



**REPORT OF EQUIPMENT PERFORMANCE CHECK / CALIBRATION**

**Information supplied by customer:**

**CONTACT:** SAM LAM **WORK ORDER:** HK1510387  
**CLIENT:** LAM GEOTECHNICS LIMITED  
**DATE RECEIVED:** 07/10/2015  
**DATE OF ISSUE:** 14/10/2015  
**ADDRESS:** 11/F, CENTRE POINT, 181-185, GLOUCESTER ROAD,  
WANCHAI, HONG KONG  
**PROJECT:** ---

**METHOD OF PERFORMANCE CHECK/ CALIBRATION:**

Ref: APHA22nd ed 2130B

**COMMENTS**

It is certified that the item under performance check/calibration has been calibrated/checked by corresponding calibrated equipment in the laboratory.

Maximum Tolerance and calibration frequency stated in the report, unless otherwise stated, the internal acceptance criteria of Pilot Testing Limited will be followed.

<b>Scope of Test:</b>	Turbidity
<b>Equipment Type:</b>	Turbidimeter
<b>Brand Name:</b>	Xin Rui
<b>Model No.:</b>	WGZ-3B
<b>Serial No.:</b>	1309192
<b>Equipment No.:</b>	---
<b>Date of Calibration:</b>	08/10/2015

**Remarks:**

This is the Final Report. Results apply to sample(s) as submitted. All pages of this report have been checked and approved for release.

Mr. Peter Lee  
Director

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**REPORT OF EQUIPMENT PERFORMANCE CHECK / CALIBRATION**

**WORK ORDER:** HK1510387  
**DATE OF ISSUE:** 14/10/2015  
**CLIENT:** LAM GEOTECHNICS LIMITED

<b>Equipment Type:</b>	Turbidimeter
<b>Brand Name:</b>	Xin Rui
<b>Model No.:</b>	WGZ-3B
<b>Serial No.:</b>	1309192
<b>Equipment No.:</b>	---
<b>Date of Calibration:</b>	08/10/2015
<b>Date of next Calibration:</b>	08/01/2016

**Parameters:****Turbidity**Method Ref: APHA 22<sup>nd</sup> ed. 2130B

Expected Reading (NTU)	Display Reading (NTU)	Tolerance (%)
0	0.00	---
4	4.14	3.5
10	9.23	-7.7
40	39.1	-2.3
100	105.0	5.0
400	405.0	1.3
1000	989	-1.1
	Tolerance Limit (±%)	10.0

Remark: "Displayed Reading" presents the figures shown on item under calibration/checking regardless of equipment precision or significant figures.

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**REPORT OF EQUIPMENT PERFORMANCE CHECK / CALIBRATION**

**WORK ORDER:** HK1610019  
**DATE OF ISSUE:** 14/01/2016  
**CLIENT:** LAM GEOTECHNICS LIMITED

<b>Equipment Type:</b>	Turbidimeter
<b>Brand Name:</b>	Xin Rui
<b>Model No.:</b>	WGZ-3B
<b>Serial No.:</b>	1309192
<b>Equipment No.:</b>	---
<b>Date of Calibration:</b>	08/01/2016
<b>Date of next Calibration:</b>	08/04/2016

**Parameters:****Turbidity**Method Ref: APHA 22<sup>nd</sup> ed. 2130B

Expected Reading (NTU)	Display Reading (NTU)	Tolerance (%)
0	0.00	---
4	4.09	2.3
10	10.1	1.0
40	38.7	-3.3
100	104	4.0
400	389	-2.8
1000	991	-0.9
	<b>Tolerance Limit (±%)</b>	<b>10.0</b>

Remark: "Displayed Reading" presents the figures shown on item under calibration/checking regardless of equipment precision or significant figures.





**REPORT OF EQUIPMENT PERFORMANCE CHECK / CALIBRATION**

**Information supplied by customer:**

**CONTACT:** SAM LAM **WORK ORDER:** HK1510384  
**CLIENT:** LAM GEOTECHNICS LIMITED  
**DATE RECEIVED:** 07/10/2015  
**DATE OF ISSUE:** 14/10/2015  
**ADDRESS:** 11/F, CENTRE POINT, 181-185, GLOUCESTER ROAD,  
WANCHAI, HONG KONG  
**PROJECT:** ---

**METHOD OF PERFORMANCE CHECK/ CALIBRATION:**

Ref: APHA22nd ed 2130B

**COMMENTS**

It is certified that the item under performance check/calibration has been calibrated/checked by corresponding calibrated equipment in the laboratory.

Maximum Tolerance and calibration frequency stated in the report, unless otherwise stated, the internal acceptance criteria of Pilot Testing Limited will be followed.

<b>Scope of Test:</b>	Turbidity
<b>Equipment Type:</b>	Turbidimeter
<b>Brand Name:</b>	Xin Rui
<b>Model No.:</b>	WGZ-3B
<b>Serial No.:</b>	1203015
<b>Equipment No.:</b>	---
<b>Date of Calibration:</b>	08/10/2015

**Remarks:**

This is the Final Report. Results apply to sample(s) as submitted. All pages of this report have been checked and approved for release.

  
Mr. Peter Lee  
Director

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**REPORT OF EQUIPMENT PERFORMANCE CHECK / CALIBRATION**

**WORK ORDER:** HK1510384  
**DATE OF ISSUE:** 14/10/2015  
**CLIENT:** LAM GEOTECHNICS LIMITED

<b>Equipment Type:</b>	Turbidimeter
<b>Brand Name:</b>	Xin Rui
<b>Model No.:</b>	WGZ-3B
<b>Serial No.:</b>	1203015
<b>Equipment No.:</b>	---
<b>Date of Calibration:</b>	08/10/2015
<b>Date of next Calibration:</b>	08/01/2016

**Parameters:**  
**Turbidity**

Method Ref: APHA 22<sup>nd</sup> ed. 2130B

Expected Reading (NTU)	Display Reading (NTU)	Tolerance (%)
0	0.00	---
4	4.01	0.2
10	10.1	1.0
40	38.8	-3.0
100	101.0	1.0
400	395.0	-1.3
1000	999.0	-0.1
	<b>Tolerance Limit (±%)</b>	<b>10.0</b>

Remark: "Displayed Reading" presents the figures shown on item under calibration/checking regardless of equipment precision or significant figures.

