Appendix F

Sediment Quality Report (June 2007)

Halcrow China Limited

Sub-consultant - Environmental Resources Management

AGREEMENT NO. CE 59/2005 (EP) Development of a Bathing Beach at Lung Mei, Tai Po Environmental, Drainage and Traffic Impact Assessments - Investigation Sediment Quality Report

June 2007

The Government of Hong Kong Special Administrative Region Civil Engineering and Development Department Port Works Division

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Halcrow China Limited

AGREEMENT NO. CE 59/2005 (EP) Development of a Bathing Beach at Lung Mei, Tai Po Environmental, Drainage and Traffic Impact Assessments - Investigation Sediment Quality Report

June 2007

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- Appendix A Final Report on Chemical Analysis of the Collected Sediments
- Appendix B Records of Vibrocores
- Appendix C Record of Sediment Sampling & Collection under ETWB TC(W) No. 34/2002

Appendix D Final Report on Biological Testing and Chemical Ancillary

1.0 INTRODUCTION

- 1.1 This Project is a designated project and an Environmental Impact Assessment is required under the Environmental Impact Assessment Ordinance. Port Works Division (PWD) of Civil Engineering and Development Department (CEDD) is the project vote controller and the scope of the project comprises:
 - a. a 200m long beach with a groyne at each end of the beach;
 - b. a beach building with associated beach facilities;
 - c. retaining structures;
 - d. refuse collection point;
 - e. a fee-paying public car park;
 - f. landscaped areas;
 - g. drainage diversion of an existing box culvert and Lo Tsz River into the proposed eastern box culvert and western drainage channel respectively; and
 - h. sewerage construction works.

CEDD is responsible for the overall planning, design and civil engineering construction of the Project, whereas Architectural Services Department is responsible for the design and construction of the beach building, car park and landscaping works. On 26 May 2006, CEDD appointed Halcrow China Limited (HCL), under Agreement No. CE 59/2005 (EP), to provide professional services in respect of "Development of a Bathing Beach at Lung Mei, Tai Po – Environmental, Drainage and Traffic Impact Assessments – Investigation" (hereafter called "the Assignment"). HCL has appointed their sub-consultant, Environmental Resources Management (ERM) to provide the environmental services in respect of the Assignment.

- 1.2 A proposal of sediment sampling and chemical testing was submitted to EPD for agreement in accordance with ETWB TC(W) No. 34/2002. EPD's agreement was given vide their memo (ref. (38) in EP2/N5/C/46) dated 25 September 2006. Sampling locations at the site are shown on Figure 1.
- 1.3 Sediment sampling and chemical testing were undertaken using GEO's term contracts under Contract No. GE/2005/28 for marine drilling (Works Order No. GE/2005/28.10), and Contract No. GE/2005/47 for chemical and biological testing (Works Order No. GE/2005/47.22). The sampling works and testing works for sediments had been completed and a summary of chemical testing results of the collected samples are summarised in Table 1. The laboratory report on heavy metals, PAHs (Low and High Molecular Weight), PCB and TBT analyses of the collected samples are attached in Appendix A.

2.0 TESTING LABORATORY

- 2.1 Lam Laboratories Ltd. was responsible for the chemical and biological testing of the collected sediment samples that were carried out under GEO's term contract GE/2005/47. They are accredited by HOKLAS for all the heavy metal, metalloid, PAH and PCB tests.
- 2.2 The chemical analysis was carried out using Lam Laboratories Ltd. in-house analytical methods which are based on the standard methods specified in ETWB TC(W) No. 34/2002. The results of the chemical analysis together with all QA/QC data, considered to be acceptable, are attached in Appendix A.

3.0 RESULTS OF THE CHEMICAL ANALYSIS OF SEDIMENT SAMPLES

3.1 The sampling locations are shown on Figure 1. The collected samples are to represent the quality of the dredging materials for construction of the proposed bathing beach, groynes and seawall. The proposed dredging extent within the Project site is also shown on Figures 2 and 3.

Vertical profile of sediments to be dredged was collected using a vibrocore device, and the vibrocore samples were collected to the required dredging depth of 3 m or until when further drilling was not possible, whichever was the shallowest. The vibrocore samples were cut on site at the proposed sampling depths in the existing seabed surface at -0.9 m, -1.9 m and -2.9 m. The sediment samples for further biological testing were also concurrently collected. In addition, a reference sediment sample was also collected at the Port Shelter of the EPD routine sediment monitoring station PS6 (Hong Kong Metric coordinates; 850234E, 820057N). It was found that all vibrocores collected were of depth less than 3m due to thin layer of marine deposit in the area. In addition, it should be noted that for virbocores SS1 and SS2, depths of 0.0m-0.2m and 0.0m-0.5m respectively, could not be recovered for testing due to its sandy material content. The relevant vibrocore records of sediment sampling are shown in Appendix B.

3.2 A total of twenty-one test sediment samples (including the reference sample) were delivered to the laboratory during the period from 12 to 18 October 2006, and the chemical tests were carried out from 14 October to 9 November 2006. Record of Sediment Sampling & Collection prepared according to ETWB TC(W) No. 34/2002 is attached in Appendix C.

The Lower Chemical Exceedance Levels (LCEL) and Upper Chemical Exceedance Levels (UCEL) specified in ETWB TC(W) No. 34/2002 are presented in Table 2 and the criteria for the classification of marine sediment are presented in Table 3. The results of the heavy metal analysis together with PAH and PCB and sediment classification are shown in Table 1. According to Table 1, thirteen (13) samples are Category L (including the reference sample), no sample of Category H and eight (8) samples are Category M among the twenty-one (21) sub-samples.

3.3 The quality control data presented in the "Final Report on Chemical analysis", attached in Appendix A, submitted by Lam Laboratories Ltd., consist of duplicate sample analysis, method spikes, sample reference material and method blanks. All the quality control data lay within acceptable ranges and the data were considered to be acceptable.

4.0 BIOLOGICAL TESTING PROPOSAL

4.1 According to ETWB TC(W) No. 34/2002, Category L material can be disposed of in a manner which minimizes the loss of contaminants either into solution or by resuspension. Category H materials that have any one or more contaminants at concentrations in excess of the UCEL will be dredged and transported with great care and must be effectively isolated from the environment upon final disposal. Category M material, however, must be dredged and transported with care, and must be effectively isolated from the environment upon final disposal unless appropriate biological tests demonstrate that the material will not adversely affect the marine environment. According to the sediment classification results shown in Table 1, eight (8) Category M samples require biological testing in order to allow an appropriate decision to be made on the ultimate disposal options.

The biological testing proposal was accepted by EPD vide their memo ref (7) in EP 60/G1/12-460 dated 29 November 2006, and the biological tests were carried out as described below.

4.2 The sediment samples requiring biological testing included three composite samples from the vertical profile of SS1 (composite sample CS1), vertical profile of SS2 (composite sample CS2) and the horizontal profile of SS4, SS7 and SS8 (composite sample CS3), and their mixing details are as follows:

Composite Sample No	Vibrocores	Depth
CS1	SS1	$\begin{array}{c} 0.2m - 0.9m \\ 0.9m - 1.2m \end{array}$
CS2	SS2	0.5m - 0.9m 0.9m - 1.9m 1.9m - 2.5m
CS3	SS4 SS7 SS8	$\begin{array}{c} 0.9m-1.3m~(\rm{SS4})\\ 0.9m-1.3m~(\rm{SS7})\\ 0.9m-1.7m~(\rm{SS8}) \end{array}$

Moreover, reference sediments (Control) collected were used to act as the 'Control' of the tests. The tests were conducted by Lam Laboratories Ltd., who is accredited by HOKLAS for all three of the required biological tests. In addition to the composite test sediments and the reference sediment, both positive and negative controls will be tested as part of the quality assurance and quality control programme.

5.0 RESULTS OF THE BIOLOGICAL TESTING OF SEDIMENTS SAMPLES

The biological tests were carried out in accordance with the requirements specified in the ETWB TC(W) No. 34/2002. The species used in the tests are listed in the table below. Details regarding the test and test species are presented in Appendix D (Laboratory Report for Biological Testing and Ancillary Analysis).

Test Type	Species	Reference Test Conditions
10-day burrowing amphipod toxicity test	Leptocheirus plumulosus	U.S. EPA (1994) ¹
20-day burrowing polychaete toxicity test	Neanthes arenaceodentata	PSEP (1995) ²
48-96 hour larvae (bivalve or echinoderm) toxicity test	Crassostrea gigas	PSEP (1995) ²

Test Species and Methods to be used in Biological Screening

Notes:

- 1 U.S. EPA (U.S. Environmental Protection Agency) 1994. Methods for assessing the toxicity of sediment associated contaminants with estuarine and marine amphipods. Office of Research and Development. U.S. Environmental Protection Agency, Cincinnati, OH. EPA/600/R94/025.
- 2 PSEP (Puget Sound Estuary Program) 1995. Recommended Guidelines for Conducting Laboratory Bioassays on Puget Sound Sediments.

Before commencing the biological tests, the samples were tested for the ancillary parameters consisting of salinity and ammonia concentrations in the porewater, Total Organic Carbon, moisture content and grain size. The test results are presented in Appendix D.

The test endpoints for the Project followed the requirements defined in the ETWB TC(W) No. 34/2002 and are reproduced in the Table below.

Toxicity Test	Endpoints Measured	Failure Criteria
10-day amphipod	Survival	Mean survival in test sediment is significantly different $(p \le 0.05)^1$ from mean survival in reference sediment and mean survival in test sediment < 80% of mean survival in reference sediment
20-day polychaete	Dry Weight ²	Mean dry weight in test sediment is significantly different $(p \le 0.05)$ from mean dry weight in reference sediment and mean dry weight in test sediment < 90% of mean dry weight in reference sediment
48-96-hour larvae (bivalve or echinoderm)	Normality Survival ³	Mean normality survival in test sediment is significantly different ($p \le 0.05$) from mean normality survival in reference sediment and mean normality survival in test sediment < 80% of mean normality survival in reference sediment

Test Endpoints and Decision Criteria for Tier III	Biological Screening
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Notes:

1 Statistically significant differences should be determined using appropriate two-sample comparisons (e.g. t-tests) at a probability of $p \leq 0.05$.

2 Dry weight means total dry weight after deducing dead and missing worms.

3 Normality survival integrates the normality and survival endpoints and measures survival of only larvae relative to the starting number.

The biological tests of amphipod, polychaete and bivalve larvae were carried out from 6-16 December, 7-27 December 2006 and 27-29 November 2006 respectively. The results of the biological tests are presented in Appendix D. The laboratory test report also included the water quality data collected as part of the test protocols. It can be seen that all parameters laid within acceptable ranges for all tests carried out. The biological tests were carried out within the eight-week holding time allowed under the ETWB TC(W) No. 34/2002, and the tests were all considered to be valid. The results of the tests are summarized below:

10-Day Amphipod Test	Sediment samples ^{#1} complied with the test
20-Day Polychaete Test	Sediment samples ^{#2} failed the test
48-96-Hour Bivalve Larvae Test	Sediment samples ^{#3} complied with the test

Notes:

#1 All samples complied with the requirements stipulated in the ETWB TC(W) No. 34/2002;
#2 CS1 sample could not comply with the requirements stipulated in the ETWB TC(W) No. 34/2002;
#3 All samples complied with the requirements stipulated in the ETWB TC(W) No. 34/2002

According to the ETWB TC(W) No. 34/2002, the sediment is deemed to have failed the biological test if it fails in any one of the three toxicity tests. Due to the failure on the 20-Day Polychaete Test, the sediment to be dredged represented by sample collected at location SS1 (shown on Figures 2 and 3) must be dredged and transported with great care for Type 2 – Confined Marine Disposal to the mud pits at East Sha Chau.

From the latest study review, the required dredging depth will generally vary from 0.5m to 1m, and will not be greater than previously estimated depth of 3m. The total estimated dredging volume is around $10,500m^3$ to cover the proposed bathing beach and groynes areas.

6.0 SUMMARY OF TEST RESULTS AND DISPOSAL REQUIREMENT

The disposal criteria for the sediment that will be dredged within the project site are determined in accordance with the ETWB TC(W) No. 34/2002. Therefore, based on the chemical and biological test results, the sediment category, their estimated dredging depths and volumes, and the relevant supporting GI stations are summarised below. In addition, the GI location plan, the proposed dredging extent and the disposal proposal are presented on Figures 2 and 3.

Sediment	Disposal Requirement		ng GI Stations mple Depth	Estimated Dredging	Estimated Dredging	
Characteristics		Station No.	Depth	Depth	Volume (m ³)	
		SS3	0m – 0.9m			
		SS3	0.9m – 1.9m			
			SS3	1.9m – 2.8m	Auguarimeta	
		SS4	0m - 0.9m	Approximate 0.5m		
		SS5	0m – 0.9m			
	Туре 1	SS6	0m – 0.9m			
Category L	– Open Sea	SS6	0.9m – 1.6m		6,380	
	Disposal	SS7	0m – 0.9m	Generally vary from 0.5 to 1m		
		SS8	0m – 0.9m	and not greater than 3m		
		SS9	0m - 0.9m			
		SS9	0.9m - 1.9m	Approximate 0.5m		
		SS9	1.9m – 2.1m			
		SS2	0.5m – 0.9m	Generally vary		
e e e e e e e e e e e e e e e e e e e		SS2	0.9m – 1.9m	from 0.5 to 1m and not greater		
Cotogory Mand	Type 1	SS2	1.9m – 2.5m	than 3 m		
Category M and passed biological tests	 – Open Sea Disposal (Dedicated 	SS4	0.9m 1.3m	Approximate 0.5m	2,620	
U	Sites)	SS7	0.9m – 1.3m	Generally vary		
		SS8	0.9m – 1.7m	from 0.5 to 1m and not greater than 3m		
	Type 2 -	SS1	0.2m - 0.9m			
Category M and failed biological test	Confined Marine Disposal (i.e East Sha Chau mud pits at present)	SS1	0.9m – 1.2m	Generally vary from 0.5 to 1m and not greater than 3m	1,500	
<u> </u>	<u></u>	1 <u></u>		Total	10,500	

Tables



SUMMARY REPORT Project Name : CEDD Contract No. GE/2005/47Chemical and Biological Agreement No. CE 59/2005(EP): Development of a Bathing Beach at Lung Mei, Tai Po Environmental, Drainage and Traffic Impact Assessments - Investigation Chemical, Elutriate and Biological Testing of Marine Sediment and Water

Service Order No. : GE/2005/47.22 Geotechnical Projects Division, Geotechnical Customer : Engineering, Civil Engineering and Development

Lab. Job No. : J469

Matrix : Sediment

Table 1 : Summary of Chemical Testing Results

Laboratory		Sample Refer	rence			н	eavy Met	als						P	AHs (Lov	w Molecu	ular Weigl	ht)	PAHs (High Molecular Weight)												
Sample ID	Drillhole	Depth (m)	Sediment Category	Cadmium (Cd)	Chromium (Cr)	Copper (Cu)	Nickel (Ni)	Lead (Pb)	Zinc (Zn)	Mercury (Hg)	Arsenic (As)	Silver (Ag)	Naphthalen e	Acenaphtyle ne	Acenaphten e	Fluorene	Phenanthre	Anthracene	Total LMW PAH	Benzo(a)ant hracene	Benzo(a)pyr ene	Chrysene	Dibenz(ah)a nthracene	Fluoranthen	Pyrene	Benzo(b)flu oranthene	Benzo(k)flu oranthene	Indeno(1,2, 3-cd)pyrene		Total HMW PAH	
	No.	From To		mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	
			Report Limit	t 0.20	8.0	7.0	4.0	8.0	20	0.05	1.0	0.10	55	55	55	55	55	55	55	170	170	170	170	170	170	170	170	170	170	170	
18223/2	SS3	grab sample																													
18232/2	SS6	grab sample																													
18232/3	SS6	0.0-0.9m	Category L	<0.20	<8.0	<7.0	<4.0	8.5	<20	0.10	3.3	<0.10	<55	<55	<55	<55	<55	<55	<55	<170	<170	<170	<170	<170	<170	<170	<170	<170	<170	<170	
18232/4	SS6	0.9-1.6m	Category L	<0.20	<8.0	<7.0	<4.0	<8.0	<20	0.06	4.2	<0.10	<55	<55	<55	<55	<55	<55	<55	<170	<170	<170	<170	<170	<170	<170	<170	<170	<170	<170	
18232/6	SS9	grab sample																													
18232/7	SS3	0.0-0.9m	Category L	<0.20	<8.0	<7.0	<4.0	13	<20	0.07	5.8	<0.10	<55	<55	<55	<55	<55	<55	<55	<170	<170	<170	<170	<170	<170	<170	<170	<170	<170	<170	
18232/8	SS3	0.9-1.9m	Category L	<0.20	<8.0	<7.0	<4.0	11	<20	0.05	5.0	<0.10	<55	<55	<55	<55	<55	<55	<55	<170	<170	<170	<170	<170	<170	<170	<170	<170	<170	<170	
18232/9	SS3⁺	1.9-2.8m	Category L	<0.20	<8.0	<7.0	<4.0	20	<20	0.06	12	<0.10	<55	<55	<55	<55	<55	<55	<55	<170	<170	<170	<170	<170	<170	<170	<170	<170	<170	<170	
18236/2	SS8	grab sample																													
18236/3	SS8	0.0-0.9m	Category L	<0.20	<8.0	<7.0	<4.0	12	<20	0.08	10	<0.10	<55	<55	<55	<55	<55	<55	<55	<170	<170	<170	<170	<170	<170	<170	<170	<170	<170	<170	
18236/4	SS8	0.9-1.7m	Category M and passed Biological Tests*	<0.20	<8.0	<7.0	<4.0	8.8	<20	0.07	16	<0.10	<55	<55	<55	<55	<55	<55	<55	<170	<170	<170	<170	<170	<170	<170	<170	<170	<170	<170	
18236/5	SS9	0.0-0.9m	Category L	<0.20	<8.0	<7.0	<4.0	10	<20	0.07	4.0	<0.10	<55	<55	<55	<55	<55	<55	<55	<170	<170	<170	<170	<170	<170	<170	<170	<170	<170	<170	
18236/6	SS9	0.9-1.9m	Category L	<0.20	<8.0	<7.0	<4.0	<8.0	<20	< 0.05	2.5	<0.10	<55	<55	<55	<55	<55	<55	<55	<170	<170	<170	<170	<170	<170	<170	<170	<170	<170	250	
18236/7	SS9	1.9-2.1m	Category L	<0.20	<8.0	<7.0	<4.0	<8.0	<20	< 0.05	8.5	<0.10	<55	<55	<55	<55	<55	<55	<55	<170	<170	<170	<170	<170	<170	<170	<170	<170	<170	<170	
18249/2	SS5	grab sample	<u> </u>													-00			-00				5110	1110		110	1 110	5170	5110	\$170	
18249/3	SS5 ⁺	0.0-0.9m	Category L	<0.20	<8.0	<7.0	7.8	19	<20	< 0.05	2.5	0.12	<55	<55	<55	<55	<55	<55	<55	<170	<170	<170	<170	<170	<170	<170	<170	<170	<170	<170	
18249/5	SS7	grab sample	Calogory 2				1.0	10	-20	40.00	2.0	0.12	-00	-30	-35	~00	~55	~33	~33	\$170	\$170	<170	<170	<170	~170	<170	1 110	~170	\$170	<170	
18249/6	SS7	0.0-0.9m	Category L	<0.20	<8.0	<7.0	<4.0	<8.0	<20	<0.05	6.1	<0.10	<55	<55	<55	<55	<55	<55	<55	<170	<170	<170	<170	<170	<170	<170	<170	<170	<170	<170	
18249/7	SS7	0.9-1.3m	Category M and passed Biological Tests*	<0.20	<8.0	<7.0	<4.0	16	<20	<0.05	14	<0.10	<55	<55	<55	<55	<55	<55	<55	<170	<170	<170	<170	<170	<170	<170	<170	<170	<170	<170	
18255/2	SS2	grab sample																													
18255/3	SS2	0.5-0.9m	Category M and passed Biological Tests*	<0.20	<8.0	<7.0	<4.0	17	20	<0.05	17	<0.10	<55	<55	<55	<55	<55	<55	<55	<170	<170	<170	<170	<170	<170	<170	<170	<170	<170	<170	
18255/4	SS2	0.9-1.9m	Category M and passed Biological Tests*	<0.20	<8.0	<7.0	<4.0	18	23	<0.05	28	<0.10	<55	<55	<55	<55	<55	<55	<55	<170	<170	<170	<170	<170	<170	<170	<170	<170	<170	<170	
18255/5	SS2	1.9-2.5m	Category M and passed Biological Tests*	<0.20	<8.0	<7.0	<4.0	25	<20	<0.05	42	<0.10	<55	<55	<55	<55	<55	<55	<55	<170	<170	<170	<170	<170	<170	<170	<170	<170	<170	<170	
18255/7	SS4	grab sample																													
18255/8	SS4	0.0-0.9m	Category L	<0.20	<8.0	<7.0	<4.0	12	20	<0.05	6.9	<0.10	<55	<55	<55	<55	<55	<55	<55	<170	<170	<170	<170	<170	<170	<170	<170	<170	<170	<170	
18255/9	SS4 ⁺	0.9-1.3m	Category M and passed Biological Tests*	<0.20	<8.0	<7.0	<4.0	12	<20	<0.05	27	<0.10	<55	<55	<55	<55	<55	<55	<55	<170	<170	<170	<170	<170	<170	<170	<170	<170	<170	<170	
18273/2	SS1	grab sample																													
18273/3	SS1	0.2-0.9m	Category M and failed Biological Tests*	<0.20	<8.0	<7.0	<4.0	13	<20	<0.05	17	<0.10	<55	<55	<55	<55	<55	<55	<55	<170	<170	<170	<170	<170	<170	<170	<170	<170	<170	<170	
18273/4	SS1	0.9-1.2m	Category M and failed Biological Tests*	<0.20	<8.0	<7.0	<4.0	31	26	<0.05	24	<0.10	<55	<55	<55	<55	<55	<55	<55	<170	<170	<170	<170	<170	<170	<170	<170	<170	<170	<170	
18286/1	Reference Sample	grab sample	Category L	<0.20	28	14	19	36	72	0.1	5.5	0.22	<55	<55	<55	<55	<55	<55	<55	<170	<170	<170	<170	<170	<170	<170	<170	<170	<170	<170	

Exceedance of Sediment Criteria LCEL under ETWB TC(W) 34/2002 Remark:

* For results of biological tests, refer to Appendix D of the report.

* SS3 terminated at the depth of 2.9m; SS5 terminated at the depth of 1.0m; SS4 terminated at the depth of 1.4m. Please refer Appendix B for details of Vibrocore records.

am Laboratories

SUMMARY REPORT Project Name : CEDD Contract No. GE/2005/47Chemical and Biological Testing of Sediment (Service Contract) Agreement No. CE 59/2005(EP): Development of a Bathing Beach at Lung Mei, Tai Po Environmental, Drainage and Traffic Impact Assessments - Investigation

Chemical, Elutriate and Biological Testing of Marine Sediment and Water

Service Order No. : GE/2005/47.22 Geotechnical Projects Division, Geotechnical Customer : Engineering, Civil Engineering and Development

Lab. Job No. : J469

Matrix : Sediment

Table 1 : Summary of Chemical Testing Results

Laboratory		Sample Refer	rence										PCB									
Sample ID	Drillhole	Depth (m)	Sediment Category	PCB 8	PCB 18	PCB 28	PCB 44	PCB 52	PCB 66	PCB 77	PCB 101	PCB 105	PCB 118	PCB 126	PCB 128	PCB 138	PCB 153	PCB 169	PCB 170	PCB 180	PCB 187	Total PCB
	No.	From To		ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
40000/0	0.00		Report Limit	3	3	3	3	3	3	3	3	.3	3	3	3	3	3	3	3	3	3	3
18223/2 18232/2	SS3 SS6	grab sample								1												
18232/2	SS6	grab sample 0.0-0.9m	Category L	<3	<3	<3	-2	<3	<3	-2	<3		<3	<3	-2	<3	-2	<3	<3	<3	<3	<3
18232/3	SS6	0.9-1.6m	Category L Category L	<3	<3	<3	<3 <3	<3	<3	<3 <3	<3	<3 <3	<3	<3	<3 <3	<3	<3 <3	<3	<3	<3	<3	<3
18232/6	SS9	grab sample	Galegoly L	~3	~3	~3	~3	~3	~3	~3	~3	~3	~3	~3	~3	~3	~3	~3	~3	~3	~3	~3
18232/7	SS3	0.0-0.9m	Category L	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3
18232/8	SS3	0.9-1.9m	Category L	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3
18232/9	SS3 ⁺	1.9-2.8m	Category L	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3
18236/2	SS8	grab sample	Outegory E				-0	-0	-0	-0	-0			-0	-0	-0						
18236/3	SS8	0.0-0.9m	Category L	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3
18236/4	SS8	0.9-1.7m	Category M and passed Biological Tests*	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3
18236/5	SS9	0.0-0.9m	Category L	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3
18236/6	SS9	0.9-1.9m	Category L	<3	<3	<3	<3	<3	<3	<3	3.4	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	19
18236/7	SS9	1.9-2.1m	Category L	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3
18249/2	SS5	grab sample																				
18249/3	SS5 ⁺	0.0-0.9m	Category L	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3
18249/5	SS7	grab sample																				
18249/6	SS7	0.0-0.9m	Category L	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3
18249/7	SS7	0.9-1.3m	Category M and passed Biological Tests*	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3
18255/2	SS2	grab sample																				
18255/3	SS2	0.5-0.9m	Category M and passed Biological Tests*	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3
18255/4	SS2	0.9-1.9m	Category M and passed Biological Tests*	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3
18255/5	SS2	1.9-2.5m	Category M and passed Biological Tests*	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3
18255/7	SS4	grab sample																				
18255/8	SS4	0.0-0.9m	Category L	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3
18255/9	SS4 ⁺	0.9-1.3m	Category M and passed Biological Tests*	<3	Ş	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3
18273/2	SS1	grab sample																				
18273/3	SS1	0.2-0.9m	Category M and failed Biological Tests*	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3
18273/4	SS1	0.9-1.2m	Category M and failed Biological Tests*	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3
18286/1	Reference Sample	grab sample	Category L	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3



SUMMARY REPORT

Project Name :	CEDD Contract No. GE/2005/47Chemical and Biological
	Testing of Sediment (Service Contract)
	Agreement No. CE 59/2005(EP): Development of a
	Bathing Beach at Lung Mei, Tai Po Environmental,
	Drainage and Traffic Impact Assessments - Investigation
	Chemical, Elutriate and Biological Testing of Marine
	Sediment and Water
Service Order No. :	GE/2005/47.22

Service Order No. : GE/2005/47.22 Customer : Geotechnical Projects Division, Geotechnical Engineering, Civil Engineering and Development

Lab. Job No. : J469

Matrix : Sediment

Table 1 : Summary of Chemical Testing Results

Laboratory	*	Sample Refer	rence					C	hlorinated	Pesticides	;						PSD						Redox						
Sample ID	Drillhole	Depth (m)	Sediment Category	Alpha-BHC	Beta-BHC	Gamma- BHC	Delta-BHC	Heptachlor	Aldrin	Heptachlor epoxide	Endosulfan	p,p'-DDT	p,p'-DDD	p,p'-DDE	Endosulfan sulfate	Gravel	Sand	Silt & Clay	тос	твт	Ammonia Nitrogen	SOD5	Potential (soil)	TKN (soil)	Nitrite (soil)	Nitrate (soil)	OP (soil)	TP (soil)	COD (soil)
	No.	From To		mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	%	%	%	%	ug/L	mg/kg	mg/kg	mV	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
			Report Limit	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	NA	NA	NA	NA	0.015	1	100	NA	50	1	1	0.1	10	5000
18223/2	SS3	grab sample																											
18232/2	SS6	grab sample																											
18232/3	SS6	0.0-0.9m	Category L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	7	79	14	1.42	<0.015	<1	160	103.1	<50	<1.0	<1.0	<0.1	<10	<5000
18232/4	SS6	0.9-1.6m	Category L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	20	69	11	2.55	<0.015	<1	200	86.3	71	<1.0	<1.0	<0.1	<10	<5000
18232/6	SS9	grab sample																											
18232/7	SS3	0.0-0.9m	Category L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	8	81	11	1.79	<0.015	<1	200	63.4	110	<1.0	<1.0	<0.1	<10	6100
18232/8	SS3	0.9-1.9m	Category L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	15	64	21	1.33	<0.015	<1	<100	49.4	52	<1.0	<1.0	0.35	<10	<5000
18232/9	SS3 ⁺	1.9-2.8m	Category L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01				0.87	<0.015	<1	180	78.3	<50	<1.0	<1.0	0.21	<10	<5000
18236/2	SS8	grab sample	-																										
18236/3	SS8	0.0-0.9m	Category L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	18	75	7	1.69	<0.015	<1	240	88.6	84	<1.0	<1.0	<0.1	98	<5000
18236/4	SS8	0.9-1.7m	Category M and passed Biological Tests*	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01				0.51	<0.015	<1	<100	124.3	57	<1.0	<1.0	<0.1	180	<5000
18236/5	SS9	0.0-0.9m	Category L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	1	92	7	1.76	<0.015	<1	170	69.6	210	<1.0	<1.0	<0.1	83	<5000
18236/6	SS9	0.9-1.9m	Category L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	< 0.01	<0.01	<0.01	<0.01	<0.01				0.90	<0.015	<1	160	127.4	65	<1.0	<1.0	0.15	61	<5000
18236/7	SS9	1.9-2.1m	Category L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	< 0.01	<0.01	<0.01	<0.01	<0.01	<0.01				1.64	<0.015	<1	<100	64.4	68	<1.0	<1.0	<0.1	71	<5000
18249/2	SS5	grab sample																											
18249/3	SS5 ⁺	0.0-0.9m	Category L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	6	90	4	0.28	<0.015	<1	260	94.4	88	<1.0	<1.0	<0.1	28	<5000
18249/5	SS7	grab sample																											
18249/6	SS7	0.0-0.9m	Category L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	50	46	4	0.31	<0.015	<1	260	91.6	59	<1.0	<1.0	<0.1	85	<5000
18249/7	SS7	0.9-1.3m	Category M and passed Biological Tests*	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	55	38	7	0.56	<0.015	1.8	<100	103.5	<50	<1.0	<1.0	<0.1	11	<5000
18255/2	SS2	grab sample																											
18255/3	SS2	0.5-0.9m	Category M and passed Biological Tests*	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	29	64	7	0.74	<0.015	<1	170	124.3	130	<1.0	<1.0	<0.1	130	<5000
18255/4	SS2	0.9-1.9m	Category M and passed Biological Tests*	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	42	52	6	1.12	<0.015	<1	110	120.2	68	<1.0	<1.0	0.15	110	<5000
18255/5	SS2	1.9-2.5m	Category M and passed Biological Tests*	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01				0.71	<0.015	<1	600	105.9	84	<1.0	<1.0	<0.1	94	<5000
18255/7	SS4	grab sample																											
18255/8	SS4	0.0-0.9m	Category L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	20	75	5	0.73	<0.015	<1	<100	79.3	110	<1.0	<1.0	0.11	22	<5000
18255/9	SS4 ⁺	0.9-1.3m	Category M and passed Biological Tests*	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01				<0.05	<0.015	<1	150	94.5	<50	<1.0	<1.0	<0.1	110	<5000
18273/2	SS1	grab sample																											
18273/3	SS1	0.2-0.9m	Category M and failed Biological Tests*	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	42	53	5	0.59	<0.015	<1	<100	89.8	104	<1.0	<1.0	<0.1	84	<5000
18273/4	SS1	0.9-1.2m	Category M and failed Biological Tests*	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01				0.21	<0.015	<1	120	122.2	<50	<1.0	<1.0	<0.1	110	<5000
18286/1	Reference Sample	grab sample	Category L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0	10	90	1.46	<0.015	2.9	292	48.8	180	<1.0	<1.0	1.1	1100	13000

Sediment Quality Criteria for the Classification of Sediment

Contaminants	Lower Chemical Exceedance Level (LCEL)	Upper Chemical Exceedance Level (UCEL)
Metals (mg/kg dry wt.)		
Cadmium (Cd)	1.5	4
Chromium (Cr)	80	160
Copper (Cu)	65	110
Mercury (Hg)	0.5	1
Nickel (Ni)*	40	40
Lead (Pb)	75	110
Silver (Ag)	1	2
Zinc (Zn)	200	270
Metalloid (mg/kg dry wt.)		
Arsenic (As)	12	42
Organic-PAHs (µg/kg dry wt.)		
Low Molecular Weight PAHs	550	3160
High Molecular Weight PAHs	1700	9600
Organic-non-PAHs (µg/kg dry wt.)		
Total PCBs	23	180
Organometallics (µg TBT/L in Interstitial water)		
Tributyltin ^{*+}	0.15	0.15

Table 2 Upper and Lower Chemical Exceedance Levels (ETWB TC(W) No. 34/2002)

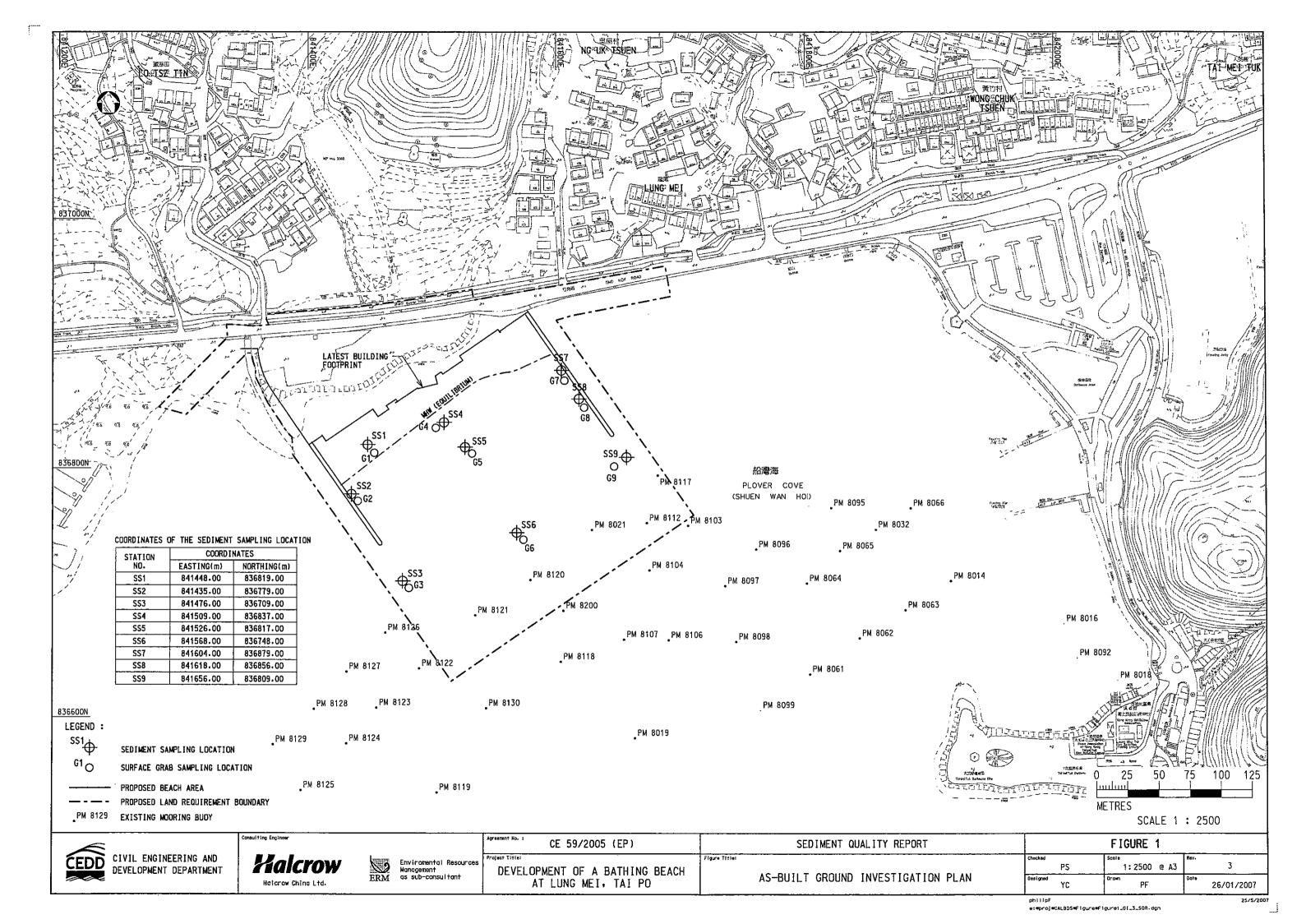
* The contaminant level is considered to have exceeded the UCEL if it is greater than the value shown.

