteristics: Number of Sets	Type	Orientation	Spacing	Roughness	Filling	Aperture	Weathering	Strength	Fracture Frequency	Run #	RQD %	Core Recovery %	Core Size/Casing
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
292	292.1	Amabel Formation	Dolostone, yellowish grey to light grey with light brown stains at weathered zones, medium crystalline, calcirudite to calcarenite, fossiliferous, numerous bivalves, crinoids and brachiopods, hard with medium hard sections at horizontal fractures, horizontal fractures are often highly fossiliferous, medium bedded, except thick bedded from 282.75 to 282.02 m, some sections are porous: 291.77 to 291.61, 287.50 to 287.33, 283.15 to 282.25, 282.89 to 282.62, and 280.78 to 280.02 m, fine calcite crystals in fossil moulds, brittle sections from 287.50 to 287.30 m, and 279.30 to 278.60 m, some horizontal fractures have rough fossiliferous surfaces, one 2 cm soft section at 272.1 m. (Continued on next page)	2		Horizontal and 25°	2to 73 cm				Hard		#1 #2 #3 #4	87.6	100	3"
291																	
290																	
289																	
288																	
287																	
286																	

Comments: _____ **Technician:** ZK/JY **Checked By:** MHM

Form S/A 1.30-1 **Revised May 31, 2004**

CORE LOG
(Continued)

Project: Lowndes Quarry	Orientation: Vertical	Collar Elevator (m) 294.78	Datum NA	Borehole No. F
Location: East Flamborough	Date Started: Feb 19, 04	Completed: Feb 19, 04	Logged: ZK/JY	Drawing No. F-2
294.12 to 292.12m Till overburden	Drilling Agency: Keith Lang	Drill Type: Water Well	Core Barrel & Bit Design: 6", Carbide	

Elevation (m)	Depth (m)	Symbol	General Description	Fracture Characteristics							Weathering	Strength	Fracture Frequency	Run #	RQD %	Core Recovery %	Core Size/Casing
				Number of Sets	Type	Orientation	Spacing	Roughness	Filling	Aperture							
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
286		Amabel Formation	(Continued) Same as above.	2		Horizontal and 25°	2to 73 cm					Hard		#5 #6 #7 #8	87.6	100	3"
285																	
284																	
283																	
282																	
281																	
280																	

CORE LOG
(Continued)

Project: Lowndes Quarry	Orientation: Vertical	Collar Elevator (m) 294.8	Datum NA	Borehole No. F
Location: East Flamborough	Date Started: Feb 19, 04	Completed: Feb 19, 04	Logged: ZK/JY	Drawing No. F-3
294.12 to 292.12m Till overburden	Drilling Agency: Keith Lang	Drill Type: Water Well	Core Barrel & Bit Design: 6", Carbide	

Elevation (m)	Depth (m)	Symbol	General Description	Fracture Characteristics: Number of Sets	Type	Orientation	Spacing	Roughness	Filling	Aperture	Weathering	Strength	Fracture Frequency	Run #	RQD %	Core Recovery %	Core Size/Casing
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
280			(Continued) Same as above.	2		Horizontal and 25°	2 to 73 cm					Hard		#9	87.6	100	3"
279																	
	278.34		Dolostone, light brownish grey to medium light grey, medium crystalline to aphanitic, calcirudite to calcarenite, fossiliferous, (crinoids, brachiopods), occasional light brown staining at fractures, medium bedded, hard with a few thin brittle section, fine calcite crystals in fossil moulds.	2		Horizontal and 30°	1 to 20 cm					Hard		#10	83.2	100	3"
278																	
	277.35																
277		Amabel Formation	Dolostone, light brownish grey to medium grey, medium crystalline to aphanitic, calcirudite to calcarnite, calcite crystals in fossil moulds, low porosity, low fossil content.	2		Horizontal and 25°	10 to 20 cm					Hard		#11	100	100	3"
	276.96																
			Dolostone, light brownish grey to light grey, medium crystalline to aphanitic, calcirudite to calcarnite, calcite crystals in fossil moulds, low fossil content, very low porosity, dense.	2		Horizontal and 30°	10 to 30 cm					Hard			100	100	3"
276																	
	275.43																
275			Same as above, but denser, fine crystalline, very low porosity, fewer fossils, near vertical fracture from 275.79 to 275.42 and 275.94 to 275.63 m, calcite crystals in fossil moulds, medium bedded.	2		Horizontal and 30°	4 to 52 cm					Hard		#12	97.1	100	3"
274																	

CORE LOG
(Continued)

Project: Lowndes Quarry	Orientation: Vertical	Collar Elevator (m) 294.8	Datum NA	Borehole No. F
Location: East Flamborough	Date Started: Feb 19, 04	Completed: Feb 19, 04	Logged: ZK/JY	Drawing No. F-4
294.12 to 292.12m Till overburden	Drilling Agency: Keith Lang	Drill Type: Water Well	Core Barrel & Bit Design: 6", Carbide	

Elevation (m)	Depth (m)	Symbol	General Description	Fracture Characteristics							Weathering	Strength	Fracture Frequency	Run #	RQD %	Core Recovery %	Core Size/Casing
				Number of Sets	Type	Orientation	Spacing	Roughness	Filling	Aperture							
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
274			(Continued) Same as above.	2		Horizontal and 30°	4 to 52 cm					Hard		#13	97.1	100	3"
273	273.16 272.82		Dolostone, Light brown, fine crystalline, calcarenite, low porosity, brittle, core is broken, no fossils, no bedding detected due to fracturing.	-		-	-					Medium hard to soft			0	100	3"
272			Dolostone, light brownish grey to light grey, medium crystalline to aphanitic, calcirudite to calcarnite, calcite crystals in fossil moulds, light fossiliferous, dense, low porosity, thin to massive	2		Horizontal and 30°	1 to 105 cm					Hard		#14	95.0	100	3"
271	270.92	Amabel Formation	Dolostone, light to medium bluish grey, medium crystalline to aphanitic, calcirudite to calcarenite, calcite crystals in fossil moulds, medium to massive bedded, fossiliferous, low porosity, stylolites at 270.64, 269.36, 268.68 and 268.27 m.											#15			
270																	
269				2		Horizontal and 30°	18 to 105 cm					Hard		#16	100	100	3"
268																	

CORE LOG
(Continued)

Project: Lowndes Quarry	Orientation: Vertical	Collar Elevator (m) 294.8	Datum NA	Borehole No. F
Location: East Flamborough	Date Started: Feb 19, 04	Completed: Feb 19, 04	Logged: ZK/JY	Drawing No. F-5
294.12 to 292.1mTill overburden	Drilling Agency: Keith Lang	Drill Type: Water Well	Core Barrel & Bit Design: 6", Carbide	

Elevation (m)	Depth (m)	Symbol	General Description	Fracture Characteristics							Weathering	Strength	Fracture Frequency	Run #	RQD %	Core Recovery %	Core Size/Casing
				Number of Sets	Type	Orientation	Spacing	Roughness	Filling	Aperture							
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
268 267 266 265 264 263 262	268.21	Amabel Formation	Dolostone, medium to light bluish grey, fine crystalline, with coarse crystals in fossilized parts, calcirudite to calcarnite, calcite crystals in fossil imprints, thick to massive bedded, fossliferous, small vugs at 255.30 and 254.72 m, stylolites at 268.13, 267.46, 267.01, 266.84, 266.68, 265.50, 265.44, 264.79, 264.51, 263.12, 262.53, 262.37, 261.71, 261.37, 260.82, 260.56, 259.24, 258.75, 258.21, 257.14, 256.73, 256.14, 255.96, 255.58, 254.92, 254.16, 253.85, 253.72, 252.77, and 252.46 m, one dense aphanitic section from 262.75 to 262.57 m, shale seams at 253.40, 253.24, and 252.84 m.	2		Horizontal and 30°	3 to 96 cm				Hard		#17 #18 #19 #20	93.5	100	3"

CORE LOG
(Continued)

Project: Lowndes Quarry	Orientation: Vertical	Collar Elevator (m) 294.8	Datum NA	Borehole No. F
Location: East Flamborough	Date Started: Feb 19, 04	Completed: Feb 19, 04	Logged: ZK/JY	Drawing No. F-6
294.12 to 292.12m Till overburden	Drilling Agency: Keith Lang	Drill Type: Water Well	Core Barrel & Bit Design: 6", Carbide	

Elevation (m)	Depth (m)	Symbol	General Description	Fracture Characteristics							Weathering	Strength	Fracture Frequency	Run #	RQD %	Core Recovery %	Core Size/Casing
				Number of Sets	Type	Orientation	Spacing	Roughness	Filling	Aperture							
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
262		Amabel Formation	(Continued) Same as above.	2		Horizontal and 30°	3 to 96 cm					Hard		#21 #22 #23 #24	93.5	100	3"
261																	
260																	
259																	
258																	
257																	
256																	

CORE LOG
(Continued)

Project: Lowndes Quarry	Orientation: Vertical	Collar Elevator (m) 294.8	Datum NA	Borehole No. F
Location: East Flamborough	Date Started: Feb 19, 04	Completed: Feb 19, 04	Logged: ZK/JY	Drawing No. F-7
294.12 to 292.1m –Till overburden	Drilling Agency: Keith Lang	Drill Type: Water Well	Core Barrel & Bit Design: 6", Carbide	

Elevation (m)	Depth (m)	Symbol	General Description	Fracture Characteristics: Number of Sets	Type	Orientation	Spacing	Roughness	Filling	Aperture	Weathering	Strength	Fracture Frequency	Run #	RQD %	Core Recovery %	Core Size/Casing
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
256			(Continued) Same as above.														
255														#25			
254		Amabel Formation		2		Horizontal and 30°	3 to 96 cm					Hard		#26	93.5	100	3"
253																	
252	252.09													#27			
		Reynales Formation	Dolostone with shale partings, medium greenish grey to medium to dark grey, fine crystalline to aphanitic, calcilutite, thin to medium bedded, occasional pyrite crystals.	1		Horizontal	2 to 25 cm					Hard to medium hard		#28	87.0	100	3"
251																	
250	249.93																

CORE LOG
(Continued)

Project: Lowndes Quarry	Orientation: Vertical	Collar Elevator (m) 294.8	Datum NA	Borehole No. F
Location: East Flamborough	Date Started: Feb 19, 04	Completed: Feb 19, 04	Logged: ZK/JY	Drawing No. F-8
294.12 to 292.12m Till overburden	Drilling Agency: Keith Lang	Drill Type: Water Well	Core Barrel & Bit Design: 6", Carbide	

Elevation (m)	Depth (m)	Symbol	General Description	Fracture Characteristics: Number of Sets	Fracture Characteristics: Type	Fracture Characteristics: Orientation	Fracture Characteristics: Spacing	Fracture Characteristics: Roughness	Fracture Characteristics: Filling	Fracture Characteristics: Aperture	Weathering	Strength	Fracture Frequency	Run #	RQD %	Core Recovery %	Core Size/Casing
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
250	249.93	Cabot Head Formation	Shale, dark grey to light grey, thinly laminated, lower contact is not detected.	1		Horizontal	2 to 12 cm					Soft		#29	35.1	100	3"
	249.19		Terminated														
249																	
248																	
247																	
246																	
245																	
244																	

JOHN EMERY GEOTECHNICAL ENGINEERING LIMITED

CORE LOG

JEGEL: 103191 **CLIENT/JOB:** Lowndes Holdings Corp. **DATE:** March 4, 2004

JEGEL ID#: 8421 **SAMPLE DESCRIPTION:** Sample 1C (3.50 –19.0m); 2C (19.0 – 35.0m); 3C(35.0-37.0m)

Project: Lowndes Quarry	Orientation: Vertical	Collar Elevator (m) 285.99	Datum NA	Borehole No. Hydro#1
Location: East Flamborough	Date Started: Feb 26, 04	Completed: Feb 26, 04	Logged: ZK/JY	Drawing No. H1-1
285.49 to 281.99m –Till overburden	Drilling Agency: Keith Lang	Drill Type: Water Well	Core Barrel & Bit Design: 6", Carbide	

