

# McINTOSH•LALANI ENGINEERING LTD.

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March 25, 2008

AC Ltd.  
Box 607  
Okotoks, Alberta  
T1F 1A7

M•L 3862

Attention: Mr. Brian McCaughan

Dear Sir:

**Subject: Preliminary Geotechnical Evaluation  
103 Acres Residential Development  
Lac St. Anne County, Alberta**

This letter report serves to present the results of the preliminary geotechnical evaluation, particle size analysis and near surface groundwater testing completed by McIntosh•Lalani Engineering Ltd. (M•L) at the above noted site. The site is located within the N.W. ¼ of Section 15-55-3-W5M north of Mayfair Road and is heavily treed and undulating with cut lines running throughout the property.

Eight (8) subsurface investigation testpits were excavated on February 5, 2008 using a CAT 325LC Excavator contracted from Double J Excavating of Spruce Grove, Alberta. The eight (8) testpits were excavated to depths ranging from 2.1 to 3.0 metres below the existing ground surface. Bulk samples of soil were obtained from the excavations and returned to the laboratory for testing. Slotted PVC standpipes were installed in all of the testpits to allow for future monitoring of groundwater levels. The borehole locations were selected by M•L and the approximate locations of the boreholes are presented in the attached Figure No. 1. Laboratory tests including natural moisture contents, soluble sulphate concentrations, Atterberg Limit tests and hydrometer tests were conducted on select soil samples recovered from the boreholes. The laboratory test results are presented on the attached borehole logs and elsewhere in the text of this letter.

It is M•L's understanding that this project includes the development of the 103 acres into country residential lots. The project will consist of some site grading and the construction of new roadways and individual lot specific septic tile fields. This preliminary geotechnical evaluation serves for the purpose of design and subdivision approval. Prior to subdivision construction a complete geotechnical evaluation and percolation testing program should be completed to fully assess site conditions prior to final design. All recommendations given within this letter should be confirmed prior to subdivision construction upon completion of a complete geotechnical evaluation.

A surficial layer of topsoil was encountered in all eight (8) boreholes and ranged in thickness from 150 to 1800 mm. The topsoil thicknesses are known only at discrete testpit locations and as such should not be used for tendering purposes. Beneath the topsoil interbedded layers of silts, sands and silty clays were encountered which extended beyond the maximum depth of 3.0 metres below the existing ground surface to which the testpits were excavated. These silts, sands and silty clays were generally compact/stiff, damp, low to medium plastic, medium grain, brown or grey in colour and contained traces of sand, gravel, clay, cobbles, precipitates and oxides. At the time this report was prepared, information on subsurface stratigraphy was available only at discrete borehole locations. Conditions were extrapolated and interpolated from the borehole locations to develop recommendations. Adequate monitoring should be provided during construction to check that these assumptions are reasonable.

Upon completion of drilling, all boreholes remained dry. Groundwater levels were obtained on February 14, 2008 and at that time groundwater levels remained dry to 3.0 metres below the existing ground surface.

Based on the results of the preliminary geotechnical investigation, conventional strip and spread footings may be used for residential structures within this development. The footings within native soils or on "general engineered" fill should be designed for a soil bearing capacity of 100 kPa. Bearing certificates should be prepared for all footings placed in fill by a qualified geotechnical engineers. Footings within heated structures should be founded at a depth of 1.4 metres below grade and for unheated structures at a depth of 2.1 metres below grade to protect against the effect of frost heaving.

Preliminary testing for soluble sulphate content has revealed sulphate levels of 0.027 percent, which indicates a negligible risk of sulphate attack on exposed concrete. Based upon this result Type GU (Normal Portland) cement with a maximum w/cm ratio of 0.5 and air entrainment of 4-7 percent by volume (based on 14-20 mm aggregate) may be used for this development. This results should be confirmed by further soluble sulphate testing upon completion of a complete geotechnical evaluation.

The composition and consistency of the site soils are such that conventional hydraulic excavators should be suitable to remove the soils. Due to the depth of excavation of the testpits, excavations below 3.0 metres below the existing ground surface may encounter groundwater infiltration and require dewatering. Sumps equipped with submersible pumps is considered a feasible method of dewatering and should effectively control the groundwater infiltration if it occurs. Some cuts and fills may be required within this development. All organic topsoil and vegetation should be removed from areas to be filled. The backfill should be "general engineered" fill placed in uniform lifts compacted to a minimum of 98 percent of Standard Proctor Density at a moisture content in the range of optimum to 3 percent above optimum.

M•L has completed a preliminary groundwater monitoring program on site. The groundwater levels were found to be dry to 3.0 metres below ground surface. As such a more extensive groundwater monitoring program should be conducted to ensure groundwater levels are not within 2.1 metres of the lowest top of footing. If the measured groundwater level is within 2.1 metres of the lowest top of footing, a subsurface weeping tile subdrain system placed around the perimeter of all residential housing foundations will be required. The weeping tile should be placed at the elevation of the underside of the footing. M•L should review the weeping tile requirements and final site grades prior to final design.

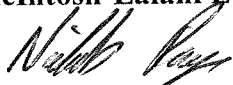
To determine the viability of septic tile field across the site, particle size analyses were conducted on select samples recovered from the boreholes. These particle size analyses were conducted rather than percolation testing due to frost conditions exceeding deeper than 45 cm below the ground surface. All eight hydrometer tests returned acceptable results with a maximum of 47 percent sand and a maximum of 35 percent clay. The Alberta Environmental Protection's (AEP) guidelines for an acceptable range for soil particle size is a maximum of 70 percent sand and 35 percent clay. The result of the testing within the testpits indicate that the particle size across the majority of the site is within the AEP's acceptable range for conventional septic field development purposes. This should be confirmed by percolation testing across the site once the frost has left the ground. All particle size analyses were conducted according to ASTM D-422, Standard Test Method for Particles - Size Analysis of Soils. The results of the hydrometer testing can be found on the borehole logs attached.

The AEP guidelines define a high groundwater table as any where the water table is within 1.8 metres of the ground surface during the frost free period up until the end of August, and within 2.4 metres of the ground surface during the remainder of the year. The water level was measured on February 14, 2008 and in all five testpits which contained PVC standpipes, the water level was recorded to be dry to a depth of 3.0 metres below the existing ground level. This should be confirmed by more extensive groundwater monitoring conducted during a complete geotechnical evaluation. The groundwater readings are presented in the attached borehole logs.

Recommendations presented herein are based on a preliminary geotechnical evaluation of the findings in eight testpits. This report has been prepared in accordance with generally accepted soil and foundation engineering practices. No warranty is expressed or implied.

We trust the enclosed meets with your present requirements. Should you have questions please contact our office.