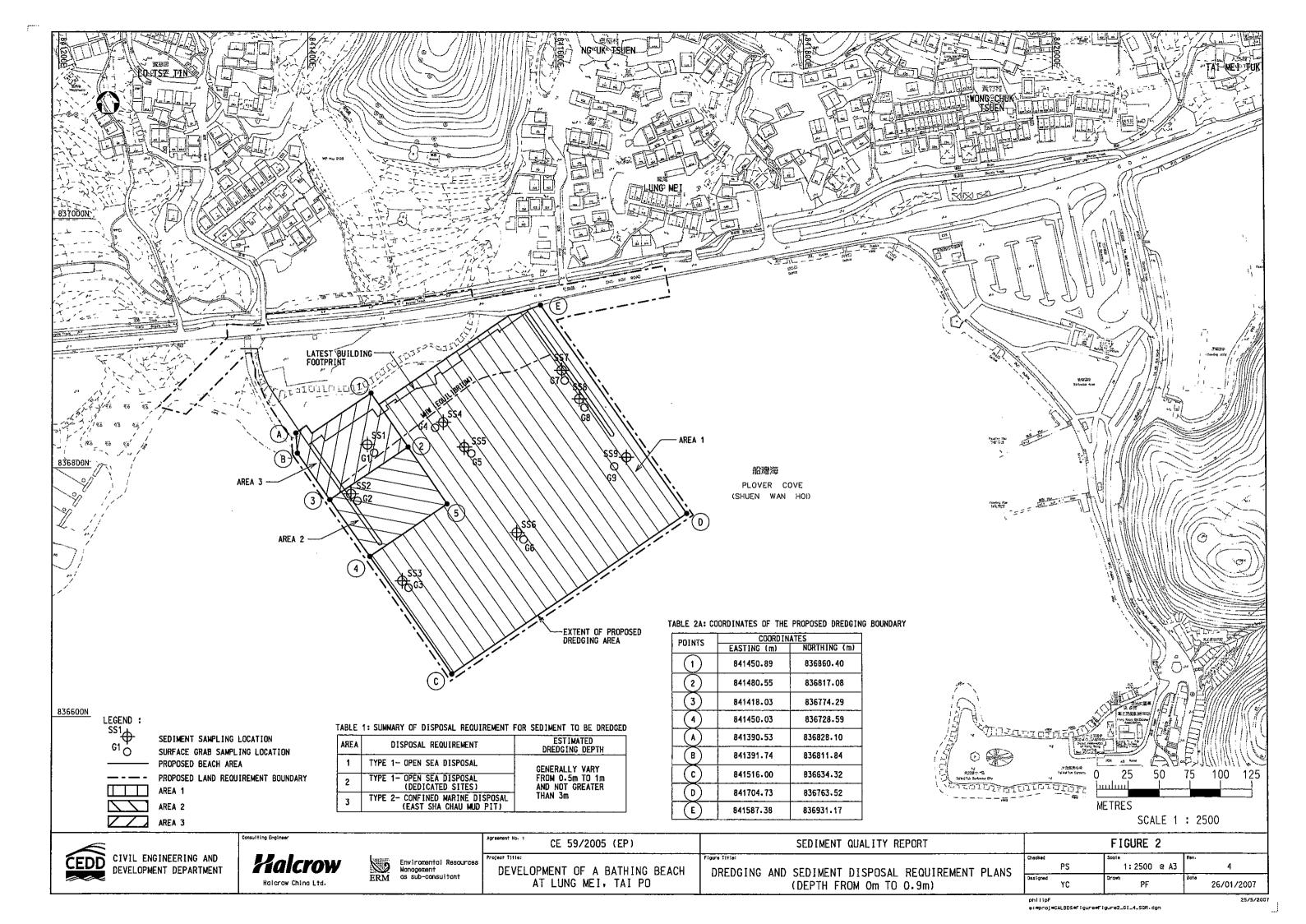
+ Testing for TBT is only required if instructed by EPD for sediments suspected to be contaminated by TBT

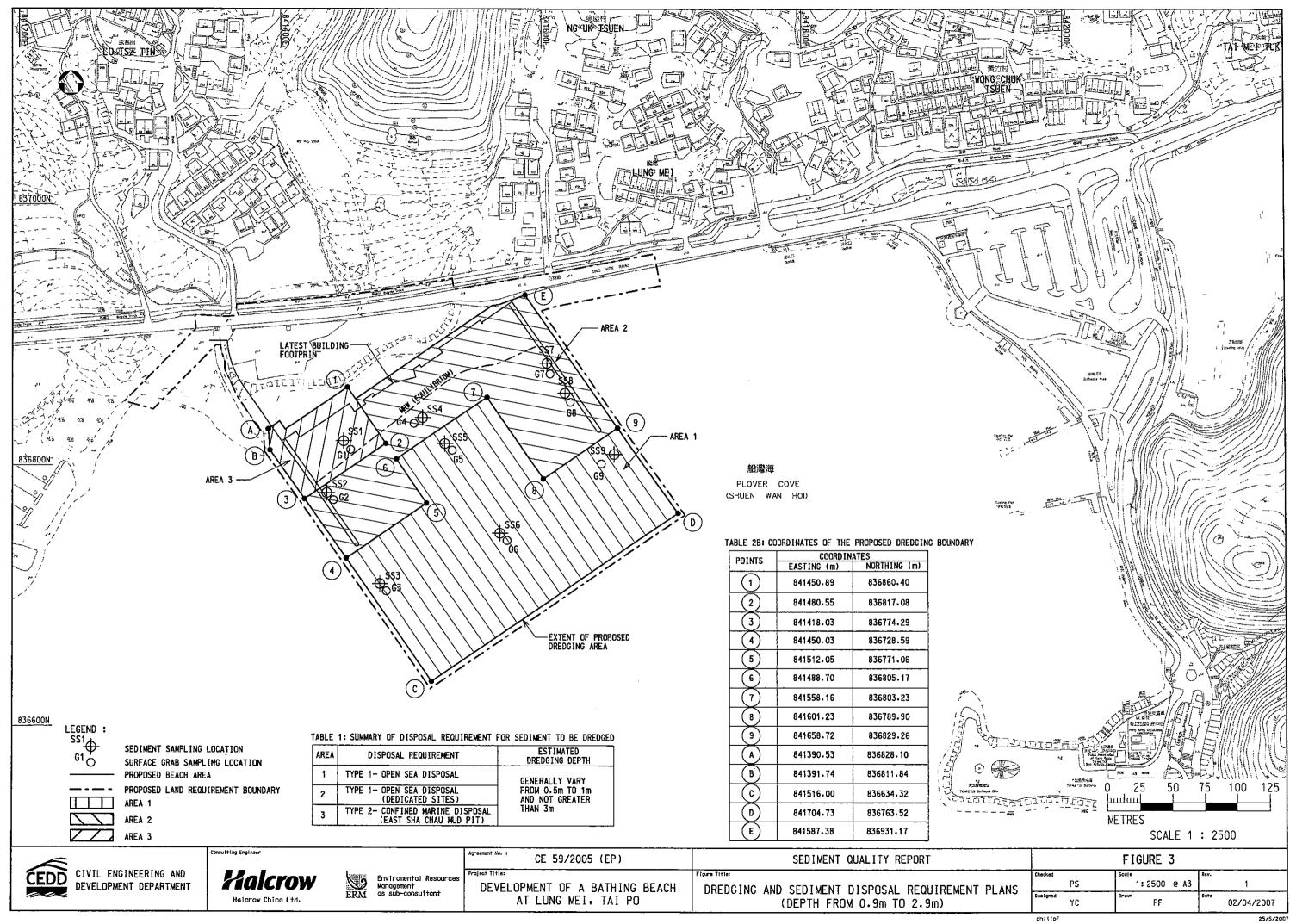
Table 3 Classification of Marine Sediment According to ETWB TC(W) No. 34/2002

Category	Criteria
L	All contaminant concentrations less than or equal to the LCEL
М	Any one contaminant concentration greater than the LCEL but all contaminant concentrations less than or equal to the UCEL
Н	Any one contaminant concentration greater than the UCEL

Figures



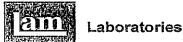




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Appendix A

Final Report on Chemical Analysis of the Collected Sediments



CEDD Contract No. GE/2005/47 Chemical and Biological Testing of Sediment (Service Contract)

Service Order No. GE/2005/47.22

Agreement No. CE 59/2005 (EP) Development of a Bathing Beach at Lung Mei, Tai Po Environmental, Drainage and Traffic Impact Assessments - Investigation

Final Report

Checked in accordance with Contract No. GE/2005/47requirements and accepted. Signed $\frac{3200}{100}$ Date $\frac{3200}{100}$

CLIENT:

Geotechnical Projects Division

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PREPARED BY:

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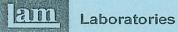
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CERTIFIED BY:

Maureen Chia Chi Chang PAAC

DATE:

31 January 2007



Chemical Analysis



Metals



Report No.	: 101718A
Project Name	: Chemical and Biological Testing of Sediment (Service Contract)
	Agreement No. CE 59/2005 (EP) Development of a Bathing Beach at Lung Mei, Tai Po Environmental, Drainage and Traffic Impact Assessments - Investigation
	Chemical, Elutriate and Biological Testing of Marine Sediment and Water
Customer	: Geotechnical Projects Division, Geotechnical Engineering office,
	Civil Engineering and Development Department
Address	: 8/F Civil Engineering and Development Building, 101 Princess Margaret Road,
	Kowloon, Hong Kong
Lab Job No.	: J469
Lab Sample No.	: 18232,18236,18249,18255,18273,18286
Sample Description	: 21 samples said to be sediment
Sample Receipt Date	: 13 October 2006 - 24 October 2006
Test Period	: 14 October 2006 - 06 November 2006

Test Information

Code	Test Parameter	Reporting Limits Sediment/Soil mg/kg	Test Procedure
Cd	Cadmium	0.20	S/M/DIG-RAR & M/ICP-MS
Cr	Chromium	8.0	S/M/DIG-RAR & M/ICP-MS
Cu	Copper	7,0	S/M/DIG-RAR & M/ICP-MS
Ni	Nickel	4.0	S/M/DIG-RAR & M/ICP-MS
Pb	Lead	8.0	S/M/DIG-RAR & M/ICP-MS
Zn	Zinc	20	S/M/DIG-RAR & M/ICP-MS
Hg	Mercury	0.05	S/M/DIG-RAR & M/ICP-MS
As	Arsenic	1.0	S/M/DIG-RAR & M/ICP-MS
Ag	Silver	0.10	S/M/DIG-RAR & M/ICP-MS

Notes :

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- 2. Results related to samples as received.
- 3. Results are based on dry sample weight.
- 4. < = less than
- 5. N/A = Not applicable
- 6. Test results satisfy all in-house QA/QC protocols as attached.
- 7. Test description (for in-house methods) as follows:
- S/M/DIG-RAR: Acid digestion.
- M/ICP-MS: ICP-MS Quantification.

Authorized Signatory

Wong Yau Tim (Operations Manager)

Issue Date:

30 Dec. 2006

Hong Kong Accreditation Service (HKAS) has accredited this laboratory under Hong Kong Laboratory Accreditation Scheme (HOKLAS) for specific laboratory activities as listed in the HOKLAS directory of accredited laboratories. The results shown in this report were determined by this laboratory in accordance with its terms of accreditation.

Report No.	: 101718A
Project Name	 Chemical and Biological Testing of Sediment (Service Contract) Agreement No. CE 59/2005 (EP) Development of a Bathing Beach at Lung Mei,
	Tai Po Environmental, Drainage and Traffic Impact Assessments - Investigation Chemical, Elutriate and Biological Testing of Marine Sediment and Water
Customer	: Geotechnical Projects Division, Geotechnical Engineering office, Civil Engineering and Development Department
Lab Job No.	: J469
Lab Sample No.	: 18232,18236,18249,18255,18273,18286

Test Result

Customer Ref.			Sample	•		Cd	Cr	Cu	Ni	Pb	Zn	Hg	As	Ag
Drillhole No.	Ľ	epth, m		Туре	Specimen									
	No.	From	To		Depth, m	mg/kg								
SS6	NA_	0.00	0.90		NA	<0.20	<8.0	<7.0	<4.0	8.5	<20	0.10	3.3	<0.10
SS6	NA	0.90	1.60		NA	<0.20	<8.0	<7.0	<4.0	<8.0	<20	0.06	4.2	<0.10
SS3	NA	0.00	0.90		NA	<0.20	<8.0	<7.0	<4.0	13	<20	0.07	5.8	<0.10
SS3	NA	0.90	1.90		NA	<0.20	<8.0	<7.0	<4.0	11	<20	0.05	5.0	<0.10
SS3	NA	1.90	2.80		NA	<0.20	<8.0	<7.0	<4.0	20	<20	0.06	12	<0.10
SS8	NA	0.00	0.90		NA	<0.20	<8.0	<7.0	<4.0	12	<20	0.08	10	<0.10
SS8	NA	0.90	1.70		NA	<0.20	<8.0	<7.0	<4.0	8.8	<20	0.07	16	<0.10
SS9	NA	0.00	0.90		NA	<0.20	<8.0	<7.0	<4.0	10	<20	0.07	4.0	<0.10
SS9	NA	0.90	1.90		NA	<0.20	<8.0	<7.0	<4.0	<8.0	<20	<0.05	2.5	<0.10
SS9	NA	1.90	2.10		NA	<0.20	<8.0	<7.0	<4.0	<8.0	<20	<0.05	8.5	<0.10
SS5	NA	0.00	0.90		NA	<0.20	<8.0	<7.0	7.8	19	<20	<0.05	2.5	0.12
SS7	NA	0.00	0.90		NA	<0.20	<8.0	<7.0	<4.0	<8.0	<20	<0.05	6.1	<0.10
SS7	NA	0.90	1.30		NA	<0.20	<8.0	<7.0	<4.0	_16	<20	<0.05	14	<0.10
SS2	NA	0.50	0.90		NA	<0.20	<8.0	<7.0	<4.0	17	20	<0.05	17	<0.10
SS2	NA	0.90	1.90		NA	<0.20	<8.0	<7.0	<4.0	18	23	<0.05	28	<0.10
SS2	NA	1.90	2.50		NA	<0.20	<8.0	<7.0	<4.0	25	<20	<0.05	42	<0.10
	NA	0.00	0.90		NA	<0.20	<8.0	<7.0	<4.0	12	20	<0.05	6.9	<0.10
SS4	NA	0.90	1.30		NA	<0.20	<8.0	<7.0	<4.0	_12	<20	<0.05	27	<0.10
SS1	NA	0.90	0.90		NA	<0.20	<8.0	<7.0	<4.0	13	<20	<0.05	17	<0.10
SS1	NA	0.90	1.20		NA	<0.20	<8.0	<7.0	<4.0	31	26	<0.05	24	<0.10

Report No.	: 101718A
Project Name	: Chemical and Biological Testing of Sediment (Service Contract)
	Agreement No. CE 59/2005 (EP) Development of a Bathing Beach at Lung Mei,
	Tai Po Environmental, Drainage and Traffic Impact Assessments - Investigation
	Chemical, Elutriate and Biological Testing of Marine Sediment and Water
Customer	: Geotechnical Projects Division, Geotechnical Engineering office,
	Civil Engineering and Development Department
Lab Job No.	: J469
Lab Sample No.	: 18232,18236,18249,18255,18273,18286

Test Result

Customer Ref.			Sample	<u>}</u>		Cd	Cr	Cu	Ni	Pb	Zn	Hg	As	Ag
Drillhole No.	C)epth, m	 	Туре	Specimen									
	No.	From	То		Depth, m	mg/kg								
Ref. Sediment	NA	NA	NA		NA	<0.20		14	19	36	72	0.10	5.5	0.22

-----End of Report-----

Report No. Project Name	 101718A Chemical and Biological Testing of Sediment (Service Contract) Agreement No. CE 59/2005 (EP) Development of a Bathing Beach at Lung Mei, Tai Po Environmental, Drainage and Traffic Impact Assessments - Investigation Chemical, Elutriate and Biological Testing of Marine Sediment and Water
Customer	: Geotechnical Projects Division, Geotechnical Engineering office, Civil Engineering and Development Department
Lab Job No. Lab Sample No.	: J469 : 18232,18236,18249,18255,18273,18286

Test Results

1.1 Sample Duplicate (Relative deviation)

Customer Ref.			Sampl	e			Cd	Cr	Cu	Ni	Рb	Zn	Hg	As	Ag
Drillhole No.	1	Depth, m		Туре	Specimen	Batch									
	No.	From	То]	Depth m		%	%	%	%	%	%	%	%	%
SS6	NA	0.00	0.90		NA	1	*na	*na	*na	*na	14	*na	1.4	6.2	*ne
SS1	NA	0.90	0.90		NA	2	*na	*na	*na	*na	20	*па	*na	1.0	*na
<u></u>	<u> </u>			1									1		
	1														
		L Control Li	mits	1	L	L			4	/- 30 9	% of th	ne mea	in		· · · ·

1.2 Method Spike (Standard Addition)

Customer Ref.				Cd	Cr	Cu	Ni	Pb	Zn	Hg	As	Ag			
Drillhole No.		Depth, m		Туре	Specimen	Batch									
	No.	From	То	1	Depth m		%	%	%	%	%	%	%	%	%
SS6	NA	0.00	0.90		NA	1	90	84	79	83	107	91	84	90	88
SS1	NA	0.90	0.90		NA	2	92	80	82	84	116	94	89	118	9(
	<u> </u>		<u></u>												
<u>-</u>	<u> </u>														
	<u> </u>	ontrol Li									5 - 125				

Note: 1. *na = Relative deviation(RD) for duplicates cannot be evaluated as the value determined is lower than reporting limits. 2. Results are based on dry sample weight

3. < = less than

Authorized Signatory

//Wong Yau Tim (Operations Manager)

:

Issue Date:

30 Dec. 2006

Lam Laboratories Limited

Unit 12, 14/F., Honour Industrial Centre, 6 Sun Yip Street, Chai Wan, Hong Kong. Tel: (852) 2897 3282 Fax: (852) 2897 5509 e-mail info@lamlab.com

QUALITY CONTROL REPORT

Report No.	: 101718A
Project Name	: Chemical and Biological Testing of Sediment (Service Contract)
	Agreement No. CE 59/2005 (EP) Development of a Bathing Beach at Lung Mei,
	Tai Po Environmental, Drainage and Traffic Impact Assessments - Investigation
	Chemical, Elutriate and Biological Testing of Marine Sediment and Water
Customer	: Geotechnical Projects Division, Geotechnical Engineering office,
	Civil Engineering and Development Department
Lab Job No.	: J469
Lab Sample No.	: 18232,18236,18249,18255,18273,18286

Test Results

1.3 Sample Reference Material (ISE 2005.3.1)

Reference		ę	Sample	e			Cd	Cr	Cu	Ni	Pb	Zn	Hg	As	Äg
	Depth, m Type Specimen					Batch									
	No.	From	То		Depth m		%	%	%	%	%	%	%	%	%
ISE 2005.3.1	N/A	N/A	N/A		N/A	1	97	83	78	82	92	79	103	86	97
ISE 2005.3.1	N/A	N/A	N/A		N/A	2	93	84	79	78	90	81	100	86	90
			ol Lin												
		1		75 -	125%	of no	minal v	value							

1.4 Method Blank

Reference		Ş	Sample	e			Cd	Cr	Си	Ni	Pb	Zn	Hg	As	Ag
	Di	epth, m	m Type Specimen		Batch										
	No.	From	То]	Depth m						mg/kg			-	
N/A	N/A	N/A	N/A		N/A	1	<0.20	<8.0	<7.0	<4.0	<8.0	<20	<0.05	<1.0	<0.10
N/A	N/A	N/A	N/A		N/A	2	<0.20	<8.0	<7.0	<4.0	<8.0	<20	<0.05	<1.0	<0.10
		l Contr	l rol Lim	l nits)			I	L Le	l ss tha	f n repo	rting li	L imit	l	

Note: 1. Results are based on dry sample weight

2. < = less than



PAHs



Report No.	: 101719A
Project Name	: Chemical and Biological Testing of Sediment (Service Contract)
	Agreement No. CE 59/2005 (EP) Development of a Bathing Beach at Lung Mei,
	Tai Po Environmental, Drainage and Traffic Impact Assessments - Investigation
	Chemical, Elutriate and Biological Testing of Marine Sediment and Water
Customer	: Geotechnical Projects Division, Geotechnical Engineering office,
	Civil Engineering and Development Department
Address	: 8/F Civil Engineering and Development Building, 101 Princess Margaret Road,
	Kowloon, Hong Kong
Lab Job No.	: J469
Lab Sample No.	: 18232,18236,18249,18255,18273,18286
Sample Description	: 21 samples said to be sediment
Sample Receipt Date	: 13 October 2006 - 24 October 2006
Test Period	: 14 October 2006 - 06 November 2006

Test Information

1. Low Molecular Weight Polyaromatic Hydrocarbons, LMW PAHs

CODE	Test Parameter	Reporting Limit ug/kg	Test Procedure
NAP	Naphthalene	55	S/O/PAH
ANY	Acenaphthylene	55	S/O/PAH
ANA	Acenaphthene	55	S/O/PAH
FLU	Fluorene	55	S/O/PAH
PHÉ	Phenanthrene	55	S/O/PAH
ANT	Anthracene	55	S/O/PAH
LMW PAH	Total LMW PAH	55	S/O/PAH

2. High Molecular Weight Polyaromatic Hydrocarbons, HMW PAHs

CODE	Test Parameter	Reporting Limit ug/kg	Test Procedure
CHR	Chrysene	170	S/O/PAH
BaA	Benzo(a)anthracene	170	S/O/PAH
BbF	Benzo(b)fluoranthene	170	S/O/PAH
BkF	Benzo(k)fluoranthene	170	S/O/PAH
BaP	Benzo(a)pyrene	170	S/O/PAH
DBA	Dibenz(ah)anthracene	170	S/O/PAH
FLT	Fluoranthene	170	S/O/PAH.
IPY	Indeno(1,2,3-cd)pyrene	170	S/O/PAH
PYR	Pyrene	170	S/O/PAH
BPE	Benzo(ghi)perylene	170	S/O/PAH
HMW PAH	Total HMW PAH	170	S/O/PAH

Notes :

1.

2.

This report shall not be reproduced, except in full, without prior approval from Lam Laboratories Ltd. Results relate to samples as received.

- 3. Results are based on dry sample weight.
- 4. < = less than
- 5. N/A = Not applicable

6. Test results satisfy all in-house QA/QC protocols as attached.

- 7. Test description (for in-house methods only) as follows:
 - S/O/PAH:Ultra-Sonic extraction and GC-MS Quantification.
- 8. Total LMW PAH Equals to the summary of NAP, ANY, ANA, FLU, PHE, ANT.
- 9. Total HMW PAH Equals to the summary of CHR, BaA, BbF, BkF, BaP, DBA, FLT, IPY, PYR, BPE.
- 10. Total LMW PAH & Total HMW PAH are not HOKLAS accredited parameters.

Authorized Signatory

Vøng Yau Tim (O¢ erations Manager)

Issue Date: 30 Dec. 2006

Hong Kong Accreditation Service (HKAS) has accredited this laboratory under Hong Kong Laboratory Accreditation Scheme (HOKLAS) for specific laboratory activities as listed in the HOKLAS directory of accredited laboratories. The results shown in this report were determined by this laboratory in accordance with its terms of accreditation.

 Lam Laboratories Limited
 Unit 12, 14/F., Honour Industrial Centre, 6 Sun Yip Street, Chai Wan, Hong Kong.

 Tel: (852) 2897 3282
 Fax: (852) 2897 5509
 e-mail: info@lamlab.com

Report No. Project Name Customer	 101719A Chemical and Biological Testing of Sediment (Service Contract) Agreement No. CE 59/2005 (EP) Development of a Bathing Beach at Lung Mei, Tai Po Environmental, Drainage and Traffic Impact Assessments - Investigation Chemical, Elutriate and Biological Testing of Marine Sediment and Water Geotechnical Projects Division, Geotechnical Engineering office, Chill Engineering and Development Department
Lab Job No.	Civil Engineering and Development Department
Lab Sample No.	18232,18236,18249,18255,18273,18286
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Test Results

Low Molecular Weight Polyaromatic Hydrocarbons, LMW PAHs 1.

Customer Ref.			Sam	ole		NAP	ANY	ANA	FLU	PHE	ANT	LMW
Drillhole No.		Depth, n		Туре	Specimen							PAH
	No.	From	То		Depth m	ug/kg						
SS6	NA	0.00	0.90		NA	<55	<55	<55	<55	<55	<55	<55
SS6	NA	0.90	1.60		NA	<55	<55	<55	<55	<55	<55	<55
SS3	NA	0.00	0.90		NA	<55	<55	<55	<55	<55	<55	<55
SS3	NA	0.90	1.90		NA	<55	<55	<55	<55	<55	<55	<55
SS3	NA	1.90	2.80		NA	<55	<55	<55	<55	<55	<55	<55
SS8	NA	0.00	0.90		NA	<55	<55	<55	<55_	<55	<55	<55
SS8	NA	0.90	1.70		NA	<55	<55	<55	<55	<55	<55	<55
SS9	NA	0.00	0.90		NA	<55	<55	<55	<55	<55	<55	<55
SS9	NA	0.90	1.90		NA	<55	<55	<55	<55	<55	<55	<55
SS9	NA	1.90	2.10		NA	<55	<55	<55	<55	<55_	<55	<55
SS5	NA	0.00	0.90		NA	<55	<55	<55	<55	<55	<55	<55
SS7	NA	0.00	0.90		NA	<55	<55	<55	<55	<55	<55	<55
SS7	NA	0.90	1.30		NA	<55	<55	<55	<55	<55	<55	<55
SS2	NA	0.50	0.90		NA	<55	<55	<55	<55	<55	<55	<55
SS2	NA	0.90	1.90		NA	<55	<55	<55	<55	<55	<55	<55
SS2	NA	1.90	2.50		NA	<55	<55	<55	<55_	<55	<55	<55
SS4	NA	0.00	0.90		NA	<55	<55	<55	<55	<55	<55	<55
SS4	NA	0.90	1.30		NA	<55	<55	<55	<55	<55	<55	<55
SS1	NA	0.20	0.90		NA	<55	<55	<55	<55	<55	<55	<55
SS1	NA	0.90	1.20		NA	<55	<55	<55	<55	<55	<55	<55

Report No. Project Name	 101719A Chemical and Biological Testing of Sediment (Service Contract) Agreement No. CE 59/2005 (EP) Development of a Bathing Beach at Lung Mei, Tai Po Environmental, Drainage and Traffic Impact Assessments - Investigation Chemical, Elutriate and Biological Testing of Marine Sediment and Water
Customer	: Geotechnical Projects Division, Geotechnical Engineering office, Civil Engineering and Development Department
Lab Job No.	: J469
Lab Sample No.	18232,18236,18249,18255,18273,18286
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Test Results

2. High Molecular Weight Polyaromatic Hydrocarbons, HMW PAHs

Customer Ref.			Samp			CHR	BaA	BbF	BkF	BaP	DBA	FLT	IPY	PYR	BPE	HMW
Drillhole No.		Depth, r	n	Type	Specimen											PAH
	No.	From	То		Depth m	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
SS6	NA	0.00	0.90		NA	<170	<170	<170	<170	<170	<170	<170	<170	<170	<170	<170
SS6	NA	0.90	1.60		NA	<170	<170	<170	<170	<170	<170	<170	<170	<170	<170	<170
SS3	NA	0.00	0.90		NA	<170	<170	_<170_	<170	<170	<170	<170	<170	<170	<170	<170
SS3	NA	0.90	1.90		NA	<170	<170	<170	<170	<170	<170	<170	<170	<170	<170	<170
SS3	NA	1.90	2.80		NA	<170	<170	<170	<170	<170	<170	<170	<170	<170	<170	<170
SS8	NA	0.00	0.90		NA	<170	<170	<170	<170	<170	<170	<170	<170	<170	<170	<170
SS8	NA	0.90	1.70		NA	<170	<170	<170	<170	<170	<170	<170	<170	<170	<170	<170
SS9	NA	0.00	0.90		NA	<170	<170	<170	<170	<170	<170	<170	<170	<170	<170	<170
SS9	NA	0.90	1.90		NA	<170	<170	<170	<170	<170	<170	<170	<170	<170	<170	250
SS9	NA	1.90	2.10		NA	<170	<170	<170	<170	<170	<170	<170	<170	<170	<170	<170
SS5	NA	0.00	0.90	<u> </u>	NA	<170	<170	<170	<170	<170	<170	<170	<170	<170	<170	<170
SS7	NA	0.00	0.90		NA	<170	<170	<170	<170	<170	<170	<170	<170	<170	<170	<170
SS7	NA	0.90	1.30		NA	<170	<170	<170	<170	<170	<170	<170	<170	<170	<170	<170
SS2	NA	0.50	0.90		NA	<170	<170	<170	<170	<170	<170	<170	<170	<170	<170	<170
SS2	NA	0.90	1.90		NA	<170	<170	<170	<170	<170	<170	<170	<170	<170	<170	<170
SS 2	NA	1.90	_ 2.50		NA	<170	<170	<170	<170	<170	<170	<170	<170	<170	<170	<170
S S4	NA	0.00	0.90		NA	<170	<170	<170	<170	<170	<170	<170	<170	<170	<170	<170
SS4	NA	0.90	1.30		NA	<170	<170	<170	<170	<170	<170	<170	<170	<17 <u>0</u>	<170	<170
SS1	NA	0.20	0.90		NA	<170	<170	<170	<170	<170	<170	<170	<170	<170	<170	<170
SS1	NA	0.90	1.20		NA	<170	<170	<170	<170	<170	<170	<170	<170	<170	<170	<170

Report No. Project Name	101719A Chemical and Biological Testing of Sediment (Service Contract) Agreement No. CE 59/2005 (EP) Development of a Bathing Beach at Lur Tai Po Environmental, Drainage and Traffic Impact Assessments - Invest Chemical, Elutriate and Biological Testing of Marine Sediment and Water	tigation
Customer	Geotechnical Projects Division, Geotechnical Engineering office, Civil Engineering and Development Department	
Lab Job No.	J469	
Lab Sample No.	18232,18236,18249,18255,18273,18286	. <u> </u>
Test Results		

1. Low Molecular Weight Polyaromatic Hydrocarbons, LMW PAHs

Customer Ref.			Sam	ole		NAP	ANY	ANA	FLU	PHE	ANT	LMW
Drillhole No.		Depth, m			Specimen							PAH
	No.	From	То]	Depth m	ug/kg						
R.Sediment	NA	NA	NA		NA	<55	<55	<55	<55	<55	<55	<55

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Project Name	: Chemical and Biological Testing of Sediment (Service Contract)
-	Agreement No. CE 59/2005 (EP) Development of a Bathing Beach at Lung Mei,
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	Chemical, Elutriate and Biological Testing of Marine Sediment and Water
Customer	: Geotechnical Projects Division, Geotechnical Engineering office,
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Lab Job No.	: J469
Lab Sample No.	: 18232,18236,18249,18255,18273,18286
Test Results	

2. High Molecular Weight Polyaromatic Hydrocarbons, HMW PAHs

Customer Ref.	Sample					CHR	BaA	BbF	BkF	BaP	DBA	FLT	1PY	PYR	BPE	HMW
Drillhole No.	Depth, m			Type	Specimen											PAH
·	No.	From	То		Depth m	ug/kg	vg/kg	ug/kg	ug/kg	ug/kg						
R.Sediment	NA	NA	NA		NA	<170	<170	<170	<170		<170	<170	<170	<170	<170	<170

-----End of Report------

Report No. Project Name Customer	 101719A Chemical and Biological Testing of Sediment (Service Contract) Agreement No. CE 59/2005 (EP) Development of a Bathing Beach at Lung Mei, Tai Po Environmental, Drainage and Traffic Impact Assessments - Investigation Chemical, Elutriate and Biological Testing of Marine Sediment and Water Geotechnical Projects Division, Geotechnical Engineering office,
Customer	Civil Engineering and Development Department
Lab Job No.	: J469
Lab Sample No.	: 18232,18236,18249,18255,18273,18286
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Test Results

1. Low Molecular Weight Polyaromatic Hydrocarbons, LMW PAHs

1.1 Sample Duplicate

Customer Ref.			Samp	le			NAP	ANY	ANA	FLU	PHE	ANT
Drillhole No.	۲ No.	Depth, r From	n To	Туре	Specimen Depth m	Batch	%	%	%	%	%	%
SS6	N/A	0.00	0.90		N/A	1	na*	na*	na*	na*	na*	na*
SS1	NA	0.20	0.90		N/A	2	na*	na*	na*	na*	na*	na*
	1											
		Control	Limits	<u> </u>	1			+/-	<u>30 % c</u>	of the m	nean	

1.2 Sample Spike (Spike Level = 5 ug)

Customer Ref.			Samp	pie			NAP	ANY	ANA	FLU	PHE	ANT
Drillhole No.		Depth, r	n	Туре	Specimen	Batch						
	No.	From	Τo		Depth m		%	%	%	%	%	%
SS6	N/A	0.00	0.90		N/A	1	111	93	98	94	95	110
SS1	N/A	0.20	0.90	<u> </u>	N/A	2	100	96	93	95	85	93
· · ·							1					
	-								 			
	1	Control	L imite	<u> </u>	I			!	70 - 1	130 %	<u> </u>	<u> </u>

Notes :

 na* = Relative deviation (RD) for duplicates cannot be evaluated as the value determined is lower than reporting limit.

Authorized Signatory

: ng Yau l'im (Operations Manager)

Issue Date:

:

30 Dec. 2006

Lam Laboratories Limited Unit 12, 14/F., Honour Industrial Centre, 6 Sun Yip Street, Chai Wan, Hong Kong. Tel: (852) 2897 3282 Fax: (852) 2897 5509 e-mail: info@lamlab.com

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Customer	Chemical, Elutriate and Biological Testing of Marine Sediment and Water : Geotechnical Projects Division, Geotechnical Engineering office, Civil Engineering and Development Department
Lab Job No.	: J469
Lab Sample No.	: 18232,18236,18249,18255,18273,18286
Tost Poculto	

Test Results

2. High Molecular Weight Polyaromatic Hydrocarbons, HMW PAHs

2.1 Sample Duplicate

Customer Ref.		Sample					CHR	BaA	BbF	BkF	BaP	DBA	FLT	IPY	PYR	BPE
Drillhole No.		Depth, r	n	Type	Specimen	Batch		1	• •							
	No.	From	То		Depth m		%	%	%	%	%	%	%	%	%	%
SS6	N/A	0.00	0.90		N/A	1	na*	na*	na*	na*	na*	na*	na*	na*	na*	na*
SS1	NA	0.20	0.90		N/A	2	na*	па*	na*	na*	na*	na*	na*	na*	na*	na*
	1															
	1															
	Control Limits								<u> </u>	L +/- 30	1) % of	the n	nean	<u> </u>		

2.2 Sample Spike (Spike Level = 5 ug)

Customer Ref.			Samp	ole		- ·	CHR	BaA	BbF	BkF	BaP	DBA	FLT	IPY	PYR	BPE
Drillhole No.	[Depth, r	n	Type	Specimen	Batch										
	No.	From	То		Depth m		%	%	%	%	%	%	%	%	%	%
SS6	N/A	0.00	0.90		N/A	1	101	85	97	82	111	113	82	99	92	104
SS1	N/A	0.20	0.90		N/A	2	86	100	105	94	105	100	83	95	94	89
	1															
	(Control Limits								·	70 - 1	30 %	<u>i.</u>	L	j	L

Notes :

 na* = Relative deviation (RD) for duplicates cannot be evaluated as the value determined is lower than reporting limit.

Report No.	: 101719A
Project Name	 Chemical and Biological Testing of Sediment (Service Contract) Agreement No. CE 59/2005 (EP) Development of a Bathing Beach at Lung Mei, Tai Po Environmental, Drainage and Traffic Impact Assessments - Investigation
Customer	Chemical, Elutriate and Biological Testing of Marine Sediment and Water : Geotechnical Projects Division, Geotechnical Engineering office, Civil Engineering and Development Department
Lab Job No.	: J469
Lab Sample No.	: 18232,18236,18249,18255,18273,18286
Test Results	

Test Results

1. Low Molecular Weight Polyaromatic Hydrocarbons, LMW PAHs

1.3 QC Sample (SETOC 2002.3.3)

Customer Ref.	T		San	ıple			NAP	ANY	ANA	FLU	PHE	ANT
Drillhole No.] [Depth,	m	Type	Specimen	Batch						
	No.	From	То		Depth m		%	%	%	%	%	%
SETOC 2002.3.3	N/A	N/A	N/A		N/A	1	92	109	120	101	92	109
SETOC 2002.3.3	N/A	N/A	N/A	· ·	N/A	2	103	90	108	92	102	101
	Control Limits							70 - 1	30 % of	nomina	l value	

1.4 Method Blank

Customer Ref.			San	nple			NAP	ANY	ANA	FLU	PHE	ANT
Drillhole No.		Depth,	m	Туре	Specimen	Batch	1					
	No.	From	Тο		Depth m		ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
N/A	N/A	N/A	N/A		N/A	1	<55	<55	<55	<55	<55	<55
N/A	N/A	N/A	N/A		N/A	2	<55	<55	<55	<55	<55	<55
				1								
										<u>. </u>	-	
	(Control	Limits	I				Les	s than re	eporting	limit	I

Report No.	: 101719A
Project Name	: Chemical and Biological Testing of Sediment (Service Contract) Agreement No. CE 59/2005 (EP) Development of a Bathing Beach at Lung Mei, Tai Po Environmental, Drainage and Traffic Impact Assessments - Investigation Chemical, Elutriate and Biological Testing of Marine Sediment and Water
Customer	: Geotechnical Projects Division, Geotechnical Engineering office, Civil Engineering and Development Department
Lab Job No.	: J469
Lab Sample No.	: 18232,18236,18249,18255,18273,18286
Tost Posults	

Test Results

2. High Molecular Weight Polyaromatic Hydrocarbons, HMW PAHs

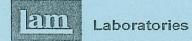
2.3 QC Sample (SETOC 2002.3.3)

Customer Ref.			Sam	ple			CHR	BaA	BbF	BkF	BaP	DBA	FLT	IPY	PYR	BPE
Drillhole No.		Dep <u>th, r</u>	ກ	Туре	Specimen	Batch										
	No.	From	То		Depth m		%	%	%	%	%	%	%	%	%	%
SETOC 2002.3.3	N/A	N/A	N/A		N/A	1	89	105	90	91	108	112	82	100	92	86
SETOC 2002.3.3	N/A	N/A	N/A		N/A	2	91	112	83	97	115	97	85	102	93	87
	Ċ	ontrol L	imits	•	· · · ·				70	- 130	% of r	omina	al valu	e		

2.4 Method Blank

Customer Ref.		Sample					CHR	BaA	BbF	BkF	BaP	DBA	FLT	IPY	PYR	BPE
Drillhole No.	0	Depth, m Type Specime				Batch										
	No.	From	То		Depth m		ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
N/A	N/A	N/A	N/A		N/A	1	<170	<170	<170	<170	<170	<170	<170	<170	<170	<170
N/A	N/A	N/A	N/A		N/A	2	<170	<170	<170	<170	<170	<170	<170	<170	<170	<170
<u> </u>																
<u> </u>					1											
	<u> </u>	ontrol L							<u> </u>	 			l g limit		<u> </u>	

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PCBs





Report No.	: 101720A
Project Name	: Chemical and Biological Testing of Sediment (Service Contract)
	Agreement No. CE 59/2005 (EP) Development of a Bathing Beach at Lung Mei,
	Tai Po Environmental, Drainage and Traffic Impact Assessments - Investigation Chemical, Elutriate and Biological Testing of Marine Sediment and Water
Customer	: Geotechnical Projects Division, Geotechnical Engineering office,
Customer	• • •
	Civil Engineering and Development Department
Address	: 8/F Civil Engineering and Development Building, 101 Princess Margaret Road,
	Kowloon, Hong Kong
Lab Job No.	: J469
Lab Sample No.	: 18232,18236,18249,18255,18273,18286
Sample Description	: 21 samples said to be sediment
Sample Receipt Date	: 13 October 2006 - 24 October 2006
Test Period	: 14 October 2006 - 06 November 2006

Test Information

CODE	Test Parameter	Reporting Limit	Test Procedure
		ug/kg	
8	2,4' dichlorobiphenyl	3.0	S/O/PCB
18	2,2',5 trichlorobiphenyl	3.0	S/O/PCB
28	2,4,4' trichlorobiphenyl	3.0	S/O/PCB
44	2,2',3,5' tetrachlorobiphenyl	3.0	S/O/PCB
52	2,2',5,5' tetrachlorobiphenyl	3.0	S/O/PCB
66	2,3',4,4' tetrachlorobiphenyl	3.0	S/O/PCB
77	3,3',4,4' tetrachlorobiphenyl	3.0	S/O/PCB
101	2,2',4,5,5' pentachlorobiphenyl	3.0	S/O/PCB
105	2,3,3',4,4' pentachlorobiphenyl	3.0	S/O/PCB
118	2,3',4,4',5 pentachlorobiphenyl	3.0	S/O/PCB
126	3,3',4,4',5 pentachlorobiphenyl	3.0	S/O/PCB
128	2,2',3,3',4,4' hexachlorobiphenyl	3.0	S/O/PCB
138	2,2',3,4,4',5' hexachlorobiphenyl	3.0	S/O/PCB
153	2,2',4,4',5,5' hexachlorobiphenyl	3.0	S/O/PCB
169	3,3',4,4',5,5' hexachlorobiphenyl	3.0	S/O/PCB
170	2,2',3,3',4,4',5 heptachlorobiphenyl	3.0	S/O/PCB
180	2,2',3,4,4',5,5' heptachlorobiphenyl	3.0	S/O/PCB
187	2,2',3,4',5,5',6 heptachlorobiphenyl	3.0	S/O/PCB
Total PCB	Total PCB	3.0	S/O/PCB

Notes :

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 Results relate to samples as received.
- 3. Results are based on dry sample weight.
- 4. < = less than
- 5. N/A = Not applicable

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- 6. Test results satisfy all in-house QA/QC protocols as attached.
- Test description (for in-house methods only) as follows: S/O/PCB:Ultra-Sonic extraction and GC-MS Quantification.
- Total PCB Equals to the summary of individual reported PCBs.
- 9. Total PCB is not HOKLAS accredited parameter.