Elevation (m)	Depth (m)	Symbol	General Description	Fracture Characteristics: Number of Sets	Type	Orientation	Spacing	Roughness	Filling	Aperture	Weathering	Strength	Fracture Frequency	Run #	RQD %	Core Recovery %	Core Size/Casing
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
282	281.99	Amabel Formation	Dolostone, light bluish grey to light brownish grey, mottled, fine crystalline to aphanitic with some medium crystalline sections, calcirudite to calcarenite, coquinoid calcarenite sections at fossiliferous horizontal fractures, a 30 cm long coquinoid section from 278.41 to 278.11 m, low porosity, medium to thick bedded, fossiliferous (brachiopods, bivalves), lost 43 cm core. (Continued on next page)	2		Horizontal and 30°	2 to 47 cm					Hard		#1 #2 #3 #4	93.7	94.1	3"
281																	
280																	
279																	
278																	
277																	
276																	

Comments: _____ **Technician:** ZK/JY **Checked By:** MHM

Form S/A 1.30-1 **Revised May 31, 2004**

CORE LOG
(Continued)

Project: Lowndes Quarry	Orientation: Vertical	Collar Elevator (m) 285.99	Datum NA	Borehole No.Hydro#1
Location: East Flamborough	Date Started: Feb 26, 04	Completed: Feb 26, 04	Logged: ZK/JY	Drawing No. H1-2
285.49 to 281.99m Till overburden	Drilling Agency: Keith Lang	Drill Type: Water Well	Core Barrel & Bit Design: 6", Carbide	

Elevation (m)	Depth (m)	Symbol	General Description	Fracture Characteristics: Number of Sets	Type	Orientation	Spacing	Roughness	Filling	Aperture	Weathering	Strength	Fracture Frequency	Run #	RQD %	Core Recovery %	Core Size/Casing
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
276			(Continued) Same as above	2		Horizontal and 30°	2 to 47 cm					Hard		#5	93.7	94.1	3"
275	274.7		Dolostone, same as above, except rock is denser, very low porosity.	1		Horizontal	1 to 30 cm					Hard		#6	93.4	100	3"
274																	
273	273.18	Amabel Formation	Dolostone, light brownish grey to light bluish grey, fine crystalline to aphanitic, calcirudite to calcarnite with few coquinoid calcarenite sections, porous, fossiliferous (brachiopod, bivalve) near vertical fracture from 271.26 to 270.76 m, medium to thick bedded.	2		Horizontal and 75 °	5 to 50 cm					Hard		#7	88.4	100	3"
272																	
271																	
	270.76		Dolostone, light brownish grey to light bluish grey, fine crystalline to aphanitic, (Continued on next page)	2		Horizontal and 75°	5 to 88 cm					Hard		#8	96.0	100	3"
270																	

CORE LOG
(Continued)

Project: Lowndes Quarry	Orientation: Vertical	Collar Elevator (m) 285.99	Datum NA	Borehole No. Hydro#1
Location: East Flamborough	Date Started: Feb 26, 04	Completed: Feb 26, 04	Logged: ZK/JY	Drawing No. H1-3
285.49 to 281.99m Till overburden	Drilling Agency: Keith Lang	Drill Type: Water Well	Core Barrel & Bit Design: 6", Carbide	

Elevation (m)	Depth (m)	Symbol	General Description	Fracture Characteristics: Number of Sets	Type	Orientation	Spacing	Roughness	Filling	Aperture	Weathering	Strength	Fracture Frequency	Run #	RQD %	Core Recovery %	Core Size/Casing
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
270			(Continued) mainly calcarenite, minor calcirudite, amount of fossils (brachiopods), core is broken from 267.88 to 267.72 m, a 75º fracture from 267.72 to 267.43m, thick to medium bedding, low porosity, lost 14cm core.	2		Horizontal and 75º	5 to 88cm					Hard		#9	96.0	100	3"
269																	
268														#10			
267	267.28	Amabel Formation	Dolostone, medium to dark bluish grey with some yellowish brown, fine crystalline to aphanitic, fine calcite crystals in fossil moulds, calcirudite to calcarenite, fossiliferous (bivalves), slightly argillaceous, medium to heavy porosity, a few milimetric shale seam at 267.08 m, medium bedded, a 3 cm vug at 266.53 m, medium bedded.	1		Horizontal	5 to 24 cm					Hard			84.4	100	3"
266	266.38													#11			
265			Dolostone, light to medium bluish grey with some 5 to 10cm thick light brownish grey sections in top 4 metres, fine crystalline to aphanitic, fine calcite crystals in fossil moulds, some medium to coarse calcite crystals at calcirudite sections, calcarenite with occasional few cm thick calcirudite in a few sections, low occurrence of fossils, except in calcirudite section from 259.80 to 257.85 m, where crinoids are abundant, (Continued on next page)	1		Horizontal	3 to 120 cm					Hard		#12	95.0	100	3"
264																	

CORE LOG
(Continued)

Project: Lowndes Quarry	Orientation: Vertical	Collar Elevator (m) 285.99	Datum NA	Borehole No.Hydro#1
Location: East Flamborough	Date Started: Feb 26, 04	Completed: Feb 26, 04	Logged: ZK/JY	Drawing No. H1-4
285.49 to 281.99m Till overburden	Drilling Agency: Keith Lang	Drill Type: Water Well	Core Barrel & Bit Design: 6", Carbide	

Elevation (m)	Depth (m)	Symbol	General Description	Fracture Characteristics							Weathering	Strength	Fracture Frequency	Run #	RQD %	Core Recovery %	Core Size/Casing
				Number of Sets	Type	Orientation	Spacing	Roughness	Filling	Aperture							
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
264 263 262 261 260 259 258		Amabel Formation	(Continued) a few 2 to 5 cm diameter vugs at 265.47, 265.30, 262.23 , 262.15, 261.98, 260.50, and at 260.24 m, stylolites are located at 264.68, 264.54, 263.74, 263.40, 262.13, 260.93, 260.47, 260.25, 260.00, 259.63, 258.07, 257.85, 256.73, 256.06, 255.20, 254.92, 254.82, 254.30, 253.25, and 252.84 m, and a 1 cm soft layer at 263.02m, 1 to 2 cm thick gypsum layer from 250.99 to 250.79 m, a thin seam of pyrite layer at 258.59m, medium to thick to massive bedded, 81 cm core lost. (Continued on next page)	1		Horizontal	3 to 120 cm					Hard		#13 #14 #15 #16	95.0	100	3"

CORE LOG
(Continued)

Project: Lowndes Quarry	Orientation: Vertical	Collar Elevator (m) 285.99	Datum NA	Borehole No. Hydro#1
Location: East Flamborough	Date Started: Feb 26, 04	Completed: Feb 26, 04	Logged: ZK/JY	Drawing No. H1-5
285.49 to 281.99m Till overburden	Drilling Agency: Keith Lang	Drill Type: Water Well	Core Barrel & Bit Design: 6", Carbide	

Elevation (m)	Depth (m)	Symbol	General Description	Fracture Characteristics							Weathering	Strength	Fracture Frequency	Run #	RQD %	Core Recovery %	Core Size/Casing
				Number of Sets	Type	Orientation	Spacing	Roughness	Filling	Aperture							
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
258			(Continued) Same as above.											#17			
257																	
256														#18			
255		Amabel Formation		1		Horizontal	3 to 120 cm					Hard			95.0	100	3"
254														#19			
253														#20			
252																	

CORE LOG
(Continued)

Project: Lowndes Quarry	Orientation: Vertical	Collar Elevator (m) 285.99	Datum NA	Borehole No. Hydro#1
Location: East Flamborough	Date Started: Feb 26, 04	Completed: Feb 26, 04	Logged: ZK/JY	Drawing No. H1-6
285.49 to 281.99m Till overburden	Drilling Agency: Keith Lang	Drill Type: Water Well	Core Barrel & Bit Design: 6", Carbide	

Elevation (m)	Depth (m)	Symbol	General Description	Fracture Characteristics: Number of Sets	Type	Orientation	Spacing	Roughness	Filling	Aperture	Weathering	Strength	Fracture Frequency	Run #	RQD %	Core Recovery %	Core Size/Casing
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
252		Amabel Formation	(Continued) Same as above	1		Horizontal	3 to 120 cm					Hard		#21	95.0	100	3"
251																	
250	250.18	Reynales Formation	Dolostone, with shale partings, greenish grey to medium to dark grey, fine crystalline to aphanitic, calcilutite, thin to medium bedded, occasional blebs fine pyrite crystals.	1		Horizontal	2 to 16 cm					Hard to medium hard		#22	98.0	100	3"
249																	
248	248.15	Cabot Head Formation	Shale, dark grey to light greenish grey to dark green, thin bedded, massive to fissile, lower end is not detected.	1		Horizontal	1 to 12 cm					Hard		#23	13.1	100	3"
	247.31		Terminated														
247																	
246																	

JOHN EMERY GEOTECHNICAL ENGINEERING LIMITED

CORE LOG

JEGEL: 103191 **CLIENT/JOB:** Lowndes Holdings Corp. **DATE:** April 5, 2004

JEGEL ID#: 8467 **SAMPLE DESCRIPTION:**

Project: Lowndes Quarry	Orientation: Vertical	Collar Elevator (m) 287.25	Datum NA	Borehole No.Hydro#3
Location: East Flamborough	Date Started: Mar 25, 04	Completed: Mar 25, 04	Logged: ZK/JY	Drawing No. H3-1
285.85 to 280.77m Till overburden	Drilling Agency: Malones	Drill Type: Water Well	Core Barrel & Bit Design: HQ, Diamond	

Elevation (m)	Depth (m)	Symbol	General Description	Fracture Characteristics: Number of Sets	Type	Orientation	Spacing	Roughness	Filling	Aperture	Weathering	Strength	Fracture Frequency	Run #	RQD %	Core Recovery %	Core Size/Casing
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
281																	
	280.77		Dolostone, medium bluish grey to medium brownish grey, fine crystalline to aphanitic, calcarenite to calcirudite, fossiliferous (crinoids, bivalves), low porosity, two porous zones from 279.64 to 279.47 m, and from 278.91 to 278.63 m, medium to thick bedded, stylolites at 280.15, 278.97, 278.60, 277.75, 277.91, and 277.61 m, a 1c m vug at 278.95m, lost 19 cm core from 279.44 to 279.25 m.	2		Horizontal and 45°	3 to 57 cm				Hard		#1			
280																	
279														#2	87.1	94.6	HQ
278		Amabel Formation												#3			
	277.23		Dolostone, light to medium brownish grey with occasional light bluish grey, aphanitic, calcarenite to calcisiltite, occasional fossils (crinoids), calcareous clay from 277.11 to 276.86m, medium brown, plastic, lost core from 276.86 to 276.13 m, and from 275.85 to 275.0 m, core is broken, thinly bedded, occasional hard sections but mostly brittle, (Continued on next page)	1		Horizontal	3 to 57 cm				Hard and brittle		#4	4.9	28.7	HQ
277																	
276																	
275																	

Comments: **Technician:** ZK/JY **Checked By:** MHM

Form S/A 1.30-1 **Revised May 31, 2004**

CORE LOG
(Continued)

Project: Lowndes Quarry	Orientation: Vertical	Collar Elevator (m) 287.25	Datum NA	Borehole No. Hydro#3
Location: East Flamborough	Date Started: Mar 25, 04	Completed: Mar 25, 04	Logged: ZK/JY	Drawing No. H3-2
285.85 to 280.77m Till overburden	Drilling Agency: Malone's	Drill Type: Water Well	Core Barrel & Bit Design: HQ, Diamond	

Elevation (m)	Depth (m)	Symbol	General Description	Fracture Characteristics: Number of Sets	Type	Orientation	Spacing	Roughness	Filling	Aperture	Weathering	Strength	Fracture Frequency	Run #	RQD %	Core Recovery %	Core Size/Casing
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
275	275.0		(Continued) lost a total of 1.59 m core.	1		Horizontal	3 to 57 cm					Hard and brittle			4.9	28.7	HQ
274		Amabel Formation	Dolostone, medium bluish grey, occasional light brown staining at fractures, aphanitic, calcarenite to calcirudite, fossiliferous (crinoids, few bivalves),very low porosity, mainly dense, medium to thick bedded, stylolites at 274.67, 274.62, 274.11, 273.91, 273.27, 273.22, 272.83, 272.58, 272.06, 272.03, 271.89, 271.77, 271.60, 271.17, 271.14, 270.93, and 270.86 m, a 1 cm vug at 272.87 m.	2		Horizontal and 45°	6 to 80 cm					Hard		#5 #6 #7			
271	270.66																
270			Dolostone, medium bluish grey, fine crystalline, calcirudite to calcarenite, coquinoid calcarenite from 270.29 to 270.1 m, fossiliferous (crinoids), (Continued on next page)	1		Horizontal	5 to 123cm					Hard and brittle		#8	96.6	100	HQ
269																	