Respectfully submitted,  
**McIntosh•Lalani Engineering Ltd.**

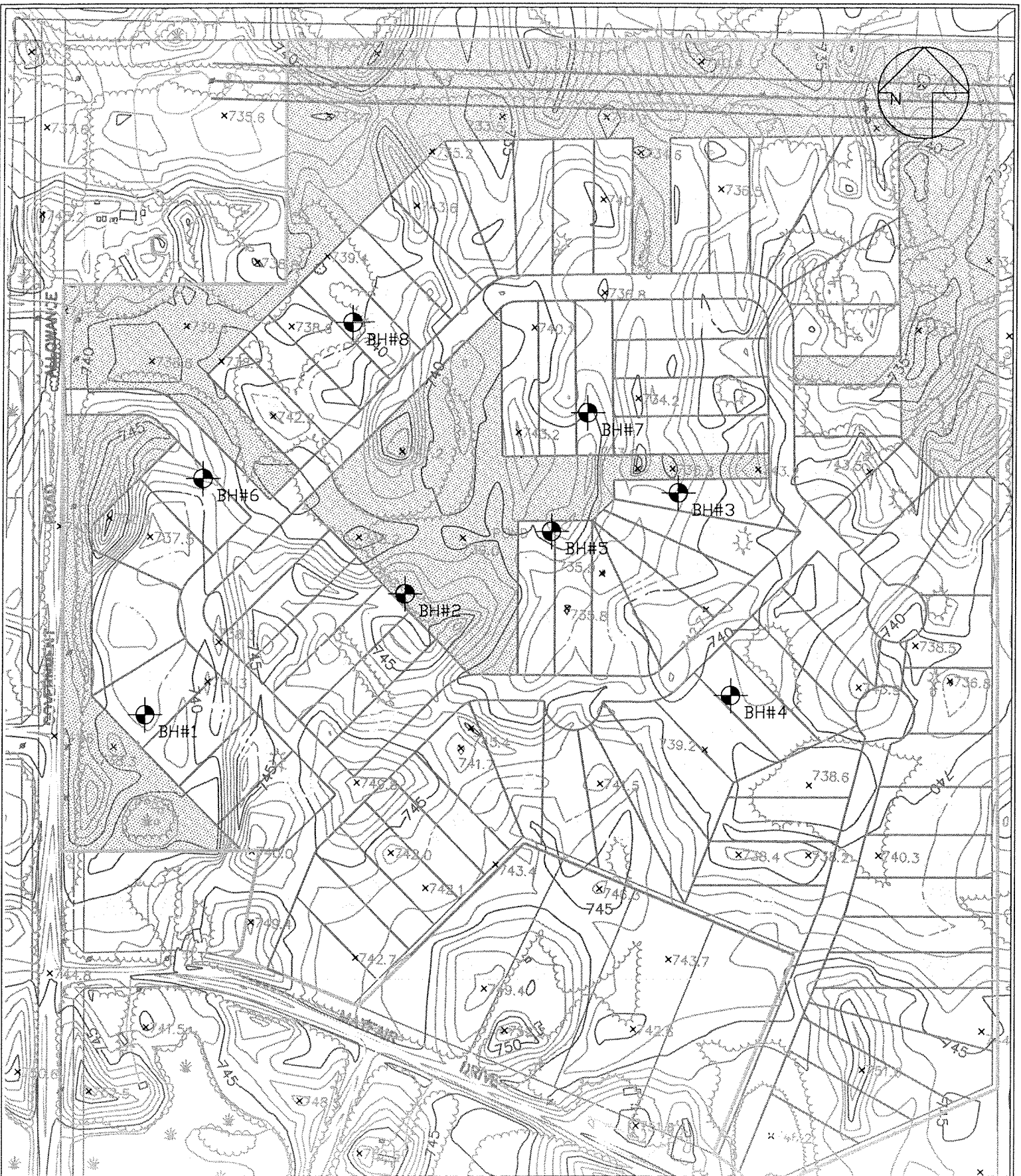



Nicholas R. Payne, E.I.T



Marty D. Ward, P.Eng.  
Senior Project Engineer

/clc



Client:	AC LTD.	 McIntosh - Lalani Engineering Ltd.			
Project:	103 ACRE RESIDENTIAL DEVELOPMENT	Figure #:	FIGURE No. 1	Job #:	ML-3862
Title:	TESTHOLE LOCATIONS	Date:	FEBRUARY 19, 2008	Scale:	N.T.S.
				Drawn By:	RWS

Project: 103 Acre Residential Development	Drilling Information:	Borehole No.:1
Client: AC Ltd.	Double J Rentals	Project No.:ML-3862
	CAT 325 LC Excavator	Elevation:739

SAMPLE TYPE  SHELBY TUBE  CORE SAMPLE  SPT SAMPLE  GRAB SAMPLE NO RECOVERY

Depth (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	USCS	BLOWS	PLASTIC	M.C.	LIQUID	BECKERHAMMER BLOW COUNT				OTHER DATA	Elevation (m)
										60	120	180	240		
0		Topsoil-(Approx. 750mm Thick)			TPSL										
1		Silty Clay(Till)- low plastic, frozen, medium brown/grey.  -no frost, damp, stiff, trace gravel and cobbles, trace precipitates, blocky.		1-1				18.3						Clay Size= 23% Silt Size= 46% Sand= 31%	738
2				1-2	CL										737
3		END OF HOLE AT 3.0M. Dry upon completion. 25mm PVC standpipe installed. Groundwater Readings: Febuary 14, 2008; Dry.													736
4															735
5															734

BECKERHAMMER LOG 3862.ONOWAYPT.2.GPJ M-L STANDARD.GDT.3/6/08



McIntosh Lalani Engineering  
Calgary, AB  
(403) 291-2345

Logged By: Ryan Stickel  
Reviewed By: Marty Ward  
Groundwater Depth: m

Completion Depth: 10 ft  
Drilled on: 2/5/2008

Project: 103 Acre Residential Development	Drilling Information:	Borehole No.:2
Client: AC Ltd.	Double J Rentals	Project No.:ML-3862
	CAT 325 LC Excavator	Elevation:744

SAMPLE TYPE  SHELBY TUBE  CORE SAMPLE  SPT SAMPLE  GRAB SAMPLE NO RECOVERY

Depth (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	USCS	BLOWS	PLASTIC M.C. LIQUID		BECKERHAMMER BLOW COUNT				OTHER DATA	Elevation (m)
							10	20	30	40	60	120		
0		Topsoil-(Approx. 250mm Thick)			TPSL									
0-1		Silty Clay(Till)- low to medium plastic, frozen, medium brown.  -no frost, damp, very stiff, trace sand and gravel, blocky.		2-1	CI									743
1-2		Sand- medium grain, trace cobbles, damp, dense, medium brown.		2-2	SA									742
2-3														741
3-4		END OF HOLE AT 3.0M. Dry upon completion. 25mm PVC standpipe installed. Groundwater Readings: February 14, 2008; Dry.												740
4-5														739

BECKERHAMMER LOG 3862.ONOWAYPT.2.GPJ M-L STANDARD.GDT 3/6/08



McIntosh Lalani Engineering  
Calgary, AB  
(403) 291-2345

Logged By: Ryan Stickel  
Reviewed By: Marty Ward  
Groundwater Depth: m

Completion Depth: 10 ft  
Drilled on: 2/5/2008

Project: 103 Acre Residential Development	Drilling Information:	Borehole No.:3
Client: AC Ltd.	Double J Rentals	Project No.:ML-3862
	CAT 325 LC Excavator	Elevation:736.5

