



D02/01 – Remediation Report For LD-002 (Interim)

Contract No. YL/2017/03 – Development of
Lok Ma Chau Loop: Land Decontamination
and Advance Engineering Works

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1 INTRODUCTION

1.1 Background

- 1.1.1 In 2007, the Chief Executive, in his Policy Address, announced the development at Lok Ma Chau Loop (the Loop) as one of the ten major infrastructure projects for economic growth. As a joint project of the Hong Kong Special Administrative Region (HKSAR) Government and Shenzhen Municipal Government, the Loop's development shall meet the future development needs of both cities and consolidate the strategic position of Hong Kong and Shenzhen in the Pan-Pearl River Delta region.
- 1.1.2 The Development of the Lok Ma Chau Loop (hereafter called “the Project”) is classified as a Designated Project (DP) under the Environmental Impact Assessment Ordinance (EIAO). An Environmental Impact Assessment (EIA) Report was therefore conducted to assessing the environmental impacts including land contamination and the EIA Report was approved with conditions on 25 October 2013 by the Authority of EIAO. An Environmental Permit (EP) with a number EP-477/2013 held by CEDD was granted on 22 November 2013. An Environmental Team (ET) headed by an ET Leader and an Independent Environmental Checker (IEC) were appointed pursuant to Conditions 2.1 and 2.2 of the EP, and mitigation of land contamination implication to the Project shall be carried out in accordance with Conditions 2.15 to 2.17 of the EP.
- 1.1.3 Three reports related to land contamination were completed and appended to the approved EIA Report:
1. Contamination Assessment Plan (CAP) describing the methodology of Site Investigation and soil/groundwater test in accordance with the Risk-Based Remediation Goals (RBRGs) of EPD.
 2. A combined Contamination Assessment Report (CAR) and Remediation Action Plan (RAP) summarising the site investigation, laboratory test results, interpretation of the test results and recommendation of land remediation.
 3. Supplementary Contamination Assessment Report (SCAR) and Remediation Action Plan (RAP) updating the estimation of the quantity of contaminated soil based on the results of stage 2 site investigation.
- 1.1.4 In accordance with the CAR, Arsenic levels of the soil samples taken from five boreholes were found to have exceeded the relevant RBRGs limits and the report concluded that five zones, namely LD-001, LD-002, LD-003, LD-004 and LD-005 as shown on **Figure 1.1**, were contaminated by Arsenic. It was recommended in the SCAR and the RAP that the Arsenic-contaminated soil with a total amount of approximately 57,444m³ should be treated by cement solidification/stabilisation, i.e. excavate the contamination soil from underground and mix with proper ratio of cement, for on-site backfilling within the Loop.
- 1.1.5 Contract No. YL/2017/03: Development of Lok Ma Chau Loop – Land Decontamination and Advance Engineering Works (the Contract) was awarded to Sang Hing – Kuly Joint Venture (SKJV) in June 2018. Black & Veatch Hong Kong Limited (B&V) is the consultant of Agreement No. CE 5/2014 (CE) Development of Lok Ma Chau Loop: Land Decontamination and Advance Engineering Works – Design and Construction and *Project Manager/Supervisor* of the Contract. SMEC Asia Ltd (SMEC) has been engaged by SKJV as the Land Contamination Specialist (LCS) for the Contract to provide advice and prepare this interim Remediation Report (RR).
- 1.1.6 A Re-appraisal Report enclosed in B&V's letter (B&V's ref.: 184794-0481) recommending implementation of all land remediation works as recommended in the aforementioned CAR/RAP was submitted to EPD on 28 November 2018 in accordance with Condition 2.15 of the EP. EPD confirmed no further comment on the Re-appraisal Report on 8 April 2019 (EPD's ref.: () in EP2/G/S3/152 Pt.4).

- 1.1.7 As such, all recommendations of the CAR/RAP remain unchanged and shall be implemented. A Remediation Report (RR) providing details on the remediation works being carried out, types and volume of contaminated soil, standards and levels of treatment, and locations of all disposal sites (including record of disposal) shall be submitted to the EIAO Authority no later than one month after the completion of the remediation works pursuant to Condition 2.16 of EP-477/2013. As required in the EP, the RR shall be certified by the ET Leader and verified by the IEC as conforming to the information and recommendations contained in the EIA Report prior to being submitted to the EIAO Authority.
- 1.1.8 The RAP stipulated that no construction work at the identified contaminated areas shall be carried out prior to the RR being approved by the EIAO Authority. In order to allow carrying out of construction work at LD-002 after remediation of the contaminated soil in this area, prior to completion of remediation at the remaining contaminated areas, separate RR for each of the contaminated areas LD-001 to LD-005 will be prepared and submitted to the EIAO Authority for approval separately in accordance with Condition 2.16 of EP-477/2013. The status of RR of each contaminated areas is summarised in **Table 1-1**.

Table 1-1: Summary of Latest Status of RRs

CONTAMINATED AREAS	STATUS OF RR
LD-001	Approved by EPD on 6 January 2020 (EPD's ref.: () in EP2/G/S3/152 Pt.5)
LD-002	Approved by EPD on 3 September 2020 (EPD's ref.: (3) in EP2/G/S3/152 Pt.7)
LD-003	Approved by EPD on 18 March 2020 (EPD's ref.: () in EP2/G/S3/152 Pt.6)
LD-004	Tentatively to be submitted to EPD by end of May 2021
LD-005	Tentatively to be submitted to EPD by end of September 2020

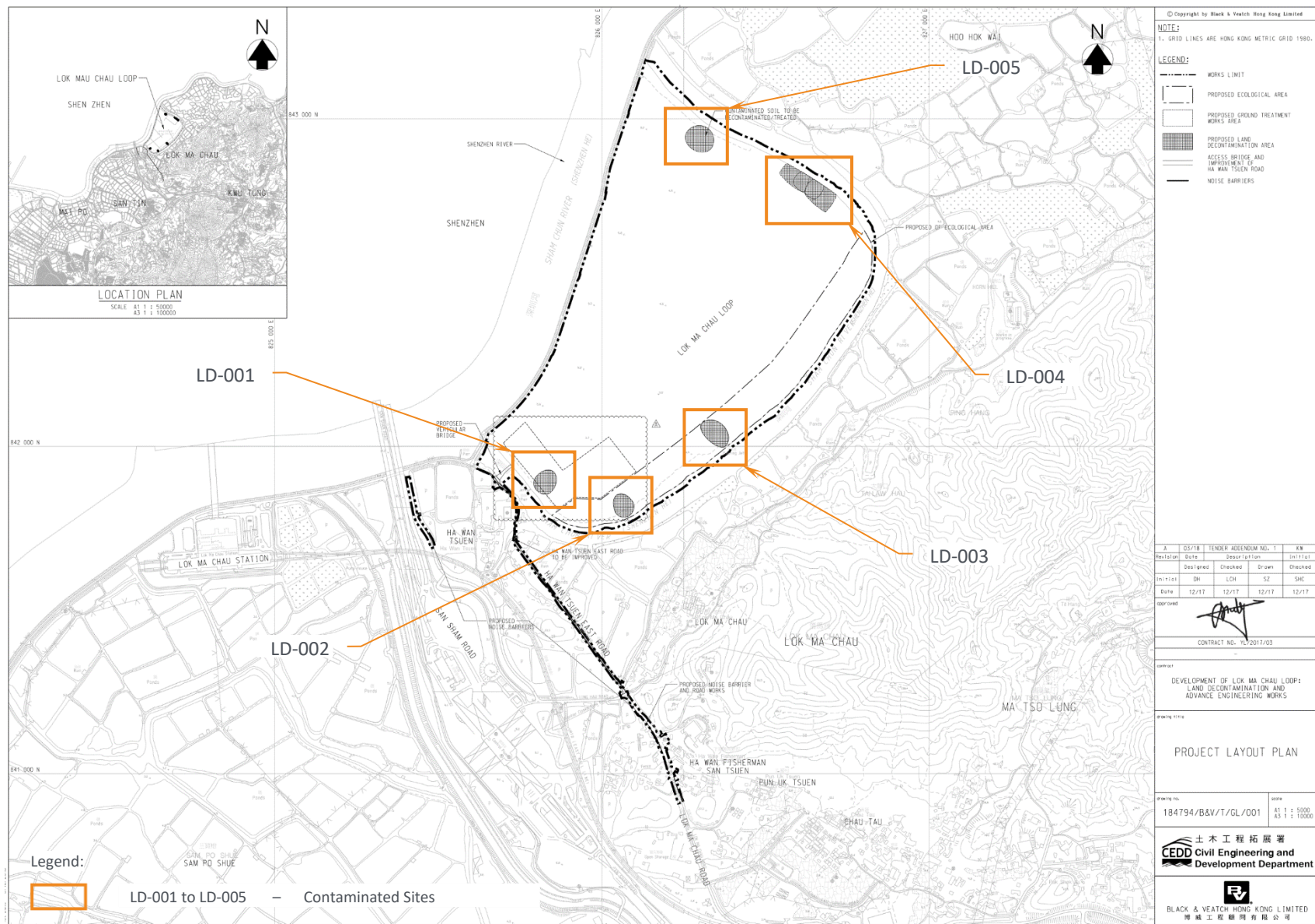
- 1.1.9 The remediation work was completed on 07 July 2020 upon the last testing result of treated soil was obtained. This interim RR for LD-002 is to record the results from closure assessment and solidification/stabilisation test for soil remediation works at LD-002, and the backfilling strategy of LD-002.

1.2 Objective

- 1.2.1 The objectives of this interim RR are to:

- Delineate the contamination extent at LD-002 and ensure complete removal of contaminated soil for remediation.
- Demonstrate that all contaminated soil excavated from LD-002 has been remediated by cement solidification/ stabilisation.
- Indicate the temporary storage and permanent placement locations of treated soil for LD-002.

Figure 1.1: Location of Five Contaminated Sites in Lok Ma Chau Loop



2 CLOSURE ASSESSMENT

2.1 Delineation of Contamination at LD-002

- 2.1.1 Method for delineation of contaminated soil in the five contamination zones was defined in Figure 6.1 of “Appendix A” of the SCAR. The total quantity of contaminated soil was estimated to be approximately 5,280m³ at LD-002 (also name as A-SG10 in the CAR) as summarised in Table 4.1 and Figure 4.1.3 of the SCAR. After the clean top soil was removed, the contaminated soil at the depth identified in approved SCAR was excavated for cement solidification/ stabilisation. Figure 4.1 of the SCAR is contained in **Appendix A** to indicate the location of each contamination zone and estimated quantities of contaminated material to be excavated for treatment in each contamination zone.
- 2.1.2 In order to confirm all contaminated soil had been excavated from LD-002, confirmatory samples were taken from sidewalls of the excavated pit at LD-002 with a lateral spacing of not more than 15m. Confirmatory samples were also collected at the bottom of excavated pit at LD-002 on grid spacing not larger than 15m x 15m (i.e. one sample per approximately every 225m²) as recommended in the RAP. Locations of confirmatory sampling at the excavation pit in LD-002 are provided in **Figure 2.1**.
- 2.1.3 With reference to the CAR/RAP, the ground level of investigation borehole for LD-002 was recorded at +5.14mPD and the Arsenic-contaminated soil for LD-002 was concluded to be between 4.0mbgl and 5.5mbgl. That means contaminated soil should be found at -0.36mPD to +1.14mPD based on the ground level at +5.14mPD. Confirmatory samples were therefore collected at -0.36mPD to ensure consistency with the CAR.
- 2.1.4 Confirmatory soil sampling was carried out at LD-002 from 8 to 15 May 2020. A total of 18 samples were collected from the pit base and 15 samples were collected at the sidewalls of excavation pit. A re-confirmatory soil sampling was carried out at 0.5m below the confirmatory sampling level, which was -0.86mPD, of LD-002 Area 6 on 22 June 2020 due to the exceedance of arsenic concentration in soil. Besides the aforementioned confirmatory soil samples, four duplicate soil samples (i.e. one for sidewall and three for pit base) and three equipment blank samples were also taken for QA/QC purpose. Soil samples were collected under supervision of LCS and delivered to ALS Technichem (HK) Pty Limited (ALS) for testing of Arsenic concentrations. ALS is a laboratory accredited under the Hong Kong Laboratory Accreditation Scheme (HOKLAS).
- 2.1.5 Soil confirmatory and QA/QC sampling works, and laboratory analytical results are summarised in **Table 2-1**. Test reports are enclosed in **Appendix B**.
- 2.1.6 To summarise, a total of 33 confirmatory soil samples (which did not include the samples of duplicate sample and equipment blank) were collected from LD-002 to analysis their Arsenic concentration. In accordance with the laboratory test results, the Arsenic concentrations of 32 confirmatory samples were found to be below 21.8 mg/kg at dry soil condition, which is the Risk Based Remediation Goal (RBRG) criterion for Rural Residential Use, except the confirmatory sample of LD-002 at Area 6. Thus, a re-confirmatory of the soil sample at LD-002 Area 6 was then collected and the laboratory test result shown that Arsenic concentration was below 21.8 mg/kg. The excavation depth for remediation in LD-002 Area 6 for re-confirmatory of the soil sample is -0.86 mPD to +1.14 mPD) and other areas in LD-002 are -0.36 mPD to +1.14 mPD. Based on the laboratory analysis results, it is confirmed that all contaminated soil as designated at LD-002 had been excavated.
- 2.1.7 The details of the contaminated soil at LD-002 excavated, treated and backfilled were summarised below:
- Contaminated Soil Excavated: 5,509m³