CORE LOG
(Continued)

Project: Lowndes Quarry	Orientation: Vertical	Collar Elevator (m) 287.25	Datum NA	Borehole No. Hydro#3
Location: East Flamborough	Date Started: Mar 25, 04	Completed: Mar 25, 04	Logged: ZK/JY	Drawing No. H3-3
285.85 to 280.77m Till overburden	Drilling Agency: Malone's	Drill Type: Water Well	Core Barrel & Bit Design: HQ, Diamond	

Elevation (m)	Depth (m)	Symbol	General Description	Fracture Characteristics: Number of Sets	Type	Orientation	Spacing	Roughness	Filling	Aperture	Weathering	Strength	Fracture Frequency	Run #	RQD %	Core Recovery %	Core Size/Casing
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
269			(Continued) low porosity, except medium at coquinoid section, thick to massive bedded, stylolites at 269.98, 268.93, 268.81, 268.78, 268.76, 268.73, 267.63, 267.46, and 267.38 m, two 1cm vugs at 268.73 and 267.62 m.	1		Horizontal	5 to 123 cm					Hard		#9	96.6	100	HQ
268																	
267	266.89	Amabel Formation												#10			
			Dolostone, medium to light bluish grey, fine crystalline, calcirudite to calcarenite, with coquinoid calcarenite sections throughout, high fossil content (crinoids, occasional bivalves), very low porosity, except 266.46 to 266.09 m where it is low, thick to massive bedded, stylolites at 265.68, 262.44, and 261.30 m, a 3 cm vug from 262.91 to 262.88 m, a 2 cm vug from 262.51 to 202.49 m. (Continued on next page)	2		Horizontal and 30°	2 to 90 cm					Hard		#11	96.2	100	HQ
266																	
265														#12			
264																	
263																	

CORE LOG
(Continued)

Project: Lowndes Quarry	Orientation: Vertical	Collar Elevator (m) 287.25	Datum NA	Borehole No.Hydro#3
Location: East Flamborough	Date Started: Mar 25, 04	Completed: Mar 25, 04	Logged: ZK/JY	Drawing No. H3-4
285.85 to 280.77m Till overburden	Drilling Agency: Malone's	Drill Type: Water Well	Core Barrel & Bit Design: HQ, Diamond	

Elevation (m)	Depth (m)	Symbol	General Description	Fracture Characteristics: Number of Sets	Type	Orientation	Spacing	Roughness	Filling	Aperture	Weathering	Strength	Fracture Frequency	Run #	RQD %	Core Recovery %	Core Size/Casing
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
263			(Continued) stylolites at 269.98, 268.93, 268.81, 268.78, 268.76, 268.73, 267.63, 267.46, and 267.38 m, two 1cm vugs at 268.73 and 267.62 m.	2		Horizontal and 30°	2 to 90 cm					Hard		#13	96.2	100	HQ
262																	
261														#14			
	260.84	Amabel Formation	Dolostone, light grey, fine crystalline, calcarenite, a calcirudite section from 258.62 to 257.90 m, low fossil content, except in calcirudite sections, dense, except low porosity in calcirudite sections, medium to thick bedded, stylolites at 260.81, 260.64, 260.50, 260.10, 260.02, 259.49, 259.38, 259.30, 258.62, 258.15, 258.06, 257.90, 257.71, 257.47, 257.15, 257.10, 256.94, 256.69, 256.63, 256.49, 256.42, 256.18, 255.96, 255.76, 255.66, 255.60, 255.45, (Continued on next page)	3		Horizontal, 30° and 45°	2 to 91 cm					Hard		#15	97.5	100	HQ
260																	
259														#16			
258																	
257																	

CORE LOG
(Continued)

Project: Lowndes Quarry	Orientation: Vertical	Collar Elevator (m) 287.25	Datum NA	Borehole No. Hydro#3
Location: East Flamborough	Date Started: Mar 25, 04	Completed: Mar 25, 04	Logged: ZK/JY	Drawing No. H3-5
285.85 to 280.77m Till overburden	Drilling Agency: Malone's	Drill Type: Water Well	Core Barrel & Bit Design: HQ,Diamond	

Elevation (m)	Depth (m)	Symbol	General Description	Fracture Characteristics: Number of Sets	Type	Orientation	Spacing	Roughness	Filling	Aperture	Weathering	Strength	Fracture Frequency	Run #	RQD %	Core Recovery %	Core Size/Casing
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
257			(Continued) 255.22, 255.05, 255.01, 254.98, 254.81, 254.73, 254.50, 254.39, 254.30, 254.19, 254.00, 253.92, 253.84, and 253.75 m, a 1 cm vug at 257.06 m, a 3 cm vug from 255.32 to 255.29 m.	2		Horizontal and 30°	2 to 90 cm					Hard		#17 #18 #19	96.2	100	HQ
256																	
255																	
	260.84																
254		Amabel Formation															
	253.31		Dolostone, medium grey, fine crystalline, calcarenite to calcirudite, fossiliferous (crinoids), dense, medium to thick bedded, stylolites at 253.27, 253.24, 253.20, 253.14, 252.96, 252.89, 252.83, 252.77, 252.65, 252.57, and 252.38 m, two 1 cm vugs coated with pyrite at 252.85 m, occasional pyrite blebs at lower 15 cm.	1		Horizontal	4 to 77cm					Hard		#20	88.0	100	HQ
253																	
252																	
	251.89																

CORE LOG
(Continued)

Project: Lowndes Quarry	Orientation: Vertical	Collar Elevator (m) 287.25	Datum NA	Borehole No. Hydro#3
Location: East Flamborough	Date Started: Mar 25, 04	Completed: Mar 25, 04	Logged: ZK/JY	Drawing No. H3-6
285.85 to 280.77m Till overburden	Drilling Agency: Malone's	Drill Type: Water Well	Core Barrel & Bit Design: HQ, Diamond	

Elevation (m)	Depth (m)	Symbol	General Description	Fracture Characteristics: Number of Sets	Type	Orientation	Spacing	Roughness	Filling	Aperture	Weathering	Strength	Fracture Frequency	Run #	RQD %	Core Recovery %	Core Size/Casing
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
251	251.89	Reynales Formation	Dolostone with shale partings, light greenish grey to light brownish grey, a 3cm medium grey fissile shale layer from 251.06 to 251.03m, soft, aphanitic, calcilutite, medium to thick bedded, pyrite blebs up to 1 cm throughout, a 3 cm vug coated with pyrite from 251.60 to 251.57 m.	1		Horizontal	3 to 60 cm					Hard to medium hard		#21	98.5	100	HQ
250	249.85	Cabot Head Formation	Shale, dark greenish grey, massive to fissile, a 5 mm medium brown sandstone layer at 249.44 m, did not reach lower contact.	1		Horizontal	2 to 27					Medium hard to soft		#22	67.0	100	HQ
249	248.94		Terminated														
248																	
247																	
246																	
245																	

JOHN EMERY GEOTECHNICAL ENGINEERING LIMITED

CORE LOG

JEGEL: 103191 **CLIENT/JOB:** Lowndes Holdings Corp. **DATE:** March 30, 2004

JEGEL ID#: 8456 **SAMPLE DESCRIPTION:**

Project: Lowndes Quarry	Orientation: Vertical	Collar Elevator (m) 286.46	Datum NA	Borehole No. Hydro#4
Location: East Flamborough	Date Started: Feb 23, 04	Completed: Feb 23, 04	Logged: ZK/JY	Drawing No. H4-1
286.11 to 283.16m Till overburden	Drilling Agency: Keith Lang	Drill Type: Water Well	Core Barrel & Bit Design: 6", Carbide	

Elevation (m)	Depth (m)	Symbol	General Description	Fracture Characteristics: Number of Sets	Type	Orientation	Spacing	Roughness	Filling	Aperture	Weathering	Strength	Fracture Frequency	Run #	RQD %	Core Recovery %	Core Size/Casing
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
284																	
	283.16	Amabel Formation	Dolostone, light brown, occasional light to medium brown staining at fractures, fine crystalline to aphanitic, with occasional medium crystalline sections, calcarenite to calcirudite, fossiliferous (brachiopods), especially at horizontal fractures, porous, thin to medium bedded, core is broken from 282.27 to 282.19 m, 281.72 to 281.43 m, and 280.67 to 280.59 m, lost a total of 16 cm at 282.42m, and at 281.79 m, hard, except medium hard at some fractures.	1		Horizontal	2 to 20 cm					Hard		#1	35.3	94.2	3"
283																	
														#2			
282																	
281																	
	280.04		Dolostone, light brown to light brownish grey, aphanitic to fine crystalline, calcarenite to calcirudite, low fossil content (brachiopods, occasional small crinoids), porous, medium to thick bedded, lost 22 cm core. (Continued on next page)	1		Horizontal	6 to 39 cm					Hard		#3	96.6	95.2	3"
280																	
279														#4			
278																	

Comments: **Technician:** ZK/JY **Checked By:** MHM

Form S/A 1.30-1 Revised May 31, 2004

CORE LOG
(Continued)

Project: Lowndes Quarry	Orientation: Vertical	Collar Elevator (m) 286.46	Datum NA	Borehole No. Hydro#4
Location: East Flamborough	Date Started: Feb 23, 04	Completed: Feb 23, 04	Logged: ZK/JY	Drawing No. H4-2
286.11 to 283.16m Till overburden	Drilling Agency: Keith Lang	Drill Type: Water Well	Core Barrel & Bit Design: 6", Carbide	

Elevation (m)	Depth (m)	Symbol	General Description	Fracture Characteristics							Weathering	Strength	Fracture Frequency	Run #	RQD %	Core Recovery %	Core Size/Casing
				Number of Sets	Type	Orientation	Spacing	Roughness	Filling	Aperture							
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
278			(Continued) Same as above.	1		Horizontal	6 to 39cm					Hard		#5	96.6	95.2	3"
277																	
	276.28																
276		Amabel Formation	Dolostone, light brown to light brownish grey, light to medium brown clay coating on fracture surfaces and in fossil moulds, fine crystalline to aphanitic, calcirudite to calcarenite, fossiliferous (brachiopods, bivalves), porous, medium to thick bedded, lost a total of 75cm core at 274.02 and 273.36 m.	1		Horizontal	5 to 35 cm					Hard		#6	86.8	80.2	3"
275																	
274														#7			
273																	
	272.49		Dolostone, light brownish grey, fine crystalline to aphanitic, calcarenite to calcirudite, fossiliferous (bivalves), porous, thick bedded.	2		Horizontal and 75°	20 to 83 cm					Hard		#8	100	100	3"
272	271.50																

CORE LOG
(Continued)

Project: Lowndes Quarry	Orientation: Vertical	Collar Elevator (m) 286.5	Datum NA	Borehole No. Hydro#4
Location: East Flamborough	Date Started: Feb 23, 04	Completed: Feb 23, 04	Logged: ZK/JY	Drawing No. H4-3
286.11 to 283.16m Till overburden	Drilling Agency: Keith Lang	Drill Type: Water Well	Core Barrel & Bit Design: 6", Carbide	