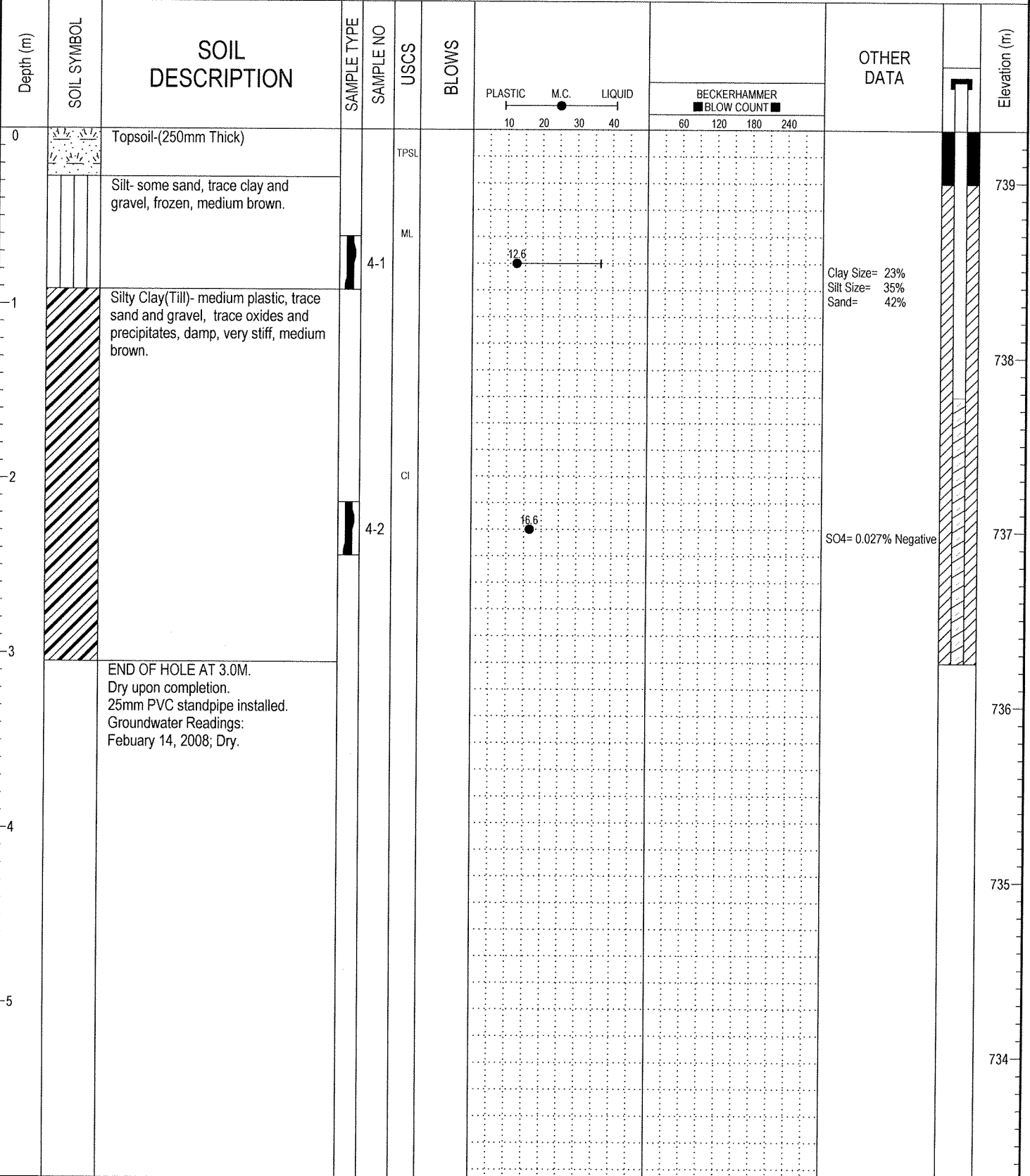
SAMPLE TYPE	<input checked="" type="checkbox"/> SHELBY TUBE	<input type="checkbox"/> CORE SAMPLE	<input checked="" type="checkbox"/> SPT SAMPLE	<input checked="" type="checkbox"/> GRAB SAMPLE	NO RECOVERY
BACKFILL TYPE	<input checked="" type="checkbox"/> BENTONITE	<input type="checkbox"/> PEA GRAVEL	<input type="checkbox"/> SLOUGH	<input type="checkbox"/> GROUT	<input checked="" type="checkbox"/> DRILL CUTTINGS <input type="checkbox"/> SAND

Depth (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	USCS	BLOWS	PLASTIC	M.C.	LIQUID	BECKERHAMMER BLOW COUNT	OTHER DATA	Elevation (m)
0		Topsoil-(Approx. 175mm Thick)			TPSL							736
0.175		Silty Clay(Till)- low to medium plastic, trace sand and gravel, trace oxides, damp, stiff, medium brown.		3-1	cl	13.9					Clay Size= 25% Silt Size= 28% Sand= 47%	736
2.0		-trace medium grain sand pockets, damp.		3-2	cl							734
3.0		END OF HOLE AT 3.0M. Dry upon completion. 25mm PVC standpipe installed. Groundwater Readings: Febuary 14, 2008; Dry.										733

BECKERHAMMER LOG 3862.ONOWAYPT.2.GPJ M-L STANDARD.GDT 3/6/08

Project: 103 Acre Residential Development	Drilling Information:	Borehole No.:4
Client: AC Ltd.	Double J Rentals	Project No.:ML-3862
	CAT 325 LC Excavator	Elevation:739.3

SAMPLE TYPE	<input checked="" type="checkbox"/> SHELBY TUBE	<input type="checkbox"/> CORE SAMPLE	<input checked="" type="checkbox"/> SPT SAMPLE	<input checked="" type="checkbox"/> GRAB SAMPLE	NO RECOVERY	
BACKFILL TYPE	<input checked="" type="checkbox"/> BENTONITE	<input type="checkbox"/> PEA GRAVEL	<input type="checkbox"/> SLOUGH	<input type="checkbox"/> GROUT	<input checked="" type="checkbox"/> DRILL CUTTINGS	<input type="checkbox"/> SAND



BECKERHAMMER LOG 3862.ONOWAYPT.2.GPJ M-L STANDARD.GDT 3/16/08



McIntosh Lalani Engineering  
Calgary, AB  
(403) 291-2345

Logged By: Ryan Stickel  
Reviewed By: Marty Ward  
Groundwater Depth: m

Completion Depth: 10 ft  
Drilled on: 2/5/2008



Project: 103 Acre Residential Development	Drilling Information:	Borehole No.:5
Client: AC Ltd.	Double J Rentals	Project No.:ML-3862
	CAT 325 LC Excavator	Elevation:741

SAMPLE TYPE     SHELBY TUBE     CORE SAMPLE     SPT SAMPLE     GRAB SAMPLE    NO RECOVERY

Depth (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	USCS	BLOWS	PLASTIC		M.C.	LIQUID		BECKERHAMMER BLOW COUNT				OTHER DATA	Elevation (m)
							10	20		30	40	60	120	180	240		
0		Topsoil-(Approx. 300mm Thick)			TPSL												
0.5		Silty Clay(Till)- medium plastic, trace sand and gravel, frozen, medium brown.  -no frost, damp, stiff, blocky, trace oxides.		5-1	CI	16.1									Clay Size= 21% Silt Size= 40% Sand= 39%	740	
1																	
2				5-2												739	
3		END OF HOLE AT 3.0M. Dry upon completion. Backfilled upon completion.														738	
4																737	
5																736	

BECKERHAMMER LOG 3862.ONOWAYPT.2.GPJ M-L STANDARD.GDT 3/6/08

Project: 103 Acre Residential Development	Drilling Information:	Borehole No.:6
Client: AC Ltd.	Double J Rentals	Project No.:ML-3862
	CAT 325 LC Excavator	Elevation:742.2

SAMPLE TYPE	<input checked="" type="checkbox"/> SHELBY TUBE	<input type="checkbox"/> CORE SAMPLE	<input checked="" type="checkbox"/> SPT SAMPLE	<input checked="" type="checkbox"/> GRAB SAMPLE	NO RECOVERY
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BACKFILL TYPE	<input checked="" type="checkbox"/> BENTONITE	<input type="checkbox"/> PEA GRAVEL	<input type="checkbox"/> SLOUGH	<input type="checkbox"/> GROUT	<input checked="" type="checkbox"/> DRILL CUTTINGS	<input type="checkbox"/> SAND
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Depth (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	USCS	BLOWS	PLASTIC	M.C.	LIQUID	BECKERHAMMER BLOW COUNT				OTHER DATA	Elevation (m)
										60	120	180	240		
0		Topsoil-(150mm Thick)			TPSL										742
0-1		Silty Clay(Till)- low plastic, trace sand and gravel, frozen, medium brown.		6-1											741
1-2		-no frost, damp, stiff, trace oxides.		6-2	CL										740
2-3															739
3-4		END OF HOLE AT 3.0M. Dry upon completion. 25mm PVC standpipe installed. Groundwater Readings: February 14, 2008; Dry.													738
4-5															737

BECKERHAMMER LOG 3862-ONOWAYPT.2.GPJ M-L STANDARD.GDT 3/16/08

	McIntosh Lalani Engineering Calgary, AB (403) 291-2345	Logged By: Ryan Stickel	Completion Depth: 10 ft
		Reviewed By: Marty Ward	Drilled on: 2/5/2008
		Groundwater Depth: m	

Project: 103 Acre Residential Development	Drilling Information:	Borehole No.:7
Client: AC Ltd.	Double J Rentals	Project No.:ML-3862
	CAT 325 LC Excavator	Elevation:740

SAMPLE TYPE     SHELBY TUBE     CORE SAMPLE     SPT SAMPLE     GRAB SAMPLE    NO RECOVERY

Depth (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	USCS	BLOWS	PLASTIC		M.C.	LIQUID	BECKERHAMMER BLOW COUNT				OTHER DATA	Elevation (m)
							10	20			60	120	180	240		
0		Topsoil- wet, soft, some wood fragments, black.														
7-1				7-1	TPSL										739	
7-2		Silty Clay- low plastic, moist, soft, medium grey.		7-2	CL				36.2					Clay Size= 15% Silt Size= 62% Sand= 23%	738	
3		END OF HOLE AT 3.0M. Dry upon completion. Backfilled upon completion.													737	
4															736	
5															735	