- Treated Soils after cement solidification/stabilisation treatment: 6,446m³
- Treated Soil back-filled on site: 0m³
- Treated Soil temporary stockpiled to be back-filled on site: 6,446m³

Table 2-1: Summary of Confirmatory Sampling Results

CONTAMINATION ZONE	LOCATION OF SAMPLES	GRID NO.	SAMPLE ID	CONFIRMATORY SAMPLING DEPTH (mPD)	ANALYTICAL RESULTS FOR ARSENIC		RBRG LEVEL (mg/kg)
					Dry Soil Sample (mg/kg)	Water Sample (µg/L)	
Confirmatory Soil Samples							
LD-002 (ASG10 in CAR)	Base	1	TCLP-Area 1 Contaminated soil	-0.36	15	No water encountered	21.8
		2	TCLP-Area 2 Contaminated soil	-0.36	16		21.8
		3	TCLP-Area 3 Contaminated soil	-0.36	17		21.8
		4	TCLP-Area 4 Contaminated soil	-0.36	16		21.8
		5	TCLP-Area 5 Contaminated soil	-0.36	15		21.8
		6	TCLP-Area 6 Contaminated soil	-0.36	22		21.8
		7	TCLP-Area 7 Contaminated soil	-0.36	17		21.8
		8	TCLP-Area 8 Contaminated soil	-0.36	16		21.8
		9	TCLP-Area 9 Contaminated soil	-0.36	15		21.8
		10	TCLP-Area 10 Contaminated soil	-0.36	17		21.8
		11	TCLP-Area 11 Contaminated soil	-0.36	16		21.8
		12	TCLP-Area 12 Contaminated soil	-0.36	15		21.8
		13	TCLP-Area 13 Contaminated soil	-0.36	14		21.8
		14	TCLP-Area 14 Contaminated soil	-0.36	14		21.8
		15	TCLP-Area 15 Contaminated soil	-0.36	15		21.8
		16	TCLP-Area 16 Contaminated soil	-0.36	15		21.8
		17	TCLP-Area 17 Contaminated soil	-0.36	16		21.8
		18	TCLP-Area 18 Contaminated soil	-0.36	14		21.8

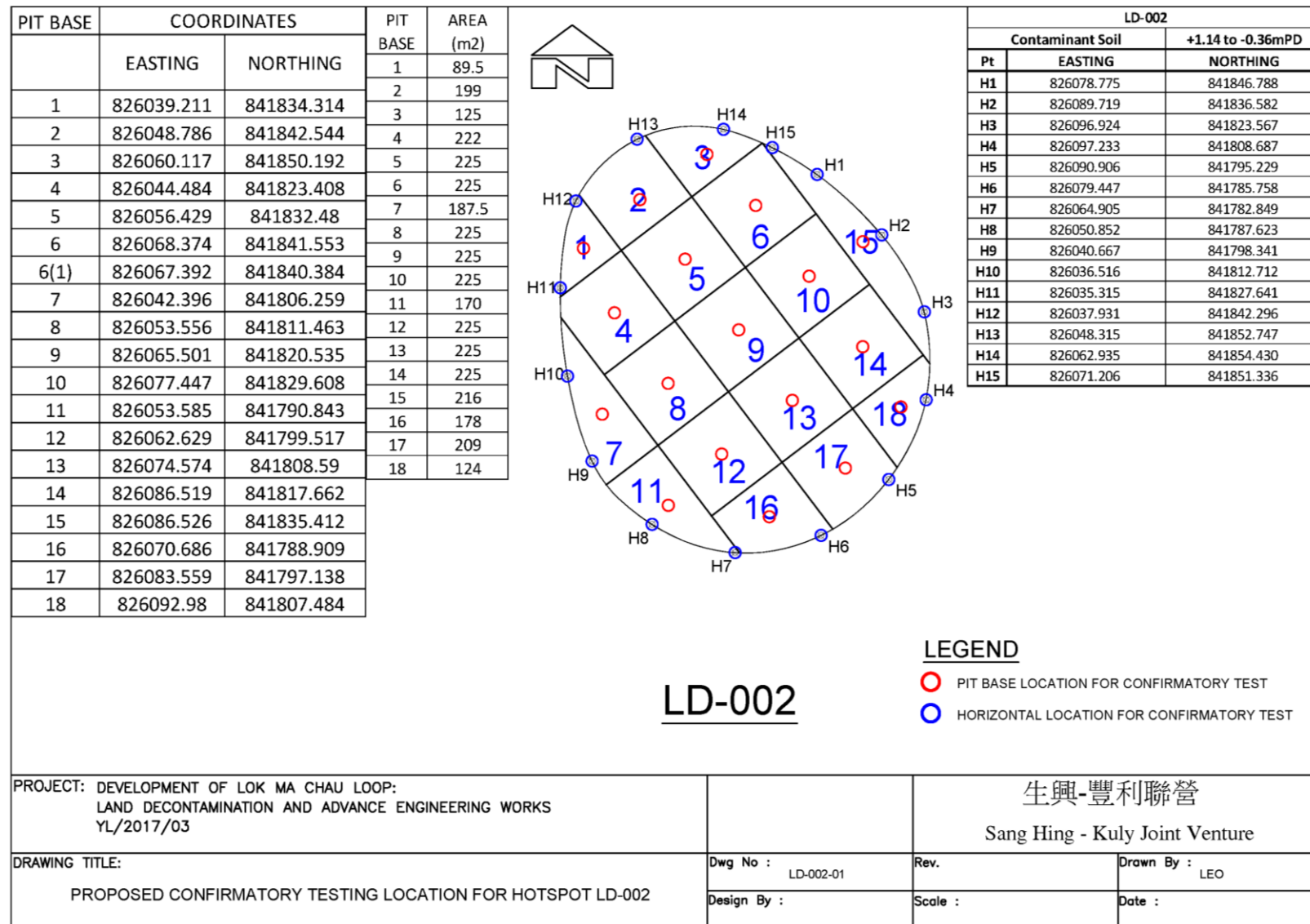
CONTAMINATION ZONE	LOCATION OF SAMPLES	GRID NO.	SAMPLE ID	CONFIRMATORY SAMPLING DEPTH (mPD)	ANALYTICAL RESULTS FOR ARSENIC		RBRG LEVEL (mg/kg)
					Dry Soil Sample (mg/kg)	Water Sample (µg/L)	
LD-002 (ASG10 in CAR)	Sidewall	H1	TCLP-LD002-H1 Contaminated soil	-0.36	16	No water encountered	21.8
		H2	TCLP-LD002-H2 Contaminated soil	-0.36	15		21.8
		H3	TCLP-LD002-H3 Contaminated soil	-0.36	16		21.8
		H4	TCLP-LD002-H4 Contaminated soil	-0.36	15		21.8
		H5	TCLP-LD002-H5 Contaminated soil	-0.36	16		21.8
		H6	TCLP-LD002-H6 Contaminated soil	-0.36	2		21.8
		H7	TCLP-LD002-H7 Contaminated soil	-0.36	4		21.8
		H8	TCLP-LD002-H8 Contaminated soil	-0.36	3		21.8
		H9	TCLP-LD002-H9 Contaminated soil	-0.36	15		21.8
		H10	TCLP-LD002-H10 Contaminated soil	-0.36	15		21.8
		H11	TCLP-LD002-H11 Contaminated soil	-0.36	16		21.8
		H12	TCLP-LD002-H12 Contaminated soil	-0.36	16		21.8
		H13	TCLP-LD002-H13 Contaminated soil	-0.36	15		21.8
		H14	TCLP-LD002-H14 Contaminated soil	-0.36	15		21.8
		H15	TCLP-LD002-H15 Contaminated soil	-0.36	15		21.8
Re-Confirmatory Soil Samples							
LD-002 (ASG10 in CAR)	Base	6	TCLP-Area 6 Contaminated soil (Retest carry out on 22/6/2020)	-0.86	2	No water encountered	21.8

CONTAMINATION ZONE	LOCATION OF SAMPLES	GRID NO.	SAMPLE ID	CONFIRMATORY SAMPLING DEPTH (mPD)	ANALYTICAL RESULTS FOR ARSENIC		RBRG LEVEL (mg/kg)
					Dry Soil Sample (mg/kg)	Water Sample (µg/L)	
<u>QA/QC Samples</u>							
LD-002 (ASG10 in CAR)	Equipment Blank	LD-002 Water Sample for Equipment	Equipment Blank	N/A	N/A	<1	N/A
			Equipment Blank	N/A	N/A	<1	N/A
			Equipment Blank	N/A	N/A	<10	N/A
	Duplicate from Base	10	TCLP-Area 10(1) Contaminated soil	-0.36	18	No water encountered	21.8
		16	TCLP-Area 16(1) Contaminated soil	-0.36	14		21.8
		6	TCLP-Area 6(1) Contaminated soil (Retest carry out on 22/6/2020)	-0.86	2		21.8
	Duplicate from Side Wall	H9(1)	TCLP-LD002-H9(1) Contaminated soil	-0.36	14		21.8

Note:

Bold and underlined letter indicates that Arsenic concentration in dry soil condition exceeded 21.8mg/kg which is the Risk Based Remediation criterion for Rural Residential Use.

Figure 2.1: Location of Confirmatory Sampling of LD-002



Source: provided by SKJV

3 SOIL REMEDIATION WORKS

3.1 Pilot Test

- 3.1.1 A pilot test to determine and confirm the appropriate soil and cement mixing ratio for achieving the treatment targets was conducted on 8 May 2019 with a contaminated soil : cement : sand ratio of 1:0.1:0.1 (or 10:1:1). Toxicity Characteristics Leaching Procedure (TCLP) test was conducted for the solidified soil sample. Unconfined Compressive Strength (UCS) of the cement-solidified soil sample was also tested to ensure compliance with the minimum requirement of 1MPa as recommended in the RAP.
- 3.1.2 The UCS results were found to be much higher than the criterion of 1MPa for the contaminated soil solidified using the aforementioned ratio. Therefore, an additional pilot test was conducted on 16 August 2019 to amend cement ratio from 10% to 7.5%.
- 3.1.3 The pilot test details and results are summarised in **Table 3-1**, and the submissions are enclosed in **Appendix C**.

Table 3-1: Cement Solidification/Stabilisation Pilot Test Details and Results

	SOIL	CEMENT	SAND
Pilot Test on 8 May 2019			
Quantity Used, kg	20	2	2
Soil : Cement : Sand	10:1:1		
TCLP Test Result for Arsenic, mg/L	<0.1		
UCS, MPa	1.571		
Pilot Test on 16 August 2019			
Quantity Used, kg	20	1.5	2
Soil : Cement : Sand	10:0.75:1		
TCLP Test Result for Arsenic, mg/L	<0.1 (Trial 1 and Trial 2)		
UCS, MPa	4.799 (Trial 1) and 3.572 (Trial 2)		

- 3.1.4 As shown in **Table 3-1**, the pilot test samples' TCLP test results for Arsenic were found to be below Limit of Reporting (LOR) of 0.1mg/L which complies with the treatment target of 5mg/L as recommended in Table 7.3 of the RAP. The UCS test results of the pilot test samples were found to be 1.571– 4.799MPa, which is above the minimum required UCS of 1MPa. Therefore, both the Soil : Cement : Sand ratios of 10:1:1 and 10:0.75:1 can be adopted for solidifying the contaminated soil.

3.2 Cement Solidification / Stabilisation

- 3.2.1 5,509m³ of Arsenic-contaminated soil was excavated from LD-002. All contaminated soil from LD-002 were transported to the designated mixing area within the Lok Ma Chau Loop for cement solidification / stabilisation as stipulated in the RAP, the mixing ratio of soil to cement to sand was 10:0.75:1 for Arsenic-contaminated soil from LD-002.
- 3.2.2 One set of TCLP test for Arsenic and UCS test were conducted for every 100m³ of the treated soil and each batch of treated soil was labelled as S1, S2, S3.....etc. All TCLP test results for Arsenic were found to be below the treatment target of 5mg/L for Arsenic. All UCS test results were found to be above 1MPa, which fulfilled the UCS minimum requirement of 1MPa as recommended in the RAP.
- 3.2.3 The test results are summarised in **Table 3-3** and the laboratory reports are provided in **Appendix D**.

3.2.4 All treated soils were considered to be satisfactory for on-site backfilling in accordance with the approved RAP. 6,446m³ of treated soils were generated after treatment in which 6,446m³ were temporarily stored at site area inside the loop as shown in **Appendix E** and were scheduled to be backfilled in LD-005 around August 2020, after closure assessment confirms that all contaminated materials have been fully removed from LD-005. All the temporarily stored treated soils were lined with impermeable sheeting and bunded, and covered by impervious sheeting. The latest backfilling schedule is summarised in **Table 3-2**.