Authorized Signatory

Wong Yau Tim (Operations Manager)

Issue Date: 30 Dec. 2006

Hong Kong Accreditation Service (HKAS) has accredited this laboratory under Hong Kong Laboratory Accreditation Scheme (HOKLAS) for specific laboratory activities as listed in the HOKLAS directory of accredited laboratories. The results shown in this report were determined by this laboratory in accordance with its terms of accreditation.

Report No.	: 101720A
Project Name	 Chemical and Biological Testing of Sediment (Service Contract) Agreement No. CE 59/2005 (EP) Development of a Bathing Beach at Lung Mei, Tai Po Environmental, Drainage and Traffic Impact Assessments - Investigation Chemical, Elutriate and Biological Testing of Marine Sediment and Water
Customer	: Geotechnical Projects Division, Geotechnical Engineering office, Civil Engineering and Development Department
Lab Job No.	: J469
Lab Sample No.	: 18232,18236,18249,18255,18273,18286
Test Results	

101 105 44 52 66 77 8 18 28 Customer Ref. Sample Depth, m Type Specimen Drillhole No. ug/kg ug/kgug/kgug/kgug/kgug/kg Depth m ug/kgug/kg No. From То <3.0 <3.0 <3.0 <3.0 <3.0 <3.0 <3.0 <3.0 <3.0 SS6 NA NA 0.00 0.90 <3.0 <3.0 <3.0 <3.0 <3.0 SS6 NA <3.0 <3.0 <3.0 <3.0 NA 0.90 1.60 <3.0 <3.0 <3.0 <3.0 <3.0 NA <3.0 <3.0 <3.0 <3.0 **SS**3 0.90 NA 0.00 <3.0 <3.0 <3.0 <3.0 <3.0 <3.0 SS3 NA 0.90 1.90 NA <3.0 <3.0 <3.0 <3.0 <3.0 <3.0 <3.0 <3.0 <3.0 <3.0 NA <3.0 <3.0 SS3 NA 1.90 2.80 <3.0 <3.0 <3.0 <3.0 <3.0 <3.0 <3.0 <3.0 <3.0 SS8 0.00 0.90 NA NA <3.0 <3.0 <3.0 <3.0 <3.0 <3.0 <3.0 <3.0 <3.0 SS8 0.90 1.70 NA NA <3.0 <3.0 <3.0 <3.0 <3.0 <3.0 <3.0 <3.0 <3.0 SS9 0.90 NA NA 0.00 <3.0 <3.0 <3.0 <3.0 <3.0 3.4 <3.0 <3.0 <3.0 SS9 NA 0.90 1.90 NA <3.0 <3.0 <3.0 <3.0 <3.0 <3.0 <3.0 <3.0 <3.0 SS9 NA 2.10 NA 1.90 <3.0 <3.0 <3.0 <3.0 <3.0 <3.0 <3.0 <3.0 <3.0 SS5 0.00 0.90 NA NA <3.0 <3.0 <3.0 <3.0 SS7 0.90 NA <3.0 <3.0 <3.0 <3.0 <3.0 NA 0.00 <3.0 <3.0 <3.0 <3.0 <3.0 <3.0 <3.0 <3.0 <3.0 NA SS7 NA 0.90 1.30 <3.0 <3.0 <3.0 <3.0 <3.0 <3.0 SS2 0.90 NA <3.0 <3.0 <3.0 0.50 NA <3.0 <3.0 <3.0 <3.0 <3.0 <3.0 <3.0 <3.0 SS2 NA 0.90 1.90 NA <3.0 <3.0 <3.0 <3.0 <3.0 <3.0 <3.0 <3.0 SS2 2.50 NA <3.0 <3.0 NA 1.90 <3.0 <3.0 <3.0 <3.0 <3.0 <3.0 <3.0 <3.0 NA <3.0 SS4 0.90 NA 0.00 <3.0 <3.0 <3.0 <3.0 <3.0 <3.0 <3.0 <3.0 <3.0 SS4 0.90 1.30 NA NA <3.0 <3.0 <3.0 <3.0 NA <3.0 <3.0 <3.0 <3.0 <3.0 **SS1** 0.90 NA 0.20 <3.0 <3.0 <3.0 <3.0 <3.0 <3.0 <3.0 <3.0 <3.0 SS1 NA 0.90 1.20 NA

Report No. Project Name	 101720A Chemical and Biological Testing of Sediment (Service Contract) Agreement No. CE 59/2005 (EP) Development of a Bathing Beach at Lung Mei, Tai Po Environmental, Drainage and Traffic Impact Assessments - Investigation Chemical, Elutriate and Biological Testing of Marine Sediment and Water
Customer	: Geotechnical Projects Division, Geotechnical Engineering office, Civil Engineering and Development Department
Lab Job No.	: J469
Lab Sample No.	: 18232,18236,18249,18255,18273,18286
Test Results	

Total 180 187 118 126 128 138 153 169 170 Customer Ref. Sample PCB Depth, m Type Specimen Drillhole No. ug/kg ug/kg ug/kg Depth m ug/kg ug/kg ug/kg No. From То ug/kg ug/kg ug/kg ug/kg <3.0 <3.0 <3.0 <3.0 <3.0 <3.0 <3.0 <3.0 <3.0 <3.0 SS6 NA 0.00 0.90 NA <3.0 <3.0 <3.0 <3.0 <3.0 <3.0 <3.0 <3.0 <3.0 <3.0 **SS6** 1.60 NA NA 0.90 <3.0 <3.0 <3.0 SS3 NA 0.00 0.90 NA <3.0 <3.0 <3.0 <3.0 <3.0 <3.0 <3.0 <3.0 <3.0 <3.0 <3.0 <3.0 <3.0 <3.0 <3.0 <3.0 <3.0 SS3 NA 0.90 1.90 NA <3.0 <3.0 <3.0 <3.0 <3.0 <3.0 <3.0 <3.0 **SS**3 1.90 2.80 NA <3.0 <3.0 NA <3.0 <3.0 <3.0 <3.0 <3.0 <3.0 <3.0 <3.0 <3.0 <3.0 **SS**8 0.00 0.90 NA NA <3.0 <3.0 <3.0 <3.0 <3.0 <3.0 <3.0 <3.0 <3.0 <3.0 SS8 0.90 1.70 NA NA <3.0 <3.0 <3.0 <3.0 <3.0 <3.0 <3.0 <3.0 <3.0 **SS**9 NA 0.00 0.90 NA <3.0 <3.0 <3.0 19 1.90 <3.0 <3.0 <3.0 <3.0 <3.0 <3.0 SS9 NA <3.0 NA 0.90 <3.0 <3.0 <3.0 <3.0 <3.0 <3.0 <3.0 <3.0 SS9 <3.0 <3.0 1.90 2.10 NA NA <3.0 <3.0 <3.0 <3.0 <3.0 SS5 NA 0.00 0.90 NA <3.0 <3.0 <3.0 <3.0 <3.0 <3.0 <u><3</u>.0 <3.0 <3.0 <3.0 <3.0 <3.0 <3.0 NA <3.0 <3.0 SS7 0.00 0.90 NA <3.0 <3.0 <3.0 <3.0 <3.0 <3.0 <3.0 <3.0 SS7 NA 0.90 1.30 NA <3.0 <3.0 <3.0 <3.0 <3.0 <3.0 <3.0 <3.0 <3.0 <3.0 NA <3.0 <3.0 SS2 NA 0.50 0.90 <3.0 <3.0 <3.0 <3.0 <3.0 <3.0 <3.0 SS2 <3.0 <3.0 <3.0 NA 0.90 1.90 NA SS2 NA <3.0 <3.0 <3.0 <3.0 <3.0 <3.0 <3.0 <3.0 <3.0 <3.0 1.90 2.50 NA <3.0 <3.0 <3.0 <3.0 <3.0 <3.0 <3.0 <3.0 <3.0 <3.0 SS4 0.90 NA NA 0.00 <u><3.0</u> <3.0 <3.0 <3.0 <3.0 <3.0 <3,0 SS4 0.90 1.30 NA <3.0 <3.0 <3.0 NA <3.0 <3.0 <3.0 <3.0 <3.0 <3.0 <3.0 <3.0 <3.0 SS1 NA 0.20 0.90 NA <3.0 <3.0 <3.0 <3.0 <3.0 <3.0 <3.0 <3.0 <3.0 <3.0 SS1 0.90 1.20 NA <3.0 NA

Report No. Project Name	 101720A Chemical and Biological Testing of Sediment (Service Contract) Agreement No. CE 59/2005 (EP) Development of a Bathing Beach at Lung Mei, Tai Po Environmental, Drainage and Traffic Impact Assessments - Investigation Chemical, Elutriate and Biological Testing of Marine Sediment and Water
Customer	: Geotechnical Projects Division, Geotechnical Engineering office, Civil Engineering and Development Department
Lab Job No.	: J469
Lab Sample No.	: 18232,18236,18249,18255,18273,18286
Test Results	

Customer Ref.			Samp	ble	-	8	18	28	44	52	66	77	101	105
Drillhole No.	[Depth, r	ņ	Туре	Specimen									
	No.	From	То		Depth m	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kġ	ug/kg	ug/kg	ug/kg
R.Sediment	NA	NA	NA		NA	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0

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Report No. Project Name	 101720A Chemical and Biological Testing of Sediment (Service Contract) Agreement No. CE 59/2005 (EP) Development of a Bathing Beach at Lung Mei, Tai Po Environmental, Drainage and Traffic Impact Assessments - Investigation Chemical, Elutriate and Biological Testing of Marine Sediment and Water
Customer	: Geotechnical Projects Division, Geotechnical Engineering office, Civil Engineering and Development Department
Lab Job No.	: J469
Lab Sample No.	: 18232,18236,18249,18255,18273,18286
Test Results	

Customer Ref.	Sample 1						126	128	138	153	169	170	180	187	Total
Drillhole No.	Depth, m		Type	Specimen										PCB	
	No.	From	То		Depth m	ug/kg									
R.Sediment	NA	NA	NA			<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0

-----End of Report-----

Report No. Project Name	 101720A Chemical and Biological Testing of Sediment (Service Contract) Agreement No. CE 59/2005 (EP) Development of a Bathing Beach at Lung Mei, Tai Po Environmental, Drainage and Traffic Impact Assessments - Investigation Chemical, Elutriate and Biological Testing of Marine Sediment and Water
Customer	: Geotechnical Projects Division, Geotechnical Engineering office, Civil Engineering and Development Department
Lab Job No.	: J469
Lab Sample No.	: 18232,18236,18249,18255,18273,18286
Test Results	

1.1 Sample Duplicate

Customer Ref.			Samp	ole			8	18	28	44	52	66	77	101	105
Drillhole No.	[Depth, r	ກ	Туре	Specimen	Batch									
	No.	From	То		Depth m		%	%	%	%	%	%	%	%	%
SS6	N/A	0.00	0.90		N/A	1	na*	na*	na*	na*	na*	na*	na*	na*	na*
SS1	NA	0.20	0.90		N/A	2	na*	na*	na*	na*	na*	na*	na*	na*	na*
						· · ·									
	_														
·	C	Control 1	imit	<u> </u>	I			·	+/	- 30 <u>%</u>	of the	mea	<u>n</u>		£

1.2 Sample Spike (Spike Level = 1 ug)

Customer Ref.			Sam	ole		-	8	18.	28	44	52	66	77	101	105
Drillhole No.		Depth, i	n	Type Specimen									l I		
	No.	From	To		Depth m	1.00	%	%	%	%	%	%	%	%	%
SS6	N/A	0.00	0.90		N/A	1	83	91	78	97	93	90	100	107	113
SS1	NA	0.20	0.90		N/A	2	83	79	82	86	86	80	84	87	103
														-	
<u>_</u>				1									1		
	 C	ontrol l	imit		l		ļ	<u> </u>		<u> </u> 70-	-130 9	ـــــــــــــــــــــــــــــــــــــ		1	L

Notes :

 na* = Relative deviation (RD) for duplicates cannot be evaluated as the value determined is lower than reporting limit.

: Wong Yau Tim (Operations Manager)

Issue Date: : 30 Dec. 2006

Lam Laboratories Limited

Authorized Signatory

mited Unit 12, 14/F., Honour Industrial Centre, 6 Sun Yip Street, Chai Wan, Hong Kong. Tel: (852) 2897 3282 Fax: (852) 2897 5509 e-mail: info@lamlab.com

Report No.	: 101720A
Project Name	 Chemical and Biological Testing of Sediment (Service Contract) Agreement No. CE 59/2005 (EP) Development of a Bathing Beach at Lung Mei, Tai Po Environmental, Drainage and Traffic Impact Assessments - Investigation Chemical, Elutriate and Biological Testing of Marine Sediment and Water
Customer	: Geotechnical Projects Division, Geotechnical Engineering office, Civil Engineering and Development Department
Lab Job No.	: J469
Lab Sample No.	: 18232,18236,18249,18255,18273,18286
Task Dasults	

Test Results

1.3 Sample Duplicate

Customer Ref.			Sam	ple			118	126	128	138	153	169	170	180	187
Drillhole No.	Ē)epth, i	m	Туре	Specimen	Batch					1				
	No.	From	То		Depth m	-	%	%	%	%	%	%	%	%	%
SS6	N/A	0.00	0.90		N/A	1	na*	na*	na*	na*	na*	na*	na*	na*	na*
S\$1	NA	0.20	0.90		N/A	2	na*	na*	na*	na*	na*	na*	na*	na*	na*
				-											
	 Co) ontrol L	L .imit	<u> </u>	<u> </u>	·	<u> </u>		+/-	<u> </u> 30%	l of the	e mea	L n	L	I

1.4 Sample Spike (Spike Level = 1 ug)

Customer Ref.			Sam	ple			118	126	128	138	153	169	170	180	187
Drillhole No.	Ċ)epth, i	m .	Туре	Specimen	Batch									
	No.	From	То		Depth m		%	%	%	%	%	%	%	%	%
SS6	N/A	0.00	0.90		N/A	1	110	97	119	114	103	92	100	104	111
SS1	NA	0.20	0.90		N/A	2	8,6	97	104	101	95	117	119	108	90
<u> </u>	-														
	C	j ontrol L	l _imit	I			 	<u> </u>	1	70-	<u>130 %</u>	6 6	L		L

Notes :

1. na* = Relative deviation (RD) for duplicates cannot be evaluated

as the value determined is lower than reporting limit.

Report No.	: 101720A
Project Name	 Chemical and Biological Testing of Sediment (Service Contract) Agreement No. CE 59/2005 (EP) Development of a Bathing Beach at Lung Mei, Tai Po Environmental, Drainage and Traffic Impact Assessments - Investigation Chemical, Elutriate and Biological Testing of Marine Sediment and Water Geotechnical Projects Division, Geotechnical Engineering office,
Customer	Civil Engineering and Development Department
Lab Job No.	: J469
Lab Sample No.	: 18232,18236,18249,18255,18273,18286
$T = -(D = \cdots)/(z)$	

Test Results

2.1 QC Sample (SETOC 2002.4.4)

Customer Ref.		28	52	101	105	118	128	138	153	180
Drillhole No.	Batch		1							
		%	%	%	%	%	%	%	%	%
SETOC 2002.4.4	1	88	90	86	95	103	97	95	90	115
SETOC 2002.4.4	2	97	79	100	88	107	90	109	101	122
Control Lim	Control Limit				30% o	f nom	inal val	ue	·····	L

2.2 Method Blank

Customer Ref.			Sam	ole			8	18	28	44	52	66	77	101	105
Drillhole No.	D	epth, r	ກ	Туре	Specimen	Batch					1 '				
	No.	From	Τo		Depth m		ug/kg					ug/kg			
N/A	N/A	N/A	N/A		N/A	1	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
N/A	N/A	N/A	N/A		N/A	2	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
		Control	l imit					<u> </u>	ll les:	s than	repor	ting lir	l nit		

Customer Ref.			Sam	ole		118	126	128	138	153	169	170	180	187
Drillhole No.	D	epth, i	'n	TypeSpeci	men Batch									
	No.	From	То	Dept	h m	ug/kg				ug/kg				
N/A	N/A	N/A	N/A	N//	A 1	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
N/A	N/A	N/A	N/A	N//	A 2	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
						+								
	Control Limit							les	s than	repor	ting li	nit	 	

 Lam Laboratories Limited
 Unit 12, 14/F., Honour Industrial Centre, 6 Sun Yip Street, Chai Wan, Hong Kong.

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 e-mail: info@lamlab.com



TBT



Report No.	: 101721A
Project Name	: Chemical and Biological Testing of Sediment (Service Contract)
	Agreement No. CE 59/2005 (EP) Development of a Bathing Beach at Lung Mei,
	Tai Po Environmental, Drainage and Traffic Impact Assessments - Investigation
	Chemical, Elutriate and Biological Testing of Marine Sediment and Water
Customer	: Geotechnical Projects Division, Geotechnical Engineering office,
	Civil Engineering and Development Department
Address	: 8/F Civil Engineering and Development Building, 101 Princess Margaret Road,
	Kowloon, Hong Kong
Lab Job No.	: J469
Lab Sample No.	: 18232,18236,18249,18255,18273,18286
Sample Description	: 21 samples said to be water
Sample Receipt Date	: 13 October 2006 - 24 October 2006
Test Period	: 14 October 2006 - 06 November 2006

Test Information

CODE	Test Parameter	Reporting Limit	Test Procedure
		ug/L	
TBT	Tri-Butyl Tin	0.015	W/O/TBT

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2. < = less than</p>

3. N/A = Not applicable

4. Test results satisfy all in-house QA/QC protocols as attached.

5. Test description (for in-house methods) as follows:

W/O/TBT: Solvent extraction and GC-MS Quantification.

6. Reporting limit of one sample is 0.075ug/L as no enough sample.

Authorized Signatory :

Wong Yau Tim (Operations Manager)

Issue Date:

30 Dec. 2006

Hong Kong Accreditation Service (HKAS) has accredited this laboratory under Hong Kong Laboratory Accreditation Scheme (HOKLAS) for specific laboratory activities as listed in the HOKLAS directory of accredited laboratories. The results shown in this report were determined by this laboratory in accordance with its terms of accreditation.

Lam Laboratories Limited

Unit 12, 14/F., Honour Industrial Centre, 6 Sun Yip Street, Chai Wan, Hong Kong. Tel: (852) 2897 3282 Fax: (852) 2897 5509 e-mail: <u>info@lamlab.com</u>

Report No. Project Name Customer	:	101721A Chemical and Biological Testing of Sediment (Service Contract) Agreement No. CE 59/2005 (EP) Development of a Bathing Beach at Lung Mei, Tai Po Environmental, Drainage and Traffic Impact Assessments - Investigation Chemical, Elutriate and Biological Testing of Marine Sediment and Water Geotechnical Projects Division, Geotechnical Engineering office,	
		Civil Engineering and Development Department	
Lab Job No.	:	J469	
Lab Sample No.	:	18232,18236,18249,18255,18273,18286	
Test Desults			

Test Results

Customer Ref.			Sar	nple .		TBT
Drillhole No.	D	epth, n	r	Туре	Specimen	
	No.	From	То		Depth m	ug TBT / L
SS6	NA	0.00	0.90		NA	<0.015
SS6	NA	0.90	1.60		NA	<0.015
SS3	NA	0.00	0.90		NA	<0.015
SS3	NA	0.90	1.90		NA	<0.015
SS3	NA	1.90	2.80		NA	<0.015
SS8	NA	0.00	0.90		NA	<0.015
SS8	NA	0.90	1.70		NA	<0.015
SS9	NA	0.00	0.90		NA	<0.015
S\$9	NA	0.90	1.90		NA	<0.015
SS9	NA	1.90	2.10		NA	<0.075
SS5	NA	0.00	0.90		NA	<0.015
SS7	NA	0.00	0.90		NA	<0.015
SS7	NA	0.90	1.30		NA	<0.015
SS2	NA	0.50	0.90		NA	<0.015
SS2	NA	0.90	1.90		NA	<0.015
SS2	NA	1.90	2.50		NA	<0.015
SS4	NA	0.00	0.90		NA	<0.015
SS4	NA	0.90	1.30		NA	<0.015
SS1	NA	0.20	0.90		NA	<0.015
SS1	NA	0.90	1.20		NA	<0.015

Report No. Project Name	 101721A Chemical and Biological Testing of Sediment (Service Contract) Agreement No. CE 59/2005 (EP) Development of a Bathing Beach at Lung Mei,
	Tai Po Environmental, Drainage and Traffic Impact Assessments - Investigation Chemical, Elutriate and Biological Testing of Marine Sediment and Water
Customer	: Geotechnical Projects Division, Geotechnical Engineering office,
	Civil Engineering and Development Department
Lab Job No.	: J469
Lab Sample No.	: 18232,18236,18249,18255,18273,18286
Test Results	

Customer Ref.			Sai	nple		TBT
Drillhole No.	D	epth, n	n i	Туре	Specimen	
	No.	From	То		Depth m	ug TBT / L
R.Sediment	NA	NA	NA		NA	<0.015

-----End of report-----

(Page 1 of 2)

QUALITY CONTROL REPORT

Report No. Project Name	 101721A Chemical and Biological Testing of Sediment (Service Contract) Agreement No. CE 59/2005 (EP) Development of a Bathing Beach at Lung Mei, Tai Po Environmental, Drainage and Traffic Impact Assessments - Investigation Chemical, Elutriate and Biological Testing of Marine Sediment and Water
Customer	: Geotechnical Projects Division, Geotechnical Engineering office, Civil Engineering and Development Department
Lab Job No.	: J469
Lab Sample No.	: 18232,18236,18249,18255,18273,18286
Test Results	

1.1 Sample Duplicate (Relative deviation)

Customer Ref.			Sam	ple		твт	
Drillhole No.		Depth, m			Specimen Bat		
	No.	From	То		Depth m		%
18223/1	N/A	N/A	N/A		N/A	1	na*
18236/1	N/A	N/A	N/A		N/A	2	na*
		ntrol Li	mit				+/- 30% of the mean

Sample Spike (Spike Level = 50 ng) 1.2

Customer Ref.			Sam	ple		TBT	
Drillhole No.		Depth, m			Specimen	Batch	
	No.	From	То		Depth m		%
18223/1	N/A	N/A	N/A		N/A	1	83
18236/1	N/A	N/A	N/A		N/A	2	104
	Co	ntrol Li	mit	1			70-130 %

Notes :

1. na* = Relative deviation (RD) for duplicates cannot be evaluated as the value determined is lower than reporting limit.

Authorized Signatory : ĥg∕Yau T/im (Operations Manager) Lam Laboratories Limited

Issue Date:

30 Dec. 2006

Unit 12, 14/F., Honour Industrial Centre, 6 Sun Yip Street, Chai Wan, Hong Kong. e-mail: info@lamlab.com Tel: (852) 2897 3282 Fax: (852) 2897 5509

Report No.	: 101721A
Project Name	 Chemical and Biological Testing of Sediment (Service Contract) Agreement No. CE 59/2005 (EP) Development of a Bathing Beach at Lung Mei, Tai Po Environmental, Drainage and Traffic Impact Assessments - Investigation Chemical, Elutriate and Biological Testing of Marine Sediment and Water
Customer	: Geotechnical Projects Division, Geotechnical Engineering office, Civil Engineering and Development Department
Lab Job No.	: J469
Lab Sample No.	: 18232,18236,18249,18255,18273,18286
Test Results	

1.3 QC Sample (Spike level = 50 ng)

.

Customer Ref.			Sam	ple			TBT
Drillhole No.	C)epth, r	n	Туре	Specimen	Batch	
	No.	From	То		Depth m		%
MB Spike	N/A	N/A	N/A		N/A	1	92
MB Spike	N/A	N/A	N/A		N/A	2	104
	0	Control	Limit				70 - 130 %

1.4 Method Blank

Customer Ref.			Sam	ple			TBT
Drillhole No.	C)epth, r	n <u> </u>	Туре	Specimen	Batch	
	No.	From	То		Depth m		ug TBT / L
N/A	N/A	N/A	N/A		N/A	1	<0.015
N/A	N/A	N/A	N/A		N/A	2	<0.015
	0	Control	Limit				Less than reporting limit



Inorganic

<u>TEST REPORT</u>

Report No. Project Name	 101822N CEDD Contract No. GE/2005/47Chemical and Biological Testing of Sediment (Service Contract) Agreement No. CE 59/2005(EP) Development of a Bathing Beach a Lung Mei, Tai Po Environmental, Drainage and Traffic Impact Assessments - Investigation Chemical, Elutriate and Biological Testing of Marine Sediment and Water Service Order No. : GE/2005/47.22
Customer	 Geotechnical Projects Division, Geotechnical Engineering office, Civil Engineering and Development Department
Address	: 8/F Civil Engineering and Development Building, 101 Princess Margaret Road, Kowloon, Hong Kong
Lab Job No.	: J469 Lab Sample No. : 18232,18236,18249,18255

			182/3,18286
Sample Description Sample Receipt Date	: 21 solid samples s : 12/10/2006-26/10/2		: 12/10/2006-9/11/2006
Test Information			
Code	Test Parameter	Reporting Limit (unit)	Test Procedure
SOD	Sediment Oxygen Demand (5days)	100 (mg O ₂ /kg)	In-house Method
COD	Chemical Oxygen Demand	5000 (mg O ₂ /kg)	APHA 19e 5220D (Closed Reflux)
TOC	Total Organic Carbon	0.05 (%)	In-house Method EP-005(NDIR)
RP	Redox potential	N/A (mV)	In-house Method S/N/ORP
TKN	Nitrogen (Total Kjeldahl)	50 (mg-N/kg)	In-house Method W/N/TKN
NH3-N	Nitrogen (Ammonia)	1.0 (mg NH ₃ -N/kg)	In-house Method W/N/NH3-FIA
TP	Phosphorus (Total)	10 (mg-P/kg)	APHA 19e 4500-P B & E
PO4-P	Orthophosphate	0.1 (mg-P/kg)	In-house Method W/N/TRP-FIA
NO3-N	Nitrogen (Nitrate)	1.0 (mg NO ₃ -N/kg)	In-house Method W/N/NOx-FIA
NO2-N	Nitrogen (Nitrite)	1.0 (mg NO ₂ -N/kg)	In-house Method W/N/NOx-FIA

Notes : 1. This report shall not be reproduced, except in full, without prior written approval from Lam Laboratories Limited.

- 2. Results related to sample(s) as received.
- 3. Results satisfy all in-house QA/QC protocols as attached.
- 4. W/N/NOx-FIA: Determination of Nitrate and/or Nitrite by Flow Injection Analysis.
- 5. W/N/NH3-FIA: Determination of Ammonia by Flow Injection Analysis.
- 6. W/N/TRP/FIA: Determination of Total Reactive Phosphorus by Flow Injection Analysis.
- 7. W/N/TKN: In-house method based on APHA 19e 4500-NorgB and 4500-NH3 C
- 8. S/N/ORP: Determination of Redox Potential
- 9. Samples for Total Organic Carbon Analysis were subcontracted to ALS Technichem (HK) Pty. Limited.

Authorized	Signatory
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Tona

Issue Date

29/1/2007

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MA Hiu Tung	
(Chemist)	

Report No. Project Name	 101822N CEDD Contract No. GE/2005/47Chemical and Biological Testing of Sediment (Service Contract) Agreement No. CE 59/2005(EP) Development of a Bathing Beach <i>e</i> Investigation Chemical, Elutriate and Biological Testing of Marine Sediment and Water Service Order No. : GE/2005/47.22
Customer	: Geotechnical Projects Division, Geotechnical Engineering office, Civil Engineering and Development Department
Lab Job No.	: J469 Lab Sample No. : 18232,18236,18249,18255 18273,18286

Test Results					
		RP	SOD	COD	тос
Customer Ref.	Lab Sample No.	(mV)	(mg O ₂ /kg)	(mg O ₂ /kg)	(%)
SS6 0.0-0.9m	18232/3	103.1	160	<5000	1.4
SS6 0.9-1.6m	18232/4	86.3	200	<5000	2.6
SS3 0.0-0.9m	18232/7	63.4	200	6100	1.8
SS3 0.9-1.9m	18232/8	49.4	<100	<5000	1.3
SS3 1.9-2.8m	18232/9	78.3	180	<5000	0.9
SS8 0.0-0.9m	18236/3	88.6	240	<5000	1.7
SS8 0.9-1.7m	18236/4	124.3	<100	<5000	0.5
SS9 0.0-0.9m	18236/5	69.6	170	<5000	1.8
SS9 0.9-1.9m	18236/6	127.4	160	<5000	0.9
SS9 1.9-2.1m	18236/7	64.4	<100	<5000	1.6
SS5 0.0-0.9m	18249/3	94.4	260	<5000	0.3
SS7 0.0-0.9m	18249/6	91.6	260	<5000	0,3
SS7 0.9-1.3m	18249/7	103.5	<100	<5000	0.6
SS2 0.5-0.9m	18255/3	124.3	170	<5000	0.7
SS2 0.9-1.9m	18255/4	120.2	110	<5000	1.1
SS2 1.9-2.5m	18255/5	105.9	600	<5000	0.7
SS4 0.0-0.9m	18255/8	79.3	<100	<5000	0.7
SS4 0.9-1.3m	18255/9	94.5	150	<5000	<0.05
SS1 0.2-0.9m	18273/3	89.8	<100	<5000	0.6
SS1 0.9-1.2m	18273/4	122.2	120	<5000	0.2
Reference Sample	18286/1	48.8	292	13000	1.5

Notes : 1. < = less than

Report No. Project Name	 101822N CEDD Contract No. GE/2005/47Chemical and Biological Testing of Sediment (Service Contract) Agreement No. CE 59/2005(EP) Development of a Bathing Beach a Investigation Chemical, Elutriate and Biological Testing of Marine Sediment and Water Service Order No. ; GE/2005/47 22
Customer	: Geotechnical Projects Division, Geotechnical Environment
Lab Job No.	Civil Engineering and Development Department : J469 Lab Sample No. : 18232,18236,18249,18255
Test Results	18273,18286

Customer Ref.	Lab Sample No.	TKN	NH3-N	TP	PO4-P
SS6 0.0-0.9m		(mg-N/kg)	(mg NH ₃ -N/kg)	(mg-P/kg)	
	18232/3	<50	<1.0		(mg-P/kg)
SS6 0.9-1.6m	18232/4	71	<1.0	<10	<0.1
SS3 0.0-0.9m	18232/7	110		<10	<0.1
SS3 0.9-1.9m	18232/8	52	<1.0	<10	<0.1
SS3 1.9-2.8m	18232/9	<50	<1.0	<10	0.35
SS8 0.0-0.9m	18236/3	84	<1.0	<10	0.21
SS8 0.9-1.7m	18236/4		<1.0	98	<0.1
SS9 0.0-0.9m	18236/5	57	<1.0	180	< 0.1
SS9 0.9-1.9m	18236/6	210	<1.0	83	<0.1
SS9 1.9-2.1m	18236/7	65	<1.0	61	0.15
SS5 0.0-0.9m	18249/3	68	<1.0	71	<0.1
SS7 0.0-0.9m	18249/6	88	<1.0	28	<0.1
SS7 0.9-1.3m		59	<1.0	85	<0.1
SS2 0.5-0.9m	18249/7	<50	1.8	11	<0.1
SS2 0.9-1.9m	18255/3	130	<1.0	130	<0.1
SS2 1.9-2.5m	18255/4	68	<1.0	110	the second s
SS4 0.0-0.9m	18255/5	84	<1.0	94	0.15
SS4 0.9-1.3m	18255/8	110	<1.0	22	<0.1
SS1 0.2-0.9m	18255/9	<50	<1.0	110	0.11
	18273/3	104	<1.0	the second s	<0.1
SS1 0.9-1.2m	18273/4	<50	<1.0	84	<0.1
Peferoneo Samula	18286/1			110	<0.1
Reference Sample	10200/1	180	2.9	1100	1.1

Notes : 1. < = less than

Report No. Project Name	 101822N CEDD Contract No. GE/2005/47Chemical and Biological Testing of Sediment (Service Contract) Agreement No. CE 59/2005(EP) Development of a Bathing Beach a Investigation Chemical, Elutriate and Biological Testing of Marine Sediment and Water Service Order No. : GE/2005/47.22
Customer	: Geotechnical Projects Division, Geotechnical Engineering office, Civil Engineering and Development Department
Lab Job No.	: J469 Lab Sample No. : 18232,18236,18249,18255 18273,18286

Test Results	· · · · · · · · · · · · · · · · · · ·		NO2-N
Customer Ref.	Lab Sample No.	NO3-N	
Customer Ref.	Lab Gampie No.	(mg NO3-N/kg)	(mg NO ₂ -N/kg)
SS6 0.0-0.9m	18232/3	<1.0	<1.0
SS6 0.9-1.6m	18232/4	<1.0	<1.0
SS3 0.0-0.9m	18232/7	<1.0	<1.0
SS3 0.9-1.9m	18232/8	<1.0	<1.0
SS3 1.9-2.8m	18232/9	<1.0	<1.0
SS8 0.0-0.9m	18236/3	<1.0	<1.0
SS8 0.9-1.7m	18236/4	<1.0	<1.0
SS9 0.0-0.9m	18236/5	<1.0	<1.0
SS9 0.9-1.9m	18236/6	<1.0	<1.0
SS9 1.9-2.1m	18236/7	<1.0	<1.0
SS5 0.0-0.9m	18249/3	<1.0	<1.0
SS7 0.0-0.9m	18249/6	<1.0	<1.0
SS7 0.9-1.3m	18249/7	<1.0	<1.0
SS2 0.5-0.9m	18255/3	<1.0	<1.0
SS2 0.9-1.9m	18255/4	<1.0	<1.0
SS2 1.9-2.5m	18255/5	<1.0	<1.0
SS4 0.0-0.9m	18255/8	<1.0	<1.0
SS4 0.9-1.3m	18255/9	<1.0	<1.0
SS1 0.2-0.9m	18273/3	<1.0	<1.0
SS1 0.9-1.2m	18273/4	<1.0	<1.0
Reference Sample	18286/1	<1.0	<1.0

Notes : 1. < = less than

- End of Report -

Report No. Project Name	(Service Contract) Ag	greement No. CE 59/2005(E	ological Testing of Sediment P) Development of a Bathing Beach a
Oristania	Service Order No. : O	GE/2005/47.22	esting of Marine Sediment and Water
Customer	-	s Division, Geotechnical Eng I Development Department	
Lab Job No.	: J469	Lab Sample No.	: 18232,18236,18249,18255 18273,18286