BECKERHAMMER LOG 3862.ONOWAYPT.2.GPJ M-L STANDARD.GDT 3/6/08

Project: 103 Acre Residential Development	Drilling Information:	Borehole No.:8
Client: AC Ltd.	Double J Rentals	Project No.:ML-3862
	CAT 325 LC Excavator	Elevation:740.5

SAMPLE TYPE     SHELBY TUBE     CORE SAMPLE     SPT SAMPLE     GRAB SAMPLE    NO RECOVERY

Depth (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	USCS	BLOWS	PLASTIC    M.C.    LIQUID		BECKERHAMMER BLOW COUNT				OTHER DATA	Elevation (m)
							10	20	30	40	60	120		
0		Topsoil- moist, soft, trace wood fragments, black.			TPSL									740
1		Silty Clay- low plastic, moist, soft, medium grey.		8-1										739
2		END OF HOLE AT 2.1M. Dry upon completion. Backfilled upon completion.		8-2	CL								Clay Size= 17% Silt Size= 51% Sand= 32%	738
3														737
4														736
5														735

BECKERHAMMER LOG: 3862.ONOWAYPT.2.GPJ M-L STANDARD.GDT 3/16/08



McIntosh Lalani Engineering  
Calgary, AB  
(403) 291-2345

Logged By: Ryan Stichel  
Reviewed By: Marty Ward  
Groundwater Depth: m

Completion Depth: 7 ft  
Drilled on: 2/5/2008  
Page 1 of 1

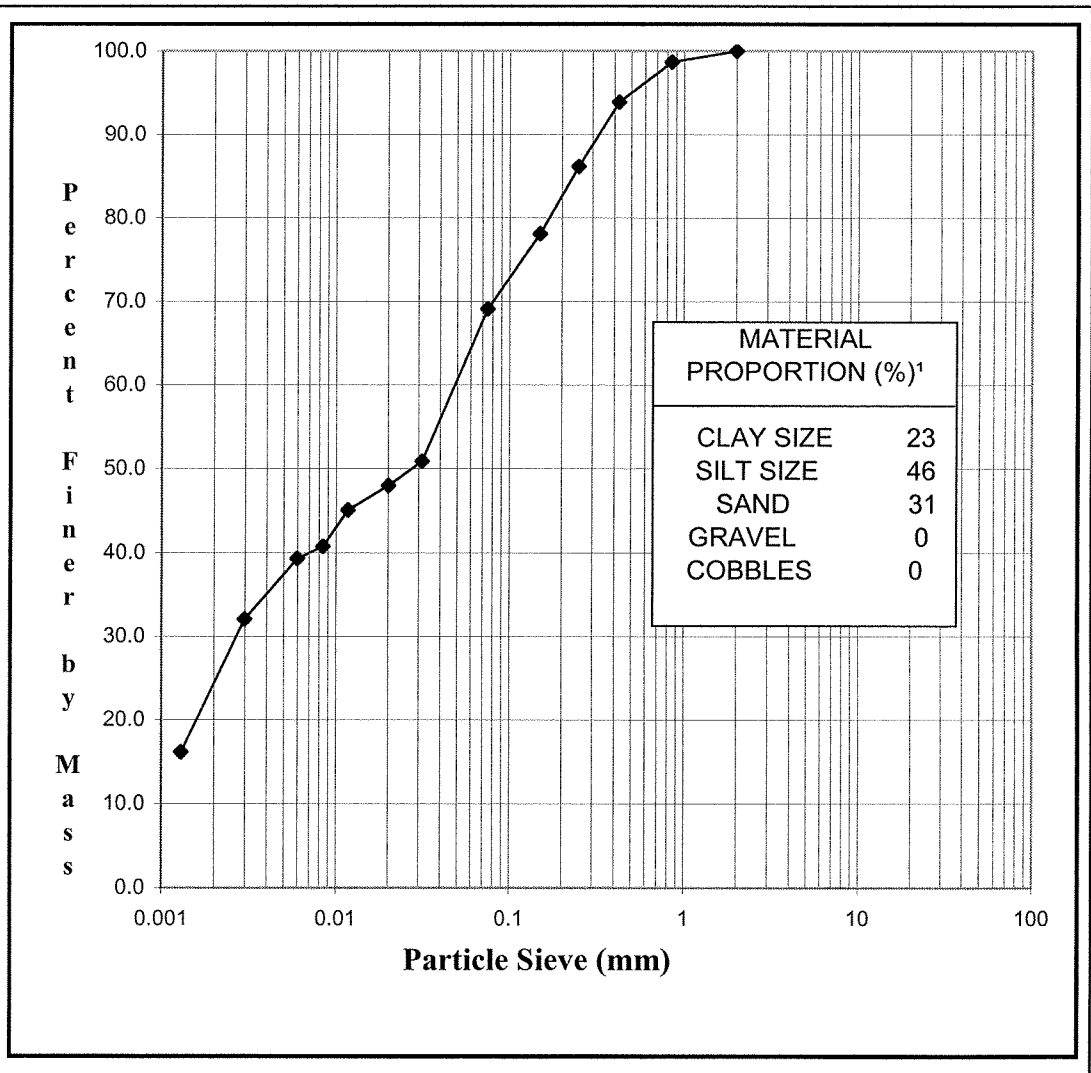
# McINTOSH LALANI ENGINEERING LTD.

## STANDARD TEST METHOD FOR PARTICLE SIZE

(Test Method ASTM D422)

PROJECT: **103 Acre Residential Development**  
 CLIENT: AC Ltd.  
 PROJECT NO.: ML-3862  
 LOCATION: 0  
 SAMPLE NO.: 1  
 DEPTH: 3"  
 DESCRIPTION: Silt, Some Clay & Sand

PARTICLE SIZE	PERCENT PASSING
100 mm	
75 mm	
50 mm	
38 mm	
25 mm	
19 mm	
12.5 mm	
10 mm	
5 mm	
2 mm	100.0
850 μm	98.7
425 μm	93.9
250 μm	86.2
150 μm	78.1
75 μm	69.1
31 μm	50.9
20 μm	48.0
12 μm	45.1
8 μm	40.8
6 μm	39.3
3 μm	32.1
1 μm	16.2



Reviewed by: *[Signature]* P.Eng.



Note 1: Classified by the Modified Unified Soil Classification System

Data presented hereon is for the sole use of the stipulated client. ML is not responsible, nor can be held liable, for use made of this report by any other party, with or without the knowledge of ML.

The testing services reported herein have been performed by an ML technician to recognized industry standards, unless otherwise noted. No other warranty is made. These data do not include or represent any interpretation or opinion of specification compliance or material suitability. Should engineering interpretation be required, ML will provide it upon written request.