Table 3-2: Latest Backfilling Schedule

CONTAMINATED SITES	VOL. OF TREATED SOIL, m ³	TENTATIVE PERMANENT BACKFILL LOCATION	TENATIVE DATE FOR BACKFILL
LD-001	7,190	LD-004 ^[note 1]	After excavation of contaminated soil from LD-004
LD-002	6,446	LD-005	After excavation of contaminated soil from LD-005
LD-003	8,298	LD-004 ^[note 2]	After excavation of contaminated soil from LD-004
	800	LD-005 ^[note 2]	After excavation of contaminated soil from LD-005
LD-004	5,500 ^[note 3]	LD-004	After confirming the results of treated soil from LD-004 complying with the criteria
	18,341 ^[note 3]	LD-005	
LD-005	12,200 ^[note 3]	LD-004	After excavation of contaminated soil from LD-004
	7,500 ^[note 3]	LD-005	After confirming the results of treated soil from LD-005 complying with the criteria

Notes:

1. The tentative permanent backfill location has been changed as per the RR of LD-001.
2. The tentative permanent backfill location has been changed as per the RR of LD-003.
3. The volumes of the treated contaminated soils from LD-004 and LD-005 are estimated and the exact volumes will be finalised after completion of the treatment.
4. After excavation of LD-004 and LD-005, the void spaces of LD-004 and LD-005 will be approx. 23,841m³ and 21,034m³ to ground level + 4.0mPD respectively. And the surrounding ground will also be used for backfilling treated soil from +4.0mPD to +5.0mPD, then the backfilling volume of LD-004 and LD-005 will be approx. 33,200m³ and 33,100m³ respectively.
5. Based on the latest schedule, approx. 33,188m³ in total from LD-001 (i.e., 7,190m³), LD-003 (i.e. 8,298m³), LD-004 (i.e. 5,500m³) and LD-005 (i.e. 12,200m³) will be backfilled to LD-004 to reach +5.0mPD.
6. Based on the latest schedule, approx. 33,087m³ in total from LD-002 (i.e., 6,446m³), LD-003 (i.e. 800m³), LD-004 (i.e. 18,341m³) and LD-005 (i.e. 7,500m³) will be backfilled to LD-005 and the adjacent area to reach +5.0mPD.
7. This table will be finalised in the final RR.

3.2.5 After confirming all the confirmatory test results indicated in **Table 2-1** complying with the Arsenic RBRG criterion, i.e., contaminated soil confined between -0.36mPD to +1.14mPD recommended in the CAR/RAP and -0.86mPD at LD-002 Area 6, and treated soils complying with the treatment criteria as indicated in **Table 3-3** below, all the treated soils for LD-002 are to be backfilled to the locations shown in **Appendix E**. The photographs are enclosed in **Appendix F**.

Table 3-3: TCLP and UCS Test Results of Mixed Soil

CONTAMINATION ZONE	SAMPLE ID	CEMENT TO SOIL RATIO	CEMENT TO SAND RATIO	TCLP AS ARSENIC, mg/L	TCLP CRITERIA IN THE RAP, mg/L	UCS, MPa	UCS CRITERIA IN THE RAP, MPa
LD-002 (ASG10 in CAR) 1 sample was collected per 100m ³ of mixed soil after treatment	S1	0.075	0.75	<0.1	5	2.171	1
	S2	0.075	0.75	<0.1		2.755	
	S3	0.075	0.75	<0.1		2.942	
	S4	0.075	0.75	<0.1		1.460	
	S5	0.075	0.75	<0.1		3.164	
	S6	0.075	0.75	<0.1		3.126	
	S7	0.075	0.75	<0.1		1.788	
	S8	0.075	0.75	<0.1		3.355	
	S9	0.075	0.75	<0.1		3.416	
	S10	0.075	0.75	<0.1		2.918	
	S11	0.075	0.75	<0.1		3.346	
	S12	0.075	0.75	<0.1		2.567	
	S13	0.075	0.75	<0.1		2.833	
	S14	0.075	0.75	<0.1		2.932	
	S15	0.075	0.75	<0.1		2.920	
	S16	0.075	0.75	<0.1		2.777	
	S17	0.075	0.75	<0.1		2.967	
	S18	0.075	0.75	<0.1		2.928	

CONTAMINATION ZONE	SAMPLE ID	CEMENT TO SOIL RATIO	CEMENT TO SAND RATIO	TCLP AS ARSENIC, mg/L	TCLP CRITERIA IN THE RAP, mg/L	UCS, MPa	UCS CRITERIA IN THE RAP, MPa
LD-002 (ASG10 in CAR) 1 sample was collected per 100m ³ of mixed soil after treatment	S19	0.075	0.75	<0.1	5	2.548	1
	S20	0.075	0.75	<0.1		3.514	
	S21	0.075	0.75	<0.1		3.253	
	S22	0.075	0.75	<0.1		1.126	
	S23	0.075	0.75	<0.1		1.707	
	S24	0.075	0.75	<0.1		1.712	
	S25	0.075	0.75	<0.1		2.244	
	S26	0.075	0.75	<0.1		1.747	
	S27	0.075	0.75	<0.1		1.637	
	S28	0.075	0.75	<0.1		2.613	
	S29	0.075	0.75	<0.1		2.688	
	S30	0.075	0.75	<0.1		2.878	
	S31	0.075	0.75	<0.1		3.003	
	S32	0.075	0.75	<0.1		2.428	
	S33	0.075	0.75	<0.1		2.928	
	S34	0.075	0.75	<0.1		3.325	
	S35	0.075	0.75	<0.1		2.231	
S36	0.075	0.75	<0.1	1.615			
S37	0.075	0.75	<0.1	3.013			

CONTAMINATION ZONE	SAMPLE ID	CEMENT TO SOIL RATIO	CEMENT TO SAND RATIO	TCLP AS ARSENIC, mg/L	TCLP CRITERIA IN THE RAP, mg/L	UCS, MPa	UCS CRITERIA IN THE RAP, MPa
LD-002 (ASG10 in CAR) 1 sample was collected per 100m ³ of mixed soil after treatment	S38	0.075	0.75	<0.1	5	2.974	1
	S39	0.075	0.75	<0.1		2.587	
	S40	0.075	0.75	<0.1		2.774	
	S41	0.075	0.75	<0.1		2.061	
	S42	0.075	0.75	<0.1		1.788	
	S43	0.075	0.75	<0.1		1.269	
	S44	0.075	0.75	<0.1		1.738	
	S45	0.075	0.75	<0.1		1.010	
	S46	0.075	0.75	<0.1		2.005	
	S47	0.075	0.75	<0.1		1.810	
	S48	0.075	0.75	<0.1		3.061	
	S49	0.075	0.75	<0.1		3.872	
	S50	0.075	0.75	<0.1		3.592	
	S51	0.075	0.75	<0.1		4.521	
	S52	0.075	0.75	<0.1		1.555	
	S53	0.075	0.75	<0.1		1.425	
	S54	0.075	0.75	<0.1		1.114	
S55	0.075	0.75	<0.1	1.033			
S56	0.075	0.75	<0.1	1.163			

CONTAMINATION ZONE	SAMPLE ID	CEMENT TO SOIL RATIO	CEMENT TO SAND RATIO	TCLP AS ARSENIC, mg/L	TCLP CRITERIA IN THE RAP, mg/L	UCS, MPa	UCS CRITERIA IN THE RAP, MPa
LD-002 (ASG10 in CAR) 1 sample was collected per 100m ³ of mixed soil after treatment	S57	0.075	0.75	<0.1	5	1.012	1
	S58	0.075	0.75	<0.1		1.558	
	S58 (1)*	0.075	0.75	<0.1		N/A	
	S59	0.075	0.75	<0.1		1.612	
	S60	0.075	0.75	<0.1		1.012	
	S61	0.075	0.75	<0.1		1.856	
	S62	0.075	0.75	<0.1		1.070	
	S63	0.075	0.75	<0.1		1.670	
	S64	0.075	0.75	<0.1		1.908	
	S65	0.075	0.75	<0.1		3.070	
	S66	0.075	0.75	<0.1		2.418	
	Area 6(1)	0.075	0.75	<0.1		2.162	
	Area 6(2)	0.075	0.75	<0.1		1.890	
	Area 6(3)	0.075	0.75	<0.1		1.479	

Remark (*) – The Sample ID “S58 (1)” is the duplicate samples sent to the laboratory for testing TCLP. These samples are taken from the same batch of mixed soil.

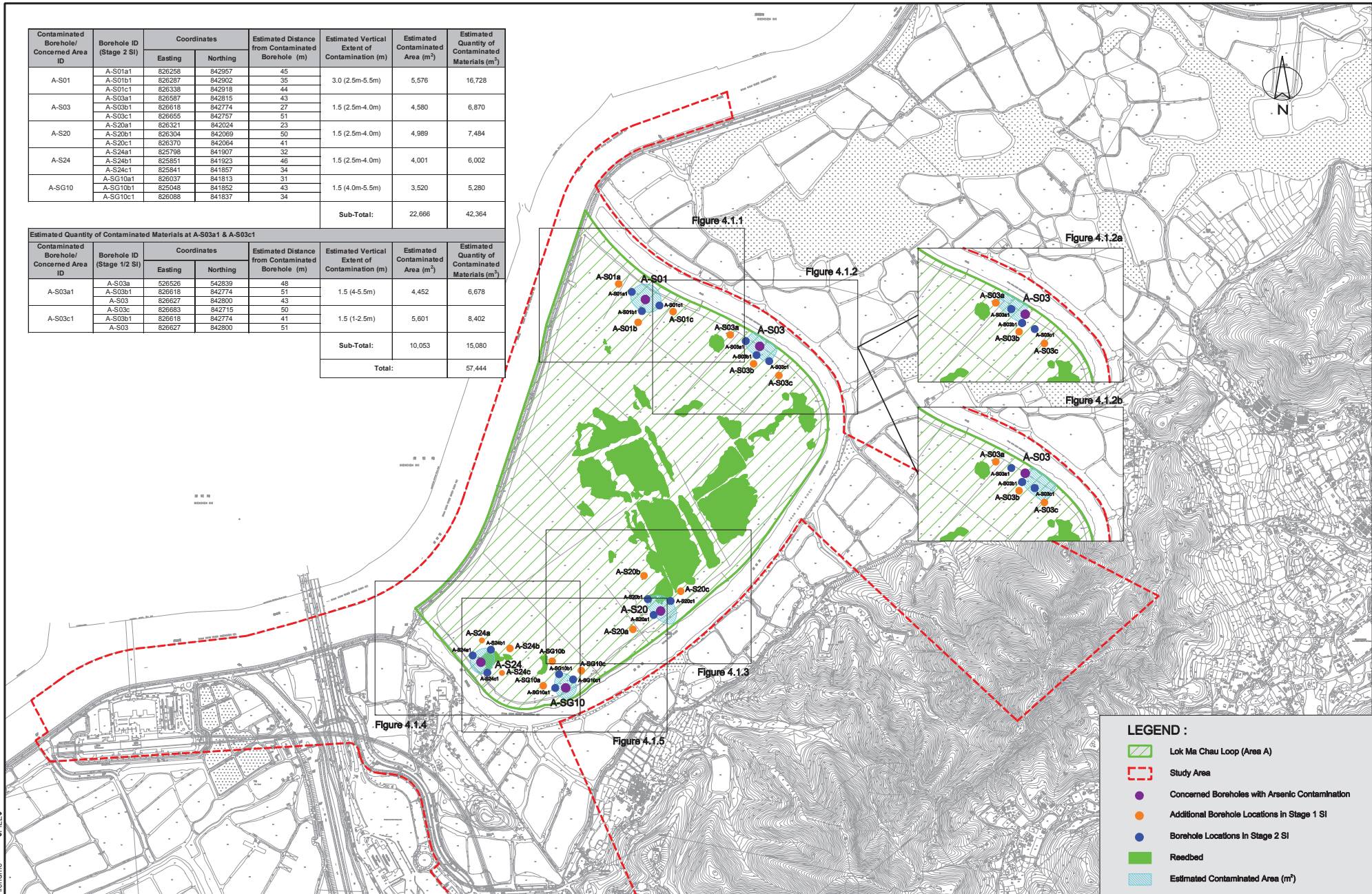
4 CONCLUSION

- 4.1.1 Contaminated soil from LD-002 (also named as A-SG10 in the CAR) was excavated for cement solidification/stabilisation in accordance with the approved RAP.
- 4.1.2 According to the laboratory results, the Arsenic concentrations of all confirmatory samples were found to be below the RBRG criterion of 21.8 mg/kg dry soil, except the confirmatory sample of LD-002 at Area 6. Thus, a re-confirmatory of the soil sample at LD-002 Area 6 was then collected and the laboratory test result shown that Arsenic concentration was below 21.8 mg/kg. It is concluded that all contaminated soil has been excavated from LD-002 for further treatment and it is within the area of contaminated zone A-SG10 identified in the SCAR. A total of 5,509m³ of Arsenic-contaminated soil was excavated from LD-002.
- 4.1.3 The contaminated soils were treated by cement solidification/stabilisation. One set of performance samples was collected for every 100m³ of the mixed contaminated soil and tested via TCLP for Arsenic concentration and via UCS to confirm the treatment achieving the remediation targets. Based on the laboratory results of which the last result was obtained on 07 July 2020, the treatment targets of the treated soils have been complied with the treatment standards of UCS and TCLP as recommended in the RAP.
- 4.1.4 All 6,446m³ of treated soil will be temporarily stored within the-site and at the locations shown in **Appendix E**, and will be permanently backfilled to Hotspot LD-005 in Aug 2020.
- 4.1.5 In conclusion, all the contaminated soil as located within LD-002 have been excavated and treated in accordance with the approved RAP. Since the land remediation works within LD-002 are completed, construction works at LD-002 may be able to be carried out subject to the approval by the EIAO Authority pursuant to EP Condition 2.16.