Test Results

1.1 Method Blank

Lob Somple No	NOx-N	NH3-N	PO4-P	TKN	TP	NO2-N
Lab Sample No.	(mg NO _x -N/kg)	(mg NH ₃ -N/kg)	(mg P/kg)	(mg N/kg)	(mg P/kg)	(mg NO2-N/kg)
N/A	<0.01	<0.02	<0.001	< 0.02	<0.004	<0.01
Control Limit	0.01	0.02	0.001	0.02	0.004	0.01

Lab Sample No.	SOD (mg O ₂ /kg)	COD (mg O ₂ /kg)	TOC (%)
N/A	0.6	<10	<1
Control Limit	0.60-1.0	10	1

1.2 Quality Control Standard (Recovery)

Lab Sample No.	NOx-N (%)	NH3-N (%)	PO4-P (%)	TKN (%)	TP (%)	NO2-N (%)
LCS	100	106	114	103	92	99
Control Limit	80-120	80-120	80-120	80-120	80-120	80-120

Lab Sample No.	BOD (mg/L)	COD (%)	ТОС (%)	RP (mV)
LCS	202	99	111	230
Control Limit	198+/-30.5	80-120	85-115	228+/-10

1.3 Sample Duplicate (Relative Deviation)

Leb Comple No.	NOx-N	NH3-N	PO4-P	TKN	TP	NO2-N
Lab Sample No.	(%)	(%)	(%)	(%)	(%)	(%)
18289/1	13	N/A	N/A	N/A	N/A	0.36
18352/3	N/A	1.7	N/A	N/A	N/A	N/A
18289/1	N/A	N/A	5.7	N/A	N/A	N/A
18249/1	N/A	N/A	N/A	0.0	0.0	N/A
Control Limit	20	20	20	20	20	20

Lob Comple No	BOD	COD	TOC	RP
Lab Sample No.	(%)	(%)	(%)	(%)
18279/5	9.8	N/A	N/A	N/A
18268/1	N/A	17	N/A	N/A
18232/3	N/A	N/A	0.0	6.9
HK0605308-001	N/A	N/A	0.0	N/A
Control Limit	20	20	N/A	20

MA Hiu Tung (Chemist)

Notes: 1. < = less than

2. +/-= plus or minus

3. N/A = Not applicable

:

Authorized Signatory

Issue Date

29/1/2007

:

Lam Laboratories Limited

Room 1412, Honour Industrial Centre, 6 Sun Yip Street, Chai Wan, Hong Kong Tel: (852) 2897 3282 Fax: (852) 2897 5509 e-mail: <u>info@lamlab.com</u>

Report No. Project Name	 101822N CEDD Contract No. GE/2005/47Chemical and Biological Testing of Sediment (Service Contract) Agreement No. CE 59/2005(EP) Development of a Bathing Beach a
	Investigation Chemical, Elutriate and Biological Testing of Marine Sediment and Water Service Order No. : GE/2005/47.22
Customer	: Geotechnical Projects Division, Geotechnical Engineering office, Civil Engineering and Development Department
Lab Job No.	: J469 Lab Sample No. : 18232,18236,18249,18255 18273,18286

Test Results

1.4 Sample Spike (Recovery)

	NOx-N	NH3-N	PO4-P	TKN	TP	NO2-N
Lab Sample No.	(%)	(%)	(%)	(%)	(%)	(%)
18289/1	96	N/A	N/A	N/A	N/A	92
18352/3	N/A	114	N/A	N/A	N/A	N/A
18289/1	N/A	N/A	97	N/A	N/A	N/A
18249/1	N/A	N/A	N/A	99	100	N/A
Control Limit	80-120	80-120	80-120	80-120	80-120	80-120

Lob Somple No	COD
Lab Sample No.	(%)
18268/1	86
Control Limit	80-120

Notes: 1. < = less than

2. N/A = Not applicable



Chlorinated Pesticides



National Measurement Institute

REPORT OF ANALYSIS

				NEFONI		
Page: 1 of 6						
eport No. RN580927		1. 61.				
	: LAML01/06	-			LABORATOR	
J441	: QT-00441				- 1416 HON	
	•	rder No.		T	6 SUN	
		ate Sampled			WAN	
	: 20-0CT-20				g Kong	
41	: CLIENT	ampled By	Sa		G YAU TIM	
						Project Name :
<u>}4490151</u>	: (02) 94490	none	Pr	<u>n Woodwar</u>	nager : Bria	Your Client Services Mar
22 /0 0 0 0 0	1460 6022 /6		Sample Desc	<u>. </u>	Sample Ref	Lab Reg No.
22 (0.0-0.9M)					SS3	NQ06/06618
022 (0.9-1.9M)		•			SS3	NQ06/06619
022 (1.9-2.8M)	1469 5022 (1	05/047 JOB J	SOIL GE/200		SS3	NQ06/06620
620	NQ06/06620	NQ06/06619	NQ06/06618			Lab Reg No.
	SS3	SS3	\$\$3		-	Sample Reference
Method				LOR	Units	
P,		,I	<u></u>			Organochlorine (OC) Pesticides
NR_19	<0.01	< 0.01	<0.01	0.01	 mg/kg	НСВ
NR 19	< 0.01	< 0.01	<0.01	0.01	mg/kg	Heptachlor
NR_19	<0.01	< 0.01	<0.01	0.01	mg/kg	Heptachlor epoxide
NR_19	< 0.01	< 0.01	<0.01	0.01	mg/kg	Aldrin
NR 19	< 0.01	< 0.01	<0.01	0.01	mg/kg	gamma-BHC (Lindane)
NR_19	< 0.01	<0.01	<0.01	0.01	mg/kg	alpha-BHC
NR_19	< 0.01	< 0.01	<0.01	0.01	mg/kg	beta-BHC
NR 19	< 0.01	< 0.01	<0.01	0.01	mg/kg	delta-BHC
NR_19	< 0.01	< 0.01	<0.01	0.01	mg/kg	trans-Chlordane
NR_19	<0.01	<0.01	< 0.01	0.01	mg/kg	cis-Chlordane
NR_19	< 0.01	<0.01	<0.01	0.01	mg/kg	Oxychlordane
NR_19	<0.01	< 0.01	<0.01	0.01	mg/kg	Dieldrin
NR_19	< 0.01	< 0.01	<0.01	0.01	mg/kg	pp-DDE
NR_19	<0.01	< 0.01	<0.01	0.01	mg/kg	pp-DDD
NR_19	<0.01	<0.01	<0.01	0.01	mg/kg	pp-DDT
NR_19	<0.01	<0.01	< 0.01	0.01	mg/kg	Endrin
NR_19	<0.01	< 0.01	<0.01	0.01	mg/kg	Endrin Aldehyde
NR_19	<0.01	<0.01	<0.01	0.01	mg/kg	Endrin Ketone
NR_19	< 0.01	<0.01	<0.01	0.01		alpha-Endosulfan
NR_19	<0.01	<0.01	<0.01	0.01	mg/kg	beta-Endosulfan
NR_19	<0.01	<0.01	<0.01	0.01	mg/kg	Endosulfan Sulfate
NR_19	< 0.01	<0.01	< 0.01	0.01	mg/kg	Methoxychlor
				_·		Surrogate
NR_19	109	96	67	1	%	Surrogate OC Rec.
					<u> </u>	Dates
2006	24-0CT-2006	24-0CT-2006	24-0CT-2006			
2006	26-OCT-2006	26-OCT-2006	26-0CT-2006			
	<0.01 <0.01 <0.01 <0.01 <0.01 109 24-0CT-2006	<0.01 <0.01 <0.01 <0.01 <0.01 96 24-0CT-2006	<0.01 <0.01 <0.01 <0.01 67 24-0CT-2006	0.01 0.01 0.01	mg/kg mg/kg mg/kg mg/kg mg/kg	Endrin Ketone alpha-Endosulfan beta-Endosulfan Endosulfan Sulfate Methoxychlor Surrogate Surrogate OC Rec.

Page: 2 of 6 Report No. RN580927

Lab Reg No.			NQ06/06618	NQ06/06619	NQ06/06620	
Sample Reference			SS3	SS3	SS3	
	Units	LOR				Method

Alle

Danny Slee, Section Manager Organics - NSW (Accreditation No. 198)

3-NOV-2006

Lab Reg No.			NQ06/06618	NQ06/06619	NQ06/06620	
Sample Reference			SS3	SS3	SS3	
	Units	LOR				Method
Trace Elements					• •	
Total Solids	%		79.5	82.4	85.0	NT2 49

No

Dr. Honway Louie, Section Manager Inorganics - NSW (Accreditation No. 198)

3-NOV-2006

Page: 3 of 6

			Report No. RN580927
Client	: LAM LABORATORIES LTD	Job No.	: LAML01/061020/2
	1412 - 1416 HONOUR IND CENTRE	Quote No.	: QT-00441
	6 SUN YIP STREET	Order No.	:
	CHAI WAN	Date Sampled	:
	HONG KONG	Date Received	: 20-OCT-2006
Attention	: WONG YAU TIM	Sampled By	: CLIENT
Project Name	:		
Your Client Ser	vices Manager : Brian Woodward	Phone	: (02) 94490151

Lab Reg No.	Sample Ref	Sample Description
NQ06/06621	SS6	SOIL GE/2005/047 JOB J469 SO22 (0.0-0.9M)
NQ06/06622	SS6	SOIL GE/2005/047 JOB J469 S022 (0.9-1.6M)
NQ06/06623	SS8	SOIL GE/2005/047 JOB J469 S022 (0.0-0.9M)

Lab Reg No.			NQ06/06621	NQ06/06622	NQ06/06623	· · · · · · · · · · · · · · · · · · ·
Sample Reference			SS6	SS6	SS8	1
	Units	LOR				Method
Organochlorine (OC) Pestic	ides	• • •			• • •	
НСВ	mg/kg	0.01	<0.01	<0.01	<0.01	NR_19
Heptachlor	mg/kg	0.01	<0.01	<0.01	< 0.01	NR_19
Heptachlor epoxide	mg/kg	0.01	<0.01	<0.01	<0.01	NR_19
Aldrin	mg/kg	0.01	<0.01	<0.01	<0.01	NR_19
gamma-BHC (Lindane)	mg/kg	0.01	<0.01	<0.01	<0.01	NR_19
alpha-BHC	mg/kg	0.01	<0.01	<0.01	<0.01	NR_19
beta-BHC	mg/kg	0.01	<0.01	<0.01	<0.01	NR_19
delta-BHC	mg/kg	0.01	<0.01	<0.01	<0.01	NR_19
trans-Chlordane	mg/kg	0.01	<0.01	<0.01	<0.01	NR_19
cis-Chlordane	mg/kg	0.01	< 0.01	<0.01	<0.01	NR_19
Oxychlordane	mg/kg	0.01	<0.01	<0.01	<0.01	NR_19
Dieldrin	mg/kg	0.01	<0.01	<0.01	<0.01	NR_19
pp-DDE	mg/kg	0.01	<0.01	<0.01	<0.01	NR_19
pp-DDD	mg/kg	0.01	<0.01	<0.01	<0.01	NR_19
pp-DDT	mg/kg	0.01	<0.01	<0.01	<0.01	NR_19
Endrin	mg/kg	0.01	<0.01	<0.01	<0.01	NR_19
Endrin Aldehyde	mg/kg	0.01	<0.01	<0.01	<0.01	NR_19
Endrin Ketone	mg/kg	0.01	<0.01	<0.01	<0.01	NR_19
alpha-Endosulfan	mg/kg	0.01	<0.01	<0.01	<0.01	NR_19
beta-Endosulfan	mg/kg	0.01	<0.01	<0.01	<0.01	NR_19
Endosulfan Sulfate	mg/kg	0.01	<0.01	<0.01	<0.01	NR_19
Methoxychlor	mg/kg	0.01	<0.01	<0.01	<0.01	NR_19
Surrogate						
Surrogate OC Rec.	%		62	63	70	NR_19
Dates			•			
Date extracted			24-0CT-2006	24-0CT-2006	24-0CT-2006	
Date analysed			26-0CT-2006	26-0CT-2006	26-0CT-2006	

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					Report	No. RN580927
Lab Reg No.			NQ06/06621	NQ06/06622	NQ06/06623	T
Sample Reference			SS6	SS6	SS8]
	Units	LOR				Method

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Lab Reg No.			NQ06/06621	NQ06/06622	NQ06/06623	1
Sample Reference			SS6	SS6	SS8	
	Units	LOR				Method
Trace Elements		· · · ·	· · · · · · · · · · · · · · · · · · ·			
Total Solids	%		76.3	82.8	81.3	NT2_49

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			Report No. RN580927
Client	: LAM LABORATORIES LTD	Job No.	: LAML01/061020/2
	1412 - 1416 HONOUR IND CENTRE	Quote No.	: QT-00441
	6 SUN YIP STREET	Order No.	:
	CHAI WAN	Date Sampled	:
	HONG KONG	Date Received	: 20-0CT-2006
Attention	: WONG YAU TIM	Sampled By	: CLIENT
Project Name	:		
Your Client Ser	vices Manager : Brian Woodward	Phone	: (02) 94490151

Lab Reg No.	Sample Ref	Sample Description
NQ06/06624	SS8	SOIL GE/2005/047 JOB J469 S022 (0.9-1.7M)
NQ06/06625	SS9	SOIL GE/2005/047 JOB J469 SO22 (0.0-0.9M)
NQ06/06626	\$S9	SOIL GE/2005/047 JOB J469 SO22 (0.9-1.9M)

Lab Reg No.		_	NQ06/06624	NQ06/06625	NQ06/06626	
Sample Reference	Units	LOR	SS8	SS9	SS9	Method
Organochlorine (OC) Pestici	des					
НСВ	mg/kg	0.01	<0.01	<0.01	< 0.01	NR_19
Heptachlor	mg/kg	0.01	<0.01	<0.01	<0.01	NR_19
Heptachlor epoxide	mg/kg	0.01	`<0.01	<0.01	<0.01	NR.19
Aldrin	mg/kg	0.01	<0.01	<0.01	<0.01	NR_19
gamma-BHC (Lindane)	mg/kg	0.01	<0.01	<0.01	<0.01	NR_19
alpha-BHC	mg/kg	0.01	<0.01	<0.01	<0.01	NR_19
beta-BHC	mg/kg	0.01	<0.01	<0.01	<0.01	NR_19
delta-BHC	mg/kg	0.01	<0.01	<0.01	< 0.01	NR_19
trans-Chlordane	mg/kg	0.01	<0:01	<0.01	< 0.01	NR_19
cis-Chlordane	mg/kg	0.01	<0.01	<0.01	< 0.01	NR_19
Oxychlordane	mg/kg	0.01	<0.01	<0.01	<0.01	NR_19
Dieldrin	mg/kg	0.01	<0.01	<0.01	<0.01	NR_19
pp-DDE	mg/kg	0.01	<0.01	<0.01	<0.01	NR_19
pp-DDD	mg/kg	0.01	<0.01	<0.01	<0.01	NR_19
pp-DDT	mg/kg	0.01	<0.01	<0.01	< 0.01	NR_19
Endrin	mg/kg	0.01	<0.01	<0.01	< 0.01	NR_19
Endrin Aldehyde	mg/kg	0.01	<0.01	<0.01	<0.01	NR_19
Endrin Ketone	mg/kg	0.01	<0.01	<0.01	< 0.01	NR_19
alpha-Endosulfan	mg/kg	0.01	<0.01	<0.01	< 0.01	NR_19
beta-Endosulfan	mg/kg	0.01	< 0.01	<0.01	< 0.01	NR_19
Endosulfan Sulfate	mg/kg	0.01	< 0.01	<0.01	<0.01	NR_19
Methoxychlor	mg/kg	0.01	<0.01	<0.01	< 0.01	NR_19
Surrogate	• •			· · · · · · · · · · · · · · · · · · ·	•	
Surrogate OC Rec.	%		100	65	62	NR_19
Dates	· · · · · · · · · · · · · · · · · · ·	• • • • • • • • • • • • • • • • • • • •				
Date extracted			24-0CT-2006	24-0CT-2006	24-0CT-2006	
Date analysed			26-0CT-2006	26-0CT-2006	26-0CT-2006	

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Lab Reg No. NQ06/06624 NQ06/06625 NQ06/06626 Sample Reference Units LOR SS9 Method

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Lab Reg No.			NQ06/06624	NQ06/06625	NQ06/06626 SS9	Method
Sample Reference			SS8	SS9		
	Units	LOR				
Trace Elements						
Total Solids	%		85.1	78.1	86.3	NT2_49

Dr. Honway Louie, Section Manager Inorganics - NSW (Accreditation No. 198)

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All results are expressed on a dry weight basis.



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This Report supersedes reports: RN579318 RN580830



Australian Government

National Measurement Institute

QUALITY ASSURANCE REPORT

Client:

LAM LABORATORIES LTD

NMI QA Report No: LAML01/061020/2

Sample Matrix:

: Soil

Analyte	Method	LOR	Blank	Sample Duplicates			Recoveries	
				Sample	Duplicate	RPD	LCS	Matrix Spike
		mg/kg	mg/kg	mg/kg	mg/kg	%	%	%
Organics Section				<u></u>				
OC Pesticides								
НСВ	NR19	0.01	<0.01	NA	NA	NA	-	NA
Heptachlor	NR19	0.01	< 0.01	NA	NA	NA	82	NA
Heptachlor epoxide	NR19	0.01	<0.01	NA	NA	NA	-	NA
Aldrin	NR19	0.01	< 0.01	NA	NA	NA	108	NA
gamma-BHC (Lindane)	NR19	0.01	<0.01	NA	NA	NA	84	NA
alpha-BHC	NR19	0.01	<0.01	NA	NA	NA	-	NA
beta-BHC	NR19	0.01	<0.01	NA	NA	NA	-	NA
delta-BHC	NR19	0.01	<0.01	NA	NA	NA	-	NĂ
trans-Chlordane	NR19	0.01	<0.01	NA	NA	NA	-	NA
cis-Chlordane	NR19	0.01	<0.01	NA	NA	ŇA	-	NA
Oxychlordane	NR19	0.01	<0.01	NA	NA	NA		NA
Dieldrin	NR19	0.01	<0.01	NA	NA	NA	76	NA
pp-DDE	NR19	0.01	<0.01	NA	NA	NA	-	NA
pp-DDD	NR19	0.01	<0.01	NA	NA	NA	-	NA
pp-DDT	NR19	0.01	<0.01	NA	NA	NA	108	NA
Endrin	NR19	0.01	<0.01	NA	NA	NA	78	NA
Endrin Aldehyde	NR19	0.01	<0.01	NA	NA	NA	-	NA
Endrin Ketone	NR19	0.01	<0.01	NA	NA	NA	-	NA
alpha-Endosulfan	NR19	0.01	<0.01	NA	NA	NĂ		NA
beta-Endosulfan	NR19	0.01	<0.01	NA	NA	NA	<u> </u>	NA
Endosulfan Sulfate	NR19	0.01	<0.01	NA	NA	NA		NA
Methoxychlor	NR19	0.01	<0.01	NA	NA	NA	-	NA
Surrogate OC Rec.	NR19	-	-	NA	NÁ	NA	96	NA

Results expressed in percentage (%) or mg/kg wherever appropriate.

Acceptable Spike recovery is 50-150%

Acceptable RPDs on spikes and duplicates is 40%.

'NA ' = Not Applicable.

RPD= Relative Percentage Difference. This report shall not be reproduced except in full.

Signed:

FOC

Danny Slee Organics Manager, NMI-Pymble 3/11/2006

Date:



Australian Government

National Measurement Institute

REPORT OF ANALYSIS

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				Report No. RN5830
Client	: LAM LABORATORIES L	TD	Job No.	: LAML01/061031
	1412 - 1416 HONOUR	IND CENTRE	Quote No.	: QT-00441
	6 SUN YIP STREET		Order No.	:
	CHAI WAN		Date Sampled	:
	HONG KONG		Date Received	: 31-OCT-2006
• · · · · ·				
Attention	: WONG YAU TIM		Sampled By	: CLIENT
	: WONG YAU TIM :		Sampled By	: CLIENT
Project Name	: WONG YAU TIM : rvices Manager : Brian Wo	oodward	Sampled By Phone	: (02) 94490151
Project Name Your Client Se	:		• -	
Project Name Your Client Ser Lab Reg No.	: rvices Manager : Brian Wo	Sample	Phone	
Attention Project Name Your Client Sen Lab Reg No. NQ06/06882 NQ06/06883	: rvices Manager : Brian Wo Sample Ref	Sample SOIL GE	Phone Description E/2005/047 JOB	: (02) 94490151

Lab Reg No.			NQ06/06882	NQ06/06883	NQ06/06884	
Sample Reference			SS1	SS1	SS2	-
	Units	LOR		1		Method
Organochlorine (OC) Pestic	ides			•		
НСВ	mg/kg	0.01	<0.01	<0.01	<0.01	NR_19
Heptachlor	mg/kg	0.01	<0.01	<0.01	<0.01	NR_19
Heptachlor epoxide	mg/kg	0.01	<0.01	<0.01	< 0.01	NR_19
Aldrin	mg/kg	0.01	<0.01	<0.01	<0.01	NR_19
gamma-BHC (Lindane)	mg/kg	0.01	<0.01	<0.01	<0.01	NR_19
alpha-BHC	mg/kg	0.01	<0.01	<0.01	<0.01	NR_19
beta-BHC	mg/kg	0.01	<0.01	<0.01	<0.01	NR_19
delta-BHC	mg/kg	0.01	<0.01	<0.01	<0.01	NR_19
trans-Chlordane	mg/kg	0.01	<0.01	<0.01	< 0.01	NR_19
cis-Chlordane	mg/kg	0.01	<0.01	<0.01	<0.01	NR_19
Oxychlordane	mg/kg	0.01	<0.01	<0.01	<0.01	NR_19
Dieldrin	mg/kg	0.01	<0.01	<0.01	<0.01	NR_19
pp-DDE	mg/kg	0.01	<0.01	<0.01	<0.01	NR_19
pp-DDD.	mg/kg	0.01	<0.01	<0.01	<0.01	NR_19
pp-DDT	mg/kg	0.01	<0.01	<0.01	<0.01	NR_19
Endrin	mg/kg	. 0.01	<0.01	<0.01	< 0.01	NR_19
Endrin Aldehyde	mg/kg	0.01	<0.01	<0.01	< 0.01	NR_19
Endrin Ketone	mg/kg	0.01	<0.01	<0.01	< 0.01	NR_19
alpha-Endosulfan	mg/kg	0.01	<0.01	<0.01	<0.01	NR_19
beta-Endosulfan	mg/kg	0.01	<0.01	<0.01	< 0.01	NR_19
Endosulfan Sulfate	mg/kg	0.01	< 0.01	<0.01	<0.01	NR_19
Methoxychlor	mg/kg	0.01	<0.01	<0.01	<0.01	NR_19
Surrogate						
Surrogate OC Rec.	%		90	82	83	NR_19
Dates		•				
Date extracted			31-0CT-2006	31-0CT-2006	31-OCT-2006	
Date analysed			1-NOV-2006	1-NOV-2006	1-NOV-2006	

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Lab Reg No.			NQ06/06882	NQ06/06883	NQ06/06884	
Sample Reference			SS1	SS1	SS2	
	Units	LOR				Method

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Lab Reg No.			NQ06/06882	NO06/06883	NQ06/06884	
Sample Reference			SS1	SS1 SS2		7
	Units	LOR				Method
Trace Elements						
Total Solids	%		83.4	84.0	82.6	NT2_49

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			Report No. RN583051
Client	: LAM LABORATORIES LTD	Job No.	: LAML01/061031
	1412 - 1416 HONOUR IND CENTRE	Quote No.	: QT-00441
	6 SUN YIP STREET	Order No.	:
	CHAI WAN	Date Sampled	:
	HONG KONG	Date Received	: 31-OCT-2006
Attention	: WONG YAU TIM	Sampled By	: CLIENT
Project Name	:		
Your Client Ser	vices Manager : Brian Woodward	Phone	: (02) 94490151

Lab Reg No.	Sample Ref	Sample Description
NQ06/06885	SS2	SOIL GE/2005/047 JOB J469 SO22 0.9-1.9M
NQ06/06886	SS2	SOIL GE/2005/047 JOB J469 SO22 1.9-2.5M
NQ06/06887	SS4	SOIL GE/2005/047 JOB J469 SO22 0.0-0.9M

Lab Reg No.			NQ06/06885	NQ06/06886	NQ06/06887	
Sample Reference			SS2	SS2	SS4	1
	Units	LOR				Method
Organochlorine (OC) Pestic	ides					•
НСВ	mg/kg	0.01	<0.01	<0.01	< 0.01	NR_19
Heptachlor	mg/kg	0.01	<0.01	<0.01	< 0.01	NR_19
Heptachlor epoxide	mg/kg	0.01	<0.01	<0.01	<0.01	NR_19
Aldrin	mg/kg	0.01	<0.01	<0.01	<0.01	NR_19
gamma-BHC (Lindane)	mg/kg	0.01	<0.01	<0.01	<0.01	NR_19
alpha-BHC	mg/kg	0.01	< 0.01	<0.01	<0.01	NR_19
beta-BHC	mg/kg	0.01	< 0.01	<0.01	<0.01	NR_19
delta-BHC	mg/kg	0.01	<0.01	<0.01	<0.01	NR_19
trans-Chlordane	mg/kg	0.01	<0.01	<0.01	< 0.01	NR_19
cis-Chlordane	mg/kg	0.01	<0.01	<0.01	<0.01	NR_19
Oxychlordane	mg/kg	0.01	<0.01	<0.01	<0.01	NR_19
Dieldrin	mg/kg	0.01	< 0.01	<0.01	<0.01	NR_19
pp-DDE	mg/kg	0.01	<0.01	<0.01	<0.01	NR_19
pp-DDD	mg/kg	0.01	<0.01	<0.01	< 0.01	NR_19
pp-DDT	mg/kg	0.01	<0.01	<0.01	<0.01	NR_19
Endrin	mg/kg	0.01	<0.01	<0.01	<0.01	NR_19
Endrin Aldehyde	mg/kg	0.01	<0.01	<0.01	< 0.01	NR_19
Endrin Ketone	mg/kg	0.01	<0.01	<0.01	<0.01	NR_19
alpha-Endosulfan	mg/kg	0.01	<0.01	<0.01	<0.01	NR_19
beta-Endosulfan	mg/kg	0.01	<0.01	<0.01	<0.01	NR_19
Endosulfan Sulfate	mg/kg	0.01	<0.01	<0.01	< 0.01	NR_19.
Methoxychlor	mg/kg	0.01	<0.01	<0.01	<0.01	NR_19
Surrogate					·. · · · · · · · · · · · · · · · · · ·	
Surrogate OC Rec.	%		91	87	86	NR_19
Dates		· · ·		·		
Date extracted			31-0CT-2006	31-OCT-2006	31-OCT-2006	
Date analysed			1-NOV-2006	1-NOV-2006	1-NOV-2006	

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Lab Reg No.			NQ06/06885	NQ06/06886	NQ06/06887	
Sample Reference			SS2	SS2	SS4	
	Units	LOR				Method

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Lab Reg No.		-	NQ06/06885	NQ06/06886	NQ06/06887		
Sample Reference			SS2	SS2	SS4		
	Units L	LOR	OR			Method	
Trace Elements							
Total Solids	%		83.3	84.8	80.0	NT2_49	

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		Report No. RN58305
Client	: LAM LABORATORIES LTD	Job No. : LAML01/061031
	1412 - 1416 HONOUR IND CENTRE	Quote No. : QT-00441
	6 SUN YIP STREET	Order No.
	CHAI WAN	Date Sampled :
	HONG KONG	Date Received : 31-OCT-2006
Attention	: WONG YAU TIM	Sampled By : CLIENT
Project Name	:	
Your Client Ser	vices Manager : Brian Woodward	Phone : (02) 94490151

Lab Reg No.	Sample Ref	Sample Description
NQ06/06888	SS4	SOIL GE/2005/047 JOB J469 SO22 0.9-1.3M
NQ06/06889	SS5	SOIL GE/2005/047 JOB J469 SO22 0.0-0.9M
NQ06/06890	SS7	SOIL GE/2005/047 JOB J469 SO22 0.0-0.9M

Lab Reg No.			NQ06/06888	NQ06/06889	NQ06/06890	
Sample Reference		4	SS 4	SS5	SS7	-
	Units	LOR				Method
Organochlorine (OC) Pestic	ides					
НСВ	mg/kg	0.01	<0.01	<0.01	<0.01	NR_19
Heptachlor	mg/kg	0.01	<0.01	<0.01	< 0.01	NR_19
Heptachlor epoxide	mg/kg	0.01	<0.01	<0.01	< 0.01	NR_19
Aldrin	mg/kg	0.01	<0.01	<0.01	<0.01	NR_19
gamma-BHC (Lindane)	mg/kg	0.01	<0.01	<0.01	<0.01	NR_19
alpha-BHC	mg/kg	0.01	<0.01	<0.01	<0.01	NR_19
beta-BHC	mg/kg	0.01	<0.01	<0.01	<0.01	NR_19
deita-BHC	mg/kg	0.01	<0.01	<0.01	<0.01	NR_19
trans-Chlordane	mg/kg	0.01	< 0.01	<0.01	<0.01	NR_19
cis-Chlordane	mg/kg	0.01	<0.01	<0.01	<0.01 T	NR_19
Oxychlordane	mg/kg	0.01	< 0.01	< 0.01	< 0.01	NR_19
Dieldrin	mg/kg	0.01	<0.01	<0.01	<0.01 /	NR_19
pp-DDE	mg/kg	0.01	<0.01	<0.01	< 0.01 /	NR_19
pp-DDD	mg/kg	0.01	<0.01	<0.01	< 0.01	NR_19
pp-DDT	mg/kg	0.01	<0.01	<0.01	< 0.01	NR_19
Endrin	mg/kg	0.01	<0.01	<0.01	<0.01	NR_19
Endrin Aldehyde	mg/kg	0.01	<0.01	<0.01	< 0.01	NR_19
Endrin Ketone	mg/kg	0.01	<0.01	<0.01	<0.01	NR_19
alpha-Endosulfan	mg/kg	0.01	<0.01	<0.01	<0.01	NR_19
beta-Endosulfan	mg/kg	0.01	<0.01	<0.01	< 0.01	NR_19
Endosulfan Sulfate	mg/kg	0.01	< 0.01	< 0.01	< 0.01	NR_19
Methoxychlor	mg/kg	0.01	<0.01	<0.01	<0.01	NR 19
Surrogate		•		i i	•	
Surrogate OC Rec.	%		89	91	88	NR_19
Dates	· · · · · ·	·		• • • • • • • • • • • • • • • • • • • •	· ·	
Date extracted			31-0CT-2006	31-OCT-2006	31-OCT-2006	
Date analysed		-	1-NOV-2006	1-NOV-2006	1-NOV-2006	

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Lab Reg No.		!	NQ06/06888	NQ06/06889	NQ06/06890	
Sample Reference			SS4	SS5	SS7	
	Units	LOR				Method

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Lab Reg No.			NQ06/06888	NQ06/06889	NQ06/06890	
Sample Reference			SS4	SS5	SS7	
	Units	LOR		1		Method
Trace Elements	- · · · · ·					
Total Solids	%	1	82.7	82.2	82.2	NT2_49

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		Report No. RN583051
: LAM LABORATORIES LTD	Job No.	: LAML01/061031
1412 - 1416 HONOUR IND CENTRE	Quote No.	: QT-00441
6 SUN YIP STREET	Order No.	:
CHAI WAN	Date Sampled	:
HONG KONG	Date Received	: 31-OCT-2006
: WONG YAU TIM	Sampled By	: CLIENT
:		
rvices Manager : Brian Woodward	Phone	: (02) 94490151
	1412 - 1416 HONOUR IND CENTRE 6 SUN YIP STREET CHAI WAN HONG KONG	1412 - 1416 HONOUR IND CENTREQuote No.6 SUN YIP STREETOrder No.CHAI WANDate SampledHONG KONGDate ReceivedWONG YAU TIMSampled By

Lab Reg No.	Sample Ref	Sample Description
NQ06/06891	SS7	SOIL GE/2005/047 JOB J469 SO22 0.9-1.3M
NQ06/06892	SS9	SOIL GE/2005/047 JOB J469 SO22 1.9-2.1M
NQ06/06893		SOIL REFERENCE GRAB SAMPLE GE/2005/047
		JOB J469 SO22

Lab Reg No.			NQ06/06891	NQ06/06892	NQ06/06893	
Sample Reference			SS7	SS9		1
	Units	LOR				Method
Organochlorine (OC) Pestic	ides					
НСВ	mg/kg	0.01	<0.01	<0.01	< 0.01	NR_19
Heptachlor	mg/kg	0.01	< 0.01	<0.01	<0.01	NR_19
Heptachlor epoxide	mg/kg	0.01	< 0.01	<0.01	<0.01	NR_19
Aldrin	mg/kg	0.01	< 0.01	<0.01	< 0.01	NR_19
gamma-BHC (Lindane)	mg/kg	0.01	<0.01	<0.01	< 0.01	NR_19
alpha-BHC	mg/kg	0.01	<0.01	<0.01	< 0.01	NR_19
beta-BHC	mg/kg	0.01	< 0.01	<0.01	<0.01	NR_19
delta-BHC	mg/kg	0.01	< 0.01	<0.01	<0.01	NR_19
trans-Chlordane	mg/kg	0.01	< 0.01	<0.01	< 0.01	NR_19
cis-Chlordane	mg/kg	0.01	<0.01	<0.01	< 0.01	NR_19
Oxychlordane	mg/kg	0.01	<0.01	<0.01	<0.01	NR_19
Dieldrin	mg/kg	0.01	<0.01	<0.01	<0.01	NR_19
op-DDE	mg/kg	0.01	< 0.01	<0.01	<0.01	NR_19
pp-DDD	mg/kg	0.01	<0.01	<0.01	<0.01	NR_19
pp-DDT	mg/kg	0.01	< 0.01	<0.01	<0.01	NR_19
Endrin	mg/kg	0.01	<0.01	<0.01	< 0.01	NR_19
Endrin Aldehyde	mg/kg	0.01	< 0.01	<0.01	<0.01	NR_19
Endrin Ketone	mg/kg	0.01	< 0.01	<0.01	<0.01	NR_19
alpha-Endosulfan	mg/kg	0.01	<0.01	<0.01	< 0.01	NR_19
beta-Endosulfan	mg/kg	0.01	< 0.01	< 0.01	< 0.01	NR_19
Endosulfan Sulfate	mg/kg	0.01	<0.01	<0.01	< 0.01	NR_19
Methoxychlor	mg/kg	0.01	< 0.01	<0.01	< 0.01	NR_19
Surrogate						
Surrogate OC Rec.	%		90	95	95	NR_19
Dates		·	•	.	• • •	
Date extracted			31-0CT-2006	31-0CT-2006	31-0CT-2006	
Date analysed			1-NOV-2006	1-NOV-2006	1-NOV-2006	

Page: 8 of 8 Report No. BN583051

					neporti	40.1114000001
Lab Reg No.			NQ06/06891	NO.06/06892	NQ06/06893	
Sample Reference			SS7	SS9		
	Units	LOR				Method

Alle. 0

Danny Slee, Section Manager Organics - NSW (Accreditation No. 198)

16-NOV-2006

Lab Reg No.			NQ06/06891	NQ06/06892	NQ06/06893		
Sample Reference		ł	SS7	SS9			
	Units	LOR				Method	
Trace Elements				- T	-		
Total Solids	%		82.2	84.7	44.1	NT2_49	

M

Dr. Honway Louie, Section Manager Inorganics - NSW (Accreditation No. 198)

16-NOV-2006

All results are expressed on a dry weight basis.



This report is issued in accordance with NATA's accreditation requirements. Accreditated for compliance with ISO/IEC 17025. This report shall not be reproduced except in full. Results relate only to the sample(s) tested.

This Report supersedes reports: RN581353 RN581379

National Measurement Institute

QUALITY ASSURANCE REPORT

Client:

LAM LABORATORIES LTD

NMI QA Report No:

LAML01/061031

Sample Matrix: Soil

Analyte	Method	LOR	Blank	Sam	ple Duplicate	S	Re	coveries
				Sample	Duplicate	RPD	LCS	Matrix Spike
		mg/kg	mg/kg	mg/kg	mg/kg	%	%	%
Organics Section				1				
OC Pesticides				NQ06/06884				Blank Soil
НСВ	NR19	0.01	< 0.01	<0.01	< 0.01	-	-	-
Heptachlor	NR19	0.01	< 0.01	< 0.01	< 0.01	-	96	115
Heptachlor epoxide	NR19	0.01	<0.01	< 0.01	<0.01	-	-	-
Aldrin	NR19	0.01	<0.01	< 0.01	<0.01	-	114	127
gamma-BHC (Lindane)	NR19	0.01	<0.01	< 0.01	< 0.01	-	96	111
alpha-BHC	NR19	0.01	<0.01	< 0.01	< 0.01	-	-	-
beta-BHC	NR19	0.01	< 0.01	< 0.01	<0.01	-		-
delta-BHC	NR19	0.01	< 0.01	< 0.01	<0.01		-	-
trans-Chlordane	NR19	0.01	< 0.01	<0.01	<0.01	-	-	-
cis-Chlordane	NR19	0.01	<0.01	<0.01	< 0.01		-	-
Oxychlordane	NR19	0.01	<0.01	< 0.01	<0.01	-	-	-
Dieldrin	NR19	0.01	<0.01	<0.01	<0.01	-	104	121
pp-DDE	NR19	0.01	< 0.01	<0.01	<0.01	-	-	-
pp-DDD	NR19	0.01	<0.01	<0.01	<0.01	-	-	-
pp-DDT	NR19	0.01	<0.01	<0.01	<0.01	-	116	112
Endrin	NR19	0.01	<0.01	< 0.01	<0.01	-	117	129
Endrin Aldehyde	NR19	0.01	< 0.01	< 0.01	<0.01	-	-	-
Endrin Ketone	NR19	0.01	< 0.01	<0.01	<0.01	-	-	
alpha-Endosulfan	NR19	0.01	<0,01	<0.01	< 0.01	-	-	-
beta-Endosulfan	NR19	0.01	< 0.01	<0.01	<0.01	-	~	-
Endosulfan Sulfate	NR19	0.01	<0.01	< 0.01	<0.01	-	-	-
Methoxychlor	NR19	0.01	<0.01	<0.01	<0.01	-	-	-
Surrogate OC Rec.	NR19	-	-	85	83	2.4	94	102

Results expressed in percentage (%) or mg/kg wherever appropriate. Acceptable Spike recovery is 50-150% Acceptable RPDs on spikes and duplicates is 40%.