Elevation (m)	Depth (m)	Symbol	General Description	Fracture Characteristics: Number of Sets	Type	Orientation	Spacing	Roughness	Filling	Aperture	Weathering	Strength	Fracture Frequency	Run #	RQD %	Core Recovery %	Core Size/Casing
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
272																	
	271.61		Dolostone, light brown to light brownish grey to beige, light brown staining in fractures, aphanitic to fine crystalline, calcirudite to calcarenite, fossiliferous (brachiopods, small crinoids), porous, core is broken from 270.24 to 269.69 m, lost 14 cm core from 270.38 to 270.24 m, medium bedded, hard but tends to be brittle.	1		Horizontal and near vertical	3 to 24cm					Hard		#9	78.4	92.3	3"
271																	
270																	
	269.69		Dolostone, medium brownish grey, medium brown staining on fracture surfaces, fine crystalline to aphanitic, calcirudite, fossiliferous (brachiopods), porous, medium bedded, lost 102 cm core from 269.69 to 268.71m, core is broken from 269.80 to 268.68 m, hard but tends to be brittle.	1		Horizontal	5 to 21 cm					Hard		#10	63.8	33.3	3"
269		Amabel Formation															
	268.22		Dolostone, light brownish grey to light bluish grey, slightly mottled, yellow staining throughout, light brown staining on horizontal fracture surfaces, fine crystalline, calcirudite, fossiliferous (brachiopods, bivalves, crinoids), low porosity, thick bedded, a stylolite at 267.15 m.	1		Horizontal	4 to 65cm					Hard		#11	98.8	100	3"
268																	
267														#12			
266																	

CORE LOG
(Continued)

Project: Lowndes Quarry	Orientation: Vertical	Collar Elevator (m) 286.46	Datum NA	Borehole No. Hydro#4
Location: East Flamborough	Date Started: Feb 23, 04	Completed: Feb 23, 04	Logged: ZK/JY	Drawing No. H4-4
286.11 to 283.16m Till overburden	Drilling Agency: Keith Lang	Drill Type: Water Well	Core Barrel & Bit Design: 6", Carbide	

Elevation (m)	Depth (m)	Symbol	General Description	Fracture Characteristics: Number of Sets	Type	Orientation	Spacing	Roughness	Filling	Aperture	Weathering	Strength	Fracture Frequency	Run #	RQD %	Core Recovery %	Core Size/Casing
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
266			(Continued) Same as above.	1		Horizontal	4 to 65cm					Hard		#13	98.8	100	3"
265	264.93		Dolostone, medium to dark bluish grey with light brownish grey mottling, fine crystalline, coquinoid calcarenite, fossiliferous (crinoids, brachiopods), low porosity, massive bedded, a stylolite at 264.74 m.	1		Horizontal	90 cm					Hard			100	100	3"
264	264.03		Dolostone, light bluish grey to light brownish grey, mottled, some light brown staining on horizontal fracture surfaces, fine crystalline, calcarenite to calcirudite, fossiliferous (crinoids, brachiopods), low porosity, massive bedded, a stylolite at 263.68 m, a 2 cm vug at 262.09 m.	1		Horizontal	102 to 135cm					Hard		#14	100	100	3"
263		Amabel Formation															
262														#15			
	261.64		Dolostone, medium to dark bluish grey, fine crystalline, coquinoid calcarenite, fossiliferous (brachiopods), low porosity, medium bedded, stylolites at 261.44, 261.41, and 261.19 m.	1		45°	19 to 25cm					Hard			100	100	3"
261	261.19		Dolostone, light to medium brownish grey, fine crystalline, calcarenite to calcirudite, with coquinoid calcarenite sections from 260.38 to 260.29 m, (Continued on next page)	2		Horizontal and 30°	2 to 116 cm							#16	95.6	100	3"
260																	

CORE LOG
(Continued)

Project: Lowndes Quarry	Orientation: Vertical	Collar Elevator (m) 286.46	Datum NA	Borehole No. Hydro#4
Location: East Flamborough	Date Started: Feb 23, 04	Completed: Feb 23, 04	Logged: ZK/JY	Drawing No. H4-5
286.11 to 283.16m Till overburden	Drilling Agency: Keith Lang	Drill Type: Water Well	Core Barrel & Bit Design: 6", Carbide	

Elevation (m)	Depth (m)	Symbol	General Description	Fracture Characteristics							Weathering	Strength	Fracture Frequency	Run #	RQD %	Core Recovery %	Core Size/Casing
				Number of Sets	Type	Orientation	Spacing	Roughness	Filling	Aperture							
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
260			(Continued)														
			259.45 to 259.37 m, 259.25 to 259.11 m, 258.37 to 258.26 m, and 257.29 to 257.24 m, fossiliferous (crinoids, brachiopods), low porosity, a 1 cm vug at 260.78 m, a 5 cm vug from 256.27 to 256.22 m, stylolites at 260.27, 260.17, 25979, 257.87, 256.79, 256.70, and 256.13 m, thick to massive bedded, core is broken from 260.73 to 260.53 m.											#17			
259																	
258				2		Horizontal and 30°	2 to 116 cm					Hard		#18	95.6	100	3"
257																	
														#19			
256																	
	255.72	Amabel Formation	Dolostone, light brownish grey to medium bluish grey, fine crystalline, calcarenite, low fossil content (crinoids), low porosity to dense, thick to massive bedded, a 5 cm vug from 255.40 to 255.35 m, a 6cm vug from 254.23 to 254.17 m, a 1 cm vug at 251.86 m, a 5 cm vug from 251.42 to 251.37 m, (Continued on next page)														
255				2		Horizontal and 45°	2 to 72 cm					Hard		#20	90.8	100	3"
254																	

CORE LOG
(Continued)

Project: Lowndes Quarry	Orientation: Vertical	Collar Elevator (m) 286.46	Datum NA	Borehole No. Hydro#4
Location: East Flamborough	Date Started: Feb 23, 04	Completed: Feb 23, 04	Logged: ZK/JY	Drawing No. H4-6
286.11 to 283.16m Till overburden	Drilling Agency: Keith Lang	Drill Type: Water Well	Core Barrel & Bit Design: 6", Carbide	

Elevation (m)	Depth (m)	Symbol	General Description	Fracture Characteristics							Weathering	Strength	Fracture Frequency	Run #	RQD %	Core Recovery %	Core Size/Casing
				Number of Sets	Type	Orientation	Spacing	Roughness	Filling	Aperture							
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
254		Amabel Formation	(Continued) stylolites at 255.62, 255.50, 254.92, 254.40, 254.36, 254.28, 254.05, 253.35, 253.15, 252.70, 252.67, 252.48, 252.23, 251.96, 251.79, 251.69, 251.65, 250.99, and 250.66 m, a 3 cm gypsum seam from 250.49 to 250.46 m, pyrite blebs and stringers from 250.71 to 250.41 m.	2		Horizontal and 45°	2 to 72 cm					Hard		#21	90.8	100	3"
253																	
252														#22			
251																	
	250.41																
250		Reynales Formation	Dolostone with shale partings, medium brownish to greenish grey, aphanitic, calcilutite, thin to medium bedded, 1cm pyrite blebs and stringers throughout, a pyrite mass in lower 25 cm.	2		Horizontal and 60°	4 to 35 cm					Medium hard to hard		#23	90.1	100	3"
249																	
	248.29																
248		Cabot Head Formation	Shale, medium to dark greenish grey, massive to fissile, did not reach lower contact.	1		Horizontal	2 to 20 cm					Soft		#24	28.3	100	3"
	247.23		Terminated												28.3	100	3"

JOHN EMERY GEOTECHNICAL ENGINEERING LIMITED

CORE LOG

JEGEL: 103191 **CLIENT/JOB:** Lowndes Holdings Corp. **DATE:** March 29, 2004

JEGEL ID#: 8453 **SAMPLE DESCRIPTION:**

Project: Lowndes Quarry	Orientation: Vertical	Collar Elevator (m) 288.0	Datum NA	Borehole No.Hydro#6
Location: East Flamborough	Date Started: Mar 11, 04	Completed: Mar 11, 04	Logged: ZK/JY	Drawing No. H6-1
287.27 to 284.68m Till overburden	Drilling Agency: Keith Lang	Drill Type: Water Well	Core Barrel & Bit Design: 6", Carbide	

Elevation (m)	Depth (m)	Symbol	General Description	Fracture Characteristics: Number of Sets	Type	Orientation	Spacing	Roughness	Filling	Aperture	Weathering	Strength	Fracture Frequency	Run #	RQD %	Core Recovery %	Core Size/Casing
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
285	284.68	Amabel Formation	Dolostone, light to medium brownish grey, occasional light brown rust staining at fractures, fine crystalline to aphanitic, calcarenite to calcirudite, fossiliferous (brachiopods, ostracodas?), low porosity, except at fractures where it is medium, one 4 cm vug from 283.78 to 283.74 m, core is badly broken from 283.69 to 283.64 m, 281.97 to 281.82 m, 281.42 to 281.21 m, and 275.86 to 275.62 m, thin to thick bedded. (Continued on next page)	2		Horizontal and 45°	2 to 73 cm					Hard		#1 #2 #3 #4	88.6	100	3"
284																	
283																	
282																	
281																	
280																	
279																	

Comments: **Technician:** ZK/JY **Checked By:** MHM

Form S/A 1.30-1 **Revised May 31, 2004**

CORE LOG
(Continued)

Project: Lowndes Quarry	Orientation: Vertical	Collar Elevator (m) 288.0	Datum NA	Borehole No. Hydro#6
Location: East Flamborough	Date Started: Mar 11, 04	Completed: Mar 11, 04	Logged: ZK/JY	Drawing No. H6-2
287.27 to 284.68m Till overburden	Drilling Agency: Keith Lang	Drill Type: Water Well	Core Barrel & Bit Design: 6", Carbide	

Elevation (m)	Depth (m)	Symbol	General Description	Fracture Characteristics: Number of Sets	Fracture Characteristics: Type	Fracture Characteristics: Orientation	Fracture Characteristics: Spacing	Fracture Characteristics: Roughness	Fracture Characteristics: Filling	Fracture Characteristics: Aperture	Weathering	Strength	Fracture Frequency	Run #	RQD %	Core Recovery %	Core Size/Casing
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
279			(Continued) Same as above.	2		Horizontal and 45°	2 to 73 cm					Hard		#5 #6	88.6	100	3"
278																	
277																	
276																	
	275.62	Amabel Formation	Dolostone, light brownish grey to dark brownish grey, occasional light brown rust staining at fractures, fine crystalline, calcarenite to calcirudite, one 5 cm vug from 271.34 to 271.29 m, lost core from 273.95 to 273.19 m, and 269.34 to 267.49 m, core is broken from 274.86 to 274.81 m, 274.44 to 274.37 m, 274.13 to 273.96 m, (Continued on next page)	2		Horizontal and near vertical	3 to 62 cm					Hard		#7 #8	60.0	61.6	3"
275																	
274																	
273																	

CORE LOG
(Continued)

Project: Lowndes Quarry	Orientation: Vertical	Collar Elevator (m) 288.0	Datum NA	Borehole No. Hydro#6
Location: East Flamborough	Date Started: Mar 11, 04	Completed: Mar 11, 04	Logged: ZK/JY	Drawing No. H6-3
287.27 to 284.68m Till overburden	Drilling Agency: Keith Lang	Drill Type: Water Well	Core Barrel & Bit Design: 6", Carbide	

Elevation (m)	Depth (m)	Symbol	General Description	Fracture Characteristics							Weathering	Strength	Fracture Frequency	Run #	RQD %	Core Recovery %	Core Size/Casing
				Number of Sets	Type	Orientation	Spacing	Roughness	Filling	Aperture							
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
273		Amabel Formation	(Continued) 273.19 to 272.44 m, 268.99 to 268.84 m, and 267.77 to 267.49 m, low fossil content, low porosity, thin to thick bedded, total core lost is 3.12 m.	2		Horizontal and near vertical	23 to 62 cm					Hard		#9 #10 #11 #12	60.0	61.6	3"
272																	
271																	
270																	
269																	
268																	
	267.49																
267																	

CORE LOG
(Continued)

Project: Lowndes Quarry	Orientation: Vertical	Collar Elevator (m) 288.0	Datum NA	Borehole No. Hydro#6
Location: East Flamborough	Date Started: Mar 11, 04	Completed: Mar 11, 04	Logged: ZK/JY	Drawing No. H6-4
287.27 to 284.68m Till overburden	Drilling Agency: Keith Lang	Drill Type: Water Well	Core Barrel & Bit Design: 6", Carbide	