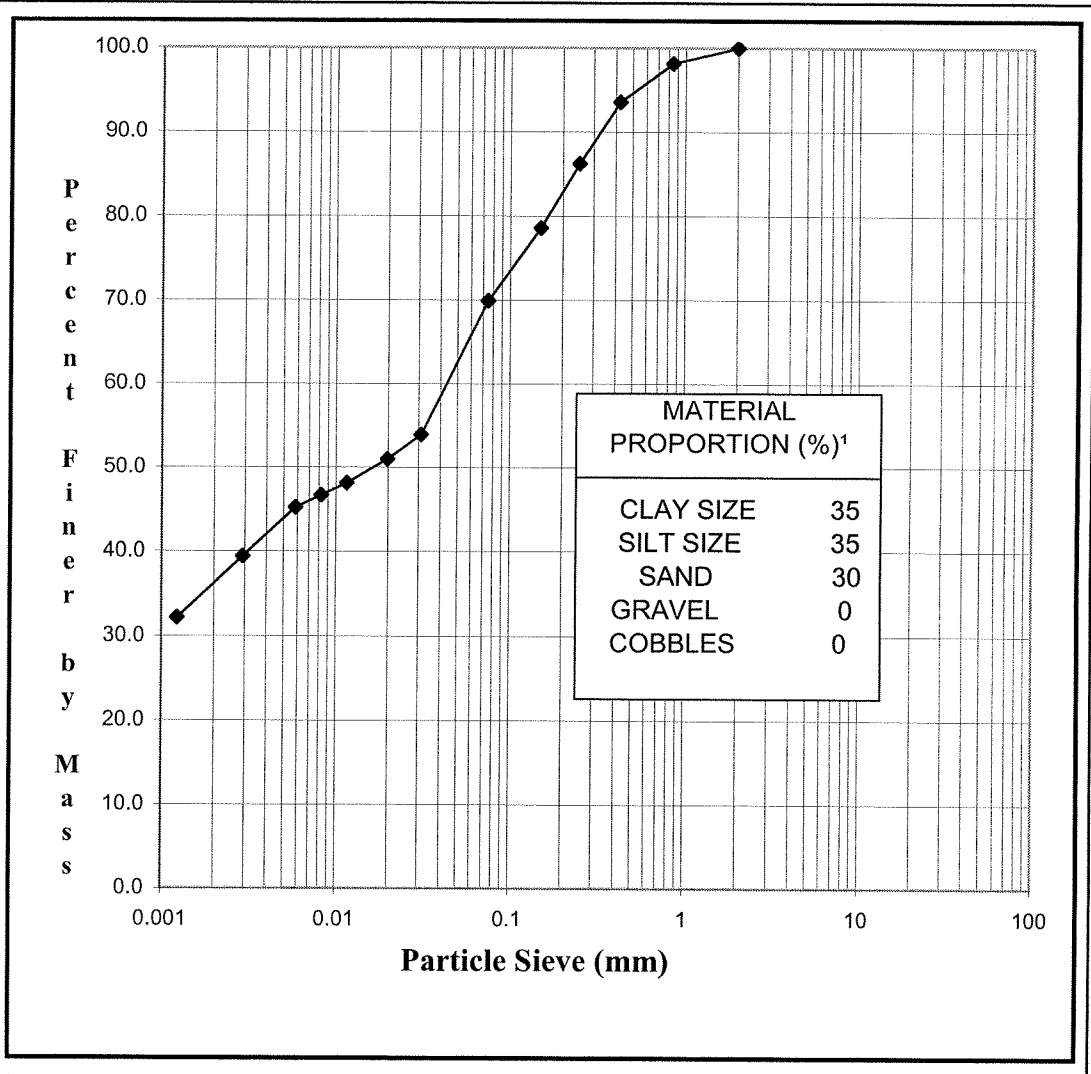
# McINTOSH LALANI ENGINEERING LTD.

## STANDARD TEST METHOD FOR PARTICLE SIZE

(Test Method ASTM D422)

PROJECT: **103 Acre Residential Development**  
 CLIENT: AC Ltd.  
 PROJECT NO.: ML-3862  
 LOCATION: 0  
 SAMPLE NO.: 2  
 DEPTH: 2.5"  
 DESCRIPTION: Silty, Clay with Sand

PARTICLE SIZE	PERCENT PASSING
100 mm	
75 mm	
50 mm	
38 mm	
25 mm	
19 mm	
12.5 mm	
10 mm	
5 mm	
2 mm	100.0
850 µm	98.1
425 µm	93.6
250 µm	86.2
150 µm	78.6
75 µm	69.9
31 µm	53.9
20 µm	51.0
12 µm	48.1
8 µm	46.7
6 µm	45.2
3 µm	39.4
1 µm	32.2



Reviewed by: *Matt Lead* P.Eng.

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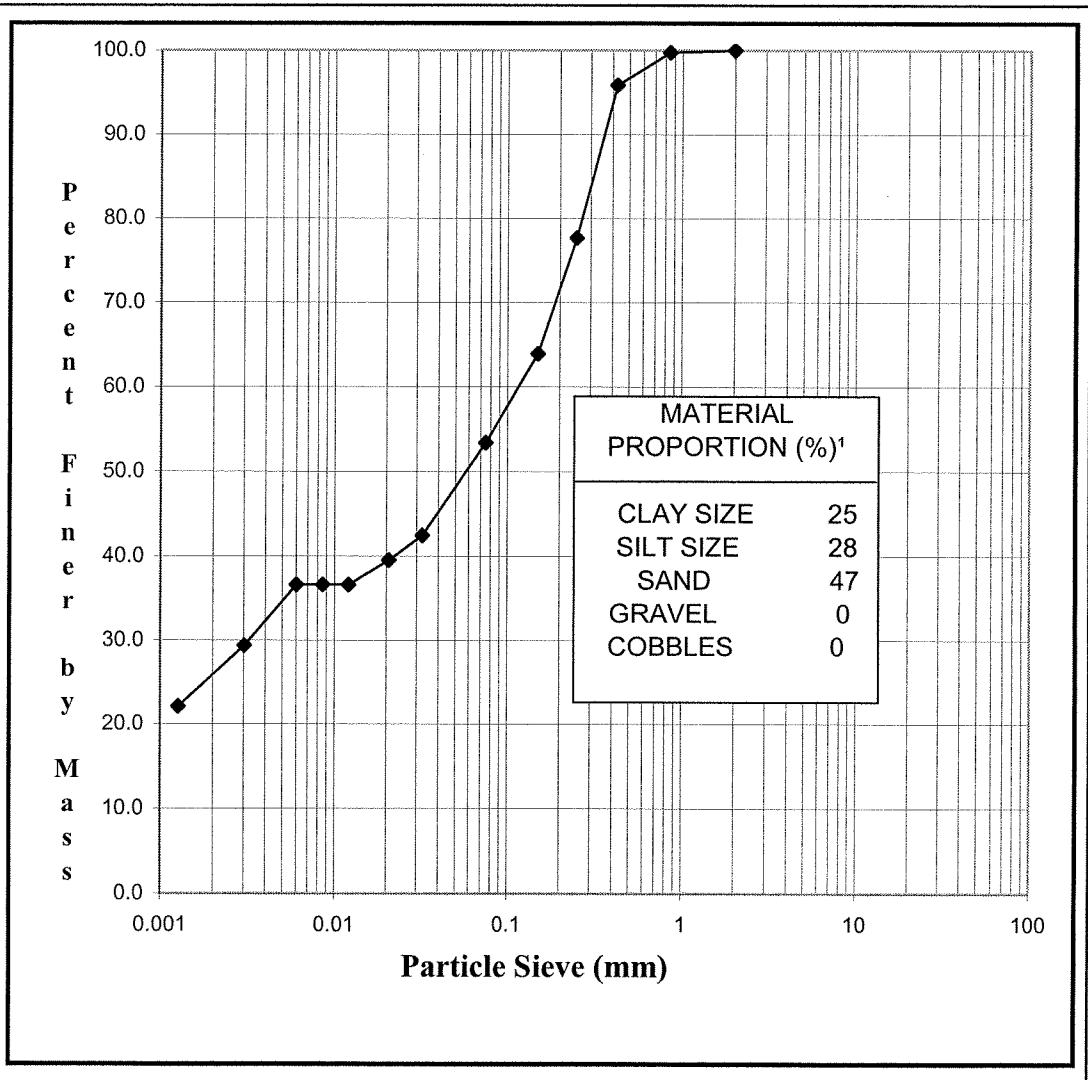
# McINTOSH LALANI ENGINEERING LTD.

## STANDARD TEST METHOD FOR PARTICLE SIZE

(Test Method ASTM D422)

PROJECT: **103 Acre Residential Development**  
 CLIENT: AC Ltd.  
 PROJECT NO.: ML-3862  
 LOCATION: 0  
 SAMPLE NO.: 3  
 DEPTH: 2.5"  
 DESCRIPTION: Sand with Silt and Clay

PARTICLE SIZE	PERCENT PASSING
100 mm	
75 mm	
50 mm	
38 mm	
25 mm	
19 mm	
12.5 mm	
10 mm	
5 mm	
2 mm	100.0
850 µm	99.8
425 µm	95.8
250 µm	77.6
150 µm	63.9
75 µm	53.4
32 µm	42.5
21 µm	39.6
12 µm	36.6
9 µm	36.6
6 µm	36.6
3 µm	29.4
1 µm	22.1



Reviewed by: *M. S. W.* P.Eng.