**Appendix A EXTRACTED FIGURE 4.1 OF THE SUPPLEMENTARY
CONTAMINATION ASSESSMENT REPORT FOR
AREA A**

Contaminated Borehole/ Concerned Area ID	Borehole ID (Stage 2 SI)	Coordinates		Estimated Distance from Contaminated Borehole (m)	Estimated Vertical Extent of Contamination (m)	Estimated Contaminated Area (m ²)	Estimated Quantity of Contaminated Materials (m ³)
		Easting	Northing				
A-S01	A-S01a1	826258	842857	45	3.0 (2.5m-5.5m)	5,576	16,728
	A-S01b1	826287	842902	35			
	A-S01c1	826338	842918	44			
	A-S03a1	826587	842815	43			
A-S03	A-S03b1	826618	842774	27	1.5 (2.5m-4.0m)	4,580	6,870
	A-S03c1	826655	842757	51			
	A-S20a1	826321	842024	23			
	A-S20c1	826304	842069	50			
A-S20	A-S20b1	826370	842064	41	1.5 (2.5m-4.0m)	4,989	7,484
	A-S24a1	826798	841907	32			
	A-S24b1	826851	841923	46			
	A-S24c1	826941	841857	34			
A-S24	A-SG10a1	826037	841813	31	1.5 (4.0m-5.5m)	3,520	5,280
	A-SG10b1	826048	841852	43			
	A-SG10c1	826088	841837	34			
	Sub-Total:						

Estimated Quantity of Contaminated Materials at A-S03a1 & A-S03c1							
Contaminated Borehole/ Concerned Area ID	Borehole ID (Stage 1/2 SI)	Coordinates		Estimated Distance from Contaminated Borehole (m)	Estimated Vertical Extent of Contamination (m)	Estimated Contaminated Area (m ²)	Estimated Quantity of Contaminated Materials (m ³)
		Easting	Northing				
A-S03a1	A-S03a	526526	542839	48	1.5 (4-5.5m)	4,452	6,678
	A-S03b1	826618	842774	51			
	A-S03	826627	842800	43			
A-S03c1	A-S03c	826683	842715	50	1.5 (1-2.5m)	5,601	8,402
	A-S03b1	826618	842774	41			
	A-S03	826627	842800	51			
Sub-Total:						10,053	15,080
Total:							57,444



LEGEND :

- Lok Ma Chau Loop (Area A)
- Study Area
- Concerned Boreholes with Arsenic Contamination
- Additional Borehole Locations in Stage 1 SI
- Borehole Locations in Stage 2 SI
- Reedbed
- Estimated Contaminated Area (m²)

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**Appendix B LABORATORY REPORTS OF SOIL CONFIRMATORY
AND QA/QC SAMPLING WORKS**





CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	Work Order	: HK2017123
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: ---	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044		
Facsimile	: ---	Facsimile	: +852 2610 2021		
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			Date Samples Received	: 08-May-2020
Order number	: WO008	Quote number	: HKE/2533/2019_V3	Issue Date	: 19-May-2020
C-O-C number	: ---			No. of samples received	: 1
Site	: ---			No. of samples analysed	: 1

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This document has been signed by those names that appear on this report and are the authorised signatories.

<i>Signatories</i>	<i>Position</i>	<i>Authorised results for</i>
 Lin Wai Yu , Iris	Assistant Manager - Inorganics	Inorganics
 Wong Wing , Kenneth	Manager - Metals	Metals_ENV



General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK2017123

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in chilled condition. The result(s) related only to the item(s) tested.

Result(s) of soil/sediment sample(s) was / were reported on dry weight basis.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

Sample(s) as received, digested by In-house method E-ASTM D3974-09 prior to determination of metals. The In-house method is developed based on ASTM D3974-09 method.



Analytical Results

Sub-Matrix: SOIL

				Client sample ID	---	---	---	---
				Client sampling date / time	08-May-2020	---	---	---
Compound	CAS Number	LOR	Unit	HK2017123-001	---	---	---	---
EA/ED: Physical and Aggregate Properties								
EA055: Moisture Content (dried @ 103°C)	---	0.1	%	37.8	---	---	---	---
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	1	mg/kg	15	---	---	---	---



Laboratory Duplicate (DUP) Report

Matrix: SOIL				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 3019649)								
HK2017123-001	LD002-Area 1	EA055: Moisture Content (dried @ 103°C)	----	0.1	%	37.8	37.9	0.00
HK2017449-005	Anonymous	EA055: Moisture Content (dried @ 103°C)	----	0.1	%	17.3	17.4	0.637
EG: Metals and Major Cations (QC Lot: 3012087)								
HK2017104-001	Anonymous	EG020: Arsenic	7440-38-2	1	mg/kg	15	15	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: SOIL				Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report				
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
						LCS	DCS	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3012087)											
EG020: Arsenic	7440-38-2	1	mg/kg	<1	5 mg/kg	99.3	----	85.0	106	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: SOIL				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3012087)										
HK2017103-001	Anonymous	EG020: Arsenic	7440-38-2	5 mg/kg	87.0	----	75.0	125	----	----





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Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	Work Order	: HK2017124
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E-mail	: ---	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044		
Facsimile	: ---	Facsimile	: +852 2610 2021		
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			Date Samples Received	: 08-May-2020
Order number	: WO008	Quote number	: HKE/2533/2019_V3	Issue Date	: 19-May-2020
C-O-C number	: ---			No. of samples received	: 1
Site	: ---			No. of samples analysed	: 1

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<i>Signatories</i>	<i>Position</i>	<i>Authorised results for</i>
 Lin Wai Yu , Iris	Assistant Manager - Inorganics	Inorganics
 Wong Wing , Kenneth	Manager - Metals	Metals_ENV



General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK2017124

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in chilled condition. The result(s) related only to the item(s) tested.

Result(s) of soil/sediment sample(s) was / were reported on dry weight basis.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

Sample(s) as received, digested by In-house method E-ASTM D3974-09 prior to determination of metals. The In-house method is developed based on ASTM D3974-09 method.



Analytical Results

Sub-Matrix: SOIL

Client sample ID

LD002-Area 2

Client sampling date / time

08-May-2020

Compound	CAS Number	LOR	Unit	HK2017124-001	---	---	---	---
EA/ED: Physical and Aggregate Properties								
EA055: Moisture Content (dried @ 103°C)	---	0.1	%	38.6	---	---	---	---
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	1	mg/kg	16	---	---	---	---



Laboratory Duplicate (DUP) Report

Matrix: SOIL				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 3019649)								
HK2017123-001	Anonymous	EA055: Moisture Content (dried @ 103°C)	----	0.1	%	37.8	37.9	0.00
HK2017449-005	Anonymous	EA055: Moisture Content (dried @ 103°C)	----	0.1	%	17.3	17.4	0.637
EG: Metals and Major Cations (QC Lot: 3012087)								
HK2017104-001	Anonymous	EG020: Arsenic	7440-38-2	1	mg/kg	15	15	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: SOIL				Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report				
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
						LCS	DCS	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3012087)											
EG020: Arsenic	7440-38-2	1	mg/kg	<1	5 mg/kg	99.3	----	85.0	106	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: SOIL				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3012087)										
HK2017103-001	Anonymous	EG020: Arsenic	7440-38-2	5 mg/kg	87.0	----	75.0	125	----	----





CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	Work Order	: HK2017126
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E-mail	: ---	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044		
Facsimile	: ---	Facsimile	: +852 2610 2021		
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			Date Samples Received	: 08-May-2020
Order number	: WO008	Quote number	: HKE/2533/2019_V3	Issue Date	: 19-May-2020
C-O-C number	: ---			No. of samples received	: 1
Site	: ---			No. of samples analysed	: 1

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Signatories	Position	Authorised results for
 Lin Wai Yu , Iris	Assistant Manager - Inorganics	Inorganics
 Wong Wing , Kenneth	Manager - Metals	Metals_ENV



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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK2017126

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in chilled condition. The result(s) related only to the item(s) tested.

Result(s) of soil/sediment sample(s) was / were reported on dry weight basis.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

Sample(s) as received, digested by In-house method E-ASTM D3974-09 prior to determination of metals. The In-house method is developed based on ASTM D3974-09 method.



Analytical Results

Sub-Matrix: SOIL

Client sample ID

LD002-Area 3

Client sampling date / time

08-May-2020

Compound	CAS Number	LOR	Unit	HK2017126-001	---	---	---	---
EA/ED: Physical and Aggregate Properties								
EA055: Moisture Content (dried @ 103°C)	---	0.1	%	38.2	---	---	---	---
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	1	mg/kg	17	---	---	---	---



Laboratory Duplicate (DUP) Report

Matrix: SOIL				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 3019649)								
HK2017123-001	Anonymous	EA055: Moisture Content (dried @ 103°C)	----	0.1	%	37.8	37.9	0.00
HK2017449-005	Anonymous	EA055: Moisture Content (dried @ 103°C)	----	0.1	%	17.3	17.4	0.637
EG: Metals and Major Cations (QC Lot: 3012087)								
HK2017104-001	Anonymous	EG020: Arsenic	7440-38-2	1	mg/kg	15	15	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: SOIL				Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report				
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
						LCS	DCS	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3012087)											
EG020: Arsenic	7440-38-2	1	mg/kg	<1	5 mg/kg	99.3	----	85.0	106	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: SOIL				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3012087)										
HK2017103-001	Anonymous	EG020: Arsenic	7440-38-2	5 mg/kg	87.0	----	75.0	125	----	----





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Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	Work Order	: HK2017127
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E-mail	: ---	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044		
Facsimile	: ---	Facsimile	: +852 2610 2021		
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			Date Samples Received	: 08-May-2020
Order number	: WO008	Quote number	: HKE/2533/2019_V3	Issue Date	: 19-May-2020
C-O-C number	: ---			No. of samples received	: 1
Site	: ---			No. of samples analysed	: 1

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<i>Signatories</i>	<i>Position</i>	<i>Authorised results for</i>
 Lin Wai Yu , Iris	Assistant Manager - Inorganics	Inorganics
 Wong Wing , Kenneth	Manager - Metals	Metals_ENV



General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK2017127

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in chilled condition. The result(s) related only to the item(s) tested.

Result(s) of soil/sediment sample(s) was / were reported on dry weight basis.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

Sample(s) as received, digested by In-house method E-ASTM D3974-09 prior to determination of metals. The In-house method is developed based on ASTM D3974-09 method.



Analytical Results

Sub-Matrix: SOIL

Client sample ID

LD002-Area 4

Client sampling date / time

08-May-2020

Compound	CAS Number	LOR	Unit	HK2017127-001	---	---	---	---
EA/ED: Physical and Aggregate Properties								
EA055: Moisture Content (dried @ 103°C)	---	0.1	%	38.1	---	---	---	---
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	1	mg/kg	16	---	---	---	---



Laboratory Duplicate (DUP) Report

Matrix: SOIL				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 3019649)								
HK2017123-001	Anonymous	EA055: Moisture Content (dried @ 103°C)	----	0.1	%	37.8	37.9	0.00
HK2017449-005	Anonymous	EA055: Moisture Content (dried @ 103°C)	----	0.1	%	17.3	17.4	0.637
EG: Metals and Major Cations (QC Lot: 3012087)								
HK2017104-001	Anonymous	EG020: Arsenic	7440-38-2	1	mg/kg	15	15	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: SOIL				Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report					
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)		
						LCS	DCS	Low	High	Value	Control Limit	
EG: Metals and Major Cations (QC Lot: 3012087)												
EG020: Arsenic	7440-38-2	1	mg/kg	<1	5 mg/kg	99.3	----	85.0	106	----	----	

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: SOIL				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3012087)										
HK2017103-001	Anonymous	EG020: Arsenic	7440-38-2	5 mg/kg	87.0	----	75.0	125	----	----





CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	Work Order	: HK2017128
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: ---	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044		
Facsimile	: ---	Facsimile	: +852 2610 2021		
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			Date Samples Received	: 08-May-2020
Order number	: WO008	Quote number	: HKE/2533/2019_V3	Issue Date	: 19-May-2020
C-O-C number	: ---			No. of samples received	: 1
Site	: ---			No. of samples analysed	: 1

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This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	Position	Authorised results for
 Lin Wai Yu , Iris	Assistant Manager - Inorganics	Inorganics
 Wong Wing , Kenneth	Manager - Metals	Metals_ENV



General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK2017128

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in chilled condition. The result(s) related only to the item(s) tested.

Result(s) of soil/sediment sample(s) was / were reported on dry weight basis.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

Sample(s) as received, digested by In-house method E-ASTM D3974-09 prior to determination of metals. The In-house method is developed based on ASTM D3974-09 method.