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**REPORT OF EQUIPMENT PERFORMANCE CHECK / CALIBRATION**

**WORK ORDER:** HK1610018  
**DATE OF ISSUE:** 14/01/2016  
**CLIENT:** LAM GEOTECHNICS LIMITED

<b>Equipment Type:</b>	Turbidimeter
<b>Brand Name:</b>	Xin Rui
<b>Model No.:</b>	WGZ-3B
<b>Serial No.:</b>	1203015
<b>Equipment No.:</b>	---
<b>Date of Calibration:</b>	08/01/2016
<b>Date of next Calibration:</b>	08/04/2016

**Parameters:****Turbidity**Method Ref: APHA 22<sup>nd</sup> ed. 2130B

Expected Reading (NTU)	Display Reading (NTU)	Tolerance (%)
0	0.00	---
4	3.87	-3.3
10	10.6	6.0
40	41.4	3.5
100	98.4	-1.6
400	387	-3.3
1000	976	-2.4
	<b>Tolerance Limit (<math>\pm\%</math>)</b>	<b>10.0</b>

Remark: "Displayed Reading" presents the figures shown on item under calibration/checking regardless of equipment precision or significant figures.



**REPORT OF EQUIPMENT PERFORMANCE CHECK / CALIBRATION****Information supplied by customer:**

**CONTACT:** SAM LAM **WORK ORDER:** HK1510427  
**CLIENT:** LAM GEOTECHNICS LIMITED  
**DATE RECEIVED:** 2015-11-06  
**DATE OF ISSUE:** 2015-11-13  
**ADDRESS:** 11/F, CENTRE POINT, 181-185, GLOUCESTER ROAD,  
WANCHAI, HONG KONG  
**PROJECT:** ---

**METHOD OF PERFORMANCE CHECK/ CALIBRATION:**

Ref: APHA22nd ed 2130B

**COMMENTS**

It is certified that the item under performance check/calibration has been calibrated/checked by corresponding calibrated equipment in the laboratory.

Maximum Tolerance and calibration frequency stated in the report, unless otherwise stated, the internal acceptance criteria of Pilot Testing Limited will be followed.

<b>Scope of Test:</b>	Turbidity
<b>Equipment Type:</b>	Turbidimeter
<b>Brand Name:</b>	Xin Rui
<b>Model No.:</b>	WGZ-3B
<b>Serial No.:</b>	1408039
<b>Equipment No.:</b>	---
<b>Date of Calibration:</b>	06-Nov-15

**Remarks:**

This is the Final Report. Results apply to sample(s) as submitted. All pages of this report have been checked and approved for release.

Mr. Peter Lee  
Director

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**REPORT OF EQUIPMENT PERFORMANCE CHECK / CALIBRATION**

**WORK ORDER:** HK1510427  
**DATE OF ISSUE:** 2015-11-13  
**CLIENT:** LAM GEOTECHNICS LIMITED

<b>Equipment Type:</b>	Turbidimeter
<b>Brand Name:</b>	Xin Rui
<b>Model No.:</b>	WGZ-3B
<b>Serial No.:</b>	1408039
<b>Equipment No.:</b>	---
<b>Date of Calibration:</b>	06-Nov-15
<b>Date of next Calibration:</b>	06-Feb-16

**Parameters:**  
**Turbidity**

Method Ref: APHA 22<sup>nd</sup> ed. 2130B

Expected Reading (NTU)	Display Reading (NTU)	Tolerance (%)
0	0.00	---
4	4.12	3.0
10	9.87	-1.3
40	39.5	-1.3
100	104.0	4.0
400	402	0.5
1000	994	-0.6
	Tolerance Limit ( $\pm\%$ )	10.0

Remark: "Displayed Reading" presents the figures shown on item under calibration/checking regardless of equipment precision or significant figures.

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**EQUIPMENT PERFORMANCE CHECK / CALIBRATION REPORT**

**Report No.** : HK1510392  
**Project Name** : EQUIPMENT PERFORMANCE CHECK/CALIBRATION REPORT  
**Date of Issue** : 2015-10-22  
  
**Customer** : LAM GEOTECHNICS LIMITED  
**Address** : 11/F., CENTRE POINT, 181-185 GLOUCESTER ROAD, WAN CHAI, HONG KONG

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**Calibration Job No.** : HK1510392  
**Test Item No.** : HK1510392-01  
**Test Item Details**  
**Test Item Description** : Multifunctional Meter  
**Manufacturer** : YSI  
**Model No.** : Professional Plus  
**Serial No.** : 14E100105  
**Performance Method** : Checked according to in-house method CAL005  
 (References: Temperature (Section 6 of International Accreditation New Zealand Technical Guide No. 3 Second edition March 2008: Working Thermometer Calibration Procedure), pH value (APHA 21e 4500H:B), Salinity (Refer to Conductivity APHA 19e 2510B ) , Dissolved oxygen (APHA 19e 4500-O,C))  
  
**Test Item Receipt Date** : 14-Oct-15  
**Test Item Calibration Date** : 15-Oct-15  
**Test Period** : 14/10/2015 - 22/10/2015

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- Notes :
1. This report shall not be reproduced, except in full, without prior approval from Pilot Testing Limited.
  2. Results relate to item(s) as received.
  3. ± indicates the tolerance limit
  4. N/A = Not applicable
  5. APHA - American Public Health Association, American Water Works Association and Water Environment Federation, Standard Methods for the Examination of Water and Wastewater, APHA-AWWA-WEF. USA
  6. DO, pH, salinity and temperature performance check was conducted by Pilot Testing Limited.
  7. Because of high sensitivity and ease of measurement, the conductivity method (according to APHA 19e 2510) is used to determine salinity.

Approved Signatory :

 Mr. Peter Lee  
 (Director)

Issue Date: 2015-10-22




**REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION**

**WORK ORDER:** HK1510392  
**DATE OF ISSUE:** 2015-10-22  
**CLIENT:** LAM GEOTECHNICS LIMITED

<b>Equipment Type</b>	Multifunctional Meter
<b>Manufacturer</b>	YSI
<b>Model No.</b>	Professional Plus
<b>Serial No.</b>	14E100105
<b>Date of Calibration</b>	15-Oct-15
<b>Date of next Calibration</b>	15-Jan-16

**Parameters:**

**Temperature (Method Ref: Section 6 of International Accreditation New Zealand Technical Guide No.3 Second edition March 2008: Working Thermometer Calibration Procedure)**

Reference Reading (°C)	Display Reading (°C)	Deviation (°C)
10.3	10.6	+0.3
19.7	19.4	-0.3
31.5	30.1	-1.4
	Tolerance Limit	±2.0

**pH Value (Method Ref: APHA21e, 4500H:B)**

Expected Reading (pH unit)	Reference Reading (pH unit)	Display Reading (pH unit)	Deviation (pH unit)
4.0	4.06	4.02	-0.04
7.0	6.96	7.06	+0.10
10.0	9.91	10.04	+0.13
	Tolerance Limit		±0.20

**Conductivity (Method Ref: APHA 19e, 2510)**

KCl concentration (mol/L)	Reference Reading (ms/cm)	Display Reading (ms/cm)	Deviation (%)
0.0000	0.00	0.00	--
0.1000	12.89	12.75	-1.09
0.2000	24.80	24.40	-1.61
0.5000	58.67	58.14	-0.90
	Tolerance Limit		±2.0

**Dissolved Oxygen (DO) (Method Ref: APHA 19e, 4500-O, C)**

Reference DO reading (mg/L)	DO reading od DO probe (mg/L)	Deviation (mg/L)
8.62	8.71	+0.09
4.39	4.31	-0.08
2.05	2.11	+0.06
	Tolerance Limit	±0.20

- Remarks:
- (1) Maximum tolerance and calibration frequency stated in the report, unless otherwise stated, the internal acceptance criteria of Pilot Testing Limited will be followed.
  - (2) Displayed reading presents the figures shown on item under calibration/checking regardless of equipment precision or significant figures.
  - (3) Because of high sensitivity and ease of measurement, the conductivity method (according to APHA 19e 2510) is used to determine salinity.