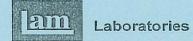
RPD= Relative Percentage Difference.

This report shall not be reproduced except in full.

Signed:

Date:

FOR Danny Slee **Organics Manager, NMI-Pymble** 7/11/2006



Particle Size

(Page 1 of 2)

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Customer : Geotechnical Projects Division, Geotechnical Engineering office, Civil Engineering and Development Dep 8/ Address & Address 8/F Civil Engineering and Development Building, 101 Princess Margaret Road, Kowloon, Hong Kong Lab Job No : J469 Works Order No: GE/2005/47.22 Lab. Sample Ref. N Client Ref. : SS6 Sample No: Depth m: 0.00 Specime - 0.90 Depth Sample Type: Vibrocore Spec. Ref: Geological Origin: Not Specified Description : Grey, gravelly, clayey, silty SAND with occasional shell fragments Date Sample: 13/10/2006 Date Tested: 25/10/2006 Tested By: H. W. Chu	t No: 101698N
Project Investigation Chemical, Elutriate and Biological Testing of Marine Sediment and Water Customer Geotechnical Projects Division, Geotechnical Engineering office, Civil Engineering and Development Dep & Address & Address 8/F Civil Engineering and Development Building, 101 Princess Margaret Road, Kowloon, Hong Kong Lab Job No : J469 Works Order No: GE/2005/47.22 Lab. Sample Ref. N Client Ref. : SS6 Sample No: Depth m: 0.00 Specime - 0.90 Depth Sample Type: Vibrocore Spec. Ref: Geological Origin: Not Specified Description Date Sample: 13/10/2006 Date Tested: 25/10/2006 Tested By: H. W. Chu Received Tested in Accordance With: GEOSPEC 3:2001 Test 8.1 / -8.2 -/8.5 / -8.6 / -8.7 Meth SIEVE ANALYSIS Mass Corr. Mass Percent Initial Dry Mass of Soil m1 g: 118.75 Mass Corr. Mass STest Sieve mm Retained g Retained g Retained g Passing % 75.0 0.0 100.0 100.0 100.0 100.0 20.0 0.0 100.0 100.0 100.0 100.0	
Customer : Geotechnical Projects Division, Geotechnical Engineering office, Civil Engineering and Development Dep & Address & Address 8/F Civil Engineering and Development Building, 101 Princess Margaret Road, Kowloon, Hong Kong ab Job No : J469 Works Order No: GE/2005/47.22 Lab. Sample Ref. N Client Ref. : SS6 Sample No: Depth m: 0.00 Specime 	ments-
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Lab Job No :J469Works Order No:GE/2005/47.22Lab. Sample Ref. NClient Ref. :SS6Sample No:Depth m: 0.00Specime- 0.90DepthSample No:Depth m: 0.00DepthSample Type:VibrocoreSpec. Ref:Geological Origin: Not SpecifiedDescription :Grey, gravelly, clayey, silty SAND with occasional shell fragmentsDate Sample:13/10/2006Date Tested:25/10/2006Tested in Accordance With:GEOSPEC 3:2001 Test 8.1 / 8.2-/-8.5 / 8.6 /-8.7MethSIEVE ANALYSISInitial Dry Mass of Soil m1g:118.75Initial Dry Mass of Soil m1g:118.75MethSS Test Sieve mmRetained gRetained gPercentPercentSign 20.00.0100.037.50.0100.020.00.0100.0	
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0.90 Depth Sample Type: Vibrocore Spec. Ref: Geological Origin: Not Specified Description : Grey, gravelly, clayey, silty SAND with occasional shell fragments Date Sample: 13/10/2006 Date Tested: 25/10/2006 Tested By: H. W. Chu Received Tested in Accordance With: GEOSPEC 3:2001 Test 8.1 / -8.2 -/ -8.5 / 8.6 / -8.7 Meth SIEVE ANALYSIS	
Sample Type: Vibrocore Spec. Ref: Geological Origin: Not Specified Description : Grey, gravelly, clayey, silty SAND with occasional shell fragments Date Sample: 13/10/2006 Date Tested: 25/10/2006 Tested By: H. W. Chu Received Tested in Accordance With: GEOSPEC 3:2001 Test 8.1 / -8.2 - / -8.5 / -8.6 / -8.7 Meth SIEVE ANALYSIS Mass Corr. Mass Percent Percent BS Test Sieve mm Retained g Retained g Retained g Retained g 37.5 0.0 100.0 100.0 100.0 20.0 0.0 100.0 100.0	
Description : Grey, gravelly, clayey, silty SAND with occasional shell fragments Date Sample: 13/10/2006 Date Tested: 25/10/2006 Tested By: H. W. Chu Received Tested in Accordance With: GEOSPEC 3:2001 Test 8.1 / 8.2 / 8.5 / 8.6 / 8.7 Meth SIEVE ANALYSIS Mass Corr. Mass Percent Percent BS Test Sieve mm Retained g Retained g Percent STest Sieve mm Retained g Retained % Passing % 75.0 0.0 100.0 37.5 0.0 100.0 20.0 0.0 100.0	<u>n:</u>
Date Sample: 13/10/2006 Date Tested: 25/10/2006 Tested By: H. W. Chu Received Tested in Accordance With: GEOSPEC 3:2001 Test 8.1 / -8.2 -/ -8.5 / 8.6 / -8.7 Meth SIEVE ANALYSIS Initial Dry Mass of Soil m1 g: 118.75 Initial Dry Mass of Soil m1 g: 118.75 Mass Corr. Mass Percent BS Test Sieve mm Retained g Retained g Retained g Retained g Retained g 75.0 0.0 100.0 37.5 0.0 100.0 20.0 0.0 100.0	
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75.0 0.0 100.0 37.5 0.0 100.0 20.0 0.0 100.0	
37.5 0.0 100.0 20.0 0.0 100.0	
20.0 0.0 100.0	/
	/
Riffled m3 20.0 118.75 difference from m1 % = 0.00	
Washed m4 101.65 Note: m4 = mass >63um	
6.3 1.59 1.59 1.3 98.7	
Passing m5 6.3 100.06 cum. mass ret. + m5 = 101.65	
Riffled m6 6.3 100.06 difference from m4 % = 0.00	
5.00 0.60 0.60 0.5 98.2	
2.00 5.65 5.65 4.8 93.4	
1.18 12.11 12.11 10.2 83.2	
0.600 25.10 25.10 21.1 62.1	
0.300 26.98 26.98 22.7 39.3	\backslash
0.150 19.65 19.65 16.5 22.8	\mathbf{i}
0.063 9.65 9.65 8.1 14.5	
Pan mE 0.07	
cum. mass ret. + mE = 99.81	\backslash
difference from m6 % = 0.25	
	,
Approved Signatory: Us Wern threen Date: 6-11-200	1
Lo Kam-chuen	6

(Page 2 of 2)

TEST REPORT ON DETERMINATION (Page 1 of 2) OF PARTICLE SIZE DISTRIBUTION Report No: 101699N Chemical and Biological Testing of Sediment (Service Contract) Agreement No.CE 59/2005(EP) Development of a Bathing Beach at Lung Mei, Tai Po Environmental, Drainage and Traffic Impact Assessments-Project : Investigation Chemical, Elutriate and Biological Testing of Marine Sediment and Water Customer Geotechnical Projects Division, Geotechnical Engineering office, Civil Engineering and Development Department & Address 8/F Civil Engineering and Development Building, 101 Princess Margaret Road, Kowloon, Hong Kong Lab Job No : 18232/4 J469 Works Order No: GE/2005/47.22 Lab. Sample Ref. No: Client Ref. SS6 Sample No: Depth m: 0.90 Specimen : - 1.60 Depth m: Sample Type: Vibrocore Spec. Ref: Geological Origin: Not Specified **Description** : Grey, clayey, silty, gravelly SAND with occasional shell fragments Date Sample: 13/10/2006 Tested By: H.W.Chu Date Tested: 25/10/2006 Tested in Accordance With: GEOSPEC 3:2001 Test 8.1 / 8.2 / 8.5 / 8.6 Received /-8.7 Method A 150µm 1.18 37.5 75 63µm 6.3 BS Sieve Aperture Size, mm 300 600 10 20 100 80 Percentage Passing 60 40 20 0 10 100 0.001 0.01 0.1 1 Sleving Particle Size mm Sedimentation COARSE COARSE MEDIUM FINE MEDIUM FINE MEDIUM COARSE FINE сов-CLAY BLES SAND GRAVEL SILT Remarks: SUMMARY : GRAVEL 20 % Approved Signatory 6-11-2006 69 % SAND SILT & 11 % Date: CLAY Lam Laboratories Limited Rm 1412, Honour Industrial Centre, 6 Sun Yip Street, Chaiwan, Hong Kong Tel: 28973282

TEST|GE036|PSDA (19970811)

TEST R	EPC	DRT ON	DETER	MINATI	ON	(Page 2 d	of 2)		
OF PAR	TIC	LE SIZE	DISTR	BUTIO	N			Re	eport No: 101699N
						vice Contract) Ag	areement No.CE	59/2005(EP)	
			-	-	•			l Traffic Impact Ass	essments-
Project	:	-	-		-	sting of Marine S	· -	-	
Customer	:				-			and Development I	Department
& Address	-							wloon, Hong Kong	
Lab Job No	b :	J469				GE/2005/47.2		ab. Sample Ref	. No: 18232/4
Client Ref.	:	SS6		Sampl			pth m: 0.90	Speci	
				p			- 1.60	Dept	
Sample Ty	pe:	Vibrocore	Spec	c. Ref:		Geological (Drigin: Not Sp		
Description			•		with occasi	ional shell frag	-		
Date Samp		13/10/2006	Date Te		25/10/2006		Tested By:	H. W. Chu	
Received	•					:2001 Test 8.1			ethod A
SIEVE ANA	LYSIS					\land	,,		/
Initial Dry Ma			153.54	·					
		Mass	Corr. Mass	Percent	Percent				
BS Test Siev	e mm	Retained g	Retained g	Retained %	Passing %				
	75.0			0,0	100.0				
	37.5			0.0	100.0	Ì	\backslash		
	20.0	450 54		0.0	100.0				
Passing m2 Riffled m3	20.0		cum, mass i difference fr		153.54			/	
Washed m4	<u></u> 20,0	137.02	·····	= mass >63					
	10.0	4.12	4.12		97.3		\sim		
	6.3	4.77	4.77	3.1	94.2			\setminus /	
Passing m5	6.3	128,13	cum. mass	ret. + m5 =	137.02			X	
Riffled m6	6.3	128.13	difference fr	<u>om m4 % =</u>			,	/	
	5.00		2.90	1.9	92.3	-			
	2.00	18.48	18.48	12.0	80.3	-		\sim	
	<u>1.18</u> 0.600	24.50 31.97	24.50 31.97	16.0 20.8	64.3 43.5	-			
}	0.300	24.32	24.32	15.8	27.7	4			\mathbf{i}
	0.150		16.43	10.7	17.0	1 /			$\langle \rangle$
	0.063	9.23	9.23	6,0	10.8] /			$\langle \rangle$
P	an m	0.09							\backslash
			cum. mass						
			difference fr	<u>om m6 % =</u>	0.16				\sim
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Approved	Sign	atory:	Lo Ram-cl	men Ch	non		Date:	6-11-200	- 6

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TEST REPORT ON DETERMINATION (Page 1 of 2) OF PARTICLE SIZE DISTRIBUTION Report No: 101700N Chemical and Biological Testing of Sediment (Service Contract) Agreement No.CE 59/2005(EP) Development of a Bathing Beach at Lung Mei, Tai Po Environmental, Drainage and Traffic Impact Assessments-Project Investigation Chemical, Elutriate and Biological Testing of Marine Sediment and Water : Customer Geotechnical Projects Division, Geotechnical Engineering office, Civil Engineering and Development Department & Address 8/F Civil Engineering and Development Building, 101 Princess Margaret Road, Kowloon, Hong Kong Lab Job No : 18232/7 J469 Works Order No: GE/2005/47.22 Lab. Sample Ref. No: Client Ref. SS3 Depth m: 0.00 • Sample No: Specimen - 0.90 Depth m: Sample Type: Vibrocore Spec. Ref: Geological Origin: Not Specified Description : Grey, gravelly, clayey, silty SAND with occasional shell fragments 13/10/2006 Date Sample: Date Tested: 25/10/2006 Tested By: H.W.Chu Received Tested in Accordance With: GEOSPEC 3:2001 Test 8.1 / 8.2 / 8.5 / 8.6 / 8.7 Method A 63µm 150µm 37.5 75 1.18 6.3 BS Sieve Aperture Size, mm 300 600 100 80 Percentage Passing 60 40 20 0 10 100 0.001 0.01 0.1 1 – Sieving Particle Size mm Sedimentation ۸ COABSE FINE MEDIUM COARSE FINE MEDIUM FINE MEDIUM COARSE COB-BLES CLAY SAND GRAVEL SILT Remarks: Approved Signatory: Lo Kam Chuen GRAVEL 8 % SUMMARY : SAND 81 % SILT & 11 % Date: 6-11-2006 CLAY Lam Laboratories Limited Rm 1412, Honour Industrial Centre, 6 Sun Yip Street, Chaiwan, Hong Kong Tel: 28973282

		ORT ON LE SIZE				(Page 2 c	of 2)		_ ·	/ . . .
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			-	-		vice Contract) Ag				
Draiget					-	Po Environmenta	_		t Assessment	s
Project	•					sting of Marine S				
Customer	:					neering office, Ci				ent
& Address		-				01 Princess Marg	-			
Lab Job No		J469		Works Or		GE/2005/47.22		ab. Sample		18232/7
Client Ref.	:	SS3		Sampl	e No:	Dep	oth m: 0.00	-	pecimen	
						•	- 0.90		epth m:	
Sample Ty	-	Vibrocore		c. Ref:		Geological C	-	pecified		
Description		Grey, gravel	ly, clayey, s	silty SAND	with occas	ional shell fragi	ments			
Date Samp	ole:	13/10/2006	Date Te	ested:	25/10/2006	5	Tested By:	H. W. Ch	u	
Received		Tested in .	Accordance	e With: G	EOSPEC 3	3:2001 Test 8.1	/ 8.2 / 8.5	/ 8.6 / 8.7	Method A	۱ <u> </u>
SIEVE ANA	LYSIS	3				Ν				/
Initial Dry Ma	iss of	Soil m1 g:	155.40							
		Mass	Corr. Mass		Percent					
BS Test Siev	e mm	Retained g	Retained g	Retained %	Passing %					
	75.0			0.0	100.0				/	
	37.5			0,0	100.0					
Den la d	20.0			0.0	100.0		\mathbf{i}			
Passing m2	20.0		cum. mass		155.40					
Riffled m3	20.0		difference fr		0.00	-				
Washed m4	10.0	138.07		= mass >63		e.		. /		
	6.3	1.69	0.00	0.0	100.0 98.9			\setminus /		
Passing m5	6,3		cum. mass.	l	138.07			\sim		
Riffled m6	6.3		difference fr		0.00					
	5.00	0.45	0.45	0,3	98.6					
	2.00	11.01	11.01	7.1	91.5	ļ		\backslash	\	
	1.18	19.13	19.13	12.3	79.2]			\backslash	
	0.600	37.29	37.29	24.0	55.2				\backslash	
	0.300	36.16	36.16	23.3	32.0					
	0.150	21.85	21.85	14.1	17.9	/				
	0.063	10.23	10.23	6.6	11.2					\backslash
F	an mE	0:13		L						
			cum. mass		136.25					
··	· · · ·		difference fr	<u>om m6 % =</u>	0.10					
		100 pt - 1				V	ar manar da e e tr			
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Approved	orgin		Lo Kam-cl	huen	rln			6-11-	-2006	

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Quality Control - Laboratory Duplicate (DUP) Results

Matrix Type: SOIL				······		Duplicate (DUP)	Results	
Laboratory Sample ID	Client Sample ID	Method: Analysis Description	CAS number	LOR	Units	Original Result	Duplicate Result	RPD (%)
EP: Aggregate Organ	nics (QC Lot: 321857)						<u>, , , , , , , , , , , , , , , , , , , </u>	
HK0607412-002	18507/2	EP009: Total Organic Carbon		0.05	%	< 0.05	< 0.05	0.0

Quality Control - Method Blank (MB), Single Control Spike (SCS) and Duplicate Control Spike (DCS) Results

Matrix Type: SOIL		٨	lethod Blank (MB,	Results		Single Contr	ol Spike (SCS) and	Duplicate Co	ntrol Spike (l	DCS) Results	
					Spike	Spike Re	covery (%)	Recovery	Limits (%)	RPI	Ds (%)
Method: Analysis Description	CAS number	LOR	Units	Result	Concentration	SCS	DCS	Low	Hiah	Value	Control Limit
EP: Aggregate Organics (QCLot: 3	21857)			······································							
EP009: Total Organic Carbon		0.05	%	<0.05	40 %	98.0		85	115		

Quality Control - Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Results

Matrix Type: SOIL					Matrix Sj	pike (MS) and Matrix	x Spike Dupli	cate (MSD) i	Results	
				Spike	Spike Re	ecovery (%)	Recovery	Limits (%)	RPDs	; (%)
Laboratory Sample ID	Client Sample ID	Method: Analysis Description	CAS number	Concentration	MS	MSD	Low	High	Value	Control Lir
EP: Aggregate Organ	nics (QCLot: 321857)	/				· · · · · · · · · · · · · · · · · · ·		<u> </u>	· · · ·	
HK0607412-001	18507/1	EP009: Total Organic Carbon		40 %	87.6		75	125		

Page Number : 2 of 3 Client : LAM LABORA Work Order HK0607412	TORIES LIMIT	ED					(ALS)	
Analytical Results	<u></u>		nt Sample ID :	18507/1 HK0607412-001	18507/2 HK0607412-002	18507/3 HK0607412-003	18507/4 HK0607412-004	
Submatrix: SOIL		Sampl	e Date / Time :	[6 Dec 2006]	[6 Dec 2006]	[6 Dec 2006]	[6 Dec 2006]	
Method: Analysis Description	CAS number	LOR	Units		L <u></u>			.
EP: Aggregate Organics					<u></u>		•	
EP009: Total Organic Carbon		0.05	%	<0.05	<0.05	<0.05	0.37	

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ALS Technichem (HK) Pty Ltd

ALS Laboratory Group

ANALYTICAL CHEMISTRY & TESTING SERVICES



CERTIFICATE OF ANALYSIS

Client Contact Address	 LAM LABORATORIES LIMITED MS MAUREEN CHANG RM 1412-16, HONOUR INDUSTRIAL CENTRE, 6 SUN YIP STREET, CHAI WAN, HONG KONG 	Laboratory Contact Address	 ALS Technichem (HK) Pty Ltd Alice Wong / Ivan Leung 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong 	Page Work Order	^{: 1 of 3} - HK0607412
E-mail Telephone	maureenchang@lamlab.com +852 2975 3372	E-mail Telephone	: alice.wong@alsenviro.com : +852 2610 1044		
Facsimile Project	+852 2897 5509 J469 SO22	Facsimile Quote number	+852 2610 2021 	Date received	: 6 Dec 2006
Order number C-O-C number Site				Date of issue No. of samples	: 12 Dec 2006 - Received : 4 Analysed : 4

Report Comments

This report for ALS Technichem (HK) Py Ltd work order reference HK0607412 supersedes any previous reports with this reference. The completion date of analysis is 11 Dec 2006. Results apply to sample(s) as submitted. All pages of this report have been checked and approved for release. When date(s) and/or time(s) are shown bracketed, these have been assumed by the laboratory for process purposes. Abbreviations: CAS number = Chemical Abstract Services number. LOR = Limit of reporting.

Specific comments for Work Order HK0607412: Sample(s) analysed and reported on an as received basis. Samples were received in an ambient condition.

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	Signatory	1/1	Position	Authorised results for:-
	Fung Lim Chee, Richard	Ruthilfy	General Manager	Inorganics

ALS Laboratory Group

Trading Name: ALS Technichem (HK) Pty Ltd. 1/F., Chung Shun Knitting Centre, 1-3 Wing Yip Street, Kwai Chung, N.T. Hong Kong Tet +852 2610 1044 Fax: +852 2610 2021 http://www.alsenviro.com/ A Campbell Brothers Limited Company

(Page 2 of 2)

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D						a Bathing Beach					
Project :						I, Elutriate and B					
Customer :						eering office, Civ					ent
& Address						1 Princess Marg	aret Road,				18507/4
Lab Job No :	<u> </u>	J469		Vorks Ord		GE/2005/47.22		Lab.	Sample R		1650774
Composite				Sample	e No:	Dep	th m:		-	ecimen	
Sample No.		Reference Se							De	pth m:	
Sample Type		Bulk	•	. Ref:		Geological O	rigin: Sec	liment			
Description :	. (Grey, slightly	sandy CLA	Y with occ	asional sh						
Date Sample:	: ;	29/11/2006	Date Te		4/12/2006		Tested B		I. W. Chu		
Received		Tested in A	Accordanc	e With: G	EOSPEC 3	2001 Test 8.1	/ -8.2 / 8	.5 / 8.6	 8.7 -	Method A	
SIEVE ANALY	sis			-		\backslash					/
Initial Dry Mass	of S	ioilm1 g:	102.72			\mathbf{X}					
		Mass	Corr. Mass	Percent	Percent						
BS Test Sieve		Retained g	Retained g								
	5.0			0.0	100.0	\backslash				/	
	7.5			0.0	100.0						
	0.0 0.0	102 72	cum. mass r		100.0		\mathbf{i}				
	20.0		diffe <u>rence fr</u> o		0.00				,	/	
Washed m4	0.0	10.58		= mass >63			\backslash	<hr/>			
	0,0		0.00	0.0	100.0			\mathbf{i}			
	6.3		0.00	0.0	100.0						
Passing m5	6.3	10.58	cum. mass r	ref. + m5 =	10.58			\rightarrow	$\langle \rangle$		
Riffled m6	6.3	10,58	difference fr	<u>om m4 % =</u>	0.00				\mathbf{i}		
5	.00		0.00	0.0	100.0				<u> </u>		
	.00	0.10	0.10	0.1	99.9		/	<i>(</i>		`	
	.18	0.18	0.18	0.2	99.7					\backslash	
	500	0.73	0.73	0.7	99.0						
	300 150	1.59 2.59	1.59 2.59	1.5 2.5	97.5 94.9		/				
	063	5.32	5,32	5.2	89.7						\backslash
	n mE										
		.l <u>, , , , , , , , , , , , , , , , , , , </u>	cum. mass i	ret. + mE =	10.54						
			difference fr	om m6 % =	0.38						
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Proje	ect	:	Traffic	impa	ct As	sessme	nts—In	vesti	gatio	on (Chemic	al, El	utriat	e an	d B	iologic	al Testii	ng of	Mari	ne Sed	liment a	and Wa	iter	
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		Agreement No	CE59/2005	(EP) – Dev	elopment o	f a Bathing Beacł	n at Lung Me	i, Tai Po Enviromen	tal, Drainag	e and
Project	:	Traffic Impact	Assessment	ts—Investiga	tion Chemi	cal, Elutriate and i	Biological Te	sting of Marine Sec	liment and \	Water
Customer	:	Geotechnical	Projects Divi	sion, Geoteo	chnical Eng	ineering office, Ci	ivil Engineeri	ing and Developme	nt Departme	ent
& Address								Kowloon, Hong Kor		
Lab Job N		J469		Works Or		GE/2005/47.22		Lab. Sample F		18507/3
Composite				Sampl			oth m:		ecimen	
Sample No		CS3		oumpi	0 110.	00,	_	-	pth m:	
Sample Ty		Bulk		c. Ref:	·	Geological C	- Drimin: Cod		par m.	
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Description		Yellowish br								
Date Samp	ole:	29/11/2006	Date Te	ested:	4/12/2006		Tested B	y: H. W. Chu		
Received		Tested in A	Accordanc	e With: G	EOSPEC	3:2001 Test 8.1	/ -8.2 / 8.	5 / 8.6 / 8.7	Method A	
SIEVE ANA	LYSIS	<u> </u>				\mathbb{N}				/
Initial Dry Ma	ass of S	Soil m1 g:	201.53							
		Mass	Corr. Mass	Percent	Percent					
BS Test Siev	/e mm	Retained g	Retained g	Retained %	Passing %	5				
	75.0			0.0	100.0				/	
	37.5			0.0	100.0		\			
	20.0			0.0	100.0		\backslash			•
Passing m2	20.0	201.53	cum, mass i	ret. + m2 =	201.53					
Riffled m3	20.0	201.53	difference fr	<u>om m1 % =</u>	0.00			/		
Washed m4		156.62	Note: m4	= mass >63	um]	\backslash			
	10,0	14.27	14.27	7.1	92.9			\setminus /		
	6.3	10.13	10.13	5.0	87.9			\sim		
Passing m5	6.3	132.22	cum. mass i	ret. + m5 ≕	156.62			X		
Riffled m6	6.3	132.22	difference fr	<u>om m4 % =</u>	0.00					
	5.00	4.20	4.20	2.1	85.8]		/		
	2.00	21.38	21.38	10.6	75.2			í 🔍		
	1.18	30.18	30.18	15.0	60.2					
	0.600	37.20	37.20	18.5	41.8					
	0,300	24.50	24.50	12.2	29.6					
	0.150	10.01	10.01	5,0	24.6					
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TEST|GE036|PSDA (19970811)

(Page 2 of 2)

									Report No:	112237N
	,	Agreement No	.CE59/2005	(EP) – Dev	elopment of	a Bathing Beach	at Lung Mei, Ta	ai Po Envirome	ental, Drainag	e and
Proj e ct :		Traffic Impact	Assessment	s—Investiga	tion Chemic	al, Elutriate and E	Biological Testin	ig of Marine Se	ediment and \	Nater
Customer :	: (Geotechnical F	Projects Divis	sion, Geote	chnical Engi	neering office, Civ	/il Engineering a	and Developm	nent Departme	ent
& Address	8	3/F Civil Engin	eering and D)evelopmen	t Building, 1	01 Princess Marg	aret Road, Kow	vloon, Hong K	ong	
Lab Job No:		J469	1	Works Or	der No:	GE/2005/47.22	La	ab. Sample	Ref. No:	18507/2
Composite				Sampl	e No:	Dep	th m:	S	pecimen	
Sample No. :	: (CS2		-		-	_	D	epth m:	
Sample Type:	:	Bulk	Spec	. Ref:		Geological C	rigin: Sedime	ent		
Description :	. 1	Brown, silty,	•		/ith some s	hell fragments	-		,	
Date Sample:		29/11/2006	Date Te		4/12/2006		Tested By:	H. W. Ch		
Received	ĺ					:2001 Test 8.1			Method A	
SIEVE ANALYS	212		10001 00110				, 0.2 , 0.0 ,	0.0 / 0.1		/
Initial Dry Mass		oilm 1 g:	201.70							
	<u> </u>	Mass	Corr. Mass	Percent	Percent	<u> </u>				
BS Test Sieve in	nm	Retained g			Passing %					
	5.0		¥	0.0	100,0					
37	7.5			0.0	100.0		`			
20	o.o			0.0	100.0		\backslash			
Passing m2 20	0.0	201.70	cum. mass i	et. + m2 =	201.70		\backslash			
Riffled m3 20	0.0	201.70	difference fr	om m1 % =	0,00					
Washed m4		191.11	Note: m4 =	= mass >63	um					
	0.0	19.84	19.84	9.8	90.2					
	6.3	34.04	34.04	16.9	73.3			\searrow		
	6.3		cum. mass i		191.11			\wedge		
	5.3		difference fr		1		/	/		
	00 00	7.31	7.31	3.6	69.7					
	.18	39.15 38.58	<u>39,15</u> 38.58	<u> </u>	50.3 31.1	(Ň	\backslash	
0.6		26.17	26,17	13.0	18,2				\backslash	
0.3		16.07	16.07	8.0						
0.1		6,50	6.50	3.2						
0.0	63	2.40	2.40	1.2		1 /			```	
Pan	mΕ	0.10] /				
			cum. mass i	ret. + mE =	136.28					
			difference fr	om m6 % ≔	0.69					
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Approved Si	igna	atory: J	o Kan-c		ren		Date:	11-1-2	607	

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Report No: 112237N

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					-			Tai Po Envirome		e and
Project	:	Traffic Impact	Assessment	s–Investiga	tion Chemic	al, Elutriate and	Biological Tes	ting of Marine Se	ediment and '	Water
Customer	:	Geotechnical F	Projects Divi	sion, Geote	chnical Engi	neering office, C	ivil Engineerin	g and Developm	ient Departm	ent
& Address		8/F Civil Engin	eering and [evelopmer)	nt Building, 1	01 Princess Mar	garet Road, Ko	owloon, Hong Ko	ong	
Lab Job No	:	J469		Works Or	der No:	GE/2005/47.22	2	Lab. Sample	Ref. No:	18507/1
Composite				Sampl	ie No:	Dej	oth m:	Sp	pecimen	
Sample No.	:	CS1					-	Đ	epth m:	
Sample Typ	e:	Bulk	Spec	. Ref:		Geological C	Drigin: Sedir	nent		
Description	:	Brown, slight	tly silty, ver	v gravelly	SAND with	some shell fra	gments			
Date Sample		29/11/2006	Date Te		4/12/2006		Tested By:	H.W.Ch	<u> </u>	· • • • • • • • • • • • • • • • • • • •
Received						:2001 Test 8.1		······	Method A	
SIEVE ANAL	VSIS		1000144114			N	, 012 , 010	, 0,0 , 0,1		/
Initial Dry Mas			202.90							
inder bry mas		Mass	Corr. Mass	Percent	Percent					
BS Test Sieve	mm		Retained g		Passing %					
	75.0		. Iolaniou g	0.0	100.0				,	
	37.5			0.0	100.0					
	20.0]		0.0	100.0		\backslash			
	20.0	202.90	cum. mass i		202,90		\mathbf{X}			
Riffled m3	20.0		difference fr		-	j	$\langle \rangle$			
Washed m4		194.57		= mass >63			\backslash	/	/	
	10.0	20.07	20.07	9.9	90.1			\langle / \rangle		
	6.3	37.21	37.21	18.3	71.8]		\sim		
Passing m5	6.3	137.29	cum. mass i	ret. + m5 =	194.57			X		
Riffled m6	6.3	137.29	difference fr	om m4 % =	0.00			$\langle \rangle$		
	5.00	10.73	10.73	5.3	66.5		/			
	2.00	39.00	39.00	19.2	47.3	ļ				
	1.18	30.79	30.79	15.2	32.1				\backslash	
0	.600	27.19	27.19	13.4	18.7	ļ			$\langle \rangle$	
0	.300	18.53	18.53	9.1	9.6	4				
0	.150	8.30	8.30	4.1	5.5	/				`
	.063	2.58	2.58	1.3	4.1					\backslash
Pa Pa	ın mE	0.03			<u>.</u>					
			cum. mass i							
			difference fr	<u>om m6 % =</u>	. 0.10					Ì
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Approved	Sign	atory:	D Kam-c	huen	en		Date	: [/-(-]	2007	

TEST\GE036\PSDA (19970811)

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Report No: 102236N

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	<u>ole N</u>		<u>CS1</u>							. <u> </u>				Geo	 =					odim	ont		<u>_</u>	epui	<u></u>			
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TEST\GE036\PSDA (19970811)

TEST REPORT ON DETERMINATION OF MOISTURE CONTENT

(By oven drying at $105^{\circ}C \pm 5^{\circ}C$)

 Agreement No.CE59/2005 (EP) - Development of a Bathing Beach at Lung Mei, Tai Po Enviromental, Drainage and

 Project
 Traffic Impact Assessments - Investigation Chemical, Elutriate and Biological Testing of Marine Sediment and Water

 Customer
 Geotechnical Projects Division, Geotechnical Engineering office, Civil Engineering and Development Department

 & Address
 8/F Civil Engineering and Development Building, 101 Princess Margaret Road, Kowloon, Hong Kong

 Lab Job No
 J469
 Works Order No :
 GE/2005/47.22

 Date Samples Received :
 29/11/2006

Tested in Accordance With : GEOSPEC 3: 2001 Test 5.2

Composite		Sa	mple		Lab.		1		1	Moistu
Sample		Depth	Туре	Specimen	Sample	Date	Tested	Description	Geological	Conte
No.	No.	m		Depth m	Ref. No.	Tested	Ву		Origin	%
CS1			Bulk		18507/1	4/12/06	нжс	Brown, slightly silty, very gravelly SAND with some shell fragments	Sediment	1
CS2	•		Bulk		18507/2	4/12/06	НЖС	Brown, silty, very gravelly SAND with some shell fragments	Sediment	1
CS3	: ••		Bulk		18507/3	4/12/06	HWC	Yellowish brown, silty, clayey, very gravelly SAND	Sediment	1
Reference Sediment			Bulk		18507/4	4/12/06	нжс	Grey, slightly sandy CLAY with occasional shell fragments	Sediment	11
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Remarks:										
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	Approve	ed Signatory:	La Xa Lo Kam-ch	inn M	hier	,		Date: // _ / _ 7	2007	

(Page 1 of 1)

Test report	
Report No.	: 102245N
Project Name	: Agreement No. EP 59/2005 (EP) Development of a Bathing Beach at Lung Mei, Tai Po Environmental Drainage and Traffic Impact Assessments - Investigation
Customer Name	: Geotechnical Projects Division, Geotechnical Engineering Office, Civil Engineering and Development Department
Contract No.	: GE/2005/47
Works Order No.	: GE/2005/47.22
Lab. Sample Ref. No.	: 18507/1-4

Sample ID	Grain Size < 63 mm (%)	Moisture Content ¹ (%)	TOC (% Wet Weight)	TOC (% Drý Weight) ²
Composite Sample No. CS1	4	12	<0.05	<0.1
Composite Sample No. CS2	5	10	<0.05	<0.1
Composite Sample No. CS3	22	12	<0.05	<0.1
Reference sediment	90	116	0.37	0.80
	NA	NA	0.05	0.1
Detection Limit Note 1. Moisture content is calculated as: (Sample V	NA	NA	0.05	

End of Report

Data entry checked by: W.K. Greuk Y.M.Choy.)