Analytical Results

Sub-Matrix: SOIL

Client sample ID

LD002-Area 5

Client sampling date / time

08-May-2020

Compound	CAS Number	LOR	Unit	HK2017128-001	---	---	---	---
EA/ED: Physical and Aggregate Properties								
EA055: Moisture Content (dried @ 103°C)	----	0.1	%	38.2	---	---	---	---
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	1	mg/kg	15	---	---	---	---



Laboratory Duplicate (DUP) Report

Matrix: SOIL				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 3019649)								
HK2017123-001	Anonymous	EA055: Moisture Content (dried @ 103°C)	----	0.1	%	37.8	37.9	0.00
HK2017449-005	Anonymous	EA055: Moisture Content (dried @ 103°C)	----	0.1	%	17.3	17.4	0.637
EG: Metals and Major Cations (QC Lot: 3012087)								
HK2017104-001	Anonymous	EG020: Arsenic	7440-38-2	1	mg/kg	15	15	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: SOIL				Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report				
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
						LCS	DCS	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3012087)											
EG020: Arsenic	7440-38-2	1	mg/kg	<1	5 mg/kg	99.3	----	85.0	106	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: SOIL				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3012087)										
HK2017103-001	Anonymous	EG020: Arsenic	7440-38-2	5 mg/kg	87.0	----	75.0	125	----	----





CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	Work Order	: HK2017130
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: ---	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044	Date Samples Received	: 08-May-2020
Facsimile	: ---	Facsimile	: +852 2610 2021	Issue Date	: 19-May-2020
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS	Quote number	: HKE/2533/2019_V3	No. of samples received	: 1
Order number	: WO008			No. of samples analysed	: 1
C-O-C number	: ---				
Site	: ---				

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<i>Signatories</i>	<i>Position</i>	<i>Authorised results for</i>
 Lin Wai Yu , Iris	Assistant Manager - Inorganics	Inorganics
 Wong Wing , Kenneth	Manager - Metals	Metals_ENV



General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK2017130

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in chilled condition. The result(s) related only to the item(s) tested.

Result(s) of soil/sediment sample(s) was / were reported on dry weight basis.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

Sample(s) as received, digested by In-house method E-ASTM D3974-09 prior to determination of metals. The In-house method is developed based on ASTM D3974-09 method.



Analytical Results

Sub-Matrix: SOIL

				Client sample ID				
				LD002-Area 6	---	---	---	---
				Client sampling date / time	08-May-2020	---	---	---
Compound	CAS Number	LOR	Unit	HK2017130-001	---	---	---	---
EA/ED: Physical and Aggregate Properties								
EA055: Moisture Content (dried @ 103°C)	---	0.1	%	38.1	---	---	---	---
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	1	mg/kg	22	---	---	---	---



Laboratory Duplicate (DUP) Report

Matrix: SOIL				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 3019649)								
HK2017123-001	Anonymous	EA055: Moisture Content (dried @ 103°C)	----	0.1	%	37.8	37.9	0.00
HK2017449-005	Anonymous	EA055: Moisture Content (dried @ 103°C)	----	0.1	%	17.3	17.4	0.637
EG: Metals and Major Cations (QC Lot: 3012087)								
HK2017104-001	Anonymous	EG020: Arsenic	7440-38-2	1	mg/kg	15	15	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: SOIL				Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report				
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
						LCS	DCS	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3012087)											
EG020: Arsenic	7440-38-2	1	mg/kg	<1	5 mg/kg	99.3	----	85.0	106	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: SOIL				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3012087)										
HK2017103-001	Anonymous	EG020: Arsenic	7440-38-2	5 mg/kg	87.0	----	75.0	125	----	----



CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	Work Order	: HK2023302
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: ---	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044		
Facsimile	: ---	Facsimile	: +852 2610 2021		
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			Date Samples Received	: 22-Jun-2020
Order number	: WO008	Quote number	: HKE/2533/2019_V3	Issue Date	: 26-Jun-2020
C-O-C number	: ---			No. of samples received	: 1
Site	: ---			No. of samples analysed	: 1

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This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	Position	Authorised results for
Chan Siu Ming , Vico	Manager - Inorganics	Inorganics
Wong Wing , Kenneth	Manager - Metals	Metals_ENV



General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK2023302

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in chilled condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

Result(s) of soil/sediment sample(s) was / were reported on dry weight basis.

Sample(s) as received, digested by In-house method E-ASTM D3974-09 prior to determination of metals. The In-house method is developed based on ASTM D3974-09 method.



Analytical Results

Sub-Matrix: SOIL

Client sample ID

LD002-Area 6(1)

Client sampling date / time

22-Jun-2020

Compound	CAS Number	LOR	Unit	HK2023302-001	-----	-----	-----	-----
EA/ED: Physical and Aggregate Properties								
EA055: Moisture Content (dried @ 103°C)	----	0.1	%	12.7	---	---	---	---
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	1	mg/kg	2	---	---	---	---



Laboratory Duplicate (DUP) Report

Matrix: SOIL				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 3095529)								
HK2023156-007	Anonymous	EA055: Moisture Content (dried @ 103°C)	----	0.1	%	18.2	18.3	0.828
HK2023156-011	Anonymous	EA055: Moisture Content (dried @ 103°C)	----	0.1	%	16.6	16.8	1.58
EG: Metals and Major Cations (QC Lot: 3095570)								
HK2023302-001	LD002-Area 6(1)	EG020: Arsenic	7440-38-2	1	mg/kg	2	2	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: SOIL				Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report					
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)		
						LCS	DCS	Low	High	Value	Control Limit	
EG: Metals and Major Cations (QC Lot: 3095570)												
EG020: Arsenic	7440-38-2	1	mg/kg	<1	5 mg/kg	94.6	----	85.0	106	----	----	

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: SOIL				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3095570)										
HK2023300-001	Anonymous	EG020: Arsenic	7440-38-2	5 mg/kg	92.5	----	75.0	125	----	----





CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	Work Order	: HK2017124
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: ---	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044	Date Samples Received	: 08-May-2020
Facsimile	: ---	Facsimile	: +852 2610 2021	Issue Date	: 19-May-2020
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			No. of samples received	: 1
Order number	: WO008	Quote number	: HKE/2533/2019_V3	No. of samples analysed	: 1
C-O-C number	: ---				
Site	: ---				

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<i>Signatories</i>	<i>Position</i>	<i>Authorised results for</i>
 Lin Wai Yu , Iris	Assistant Manager - Inorganics	Inorganics
 Wong Wing , Kenneth	Manager - Metals	Metals_ENV



General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK2017124

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in chilled condition. The result(s) related only to the item(s) tested.

Result(s) of soil/sediment sample(s) was / were reported on dry weight basis.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

Sample(s) as received, digested by In-house method E-ASTM D3974-09 prior to determination of metals. The In-house method is developed based on ASTM D3974-09 method.



Analytical Results

Sub-Matrix: SOIL

Client sample ID

LD002-Area 2

Client sampling date / time

08-May-2020

Compound	CAS Number	LOR	Unit	HK2017124-001	---	---	---	---
EA/ED: Physical and Aggregate Properties								
EA055: Moisture Content (dried @ 103°C)	----	0.1	%	38.6	---	---	---	---
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	1	mg/kg	16	---	---	---	---



Laboratory Duplicate (DUP) Report

Matrix: SOIL				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 3019649)								
HK2017123-001	Anonymous	EA055: Moisture Content (dried @ 103°C)	----	0.1	%	37.8	37.9	0.00
HK2017449-005	Anonymous	EA055: Moisture Content (dried @ 103°C)	----	0.1	%	17.3	17.4	0.637
EG: Metals and Major Cations (QC Lot: 3012087)								
HK2017104-001	Anonymous	EG020: Arsenic	7440-38-2	1	mg/kg	15	15	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: SOIL				Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report					
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)		
						LCS	DCS	Low	High	Value	Control Limit	
EG: Metals and Major Cations (QC Lot: 3012087)												
EG020: Arsenic	7440-38-2	1	mg/kg	<1	5 mg/kg	99.3	----	85.0	106	----	----	

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: SOIL				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3012087)										
HK2017103-001	Anonymous	EG020: Arsenic	7440-38-2	5 mg/kg	87.0	----	75.0	125	----	----





CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	Work Order	: HK2017126
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: ---	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044		
Facsimile	: ---	Facsimile	: +852 2610 2021		
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			Date Samples Received	: 08-May-2020
Order number	: WO008	Quote number	: HKE/2533/2019_V3	Issue Date	: 19-May-2020
C-O-C number	: ---			No. of samples received	: 1
Site	: ---			No. of samples analysed	: 1

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Signatories	Position	Authorised results for
 Lin Wai Yu , Iris	Assistant Manager - Inorganics	Inorganics
 Wong Wing , Kenneth	Manager - Metals	Metals_ENV



General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK2017126

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in chilled condition. The result(s) related only to the item(s) tested.

Result(s) of soil/sediment sample(s) was / were reported on dry weight basis.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

Sample(s) as received, digested by In-house method E-ASTM D3974-09 prior to determination of metals. The In-house method is developed based on ASTM D3974-09 method.



Analytical Results

Sub-Matrix: SOIL

Client sample ID

LD002-Area 3

Client sampling date / time

08-May-2020

Compound	CAS Number	LOR	Unit	HK2017126-001	---	---	---	---
EA/ED: Physical and Aggregate Properties								
EA055: Moisture Content (dried @ 103°C)	---	0.1	%	38.2	---	---	---	---
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	1	mg/kg	17	---	---	---	---



Laboratory Duplicate (DUP) Report

Matrix: SOIL				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 3019649)								
HK2017123-001	Anonymous	EA055: Moisture Content (dried @ 103°C)	----	0.1	%	37.8	37.9	0.00
HK2017449-005	Anonymous	EA055: Moisture Content (dried @ 103°C)	----	0.1	%	17.3	17.4	0.637
EG: Metals and Major Cations (QC Lot: 3012087)								
HK2017104-001	Anonymous	EG020: Arsenic	7440-38-2	1	mg/kg	15	15	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: SOIL				Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report				
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
						LCS	DCS	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3012087)											
EG020: Arsenic	7440-38-2	1	mg/kg	<1	5 mg/kg	99.3	----	85.0	106	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: SOIL				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3012087)										
HK2017103-001	Anonymous	EG020: Arsenic	7440-38-2	5 mg/kg	87.0	----	75.0	125	----	----





CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	Work Order	: HK2017127
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: ---	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044		
Facsimile	: ---	Facsimile	: +852 2610 2021		
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			Date Samples Received	: 08-May-2020
Order number	: WO008	Quote number	: HKE/2533/2019_V3	Issue Date	: 19-May-2020
C-O-C number	: ---			No. of samples received	: 1
Site	: ---			No. of samples analysed	: 1

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This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	Position	Authorised results for
 Lin Wai Yu , Iris	Assistant Manager - Inorganics	Inorganics
 Wong Wing , Kenneth	Manager - Metals	Metals_ENV



General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK2017127

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in chilled condition. The result(s) related only to the item(s) tested.

Result(s) of soil/sediment sample(s) was / were reported on dry weight basis.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

Sample(s) as received, digested by In-house method E-ASTM D3974-09 prior to determination of metals. The In-house method is developed based on ASTM D3974-09 method.



Analytical Results

Sub-Matrix: SOIL

Client sample ID

LD002-Area 4

Client sampling date / time

08-May-2020

Compound	CAS Number	LOR	Unit	HK2017127-001	---	---	---	---
EA/ED: Physical and Aggregate Properties								
EA055: Moisture Content (dried @ 103°C)	---	0.1	%	38.1	---	---	---	---
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	1	mg/kg	16	---	---	---	---



Laboratory Duplicate (DUP) Report

Matrix: SOIL				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 3019649)								
HK2017123-001	Anonymous	EA055: Moisture Content (dried @ 103°C)	----	0.1	%	37.8	37.9	0.00
HK2017449-005	Anonymous	EA055: Moisture Content (dried @ 103°C)	----	0.1	%	17.3	17.4	0.637
EG: Metals and Major Cations (QC Lot: 3012087)								
HK2017104-001	Anonymous	EG020: Arsenic	7440-38-2	1	mg/kg	15	15	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: SOIL				Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report					
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)		
						LCS	DCS	Low	High	Value	Control Limit	
EG: Metals and Major Cations (QC Lot: 3012087)												
EG020: Arsenic	7440-38-2	1	mg/kg	<1	5 mg/kg	99.3	----	85.0	106	----	----	

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: SOIL				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3012087)										
HK2017103-001	Anonymous	EG020: Arsenic	7440-38-2	5 mg/kg	87.0	----	75.0	125	----	----





CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	Work Order	: HK2017128
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: ---	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044		
Facsimile	: ---	Facsimile	: +852 2610 2021		
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			Date Samples Received	: 08-May-2020
Order number	: WO008	Quote number	: HKE/2533/2019_V3	Issue Date	: 19-May-2020
C-O-C number	: ---			No. of samples received	: 1
Site	: ---			No. of samples analysed	: 1

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This document has been signed by those names that appear on this report and are the authorised signatories.

<i>Signatories</i>	<i>Position</i>	<i>Authorised results for</i>
 Lin Wai Yu , Iris	Assistant Manager - Inorganics	Inorganics
 Wong Wing , Kenneth	Manager - Metals	Metals_ENV



General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK2017128

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in chilled condition. The result(s) related only to the item(s) tested.