- End of Report -




**EQUIPMENT PERFORMANCE CHECK / CALIBRATION REPORT**

**Report No.** : HK1610021  
**Project Name** : EQUIPMENT PERFORMANCE CHECK/CALIBRATION REPORT  
**Date of Issue** : 21/01/2016  
  
**Customer** : LAM GEOTECHNICS LIMITED  
**Address** : 11/F., CENTRE POINT, 181-185 GLOUCESTER ROAD, WAN CHAI, HONG KONG

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**Calibration Job No.** : HK1610021  
**Test Item No.** : HK1610021-01  
**Test Item Details**  
**Test Item Description** : Multifunctional Meter  
**Manufacturer** : YSI  
**Model No.** : Professional Plus  
**Serial No.** : 14E100105  
**Performance Method** : Checked according to in-house method CAL005  
 (References: Temperature (Section 6 of International Accreditation New Zealand Technical Guide No. 3 Second edition March 2008: Working Thermometer Calibration Procedure), pH value (APHA 21e 4500H:B), Salinity (Refer to Conductivity APHA 19e 2510B ) , Dissolved oxygen (APHA 19e 4500-O,C))  
  
**Test Item Receipt Date** : 14-Jan-16  
**Test Item Calibration Date** : 15-Jan-16

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- Notes :
1. This report shall not be reproduced, except in full, without prior approval from Pilot Testing Limited.
  2. Results relate to item(s) as received.
  3.  $\pm$  indicates the tolerance limit
  4. N/A = Not applicable
  5. APHA - American Public Health Association, American Water Works Association and Water Environment Federation, Standard Methods for the Examination of Water and Wastewater, APHA-AWWA-WEF. USA
  6. DO, pH, salinity and temperature performance check was conducted by Pilot Testing Limited.
  7. Because of high sensitivity and ease of measurement, the conductivity method (according to APHA 19e 2510) is used to determine salinity.

Approved Signatory :

Ms. Wong Po Yan, Pauline  
 (Testing Engineer)

Issue Date:

21/01/2016


**REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION**

**WORK ORDER:** HK1610021  
**DATE OF ISSUE:** 21/01/2016  
**CLIENT:** LAM GEOTECHNICS LIMITED

<b>Equipment Type</b>	Multifunctional Meter
<b>Manufacturer</b>	YSI
<b>Model No.</b>	Professional Plus
<b>Serial No.</b>	14E100105
<b>Date of Calibration</b>	15-Jan-16
<b>Date of next Calibration</b>	15-Apr-16

**Parameters:**

**Temperature (Method Ref: Section 6 of International Accreditation New Zealand Technical Guide No.3 Second edition March 2008: Working Thermometer Calibration Procedure)**

Reference Reading (°C)	Display Reading (°C)	Deviation (°C)
9.8	10.1	+0.3
20.6	20.4	-0.2
30.3	30.4	+0.1
Tolerance Limit		±2.0

**pH Value (Method Ref: APHA21e, 4500H:B)**

Expected Reading (pH unit)	Reference Reading (pH unit)	Display Reading (pH unit)	Deviation (pH unit)
4.0	3.98	4.03	+0.05
7.0	7.11	7.08	-0.03
10.0	10.32	10.24	-0.08
Tolerance Limit			±0.20

**Conductivity (Method Ref: APHA 19e, 2510)**

KCl concentration (mol/L)	Reference Reading (ms/cm)	Display Reading (ms/cm)	Deviation (%)
0.0000	0.00	0.00	--
0.1000	12.89	12.71	-1.40
0.2000	24.80	24.97	+0.69
0.5000	58.67	58.34	-0.56
Tolerance Limit			±2.0

**Dissolved Oxygen (DO) (Method Ref: APHA 19e, 4500-O, C)**

Reference DO reading (mg/L)	DO reading od DO probe (mg/L)	Deviation (mg/L)
8.55	8.64	+0.09
5.47	5.34	-0.13
2.94	3.01	+0.07
Tolerance Limit		±0.20

- Remarks:
- (1) Maximum tolerance and calibration frequency stated in the report, unless otherwise stated, the internal acceptance criteria of Pilot Testing Limited will be followed.
  - (2) Displayed reading presents the figures shown on item under calibration/checking regardless of equipment precision or significant figures.
  - (3) Because of high sensitivity and ease of measurement, the conductivity method (according to APHA 19e 2510) is used to determine salinity.

- End of Report -



## EQUIPMENT PERFORMANCE CHECK / CALIBRATION REPORT

**Report No.** : HK1510386  
**Project Name** : EQUIPMENT PERFORMANCE CHECK/CALIBRATION REPORT  
**Date of Issue** : 19/10/2015  
  
**Customer** : LAM GEOTECHNICS LIMITED  
**Address** : 11/F., CENTRE POINT, 181-185 GLOUCESTER ROAD, WAN CHAI, HONG KONG  


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**Calibration Job No.** : HK1510386  
**Test Item No.** : HK1510386-01  
**Test Item Details**  
**Test Item Description** : Multifunctional Meter  
**Manufacturer** : YSI  
**Model No.** : Professional Plus  
**Serial No.** : 14M100277  
**Performance Method** : Checked according to in-house method CAL005  
(References: Temperature (Section 6 of International Accreditation New Zealand Technical Guide No. 3 Second edition March 2008: Working Thermometer Calibration Procedure), pH value (APHA 21e 4500H:B), Salinity (Refer to Conductivity APHA 19e 2510B ) , Dissolved oxygen (APHA 19e 4500-O,C))  
  
**Test Item Receipt Date** : 14-Oct-15  
**Test Item Calibration Date** : 16-Oct-15  
**Test Period** : 14/10/2015 - 19/10/2015  


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- Notes :
1. This report shall not be reproduced, except in full, without prior approval from Pilot Testing Limited.
  2. Results relate to item(s) as received.
  3.  $\pm$  indicates the tolerance limit
  4. N/A = Not applicable
  5. APHA - American Public Health Association, American Water Works Association and Water Environment Federation, Standard Methods for the Examination of Water and Wastewater, APHA-AWWA-WEF. USA
  6. DO, pH, salinity and temperature performance check was conducted by Pilot Testing Limited.
  7. Because of high sensitivity and ease of measurement, the conductivity method (according to APHA 19e 2510) is used to determine salinity.