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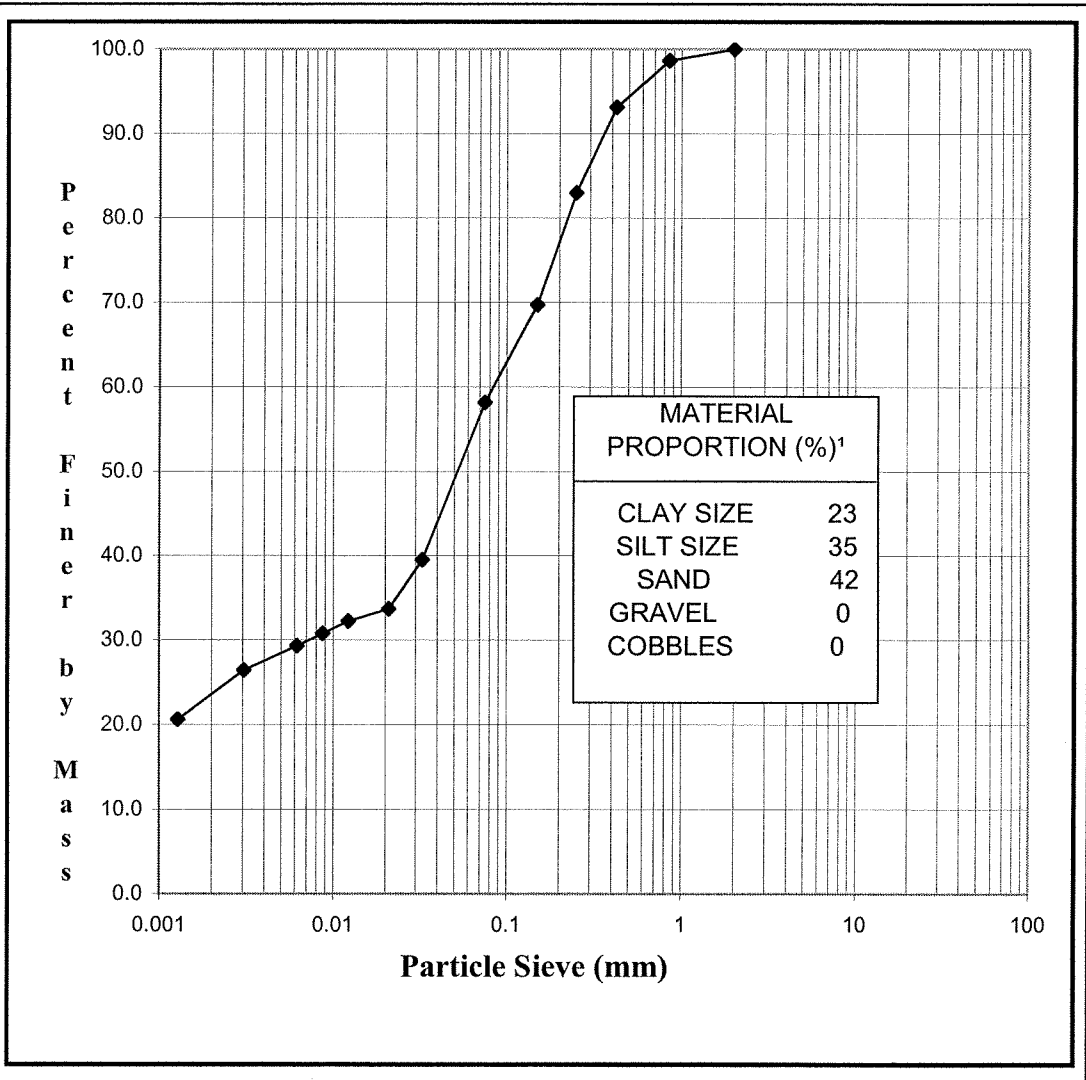
# McINTOSH LALANI ENGINEERING LTD.

## STANDARD TEST METHOD FOR PARTICLE SIZE

(Test Method ASTM D422)

PROJECT: **103 Acre Residential Development**  
 CLIENT: AC Ltd.  
 PROJECT NO.: ML-3862  
 LOCATION: 0  
 SAMPLE NO.: 4  
 DEPTH: 2.5"  
 DESCRIPTION: Silty Sand with some Clay

PARTICLE SIZE	PERCENT PASSING
100 mm	
75 mm	
50 mm	
38 mm	
25 mm	
19 mm	
12.5 mm	
10 mm	
5 mm	
2 mm	100.0
850 µm	98.6
425 µm	93.1
250 µm	83.0
150 µm	69.7
75 µm	58.2
33 µm	39.5
21 µm	33.7
12 µm	32.2
9 µm	30.8
6 µm	29.3
3 µm	26.4
1 µm	20.6



Reviewed by: *W. S. ...* P.Eng.

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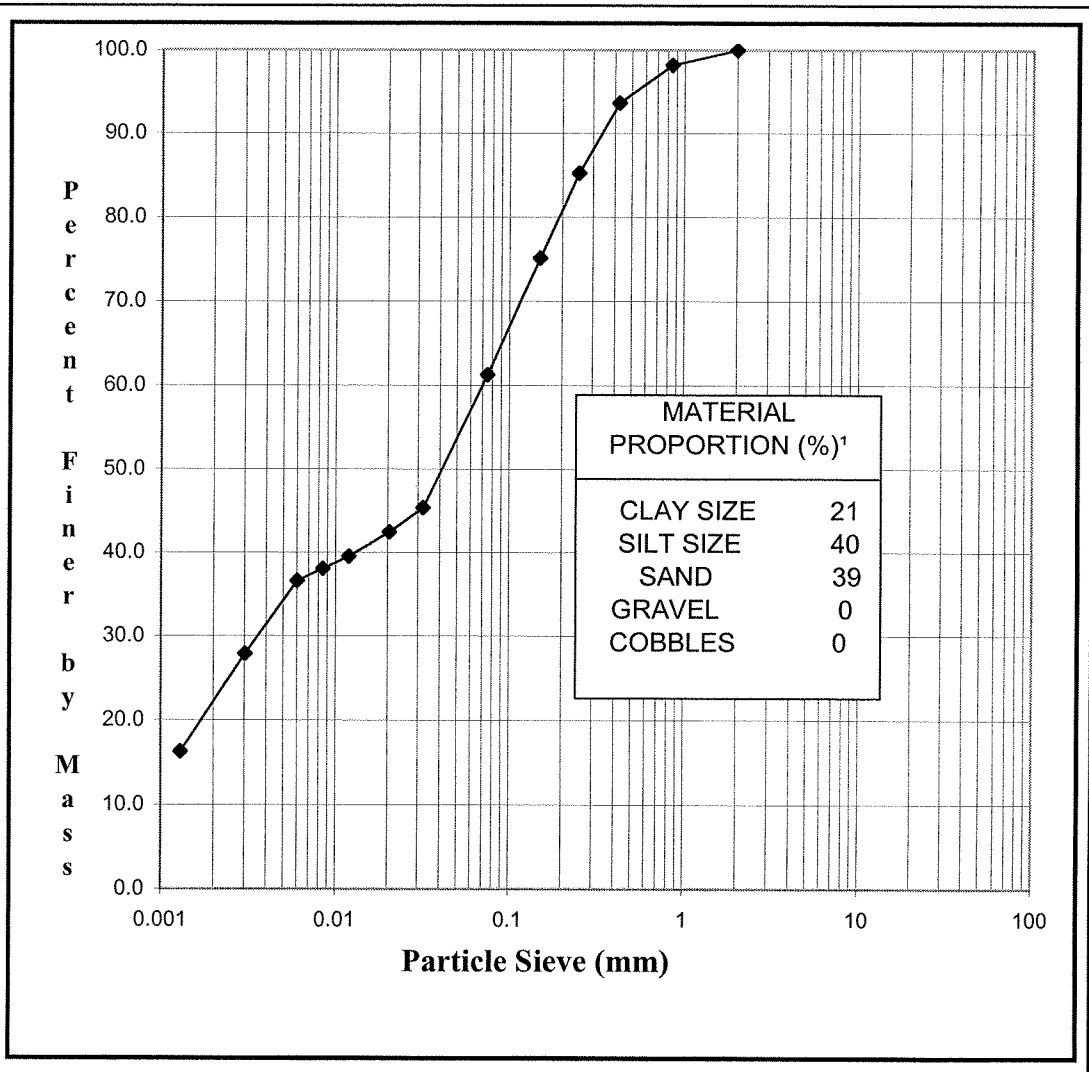
# McINTOSH LALANI ENGINEERING LTD.