Result(s) of soil/sediment sample(s) was / were reported on dry weight basis.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

Sample(s) as received, digested by In-house method E-ASTM D3974-09 prior to determination of metals. The In-house method is developed based on ASTM D3974-09 method.



Analytical Results

Sub-Matrix: SOIL

				Client sample ID				
				LD002-Area 5	---	---	---	---
				Client sampling date / time	08-May-2020	---	---	---
Compound	CAS Number	LOR	Unit	HK2017128-001	---	---	---	---
EA/ED: Physical and Aggregate Properties								
EA055: Moisture Content (dried @ 103°C)	---	0.1	%	38.2	---	---	---	---
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	1	mg/kg	15	---	---	---	---



Laboratory Duplicate (DUP) Report

Matrix: SOIL				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 3019649)								
HK2017123-001	Anonymous	EA055: Moisture Content (dried @ 103°C)	----	0.1	%	37.8	37.9	0.00
HK2017449-005	Anonymous	EA055: Moisture Content (dried @ 103°C)	----	0.1	%	17.3	17.4	0.637
EG: Metals and Major Cations (QC Lot: 3012087)								
HK2017104-001	Anonymous	EG020: Arsenic	7440-38-2	1	mg/kg	15	15	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: SOIL				Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report				
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
						LCS	DCS	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3012087)											
EG020: Arsenic	7440-38-2	1	mg/kg	<1	5 mg/kg	99.3	----	85.0	106	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: SOIL				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3012087)										
HK2017103-001	Anonymous	EG020: Arsenic	7440-38-2	5 mg/kg	87.0	----	75.0	125	----	----





CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	Work Order	: HK2017130
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: ---	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044		
Facsimile	: ---	Facsimile	: +852 2610 2021		
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			Date Samples Received	: 08-May-2020
Order number	: WO008	Quote number	: HKE/2533/2019_V3	Issue Date	: 19-May-2020
C-O-C number	: ---			No. of samples received	: 1
Site	: ---			No. of samples analysed	: 1

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This document has been signed by those names that appear on this report and are the authorised signatories.

<i>Signatories</i>	<i>Position</i>	<i>Authorised results for</i>
 Lin Wai Yu , Iris	Assistant Manager - Inorganics	Inorganics
 Wong Wing , Kenneth	Manager - Metals	Metals_ENV



General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK2017130

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in chilled condition. The result(s) related only to the item(s) tested.

Result(s) of soil/sediment sample(s) was / were reported on dry weight basis.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

Sample(s) as received, digested by In-house method E-ASTM D3974-09 prior to determination of metals. The In-house method is developed based on ASTM D3974-09 method.



Analytical Results

Sub-Matrix: SOIL

				Client sample ID				
				LD002-Area 6	---	---	---	---
				Client sampling date / time				
				08-May-2020	---	---	---	---
Compound	CAS Number	LOR	Unit	HK2017130-001	---	---	---	---
EA/ED: Physical and Aggregate Properties								
EA055: Moisture Content (dried @ 103°C)	---	0.1	%	38.1	---	---	---	---
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	1	mg/kg	22	---	---	---	---



Laboratory Duplicate (DUP) Report

Matrix: SOIL				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 3019649)								
HK2017123-001	Anonymous	EA055: Moisture Content (dried @ 103°C)	----	0.1	%	37.8	37.9	0.00
HK2017449-005	Anonymous	EA055: Moisture Content (dried @ 103°C)	----	0.1	%	17.3	17.4	0.637
EG: Metals and Major Cations (QC Lot: 3012087)								
HK2017104-001	Anonymous	EG020: Arsenic	7440-38-2	1	mg/kg	15	15	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: SOIL				Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report				
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
						LCS	DCS	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3012087)											
EG020: Arsenic	7440-38-2	1	mg/kg	<1	5 mg/kg	99.3	----	85.0	106	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: SOIL				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3012087)										
HK2017103-001	Anonymous	EG020: Arsenic	7440-38-2	5 mg/kg	87.0	----	75.0	125	----	----



CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	Work Order	: HK2023300
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: ---	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044		
Facsimile	: ---	Facsimile	: +852 2610 2021		
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			Date Samples Received	: 22-Jun-2020
Order number	: WO008	Quote number	: HKE/2533/2019_V3	Issue Date	: 26-Jun-2020
C-O-C number	: ---			No. of samples received	: 1
Site	: ---			No. of samples analysed	: 1

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This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	Position	Authorised results for
Chan Siu Ming , Vico	Manager - Inorganics	Inorganics
Wong Wing , Kenneth	Manager - Metals	Metals_ENV



General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK2023300

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in chilled condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

Result(s) of soil/sediment sample(s) was / were reported on dry weight basis.

Sample(s) as received, digested by In-house method E-ASTM D3974-09 prior to determination of metals. The In-house method is developed based on ASTM D3974-09 method.



Analytical Results

Sub-Matrix: SOIL

Client sample ID

LD002-Area 6

Client sampling date / time

22-Jun-2020

Compound	CAS Number	LOR	Unit	HK2023300-001	---	---	---	---
EA/ED: Physical and Aggregate Properties								
EA055: Moisture Content (dried @ 103°C)	---	0.1	%	11.7	---	---	---	---
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	1	mg/kg	2	---	---	---	---



Laboratory Duplicate (DUP) Report

Matrix: SOIL				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 3095529)								
HK2023156-007	Anonymous	EA055: Moisture Content (dried @ 103°C)	----	0.1	%	18.2	18.3	0.828
HK2023156-011	Anonymous	EA055: Moisture Content (dried @ 103°C)	----	0.1	%	16.6	16.8	1.58
EG: Metals and Major Cations (QC Lot: 3095570)								
HK2023302-001	Anonymous	EG020: Arsenic	7440-38-2	1	mg/kg	2	2	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: SOIL				Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report					
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)		
						LCS	DCS	Low	High	Value	Control Limit	
EG: Metals and Major Cations (QC Lot: 3095570)												
EG020: Arsenic	7440-38-2	1	mg/kg	<1	5 mg/kg	94.6	----	85.0	106	----	----	

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: SOIL				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3095570)										
HK2023300-001	LD002-Area 6	EG020: Arsenic	7440-38-2	5 mg/kg	92.5	----	75.0	125	----	----



CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	Work Order	: HK2023302
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: ---	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044		
Facsimile	: ---	Facsimile	: +852 2610 2021		
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			Date Samples Received	: 22-Jun-2020
Order number	: WO008	Quote number	: HKE/2533/2019_V3	Issue Date	: 26-Jun-2020
C-O-C number	: ---			No. of samples received	: 1
Site	: ---			No. of samples analysed	: 1

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This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	Position	Authorised results for
Chan Siu Ming , Vico	Manager - Inorganics	Inorganics
Wong Wing , Kenneth	Manager - Metals	Metals_ENV



General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK2023302

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in chilled condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

Result(s) of soil/sediment sample(s) was / were reported on dry weight basis.

Sample(s) as received, digested by In-house method E-ASTM D3974-09 prior to determination of metals. The In-house method is developed based on ASTM D3974-09 method.



Analytical Results

Sub-Matrix: SOIL

Client sample ID

LD002-Area 6(1)

Client sampling date / time

22-Jun-2020

Compound	CAS Number	LOR	Unit	HK2023302-001	-----	-----	-----	-----
EA/ED: Physical and Aggregate Properties								
EA055: Moisture Content (dried @ 103°C)	----	0.1	%	12.7	---	---	---	---
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	1	mg/kg	2	---	---	---	---



Laboratory Duplicate (DUP) Report

Matrix: SOIL				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 3095529)								
HK2023156-007	Anonymous	EA055: Moisture Content (dried @ 103°C)	----	0.1	%	18.2	18.3	0.828
HK2023156-011	Anonymous	EA055: Moisture Content (dried @ 103°C)	----	0.1	%	16.6	16.8	1.58
EG: Metals and Major Cations (QC Lot: 3095570)								
HK2023302-001	LD002-Area 6(1)	EG020: Arsenic	7440-38-2	1	mg/kg	2	2	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: SOIL				Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report					
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)		
						LCS	DCS	Low	High	Value	Control Limit	
EG: Metals and Major Cations (QC Lot: 3095570)												
EG020: Arsenic	7440-38-2	1	mg/kg	<1	5 mg/kg	94.6	----	85.0	106	----	----	

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: SOIL				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3095570)										
HK2023300-001	Anonymous	EG020: Arsenic	7440-38-2	5 mg/kg	92.5	----	75.0	125	----	----



CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	Work Order	: HK2017132
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: ---	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044		
Facsimile	: ---	Facsimile	: +852 2610 2021		
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			Date Samples Received	: 08-May-2020
Order number	: WO008	Quote number	: HKE/2533/2019_V3	Issue Date	: 19-May-2020
C-O-C number	: ---			No. of samples received	: 1
Site	: ---			No. of samples analysed	: 1

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This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	Position	Authorised results for
Chan Siu Ming , Vico	Manager - Inorganics	Inorganics
Wong Wing , Kenneth	Manager - Metals	Metals_ENV



General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK2017132

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in chilled condition. The result(s) related only to the item(s) tested.

Result(s) of soil/sediment sample(s) was / were reported on dry weight basis.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

Sample(s) as received, digested by In-house method E-ASTM D3974-09 prior to determination of metals. The In-house method is developed based on ASTM D3974-09 method.



Analytical Results

Sub-Matrix: SOIL

Client sample ID

LD002-Area 7

Client sampling date / time

08-May-2020

Compound	CAS Number	LOR	Unit	HK2017132-001	---	---	---	---
EA/ED: Physical and Aggregate Properties								
EA055: Moisture Content (dried @ 103°C)	----	0.1	%	37.8	---	---	---	---
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	1	mg/kg	17	---	---	---	---



Laboratory Duplicate (DUP) Report

Matrix: SOIL				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 3023165)								
HK2017132-001	LD002-Area 7	EA055: Moisture Content (dried @ 103°C)	----	0.1	%	37.8	37.8	0.00
HK2017747-001	Anonymous	EA055: Moisture Content (dried @ 103°C)	----	0.1	%	13.8	13.9	0.00
EG: Metals and Major Cations (QC Lot: 3012088)								
HK2017133-001	Anonymous	EG020: Arsenic	7440-38-2	1	mg/kg	16	17	8.04

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: SOIL				Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report				
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
						LCS	DCS	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3012088)											
EG020: Arsenic	7440-38-2	1	mg/kg	<1	5 mg/kg	99.8	----	85.0	106	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: SOIL				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3012088)										
HK2017132-001	LD002-Area 7	EG020: Arsenic	7440-38-2	5 mg/kg	88.4	----	75.0	125	----	----



CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	Work Order	: HK2017133
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: ---	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044		
Facsimile	: ---	Facsimile	: +852 2610 2021		
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			Date Samples Received	: 08-May-2020
Order number	: WO008	Quote number	: HKE/2533/2019_V3	Issue Date	: 19-May-2020
C-O-C number	: ---			No. of samples received	: 1
Site	: ---			No. of samples analysed	: 1

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This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	Position	Authorised results for
Chan Siu Ming , Vico	Manager - Inorganics	Inorganics
Wong Wing , Kenneth	Manager - Metals	Metals_ENV



General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK2017133

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in chilled condition. The result(s) related only to the item(s) tested.

Result(s) of soil/sediment sample(s) was / were reported on dry weight basis.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

Sample(s) as received, digested by In-house method E-ASTM D3974-09 prior to determination of metals. The In-house method is developed based on ASTM D3974-09 method.



Analytical Results

Sub-Matrix: SOIL

Client sample ID

LD002-Area 8

Client sampling date / time

08-May-2020

Compound	CAS Number	LOR	Unit	HK2017133-001	---	---	---	---
EA/ED: Physical and Aggregate Properties								
EA055: Moisture Content (dried @ 103°C)	---	0.1	%	38.0	---	---	---	---
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	1	mg/kg	16	---	---	---	---



Laboratory Duplicate (DUP) Report

Matrix: SOIL				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 3023165)								
HK2017132-001	Anonymous	EA055: Moisture Content (dried @ 103°C)	----	0.1	%	37.8	37.8	0.00
HK2017747-001	Anonymous	EA055: Moisture Content (dried @ 103°C)	----	0.1	%	13.8	13.9	0.00
EG: Metals and Major Cations (QC Lot: 3012088)								
HK2017133-001	LD002-Area 8	EG020: Arsenic	7440-38-2	1	mg/kg	16	17	8.04

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: SOIL				Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report					
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)		
						LCS	DCS	Low	High	Value	Control Limit	
EG: Metals and Major Cations (QC Lot: 3012088)												
EG020: Arsenic	7440-38-2	1	mg/kg	<1	5 mg/kg	99.8	----	85.0	106	----	----	

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: SOIL				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3012088)										
HK2017132-001	Anonymous	EG020: Arsenic	7440-38-2	5 mg/kg	88.4	----	75.0	125	----	----



CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	Work Order	: HK2017134
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: ---	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044		
Facsimile	: ---	Facsimile	: +852 2610 2021		
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			Date Samples Received	: 08-May-2020
Order number	: WO008	Quote number	: HKE/2533/2019_V3	Issue Date	: 19-May-2020
C-O-C number	: ---			No. of samples received	: 1
Site	: ---			No. of samples analysed	: 1

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This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	Position	Authorised results for
Chan Siu Ming , Vico	Manager - Inorganics	Inorganics
Wong Wing , Kenneth	Manager - Metals	Metals_ENV



General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK2017134

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in chilled condition. The result(s) related only to the item(s) tested.