Approved Signatory

Mr. Péter Lee  
(Director)

Issue Date:

19/10/2015




**REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION**

**WORK ORDER:** HK1510386  
**DATE OF ISSUE:** 19/10/2015  
**CLIENT:** LAM GEOTECHNICS LIMITED

<b>Equipment Type</b>	Multifunctional Meter
<b>Manufacturer</b>	YSI
<b>Model No.</b>	Professional Plus
<b>Serial No.</b>	14M100277
<b>Date of Calibration</b>	16-Oct-15
<b>Date of next Calibration</b>	16-Jan-16

**Parameters:**

**Temperature (Method Ref: Section 6 of International Accreditation New Zealand Technical Guide No.3 Second edition March 2008: Working Thermometer Calibration Procedure)**

Reference Reading (°C)	Display Reading (°C)	Deviation (°C)
10.2	10.9	+0.7
19.5	20.2	+0.7
30.4	30.5	+0.1
Tolerance Limit		±2.0

**pH Value (Method Ref: APHA21e, 4500H:B)**

Expected Reading (pH unit)	Reference Reading (pH unit)	Display Reading (pH unit)	Deviation (pH unit)
4.0	3.91	3.98	+0.07
7.0	6.81	6.85	+0.04
10.0	9.73	9.79	+0.06
Tolerance Limit			±0.20

**Conductivity (Method Ref: APHA 19e, 2510)**

KCl concentration (mol/L)	Reference Reading (ms/cm)	Display Reading (ms/cm)	Deviation (%)
0.0000	0.00	0.00	--
0.1000	12.89	12.75	-1.12
0.2000	24.80	25.06	+1.05
0.5000	58.67	57.69	-1.67
Tolerance Limit			±2.0

**Dissolved Oxygen (DO) (Method Ref: APHA 19e, 4500-O, C)**

Reference DO reading (mg/L)	DO reading od DO probe (mg/L)	Deviation (mg/L)
8.71	8.63	-0.08
4.76	4.83	+0.07
0.54	0.56	+0.02
Tolerance Limit		±0.20

- Remarks:
- (1) Maximum tolerance and calibration frequency stated in the report, unless otherwise stated, the internal acceptance criteria of Pilot Testing Limited will be followed.
  - (2) Displayed reading presents the figures shown on item under calibration/checking regardless of equipment precision or significant figures.
  - (3) Because of high sensitivity and ease of measurement, the conductivity method (according to APHA 19e 2510) is used to determine salinity.

- End of Report -





## EQUIPMENT PERFORMANCE CHECK / CALIBRATION REPORT

**Report No.** : HK1610022  
**Project Name** : EQUIPMENT PERFORMANCE CHECK/CALIBRATION REPORT  
**Date of Issue** : 21/01/2016  
  
**Customer** : LAM GEOTECHNICS LIMITED  
**Address** : 11/F., CENTRE POINT, 181-185 GLOUCESTER ROAD, WAN CHAI, HONG KONG

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**Calibration Job No.** : HK1610022  
**Test Item No.** : HK1610022-01  
**Test Item Details**  
**Test Item Description** : Multifunctional Meter  
**Manufacturer** : YSI  
**Model No.** : Professional Plus  
**Serial No.** : 14M100277  
**Performance Method** : Checked according to in-house method CAL005  
 (References: Temperature (Section 6 of International Accreditation New Zealand Technical Guide No. 3 Second edition March 2008: Working Thermometer Calibration Procedure), pH value (APHA 21e 4500H:B), Salinity (Refer to Conductivity APHA 19e 2510B ) , Dissolved oxygen (APHA 19e 4500-O,C))  
  
**Test Item Receipt Date** : 14-Jan-16  
**Test Item Calibration Date** : 15-Jan-16

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- Notes :
1. This report shall not be reproduced, except in full, without prior approval from Pilot Testing Limited.
  2. Results relate to item(s) as received.
  3.  $\pm$  indicates the tolerance limit
  4. N/A = Not applicable
  5. APHA - American Public Health Association, American Water Works Association and Water Environment Federation, Standard Methods for the Examination of Water and Wastewater, APHA-AWWA-WEF. USA
  6. DO, pH, salinity and temperature performance check was conducted by Pilot Testing Limited.
  7. Because of high sensitivity and ease of measurement, the conductivity method (according to APHA 19e 2510) is used to determine salinity.

Approved Signatory :

Ms. Wong Po Yan, Pauline  
(Testing Engineer)

Issue Date:

21/01/2016


**REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION**

**WORK ORDER:** HK1610022  
**DATE OF ISSUE:** 21/01/2016  
**CLIENT:** LAM GEOTECHNICS LIMITED

<b>Equipment Type</b>	Multifunctional Meter
<b>Manufacturer</b>	YSI
<b>Model No.</b>	Professional Plus
<b>Serial No.</b>	14M100277
<b>Date of Calibration</b>	15-Jan-16
<b>Date of next Calibration</b>	15-Apr-16

**Parameters:**

**Temperature (Method Ref: Section 6 of International Accreditation New Zealand Technical Guide No.3 Second edition March 2008: Working Thermometer Calibration Procedure)**

Reference Reading (°C)	Display Reading (°C)	Deviation (°C)
10.3	10.7	+0.4
20.9	20.4	-0.5
30.1	30.3	+0.2
	<b>Tolerance Limit</b>	<b>±2.0</b>

**pH Value (Method Ref: APHA21e, 4500H:B)**

Expected Reading (pH unit)	Reference Reading (pH unit)	Display Reading (pH unit)	Deviation (pH unit)
4.0	4.06	3.98	-0.08
7.0	7.05	7.16	+0.11
10.0	10.13	10.06	-0.07
	<b>Tolerance Limit</b>		<b>±0.20</b>

**Conductivity (Method Ref: APHA 19e, 2510)**

KCl concentration (mol/L)	Reference Reading (ms/cm)	Display Reading (ms/cm)	Deviation (%)
0.0000	0.00	0.00	--
0.1000	12.89	12.69	-1.55
0.2000	24.80	25.04	+0.97
0.5000	58.67	59.13	+0.78
	<b>Tolerance Limit</b>		<b>±2.0</b>

**Dissolved Oxygen (DO) (Method Ref: APHA 19e, 4500-O, C)**

Reference DO reading (mg/L)	DO reading od DO probe (mg/L)	Deviation (mg/L)
8.86	8.71	-0.15
4.59	4.46	-0.13
2.11	2.21	+0.10
	<b>Tolerance Limit</b>	<b>±0.20</b>

- Remarks:
- (1) Maximum tolerance and calibration frequency stated in the report, unless otherwise stated, the internal acceptance criteria of Pilot Testing Limited will be followed.
  - (2) Displayed reading presents the figures shown on item under calibration/checking regardless of equipment precision or significant figures.
  - (3) Because of high sensitivity and ease of measurement, the conductivity method (according to APHA 19e 2510) is used to determine salinity.