Elevation (m)	Depth (m)	Symbol	General Description	Fracture Characteristics: Number of Sets	Type	Orientation	Spacing	Roughness	Filling	Aperture	Weathering	Strength	Fracture Frequency	Run #	RQD %	Core Recovery %	Core Size/Casing
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
267			Dolostone, medium to dark bluish grey, fine crystalline, calcarenite to calcirudite, coquinoid calcarenite section from 264.87 to 264.17m, fossiliferous (crinoids, bivalves), stylolites at 266.97, 266.42, 266.13, 265.63, 265.61, 265.55, 265.51, 265.47, 265.38, 265.15, 265.12, and 264.73 m, one 1 cm shale seams at 265.88 m, low porosity, medium to thick bedded.	2		Horizontal and 30°	2 to 40 cm					Hard		#13	94.0	100	3"
266																	
265														#14			
264	264.17	Amabel Formation	Dolostone, light grey, fine crystalline, calcarenite to calcirudIte, fossiliferous (crinoids), numerous 1 to 2cm vugs throughout the section with a 4 cm vug from 263.73 to 263.69 m, stylolites at 263.98, 263.93, 263.80, 263.56, 263.36, 263.16, 262.67, 262.64, 262.48, 262.25, and 261.87 m, dense, medium to thick bedded.	2		Horizontal and 45°	4 to 41 cm					Hard		#15	93.4	100	3"
263																	
262														#16			
261	261.88																

CORE LOG
(Continued)

Project: Lowndes Quarry	Orientation: Vertical	Collar Elevator (m) 288.0	Datum NA	Borehole No. Hydro#6
Location: East Flamborough	Date Started: Mar 11, 04	Completed: Mar 11, 04	Logged: ZK/JY	Drawing No. H6-5
287.27 to 284.68m Till overburden	Drilling Agency: Keith Lang	Drill Type: Water Well	Core Barrel & Bit Design: 6", Carbide	

Elevation (m)	Depth (m)	Symbol	General Description	Fracture Characteristics							Weathering	Strength	Fracture Frequency	Run #	RQD %	Core Recovery %	Core Size/Casing
				Number of Sets	Type	Orientation	Spacing	Roughness	Filling	Aperture							
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
261 260 259 258 257 256 255		Amabel Formation	Dolostone, light to medium grey, fine crystalline, calcarenite to calcirudite, except coquinoid calcarenite section from 261.88 to 260.83 m, fossiliferous (crinoids), a 3cm vug from 257.97 to 257.94 m, a 2 cm vug from 254.50 to 254.48 m, stylolites at 260.85, 260.53, 260.46, 260.18, 259.40, 259.35, 259.13, 257.88, 257.75, 257.52, 257.47, 257.12, 256.34, 255.52, 255.22, 254.94, 254.74, 254.64, 254.59, 254.37, 253.73, and 253.63 m, a 3cm gypsum lense at 253.90 m, a few blebs of pyrite at lower 10 cm, thick to massive bedded, porosity is low to dense. (Continued on next page)	2		Horizontal and 45°	5 to 115 cm					Hard		#17 #18 #19 #20	94.0	100	3"

CORE LOG
(Continued)

Project: Lowndes Quarry	Orientation: Vertical	Collar Elevator (m) 288.0	Datum NA	Borehole No. Hydro#6
Location: East Flamborough	Date Started: Mar 11, 04	Completed: Mar 11, 04	Logged: ZK/JY	Drawing No. H6-6
287.27 to 284.68m Till overburden	Drilling Agency: Keith Lang	Drill Type: Water Well	Core Barrel & Bit Design: 6", Carbide	

Elevation (m)	Depth (m)	Symbol	General Description	Fracture Characteristics: Number of Sets	Fracture Characteristics: Type	Fracture Characteristics: Orientation	Fracture Characteristics: Spacing	Fracture Characteristics: Roughness	Fracture Characteristics: Filling	Fracture Characteristics: Aperture	Weathering	Strength	Fracture Frequency	Run #	RQD %	Core Recovery %	Core Size/Casing
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
255		Amabel Formation	(Continued) Same as above.	2		Horizontal and 45°	5 to 115 cm					Hard		#21	94.0	100	3"
254	253.45																
253		Reynales Formation	Dolostone with shaley partings, medium greenish to brownish grey, aphanitic, calcilutite, thin to medium bedded, 1 cm pyrite blebs throughout.	1		Horizontal	3 to 36 cm					Medium hard to hard		#22	81.3	100	PQ
252														#23			
	251.42	Cabot Head Formation	Shale, dark to medium greenish grey, massive to fissile, one 1 cm thick sandstone lens at 250.97m, thin bedded, did not reach lower contact.	1		Horizontal	4 to 23 cm					Soft			86.2	100	PQ
251														#24			
	250.48		Terminated														
250																	

JOHN EMERY GEOTECHNICAL ENGINEERING LIMITED

CORE LOG

JEGEL: 103191 **CLIENT/JOB:** Lowndes Holdings Corp. **DATE:** March 24, 2004

JEGEL ID#: 8452 **SAMPLE DESCRIPTION:**

Project: Lowndes Quarry	Orientation: Vertical	Collar Elevator (m) 285.77	Datum NA	Borehole No. Hydro#7
Location: East Flamborough	Date Started: Mar 7, 04	Completed: Mar 7, 04	Logged: ZK/JY	Drawing No. H7-1
285.42 to 283.59m – Till overburden	Drilling Agency: Keith Lang	Drill Type: Water Well	Core Barrel & Bit Design: 6", Carbide	

Elevation (m)	Depth (m)	Symbol	General Description	Fracture Characteristics: Number of Sets	Type	Orientation	Spacing	Roughness	Filling	Aperture	Weathering	Strength	Fracture Frequency	Run #	RQD %	Core Recovery %	Core Size/Casing
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
283	283.59	Amabel Formation	Dolostone, medium to light brownish grey, fine to medium crystalline, highly fossiliferous (brachiopods, bivalves, ostracods?), calcarenite to calcirudite, medium porosity, except high at horizontal fractures, thin to medium bedded, core is badly broken from 281.19 to 281.14 m, 280.06 to 280.00 m, 279.68 to 279.59 m, and 278.74 to 278.65 m, hard but tend to be brittle at fractures, lost 15 cm core.	2		Horizontal and 30°	3 to 23 cm					Hard		#1			
282														#2	48.0	97.0	3"
281																	
280														#3			
279	278.65		Dolostone, medium to light brownish grey, fine crystalline to aphanitic, calcarenite to calcirudte, highly fossiliferous (brachiopods, bivalves, ostracods?), especially at horizontal fractures, thick bedded, medium porosity.	1		Horizontal	55 to 72 cm					Hard		#4	100	100	3"
278	277.35		Dolostone, light brownish grey, (Continued on next page)														
277																	

Comments: **Technician:** ZK/JY **Checked By:** MHM

Form S/A 1.30-1 **Revised May 31, 2004**

CORE LOG
(Continued)

Project: Lowndes Quarry	Orientation: Vertical	Collar Elevator (m) 285.77	Datum NA	Borehole No. Hydro#7
Location: East Flamborough	Date Started: Mar 7, 04	Completed: Mar 7, 04	Logged: ZK/JY	Drawing No. H7-2
285.42 to 283.59m – Till overburden	Drilling Agency: Keith Lang	Drill Type: Water Well	Core Barrel & Bit Design: 6", Carbide	

Elevation (m)	Depth (m)	Symbol	General Description	Fracture Characteristics: Number of Sets	Type	Orientation	Spacing	Roughness	Filling	Aperture	Weathering	Strength	Fracture Frequency	Run #	RQD %	Core Recovery %	Core Size/Casing
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
277			(Continued) fine crystalline to aphanitic, calcarenite to calcirudite, highly fossiliferous (brachiopods, bivalves, ostracods?), especially at horizontal fractures, medium porosity, core is broken from 275.60 to 275.49 m, a 75º fracture from 274.95 to 274.78m, medium bedded, hard, except brittle at horizontal fractures.	3		Horizontal, 45º and 75º	3 to 49 cm					Hard		#5 #6	87.9	100	3"
276																	
275																	
274	274.05	Amabel Formation	Dolostone, medium to light grey, light brown rust staining in few horizontal fractures, fine crystalline to aphanitic, calcarenite to calcirudte, fossiliferous (brachiopods, bivalves), medium porosity, core is badly broken from 273.65 to 273.50 m, a near vertical fracture from 273.50 to 273.32 m, thin to medium bedded, hard except brittle at horizontal fractures.	2		Horizontal and vertical	6 to 27 cm					Hard		#7	45.1	100	3"
273	272.83		Dolostone, dark brownish grey, fine crystalline to aphanitic, calcarenite to calcirudite, fossiliferous (crinoids), low porosity, core is broken from 271.99 to 271.47m, broken section is rust stained, hard, except brittle at horizontal fractures, lost 45 cm core.	2		Horizontal and vertical	0 to 16 cm					Hard		#8	38.4	66.7	3"
272																	
271	271.47																

CORE LOG
(Continued)

Project: Lowndes Quarry	Orientation: Vertical	Collar Elevator (m) 285.77	Datum NA	Borehole No. Hydro#7
Location: East Flamborough	Date Started: Mar 7, 04	Completed: Mar 7, 04	Logged: ZK/JY	Drawing No. H7-3
285.42 to 283.59m – Till overburden	Drilling Agency: Keith Lang	Drill Type: Water Well	Core Barrel & Bit Design: 6", Carbide	

Elevation (m)	Depth (m)	Symbol	General Description	Fracture Characteristics: Number of Sets	Type	Orientation	Spacing	Roughness	Filling	Aperture	Weathering	Strength	Fracture Frequency	Run #	RQD %	Core Recovery %	Core Size/Casing
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
271	271.47	Amabel Formation	Dolostone, medium brownish grey to dark bluish grey, light brown rust staining at fractures, aphanitic, calcarenite with some calcirudite, low fossil content (crinoids), low porosity, stylolite at 271.23m, medium bedded.	2		Horizontal and 30°	3 to 26 cm					Hard		#9	92.4	100	3"
270	270.28		Dolostone, light brownish grey to light bluish grey, fine crystalline to aphanitic, calcarenite to calcirudite, fosiliferous (crinoids, bivalves, brachiopods, ostracods), low porosity, except medium from 268.54 to 267.86 m at a calcirudite section, a vertical fracture from 268.20 to 267.86m, medium to massive bedded, stylolites at 269.16, 269.10, 269.05, and 268.97 m.	2		Horizontal and vertical	9 to 130 cm					Hard		#10	92.1	100	3"
269																	
268	267.86		Dolostone, medium to dark bluish grey, fine to medium crystalline, calcirudite to calcarenite with coquinoid calcarenite from 266.55to 266.26 m, fosiliferous (crinoids, brachiopods), low porosity, except coquinoid section where it is medium, stylolites at 267.80, 267.63, 266.67, 264.86, 264.44, 262.70, and 262.68 m, a 3cm vug at 264.53 m, thick to massive bedded. (Continued)	1		Horizontal	3 to 99 cm					Hard		#11 #12	97.7	100	3"
267																	
266																	
265																	

CORE LOG
(Continued)

Project: Lowndes Quarry	Orientation: Vertical	Collar Elevator (m) 285.77	Datum NA	Borehole No. Hydro#7
Location: East Flamborough	Date Started: Mar 7, 04	Completed: Mar 7, 04	Logged: ZK/JY	Drawing No. H7-4
285.42 to 283.59m – Till overburden	Drilling Agency: Keith Lang	Drill Type: Water Well	Core Barrel & Bit Design: 6", Carbide	