Result(s) of soil/sediment sample(s) was / were reported on dry weight basis.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

Sample(s) as received, digested by In-house method E-ASTM D3974-09 prior to determination of metals. The In-house method is developed based on ASTM D3974-09 method.



Analytical Results

Sub-Matrix: SOIL

				Client sample ID				
				LD002-Area 9	---	---	---	---
				Client sampling date / time				
				08-May-2020	---	---	---	---
Compound	CAS Number	LOR	Unit	HK2017134-001	---	---	---	---
EA/ED: Physical and Aggregate Properties								
EA055: Moisture Content (dried @ 103°C)	---	0.1	%	37.2	---	---	---	---
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	1	mg/kg	15	---	---	---	---



Laboratory Duplicate (DUP) Report

Matrix: SOIL				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 3023165)								
HK2017132-001	Anonymous	EA055: Moisture Content (dried @ 103°C)	----	0.1	%	37.8	37.8	0.00
HK2017747-001	Anonymous	EA055: Moisture Content (dried @ 103°C)	----	0.1	%	13.8	13.9	0.00
EG: Metals and Major Cations (QC Lot: 3012088)								
HK2017133-001	Anonymous	EG020: Arsenic	7440-38-2	1	mg/kg	16	17	8.04

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: SOIL				Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report				
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
						LCS	DCS	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3012088)											
EG020: Arsenic	7440-38-2	1	mg/kg	<1	5 mg/kg	99.8	----	85.0	106	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: SOIL				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3012088)										
HK2017132-001	Anonymous	EG020: Arsenic	7440-38-2	5 mg/kg	88.4	----	75.0	125	----	----





CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	Work Order	: HK2017138
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: ---	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044		
Facsimile	: ---	Facsimile	: +852 2610 2021		
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			Date Samples Received	: 08-May-2020
Order number	: WO008	Quote number	: HKE/2533/2019_V3	Issue Date	: 19-May-2020
C-O-C number	: ---			No. of samples received	: 1
Site	: ---			No. of samples analysed	: 1

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Signatories	Position	Authorised results for
 Chan Siu Ming, Vico	Manager - Inorganics	Inorganics
 Wong Wing, Kenneth	Manager - Metals	Metals_ENV



General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK2017138

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in chilled condition. The result(s) related only to the item(s) tested.

Result(s) of soil/sediment sample(s) was / were reported on dry weight basis.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

Sample(s) as received, digested by In-house method E-ASTM D3974-09 prior to determination of metals. The In-house method is developed based on ASTM D3974-09 method.



Analytical Results

Sub-Matrix: SOIL

Client sample ID

LD002-Area 10

Client sampling date / time

08-May-2020

Compound	CAS Number	LOR	Unit	HK2017138-001	---	---	---	---
EA/ED: Physical and Aggregate Properties								
EA055: Moisture Content (dried @ 103°C)	---	0.1	%	38.7	---	---	---	---
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	1	mg/kg	17	---	---	---	---



Laboratory Duplicate (DUP) Report

Matrix: SOIL				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 3023165)								
HK2017132-001	Anonymous	EA055: Moisture Content (dried @ 103°C)	----	0.1	%	37.8	37.8	0.00
HK2017747-001	Anonymous	EA055: Moisture Content (dried @ 103°C)	----	0.1	%	13.8	13.9	0.00
EG: Metals and Major Cations (QC Lot: 3012088)								
HK2017133-001	Anonymous	EG020: Arsenic	7440-38-2	1	mg/kg	16	17	8.04

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: SOIL				Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report					
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)		
						LCS	DCS	Low	High	Value	Control Limit	
EG: Metals and Major Cations (QC Lot: 3012088)												
EG020: Arsenic	7440-38-2	1	mg/kg	<1	5 mg/kg	99.8	----	85.0	106	----	----	

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: SOIL				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3012088)										
HK2017132-001	Anonymous	EG020: Arsenic	7440-38-2	5 mg/kg	88.4	----	75.0	125	----	----



CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	Work Order	: HK2017136
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: ---	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044		
Facsimile	: ---	Facsimile	: +852 2610 2021		
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			Date Samples Received	: 08-May-2020
Order number	: WO008	Quote number	: HKE/2533/2019_V3	Issue Date	: 19-May-2020
C-O-C number	: ---			No. of samples received	: 1
Site	: ---			No. of samples analysed	: 1

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Signatories	Position	Authorised results for
Chan Siu Ming , Vico	Manager - Inorganics	Inorganics
Wong Wing , Kenneth	Manager - Metals	Metals_ENV



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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK2017136

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in chilled condition. The result(s) related only to the item(s) tested.

Result(s) of soil/sediment sample(s) was / were reported on dry weight basis.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

Sample(s) as received, digested by In-house method E-ASTM D3974-09 prior to determination of metals. The In-house method is developed based on ASTM D3974-09 method.



Analytical Results

Sub-Matrix: SOIL

Client sample ID

LD002-Area 10 (1)

Client sampling date / time

08-May-2020

Compound	CAS Number	LOR	Unit	LD002-Area 10 (1)	08-May-2020	---	---	---	---
EA/ED: Physical and Aggregate Properties									
EA055: Moisture Content (dried @ 103°C)	---	0.1	%	37.4	---	---	---	---	---
EG: Metals and Major Cations									
EG020: Arsenic	7440-38-2	1	mg/kg	18	---	---	---	---	---



Laboratory Duplicate (DUP) Report

Matrix: SOIL				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 3023165)								
HK2017132-001	Anonymous	EA055: Moisture Content (dried @ 103°C)	----	0.1	%	37.8	37.8	0.00
HK2017747-001	Anonymous	EA055: Moisture Content (dried @ 103°C)	----	0.1	%	13.8	13.9	0.00
EG: Metals and Major Cations (QC Lot: 3012088)								
HK2017133-001	Anonymous	EG020: Arsenic	7440-38-2	1	mg/kg	16	17	8.04

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: SOIL				Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report				
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
						LCS	DCS	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3012088)											
EG020: Arsenic	7440-38-2	1	mg/kg	<1	5 mg/kg	99.8	----	85.0	106	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: SOIL				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3012088)										
HK2017132-001	Anonymous	EG020: Arsenic	7440-38-2	5 mg/kg	88.4	----	75.0	125	----	----





CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	Work Order	: HK2017140
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: ---	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044		
Facsimile	: ---	Facsimile	: +852 2610 2021		
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			Date Samples Received	: 08-May-2020
Order number	: WO008	Quote number	: HKE/2533/2019_V3	Issue Date	: 19-May-2020
C-O-C number	: ---			No. of samples received	: 1
Site	: ---			No. of samples analysed	: 1

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This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	Position	Authorised results for
 Chan Siu Ming, Vico	Manager - Inorganics	Inorganics
 Wong Wing, Kenneth	Manager - Metals	Metals_ENV



General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK2017140

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in chilled condition. The result(s) related only to the item(s) tested.

Result(s) of soil/sediment sample(s) was / were reported on dry weight basis.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

Sample(s) as received, digested by In-house method E-ASTM D3974-09 prior to determination of metals. The In-house method is developed based on ASTM D3974-09 method.



Analytical Results

Sub-Matrix: SOIL

				Client sample ID				
				LD002-Area 11	---	---	---	---
				Client sampling date / time				
				08-May-2020	---	---	---	---
Compound	CAS Number	LOR	Unit	HK2017140-001	---	---	---	---
EA/ED: Physical and Aggregate Properties								
EA055: Moisture Content (dried @ 103°C)	---	0.1	%	37.4	---	---	---	---
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	1	mg/kg	16	---	---	---	---



Laboratory Duplicate (DUP) Report

Matrix: SOIL				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 3023165)								
HK2017132-001	Anonymous	EA055: Moisture Content (dried @ 103°C)	----	0.1	%	37.8	37.8	0.00
HK2017747-001	Anonymous	EA055: Moisture Content (dried @ 103°C)	----	0.1	%	13.8	13.9	0.00
EG: Metals and Major Cations (QC Lot: 3012088)								
HK2017133-001	Anonymous	EG020: Arsenic	7440-38-2	1	mg/kg	16	17	8.04

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: SOIL				Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report					
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)		
						LCS	DCS	Low	High	Value	Control Limit	
EG: Metals and Major Cations (QC Lot: 3012088)												
EG020: Arsenic	7440-38-2	1	mg/kg	<1	5 mg/kg	99.8	----	85.0	106	----	----	

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: SOIL				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3012088)										
HK2017132-001	Anonymous	EG020: Arsenic	7440-38-2	5 mg/kg	88.4	----	75.0	125	----	----



CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	Work Order	: HK2018367
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: ---	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044		
Facsimile	: ---	Facsimile	: +852 2610 2021		
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			Date Samples Received	: 15-May-2020
Order number	: WO008	Quote number	: HKE/2533/2019_V3	Issue Date	: 22-May-2020
C-O-C number	: ---			No. of samples received	: 1
Site	: ---			No. of samples analysed	: 1

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This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	Position	Authorised results for
Chan Siu Ming , Vico	Manager - Inorganics	Inorganics
Leung Chak Cheong , Mike	Senior Chemist	Metals_ENV



General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK2018367

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in ambient condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

Result(s) of soil/sediment sample(s) was / were reported on dry weight basis.

Sample(s) as received, digested by In-house method E-ASTM D3974-09 prior to determination of metals. The In-house method is developed based on ASTM D3974-09 method.



Analytical Results

Sub-Matrix: SOIL

Client sample ID

LD002-Area 12

Client sampling date / time

15-May-2020

Compound	CAS Number	LOR	Unit	HK2018367-001	---	---	---	---
EA/ED: Physical and Aggregate Properties								
EA055: Moisture Content (dried @ 103°C)	---	0.1	%	38.0	---	---	---	---
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	1	mg/kg	15	---	---	---	---



Laboratory Duplicate (DUP) Report

Matrix: SOIL				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 3027879)								
HK2018357-004	Anonymous	EA055: Moisture Content (dried @ 103°C)	----	0.1	%	17.4	17.3	1.10
HK2018357-016	Anonymous	EA055: Moisture Content (dried @ 103°C)	----	0.1	%	20.2	19.8	1.83
EG: Metals and Major Cations (QC Lot: 3025407)								
HK2018357-016	Anonymous	EG020: Arsenic	7440-38-2	1	mg/kg	102	98	3.96

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: SOIL				Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report				
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
						LCS	DCS	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3025407)											
EG020: Arsenic	7440-38-2	1	mg/kg	<1	5 mg/kg	99.4	----	85.0	106	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: SOIL				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3025407)										
HK2018357-015	Anonymous	EG020: Arsenic	7440-38-2	5 mg/kg	# Not Determined	----	75.0	125	----	----



CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	Work Order	: HK2018368
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: ---	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044		
Facsimile	: ---	Facsimile	: +852 2610 2021		
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			Date Samples Received	: 15-May-2020
Order number	: WO008	Quote number	: HKE/2533/2019_V3	Issue Date	: 22-May-2020
C-O-C number	: ---			No. of samples received	: 1
Site	: ---			No. of samples analysed	: 1

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Signatories	Position	Authorised results for
Chan Siu Ming , Vico	Manager - Inorganics	Inorganics
Leung Chak Cheong , Mike	Senior Chemist	Metals_ENV



General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK2018368

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in ambient condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

Result(s) of soil/sediment sample(s) was / were reported on dry weight basis.

Sample(s) as received, digested by In-house method E-ASTM D3974-09 prior to determination of metals. The In-house method is developed based on ASTM D3974-09 method.



Analytical Results

Sub-Matrix: SOIL

Client sample ID

LD002-Area 13

Client sampling date / time

15-May-2020

Compound	CAS Number	LOR	Unit	HK2018368-001	---	---	---	---
EA/ED: Physical and Aggregate Properties								
EA055: Moisture Content (dried @ 103°C)	----	0.1	%	37.3	---	---	---	---
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	1	mg/kg	14	---	---	---	---



Laboratory Duplicate (DUP) Report

Matrix: SOIL				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 3027879)								
HK2018357-004	Anonymous	EA055: Moisture Content (dried @ 103°C)	----	0.1	%	17.4	17.3	1.10
HK2018357-016	Anonymous	EA055: Moisture Content (dried @ 103°C)	----	0.1	%	20.2	19.8	1.83
EG: Metals and Major Cations (QC Lot: 3025407)								
HK2018357-016	Anonymous	EG020: Arsenic	7440-38-2	1	mg/kg	102	98	3.96

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: SOIL				Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report					
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)		
						LCS	DCS	Low	High	Value	Control Limit	
EG: Metals and Major Cations (QC Lot: 3025407)												
EG020: Arsenic	7440-38-2	1	mg/kg	<1	5 mg/kg	99.4	----	85.0	106	----	----	

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: SOIL				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3025407)										
HK2018357-015	Anonymous	EG020: Arsenic	7440-38-2	5 mg/kg	# Not Determined	----	75.0	125	----	----





CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	Work Order	: HK2018369
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: ---	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044	Date Samples Received	: 15-May-2020
Facsimile	: ---	Facsimile	: +852 2610 2021	Issue Date	: 22-May-2020
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS	Quote number	: HKE/2533/2019_V3	No. of samples received	: 1
Order number	: WO008			No. of samples analysed	: 1
C-O-C number	: ---				
Site	: ---				

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Signatories	Position	Authorised results for
 Chan Siu Ming , Vico	Manager - Inorganics	Inorganics
 Leung Chak Cheong , Mike	Senior Chemist	Metals_ENV



General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK2018369

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in ambient condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

Result(s) of soil/sediment sample(s) was / were reported on dry weight basis.