- End of Report -



## EQUIPMENT PERFORMANCE CHECK / CALIBRATION REPORT

**Report No.** : HK1510391  
**Project Name** : EQUIPMENT PERFORMANCE CHECK/CALIBRATION REPORT  
**Date of Issue** : 2015-10-22  
  
**Customer** : LAM GEOTECHNICS LIMITED  
**Address** : 11/F., CENTRE POINT, 181-185 GLOUCESTER ROAD, WAN CHAI, HONG KONG

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**Calibration Job No.** : HK1510391  
**Test Item No.** : HK1510391-01  
**Test Item Details**  
**Test Item Description** : Multifunctional Meter  
**Manufacturer** : YSI  
**Model No.** : Professional Plus  
**Serial No.** : 11F100420  
**Performance Method** : Checked according to in-house method CAL005  
 (References: Temperature (Section 6 of International Accreditation New Zealand Technical Guide No. 3 Second edition March 2008: Working Thermometer Calibration Procedure), pH value (APHA 21e 4500H:B), Salinity (Refer to Conductivity APHA 19e 2510B )  
 , Dissolved oxygen (APHA 19e 4500-O,C))  
  
**Test Item Receipt Date** : 14-Oct-15  
**Test Item Calibration Date** : 15-Oct-15  
**Test Period** : 14/10/2015 - 22/10/2015

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- Notes :
1. This report shall not be reproduced, except in full, without prior approval from Pilot Testing Limited.
  2. Results relate to item(s) as received.
  3.  $\pm$  indicates the tolerance limit
  4. N/A = Not applicable
  5. APHA - American Public Health Association, American Water Works Association and Water Environment Federation, Standard Methods for the Examination of Water and Wastewater, APHA-AWWA-WEF. USA
  6. DO, pH, salinity and temperature performance check was conducted by Pilot Testing Limited.
  7. Because of high sensitivity and ease of measurement, the conductivity method (according to APHA 19e 2510) is used to determine salinity.

Approved Signatory

Mr. Peter Lee  
(Director)

Issue Date: 2015-10-22




**REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION**

**WORK ORDER:** HK1510391  
**DATE OF ISSUE:** 2015-10-22  
**CLIENT:** LAM GEOTECHNICS LIMITED

<b>Equipment Type</b>	Multifunctional Meter
<b>Manufacturer</b>	YSI
<b>Model No.</b>	Professional Plus
<b>Serial No.</b>	11F100420
<b>Date of Calibration</b>	15-Oct-15
<b>Date of next Calibration</b>	15-Jan-16

**Parameters:**

**Temperature (Method Ref: Section 6 of International Accreditation New Zealand Technical Guide No.3 Second edition March 2008: Working Thermometer Calibration Procedure)**

Reference Reading (°C)	Display Reading (°C)	Deviation (°C)
10.5	10.6	+0.1
19.5	20.1	+0.6
31.8	31.8	0.0
	Tolerance Limit	±2.0

**pH Value (Method Ref: APHA21e, 4500H:B)**

Expected Reading (pH unit)	Reference Reading (pH unit)	Display Reading (pH unit)	Deviation (pH unit)
4.0	3.90	4.09	+0.19
7.0	6.96	7.04	+0.08
10.0	9.87	9.9	+0.03
	Tolerance Limit		±0.20

**Conductivity (Method Ref: APHA 19e, 2510)**

KCl concentration (mol/L)	Reference Reading (ms/cm)	Display Reading (ms/cm)	Deviation (%)
0.0000	0.00	0.00	--
0.1000	12.89	12.88	-0.08
0.2000	24.80	24.43	-1.49
0.5000	58.67	57.80	-1.48
	Tolerance Limit		±2.0

**Dissolved Oxygen (DO) (Method Ref: APHA 19e, 4500-O, C)**

Reference DO reading (mg/L)	DO reading od DO probe (mg/L)	Deviation (mg/L)
8.05	7.92	-0.13
4.39	4.28	-0.11
2.26	2.22	-0.04
	Tolerance Limit	±0.20

- Remarks:
- (1) Maximum tolerance and calibration frequency stated in the report, unless otherwise stated, the internal acceptance criteria of Pilot Testing Limited will be followed.
  - (2) Displayed reading presents the figures shown on item under calibration/checking regardless of equipment precision or significant figures.
  - (3) Because of high sensitivity and ease of measurement, the conductivity method (according to APHA 19e 2510) is used to determine salinity.

- End of Report -





## EQUIPMENT PERFORMANCE CHECK / CALIBRATION REPORT

**Report No.** : HK1610020  
**Project Name** : EQUIPMENT PERFORMANCE CHECK/CALIBRATION REPORT  
**Date of Issue** : 21/01/2016  
  
**Customer** : LAM GEOTECHNICS LIMITED  
**Address** : 11/F., CENTRE POINT, 181-185 GLOUCESTER ROAD, WAN CHAI, HONG KONG

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**Calibration Job No.** : HK1610020  
**Test Item No.** : HK1610020-01  
**Test Item Details**  
**Test Item Description** : Multifunctional Meter  
**Manufacturer** : YSI  
**Model No.** : Professional Plus  
**Serial No.** : 11F100420  
**Performance Method** : Checked according to in-house method CAL005  
 (References: Temperature (Section 6 of International Accreditation New Zealand Technical Guide No. 3 Second edition March 2008: Working Thermometer Calibration Procedure), pH value (APHA 21e 4500H:B), Salinity (Refer to Conductivity APHA 19e 2510B ) , Dissolved oxygen (APHA 19e 4500-O,C))  
  
**Test Item Receipt Date** : 14-Jan-16  
**Test Item Calibration Date** : 15-Jan-16

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- Notes :
1. This report shall not be reproduced, except in full, without prior approval from Pilot Testing Limited.
  2. Results relate to item(s) as received.
  3.  $\pm$  indicates the tolerance limit
  4. N/A = Not applicable
  5. APHA - American Public Health Association, American Water Works Association and Water Environment Federation, Standard Methods for the Examination of Water and Wastewater, APHA-AWWA-WEF. USA
  6. DO, pH, salinity and temperature performance check was conducted by Pilot Testing Limited.
  7. Because of high sensitivity and ease of measurement, the conductivity method (according to APHA 19e 2510) is used to determine salinity.