Elevation (m)	Depth (m)	Symbol	General Description	Fracture Characteristics							Weathering	Strength	Fracture Frequency	Run #	RQD %	Core Recovery %	Core Size/Casing
				Number of Sets	Type	Orientation	Spacing	Roughness	Filling	Aperture							
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
265			(Continued) Same as above.	1		Horizontal	3 to 99 cm					Hard		#13	97.7	100	3"
264																	
263	263.00	Amabel Formation	Dolostone, light to medium grey, fine to medium crystalline, calcarenite to calcirudite, except coquinoid calcarenite from 257.73 to 257.44 m, fossiliferous (abundant crinoids, brachiopods), low to medium porosity, a 1 cm vug at 262.22 m, two 1 cm vugs at 261.78 and 261.76m, and a 2 cm vug at 261.54 m, stylolites at 262.84, 261.63, 261.61, 261.60, 258.97, 258.34, 257.93, 257.83, 257.64 m, 256.94, 255.48, 255.35, 255.02, 254.80, 254.39, 254.34, 254.29 (with pyrite), 254.03, 253.99, 253.87, 253.82, 253.59, 253.48, 253.24, 253.00, 252.79, 251.96, and 251.92m, 1 cm thick shale seam at 257.19 m with pyrite, a 6 cm gypsum seam from 252.45 to 252.39 m, and 2 cm gypsum lens at 282.36 m, medium to massive bedded. (Continued on next page)	2		Horizontal and 45°	2 to 145 cm					Hard		#14 #15 #16	95.2	100	3"
262																	
261																	
260																	
259																	

CORE LOG
(Continued)

Project: Lowndes Quarry	Orientation: Vertical	Collar Elevator (m) 285.77	Datum NA	Borehole No. Hydro#7
Location: East Flamborough	Date Started: Mar 7, 04	Completed: Mar 7, 04	Logged: ZK/JY	Drawing No. H7-5
285.42 to 283.59m – Till overburden	Drilling Agency: Keith Lang	Drill Type: Water Well	Core Barrel & Bit Design: 6", Carbide	

Elevation (m)	Depth (m)	Symbol	General Description	Fracture Characteristics							Weathering	Strength	Fracture Frequency	Run #	RQD %	Core Recovery %	Core Size/Casing
				Number of Sets	Type	Orientation	Spacing	Roughness	Filling	Aperture							
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
259		Amabel Formation	(Continued) Same as above.	2		Horizontal and 45°	2 to 145 cm					Hard		#17 #18 #19 #20	97.7	100	3"
258																	
257																	
256																	
255																	
254																	
253																	

CORE LOG
(Continued)

Project: Lowndes Quarry	Orientation: Vertical	Collar Elevator (m) 285.77	Datum NA	Borehole No. Hydro#7
Location: East Flamborough	Date Started: Mar 7, 04	Completed: Mar 7, 04	Logged: ZK/JY	Drawing No. H7-6
285.42 to 283.59m – Till overburden	Drilling Agency: Keith Lang	Drill Type: Water Well	Core Barrel & Bit Design: 6", Carbide	

Elevation (m)	Depth (m)	Symbol	General Description	Fracture Characteristics: Number of Sets	Type	Orientation	Spacing	Roughness	Filling	Aperture	Weathering	Strength	Fracture Frequency	Run #	RQD %	Core Recovery %	Core Size/Casing
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
253		Amabel Formation	(Continued) Same as above.	2		Horizontal and 45°	2 to 145 cm					Hard		#21	95.2	100	3"
252	251.82	Reynales Formation	Dolostone with shale partings, medium greenish grey, aphanitic, calcilutite, thin to medium bedded, medium hard, except hard in lower 34 cm, pyrite blebs and stringers throughout.	1		Horizontal	4 to 28 cm					Medium hard to hard		#22	90.2	100	3"
251																	
250																	
249	249.67	Cabot Head Formation	Shale, dark greenish grey from 249.67 to 247.91 m, several cm thick light brown fine grained sandstone layer from 248.40 to 248.38m, and from 248.15 to 248.03 m, dark green shale from 247.79 to 247.50 m, maroon sandstone from 247.91 to 247.79 m, and from 247.51 to 246.78 m, shale is massive to fissile, thin bedded, did not reach lower contact.	1		Horizontal and vertical	4 to 28 cm					Soft		#23 #24	93.4	100	3"
248																	
247	246.78		Terminated														

JOHN EMERY GEOTECHNICAL ENGINEERING LIMITED

CORE LOG

JEGEL: 103191 **CLIENT/JOB:** Lowndes Holdings Corp. **DATE:** March 15, 2004

JEGEL ID#: 8433 **SAMPLE DESCRIPTION:** Sample 1D (3.0~16.7m); 2D (16.7~32.5m); 3D (32.5~34.6m)

Project: Lowndes Quarry	Orientation: Vertical	Collar Elevator (m) 282.10	Datum NA	Borehole No. Hydro#8
Location: East Flamborough	Date Started: Mar 8, 04	Completed: Mar 8, 04	Logged: ZK/JY	Drawing No. H8-1
281.47 to 278.42m – Till overburden	Drilling Agency: Keith Lang	Drill Type: Water Well	Core Barrel & Bit Design: 6", Carbide	

Elevation (m)	Depth (m)	Symbol	General Description	Fracture Characteristics: Number of Sets	Type	Orientation	Spacing	Roughness	Filling	Aperture	Weathering	Strength	Fracture Frequency	Run #	RQD %	Core Recovery %	Core Size/Casing
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
279	278.42	Amabel Formation	Dolostone, light brownish grey, light brownish staining at horizontal fractures, fine crystalline to aphanitic, calcarenite to calcirudite, coquinoid calcarenite sections from 276.92 to 276.37 m, highly fossiliferous (bivalves, brachiopods), porous, lost 90 cm core from 276.37 to 275.47 m, sections of core tend to be brittle, medium bedded, hard except in brittle sections where medium hard, total core lost is 1.35 m. (Continued on next page)	1		Horizontal	2 to 49 cm					Hard		#1 #2 #3 #4	87.2	79.8	3"
278																	
277																	
276																	
275																	
274																	
273																	

Comments: _____ **Technician:** ZK/JY **Checked By:** MHM

Form S/A 1.30-1 **Revised May 31, 2004**

CORE LOG
(Continued)

Project: Lowndes Quarry	Orientation: Vertical	Collar Elevator (m) 287.65	Datum NA	Borehole No. Hydro#8
Location: East Flamborough	Date Started: Mar 8, 04	Completed: Mar 8, 04	Logged: ZK/JY	Drawing No. H8-2
2887.02 to 283.97m Till overburden	Drilling Agency: Keith Lang	Drill Type: Water Well	Core Barrel & Bit Design: 6", Carbide	

Elevation (m)	Depth (m)	Symbol	General Description	Fracture Characteristics							Weathering	Strength	Fracture Frequency	Run #	RQD %	Core Recovery %	Core Size/Casing
				Number of Sets	Type	Orientation	Spacing	Roughness	Filling	Aperture							
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
273			(Continued) Same as above.	1		Horizontal	2 to 49 cm					Hard		#5	87.2	79.8	3"
272	271.76		Dolostone, light to medium brownish grey, light to medium brown staining in horizontal fractures, including some medium brown clay, fine crystalline to aphanitic, calcirudite, fossiliferous, low porosity, medium to thick bedded, lost 81 cm in centre of core length.														
271														#6			
270		Amabel Formation		1		Horizontal	4 to54 cm					Hard			83.1	82.4	3"
269														#7			
268														#8			
267	267.17		Dolostone, light grey to light brownish grey, light to medium brown staining at horizontal fractures, (Continued on next page)	2		Horizontal and 45°	2 to 54 cm					Hard			98.7	95.9	3"

CORE LOG
(Continued)

Project: Lowndes Quarry	Orientation: Vertical	Collar Elevator (m) 287.65	Datum NA	Borehole No. Hydro#8
Location: East Flamborough	Date Started: Mar 8, 04	Completed: Mar 8, 04	Logged: ZK/JY	Drawing No. H8-3
287.02 to 283.97m – Till overburden	Drilling Agency: Keith Lang	Drill Type: Water Well	Core Barrel & Bit Design: 6", Carbide	

Elevation (m)	Depth (m)	Symbol	General Description	Fracture Characteristics: Number of Sets	Fracture Characteristics: Type	Fracture Characteristics: Orientation	Fracture Characteristics: Spacing	Fracture Characteristics: Roughness	Fracture Characteristics: Filling	Fracture Characteristics: Aperture	Weathering	Strength	Fracture Frequency	Run #	RQD %	Core Recovery %	Core Size/Casing
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
267			(Continued) fine crystalline to aphanitic, a 2cm vug at 65.74 m, a 6 cm vug from 265.07to 265.01 m, a 3 cm vug from 264.93 to 264.9m, a 2 cm vug at 264.88m, the vugs are lined with fine to medium crystalline calcite, fossiliferous, calcarenite with a few calcirudite sections, thick bedded, lost 10 cm core from 265.33 to 265.23 m.	2		Horizontal and 45°	2 to 54 cm					Hard		#9	98.7	95.9	3"
266																	
265	264.75	Amabel Formation	Dolostone, light to medium brownish grey with medium grey sections, fine crystalline to aphanitic, calcarenite to calcirudite, fossiliferous (crinoids, brachiopods), low porosity, medium to massive bedded.	2		Horizontal and 75°	11 to 148 cm					Hard		#10 #11	97.8	100	3"
264																	
263																	
262																	
	261.41		Dolostone, medium to dark brownish grey, light brown staining in 75º fracture surface, fine crystalline, calcirudite, very brittle, fossiliferous (crinoids), medium bedded, lost 27 cm core from 264.05 to 261.14m.	2		Horizontal and 75°	3 to 20 cm					Hard to medium hard		#12	35.0	59.7	3"
	260.75																
261																	

CORE LOG
(Continued)

Project: Lowndes Quarry	Orientation: Vertical	Collar Elevator (m) 287.65	Datum NA	Borehole No. Hydro#8
Location: East Flamborough	Date Started: Mar 8, 04	Completed: Mar 8, 04	Logged: ZK/JY	Drawing No. H8-4
287.02 to 283.97m – Till overburden	Drilling Agency: Keith Lang	Drill Type: Water Well	Core Barrel & Bit Design: 6", Carbide	

Elevation (m)	Depth (m)	Symbol	General Description	Fracture Characteristics							Weathering	Strength	Fracture Frequency	Run #	RQD %	Core Recovery %	Core Size/Casing
				Number of Sets	Type	Orientation	Spacing	Roughness	Filling	Aperture							
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
261																	
	260.75		Dolostone, light bluish grey to medium bluish grey to light brownish grey, fine crystalline, calcarenite to calcirudite, coquinoid calcarenite from 258.72 to 256.92 m, highly fossiliferous (crinoids, brachiopods), medium porosity, a 3 cm vug at 260.48 m, stylolites at 260.43, 259.72, 259.65, 259.57, 258.97, 258.69, 257.84, and 256.92 m, thick to massive bedded.											#13			
260																	
				2		Horizontal and 75°	7 to 156 cm					Hard		#14	98.2	100	3"
259																	
258																	
257		Amabel Formation												#15			
	256.92		Dolostone, light bluish grey, fine crystalline, calcarenite to calcirudite, except coquinoid calcirudite from 256.3 to 255.79 m, low porosity, highly fossiliferou (crinoids, brachiopods), a 1 cm vug at 255.52 m, a 2 cm vug at 254.12 m, a 2 cm vug at 253.5 m,														
256				2		Horizontal and 45°	3 to 96 cm					Hard		#16	98.8	100	3"
255			(Continued on next page)														

CORE LOG
(Continued)

Project: Lowndes Quarry	Orientation: Vertical	Collar Elevator (m) 287.65	Datum NA	Borehole No. Hydro#8
Location: East Flamborough	Date Started: Mar 8, 04	Completed: Mar 8, 04	Logged: ZK/JY	Drawing No. H8-5
287.65 to 283.97m – Till overburden	Drilling Agency: Keith Lang	Drill Type: Water Well	Core Barrel & Bit Design: 6", Carbide	