TEST REPORT

Report No. Project Name	 102245N Agreement No. EP 59/2005 (EP) Development of a Bathing Beach at Lung Mei, Tai Po Environmental Drainage and Traffic Impact Assessments - Investigation
Customer Name	: Geotechnical Projects Division, Geotechnical Engineering Office, Civil Engineering and Development Department
Customer Address	 8/F Civil Engineering and Development Building, 101 Princess Margaret Road, Kowloon, Hong Kong
Contract No.	: GE/2005/47
Works Order No.	: GE/2005/47.22
Lab. Job No.	: J469
Lab. Sample Ref. No.	: 18507/1-4
No. of Sample(s)	9 no. of samples were received on chilled condition.
& Description	The samples are said to be sediment, however contain
	large amount of sand and stone.
	4 no. of samples were tested including
	Composite Sample No. CS1-CS3 ⁴ and Reference Sediment prepared
	as per customer's instruction
Sample Receive Date	: 14 - 24 Oct, 2006
Test Date	: 6 Dec 2006 - 11 Jan 2007

Test Parameter

Parameter	Test Method	
Grain size	Geospec 3: Test 8.1	
Moisture content	Geospec 3: Test 5.2	
Total Organic Carbon	ALS Method Code EP-009	

Note(s):

1. Results related to sample(s) as received.

2. NA = Not applicable.

3. The TOC samples were subcontracted to ALS Technichem (HK) Pty Ltd.

4. The composite samples were mixed in unequal portion due to the stony nature of the samples.

5. This is the final report and supersedes the draft report with the same report number.

Authorized signatory:

L Yi Zhang

Date:

30-Jan-2007

(Ecotoxicologist) Remark(s): This report shall not be reproduced, except in full, without prior written approval from Lam Laboratories Ltd. Lam Laboratories Limited Room 1412, Honour Industrial Centre, 6 Sun Yip Street, Chaiwan, Hong Kong. Tel: (852) 2897 3282 Fax: (852) 2897 5509 Email: info@lamlab.com

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Date	Sam	ple:	13/10)/200)6	1	Date	Test	ed:		25,	/10/:	2006	3				Te	estec	d By	/:	Н	I. W	<u>I. C</u>	hu					
Rece	ived		Tes	ted i	in A	١cc	ordar	nce '	With	: G	EC	SPI	EĊ 3	8:200	01 T	est	8.1	1/	8.2	/ 8.	5-/-	8:6	/ (3.7	Me	thod	Α			
			BS	S Siev	ve A	per	ture Si	ze, r	nm	63µ	un:	1	50µm 		00	60	n	1	.18	2		6 5	5.3 	10	20		87.5 	7	's 	
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Lab Job No):	J469		Norks Or		GE/2005/47.22		ab. Sample		18232/8
Client Ref.		SS3		Sampl	e No:	Dep	oth m: 0.90	-	becimen	
Sample Tu		Vilanaana		0.4			<u> </u>		epth m:	·
Sample Typ		Vibrocore		. Ref:		Geological C				
Description						D with occasior				
Date Samp	le:	13/10/2006	Date Te		25/10/200		Tested By:	H.W.Ch		
Received			Accordanc	e With: G	EOSPEC (3:2001 Test 8.1	/ -8.2-/ 8.5	/ 8.6-/-8.7-	Method A	
SIEVE ANA		• • •								
Initial Dry Ma	ISS OF	1	200.50	Dereet	Densent	+				
BS Test Siev	e mm	Mass Retained g	Corr. Mass	Percent Retained %	Percent Baccing %					
Do rest Slev	75.0	Netained g	Retained g	0.0	Passing % 100.0				,	
	37.5			0.0	100.0	- \				
	20.0			0.0	100.0	-				
Passing m2	20.0	200.50	cum. mass r		200.50	1	\mathbf{X}			
Riffled m3	20.0		difference fro		0.00					
Washed m4	•	158.43	Note: m4 =	- mass >63	Bum			/	/	
	10.0	8.46	8,46	4.2	95.8]				
	6.3	4.70	4.70	2.3	93.4	_		\backslash		
Passing m5	6.3	145.27	cum. mass r	et. + m5 =	158.43			X		
Riffled m6	6.3	145.27	difference fro	om m4 % =	0.00	4				
·	5.00	3,15	3.15	1.6	91.9	4	/			
	2.00	13.93	13.93	6.9	84.9	-			\backslash	
	1.18	28.39	28.39	14.2	70.8	-			$\langle \rangle$	
	0.600	40.23	40.23	20.1	50.7	1				
	0.300 0.150	30.94 18.43	30.94 18.43	<u>15,4</u> 9,2	35.3 26.1	1				
	0.063	10.43	10.10	5.0	20.1					\
	an mE	1		0.0		1 /				$\langle \rangle$
			cum. mass r	et. + mE ≓	145.26					
			difference fro	om m6 % ≕	0.01					
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Approved	Signa	atory: V	0 Kam-ch	r h	nen		Date:	6-11-	2006	

TEST REPORT ON DETERMINATION (Page 1 of 2) OF PARTICLE SIZE DISTRIBUTION Report No: 101702N Chemical and Biological Testing of Sediment (Service Contract) Agreement No.CE 59/2005(EP) Development of a Bathing Beach at Lung Mei, Tai Po Environmental, Drainage and Traffic Impact Assessments-Project : Investigation Chemical, Elutriate and Biological Testing of Marine Sediment and Water Customer Geotechnical Projects Division, Geotechnical Engineering office, Civil Engineering and Development Department & Address 8/F Civil Engineering and Development Building, 101 Princess Margaret Road, Kowloon, Hong Kong Lab Job No : Works Order No: GE/2005/47.22 J469 18236/3 Lab. Sample Ref. No: Client Ref. : SS8 Sample No: Depth m: 0.00 Specimen -- 0.90 Depth m: Sample Type: Vibrocore Spec. Ref: Geological Origin: Not Specified Description : Light brown, grey, silty, gravelly with occasional shell fragments Date Sample: 14/10/2006 Date Tested: 25/10/2006 Tested By: H. W. Chu Received Tested in Accordance With: GEOSPEC 3:2001 Test 8.1 / 8.2 / 8.7-Method A 86 .85 150*u*m 75 63um 1.18 37.5 BS Sieve Aperture Size, mm 300 600 100 80 Percentage Passing 60 40 20 0 100 0.001 10 0.01 0.1 1 ~ Sieving Particle Size mm - Sedimentation MEDIUM COARSE FINE MEDIUM COARSE FINE MEDIUM COARSE FINE COB-CLAY BLES GRAVEL SILT SAND Remarks: SUMMARY : GRAVEL 18 % Approved Signatory Lo Kam Chren Lo Kam-chuen SAND 75 % SILT & 7% Date: 6-11-2001 CLAY Lam Laboratories Limited Rm 1412, Honour Industrial Centre, 6 Sun Yip Street, Chaiwan, Hong Kong Tel: 28973282

TEST R	EPC	ORT ON	DETER	MINATIO	NC	(Page 2 c	of 2)		
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Lab Job No	. .	J469		Works Or	-	GE/2005/47.22		Noon, Hong Kong ab. Sample Ref. No:	18236/3
Client Ref.		SS8		Sampl	~ ~		oth m: 0.00	Specimen	
	•			oumpi	0 110.	501	- 0.90	Depth m:	
Sample Ty	pe:	Vibrocore	Spec	c. Ref:		Geological C			
Description	1:	Light brown,	grey, silty,	gravelly w	ith occasio	nal shell fragm	ents		
Date Samp	le:	14/10/2006	Date To	ested:	25/10/2006	3	Tested By:	H. W. Chu	
Received		Tested in A	Accordance	e With: G	EOSPEC 3	3:2001 Test 8.1	/ -8.2 / -8.5 /	8.6 / 8.7 Method	A
SIEVE ANA	LYSIS	3				N			/
Initial Dry Ma	ss of :		200.70		_				
RC Test Sieve		Mass Detained a	Corr. Mass		Percent				
BS Test Siev	<u>e mm</u> 75.0	Retained g	Retained g	Netained %	Passing % 100.0				
	37.5			0.0	100.0		、 、	/	
	20.0			0.0	100.0	j	$\overline{\}$		
Passing m2	20.0	200,70	cum. mass i	ret. + m2 =	200.70				
Riffled m3	20.0	-	difference fr		0.00	-			
Washed m4	10.0	186.07	1	= mass >63	um 92.8		\sim		
	<u>10,0</u> 6,3	14.53 4.18	14.53 4.18	7.2	92.8	4	```	\mathbf{X}	
Passing m5	6,3	1	cum. mass	6	1.86.07	-		X	
Riffled m6	6.3	1	difference fr		0.00		,	/	
ļ	5.00	3.88	3.88	1.9	88.7				
	2.00	14.41	14.41	7.2	81.6				
	<u>1.18</u> 0.600	26.39 53.22	26.39 53.22	13.1 26.5	68.4 41.9				
	0.300	45.63	45.63	20.3	19.2	-		$\langle \rangle$	
	0.150		17.25	8.6	10.6] /	/	``	
	0.063	6.42	6.42	3.2	7.3				\mathbf{A}
P	an mE	0.03	<u> </u>	<u> </u>					
				ret. + mE = :om m6 % =	167.23 0.08				
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Sam	ple T	ype:	Vibro	core	;		Sp	bec.	Re	f:					I	Ge	olo	gic	al	O	rig	in: I	Not	Spe	ecif	ied								
Desc	riptic	on :	Grey,	silt	/ S/	AN	D wit	h sc	me	she	eli f	rag	m	ente	5																			
Date	Sam	ple:	14/10	/200	06		Date	e Te	ste	d:		25/	/10	/20	06	-				-	Te	stec	l By	<u>/:</u>		Н.	W.	Chu	L					
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Client Ref. :	SS9		Sampl	e No:	Dep	oth m: 0.00	-	pecimen	
						- 0.90		epth m:	
Sample Type:	Vibrocore	Spec	c. Ref:		Geological C	Drigin: Not Spe	ecified		
Description :	Grey, silty S	AND with s	ome shell f	ragments					
Date Sample:	14/10/2006	Date Te	ested:	25/10/2006	i	Tested By:	H, W, Ch	u	
Received	Tested in	Accordanc	e With: G	EOSPEC 3	:2001 Test 8.1	/ -8.2 / -8.5 /	8:6 / 8:7	Method A	
SIEVE ANALYSIS					7				/
Initial Dry Mass of	Soilm1 g:	150.24							
	Mass	Corr. Mass	Percent	Percent					
BS Test Sieve mm	n Retained g	Retained g	Retained %	Passing %					
75.0			0.0	100.0				/	
37.5			0,0	100.0					
20.0			0.0	100.0		\mathbf{X}			
Passing m2 20.0	-	cum. mass i		150.24					
Riffled m3 20.0	150.24	difference fr	<u>om m1 % =</u>	0.00					
Washed m4	140.37	Note: m4	= mass >63						
10.0		0.00	0.0	100.0					
6.3		0.00	0.0	100.0			\searrow		
Passing m5 6.3		cum. mass		140.37			\wedge		
Riffled m6 6.3		difference fr	r	0.00		/			
5.00		0.11	0.1	99.9					
2.00		1.10	<u>0.7</u> 4.9	99.2 94.3				\backslash	
1.18		7.42 37.91	25.2	<u>54.3</u> 69.0				$\langle \rangle$	
0.300		59.19	39.4	29.6	ł				
0.150	Í	27.65	18.4	11.2	/				
0.063	6.88	6.88	4.6	6.6				Ň	\backslash
Pan m	E 0.04								
		cum. mass	ret. + mE ≕	140.30					
		difference fi	rom m6 %_≕	0.05					
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TEST REPORT ON DETERMINATION (Page 2 of 2) **OF PARTICLE SIZE DISTRIBUTION** Report No: 101704N Chemical and Biological Testing of Sediment (Service Contract) Agreement No.CE 59/2005(EP) Development of a Bathing Beach at Lung Mei, Tai Po Environmental, Drainage and Traffic Impact Assessments -Project Investigation Chemical, Elutriate and Biological Testing of Marine Sediment and Water : Customer Geotechnical Projects Division, Geotechnical Engineering office, Civil Engineering and Development Department & Address 8/F Civil Engineering and Development Building, 101 Princess Margaret Road, Kowloon, Hong Kong Lab Job No : J469 Works Order No: GE/2005/47.22 Lab. Sample Ref. No: 18249/3 Client Ref. **SS5** Depth m: 0.00 Specimen : Sample No: - 0.90 Depth m: Sample Type: Vibrocore Geological Origin: Not Specified Spec. Ref: Description : Olive grey, slightly silty, gravelly SAND with occasional shell fragments Date Sample: 18/10/2006 Date Tested: Tested By: H.W.Chu 25/10/2006 Received Tested in Accordance With: GEOSPEC 3:2001 Test 8.1 / 8:2-/-8:5 / 8:6 / 8:7-Method A SIEVE ANALYSIS Initial Dry Mass of Soil m1 210.33 g: Mass Corr. Mass Percent Percent BS Test Sieve mm Retained g Retained g Retained % Passing % 75.0 0,0 100.0 37.5 0.0 100.0 20.0 0.0 100.0 Passing m2 20.0 210.33 cum. mass ret. + m2 = 210.33 Riffled m3 20.0 <u>210.33 difference from m1 % =</u> 0.00 Washed m4 201.26 Note: m4 = mass >63um 10.0 4.70 4.70 2.2 97.8 1.15 1.15 0.5 6.3 97.2 201.26 Passing m5 6.3 195.41 cum. mass ret. + m5 = Riffled m6 6.3 147.00 difference from m4 % = 0.00 5.00 0.67 0.89 0.4 96,8 2.00 4.70 3.0 93.8 6.25 1.18 7.6 86.2 11.99 15.94 45.05 21.4 64.8 0.600 33.89 0,300 46.40 61.68 29.3 35.5 0.150 34.87 46.35 22.0 13.5 0.063 13.78 18.32 8.7 4.4 Pan mE 0.09 cum. mass ret. + mE = 146.39 difference from m6 % = 0.41

Date:

6-11-2006

TEST\GE036\PSDA (19970811)

Kam-chuen

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Approved Signatory:

TEST REPORT ON DETERMINATION (Page 1 of 2) OF PARTICLE SIZE DISTRIBUTION Report No: 101705N Chemical and Biological Testing of Sediment (Service Contract) Agreement No.CE 59/2005(EP) Development of a Bathing Beach at Lung Mei, Tai Po Environmental, Drainage and Traffic Impact Assessments-Project : investigation Chemical, Elutriate and Biological Testing of Marine Sediment and Water Customer Geotechnical Projects Division, Geotechnical Engineering office, Civil Engineering and Development Department & Address 8/F Civil Engineering and Development Building, 101 Princess Margaret Road, Kowloon, Hong Kong Lab Job No : J469 Works Order No: GE/2005/47.22 Lab. Sample Ref. No: 18249/6 Client Ref. SS7 • Depth m: 0.00 Specimen Sample No: - 0.90 Depth m: Sample Type: Vibrocore Spec. Ref: Geological Origin: Not Specified Description : Olive brown, slightly silty, very gravelly SAND with occasional shell fragments Date Sample: 18/10/2006 Date Tested: 25/10/2006 Tested By: H.W.Chu Received Tested in Accordance With: GEOSPEC 3:2001 Test 8.1 / 8.2 / 8.5 / 8.6 / 8.7 Method A 150µm 75 63µm 37.5 1.18 BS Sieve Aperture Size, mm 10 300 600 100 80 Percentage Passing 60 40 20 0 10 100 0.001 0.01 1 0.1 ~ Sleving Particle Size mm - Sedimentation ۸ MEDIUM COARSE FINE MEDIUM COARSE FINE MEDIUM COARSE FINE COB-CLAY GRAVEL SILT SAND Remarks: Approved Signatory: SUMMARY : 50 % GRAVEL Lo Kam chuen SAND 46 % SILT & 4 % Date: 6-11-2006 CLAY Lam Laboratories Limited Rm 1412, Honour Industrial Centre, 6 Sun Yip Street, Chaiwan, Hong Kong Tel: 28973282

TEST REI						(Page 2 c	of 2)				
<u>OF PART</u>		<u>E SIZE</u>	DISTR	BUTIO	N					Report No:	101705N
		Chemical and	Biological T	esting of Se	diment (Sen	/ice Contract) Ag	reement No	o.CE 59/20	005(EP)		
		Development	of a Bathing	Beach at Lu	ing Mei, Tai	Po Environmenta	il, Drainage	and Traffi	c Impact	Assessments	-
Project	:	Investigation (Chemical, El	utriate and E	Biological Te	sting of Marine S	ediment an	d Water			
Customer	:	Geotechnical	Projects Divi	sion, Geote	chnical Engi	neering office, Ci	vil Enginee	ring and D	evelopm	ent Departme	nt
& Address		8/F Civil Engir	neering and l	Developmen	at Building, 1	01 Princess Marg	jaret Road,	, Kowloon,	Hong Ko	ng	
Lab Job No	:	J469		Works Or	der No:	GE/2005/47.22		Lab. S	ample	Ref. No:	18249/6
Client Ref.	:	SS7		Sampl	e No:	Dep	oth m: 0.0	0	Sp	ecimen	
		·	•				- 0.9			epthm:	
Sample Type	:	Vibrocore	Spec	c. Ref:		Geological C	<mark>)rigin:</mark> No	t Specifie	d		
Description	:	Olive brown	slightly sill	y, very gra	velly SANE	with occasion	al shell fra	agments			
Date Sample	:	18/10/2006	Date Te	ested:	25/10/2006	3	Tested E	By: H	I. W. Chi	J	
Received		Tested in /	Accordance	e With: G	EOSPEC 3	:2001 Test 8.1	/ 8.2 / 8	3 .5 / 8.6	-/-8.7	Method A	
SIEVE ANALY	SIS					\land					/
Initial Dry Mass	ofS		212.08		1						
		Mass	Corr. Mass		Percent						
BS Test Sieve		Retained g	Retained g								
	5.0 7.5		1	0.0	100,0						
	0.0	• • • • •		0.0	100.0		\backslash				
	20.0	212.08	cum. mass i		212.08						
	20.0		difference fr		0.00						
Washed m4		204.61	Note: m4 :	= mass >63	lum		```				
1	0.0	4.51	4.51	2.1	97.9			\mathbf{i}			
	6.3	8.35	8.35	3,9	93,9						
	6.3		cum, mass i		204,61			X			
	6.3		difference fr						\mathbf{i}		
	.00	6.93 64,19	9,18	4.3	89.6 49.5	-					
	.18	38.22	85.01 50.62	23,9	25.7					\backslash	
	600	19.33	25.60	12.1	13.6					\backslash	
0.3	300	9.83	13.02	6,1	7.5]					
0.1	150	4.35	5.76	2.7	4.7	/					
0.0	063	1.79	2.37	1.1	3,6						\backslash
Pan	<u>m</u> E	0.05			L						
			cum, mass.								
			difference fr	<u>om mo % =</u>	0.07						\sim
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Approved S	igna	uory:	Lo Kam-c	h h	uen		Da	ite: 6-	(1-2	506	

TEST REPORT ON DETERMINATION OF PARTICLE SIZE DISTRIBUTION

(Page 1 of 2)

Report No: 101706N Chemical and Biological Testing of Sediment (Service Contract) Agreement No.CE 59/2005(EP) Development of a Bathing Beach at Lung Mei, Tai Po Environmental, Drainage and Traffic Impact Assessments-Project : Investigation Chemical, Elutriate and Biological Testing of Marine Sediment and Water Customer • Geotechnical Projects Division, Geotechnical Engineering office, Civil Engineering and Development Department & Address 8/F Civil Engineering and Development Building, 101 Princess Margaret Road, Kowloon, Hong Kong Lab Job No : J469 Works Order No: GE/2005/47.22 Lab. Sample Ref. No: 18249/7 Client Ref. : SS7 Sample No: Depth m: 0.90 Specimen - 1.30 Depth m: Sample Type: Vibrocore Spec. Ref: Geological Origin: Not Specified Description : Yellowish brown, silty, very sandy GRAVEL with occasional shell fragments Date Sample: 18/10/2006 Date Tested: Tested By: H.W.Chu 25/10/2006 Received Tested in Accordance With: GEOSPEC 3:2001 Test 8.1 / 8.2 / 8.5 / 8.6 / 8.7 Method A 63µm 150µm 1.18 37.5 75 BS Sieve Aperture Size, mm 300 600 100 80 Percentage Passing 60 40 20 0 0.001 0.01 0.1 10 100 1 🛋 – Sieving Particle Size mm Sedimentation FINE MEDIUM COARSE FINE MEDIUM COARSE FINE MEDIUM COARSE COB-BLES CLAY GRAVEL SILT SAND Remarks: SUMMARY : GRAVEL 55 % Approved Signatory: Lo Kam chuen SAND 38 % SILT & 7% Date: 6-11-2006 CLAY Lam Laboratories Limited Rm 1412, Honour Industrial Centre, 6 Sun Yip Street, Chaiwan, Hong Kong Tel: 28973282

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TEST REP	OR	T ON	DETERI	ΜΙΝΑΤΙΟ	ON	(Page 2 c	of 2)			
OF PARTIC	CLE	SIZE	DISTRI	BUTIO	N				Report No:	101706N
					=	ice Contract) Ag	reement No	CE 59/200	5(EP)	
			-	-	•	, -			Impact Assessment	s-
Project :		-	-		-	sting of Marine S			•	
Customer :					-	-			velopment Departm	ent
& Address			-		-	01 Princess Marg				
Lab Job No :	J4e		-	-	-	GE/2005/47.22			mple Ref. No:	18249/7
Client Ref.	: \$\$	7		Sampl			oth m: 0.90)	Specimen	
						•	- 1.30		Depth m:	
Sample Type:	Vib	rocore	Spec	. Ref:		Geological C				
Description :		llowish bro	•		GRAVEL W	ith occasional	_			
Date Sample:		/10/2006			25/10/2006		Tested B		W. Chu	
Received						3:2001 Test 8.1				\
SIEVE ANALYS				-		N				/
Initial Dry Mass o	-	m1 g:	210.42							
		Mass	Corr. Mass	Percent	Percent					
BS Test Sieve m	nm F	Retained g	Retained g	Retained %	Passing %					
75	.0			0.0	100.0				/	
37	.5			0,0	100.0		<u>\</u>		ļ.	
20				0.0	100.0		\backslash			
Passing m2 20			cum. mass i		210.42					
	0.0		difference fr		0.00	-	\setminus			
Washed m4		195.02		= mass >63	um 93.9	-	Ň	\backslash		
10	.0	12.83 15.79	12.83 15.79	<u>6.1</u> 7.5	86.4	-		\mathbf{X}		
	.3		cum. mass i		195.02			\sim		
	.3		difference fr		0.00				\backslash	
5,0		12.51	12.51	5.9	80.5	1			\mathbf{i}	
2.0	00	75.52	75.52	35.9	44.6]	/			
1.*	18	44.49	44,49	21.1	23.4					
0.60	00	17.52	17.52	8.3	15.1	-				
0.30	20	9.12	9.12	4.3	10.8					
0.1	50	4.42	4.42	2.1	8.7	1 /			\ \	
0.00		2.55	2.55	1.2	7.3	- /				\backslash
Pan I	mE	0.02	cum mass		166.15	+				
			difference fr							
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Proje		i					mical, I																							
	omer dress						jects D																				part	ment	:	
	Job N		J469		ngir	leer	ing and												et Roa										0.05	5 (0
	nt Ref		SS2	,				VV (r No		GE/	200	a.						58	111		Re			1	825	5/3
									Sai	np		NO:								0.90					Spec Dep					
	ple T		Vibro					ec. F								-			gin: 1	Not	Spe	cifi	ed							
	riptic		Brow	/n, s	ilty,		ry grav			Dw	vith	000	asio	nal	she	ll fra	gn	nen	ts											
	Sam	ple:	19/10				Date					/10/2							estec				~~~	W.	Chu				•	
Rece	eived		Tes	ted	in ,	Acc	corda	nce	With						01 T	est i	8.1	1.	8.2 ,	/ 8.	5 /	8.6	; /	8.	7-	Met	hod	Α		
	100	r	B	S Sie	ve A	\pe	rture Si	ze, r	nm	63,	µm	15	50µm		<u>o</u> o	60	0	1.	.18	2		5	6.3		10	20	3	7.5	7	5
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Lar	n Lal	borat	ories	: Lir	nite	ed	Rm 1	412,	Hon	our	' In	dusti	ial (Cent	tre,											ong	Tel:	289	732	82
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		Development									Assessments	-
Project	:	Investigation (no nipeo		
Customer		Geotechnical			-	-		•		Developm	ent Departme	ent
& Address	•	8/F Civil Engir	-		-	-		-	-	•	•	.,
Lab Job No	b :	J469			der No:						Ref. No:	18255/3
Client Ref.		SS2		Samp				oth m: 0.5			pecimen	
	-						202	- 0.9		-	epth m:	
Sample Ty	pe:	Vibrocore	Spee	c. Ref:		Geol	odical C	Drigin: No			<u></u>	
Description	-	Brown, silty,	•		vith occasio		-	-				
Date Samp		19/10/2006	Date To		25/10/2006			Tested E		H. W. Ch		
Received		Tested in A					Teet 8 1		- <u> </u>		Method A	
SIEVE ANA			ACCOLUTIN			N.2001	1051 0.1	1-0.2-1-0	9.9-7-0.0	5 / 0.1	Method A	/
Initial Dry Ma			204.79									
		Mass	Corr. Mass	Percent	Percent		`					
BS Test Siev	'e mm						\backslash					
	75.0	v_	†×	0.0	100.0	ĺ					/	
	37,5			.0.0	100.0			<				
	20.0			0.0	100,0			\backslash				
Passing m2	20.0	204.79	cum. mass i	ret. + m2 =	204.79							
Riffled m3	20.0	204.79	difference fr	<u>om m1 % =</u>	0.00			\setminus		,		
Washed m4		190.89	Note: m4	= mass >63	lum			,	\backslash			
· · · ·	10.0	2.81	2.81	1.4	98,6							
D en 1 E	6.3	11.54	11.54	5.6	93.0							
Passing m5	6.3	T	cum. mass i		190.89							
Riffled m6	6.3		difference fr		1							
	5.00 2.00	5.24 28.83	6.96 38.32	3.4 18.7	89.6 70.9					$\langle \rangle$		
	1.18	28.22	37.51	18.3	52.6					Ň	\backslash	
	0.600	22.42	29.80	14.6	38.0						$\langle \rangle$	
	0.300	29.27	38.90	19.0	19.0							
	0.150	14.09	18.73	9.1	9,9	1	/					
	0.063	4.24	5.64	2.8	6.8]					```	\backslash
P	an mE	0.02				1						$\langle \rangle$
			cum. mass									
			difference fr	<u>om m6 % =</u>	0.38							
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TEST REPORT ON DETERMINATION OF PARTICLE SIZE DISTRIBUTION

(Page 1 of 2)

Report No: 101708N Chemical and Biological Testing of Sediment (Service Contract) Agreement No.CE 59/2005(EP) Development of a Bathing Beach at Lung Mei, Tai Po Environmental, Drainage and Traffic Impact Assessments-Project Investigation Chemical, Elutriate and Biological Testing of Marine Sediment and Water • Customer Geotechnical Projects Division, Geotechnical Engineering office, Civil Engineering and Development Department & Address 8/F Civil Engineering and Development Building, 101 Princess Margaret Road, Kowloon, Hong Kong Lab Job No : Works Order No: GE/2005/47.22 J469 18255/4 Lab. Sample Ref. No: Client Ref. : SS2 Sample No: Depth m: 0.90 Specimen Depth m: - 1.90 Sample Type: Vibrocore Spec. Ref: Geological Origin: Not Specified Description : Brown, silty, very gravelly SAND with occasional shell fragments Date Sample: 19/10/2006 Date Tested: 25/10/2006 Tested By: H. W. Chu Received Tested in Accordance With: GEOSPEC 3:2001 Test 8.1 / 8.2 1 8.7 Method A 8.6 150*u* m 37.5 75 63µm 1.18 BS Sieve Aperture Size, mm 300 600 2 10 100 80 Percentage Passing 60 40 20 0 100 0.001 10 0.01 0.1 1 Sieving Particle Size mm - Sedimentation COARSE EINE MEDIUM COARSE FINE MEDIUM COARSE FINE MEDIUM COB CLAY BLES SILT SAND GRAVEL Remarks: Approved Signatory: SUMMARY : GRAVEL 42 % Lo Kam Chuen SAND 52 % SILT & 6 % Date: 6-11-2006 CLAY Lam Laboratories Limited Rm 1412, Honour Industrial Centre, 6 Sun Yip Street, Chaiwan, Hong Kong Tel: 28973282 TEST|GE036|PSDA (19970811)

TEST REPO					(Page 2 o	f 2)		Report No:	101708N
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.		-		•	Po Environmenta	· -	• •	Assessments	-
Project :	Investigation (Chemical, Elu	triate and E	Siological Te	sting of Marine Se	ediment and Wa	ter		
Customer :	Geotechnical	Projects Divis	ion, Geote	chnical Engli	neering office, Civ	/il Engineering a	and Developme	ent Departme	nt
& Address	8/F Civil Engir	neering and D	evelopmer	t Building, 1	01 Princess Marg	aret Road, Kow	loon, Hong Ko	ng	
Lab Job No :	J469	V	Vorks Or	der No:	GE/2005/47.22	La	b. Sample I	Ref. No:	18255/4
Client Ref. :	SS2		Sampl	e No:	Dep	th m: 0.90	Sp	ecimen	
			•		•	- 1.90	•	epthm:	
Sample Type:	Vibrocore	Spec	. Ref:		Geological O			•	
Description :		•		vith occasio	nal shell fragm				
			· · · · · · ·			· · · · · · · · · · · · · · · · · · ·		,	
Date Sample:	19/10/2006	Date Te		25/10/2006		Tested By:	H.W.Chu		
Received	· · · · · · · · · · · · · · · · · · ·	Accordance	e With: G	EOSPEC 3	:2001 Test 8.1	/ 8.2 / 8.5 /	8.6 / 8.7	Method A	
SIEVE ANALYSIS		<i>,</i>							
Initial Dry Mass of	<u>Soilm1 g:</u>	211.94							
	Mass	Corr. Mass	Percent	Percent					
BS Test Sieve mn	Retained g	Retained g	Retained %	Passing %					
75.0			0.0	100.0				/	/
37.5			0.0	100.0		<			
20,0			0,0	100.0		\mathbf{i}			
Passing m2 20.0	211.94	cum. mass re	et. + m2 =	211.94					
Riffled m3 20.0	211.94	difference fro	<u>m m1 %</u> ≕	0.00					
Washed m4	200.34	Note: m4 =	mass >63	um					
10.0	9.07	9.07	4.3	95.7					
6.3	11.92	11.92	5.6	90.1			\setminus /		
Passing m5 6.3	179.35	cum. mass re	et. + m5 =	200.34			X		
Riffled m6 6.3	134.27	difference fro	m m4 % =	.0.00			/		
5.00	8.93	11.93	5,6	84.5					
2.00	42.25	56.44	26.6	57.8					
1.18	38.92	51.99	24.5	33.3				\backslash	
0.600	23.30	31.12	14.7	18.6				\backslash	
0.300	13.09	17.48	8.2	10.4					
0.150	5.21	6.96	3.3	7.1	/				
0.063	2.13	2.85	1.3	5.6				```	\backslash
Pan ml	0.14			<u> </u>					$\langle \rangle$
		cum, mass re	et. + mE =	133.97					
		difference fro	<u> m m6 </u>	0.22					
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Approved Signatory:

Lo Kam chuen

Date: 6-11-2006

TEST REPORT ON DETERMINATION (Page 1 of 2) **OF PARTICLE SIZE DISTRIBUTION** Report No: 101709N Chemical and Biological Testing of Sediment (Service Contract) Agreement No.CE 59/2005(EP) Development of a Bathing Beach at Lung Mei, Tai Po Environmental, Drainage and Traffic Impact Assessments-Project Investigation Chemical, Elutriate and Biological Testing of Marine Sediment and Water : Customer Geotechnical Projects Division, Geotechnical Engineering office, Civil Engineering and Development Department & Address 8/F Civil Engineering and Development Building, 101 Princess Margaret Road, Kowloon, Hong Kong Lab Job No : J469 Works Order No: GE/2005/47.22 Lab. Sample Ref. No: 18255/8 Client Ref. SS4 • Sample No: Depth m: 0.00 Specimen ~ 0.90 Depth m: Sample Type: Vibrocore Spec. Ref: Geological Origin: Not Specified Description : Yellowish brown, silty, gravelly SAND with some shell fragments Date Sample: 19/10/2006 Date Tested: 25/10/2006 Tested By: H.W.Chu Received Tested in Accordance With: GEOSPEC 3:2001 Test 8.1 / 8.2 / 8.5 / 8.6 / 8.7 Method A 63µm 150µm 6.3 37.5 75 1.18 BS Sieve Aperture Size, mm 300 600 10 100 80 Percentage Passing 60 40 20 0 0.001 0.01 10 100 0.1 1 Sieving Particle Size mm . ~ Sedimentation FINE MEDIUM COARSE COARSE FINE MEDIUM COARSE FINE MEDIUM COB-CLAY BLES SILT SAND GRAVEL Remarks: SUMMARY : GRAVEL 20 % Approved Signatory: Lo Kam-chuen SAND 75 % SILT & 5 %

Lam Laboratories Limited Rm 1412, Honour Industrial Centre, 6 Sun Yip Street, Chaiwan, Hong Kong Tel: 28973282

Date: 6-11-2006

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TEST REPORT ON DETERMINATION OF PARTICLE SIZE DISTRIBUTION

(Page 2 of 2)

Report No: 101709N Chemical and Biological Testing of Sediment (Service Contract) Agreement No.CE 59/2005(EP) Development of a Bathing Beach at Lung Mei, Tai Po Environmental, Drainage and Traffic Impact Assessments-Project : Investigation Chemical, Elutriate and Biological Testing of Marine Sediment and Water Customer Geotechnical Projects Division, Geotechnical Engineering office, Civil Engineering and Development Department & Address 8/F Civil Engineering and Development Building, 101 Princess Margaret Road, Kowloon, Hong Kong Lab Job No : GE/2005/47.22 Lab. Sample Ref. No: 18255/8 .1469 Works Order No: Client Ref. SS4 Sample No: Depth m: 0.00 Specimen 2 - 0.90 Depth m: Sample Type: Vibrocore Spec. Ref: Geological Origin: Not Specified Description : Yellowish brown, silty, gravelly SAND with some shell fragments Date Sample: 19/10/2006 Date Tested: 25/10/2006 Tested By: H.W.Chu Received Tested in Accordance With: GEOSPEC 3:2001 Test 8.1 / 8.2 / 8.5 / 8.6 / 8.7 Method A SIEVE ANALYSIS Initial Dry Mass of Soil m1 207.62 g; Mass Corr. Mass Percent Percent BS Test Sieve mm Retained g Retained g Retained % Passing % 75.0 0,0 100.0 37.5 0.0 100.0 20.0 0.0 100.0 Passing m2 20.0 207.62 cum. mass ret. + m2 = 207.62 20.0 Riffled m3 207.62 difference from m1 % = 0.00 Note: m4 = mass >63um Washed m4 196.59 10.0 92.0 16.58 16.58 8.0 6.3 8.07 8.07 3.9 88.1 6.3 171.94 cum. mass ret. + m5 = 196.59 Passing m5 Riffled m6 6.3 128.80 difference from m4 % = 0.00 5.00 1.29 1.72 0.8 87.3 2.00 15.62 7.5 79.8 11.70 1.18 20.37 13.1 66.7 27.19 0.600 38,94 51.98 25,0 41.6 0.300 35.07 46.82 22.5 19.1 0.150 16.11 21.51 10.4 8.7 0.063 5.05 6.74 3.2 5.3 Pan mE 0.03 cum. mass ret. + mE = 128.56 difference from m6 % = <u>0.19</u> Date: 6-11-2006 Ram-chuen Approved Signatory:

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OF PARTICLE SIZE DISTRIBUTION Report No: 101711N Chemical and Biological Testing of Sectiment (Service Contract) Agreement No. CE 59/2008(EP) Development of a Bathing Besch at Lung Mei, Tei Po Environmental, Drainage and Traffo Impact Assessments- Project : Investigation Chemical, Elivitate and Biological Testing of Machine Sadiment and Water Customer : Getchahical Projects Division, Geotechnical Engineering office, Civil Engineering and Development Department & Address s/P Civil Engineering and Development Building, 101 Princess Margaret Read, Kovicon, Hong Korg Lab. Job No: J469 Works Order No: GE/2005(J47.22 Lab. Sample Ref. No: 18286/1 Client Ref. : Reference Sediment Sample No: GE/2005(J47.22 Lab. Sample Ref. No: 18286/1 Description : Grey, slightly sandy CLAY Bescinent Sample Ref. No: 18286/1 Description : Grey, slightly sandy CLAY Tested By: H. W. Chu Tested In Accordance With: GEOSPEG 3:2001 Test 8.1 / 92.1 0.5 / 9.6 / 9.7 / 9.7 / 9.7 / 9.7 / 9.7 / 9.7 / 9.7 / 9.7 / 9.7 / 9.7 / 9.7 / 9.7 / 9.7 / 9.7 / 9.7 / 9.7 / 9.7 / 9.7 / 9.7 / 9.7 / 9.7 / 9.7 / 9.7 / 9.7 / 9.7 / 9.7 / 9.7 / 9.7 / 9.7 / 9.7 / 9.7 / 9.7 / 9.7 / 9.7 / 9.7 / 9.7 / 9.7 / 9.7 / 9.7 / 9.7 / 9.7 / 9.7 / 9.7 / 9.7 / 9.7 / 9.7 / 9.7 / 9.7 / 9.7 / 9.7 / 9.7 / 9.7 / 9.7 / 9.7 / 9.7 / 9.7 / 9.7 / 9.7 / 9.7 / 9.7 / 9.7 / 9.7 / 9.7 / 9.7 / 9.7 / 9.7 / 9.7 / 9.7 / 9.7 / 9.7 / 9.7 / 9.7 / 9.7 / 9.7 / 9.7 / 9.7 / 9.7 / 9.7 / 9.7 / 9.7 / 9.7 / 9.7 / 9.7 / 9.7 / 9.7 / 9.7 / 9.7 / 9.7 / 9.7 / 9.7 / 9.7 / 	EST F											ł		(Pag	je 1	of	2)									
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Lam Laboratories Limited Rm 1412, Honour Industrial Centre, 6 Sun Yip Street, Chaiwan, Hong Kong Tel: 28973282	Lam La	borat	ories	Lin	nite	ed	Rm 14	412,	Hone	our	nd	ustria	al C	entre	,6\$	Sun	Yi	p Stre	eet, C	Chai	wan	, H	ong	Kong	Tel: 28	19732	82
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& Address	ł	8/F Civil Engin	eering and [Developmen	t Building, 1	01 Princess Marg	garet Road, Kov	vloon, Hong Ko	ong	
Lab Job No:		J469	,	Works Ore	der No:	GE/2005/47.22	: L	ab. Sample	Ref. No:	18286/1
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Received						:2001 Test 8.1			Method A	
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Appendix B

Records of Vibrcores

FUGRO GEOTECHNICAL SERVICES LTD



CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT GEOTECHNICAL ENGINEERING OFFICE CONTRACT NO. GE/2005/28 GROUND INVESTIGATION-MARINE WORKS (TERM CONTRACT)

Works Order No. GE/2005/28.10

Agreement No. CE 59/2005 (EP) Development of a Bathing Beach at Lung Mei, Tai Po Environmental Drainage and Traffic Impact Assessments - Investigation

Final Factual Fieldwork Report

Document No: 05-0460-05-10/R001

Checked in accordance with Contract No. GE/2001/23 requirements and accepted.