## STANDARD TEST METHOD FOR PARTICLE SIZE

(Test Method ASTM D422)

PROJECT: **103 Acre Residential Development**  
 CLIENT: AC Ltd.  
 PROJECT NO.: ML-3862  
 LOCATION: 0  
 SAMPLE NO.: 5  
 DEPTH: 2.5"  
 DESCRIPTION: Silt and Sand with some Clay

PARTICLE SIZE	PERCENT PASSING
100 mm	
75 mm	
50 mm	
38 mm	
25 mm	
19 mm	
12.5 mm	
10 mm	
5 mm	
2 mm	100.0
850 μm	98.2
425 μm	93.7
250 μm	85.2
150 μm	75.1
75 μm	61.3
32 μm	45.4
20 μm	42.4
12 μm	39.5
8 μm	38.1
6 μm	36.6
3 μm	27.9
1 μm	16.3



Reviewed by: *Matt Lund* P.Eng.

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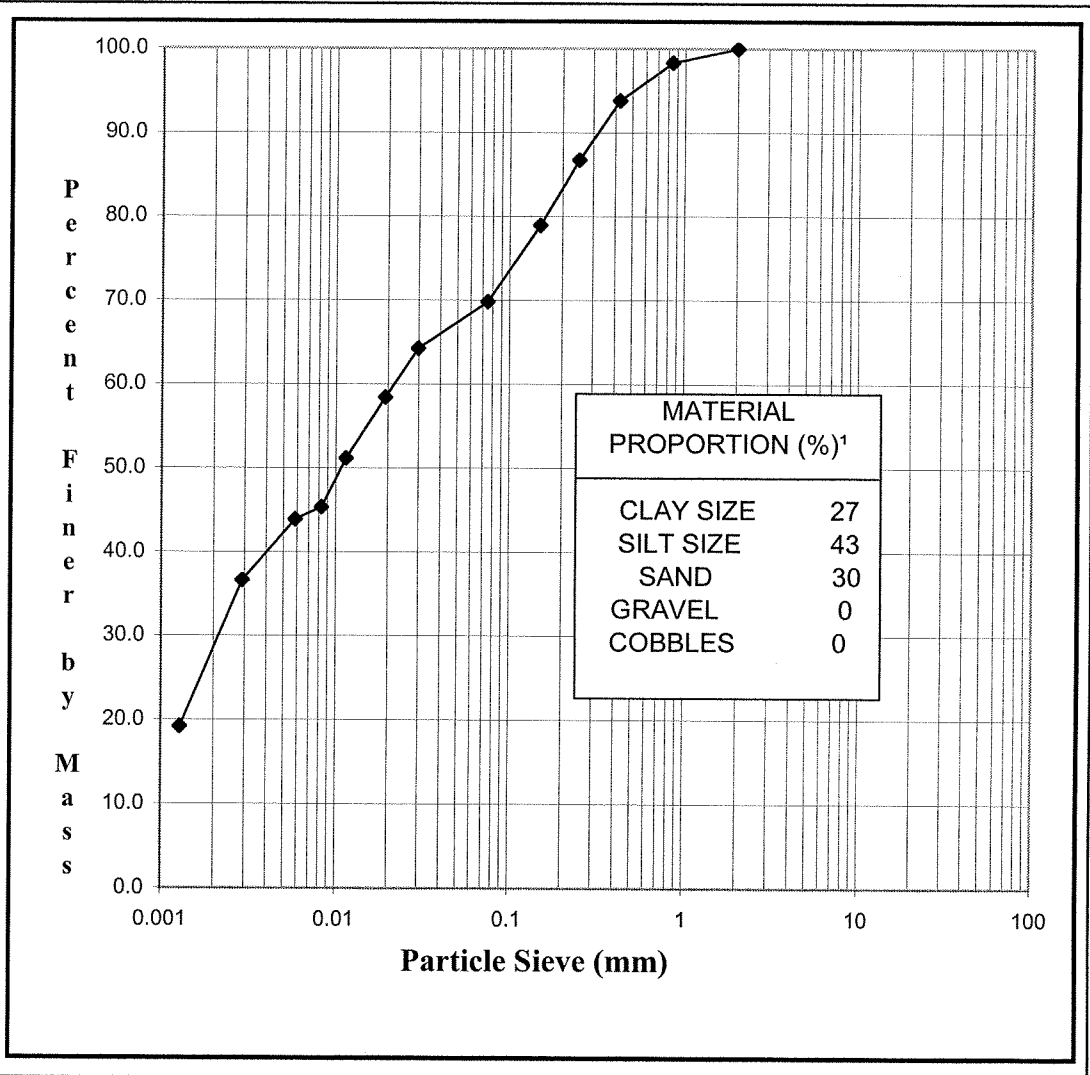
# McINTOSH LALANI ENGINEERING LTD.

## STANDARD TEST METHOD FOR PARTICLE SIZE

(Test Method ASTM D422)

PROJECT: **103 Acre Residential Development**  
 CLIENT: AC Ltd.  
 PROJECT NO.: ML-3862  
 LOCATION: 0  
 SAMPLE NO.: 6  
 DEPTH: 2.5"  
 DESCRIPTION: Silt with Sand and some Clay

PARTICLE SIZE	PERCENT PASSING
100 mm	
75 mm	
50 mm	
38 mm	
25 mm	
19 mm	
12.5 mm	
10 mm	
5 mm	
2 mm	100.0
850 µm	98.4
425 µm	93.8
250 µm	86.7
150 µm	78.9
75 µm	69.8
30 µm	64.2
19 µm	58.4
11 µm	51.2
8 µm	45.3
6 µm	43.9
3 µm	36.6
1 µm	19.2



Reviewed by: *[Signature]* P.Eng.

Note 1: Classified by the Modified Unified Soil Classification System

Data presented hereon is for the sole use of the stipulated client. ML is not responsible, nor can be held liable, for use made of this report by any other party, with or without the knowledge of ML.

The testing services reported herein have been performed by an ML technician to recognized industry standards, unless otherwise noted. No other warranty is made. These data do not include or represent any interpretation or opinion of specification compliance or material suitability. Should engineering interpretation be required, ML will provide it upon written request.