Approved Signatory :

Ms. Wong Po Yan, Pauline  
(Testing Engineer)

Issue Date:

21/01/2016


**REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION**

**WORK ORDER:** HK1610020  
**DATE OF ISSUE:** 21/01/2016  
**CLIENT:** LAM GEOTECHNICS LIMITED

<b>Equipment Type</b>	Multifunctional Meter
<b>Manufacturer</b>	YSI
<b>Model No.</b>	Professional Plus
<b>Serial No.</b>	11F100420
<b>Date of Calibration</b>	15-Jan-16
<b>Date of next Calibration</b>	15-Apr-16

**Parameters:**

**Temperature (Method Ref: Section 6 of International Accreditation New Zealand Technical Guide No.3 Second edition March 2008: Working Thermometer Calibration Procedure)**

Reference Reading (°C)	Display Reading (°C)	Deviation (°C)
10.1	10.4	+0.3
19.8	20.3	+0.5
30.4	30.9	+0.5
Tolerance Limit		±2.0

**pH Value (Method Ref: APHA21e, 4500H:B)**

Expected Reading (pH unit)	Reference Reading (pH unit)	Display Reading (pH unit)	Deviation (pH unit)
4.0	3.97	4.02	+0.05
7.0	7.15	7.08	-0.07
10.0	10.06	9.98	-0.08
Tolerance Limit			±0.20

**Conductivity (Method Ref: APHA 19e, 2510)**

KCl concentration (mol/L)	Reference Reading (ms/cm)	Display Reading (ms/cm)	Deviation (%)
0.0000	0.00	0.00	--
0.1000	12.89	12.74	-1.16
0.2000	24.80	24.42	-1.53
0.5000	58.67	58.94	+0.46
Tolerance Limit			±2.0

**Dissolved Oxygen (DO) (Method Ref: APHA 19e, 4500-O, C)**

Reference DO reading (mg/L)	DO reading od DO probe (mg/L)	Deviation (mg/L)
8.43	8.51	+0.08
4.44	4.38	-0.06
2.13	2.02	-0.11
Tolerance Limit		±0.20

- Remarks:
- (1) Maximum tolerance and calibration frequency stated in the report, unless otherwise stated, the internal acceptance criteria of Pilot Testing Limited will be followed.
  - (2) Displayed reading presents the figures shown on item under calibration/checking regardless of equipment precision or significant figures.
  - (3) Because of high sensitivity and ease of measurement, the conductivity method (according to APHA 19e 2510) is used to determine salinity.

- End of Report -



## CERTIFICATE OF CALIBRATION

Certificate No.: 15CA1203 04-01 Page 1 of 2

### Item tested

Description:	Sound Level Meter (Type 1)	Microphone
Manufacturer:	B & K	B & K
Type/Model No.:	2236	4188
Serial/Equipment No.:	2100736	2288941
Adaptors used:	-	-

### Item submitted by

Customer Name: Lam Geotechnics Limited  
Address of Customer: -  
Request No.: -  
Date of receipt: 03-Dec-2015

Date of test: 04-Dec-2015

### Reference equipment used in the calibration

Description:	Model:	Serial No.	Expiry Date:	Traceable to:
Multi function sound calibrator	B&K 4226	2288444	19-Jun-2016	CIGISMEC
Signal generator	DS 360	33873	16-Apr-2016	CEPREI
Signal generator	DS 360	61227	16-Apr-2016	CEPREI

### Ambient conditions

Temperature:  $22 \pm 1$  °C  
Relative humidity:  $50 \pm 10$  %  
Air pressure:  $1010 \pm 10$  hPa

### Test specifications

- The Sound Level Meter has been calibrated in accordance with the requirements as specified in BS 7580: Part 1: 1997 and the lab calibration procedure SMTP004-CA-152.
- The electrical tests were performed using an electrical signal substituted for the microphone which was removed and replaced by an equivalent capacitance within a tolerance of  $\pm 20\%$ .
- The acoustic calibration was performed using an B&K 4226 sound calibrator and corrections was applied for the difference between the free-field and pressure responses of the Sound Level Meter.

### Test results

This is to certify that the Sound Level Meter conforms to BS 7580: Part 1: 1997 for the conditions under which the test was performed.

Details of the performed measurements are presented on page 2 of this certificate.

Actual Measurement data are documented on worksheets.

Approved Signatory:

  
Huang Jian Min/Feng Jun Qi

Date: 05-Dec-2015

Company Chop:



Comments: The results reported in this certificate refer to the condition of the instrument on the date of calibration and carry no implication regarding the long-term stability of the instrument.





## CERTIFICATE OF CALIBRATION

(Continuation Page)

Certificate No.: 15CA1203 04-01 Page 2 of 2

### 1. Electrical Tests

The electrical tests were performed using an equivalent capacitance substituted for the microphone. The results are given in below with test status and the estimated uncertainties. The "Pass" means the result of the test is inside the tolerances stated in the test specifications. The "-" means the result of test is outside these tolerances.

Test:	Subtest:	Status:	Expanded Uncertainty (dB)	Coverage Factor
Self-generated noise	A	Pass	0.3	2.1
	C	Pass	1.0	
	Lin	Pass	2.0	
Linearity range for Leq	At reference range , Step 5 dB at 4 kHz	Pass	0.3	2.2
	Reference SPL on all other ranges	Pass	0.3	
	2 dB below upper limit of each range	Pass	0.3	
	2 dB above lower limit of each range	Pass	0.3	
Linearity range for SPL	At reference range , Step 5 dB at 4 kHz	Pass	0.3	
	A	Pass	0.3	
	C	Pass	0.3	
Frequency weightings	Lin	Pass	0.3	
	Single Burst Fast	Pass	0.3	
	Single Burst Slow	Pass	0.3	
Peak response	Single 100µs rectangular pulse	Pass	0.3	
	R.M.S. accuracy	Pass	0.3	
Time weighting I	Single burst 5 ms at 2000 Hz	Pass	0.3	
	Repeated at frequency of 100 Hz	Pass	0.3	
Time averaging	1 ms burst duty factor 1/10 <sup>3</sup> at 4kHz	Pass	0.3	
	1 ms burst duty factor 1/10 <sup>4</sup> at 4kHz	Pass	0.3	
Pulse range	Single burst 10 ms at 4 kHz	Pass	0.4	
Sound exposure level	Single burst 10 ms at 4 kHz	Pass	0.4	
Overload indication	SPL	Pass	0.3	
	Leq	Pass	0.4	

### 2. Acoustic tests


The complete sound level meter was calibrated on the reference range using a B&K 4226 acoustic calibrator with 1000Hz and SPL 94 dB. The sensitivity of the sound level meter was adjusted. The test result at 125 Hz and 8000 Hz are given in below with test status and the estimated uncertainties.