Elevation (m)	Depth (m)	Symbol	General Description	Fracture Characteristics: Number of Sets	Fracture Characteristics: Type	Fracture Characteristics: Orientation	Fracture Characteristics: Spacing	Fracture Characteristics: Roughness	Fracture Characteristics: Filling	Fracture Characteristics: Aperture	Weathering	Strength	Fracture Frequency	Run #	RQD %	Core Recovery %	Core Size/Casing
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
255			(Continued) stylolites at 256.61, 256.33, 255.7, 255.37, 255.24, 255.05, 254.91, 254.53, 254.37, 253.96, 253.88, 253.71, 253.5, 253.48, 253.21, 252.94, 252.72, 252.7, 252.54, 252.52, 252.37, 252.07, 251.89, 251.64, and 251.22 m, a 3mm shale seam at 250.67m, thick bedded.	2		Horizontal and 45°	3 to 96 cm					Hard		#17 #18	98.8	100	3"
254																	
253																	
252																	
251	250.97	Amabel Formation	Dolostone, medium to dark bluish grey, fine crystalline, calcarenite to calcirudite, low fossil content, low porosity, medium to thick bedded, few milimetric shale seams at 250.76 and 239.69 m, an irregular 2cm vug with gypsum crystals at 249.72 m, a 3 cm vug with fine pyrite crystals at 249.52m, stylolites at 250.6, 250.55, 250.48, 20.38, 250.34, 250.27, 250.04 and 249.43 m.	1		Horizontal	8 to 47 cm					Hard		#19 #20	92.9	100	3"
250																	
249	248.99																

CORE LOG
(Continued)

Project: Lowndes Quarry	Orientation: Vertical	Collar Elevator (m) 287.65	Datum NA	Borehole No. Hydro#8
Location: East Flamborough	Date Started: Mar 8, 04	Completed: Mar 8, 04	Logged: ZK/JY	Drawing No. H8-6
287.02 to 283.97m – Till overburden	Drilling Agency: Keith Lang	Drill Type: Water Well	Core Barrel & Bit Design: 6", Carbide	

Elevation (m)	Depth (m)	Symbol	General Description	Fracture Characteristics							Weathering	Strength	Fracture Frequency	Run #	RQD %	Core Recovery %	Core Size/Casing
				Number of Sets	Type	Orientation	Spacing	Roughness	Filling	Aperture							
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
249	248.99	Reynales Formation	Dolostone with shale partings, light brownish grey to light greenish grey, calcilutite, aphanitic, occasional pyrite blebs, medium to thick bedded, dense, no porosity.	1		Horizontal	2 to 43cm					Hard to medium hard		#21	94.8	100	3"
248																	
247	246.96	Cabot Head Formation	Shale, dark grey to dark greenish grey to dark green, occasional dark brown to maroon sandstone layers at lower 50 cm, thin to medium bedded, lower contact is not detected,	1		Horizontal	2to 30cm					Soft		#22	67.2	100	3"
246																	
245	244.91		Terminated											#23			
244																	
243																	

JOHN EMERY GEOTECHNICAL ENGINEERING LIMITED

CORE LOG

JEGEL: 103191 **CLIENT/JOB:** Lowndes Holdings Corp. **DATE:** March 17, 2004

JEGEL ID#: 8440 **SAMPLE DESCRIPTION:** Sample 1E (5.18~17.13m); 2E (17.13~32.48m); 3E (32.48~34.61m)

Project: Lowndes Quarry	Orientation: Vertical	Collar Elevator (m) 285.53	Datum NA	Borehole No. Hydro#9
Location: East Flamborough	Date Started: Mar 12, 04	Completed: Mar 12, 04	Logged: ZK/JY	Drawing No. H9-1
284.74 to 279.56m – Till overburden	Drilling Agency: Keith Lang	Drill Type: Water Well	Core Barrel & Bit Design: 6", Carbide	

Elevation (m)	Depth (m)	Symbol	General Description	Fracture Characteristics: Number of Sets	Type	Orientation	Spacing	Roughness	Filling	Aperture	Weathering	Strength	Fracture Frequency	Run #	RQD %	Core Recovery %	Core Size/Casing
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
280																	
	279.56		Dolostone, light to medium brownish grey with a medium bluish grey from 276.56 to 276.36 m, fine crystalline with some medium crystalline sections, calcarenite to calcirudite, fossiliferous (bivalves, brachiopods, occasional crinoids), medium to massive bedded, low porosity, stylolites at 276.51 and 276.38m, a 1 cm vug at 276.20m.											#1			
279																	
278				2		Horizontal and 45°	3 to 100 cm					Hard		#2	99.2	100	3"
277																	
														#3			
276																	
	275.87																
			Dolostone, medium brownish grey, fine crystalline to aphanitic, calcirudite with a coquinoid calcarenite section from 275.50 to 275.16 m, highly fossiliferous (crinoids, bivalves, brachiopods), medium porosity, a 3 cm vug from 264.72 to 264.69 m, medium to thick bedded, brittle from 275.28 to 275.16 m.	1		Horizontal	4 to 45 cm					Hard		#4	87.3	100	3"
275	275.16																
			Dolostone, medium brown, (Continued on next page)														
274																	

Amabel Formation

Comments: _____ **Technician:** ZK/JY **Checked By:** MHM

Form S/A 1.30-1 **Revised May 31, 2004**

CORE LOG
(Continued)

Project: Lowndes Quarry	Orientation: Vertical	Collar Elevator (m) 285.53	Datum NA	Borehole No. Hydro# 9
Location: East Flamborough	Date Started: Mar 11, 04	Completed: Mar 11, 04	Logged: ZK/JY	Drawing No. H9-2
284.74 to 279.56m – Till overburden	Drilling Agency: Keith Lang	Drill Type: Water Well	Core Barrel & Bit Design: 6", Carbide	

Elevation (m)	Depth (m)	Symbol	General Description	Fracture Characteristics: Number of Sets	Type	Orientation	Spacing	Roughness	Filling	Aperture	Weathering	Strength	Fracture Frequency	Run #	RQD %	Core Recovery %	Core Size/Casing
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
274			(Continued) fine crystalline to aphanitic, calcarenite to calcirudite, fossiliferous (crinoids, brachiopods, bivalves), low to medium porosity, medium to thick bedded.	2		Horizontal and 45°	3 to 55 cm					Hard		#5	95.3	100	3"
	273.26																
273		Amabel Formation	Dolostone, medium to light bluish grey with a dark bluish grey section from 271.62 to 270.62 m, fine crystalline to aphanitic, calcirudite to coquinoid calcarenite, highly fossiliferous (very high crinoid content, also brachiopods), porosity is low, except medium porosity from 272.00 to 271.64 m, thick to massive bedded. (Continued on next page)											#6			
272																	
271				1		Horizontal	1 to 180 cm					Hard		#7	99.8	97.8	3"
270																	
269														#8			
268																	

CORE LOG
(Continued)

Project: Lowndes Quarry	Orientation: Vertical	Collar Elevator (m) 285.53	Datum NA	Borehole No. Hydro# 9
Location: East Flamborough	Date Started: Mar 11, 04	Completed: Mar 11, 04	Logged: ZK/JY	Drawing No. H9-3
284.74 to 279.56m – Till overburden	Drilling Agency: Keith Lang	Drill Type: Water Well	Core Barrel & Bit Design: 6", Carbide	

Elevation (m)	Depth (m)	Symbol	General Description	Fracture Characteristics: Number of Sets	Type	Orientation	Spacing	Roughness	Filling	Aperture	Weathering	Strength	Fracture Frequency	Run #	RQD %	Core Recovery %	Core Size/Casing
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
268			(Continued) Same as above.	1		Horizontal	1 to 180 cm					Hard			99.8	97.8	3"
	267.61		Dolostone, light brownish grey to light bluish grey, light to medium brown staining at fractures, fine crystalline to aphanitic, calcarenite to calcirudite, fossiliferous (crinoids, bivalves), low porosity, medium to thick bedded.	1		Horizontal	2 to 75 cm					Hard		#9			
267															93.9	100	3"
266	265.98		Dolostone, light brownish grey, aphanitic, calcarenite, low fossil content, low porosity, core is broken throughout, numerous vugs: 265.81 to 265.70m, 265.52 to 265.50m, 265.39 to 265.30m, 265.04 to 264.96m, 264.90 to 264.80m, thick to medium bedded.	2		Horizontal and 30°	5 to 30 cm					Hard		#10	61.2	100	3"
265																	
	264.69	Amabel Formation	Dolostone, medium to dark bluish grey, fine crystalline to aphanitic, calcarenite to calcirudite, fossiliferous (crinoids, bivalves), low to medium porosity, two 2 cm vugs from 264.48 to 264.43m, a 4cm vug from 264.37 to 264.33m, stylolites at 264.50, 263.91, 263.70, 263.30m, thick bedded.	1		Horizontal	11 to 45 cm					Hard		#11	100	100	3"
264																	
	263.32		Dolostone, medium grey, fine crystalline to aphanitic, calcirudite, fossiliferous (crinoids bivalves), dense, no porosity, 1cm vug at 262.21m, a 2 cm vug at 262.15m, a 2cm shale seam at 261.16m, stylolites at 261.86, 261.52, and 261.40m, a 2cm thick gypsum lens at 262.31m, medium to thick bedded.	2		Horizontal and 30°	6 to 38 cm					Hard		#12	95.4	100	3"
263																	
262			(Continued on next page)														

CORE LOG
(Continued)

Project: Lowndes Quarry	Orientation: Vertical	Collar Elevator (m) 285.53	Datum NA	Borehole No. Hydro# 9
Location: East Flamborough	Date Started: Mar 11, 04	Completed: Mar 11, 04	Logged: ZK/JY	Drawing No. H9-4
284.74 to 279.56m – Till overburden	Drilling Agency: Keith Lang	Drill Type: Water Well	Core Barrel & Bit Design: 6", Carbide	

Elevation (m)	Depth (m)	Symbol	General Description	Fracture Characteristics							Weathering	Strength	Fracture Frequency	Run #	RQD %	Core Recovery %	Core Size/Casing
				Number of Sets	Type	Orientation	Spacing	Roughness	Filling	Aperture							
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
262			(Continued) Same as above.	2		Horizontal and 30°	6 to 38 cm					Hard		#13	90.1	100	3"
	261.40	Amabel Formation	Dolostone, light grey to light bluish grey, fine crystalline with some medium crystalline sections, calcarenite, low fossil content (crinoids), low porosity with dense sections, a 3 cm vug at 258.03 m, stylolites at 261.03, 260.98, 260.81, 260.51, 260.48, 260.03, 259.64, 259.44, 259.38, 257.82, 257.61, 257.27, 257.23, 256.87, 256.17, 256.09, 256.02, 255.77, 255.70, 255.58, 255.45, 255.33, 255.06, 254.68, 254.45, 254.31, 254.07, 253.71, 253.17, 252.87, and 252.64 m, a 2 cm shaley layer at 253.82 to 253.80 m, 2 cm gypsum lenses from 253.31 to 253.29 m, medium to massive bedded, core is broken from 254.06 to 253.86 m, a 3 mm shale seam at 258.02 m. (Continued on next page)											
261														#14			
260																	
259														#15			
				3		Horizontal, 30°, and 70°	2 to 184 cm					Hard			95.4	100	3"
258																	
257														#16			
256																	

CORE LOG
(Continued)

Project: Lowndes Quarry	Orientation: Vertical	Collar Elevator (m) 285.53	Datum NA	Borehole No. Hydro# 9
Location: East Flamborough	Date Started: Mar 11, 04	Completed: Mar 11, 04	Logged: ZK/JY	Drawing No. H9-5
284.74 to 279.56m – Till overburden	Drilling Agency: Keith Lang	Drill Type: Water Well	Core Barrel & Bit Design: 6", Carbide	

Elevation (m)	Depth (m)	Symbol	General Description	Fracture Characteristics: Number of Sets	Type	Orientation	Spacing	Roughness	Filling	Aperture	Weathering	Strength	Fracture Frequency	Run #	RQD %	Core Recovery %	Core Size/Casing
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
256			(Continued)														
			Same as above.											#17			
255																	
		Amabel Formation		3		Horizontal, 30°, and 70°	2 to 184 cm					Hard		#18	95.4	100	3"
254																	
														#19			
253																	
	252.33																
252		Reynales Formation	Dolostone with shale partings, medium brownish grey to dark grey, fine crystalline to aphanitic, chacilutite, thin bedded, occasional pyrite crystals.	1		Horizontal	2 to 45 cm					Hard to medium hard		#20	73.3	100	3"
251																	
250	250.23																

CORE LOG
(Continued)