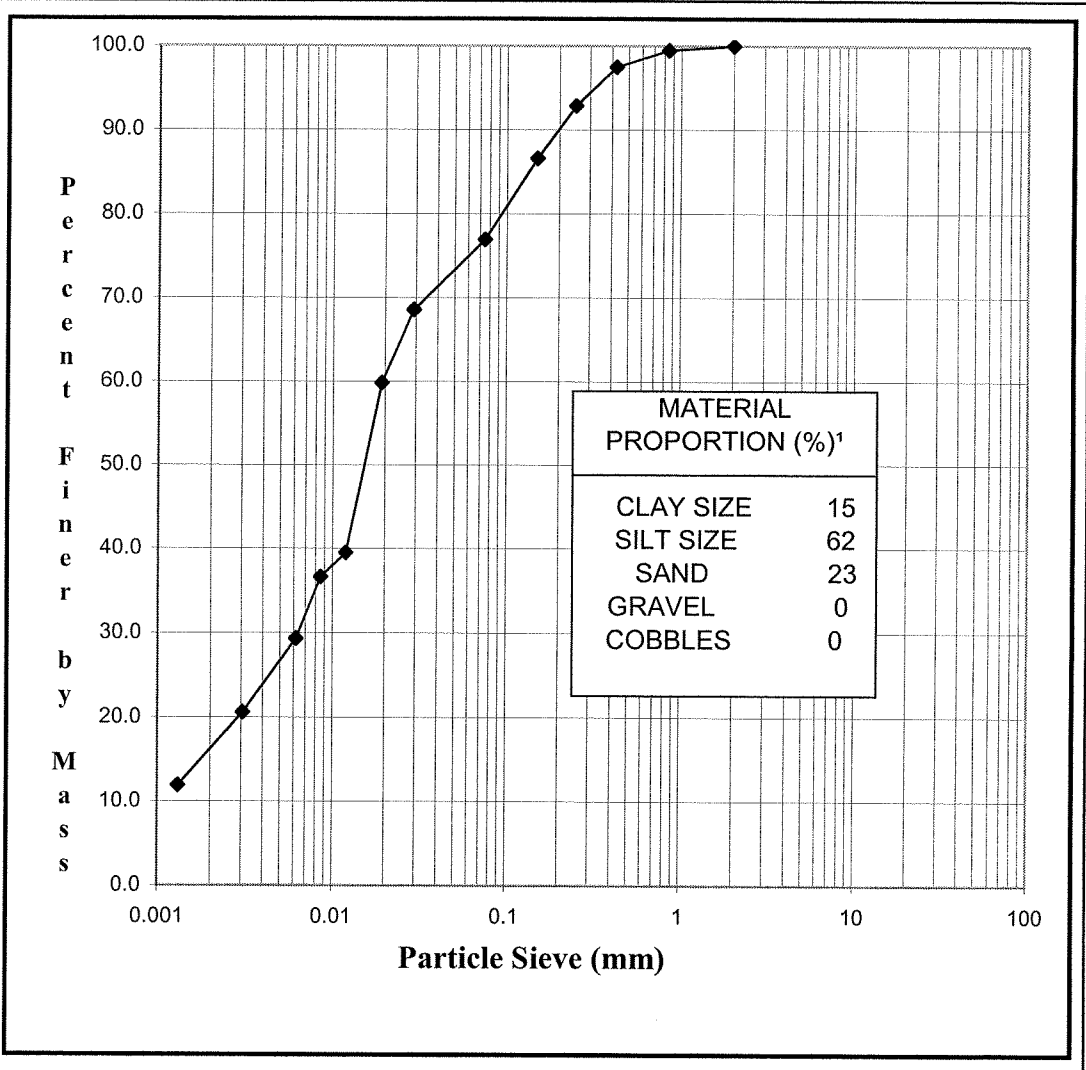
# McINTOSH LALANI ENGINEERING LTD.

## STANDARD TEST METHOD FOR PARTICLE SIZE

(Test Method ASTM D422)

PROJECT: **103 Acre Residential Development**  
 CLIENT: AC Ltd.  
 PROJECT NO.: ML-3862  
 LOCATION: 0  
 SAMPLE NO.: 7  
 DEPTH: 6.5"  
 DESCRIPTION: Silt with some Sand and some Clay

PARTICLE SIZE	PERCENT PASSING
100 mm	
75 mm	
50 mm	
38 mm	
25 mm	
19 mm	
12.5 mm	
10 mm	
5 mm	
2 mm	100.0
850 µm	99.5
425 µm	97.5
250 µm	92.9
150 µm	86.6
75 µm	76.9
29 µm	68.6
19 µm	59.9
12 µm	39.5
9 µm	36.6
6 µm	29.3
3 µm	20.6
1 µm	11.9



Reviewed by: *[Signature]* P.Eng.

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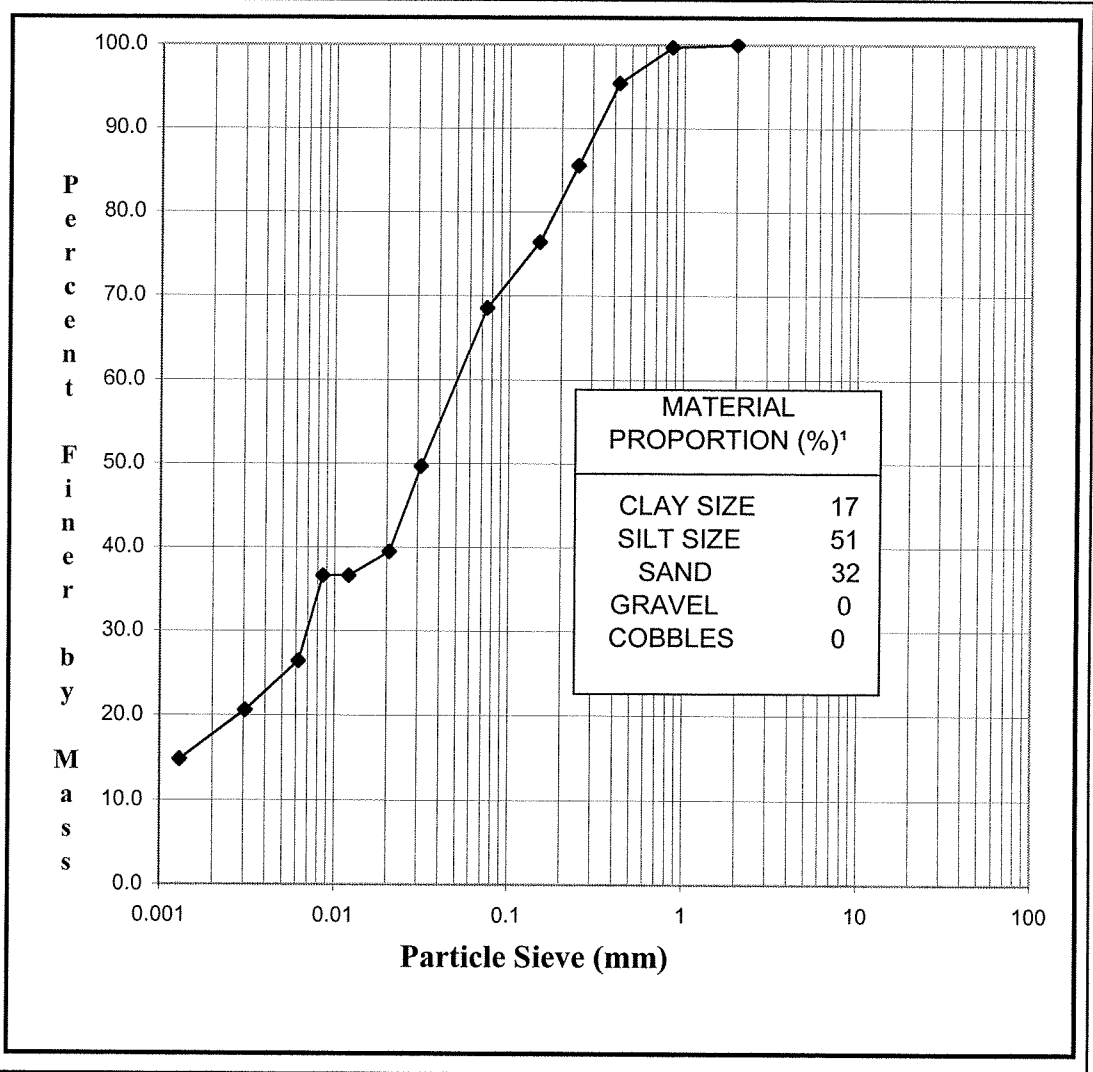
# McINTOSH LALANI ENGINEERING LTD.

## STANDARD TEST METHOD FOR PARTICLE SIZE

(Test Method ASTM D422)

PROJECT: **103 Acre Residential Development**  
 CLIENT: AC Ltd.  
 PROJECT NO.: ML-3862  
 LOCATION: 0  
 SAMPLE NO.: 8  
 DEPTH: 6.5"  
 DESCRIPTION: Silt with Sand and some Clay

PARTICLE SIZE	PERCENT PASSING
100 mm	
75 mm	
50 mm	
38 mm	
25 mm	
19 mm	
12.5 mm	
10 mm	
5 mm	
2 mm	100.0
850 µm	99.7
425 µm	95.4
250 µm	85.5
150 µm	76.4
75 µm	68.5
31 µm	49.7
21 µm	39.5
12 µm	36.6
9 µm	36.6
6 µm	26.4
3 µm	20.6
1 µm	14.8



Reviewed by:  P.Eng.

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