Test:	Subtest	Status	Expanded Uncertainty (dB)	Coverage Factor
Acoustic response	Weighting A at 125 Hz	Pass	0.3	
	Weighting A at 8000 Hz	Pass	0.5	

### 3. Response to associated sound calibrator

N/A

The expanded uncertainties have been calculated in accordance with the ISO Publication "Guide to the expression of uncertainty in measurement", and gives an interval estimated to have a level of confidence of 95%. A coverage factor of 2 is assumed unless explicitly stated.

Calibrated by:  - End -  
Date: 04-Dec-2015

Checked by:   
Date: 05-Dec-2015

The standard(s) and equipment used in the calibration are traceable to national or international recognised standards and are calibrated on a schedule to maintain the required accuracy level.



## CERTIFICATE OF CALIBRATION

Certificate No.: 15CA0528 04-03

Page: 1 of 2

### Item tested

Description: Acoustical Calibrator (Class 1)  
Manufacturer: Rion Co., Ltd.  
Type/Model No.: NC-73  
Serial/Equipment No.: 10465798  
Adaptors used: -

### Item submitted by

Customer: Lam Geotechnics Ltd.  
Address of Customer: -  
Request No.: -  
Date of receipt: 28-May-2015

Date of test: 30-May-2015

### Reference equipment used in the calibration

Description:	Model:	Serial No.	Expiry Date:	Traceable to:
Lab standard microphone	B&K 4180	2341427	15-Apr-2016	SCL
Preamplifier	B&K 2673	2239857	22-Apr-2016	CEPREI
Measuring amplifier	B&K 2610	2346941	22-Apr-2016	CEPREI
Signal generator	DS 360	61227	16-Apr-2016	CEPREI
Digital multi-meter	34401A	US36087050	17-Apr-2016	CEPREI
Audio analyzer	8903B	GB41300350	17-Apr-2016	CEPREI
Universal counter	53132A	MY40003662	16-Apr-2016	CEPREI

### Ambient conditions

Temperature:  $21 \pm 1$  °C  
Relative humidity:  $60 \pm 10$  %  
Air pressure:  $1000 \pm 5$  hPa

### Test specifications

- The Sound Calibrator has been calibrated in accordance with the requirements as specified in IEC 60942 1997 Annex B and the lab calibration procedure SMTP004-CA-156.
- The calibrator was tested with its axis vertical facing downwards at the specific frequency using insert voltage technique.
- The results are rounded to the nearest 0.01 dB and 0.1 Hz and have not been corrected for variations from a reference pressure of 1013.25 hectoPascals as the maker's information indicates that the instrument is insensitive to pressure changes.

### Test results

This is to certify that the sound calibrator conforms to the requirements of annex B of IEC 60942: 1997 for the conditions under which the test was performed. This does not imply that the sound calibrator meets IEC 60942 under any other conditions.

Details of the performed measurements are presented on page 2 of this certificate.

Approved Signatory:

  
Huang Jian Min/Feng Jun Qi

Date: 01-Jun-2015

Company Chop:



Comments: The results reported in this certificate refer to the condition of the instrument on the date of calibration and carry no implication regarding the long-term stability of the instrument.









TISCH ENVIRONMENTAL, INC.  
 145 SOUTH MIAMI AVE  
 VILLAGE OF CLEVELAND, OH  
 45002  
 513.467.9000  
 877.263.7610 TOLL FREE  
 513.467.9009 FAX

ORIFICE TRANSFER STANDARD CERTIFICATION WORKSHEET TE-5025A

Date - Jun 30, 2015 Rootsmeter S/N 0438320 Ta (K) - 296  
 Operator Tisch Orifice I.D. - 0005 Pa (mm) - 749.3

PLATE OR Run #	VOLUME START (m3)	VOLUME STOP (m3)	DIFF VOLUME (m3)	DIFF TIME (min)	METER	ORFICE
					DIFF Hg (mm)	DIFF H2O (in.)
1	NA	NA	1.00	1.3930	3.2	2.00
2	NA	NA	1.00	0.9800	6.4	4.00
3	NA	NA	1.00	0.8790	7.9	5.00
4	NA	NA	1.00	0.8350	8.7	5.50
5	NA	NA	1.00	0.6900	12.7	8.00

DATA TABULATION

Vstd	(x axis) Qstd	(y axis)	Va	(x axis) Qa	(y axis)
0.9883	0.7095	1.4090	0.9957	0.7148	0.8889
0.9841	1.0042	1.9926	0.9915	1.0117	1.2570
0.9820	1.1172	2.2278	0.9894	1.1256	1.4054
0.9810	1.1749	2.3365	0.9884	1.1837	1.4740
0.9757	1.4141	2.8179	0.9830	1.4247	1.7777
Qstd slope (m) = 2.00072			Qa slope (m) = 1.25282		
intercept (b) = -0.01209			intercept (b) = -0.00763		
coefficient (r) = 0.99995			coefficient (r) = 0.99995		
y axis = SQRT[H2O(Pa/760) (298/Ta)]			y axis = SQRT[H2O(Ta/Pa)]		

CALCULATIONS

Vstd = Diff. Vol [(Pa-Diff. Hg)/760] (298/Ta)  
 Qstd = Vstd/Time

Va = Diff Vol [(Pa-Diff Hg)/Pa]  
 Qa = Va/Time

For subsequent flow rate calculations:

Qstd = 1/m { [SQRT(H2O(Pa/760) (298/Ta))] - b }  
 Qa = 1/m { [SQRT H2O(Ta/Pa)] - b }



Lam Geotechnics Limited

**Calibration Data for High Volume Sampler (TSP Sampler)**

Location : CMA1b Calibration Date : 30-Nov-15  
 Equipment no. : EL452 Calibration Due Date : 30-Jan-16

**CALIBRATION OF CONTINUOUS FLOW RECORDER**

Ambient Condition			
Temperature, T <sub>a</sub>	295	Kelvin	Pressure, P <sub>a</sub>
			1019 mmHg

Orifice Transfer Standard Information					
Equipment No.	EL086	Slope, m <sub>c</sub>	2.00072	Intercept, b <sub>c</sub>	-0.01209
Last Calibration Date	30-Jun-15	$(H \times P_a / 1013.3 \times 298 / T_a)^{1/2}$ $= m_c \times Q_{std} + b_c$			
Next Calibration Date	30-Jun-16				

Calibration of TSP						
Calibration Point	Manometer Reading			Q <sub>std</sub> (m <sup>3</sup> / min.) X-axis	Continuous Flow Recorder, W (CFM)	IC (W(P <sub>a</sub> /1013.3x298/T <sub>a</sub> ) <sup>1/2</sup> /35.31) Y-axis
	(up)	(down)	(difference)			
1	6.1	6.1	12.2	1.7656	58	58.4579
2	4.8	4.8	9.6	1.5669	52	52.4105
3	3.7	3.7	7.4	1.3764	44	44.3474
4	2.4	2.4	4.8	1.1097	36	36.2842
5	1.5	1.5	3.0	0.8786	24	24.1895

By Linear Regression of Y on X

Slope, m = 37.9882 Intercept, b = -7.7457  
 Correlation Coefficient\* = 0.9953  
 Calibration Accepted = Yes/No\*\*

\* if Correlation Coefficient &lt; 0.990, check and recalibration again.