Project: Lowndes Quarry	Orientation: Vertical	Collar Elevator (m) 285.53	Datum NA	Borehole No. Hydro# 9
Location: East Flamborough	Date Started: Mar 11, 04	Completed: Mar 11, 04	Logged: ZK/JY	Drawing No. H9-6
284.74 to 279.56m – Till overburden	Drilling Agency: Keith Lang	Drill Type: Water Well	Core Barrel & Bit Design: 6", Carbide	

Elevation (m)	Depth (m)	Symbol	General Description	Fracture Characteristics							Weathering	Strength	Fracture Frequency	Run #	RQD %	Core Recovery %	Core Size/Casing
				Number of Sets	Type	Orientation	Spacing	Roughness	Filling	Aperture							
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
250	245.23	Cabot Head Formation	Shale, dark greenish grey to dark grey, some 1cm thick bedding brown hard sandstone layers at lower 20cm, thin to medium bedded with some fissile sections, lower contact is not detected.	1		Horizontal	3 to 20cm					Soft		#21	58.7	100	3"
249																	
	248.51																
248			Terminated														
247																	
246																	
245																	
244																	

APPENDIX F

X-RAL WHOLE ROCK CHEMICAL ANALYSIS RESULTS

TABLE
WHOLE ROCK ANALYSIS FOR MAJOR OXIDES
CHIP SAMPLES - PROPOSED DOLOSTONE QUARRY

Major Oxide	11 to 31 ft	31 to 51 ft	51 to 56 ft	56 to 71 ft	71 to 91 ft	91 to 111 ft	111 to 131 ft	131 to 148 ft	148 to 171 ft	Halton Crushed Stone
SiO_2	2.00	0.63	1.82	0.56	0.81	1.64	0.64	1.87	50.11	0.59
Al_2O_3	0.30	0.05	0.2	0.03	0.14	0.57	0.19	0.51	10.89	0.04
CaO	31.06	31.33	31.02	31.33	31.06	31.01	31.12	30.42	8.38	31.08
MgO	20.20	21.26	20.42	21.21	20.91	20.5	20.97	20.45	6.88	20.59
Na_2O	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.14	-
K_2O	0.07	0.03	0.05	0.02	0.02	0.07	0.03	0.09	3.99	-
Fe_2O_3	0.39	0.45	0.42	0.29	0.39	0.4	0.53	1.11	4.93	0.46
MnO	0.09	0.07	0.09	0.08	0.08	0.07	0.08	0.11	0.07	-
TiO_2	0.03	0.02	0.03	0.01	0.02	0.04	0.03	0.04	0.73	-
P_2O_5	0.02	0.01	0.01	<0.01	<0.01	<0.01	<0.01	0.02	0.22	-
Cr_2O_3	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-
Loss on Ignition	46.20	46.8	46.5	47.2	47.1	46.35	47.1	45	13.95	46.88
Total	100.40	100.6	100.6	100.7	100.5	100.7	100.7	99.6	100.3	99.68

APPENDIX G
PHYSICAL TEST RESULTS

TABLE 1 PHYSICAL TEST RESULTS OF UPPER AMABEL PART OF CORES
PART OF LOT 1 AND ALL OF LOTS 2 AND 3, CONCESSION 11, FLAMBOROUGH TOWNSHIP, CITY OF HAMILTON

Physical Tests

Sample No.	BHB1	BHF1	HYDRO 1-1	HYDRO 8-1	HYDRO-9-1	AV'GS	RANGES	Spec. Requirements	
Tested Interval (m)	2.0-20.0	2.0-23.2	3.5-19.0	3.1-16.7	5.2-17.1			HL4&8	Str.Conc.
Petrographic Number									
Granular	100.0	100.0	100.0	100.0	100.0	100.0	100.0	N/A	N/A
H.L.& Concrete.	102.6	103.9	108.3	105.4	104.0	104.8	102.6-108.3	N/A	140(max)
L.A. Abrasion Loss (%)									
LS-603	29.5	45.3	29.2	40.1	32.6	35.34	29.5-45.3	N/A	N/A
Relative Density LS-604	2.684	2.605	2.651	2.574	2.659	2.635	2.574-2.684	N/A	N/A
Absorption (%) LS-604	1.476	2.328**	1.700	2.353**	1.587	1.889	1.476-2.353	2(max)	2(max)
Unconfined Freeze-Thaw Loss (%)									
LS-614	1.7	0.9	1.1	1.4	1.2	1.26	0.9-1.7	15(max)	6(max)
Magnesium Sulphate									
Soundness Loss (%) LS-606	3.5	6.3	1.5	5.2	2.8	3.86	1.5-6.3	12*&15(max)	12(max)
Micro-Deval Abrasion Loss									
Coarse Agg.(%) LS-618	8.4	11.4	8.0	10.4	9.1	9.46	8.4-11.4	21(max)	17(max)
Micro-Deval Abrasion Loss									
Fine Agg.(%) LS-619	20.6***	20.8***	15.7	19.0	15.1	18.24	15.1-20.8	25(max)	20(max)

* surface course only ** outside specifications ***outside specifications for concrete N/A not applicable

Petrographic Composition

Carbonate (hard) (%)	98.7	97.0	95.9	97.3	98.0	97.38	95.9-98.7
Carbonate (medium hard) (%)	0.0	1.1	0.0	0.0	0.0	0.22	0.0-1.1
Gypsite (<10% gypsum) (%)	0.0	0.0	0.0	0.0	0.0	0.00	0.0-0.0
Total Good Agg (%)	98.7	98.1	95.9	97.3	98.0	97.60	95.9-98.1
Carbonate (soft, sl'tly shaley)(%)	1.3	1.9	4.1	2.7	2.0	2.40	1.9-4.1
Total Fair Agg. (%)	1.3	1.9	4.1	2.7	2.0	2.40	1.9-4.1
Carbonate (shaley) (%)	0.0	0.0	0.0	0.0	0.0	0.00	0.0-0.0
Total Poor Agg. (%)	0.0	0.0	0.0	0.0	0.0	0.00	0.0-0.0
Shale	0.0	0.0	0.0	0.0	0.0	0.0	0.0-0.0
Total Deleterious Agg. (%)	0.0	0.0	0.0	0.0	0.0	0.0	0.0-0.0

TABLE 2 PHYSICAL TEST RESULTS OF LOWER AMABEL PART OF CORES
PART OF LOT 1 AND ALL OF LOTS 2 AND 3, CONCESSION 11, FLAMBOROUGH TOWNSHIP, CITY OF HAMILTON

Physical Tests

Sample No.	BHB2	BHF2	HYDRO 1-2	HYDRO 8-2	HYDRO-9-2	AV'GS	RANGES	Spec. Requirements	
Tested Interval (m)	2.0-38.0	23.2-42.0	19.0-35.0	16.7-32.5	17.1-32.5			HL4&8	Str.Conc.
Petrographic Number									
Granular	100.0	100.0	100.0	101.2	100.0	100.24	100.0-101.2	N/A	N/A
H.L.& Concrete.	100.0	102.1	104.5	102.9	106.2	103.14	100.0-106.2	N/A	140(max)
L.A. Abrasion Loss (%)									
LS-603	31.1	32.2	31.4	33.9	31.2	31.98	31.1-33.9	N/A	N/A
Relative Density LS-604	2.691	2.651	2.654	2.634	2.670	2.660	2.651-2.691	N/A	N/A
Absorption (%) LS-604	1.360	1.651	1.430	1.770	1.326	1.507	1.326-1.770	2(max)	2(max)
Unconfined Freeze-Thaw Loss (%)									
LS-614	2.6	2.9	1.7	1.0	1.0	1.84	1.0-2.9	15(max)	6(max)
Magnesium Sulphate									
Soundness Loss (%) LS-606	2.6	2.6	2.6	3.2	3.6	2.92	2.6-3.6	12*&15(max)	12(max)
Micro-Deval Abrasion Loss									
Coarse Agg.(%) LS-618	8.8	10.1	9.3	9.7	9.0	9.38	8.8-10.1	21(max)	17(max)
Micro-Deval Abrasion Loss									
Fine Agg.(%) LS-619	17.8	18.1	15.8	15.1	16.1	16.58	15.1-18.1	25(max)	20(max)

*surface course only N/A not applicable

Petrographic Composition

Carbonate (hard) (%)	100.0	96.5	84.5	98.9	86.7	93.32	84.5-100.0		
Carbonate (medium hard) (%)	0.0	1.8	0.0	0.0	7.2	1.80	0.0-7.2		
Gypsite (<10% gypsum) (%)	0.0	0.6	13.3	0.0	3.1	3.40	0.0-13.3		
Total Good Agg (%)	100.0	99.0	97.8	98.9	96.9	98.52	96.9-100		
Carbonate (soft, sl'tly shaley)(%)	0.0	1.0	2.2	0.9	3.1	1.44	0.9-2.2		
Total Fair Agg. (%)	0.0	1.0	2.2	0.9	3.1	1.44	0.9-2.2		
Carbonate (shaley) (%)	0.0	0.0	0.0	0.2	0.0	0.04	0.0-0.2		
Total Poor Agg. (%)	0.0	0.0	0.0	0.2	0.0	0.04	0.0-0.2		
Shale	0.0	0.0	0.0	0.0	0.0	0.0	0.0-0.0		
Total Deleterious Agg. (%)	0.0	0.0	0.0	0.0	0.0	0.0	0.0-0.0		

TABLE 3 PHYSICAL TEST RESULTS OF REYNALES PART OF CORES
PART OF LOT 1 AND ALL OF LOTS 2 AND 3, CONCESSION 11, FLAMBOROUGH TOWNSHIP, CITY OF HAMILTON

Physical Tests

Sample No.	BHB3	BHF3	HYDRO 1-3, 8-3&9-3	AV'GS	RANGES	Specification. Requirements			
Tested Interval (m)	38.0-40.0	42.0-44.0	35.0-37.0, 32.5-34.6 and 32.5-34.6 blend			HL4&8	Str.Conc.	Gran. A	Gran. B Type 2
Petrographic Number									
Granular	109.2	136.9	154.8	133.63	109.2-154.8	N/A	N/A	N/A	N/A
H.L.& Concrete.	134.0	180.2*	178.2*	164.13	134.0-180.2	N/A	140(max)	N/A	N/A
L.A. Abrasion Loss (%)									
LS-603	N.S.M.	N.S.M.	N.S.M.			N/A	N/A	N/A	N/A
Relative Density LS-604	N.S.M.	N.S.M.	2.780			N/A	N/A	N/A	N/A
Absorption (%) LS-604	N.S.M.	N.S.M.	1.301			2(max)	2(max)	N/A	N/A
Unconfined Freeze-Thaw Loss (%)									
LS-614	N.S.M.	N.S.M.	16.5**			15(max)	6(max)	N/A	N/A
Magnesium Sulphate									
Soundness Loss (%) LS-606	24.1**	N.S.M.	28.5**	26.3**	24.1-28.5	12*&15(max)	12(max)	N/A	N/A
Micro-Deval Abrasion Loss									
Coarse Agg.(%) LS-618	15.8	16.1	15.7	15.87	15.7-16.1	21(max)	17(max)	25(max)	30(max)
Micro-Deval Abrasion Loss									
Fine Agg.(%) LS-619	N.S.M.	N.S.M.	25.2*				25(max)	20(max)	30(max)

*surface course only **outside spec'n for HL4, 8 and concrete N/A not applicable N.S.M. not sufficient material

Petrographic Composition

Carbonate (hard) (%)	74.5	43.9	57.1	58.50	43.9-74.5
Carbonate (medium hard) (%)	11.8	28.9	19.4	20.03	11.8-28.9
Gypsite (<10% gypsum) (%)	0.0	0.0	1.2	0.40	0.0-1.2
Total Good Agg (%)	86.3	72.9	77.7	78.93	72.9-86.3
Carbonate (soft, sl'tly shaley)(%)	12.4	21.6	11.7	15.23	11.7-21.6
Total Fair Agg. (%)	12.4	21.6	11.7	15.23	11.7-21.6
Carbonate (shaley) (%)	0.6	3.1	10.0	4.57	0.6-10.0
Total Poor Agg. (%)	0.6	3.1	10.0	4.57	0.6-10.0
Shale	0.7	2.4	0.5	1.20	0.5-2.4
Total Deleterious Agg. (%)	0.7	2.4	0.5	1.20	0.5-2.4