Signed _ Delo 18.12.2006

REVISION STATUS INDEX

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0	21- November-2006	Final	PM	GW	YY
Rev	Date	Description	Prepared	Checked	Approved

Fugro Geotechnical Services Ltd A member of the Fugro Group of Companies with offices throughout the world Units 8-11, 10/F Worldwide Industrial Centre, 43-47 Shan Mel Street, Fo Tan, Sha Tin, NT, Kong Kong Tel.: +852 2697 1126 Fax: +852 2694 0559 Email: fgs@fugro.com.hk

		CON	RACT	DAT	A SUN	MARY				
Project Name & No. : Ground Investigation -	- Marine Works (Term	Contract)	Site Name : Agreement No Development Tai Po	of a Bathi	ng Beach a		Date : 1(Official only G.E.O Data E	0/10/2006 Bank No.	to	09/12/2006
			Environmenta Assessments	- Investig	ation					
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Vibrocore Nos. :	9	Trial Pit Nos. :		NIL		Slope Stripping		NIL		
Probe Nos.: Piezometer/Standpipe	NIL	Trial Trenches NIL	NOS, ;	NIL		Strip Windows N Halcrow Bucket		NIL NIL		
Insitu Test Nos. :	NIL		Types	NIL		THACLOW BUCKEL				
Geophysics :	NIL		Туре	NIL			1.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,			<u></u>
<u></u>		LABO			ING S	UMMARY			·	hanga kang di sing si si si si si si si si si si si si si
Total No. of Tests :				1	Date :			to		
1 Juli 1107-04 (8315 :	Physical Properties		Τιι		PL		PSD		MC	
			SG		Ym/Yd					
Soll	Strength Tests		<u>cu</u>		CD		UU		Shear	Box
	Compaction & CBR	Tests	Standerd		Modified	·····			CBR	
	Oedometer & Perm	Test	Cv		k					
	Othera									
Rock	Y		Pt load		υ¢	internet in the second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second s	Shear Box		US Ve	
Location Plan	Scale 1:	20 000	Derived from:			eries HM20C, Ed		<u> </u>		
	RACTOR	Fugro Geot Services Lto	d		Laborato	ſ y	GEOTEC		CIVIL E	NGINEERING VELOPMENT
WORKS	ORDER NO.	GE/2005/2	8.10					æ	DEPART	

GE/2005/28



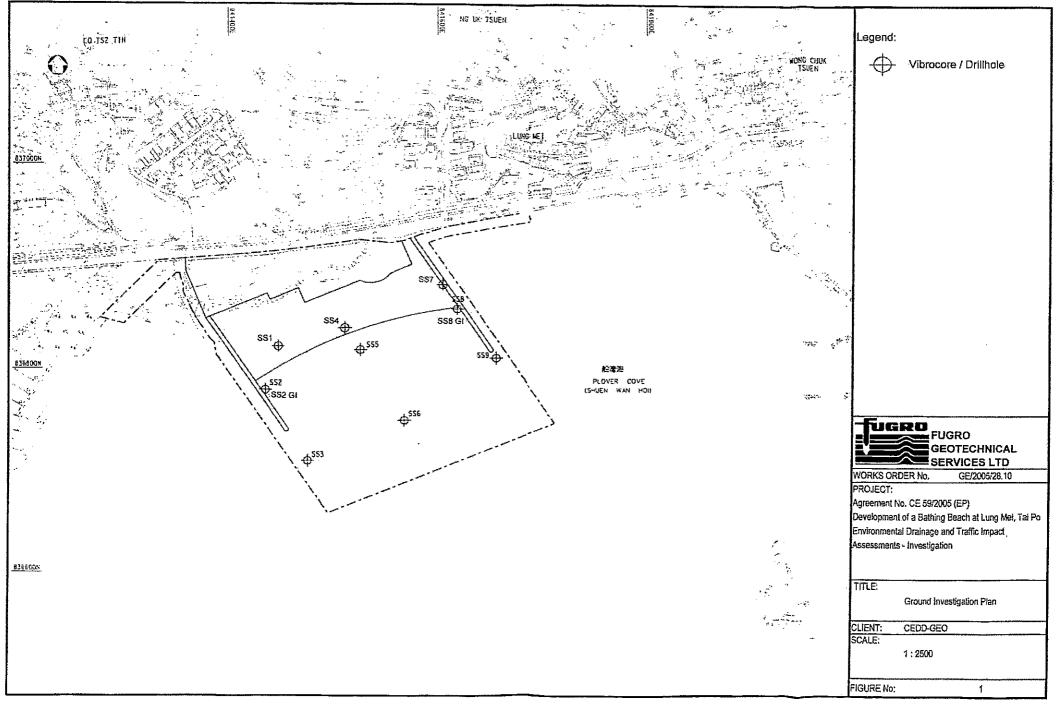
FUGRO GEOTECHNICAL SERVICES LTD

Table 2

Survey Record of Investigation Locations

Vibrocore / Drillhole	As-Built C	o-ordinates	Cooked Level (mDD)
No.	Easting (m)	Northing (m)	Seabed Level (mPD)
SS1	841448.00	836819.00	+0.55
SS2	841435.00	836779.00	+0.35
SS2 GI	841437.00	836779.00	+0.35
SS3	841476.00	836709.00	-3.25
SS4	841509.00	836837.00	+0,45
SS5	841526.00	836817.00	+0.45
SS6	841568.00	836748.00	-3.15
SS7	841604.00	836879.00	+0.20
SS8	841618.00	836856.00	-0.30
SSB GI	841618.00	836857.00	-0.30
SS9	841656.00	836809.00	-1.85





	JG	RC			RO			v	IBI	ROCO	RE F	REC	ORI	D	HOLE No. SS1
		\approx		GEC	TE	CHN	IICA LTD		DNT	RACT No.	: GE/	2005/	28		SHEET: 1 of 1
PRO	JECT:	Agr Env	een viror	nent l Imen	No. C tal D	E 59/ raina	2005 ge an	(EP) Deve d Traffic	alopr Impa	nent of a B ct Assessr	athing nents	Beac Inves	h at Lu stigatio	เทg วกุ	Mei, Tal Po
MET	HOD:	Vib	oroc	orin	9				co	-ORDINAT	ES:			v	NORKS ORDER No. GE/2005/28.10
MAC	HINE	& No.:	F	DR-1	7				E		448.00 819.00			C	DATE from: 20/10/2006 to 20/10/2006
FLUS	SHING	MED	IUM	; N	/A				OR	IENTATION	1: V	ertical		s	SEABED LEVEL + 0.55 mPD
Drilling Progress	Casing depth/size	Water Level (m) Shift start/ end		TCR%	scr%	ROD%	Гц	Tests		Samples	e Reduced 9 Level	8 Depth (m)	Legend	Grade	Description
20/10/2006		5								x			8 8 8 8		Yellowish brown (10YR/5/8) to brown (10YR/5/3), slightly silty, fine to coarse SAND with occasional subangular, fine to coarse gravel and cobbles of moderately strong, tuff and occasional shell fragments. (ESTUARINE DEPOSIT / ALLUVIUM?)
20430/2004										3 (1) (1)	-0.75	<u>1.30</u>	<u></u>		End of investigation hole at 1,30m.
2 3 4 5 6 7 8 9															
											ĺ				
	10 Small Disturbed Sample Istandard Penetration Piston sample In-situ Vano Shear U76 Undisturbed Sample Impression Packer Vibrocore sample Impression Packer Vibrocore sub-sample Pocker Test										1. .S. Tsan 1/10/2004 C. Wong	;	2. 12L 3. Vibi	, wat . grat rocor	L KS ter sample was collected. Ib sample was collected. Ire sub samples were taken for chemical testing from 9,90m and 0.90 - 1.20m,
៍ ទ	PT Liner	Sample			≜ 8			Tìp		DATE 2	V10/2006				

		R		FUC			<u></u>		v	IB	RC	C	OI	RE	REC	OR	D	HOLE No. SS2
		$\hat{\sim}$		GEC	DTE	, CHI CES			c	דאכ	RA	ст	No:	: GE	/2005	/28	(SHEET: 1 of 1
PRC	JECT	Ag En	reen viroi	nent nmer	No. C Ital D	CE 59 Drain:	/200 age a	5 (EP) and Tr	Deve affic l	elop Impa	men act /	nt of	a B	athin nents	g Bea	ch at L stigati	un ion	g Mei, Tal Po
MET	THOD:			orin													T	WORKS ORDER No. GE/2005/28.10
MAC	HINE	& No,	: F	DR-1	7						EN			435.0 779.0	-		-	DATE from: 19/10/2006 to 19/10/2006
FLU	SHING	MED	NUM	I: N	I/A									****	ertica		+	SEABED LEVEL + 0.35 mPD
	0	Water Level										ample	.	R	Ê	··· · · ·		
Drilling Progress	Casing depth/size	(m) Shift start/ end	말	TCR%	SCR%	R Q D %	<u>н</u>	Ť	ests			•	Dapth	o Reduced	S Depth (m)	Legend	Grade	ł.
-19/16/2008			-											-0.55	- - - - - - - - - - - - - - - - - - -			Yellowish brown (10YR/5/8), slightly silty, fine to coarse SAND with occasional subangular, fine to medium gravel and some shell and shell fragments. (MARINE DEPOSIT)
<u> </u>											3	woo	-000			8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8		Yellowish brown (10YR/5/4) to brown (10YR/5/3), silty, fine to coarse SAND with some angular to subangular, fine to coarse gravel and cobbles of moderately strong, tulf. (ALLUVIUM)
- - 18/10/2008 -						ļ	$\left - \right $				4		L 2.50	-2.25	- 2.60			End of investigation hole at 2.60m.
3 C															1.11.1			
4												<u></u>						
- - - 5															***			
															Ē			
- 6																		
-																		
- 7 -																		
-															Ē			
8															Ē			
* * *										.								
- - 9																		
- - 10 -															- - - 10.00			
Si	imali Disturbed Sample										LOG	GED	. w.	S. Tsan		REM.	. wa	iter sample was collected.
2 U	Small Distuibed Sample Piston sample U76 Undisturbed Sample							y Test			DAT			10/2006		2, 12L 3, Vib	. gra	ab sample was collected. Dre sub samples were taken for chemical testing from 0.90m, 0.90 - 1.90m and 1.90 - 2.50m.
vi ک	brocor a s	ub-sam	ple		Į	Pack	er Test	t	1		CHE	CKE	D <u>s.c</u>	. Wong	L	0.0	J ~ (
	PT Liner : aler Serr		Тір			DAT	E	23/	10/2006	l								

	UG	RI		FUG	RO				VI	BR	oc	:01	REI	REC	OR	D	HOLE No.		SS3	
		\approx	- (JEC	VIC	CHI			со	NTR	ACT	"No	.: GE	2005	28		SHEET;	1	of	1
PRO	UECT:	Agı Env	eem /iron	ent l men	lo, C tal D	E 59 raina	/200 ige a	5 (EP) D Ind Trafi	level fic in	opme npact	nt o Ass	f a B sessi	athing ments	j Beac - Inve	:h at L stigati	ung on	Mei, Tai Po			
MET	HOD:	Vil	oroc	oring	3					.co-c	RDI	NAT	ES:			۱	NORKS ORDER No.	GE/2	2005/28	.10
MAC	HINE	& No.;	FC	0R-1	7		• •			E N			476.0			1	DATE from: 13/10)/2006	to	13/10/2006
FLU	SHING	MED	IUM	N	/A					ORIE	NTA	TIOI	V: V	ertica	1			-3.2	5	mPD
Drilling Progress	Casing depth/size	Water Level (m) Shift start/ end	Water Return %	TCR%	scr%	RQD%	1	Tes	ls		Samp	Droth	keduced	S Depth (m)	Legend	Grade		Descripti	on	
1										1			-4.15	0.90	0 <u>000000000000000000000000000000000000</u>		Light yellowish bro fine to coarse SAN subangular, fine to shell fragments. (N	ID with o medium IARINE I	ccasion gravel DEPOS	al and some (T)
-										2	vico		-\$.15				Firm, light yellowis brown (7.5YR/6/4) clayey SILT with o subrounded, fine to	, slightly ccasiona	sandy to I subant	o sandy. Jular to
2										4				2 90			1.90 - 2.90m; With to rounded, fine to moderately strong,	coarse o	ngular, s gravei ar	subrounded ad cobbles of
- 4																				
	10 Small Disturbed Sample In-situ Vene Shear Te Piston sample Vin-situ Vene Shear Te U76 Undisturbed Sample Permeability Test Vibrocore sample Impression Packer Te Vibrocore sub-sample Packer Test								1	D/ CI	ATE .	<u>13</u> ED <u>S.</u>	S. Tsan /10/2006 C. Wong /10/2006	<u>*</u>	2. 12L 3. Vibi	wat grai	S er sample was collected b sample was collected e sub samples were tai 90m, 0.90 - 1.90m and	ken for ch	nemical t BOm.	esting from

_			·····					T					····			****	
	UG				RO				V	ΙB	RO	co	RE	REC	OR	D	HOLE No. SS4
Ň		\approx								тис	RAC	TNo	. GE	12005	28		SHEET: 1 of 1
PRC	JECT:	Agr Env	reen /iror	nent Imer	No. C Ital D	E 59. rains	/200! ige a	5 (EP) nd Tra	Deve uffic I	əlop Impa	ment act As	of a E isess	Bathin ments	g Seac - Inve	:h at L stigati	ung on	Mel, Tai Po
MET	HOD:	VI	brod	orin	g						D-ORE					ľ	WORKS ORDER No. GE/2005/28.10
MAC	HINE	& No.:	: FI	DR-1	7						e N		1509.0 5837.0	-			DATE from: 19/10/2006 to 19/10/2006
FLU	SHING	MED	IUM	: N	I/A					OF		ATIO	N: \	/ertica	1		SEABED LEVEL + 0.45 mPD
Drilling Progress	Casing depth/size	Water Level (m) Shift start/ end	*		SCR%	RQD%	1.4	Т	esis		San NoTri	iples	e Reduced Evel	8 Depth (m)	Legend	Grade	Description
- 19/10/2006 - - - - - - - - - - - - - - - - - -											2 2		0		0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.00 - 0.		Yellowish brown (10YR/5/8), slightly silty, fine to coarse SAND with occasional angular to subangular, fine to coarse gravel and cobles of moderately strong, tuff and occasional shell fragments. (ESTUARINE DEPOSIT / ALLUVIUM?)
1920/2020			-										-0.05	- F 1.40 E E	<u>-h</u> .s.		End of investigation hole at 1.40m.
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• • •																	
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<u> </u>																	
				F													
<u>5</u>		****															
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8 																	
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- 10	<u> </u>	<u> </u>		<u> </u>	<u> </u>	<u> </u>								F 10.00	REM	AR	[<\$
р р	mall Dist		emple	r	V V	新-BII	tu Vane	enetratio e Shear 1			LOGO	ED A	V.S. Tea	որ	1.201	. wat	ter sample was collected,
15	76 Undis ibrocara		Sample	¢	I t		neabilit ession	ry Tost Packer 1	lost		DATE	2	1/10/200	6	3. Vib	roco	re sub samples were taken for chemical testing from).90m and 0.90 - 1.30m,
Ιv	ibrocore PT Líner	sub-sam			ĩ ▲		ker Tes ometer				CHEC	KED S	i.C. Won	9			
4	later Sar				ð		dplpa				DATE	2	3/10/200	6	ŀ		

	5	G	RC	_				<u></u>	· · ·	VIE	RC	oco	REI	REC	OR	D	HOLE No.		SS5	
			\approx		GEC		CHN			CON	TRA	CT No	.: GE	2005/	28		SHEET:	1	of	1
PF	OJE	CT:	Agr Env	een iror	ient l imen	No. C tal D	E 59. raina	/200 ge a	5 (EP) De nd Traffi	velo; c Imp	omen bact /	t of a	Bathing ments	j Beac - Inve	h at L stigati	ung on	Mei, Tai Po			
M	ЕТНС	DD:	Vit	proc	orin	9				с	O-OF		TES:			V	VORKS ORDER No.	GE/2	:005/28	.10
M	ACHI	NE 8	& No.:	F	DR-1	7			**************************************		E N		1526.0 6817.0			C	DATE from: 18/10	/2006	to	18/10/2006
FL	USH	ING	MED	IJМ	: N	/A				0	RIEN	TATIC	N: V	ertica		5	SEABED LEVEL	+ 0.45		mPD
Drilling	1	depth/size	Water Level (m) Shift start/ end	Water Return %	TCR%	.scr%	ROD%	F1	Tests	l l		imples	e Reduced	S Depth (m)	Legend	Grade		Descripti	on	
10/10/2													1 0	- 1.00	ملک، بند بار سب مناکب و		Yellowish brown (1 (10YR/5/3), slightly with occasional sul gravel of moderate and tuff and occas MARINE DEPOSIT	r silty, fin bangular ly strong ional shr	e to coa	rse SAND
_36/36/2 	000											- H	<u>0.00</u>	- 1.00 	<u></u>		End of investigatio		1,00m.	
2														1111						
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1(<u> </u>		<u> </u>	-	REM		8			
	Pistor	n sam				↓ V I	in-sit		enetration To 5 Shear Test v Tost	ol	LOC	GED <u>1</u>	V.S. Tean	Q	1. 10L 2, 17L	. wat . grat	er sample was collected sample was collected.			
	Vibro	core s	urbed S ample		o	L. I Y	Impri		Packer Test			-	1/10/200		3, Vib	rocor	e sub samples were tal 90m.	ken for ci	hemical	lesting from
	SPT		ub-sam Sample pio	рю		≜ 合	Plez	ter res ometer dpipe			DA1	-	3/10/200							

r			·					r						<u>.</u>	· · · · · · · · · · · · · · · · · · ·		- 1				
	ug	R		FUG	RO)			٧	ΊB	RO	COI	REI	REC	ORI	D	HOLE No.		SS6		
		\approx	- (GEC	DTE	CHI ES	NIC LT	AL D	C	тис	RAC	T No	.: GE	/2005/	28		SHEET:	1	of		1
PR	DJECT	Agr Env	reen /iror	ient l imen	No. C Ital D	E 59	/200 ige 2	95 (EP) and Tra	Deve affic	elop Impa	ment act As	of a E sess	lathin ments	g Beac - Inve	h at Lustigatio	ung on	Mel, Tai Po				
ME	THOD;	Vil	oroc	orln	g)-ORD				****	1	NORKS ORDER No	GE/2	005/28	.10	*******
MA	CHINE	& No.:	FE) R-1	7						E N		568.0 748.0				DATE from: 13/1	0/2006	to	13/1	0/2006
FLL	ISHING	MED	IUM	: N	/A		· · · · ·			OF	RIENT,		N: V	ertica	1		SEABED LEVEL	-3.15	;	mPC)
Dritling Progress		Water Level (m) Shift start/ end	Water Return %	TCR%	SCR%	ROD%	12	Т	ests		Sam	pies • Depit	keduced	S Depth (m)	Legend	Grade		Descriptio			
_13/10/200	6										Mo		4.00	0.90			Soft, grey (7.5YR/ occasional shell fr DEPOSIT)	agments.	(MARIN	VE	
											3			1.70	S		Brown (7.5YR/5/4) SAND with much a coarse gravel and strong, tuff. (ALLU	ngular to cobbles (subanc	oular.	fine to
10 12 13 14 10 10 10 10 10 10 10 10 10 10												-nuen 470					End of investigatio	n hole at	1.70m.		
	Small Dist Piston ean		mple		ļ V	lu-eit	tu Van	enetratio le Shear T			LOGG	ED W	.S. Tsar		REM/ 1, 20L	wat	S sample was collected sample was collected	d.			
2	J76 Undis /ibrocore	turbed S	ample	9	I I			ity Test 1 Packer 7	Test		DATE	12	10/200	6	3, Vibr	000	e sub sample was collected re sub samples were ta .90m and 0,90 - 1,60m.	ken for ch	emicai t	esting) from
١Į١	/ibrocore SPT Liner	sub-sam	pla		ľ ≜		kar Tes omatai				CHEC	KED <u>S.</u>	C. Wong	2							
l š	Vater San				à		omata Idpipa				DATE	16	10/200	5							

	ÜG	RC						v	IBF	ROC	OF	REI	REC	OR	D	HOLE No. SS7
		$\hat{\sim}$		FUG GEC SER)TE	CHI	NICA LTD			RACT	No.	: GE	2005/	28		SHEET: 1 of 1
PRC	JECT;	Aga	reen viror	ient l imen	No. C ital D	E 59 raina	/2005 age an	(EP) Deve nd Traffic I	elopn mpa	nent of ct Ass	f a B essr	athing nents) Beac - Inve	h at Li stigatio	ing on	Mei, Tai Po
MET	HOD:			orin					****	-ORDII					T	WORKS ORDER No. GE/2005/28.10
MAG	HINE	& No.:	FI)R-1	7		Ke		E			604.0 879.0				DATE from: 18/10/2006 to 18/10/2006
FLU	SHING	MED	IUM	: N	/A					IENTA		*********	ertical			SEABED LEVEL + 0.20 mPD
	2G	Water				%		<u> </u>		Sampl	es	2ed Sed	(E)		<u> </u>	алаанаанаан талаан т Талаан талаан т
Drilling Progress	Casing depth/size	(m) Shift start/ end.	rer LTT	TCR%	SCR%	RaD%	F I	Tests		Va. Type	Depth	c Reduced	8 Depth (m)	Legend	Grade	Description
18/10/2006										2 VICO			1111			Yellowish brown (10YR/5/8), slightly silly, sandy, subangular to subrounded, fine to coarse GRAVEL and COBBLES of tuff and coral and occasional shell fragments. (ESTUARINE DEPOSIT / ALLUVIUM ?)
- - -	l							······································		3 . 1		-1.20	- <u>1.40</u> -			End of investigation hole at 1.40m.
2 3 4 5 6																
7 8 10																
	imall Dist İston san		ambje		1 V	in-si	tu Vane	netration Test Shear Test		LOGGE	o <u>w</u>	.S. Tsar	<u>19</u>	REM.	. wai	ter sample was collected.
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Appendix C

Record of Sediment Sampling & Collection under ETWB TC(W) No. 34/2002

RECORD OF SEDIMENT SAMPLING & COLLECTION UNDER ETWB TC(W) NO. 34/2002

Project Name: Agreement No. CE 59/2005 (EP), Development of a Bathing Beach at Lung Mei, Tai Po	Contract No.: GE/2005/28	
Environmental, Drainage and Traffic Impact	Assessments - Investigation		
Name of Project Proponent: Civil Engineerin	g and Development Department, Port Works Division		
Address: 4/F, Civil Engineering and Develop	ment Building, 101, Princess Margaret Road, Homantin, Kowloor	n, Hong Kong	<u> </u>
Contract Person: Mr Ricky Wong			
Telephone No.: 2762 5564	E-mail address: rickycpwong@cedd.gov.hk	Fax No.: 2714 2054	

Sediment Sampling

		Sampling										A	naly	sis re	ques	ted					_		Remarks
	Sampling	Location		Method of Collection (e.g. grab, vibrocore, etc)											. (Others	-						
Sample ID No.	Date & Time	(latitude/ longitude or Northing /Easting)	(starting & finishing levels)		vibrocore,	Metals	Metalloid	LMW PAHs	HMW PAHs	Total PCBs	TBT	Chlorinated Pesticides	Chlorinated Pesticides Particle Size Redox Potential TOC TNC Nitrite	Nitrate	Ammonia Nitrogen	Ortho -phosphate	Total phosphorus	son con					
SS1	20/10/2006	E 841448.00 N 836819.00	+0.55 to -0.35mPD, & -0.35 to -0.65mPD	Vibrocore	V	1	1	V	V	V	1	7	1	4	√	√	\checkmark	7	4	4	\checkmark	1	20L water sample and 12L grab samples were also collected
SS2	19/10/2006	E 841435.00 N 836779.00	+0.35 to -0.55mPD, -0.55 to -1.55mPD & -1.55 to -2.15mPD	Vibrocore	V	V	V	4	1	1	V	V	1	V	V	~	4	V	4	V	7	7	30L water sample and 12L grab samples were also collected
SS3	13/10/2006	E 841476.00 N 836709.00	-3.25 to -4.15mPD, -4.15 to -5.15mPD & -5.15 to -6.05mPD	Vibrocore	V	V	V	V	1	V	V	\checkmark	V	4	4	V	7	~	4	V	1	1	30L water sample and 12L grab samples were also collected
SS4	19/10/2006	E 841509.00 N 836837.00	+0.45 to -0.45mPD, & -0.45 to -0.85mPD	Vibrocore	1	V	V	V	V	1	1	V	1	1	1	V	V	1	V	1	4	4	20L water sample and 17L grab samples were also collected
SS5	18/10/2006	E 841526.00 N 836817.00	+0.45 to -0.45mPD	Vibrocore	1	V	V	1	V	V	1	V	V	1	V	V	\checkmark	1	. 1	1	V	1	10L water sample and 17L grab samples were also collected
SS6	13/10/2006	E 841568.00 N 836748.00	-3.15 to -4.05mPD, & -4.05 to -4.75mPD	Vibrocore	V	V	V	1	V	V	1	V	V	1	V	V	V	V	1	V	V	V	20L water sample and 17L grab samples were also collected

RECORD OF SEDIMENT SAMPLING & COLLECTION UNDER ETWB TC(W) NO. 34/2002

(Sheet <u>2</u> of <u>2</u>)

	10/10/2006	E 841604.00	+0.20 to -0.70mPD,	Vibrocore	V	1	1	1	V	1		1	1	1	1	1	1	1	al	1	1	1	20L water sample and 12L grab
SS7	18/10/2006	N 836879.00	& -0.70 to -1.10mPD		Y			N N				V	Y							Ň	¥	• •	samples were also collected
	1.1110/0000	E 841618.00	-0.30 to -1.20mPD,	X7:1	V	1		\ \	V	1	1	1	1	1	1	√	1	1	2	1	1	1	20L water sample and 12L grab
SS8	14/10/2006	N 836856.00	& -1.20 to -2.00mPD	Vibrocore	V	Ň		V	V V		v	Ň	Y	Ň	v	Y			Ň	4		*	samples were also collected
	SS9 14/10/2006 E 841656.00	T 0 41 (5 (00	-1.85 to -2.75mPD,	Vibrocore		1	<	1	V	1						√				1	√		30L water sample and 12L grab
SS9			-2.75 to -3.75mPD &		\checkmark						1	√	\checkmark	1	1		√	1	√			\checkmark	samples were also collected
		N 836809.00	-3.75 to -3.95mPD						-														
	24/10/2006	E 850234.00		Grab	7	1	1	1	4	V	√	1	1	1	1	1	V	1	√	~	√	1	-
PS6	PS6 24/10/2006	N 820057.00	-	Ciau	v	×																	

Sampling Conducted by	y:	Sampling Supervised by	y (if any):	Samples Received by:					
Company Name: Fugro (Geotechnical Services Ltd	Company Name: CEDD	- Port Works Division	Name of Laboratory: Lam Laboratories Limited					
Units 8-11, 10/F Worldw Shan Mei Street, Fo Tan,	ide Industrial Centre, 43-47 Sha Tin, Hong Kong	· · ·	neering and Development Margaret Road, Homantin,	Address: Rm 1412, Honour Industrial Centre, 6 Sun Yip Street, Chai Wan, Hong Kong					
		Kowloon, Hong Kong							
Person-in-charge:	Signature:	Responsible Person:	Signature: Ho fin luy	Responsible Person:	Signature:				
Mr Y Y Ho		Mr S C Ho	Ho In Cy	Maureen Chang					
Phone No.: 2697 1126	Date & Time: 25/10/2006	Phone No.: 6208 3156	Date & Time: 25/10/2006	Phone No.: 2975 3372	Date & Time: 25/10/2006				

Appendix D

Final Report on Biological Testing and Chemical Ancillary



Amphipod Test

TEST REPORT

Report No.	:	102240N
Project Name	:	Agreement No. EP 59/2005 (EP) Development of a Bathing Beach at Lung Mei, Taì Po Environmental Drainage and Traffic Impact Assessments - Investigation
Customer Name	:	Geotechnical Projects Division, Geotechnical Engineering
Customer Address	:	Office, Civil Engineering and Development Department 8/F Civil Engineering and Development Building, 101 Princess
	-	Margaret Road, Kowloon, Hong Kong
Contract No.	:	GE/2005/47
Works Order No.	:	GE/2005/47.22
Lab. Job No.	:	J469
Lab. Sample Ref. No.	:	18507/1-4
No. of Sample(s)	:	9 no. of samples were received on chilled condition.
& Description		The samples are said to be sediment, however contain
		large amount of sand and stone.
		4 no. of samples were tested including
		Composite Sample No. CS1-CS3 ⁵ and Reference Sediment prepare
		as per customer's instruction
Sample Receive Date	;	14 - 24 Oct, 2006
Test Date	:	6 - 16 Dec, 2006

Test Parameter

Parameter	Test Method
Amphipod Sediment Bioassay	USEPA 1994

Note(s):

1. Results related to sample(s) as received.

- 2. NA = Not applicable.
- 3. Uncertainty is calculated as 2 SD.
- 4. Standard Method: Methods for Assessing Toxicity of Sediment-associated Contaminants with Estuarine and Marine Amphipods. EPA/600/R-94/025, USEPA, 1994.
- 5. The composite samples were mixed in unequal portion due to the stony nature of the samples.
- 6. This is the final report and supersedes the draft report with the same report number.

Authorized signatory:

Yi Zhang (Ecotoxicologist) Date: 30-Jan-2007

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Lam Laboratories Limited

Test report

Report no.: 102240N

1, Method

This 10-day toxicity test with Leptocheirus plumulosus was conducted using the USEPA method (1994) "Methods for Assessing the Toxicity of Sediment-associated Contaminants with Estuarine and Marine Amphipods". Leptocheirus plumulosus is exposed to the test sediment overlaid with seawater for a 10-day test period and survival rate is determined as the primary endpoint.

2. Sample storage and pretreatment

All samples were homogenized thoroughly. Debris and indigenous organisms present in the sediment were removed and the sediment samples were stored at 4°C in dark until analyzed.

3. Test organism

Species:	Leptocheirus plumulosus
Source:	Purchased from research organism supplier from USA, mortality during shipping was 1.91%
Size/age:	3-4 mm in length
Acclimation:	under test conditions with feeding provided, as per USEPA 1994, mortality during acclimation was 2.44%
Health condition:	healthy
4, Summary of test particulars	
Type of test:	static
Duration:	6 - 16 Dec, 2006
Control sediment:	mud and sand collected from a clean area on the eastern coast of the New Territories and Hong Kong Island respectively, shipped to the laboratory on the same day, sieved through 425 micrometer mesh sieve, mixed and stored at 4°C in dark dark until use
Control seawater:	reconstituted seawater prepared with the Instant Ocean salt at 20 ppt, aerated for two days after preparation
Test temperature:	25±1°C
Lighting:	continuous
Aeration:	provided (around 100 bubbles/min)
Test vessel:	1000ml glass jars
Volume of sediment:	175ml
Volume of overlying water:	775 ml
No. of replicates:	5
No. of organisms/replicate:	20
Feeding:	none
Monitoring:	temperature, DO, pH and salinity in overlying water everyday, ammonia in overlying water at test initiation and termination
Reference toxicant test:	96 hour water only test with CdCl ₂

Report no.: 102240N

5. Summary of test results

Table 1. Survival of amphipods on Day 10'

	Number of living amphipod on Day 10								
Sample ID	Replicate	Replicate	Replicate	Replicate	Replicate	Mean	SD		
	1	2	3	4	5				
Negative Control with sediment	18	19	18	18	20	18.6	0.9		
Composite Sample No.CS1	14	17	20	16	20	17.4	2.6		
Composite Sample No.CS2	17	17	15	16	18	16.6	1.1		
Composite Sample No.CS3	15	16	17	14	14	15.2	1.3		
Reference sediment	17	19	16	18	17	17.4	1.1		

Table 2. Survival percentage of amphipods on Day 10

	Survival percentage of amphipod on Day 10 (%)								
Sample ID	Replicate	Replicate	Replicate	Replicate	Replicate	Mean	SD		
	1	2	3	4	5				
Negative Control with sediment	90	95	90	90	100	93.0	4.5		
Composite Sample No.CS1	70	85	100	80	100	87.0	13.0		
Composite Sample No.CS2	85	85	75	80	90	83.0	5.7		
Composite Sample No.CS3	75	80	85	70	70	76.0	6.5		
Reference sediment	85	95	80	90	85	87.0	5.7		

Table 3. Summary of the amphipod survival in relation to the reference sediment

Sample ID	Survival in relation to reference site (%)	Difference between sample and reference sediment (t-test)	
Composite Sample No.CS1	100.0	NA ¹	
Composite Sample No.CS2	95.4	NA ¹	
Composite Sample No.CS3	87.4	NA ¹	,.,
NA ¹ . As the average survival of the reference sediment, statistical analy	amphipods for the test sediment rsis is not required.	was no less than 80% of that of the	

End of Page

4 of 4

Report no.: 102240N

6, Test validity

Table 4. Test validity criteria and water quality ranges in the amphipod test

Parameter	Minimum during	Maximum during	Acceptable Range
	the test period	the test period	in USEPA 1994
Overlying salinity	19 ppt	21 ppt	19-21 ppt
Dissolved oxygen	6.5 mg/L	7.3 mg/L	>4.7 mg/L ¹
Overlying pH	6.8	8.0	NA ²
Temperature	24.3 °C	25.3 ⁰C	22.0-28.0 °C
			time-average
			24.0-26.0 °C
Total ammonia in	0.01 mg/L	0.22 mg/L	<60 mg/L ³
overlying water			
(initiation/termination)			
Interstitial salinity	30 ppt	31 ppt	1.5-32 ppt
(initiation)			
Interstitial pH	7.9	8.1	NA ²
(initiation)			
Amphipod survival			≥ 90% average
in the negative control	90-100%,	averagely 93.0 %	≥ 80% in any
·			individual replicate
96-h LC ₅₀ obtained			
from the reference	0.77	mg/L	0.92±0.38 mg/L
toxicant test			
1. 60% of saturation level at 2			
pH is not adjusted or contro			
The acceptance level for ov			
TCW 34/2002. When this le	-	itional set of amphipo	d
test is conducted with purg	ing of sediment.		

As shown in Table 4, the water quality parameters during the test period ranged within acceptable limits: temperature ranged from 24.3 to 25.3 °C, the dissolved oxygen level ranged from 6.5 to 7.3 mg/L, pH ranged from 6.8 to 8.0, the salinity ranged from 19 to 21 ppt. As a result, the data are interpretable.

The tests were validated by acceptable survival of control organisms. The average survival rate in controls was greater than 90% and survival rate in any control replicates greater than 80%.

The organisms also demonstrated comparable sensitivity to the reference toxicant (cadmium). The 96-hr LC_{50} for *Leptocheirus plumulosus* obtained was 0.77 mgCd/L and found within the laboratory control limits (Mean±2STD, i.e., 0.92 ±0.38 mgCd/L). Therefore, the data are acceptable.

End of report

Data entry checked by:

Y.M. Øĥov /



Polychaete Test

TEST REPORT

Report No.	:	102242N
Project Name	:	Development of a Bathing Beach at Lung Mei, Tai Po Environmental, Drainage and Tracffic of Marine Sediment and
Customer Name	:	Geotechnical Projects Division, Geotechnical Engineering Office, Civil Engineering and Development Department
Customer Address	:	8/F Civil Engineering and Development Building, 101 Princess Margaret Road, Kowloon, Hong Kong
Contract No.	:	GE/2005/47
Works Order No.	•	GE/2005/47.22
Lab. Job No.		J469
Lab. Sample Ref. No.	:	18507/1-4
No. of Sample(s)	:	9 no. of samples were received on chilled condition.
& Description		The samples are said to be sediment, however contain large amount of sand and stone. 4 no. of samples were tested including
		Composite Sample No. CS1-CS3 ⁵ and Reference Sediment prepa as per customer's instruction
Sample Receive Date	;	14 - 24 Oct, 2006
Test Date	:	7 - 27 Dec, 2006

Test Parameter

Parameter	Test Method
Polychaete Sediment Bioassay	PSEP 1995

Note(s):

1. Results related to sample(s) as received.

- 2. NA = Not applicable.
- 3. Uncertainty is calculated as 2 SD.
- 4. Standard method: Puget Sound Estuary Program Recommended Guidelines for Conducting Laboratory Bioassays on Puget Sound Sediments, USEPA, Revised July 1995.
- 5. The composite samples were mixed in unequal portion due to the stony nature of the samples.
- 6. This is the final report and supersedes the draft report with the same report number.

Yi Zhang (Ecotoxicologist)

Authorized signatory: _

Date: 30-Jan-2007

.,

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Lam Laboratories	Limited Room 1412, Honour Industrial Centre, 6 Sun Yip Street, Chaiwan, Hong Kong.	
	Tel: (852) 2897 3282 Fax: (852) 2897 5509 Email: info@lamlab.com	

Report No.: 102242N

1, Method

This 20-day toxicity test on sediment with Neanthes arenaceodentata was conducted using the PSEP method (1995) "Recommended Guidelines for Conducting Laboratory Bioassays on Puget Sound Sediments". *Neanthes arenaceodentata* is exposed to the test sediment overlaid with seawater for a 20-day test period. The endpoints are survival and growth.

2, Sample storage and pretreatment

All samples were homogenized thoroughly. Debris and indigenous organisms present in the sediment were removed and the sediment samples were stored at 4oC in dark until analyzed.