\*\* Delete as appropriate.

Remarks : \_\_\_\_\_

Calibrated by : Kit Au Checked by : Derek Lo  
 Date : 30-Nov-15 Date : 30-Nov-15









Lam Geotechnics Limited

**Calibration Data for High Volume Sampler (TSP Sampler)**

Location : CMA4a  
 Equipment no. : EL390

Calibration Date : 30-Nov-15  
 Calibration Due Date : 30-Jan-16

**CALIBRATION OF CONTINUOUS FLOW RECORDER**

Ambient Condition			
Temperature, T <sub>a</sub>	295	Kelvin	Pressure, P <sub>a</sub>
			1019 mmHg

Orifice Transfer Standard Information					
Equipment No.	EL086	Slope, m <sub>c</sub>	2.00072	Intercept, b <sub>c</sub>	-0.01209
Last Calibration Date	30-Jun-15	$\left( \frac{H \times P_a}{1013.3 \times 298 / T_a} \right)^{1/2}$ $= m_c \times Q_{std} + b_c$			
Next Calibration Date	30-Jun-16				

Calibration of TSP						
Calibration Point	Manometer Reading H (inches of water)			Q <sub>std</sub> (m <sup>3</sup> / min.) X-axis	Continuous Flow Recorder, W (CFM)	IC (W(P <sub>a</sub> /1013.3x298/T <sub>a</sub> ) <sup>1/2</sup> /35.31) Y-axis
	(up)	(down)	(difference)			
1	6.4	6.4	12.8	1.8084	58	58.4579
2	5.1	5.1	10.2	1.6149	52	52.4105
3	3.9	3.9	7.8	1.4130	46	46.3632
4	2.6	2.6	5.2	1.1548	34	34.2684
5	1.6	1.6	3.2	0.9072	24	24.1895

By Linear Regression of Y on X

Slope, m = 38.5259      Intercept, b = -10.0149  
 Correlation Coefficient\* = 0.9962  
 Calibration Accepted = Yes/No\*\*

\* if Correlation Coefficient &lt; 0.990, check and recalibration again.

\*\* Delete as appropriate.

Remarks : \_\_\_\_\_  
 \_\_\_\_\_

Calibrated by : Kit Au  
 Date : 30-Nov-15

Checked by : Derek Lo  
 Date : 30-Nov-15



Lam Geotechnics Limited

**Calibration Data for High Volume Sampler (TSP Sampler)**

Location : CMA5b Calibration Date : 30-Nov-15  
 Equipment no. : EL222 Calibration Due Date : 30-Jan-16

**CALIBRATION OF CONTINUOUS FLOW RECORDER**

Ambient Condition			
Temperature, T <sub>a</sub>	295	Kelvin	Pressure, P <sub>a</sub>
			1019 mmHg

Orifice Transfer Standard Information					
Equipment No.	EL086	Slope, m <sub>c</sub>	2.00072	Intercept, b <sub>c</sub>	-0.01209
Last Calibration Date	30-Jun-15	$(H \times P_a / 1013.3 \times 298 / T_a)^{1/2}$ $= m_c \times Q_{std} + b_c$			
Next Calibration Date	30-Jun-16				

Calibration of TSP						
Calibration Point	Manometer Reading			Q <sub>std</sub> (m <sup>3</sup> / min.) X-axis	Continuous Flow Recorder, W (CFM)	IC (W(P <sub>a</sub> /1013.3x298/T <sub>a</sub> ) <sup>1/2</sup> /35.31) Y-axis
	(up)	(down)	(difference)			
1	5.2	5.2	10.4	1.6306	62	62.4895
2	4.3	4.3	8.6	1.4834	58	58.4579
3	3.3	3.3	6.6	1.3002	53	53.4184
4	2.0	2.0	4.0	1.0136	46	46.3632
5	1.3	1.3	2.6	0.8183	38	38.3000

By Linear Regression of Y on X						
Slope, m	=	28.8602	Intercept, b	=	15.7526	
Correlation Coefficient*	=	0.9958				
Calibration Accepted	=	Yes/No**				

\* if Correlation Coefficient &lt; 0.990, check and recalibration again.

\*\* Delete as appropriate.

Remarks : \_\_\_\_\_

Calibrated by : Kit Au Checked by : Derek Lo  
 Date : 30-Nov-15 Date : 30-Nov-15





Lam Geotechnics Limited

**Calibration Data for High Volume Sampler (TSP Sampler)**

Location : CMA6a Calibration Date : 30-Nov-15  
 Equipment no. : EL448 Calibration Due Date : 30-Jan-16

**CALIBRATION OF CONTINUOUS FLOW RECORDER**

Ambient Condition			
Temperature, T <sub>a</sub>	295	Kelvin	Pressure, P <sub>a</sub>
			1019 mmHg

Orifice Transfer Standard Information					
Equipment No.	EL086	Slope, m <sub>c</sub>	2.00072	Intercept, b <sub>c</sub>	-0.01209
Last Calibration Date	30-Jun-15	$\left( \frac{H \times P_a}{1013.3 \times 298 / T_a} \right)^{1/2}$ $= m_c \times Q_{std} + b_c$			
Next Calibration Date	30-Jun-16				

Calibration of TSP						
Calibration Point	Manometer Reading			Q <sub>std</sub> (m <sup>3</sup> / min.) X-axis	Continuous Flow Recorder, W (CFM)	IC (W(P <sub>a</sub> /1013.3x298/T <sub>a</sub> ) <sup>1/2</sup> /35.31) Y-axis
	(up)	(down)	(difference)			
1	6.6	6.6	13.2	1.8363	60	60.4737
2	5.3	5.3	10.6	1.6462	54	54.4263
3	4.5	4.5	9.0	1.5173	50	50.3947
4	2.6	2.6	5.2	1.1548	40	40.3158
5	1.5	1.5	3.0	0.8786	30	30.2368

By Linear Regression of Y on X

Slope, m = 30.9785 Intercept, b = 3.5936  
 Correlation Coefficient\* = 0.9989  
 Calibration Accepted = Yes/No\*\*

\* if Correlation Coefficient &lt; 0.990, check and recalibration again.

\*\* Delete as appropriate.

Remarks : \_\_\_\_\_

Calibrated by : Kit Au Checked by : Derek Lo  
 Date : 30-Nov-15 Date : 30-Nov-15