3, Test organism

Species: Source:	Neanthes arenaceodentata Purchased from research organism supplier from USA, mortality during shipping was 0%
Age/size: Acclimation:	2-3 weeks post emergence under test conditions with feeding provided, as per USEPA 1994, mortality during acclimation was 0%
Health condition:	healthy
Mean initial dry weight:	0.85mg/worm
4. Summary of test particulars	
Type of test:	renewal every three days
Duration:	7 - 27 Dec, 2006
Control sediment:	mud and sand collected from a clean area on the eastern coast of the New Territories and Hong Kong Island respectively, shipped to the laboratory on the same day, sieved through 425 micrometer mesh sieve, mixed and stored at 4°C in dark dark until use
Control seawater:	reconstituted seawater prepared with the Instant Ocean salt at 28 ppt, aerated for two days after preparation
Test temperature:	20±1°C
Lighting:	continuous
Aeration:	provided (around 100 bubbles/min)
Test vessel:	1000ml glass jars
Volume of sediment:	175ml
Volume of overlying water:	775 ml
No. of replicates:	5
No. of organisms/replicate:	5
Feeding:	Tetramarin powder, 8 mg per worm each time, once every two days
Monitoring:	temperature, DO, pH and salinity in overlying water everyday, ammonia in overlying water at test initiation and termination
Reference toxicant test:	96 hour water only test with CdCl ₂

Report No.: 102242N

5, Summary of test results

Table 1. Survival of polychaetes on Day 20

	Number of living polychaete on Day 20								
Sample ID	Replicate	Replicate	Replicate	Replicate	Replicate	Mean	SD		
	1	2	3	4	5				
Negative control with sediment	5	5	5	5	5	5.0	0.0		
Composite Sample No. CS1	5	5	5	5	5	5.0	0.0		
Composite Sample No. CS2	5	5	5	5	5	5.0	0.0		
Composite Sample No. CS2	5	5	5	5	5	5.0	0.0		
Reference sediment	5	5	5	5	5	5.0	0.0		

Table 2. Survival percentage of polychaetes on Day 20

	Survival percentage of polychaete on Day 20 (%)							
Sample ID	Replicate	Replicate	Replicate	Replicate	Replicate	Mean	SD	
	1	2	3	4	5			
Negative control with sediment	100	100	100	100	100	100.0	0.0	
Composite Sample No. CS1	100	100	100	100	100	100.0	0.0	
Composite Sample No. CS2	100	100	100	100	100	100.0	0.0	
Composite Sample No. CS3	100	100	100	100	100	100.0	0.0	
Reference sediment	100	100	100	100	100	100.0	0.0	

Table 3. Total dry weight of polychaetes on Day 20

	Total dry weight of polychaete on Day 20 (mg)							
Sample ID	Replicate	Replicate	Replicate	Replicate	Replicate	Mean	SD	
	1	2	3	4	5			
Negative control with sediment	96.92	81.02	97.20	79.05	85.70	88.0	8.6	
Composite Sample No. CS1	57.03	38.22	66.32	47.41	82.52	58.3	17.1	
Composite Sample No. CS2	81.01	54.46	70.45	70.91	96.13	74.6	15.3	
Composite Sample No. CS3	75.07	69.29	64.24	83.02	63.73	71.1	8.1	
Reference sediment	74.22	64.33	88.72	96.21	73.53	79.4	12.8	

Table 4. Summary of the total dry weight of polychaetes in relation to the reference sediments

Sample ID	Total dry weight in relation to reference site (%)	Difference between sample and reference sediment (t-test)
Composite Sample No. CS1	73.4	Significantly different, t critical=1.86, t stat=-2.205, p<0.05 (one tail)
Composite Sample No. CS2	93.9	NA ¹
Composite Sample No. CS3	89.5	Insignificantly different, t critical=1.86, t stat=-1.228, p=0.127 (one tail)
NA ¹ - As the average total dry weigh sediment, statistical analysis is not re		ss than 90% of that of the reference

Report No.: 102242N

6, Test validity

Table 5. Test validity criteria and water quality ranges in the polychaete test

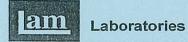
Parameter	Minimum during	Maximum during	Control Limit
	the test period	the test period	
Overlying salinity	26 ppt	30 ppt	26-30 ppt
Dissolved oxygen	6.5 mg/L	7.3 mg/L	not specified
Overlying pH	6.8	8.0	NA ¹
Temperature	19.7 °C	20.3 °C	19-21°C
Unionized ammonia in	<0.002 mg/L	0.01 mg/L	NA ²
overlying water			
(initiation/termination)			
Interstitial salinity	28 ppt	29 ppt	>20ppt
(initiation/termination)		,	· · · · · · · · · · · · · · · · · · ·
Interstitial pH	6.7	7.4	NA ¹
(initiation/termination)			
Polychaete survival			≥ 90% average
in the negative control	All 100% , averagely 100.0%		≥ 80% in any
			individual replicate
96-h LC ₅₀ obtained			
from the reference	11.53 mg/L		10.54±2.13 mg/L
toxicant test		<u> </u>	
1. pH is not adjusted or col			
Overlying ammonia is no	ot controlled. Results	could be qualified as p	oossible
false positive when unio			
L ł			

As shown in Table 5, the water quality parameters during the test period ranged within acceptable limits: temperature ranged from 19.7 to 20.3 °C, the salinity ranged from 26 to 30 ppt. As a result, the data are interpretable.

The tests were validated by acceptable survival of control organisms. The average survival rate in controls was greater than 90% and survival rate in any control replicates greater than 80%.

The organisms also demonstrated comparable sensitivity to the reference toxicant (cadmium). The 96-hr LC_{50} for *Neanthes arenaceodentata* obtained was 11.53 mgCd/L and found within the laboratory control limits (Mean±2STD, i.e., 10.54±2.13 mgCd/L). Therefore, the data are acceptable.

End of report



Bivalve Test

TEST REPORT

Report No.	:	102241N
Project Name	:	Agreement No. EP 59/2005 (EP) Development of a Bathing Beach at Lung Mei, Tai Po Environmental Drainage and Traffic Impact Assessments - Investigation
Customer Name	:	Geotechnical Projects Division, Geotechnical Engineering Office, Civil Engineering and Development Department
Customer Address	:	8/F Civil Engineering and Development Building, 101 Princess Margaret Road, Kowloon, Hong Kong
Contract No.	:	GE/2005/47
Works Order No.	:	GE/2005/47.22
Lab. Job No.	•	J469
Lab. Sample Ref. No.	:	18507/1-4
No. of Sample(s)	•	9 no. of samples were received on chilled condition.
& Description		The samples are said to be sediment, however contain large amount of sand and stone. 4 no. of samples were tested including
		Composite Sample No. CS1-CS3 ⁵ and Reference Sediment prepa as per customer's instruction
Sample Receive Date	:	14 - 24 Oct, 2006
Test Date	:	27 - 29 Nov, 2006

Test Parameter

Parameter	Test Method
Bivalve Larvae Sediment Bioassay	PSEP 1995

Note(s):

1. Results related to sample(s) as received.

- 2. NA = Not applicable.
- 3. Uncertainty is calculated as 2 SD.
- 4. Standard method: Puget Sound Estuary Program Recommended Guidelines for Conducting Laboratory Bioassays on Puget Sound Sediments, USEPA, Revised July 1995.
- 5. The composite samples were mixed in unequal portion due to the stony nature of the samples.
- 6. This is the final report and supersedes the draft report with the same report number.

Authorized signatory:

Yi Zhang (Ecotoxicologist) Date: 30-Jan-2007

 Remark(s):
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Test report

Report No.: 102241N

1, Method

This bivalve larvae test with Crassostrea gigas was conducted using the PSEP method (1995) "Recommended Guidelines for Conducting Laboratory Bioassays on Puget Sound Sediments". Bivalve adults are induced to spawn and gametes are fertilized. After fertilization the embryos are immediately exposed to the test sediment overlaid with seawater and allowed to develop for 48-60 hours. The normality survival of larvae is determined as endpoint.

2. Sample storage and pretreatment

All samples were homogenized thoroughly. Debris and indigenous organisms present in the sediment were removed and the sediment samples were stored at 4oC in dark until analyzed.

3, Test organism

Species:	Crassostrea gigas				
Source:	purchased from a research organism supplier in UK				
Acclimation:	24 hours under test conditions, as per PSEP 1995, mortality during acclimation was 0 %				
Conditions of eggs:	mature and clean				
Conditions of sperms:	active				
Fertilization rate:	89.9%				
Mean initial stocking:	37398 fertilized eggs per test chamber				
4. Summary of test particulars					
Type of test:	static and non-renewal				
Duration:	27 -29 November, 2006, 48 hours in total				
Control seawater:	collected from a clean area on the eastern coast of the Hong Kong Island,				
	filtered through 0.45 mm filter paper, adjusted to 28 ppt, aerated for two				
	days after preparation				
Test temperature:	20±1°C				
Lighting:	14h light : 10h dark cycle				
Aeration:	provided (around 100 bubbles/min)				
Test vessel:	1000ml glass jars				
Volume of sediment:	18g				
Volume of overlying water:	900 ml				
No. of replicates:	5				
Feeding:	none				
Monitoring:	temperature, DO, pH and salinity in overlying water everyday, and termination ammonia in overlying water at test initiation				
Reference toxicant test:	48 hour water only test with CdCl ₂				

Report No.: 102241N

5. Summary of test results

Table 1. Total number of normal larvae in each test chamber at test termination

Number of normal larvae in each test chamber at test termination					nation		
Sample ID	Replicate	Replicate 2	Replicate 3	Replicate 4	Replicate 5	Mean	SD
Negative Control with Seawater I	26000	25400	24500	26000	27500	25880.0	1094.1
Negative Control with Seawater II	26000	27800	24500	28000	26500	26560.0	1429.3
Composite Sample No. CS 1	18700	17900	18100	18900	19000	18520.0	491.9
Composite Sample No. CS 2	17900	17800	19100	19900	20100	18960.0	1080.7
Composite Sample No. CS 3	17400	17600	16900	17900	18100	17580.0	465.8
Reference sediment	21100	20900	23100	22400	19700	21440.0	1333.4

Table 2. Combined normality/survival of the bivalve larvae at test termination

		Normality survival of bivalve larvae at test termination (%)					
Sample ID	Replicate	Replicate	Replicate	Replicate	Replicate	Mean	SD
	1	2	3	4	5		
Negative Control with Seawater I	69.5	67.9	65.5	69.5	73.5	69.2	2.9
Negative Control with Seawater II	69.5	74.3	65.5	74.9	70.9	71.0	3.8
Composite Sample No. CS 1	50.0	47.9	48.4	50.5	50.8	49.5	1.3
Composite Sample No. CS 2	47.9	47.6	51.1	53.2	53.7	50.7	2.9
Composite Sample No. CS 3	46.5	47.1	45.2	47.9	48.4	47.0	1.2
Reference sediment	56.4	55.9	61.8	59.9	52.7	57.3	3.6

Table 3. Summary of the normality survival of bivalve larvae in relation to the reference sediments

Sample ID	Normality survival in relation to reference site (%)	Difference between sample and reference sediment (t-test)
Composite Sample No. CS 1	86.4	NA ¹
Composite Sample No. CS 2	88.4	NA ¹
Composite Sample No. CS 3	82.0	NA ¹
NA ¹ - As the average normality survi of that of the reference sediment, stat		st sediment was no less than 80%

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4 of 4

Test report

Report No.: 102241N

6, Test validity

Table 4. Test validity criteria and water quality ranges in the bivalve test

Parameter	Minimum during	Maximum during	Control Limit		
	the test period	the test period	•		
Overlying salinity	27 ppt 29 ppt		27-29ppt		
Dissolved oxygen	6.4 mg/L	7.2 mg/L	>4.5mg/L ¹		
Overlying pH	6.8	7.9	NA ²		
Temperature	19.8 °C	20.5 ℃	19.0-21.0°C		
Unionized ammonia in	<0.002 mg/L	0.004 mg/L	NA ³		
overlying water	-	-			
(initiation/termination)					
Larvae normality survival					
in the negative control	65.5 - 74.9	3% , averagely 70.1%	≥ 70% averagely		
48-h EC₅₀ obtained					
from the reference	1.35	1.45 ± 0.36 mg/L			
toxicant test					
1. 60% of saturation level at 2	8 ppt				
pH is not adjusted or contro	lled				
Overlying ammonia is not or	ontrolled. Results could	t be qualified as possi	ble false positive when		
ammonia (unionized) is greater than 0.13 mg/L					

As shown in Table 4, the water quality parameters during the test period ranged within control limits: temperature ranged from 19.8 to 20.5 °C, the dissolved oxygen level ranged from 6.4 to 7.2 mg/L, pH ranged from 6.8 to 7.9, the salinity ranged from 27 to 29 ppt. As a result, the data are interpretable.

The tests were validated by acceptable normality survival of control organisms. The average normality survival rate in controls was greater than 70%.

The organisms also demonstrated comparable sensitivity to the reference toxicant (cadmium). The 48-hr EC_{50} for *Crassostrea gigas* obtained was 1.35 mgCd/L and found within the laboratory control limits (Mean±2STD, i.e., 1.45±0.36 mgCd/L). Therefore, the data are acceptable.

End of Report

Data entry checked by: <u>Uwn</u> Y.M.Choy/W.K.Cher



Ancillary Tests



Interstitial Ammonia

TEST REPORT

Report No.		102243N
Project Name	· ·	Agreement No. EP 59/2005 (EP) Development of a Bathing Beach at Lung Mei, Tai Po Environmental Drainage and Traffic Impact
Customer Name	:	Geotechnical Projects Division, Geotechnical Engineering Office, Civil Engineering and Development Department
Customer Address	:	8/F Civil Engineering and Development Building, 101 Princess Margaret Road, Kowloon, Hong Kong
Contract No.	:	GE/2005/47
Works Order No.	:	GE/2005/47.22
Lab. Job No.	:	J469
Lab. Sample Ref. No.	:	18507/1-4
No. of Sample(s)	:	9 no. of samples were received on chilled condition.
& Description		The samples are said to be sediment, however contain large amount of sand and stone.
		4 no. of samples were tested including
		Composite Sample No. CS1-CS3 ³ and Reference Sediment prepared
		as per customer's instruction
Sample Receive Date	:	14 - 24 Oct, 2006
Test Date	:	8-Dec-06

Test Parameter

Parameter	Test Method
Interstitial ammonia	APHA 4500-NH3 F. Phenate Method

Note(s): 1. Results related to sample(s) as received.

2. NA = Not applicable.

3. The composite samples were mixed in unequal portion due to the stony nature of the samples.

4. This is the final report and supersedes the draft report with the same report number.

Authorized signatory:

Date:

30-Jan-2007

(Ecotoxicologist)

YiZhang

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	Tel: (852) 2897 3282 Fax: (852) 2897 5509 Email: info@lamlab.com	

Report no.: 102243N

Sample ID	Interstitial ammonia (mgNH ₃ /L)
Composite Sample No. CS1	See Note 1
Composite Sample No. CS2	See Note 1
Composite Sample No. CS3	See Note 1
Reference Sediment	0.5
Detection limit	0.03
Note 1 - Analysis was not performed due to insufficier	nt amount of porewater obtained.

Sample duplicate

Sample ID	Relative deviation (%)
Reference Sediment	1.2
Control limits	±20% from the mean

Sample Spike

Sample ID	Spike recovery (%)
Reference Sediment	101.0
Control limits	80-120% from the nominal value

End of Report

alin pale Data entry checked by: W:K-CDEuk/Y.M.Choy



Interstitial Salinity

TEST REPORT

Report No.	•	102244N
Project Name	:	Agreement No. EP 59/2005 (EP) Development of a Bathing Beach at Lung Mei, Tai Po Environmental Drainage and Traffic Impact Assessments - Investigation
Customer Name	:	Geotechnical Projects Division, Geotechnical Engineering Office, Civil Engineering and Development Department
Customer Address	:	8/F Civil Engineering and Development Building, 101 Princess Margaret Road, Kowloon, Hong Kong
Contract No.	:	GE/2005/47
Works Order No,	:	GE/2005/47.22
Lab. Job No.	•	J469
Lab. Sample Ref. No.	:	18507/1-4
No. of Sample(s)	:	9 no. of samples were received on chilled condition.
& Description		The samples are said to be sediment, however contain
-		large amount of sand and stone.
		4 no. of samples were tested including
		Composite Sample No. CS1-CS3 ³ and Reference Sediment prepared as per customer's instruction
Sample Receive Date	:	14 - 24 Oct, 2006
Test Date	:	6-Dec-06

Test Parameter

Parameter	Test Method
Interstitial salinity	APHA 2502 B

Note(s): 1. Results related to sample(s) as received.

- 2. NA = Not applicable.
- 3. The composite samples were mixed in unequal portion due to the stony nature of the samples.
- 4. This is the final report and supersedes the draft report with the same report number.

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Authorized signatory:

Date:

30-Jan-2007

Yi Zhang (Ecotoxicologist)

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Report no.: 102244N

Sample ID	Interstitial salinity (ppt)
Composite Sample No. CS 1	See Note 1
Composite Sample No. CS 2	See Note 1
Composite Sample No. CS 3	See Note 1
Reference sediment	34
Detection limit	NA
Note 1 - Analysis was not performed due to insufficient a	amount of porewater obtained.

Sample duplicate

Sample ID	Relative deviation (%)
Reference sediment	-2.7
Control limits	±20% from the mean

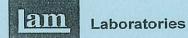
Standard check

Sample ID	Recovery (%)
Reference standard	99.4
Control limits	80-120% from the nominal value

End of Report

Data entry checked by: <u>Utor Mckle</u> <u>W-K-Che</u>uk / Y.M.Choy

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TOC, Grains Size & Moisture Content

TEST REPORT

Report No.	: 102245N
Project Name	: Agreement No. EP 59/2005 (EP) Development of a Bathing Beach at Lung Mei, Tai Po Environmental Drainage and Traffic Impact Assessments - Investigation
Customer Name	: Geotechnical Projects Division, Geotechnical Engineering Office, Civil Engineering and Development Department
Customer Address	: 8/F Civil Engineering and Development Building, 101 Princess Margaret Road, Kowloon, Hong Kong
Contract No.	: GE/2005/47
Works Order No.	: GE/2005/47.22
Lab. Job No.	: J469
Lab. Sample Ref. No.	: 18507/1-4
No. of Sample(s)	: 9 no. of samples were received on chilled condition.
& Description	The samples are said to be sediment, however contain large amount of sand and stone.
	4 no. of samples were tested including
	Composite Sample No. CS1-CS3 ⁴ and Reference Sediment prepared
	as per customer's instruction
Sample Receive Date	: 14 - 24 Oct, 2006
Test Date	: 6 Dec 2006 - 11 Jan 2007

Test Parameter

Parameter	Test Method	
Grain size	Geospec 3: Test 8.1	
Moisture content	Geospec 3: Test 5.2	
Total Organic Carbon	ALS Method Code EP-009	

Note(s):

1. Results related to sample(s) as received.

2. NA = Not applicable.

3. The TOC samples were subcontracted to ALS Technichem (HK) Pty Ltd.

4. The composite samples were mixed in unequal portion due to the stony nature of the samples.

5. This is the final report and supersedes the draft report with the same report number.

Authorized signatory:

 \mathcal{D} L

Yi Zhang

Date:

30-Jan-2007

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Test report	
Report No.	: 102245N
Project Name	: Agreement No. EP 59/2005 (EP) Development of a Bathing Beach at Lung Mei, Tai Po Environmental Drainage and Traffic Impact Assessments - Investigation
Customer Name	: Geotechnical Projects Division, Geotechnical Engineering Office, Civil Engineering and Development Department
Contract No.	: GE/2005/47
Works Order No.	: GE/2005/47.22
Lab. Sample Ref. No.	: 18507/1-4

Sample ID	Grain Size < 63 mm (%)	Moisture Content ¹ (%)	TOC (% Wet Weight)	TOC (% Drý Weight) ²
Composite Sample No. CS1	4	12	<0.05	<0.1
Composite Sample No. CS2	5	10	<0.05	<0.1
Composite Sample No. CS3	22	12	<0.05	<0.1
Reference sediment	90	116	0.37	0.80
Detection Limit	NA	NA	0.05	0.1
Note 1. Moisture content is calculated as: (Sa	mple Wet Weight - Sample Dry We	ight) / Sample Dry Weight	t x 100%	

End of Report

Data entry checked by:

Lam Laboratories Limited	Room 1412, Honour Industrial Centre, 6 Sun Yip Street, Chaiwar	i, Hong Kong.
	Tel: (852) 2897 3282 Fax: (852) 2897 5509 Email: <u>info</u>	@lamlab.com

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(Page 1 of 1)

TEST REPORT ON DETERMINATION OF MOISTURE CONTENT

(By oven drying at $105^{\circ}C \pm 5^{\circ}C$)

 Agreement No.CE59/2005 (EP) – Development of a Bathing Beach at Lung Mei, Tai Po Enviromental, Drainage and

 Project
 Traffic Impact Assessments – Investigation Chemical, Elutriate and Biological Testing of Marine Sediment and Water

 Customer
 Geotechnical Projects Division, Geotechnical Engineering office, Civil Engineering and Development Department

 & Address
 8/F Civil Engineering and Development Building, 101 Princess Margaret Road, Kowloon, Hong Kong

 Lab Job No :
 J469
 Works Order No :
 GE/2005/47.22

 Date Samples Received :
 29/11/2006

Tested in Accordance With : GEOSPEC 3: 2001 Test 5.2

Composite		Sa	mple		Lab.					Moistu
Sample		Depth	Туре	Specimen	Sample	Date	Tested	Description	Geological	Conte
No.	No.	m		Depth m	Ref. No.	Tested	By		Origin	%
CS1		· · · · ·	Bulk		18507/1	4/12/06	HWC	Brown, slightly silty, very gravelly SAND with some shell fragments	Sediment	
CS2			Bulk		18507/2	4/12/06	HWC	Brown, silty, very gravelly SAND with some shell fragments	Sediment	
CS3		:	Bulk		18507/3	4/12/06	HWC	Yellowish brown, silty, clayey, very gravelly SAND	Sediment	
Reference Sediment			Bulk		18507/4	4/12/06	HWC	Grey, slightly sandy CLAY with occasional shell fragments	Sediment	1
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Approved Signatory:

Lo Kam chier

Date: 11-1-2007

Lo Kam-chuen

Lam Laboratories Limited Rm 1412, Honour Industrial Centre, 6 Sun Yip Street, Chaiwan, Hong Kong Tel: 2897 3282

TESTIGE036 MC105 (19970224)

Report No: 102235N

TEST REPORT ON DETERMINATION OF PARTICLE SIZE DISTRIBUTION

(Page 1 of 2)

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(Page 2 of 2)

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& Address	8/F Civil Engin	-	-	-		-				
Lab Job No :	J469	<u> </u>	Norks Ord	ler No:	GE/2005	/47.22	L	ab. Sam	ple Ref. No:	18507/1
Composite			Sample	e No:		Depth	m:		Specimen	
Sample No. :	CS1						-		Depth m:	
Sample Type:	Bulk	Spec	. Ref:		Geolog	ical Orig	in: Sedim	ent		
Description :	Brown, sligh	tly silty, ver	gravelly S	SAND with	some sh	ell fragme	ents			
Date Sample:	29/11/2006	Date Te		4/12/2006			sted By:	H. W	. Chu	
Received	Tested in /			EOSPEC 3	:2001 Te			/ 8.6 / 8	3.7 Method /	4
SIEVE ANALYSIS							· · · ·			/
Initial Dry Mass of		202.90								
	Mass	Corr. Mass	Percent	Percent						
BS Test Sieve mm	Retained g	Retained g	Retained %	Passing %		\backslash				
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37,5			0.0	100.0		`\			/	
20.0			0.0	100.0		\backslash	<			
Passing m2 20.0		cum. mass r		202.90			\mathbf{X}			
Riffled m3 20,0	1	difference fro		0.00						
Washed m4	194.57	1	= mass >63							
10.0		20.07	9.9	90.1				\setminus /		
6.3		37.21	18.3	71.8				\sim		
Passing m5 6.3 Riffled m6 6.3		cum. mass r		194.57				\wedge		
Riffled m6 6.3 5.00		difference fro 10.73	5.3	<u>0.00</u> 66.5			/			
2.00	1	39.00	19,2	47.3					\mathbf{X}	
1.18		30.79	15.2	32.1	Ì					
0.600		27.19	13.4	18.7						
0.300		18.53	9.1	9.6		/	/			
0.150		8.30	4.1	5.5					\backslash	`
0.063	2.58	2.58	1.3	4.1						\backslash
Pan mi	E 0.03									
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Approved Sigr	hatory:	D Com Lo Kam-c	huen	en	<u> </u>		Date:	[/-/	- 2007	

TEST|GE036|PSDA (19970811)

(Page 1 of 2)

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			Agreen	nent	No	.CE	59/200)5 (EF	P)	Dev	elo	pm	ent c	of a	Bat	hing	g Be	eacl	h at	Lun	g N	iei,	Tai	Po	En	vira	omer	ntal,	Draiı	nage	and		L,
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	Job N		J469					Wo					o:	G	iE/2	2005					-	La	b.	Sa	mţ		Re				185	07/2	-
	posite ple N		CS2						Sa	mp	le i	No:	;					De	pth	m:							Sper Dep						L.
	ple Ty		Bulk				Spe	ec. R	lef:						Geo	olor	Jic	al	Orio	ain	: Se	edin	ner	nt									- _
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	ived	-				Acc	orda	nce	Witi	h: 0					200	1 Te	est	8.1	17	8.2	-1	8.5		8. 6	+	8.	7-	Me	etho	d A			
			BS	Siev	e A	\pe	rture Si	ize, r	nm	63	μm	<u> </u>	150µ	m		_			1	.18					6.3 		10	20	 	97.5 		75 	٩.
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				-			Report No:	112237N
	Agreement No	.CE59/2005	(EP) - Deve	elopment of	a Bathing Beach	at Lung Mei, T	ai Po Enviromental, Drainag	le and
Project :	Traffic Impact	Assessment	s – Investigat	ion Chemic	al, Elutriate and E	Biological Testi	ng of Marine Sediment and V	Water
Customer :	Geotechnical	Projects Divi	sion, Geotec	hnical Engi	neering office, Ci	vil Engineering	and Development Departm	ent
& Address	8/F Civil Engin	neering and [Development	Building, 1	01 Princess Marg	jaret Road, Kov	vloon, Hong Kong	
Lab Job No :	J469	,	Works Ord	ier No:	GE/2005/47.22	L	ab. Sample Ref. N <u>o:</u>	18507/2
Composite			Sample	e No:	Dep	nth m:	Specimen	
Sample No. :	CS2				-	_	Depth m:	
Sample Type:	Bulk	Spec	:. Ref:		Geological C	rigin: Sedim		
Description :	Brown, silty,	very grave	ly SAND w	ith some s	hell fragments	-		
	29/11/2006	Date Te	<u> </u>	4/12/2006		Tested By:	H. W. Chu	
Received					3:2001 Test 8.1			
SIEVE ANALYSIS					N	, ,		/
Initial Dry Mass of S		201.70			1 \			
	Mass	Corr. Mass	Percent	Percent				
BS Test Sieve mm	Retained g	Retained g	Retained %	Passing %				
75.0			0.0	100.0] \			
37.5			0.0	100.0				
20.0		Į	0.0	100,0	4	\mathbf{i}		
Passing m2 20.0		cum. mass i		201.70				
Riffled m3 20.0		difference fr		0.00	-			
Washed m4	191.11	i	= mass >631		-			
10.0	<u>19.84</u> 34.04	19.84 34.04	9.8 16.9	90.2		```		
Passing m5 6.3		cum. mass i		191.11	-		\searrow	
Riffled m6 6.3		difference fr		0.00			\square	
5,00	7.31	7.31	3.6	69.7		/		
2.00	39.15	39,15	19.4	50.3	1			
1.18	38.58	38.58	19.1	31.1]		\backslash	
0,600	26.17	26.17	13.0	18.2				
0.300	16.07	16.07	8.0	10,2	-		$\langle \rangle$	
0,150	6,50	6.50	3.2	7.0	- /		\backslash	`
0.063	2.40	2,40	1.2	5.3	+ /			\backslash
Pan mE	0.10	cum. mass i		100.00				
		difference fr		136.28 0.69				
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Approved Sign	atory: 🗸	o Kan	r ihi	en-		Date:	11-1-2007	
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TEST|GE036|PSDA (19970811)

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Proje	ct						essmen																						
Client							jects Div																						U
& Add	dress						ring and												oad	, Ko	wloc	on, I	Hor	ng Ko	ong				C 3
Lab J	lob N	io :	J469					Work	o e	rde	r N	lo:	GE	/20)05/					Lai). <u>S</u>	ап			ef. N			18507/3	<u> </u>
Comp								S	amp	ble	No	:				D	ept	տ։						-	ecim pth				U
<u>Samp</u> Samp			CS3 Bulk				Spec	Dof		•			G	امو		ca	10	rigin:	Se	dim	ent								- Π
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Date			29/1				Date T					2006					-	Teste	ed E	By:		H.	w	. Ch	u				
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		A	0500000							Report No:	
Project								at Lung Mei, T			
-				-				Biological Testin	_		
Customer & Address					-	-		vil Engineering			ent
Lab Job No		J469		Works Or		GE/2005		garet Road, Kov	ab. Sample		18507/3
Composite				Sampl				. <u> </u>	-	becimen	1000170
Sample No		CS3		Gampi	C 140.		net		•	epth m:	
Sample Typ		Bulk	Snec	. Ref:		Geolog	ical C	Drigin: Sedim			
Description	•	Yellowish bro	•		r gravelly S	-		ingin count			
Date Samp		29/11/2006	Date Te		4/12/2006	5 (Tested By:	H.W.Ch	11	
Received		·				2001 To	et 8 1	/ -8,2 / -8,5 -		Method A	• •
SIEVE ANA	LYSIS		1000/04/10			N		7 0.2 7 0.0	0.0 / 0.7	INCUICO /	·
Initial Dry Ma			201.53								
		Mass	Corr. Mass	Percent	Percent						
BS Test Siev	e mm	Retained g	Retained g	Retained %	Passing %						
	75.0	v		0.0	100.0					/	
	37.5	<u> </u>	i	0.0	100.0						
	20.0			0.0	100.0			\mathbf{i}			
Passing m2	20.0		cum. mass r		201.53			\backslash			
Riffled m3	_20.0		difference fr		0.00				/		
Washed m4	10,0	156.62	14.27	= mass >63	um 92.9			\sim			
	6.3	10.13	10.13	<u>7.1</u> 5.0	87,9				\sim /		
Passing m5	6.3		cum. mass r		156.62				\mathbf{X}		
Riffied m6	6.3		difference fre		0.00				$\langle \rangle$		
	5.00	4.20	4.20	2.1	85.8			/			
	2.00	21.38	21,38	10.6	75.2				\backslash	、 、	
	1.18	30.18	30.18	15.0	60.2	Į				\backslash	
	0.600	37.20	37.20	18.5	41.8						
	0.300	24.50	24.50	12,2	29.6						
	0.150	10.01	10.01	5.0	24.6						`
	0.063 an mE	4.62	4.62	2.3	22,3						\backslash
	annin	. 0.01	cum. mass i	ret + mF =	132.10						
			difference fr		0.09						
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Approved	i Sign	atory:	D Com	huen	e~			Date:	11-1-7	2007	
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Project

Client Name :

Lab Job No :

Sample Type:

Description :

Date Sample:

100

80

60

40

20

0 0.001

Remarks:

CLAY

Percentage Passing

Received

& Address

Composite Sample No. :

TEST REPORT OF PARTICLE

	DETER			(Page ·	1 of 2)				
LE SIZI	<u>E DISTR</u>	BUIIO	N				Ret	oort No: 102239	эN
Agreement I	No.CE59/2005	(EP) – Dev	elopment of a	a Bathing Bea	ich at Lung N	/lei, Tai Po E	,		
	ct Assessmen								
	al Projects Div								
8/F Civil Eng	jineering and			1 Princess M	argaret Road				
J469		Works Or		GE/2005/47.		Lab. San	nple Ref. N		7/4
Reference	Sediment	Sampl	le No:	D	epth m: –		Specimo Depth		
Bulk	•	. Ref:	· n -	Geologica	Origin: Se	ediment			
Grey, sligh	tlý sandy CL			-	_				
29/11/2006	5 Date T	ested:	4/12/2006		Tested	By: H	. W. Chu		
Tested in	Accordan	ce With: G	EOSPEC 3	2001 Test 8	.1 / -8.2 /	8.5 / 8.6	/ 8.7- Me	thod A	
BS Sieve	e Aperture Siz	e, mm ⁶³	µm 150µm	300 600	1,18	5 5	.3 10 20	37.5 75	
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 Sleving Sedimer 	0.01		0.1 Parti	cle Size m	m 1		10		100
FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE CO	6-
1	SILT			SAND			GRAVEL	BLE	
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Lam Laboratories Limited Rm 1412, Honour Industrial Centre, 6 Sun Yip Street, Chaiwan, Hong Kong Tel: 28973282

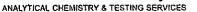
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TEST REPORT ON DETERMINATION OF PARTICLE SIZE DISTRIBUTION

(Page 2 of 2)

				_					leport No: '	
					a Bathing Beacl					
Project :					al, Elutriate and					
Customer :					neering office, C					nt
& Address	8/F Civil Engin	leering and D	evelopment	Building, 10	01 Princess Mar	garet Road, I				
Lab Job No :	J469		Norks Ord	ier No: 👘	GE/2005/47.2	2	Lab. S	ample Re	ef. No:	18507/4
Composite			Sample	e No:	De	pth m:		Spec	cimen	
Sample No. :	Reference Se	ediment						Dep	oth m:	
Sample Type:	Bulk	Spec	. Ref:		Geological (Origin: Sed	iment			
Description :	Grey, slightly	/ sandy CL/	AY with occ	asional sh	ell fragments					
Date Sample:	29/11/2006	Date Te		4/12/2006		Tested B	у: Н	, W. Chu		
Received	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~				:2001 Test 8.1				Method A	
SIEVE ANALYS	,								<u> </u>	/
Initial Dry Mass o		102.72								
	Mass	Corr. Mass	Percent	Percent						
BS Test Sieve m	m Retained g	Retained g	Retained %	Passing %						
75.	0		0.0	100.0					/	/
37.	5		0.0	100.0	ļ	\backslash				
20.		ļ	0,0	100.0		\backslash				
Passing m2 20	.0 102.72	cum. mass i	ret. + m2 =	102.72		\sim			/	
Riffled m3 20		difference fr		0.00		\setminus				
Washed m4	10.58		= mass >63		-		\backslash			
10,		0.00	0.0	100.0						
	.3	0.00	0.0	100.0	-					
· · · · ·		cum. mass i		10,58				\backslash		
Riffled m6 6. 5.0		difference fr	0.0 0.0	<u>0.00</u> 100.0	4			\mathbf{X}		
2.0		0.00	0.0	99.9	1	/				
1.1			0.2	99.7	1			\backslash		
0.60		1	0.7	99.0	4				\backslash	
0.30		-{	1.5	97.5						
0.15			2.5	94.9						
0.06		1	5.2	89.7] /					\backslash
Pan	nE 0.03									
		cum. mass	ret. + mE =	10.54						
		difference fi	<u>rom m6 % =</u>	0.38						
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TEST\GEO36\P	SDA (19970811)									

ALS Laboratory Group





CERTIFICATE OF ANALYSIS

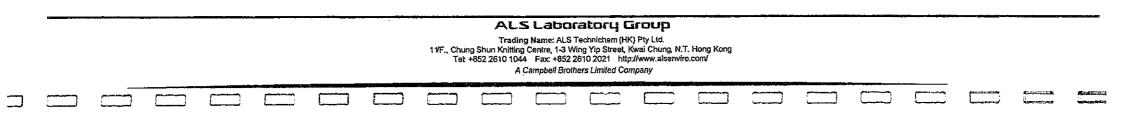
AM LABORATORIES LIMITED S MAUREEN CHANG M 1412-16, ONOUR INDUSTRIAL CENTRE, SUN YIP STREET, HAI WAN, HONG KONG	Laboratory Contact Address	 ALS Technichem (HK) Pty Ltd Alice Wong / Ivan Leung 14F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong 	Page Work Order	^{: 1 of 3} • HK0607412
aureenchang@lamlab.com 852 2975 3372	E-mail Telephone	alice.wong@alsenviro.com +852 2610 1044		
852 2897 5509 469 SO22 	Facsimile Quote number	: +852 2610 2021 :	Date received Date of issue No. of samples	: 6 Dec 2006 : 12 Dec 2006 - Received : 4 Analysed : 4

Report Comments

This report for ALS Technichem (HK) Py Ltd work order reference HK0607412 supersedes any previous reports with this reference. The completion date of analysis is 11 Dec 2006. Results apply to sample(s) as submitted. All pages of this report have been checked and approved for release. When date(s) and/or time(s) are shown bracketed, these have been assumed by the laboratory for process purposes. Abbreviations: CAS number = Chemical Abstract Services number. LOR = Limit of reporting.

Specific comments for Work Order HK0607412: Sample(s) analysed and reported on an as received basis. Samples were received in an ambient condition.

This report may not be reproduced except with prior written approval from ALS Technichem (HK) Pty Ltd.	This document has been electronically signed by those names that appear on this report and are the authorised sign Electronic signing has been carried out in compliance with procedures specified in the 'Electronic Transactions Ordin Hong Kong, Chapter 553, Section 6.							
	Signatory	. 117	Position	Authorised results for:-				
	Fung Lim Chee, Richard	R.Mulfy	General Manager	Inorganics				



Page Number : 2 of 3 Client : LAM LABORAT Work Order HK0607412	FORIES LIMITI	ED					(ALS)	·
Analytical Results			nt Sample ID : ry Sample ID :			18507/3 HK0607412-003 [6 Dec 2006]	18507/4 HK0607412-004	
Submatrix: SOIL	Sample Date / Time		e Date / Time :	[6 Dec 2006]	[6 Dec 2006]		[6 Dec 2006]	
Method: Analysis Description	CAS number	LOR	Units			<u> </u>		
EP: Aggregate Organics						<u></u>	• •	
EP009: Total Organic Carbon		0.05	%	<0.05	< 0.05	<0.05	0.37	



Quality Control - Laboratory Duplicate (DUP) Results

Matrix Type: SOIL	Duplicate (DUP) Results							
Laboratory Sample ID	CAS number	LOR	LOR Units Original Result Duplicate Result					
EP: Aggregate Organi	cs (QC Lot: 321857)					······	<u> </u>	
HK0607412-002	18507/2	EP009: Total Organic Carbon		0.05	%	< 0.05	<0.05	0.0

Quality Control - Method Blank (MB), Single Control Spike (SCS) and Duplicate Control Spike (DCS) Results

Matrix Type: SOIL	Method Blank (MB) Results			Single Control Spike (SCS) and Duplicate Control Spike (DCS) Results							
				Spike	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)		
Method: Analysis Description	CAS number	LOR	Units	Result	Concentration	SCS	DCS	Low	High	Value	Control Limit
EP: Aggregate Organics (QCLot:	321857)								, , ,		<u> </u>
EP009: Total Organic Carbon		0.05	%	<0.05	40 %	98.0		85	115		

Quality Control - Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Results

Matrix Type: SOIL					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Results							
				Spike Spike Recovery (%)			Recovery	Limits (%)	RPDs (%)			
Laboratory Sample ID	Client Sample ID	Method: Analysis Description	CAS number	Concentration	MS	MSD	Low	High	Value	Control Lir		
EP: Aggregate Orga	nics (QCLot: 321857)						· ·				
HK0607412-001	18507/1	EP009: Total Organic Carbon		40 %	87.6		75	125				