Sample(s) as received, digested by In-house method E-ASTM D3974-09 prior to determination of metals. The In-house method is developed based on ASTM D3974-09 method.



Analytical Results

Sub-Matrix: SOIL

Client sample ID

LD002-Area 14

Client sampling date / time

15-May-2020

Compound	CAS Number	LOR	Unit	HK2018369-001	---	---	---	---
EA/ED: Physical and Aggregate Properties								
EA055: Moisture Content (dried @ 103°C)	---	0.1	%	37.2	---	---	---	---
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	1	mg/kg	14	---	---	---	---



Laboratory Duplicate (DUP) Report

Matrix: SOIL				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 3030482)								
HK2018369-001	LD002-Area 14	EA055: Moisture Content (dried @ 103°C)	----	0.1	%	37.2	36.9	0.808
HK2018376-003	Anonymous	EA055: Moisture Content (dried @ 103°C)	----	0.1	%	18.0	17.8	1.48
EG: Metals and Major Cations (QC Lot: 3025407)								
HK2018357-016	Anonymous	EG020: Arsenic	7440-38-2	1	mg/kg	102	98	3.96

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: SOIL				Method Blank (MB) Report		Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report					
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
						LCS	DCS	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3025407)											
EG020: Arsenic	7440-38-2	1	mg/kg	<1	5 mg/kg	99.4	----	85.0	106	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: SOIL				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3025407)										
HK2018357-015	Anonymous	EG020: Arsenic	7440-38-2	5 mg/kg	# Not Determined	----	75.0	125	----	----



CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	Work Order	: HK2017143
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: ---	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044		
Facsimile	: ---	Facsimile	: +852 2610 2021		
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			Date Samples Received	: 08-May-2020
Order number	: WO008	Quote number	: HKE/2533/2019_V3	Issue Date	: 19-May-2020
C-O-C number	: ---			No. of samples received	: 1
Site	: ---			No. of samples analysed	: 1

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Signatories	Position	Authorised results for
Chan Siu Ming , Vico	Manager - Inorganics	Inorganics
Wong Wing , Kenneth	Manager - Metals	Metals_ENV



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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK2017143

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in chilled condition. The result(s) related only to the item(s) tested.

Result(s) of soil/sediment sample(s) was / were reported on dry weight basis.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

Sample(s) as received, digested by In-house method E-ASTM D3974-09 prior to determination of metals. The In-house method is developed based on ASTM D3974-09 method.



Analytical Results

Sub-Matrix: SOIL

Client sample ID

LD002-Area 15

Client sampling date / time

08-May-2020

Compound	CAS Number	LOR	Unit	HK2017143-001	---	---	---	---
EA/ED: Physical and Aggregate Properties								
EA055: Moisture Content (dried @ 103°C)	---	0.1	%	38.3	---	---	---	---
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	1	mg/kg	15	---	---	---	---



Laboratory Duplicate (DUP) Report

Matrix: SOIL				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 3023165)								
HK2017132-001	Anonymous	EA055: Moisture Content (dried @ 103°C)	----	0.1	%	37.8	37.8	0.00
HK2017747-001	Anonymous	EA055: Moisture Content (dried @ 103°C)	----	0.1	%	13.8	13.9	0.00
EG: Metals and Major Cations (QC Lot: 3012088)								
HK2017133-001	Anonymous	EG020: Arsenic	7440-38-2	1	mg/kg	16	17	8.04

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: SOIL				Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report				
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
						LCS	DCS	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3012088)											
EG020: Arsenic	7440-38-2	1	mg/kg	<1	5 mg/kg	99.8	----	85.0	106	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: SOIL				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3012088)										
HK2017132-001	Anonymous	EG020: Arsenic	7440-38-2	5 mg/kg	88.4	----	75.0	125	----	----





CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	Work Order	: HK2018371
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: ---	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044		
Facsimile	: ---	Facsimile	: +852 2610 2021		
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			Date Samples Received	: 15-May-2020
Order number	: WO008	Quote number	: HKE/2533/2019_V3	Issue Date	: 22-May-2020
C-O-C number	: ---			No. of samples received	: 1
Site	: ---			No. of samples analysed	: 1

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 Leung Chak Cheong , Mike	Senior Chemist	Metals_ENV



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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK2018371

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in ambient condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

Result(s) of soil/sediment sample(s) was / were reported on dry weight basis.

Sample(s) as received, digested by In-house method E-ASTM D3974-09 prior to determination of metals. The In-house method is developed based on ASTM D3974-09 method.



Analytical Results

Sub-Matrix: SOIL

Client sample ID

LD002-Area 16

Client sampling date / time

15-May-2020

Compound	CAS Number	LOR	Unit	HK2018371-001	---	---	---	---
EA/ED: Physical and Aggregate Properties								
EA055: Moisture Content (dried @ 103°C)	---	0.1	%	38.3	---	---	---	---
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	1	mg/kg	15	---	---	---	---



Laboratory Duplicate (DUP) Report

Matrix: SOIL				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 3030482)								
HK2018369-001	Anonymous	EA055: Moisture Content (dried @ 103°C)	----	0.1	%	37.2	36.9	0.808
HK2018376-003	Anonymous	EA055: Moisture Content (dried @ 103°C)	----	0.1	%	18.0	17.8	1.48
EG: Metals and Major Cations (QC Lot: 3025407)								
HK2018357-016	Anonymous	EG020: Arsenic	7440-38-2	1	mg/kg	102	98	3.96

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: SOIL				Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report				
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
						LCS	DCS	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3025407)											
EG020: Arsenic	7440-38-2	1	mg/kg	<1	5 mg/kg	99.4	----	85.0	106	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: SOIL				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3025407)										
HK2018357-015	Anonymous	EG020: Arsenic	7440-38-2	5 mg/kg	# Not Determined	----	75.0	125	----	----





CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	Work Order	: HK2018370
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: ---	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044		
Facsimile	: ---	Facsimile	: +852 2610 2021		
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			Date Samples Received	: 15-May-2020
Order number	: WO008	Quote number	: HKE/2533/2019_V3	Issue Date	: 22-May-2020
C-O-C number	: ---			No. of samples received	: 1
Site	: ---			No. of samples analysed	: 1

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This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	Position	Authorised results for
 Chan Siu Ming , Vico	Manager - Inorganics	Inorganics
 Leung Chak Cheong , Mike	Senior Chemist	Metals_ENV



General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK2018370

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in ambient condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

Result(s) of soil/sediment sample(s) was / were reported on dry weight basis.

Sample(s) as received, digested by In-house method E-ASTM D3974-09 prior to determination of metals. The In-house method is developed based on ASTM D3974-09 method.



Analytical Results

Sub-Matrix: SOIL

				Client sample ID				
				LD002-Area 16 (1)	---	---	---	---
				Client sampling date / time	15-May-2020	---	---	---
Compound	CAS Number	LOR	Unit	HK2018370-001	---	---	---	---
EA/ED: Physical and Aggregate Properties								
EA055: Moisture Content (dried @ 103°C)	---	0.1	%	37.1	---	---	---	---
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	1	mg/kg	14	---	---	---	---



Laboratory Duplicate (DUP) Report

Matrix: SOIL				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 3030482)								
HK2018369-001	Anonymous	EA055: Moisture Content (dried @ 103°C)	----	0.1	%	37.2	36.9	0.808
HK2018376-003	Anonymous	EA055: Moisture Content (dried @ 103°C)	----	0.1	%	18.0	17.8	1.48
EG: Metals and Major Cations (QC Lot: 3025407)								
HK2018357-016	Anonymous	EG020: Arsenic	7440-38-2	1	mg/kg	102	98	3.96

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: SOIL				Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report					
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)		
						LCS	DCS	Low	High	Value	Control Limit	
EG: Metals and Major Cations (QC Lot: 3025407)												
EG020: Arsenic	7440-38-2	1	mg/kg	<1	5 mg/kg	99.4	----	85.0	106	----	----	

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: SOIL				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3025407)										
HK2018357-015	Anonymous	EG020: Arsenic	7440-38-2	5 mg/kg	# Not Determined	----	75.0	125	----	----





CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	Work Order	: HK2018372
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: ---	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044		
Facsimile	: ---	Facsimile	: +852 2610 2021		
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			Date Samples Received	: 15-May-2020
Order number	: WO008	Quote number	: HKE/2533/2019_V3	Issue Date	: 22-May-2020
C-O-C number	: ---			No. of samples received	: 1
Site	: ---			No. of samples analysed	: 1

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This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	Position	Authorised results for
 Chan Siu Ming , Vico	Manager - Inorganics	Inorganics
 Leung Chak Cheong , Mike	Senior Chemist	Metals_ENV



General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK2018372

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in ambient condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

Result(s) of soil/sediment sample(s) was / were reported on dry weight basis.

Sample(s) as received, digested by In-house method E-ASTM D3974-09 prior to determination of metals. The In-house method is developed based on ASTM D3974-09 method.



Analytical Results

Sub-Matrix: SOIL

Client sample ID

LD002-Area 17

Client sampling date / time

15-May-2020

Compound	CAS Number	LOR	Unit	HK2018372-001	---	---	---	---
EA/ED: Physical and Aggregate Properties								
EA055: Moisture Content (dried @ 103°C)	---	0.1	%	38.2	---	---	---	---
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	1	mg/kg	16	---	---	---	---



Laboratory Duplicate (DUP) Report

Matrix: SOIL				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 3030482)								
HK2018369-001	Anonymous	EA055: Moisture Content (dried @ 103°C)	----	0.1	%	37.2	36.9	0.808
HK2018376-003	Anonymous	EA055: Moisture Content (dried @ 103°C)	----	0.1	%	18.0	17.8	1.48
EG: Metals and Major Cations (QC Lot: 3025407)								
HK2018357-016	Anonymous	EG020: Arsenic	7440-38-2	1	mg/kg	102	98	3.96

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: SOIL				Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report					
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)		
						LCS	DCS	Low	High	Value	Control Limit	
EG: Metals and Major Cations (QC Lot: 3025407)												
EG020: Arsenic	7440-38-2	1	mg/kg	<1	5 mg/kg	99.4	----	85.0	106	----	----	

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: SOIL				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3025407)										
HK2018357-015	Anonymous	EG020: Arsenic	7440-38-2	5 mg/kg	# Not Determined	----	75.0	125	----	----





CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	Work Order	: HK2018373
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: ---	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044		
Facsimile	: ---	Facsimile	: +852 2610 2021		
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			Date Samples Received	: 15-May-2020
Order number	: WO008	Quote number	: HKE/2533/2019_V3	Issue Date	: 22-May-2020
C-O-C number	: ---			No. of samples received	: 1
Site	: ---			No. of samples analysed	: 1

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Signatories	Position	Authorised results for
 Chan Siu Ming , Vico	Manager - Inorganics	Inorganics
 Leung Chak Cheong , Mike	Senior Chemist	Metals_ENV



General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK2018373

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in ambient condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

Result(s) of soil/sediment sample(s) was / were reported on dry weight basis.

Sample(s) as received, digested by In-house method E-ASTM D3974-09 prior to determination of metals. The In-house method is developed based on ASTM D3974-09 method.



Analytical Results

Sub-Matrix: SOIL

Client sample ID

LD002-Area 18

Client sampling date / time

15-May-2020

Compound	CAS Number	LOR	Unit	HK2018373-001	---	---	---	---
EA/ED: Physical and Aggregate Properties								
EA055: Moisture Content (dried @ 103°C)	---	0.1	%	38.2	---	---	---	---
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	1	mg/kg	14	---	---	---	---



Laboratory Duplicate (DUP) Report

Matrix: SOIL				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 3030482)								
HK2018369-001	Anonymous	EA055: Moisture Content (dried @ 103°C)	----	0.1	%	37.2	36.9	0.808
HK2018376-003	Anonymous	EA055: Moisture Content (dried @ 103°C)	----	0.1	%	18.0	17.8	1.48
EG: Metals and Major Cations (QC Lot: 3025407)								
HK2018357-016	Anonymous	EG020: Arsenic	7440-38-2	1	mg/kg	102	98	3.96

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: SOIL				Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report				
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
						LCS	DCS	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3025407)											
EG020: Arsenic	7440-38-2	1	mg/kg	<1	5 mg/kg	99.4	----	85.0	106	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: SOIL				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3025407)										
HK2018357-015	Anonymous	EG020: Arsenic	7440-38-2	5 mg/kg	# Not Determined	----	75.0	125	----	----





CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	Work Order	: HK2017103
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: ---	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044		
Facsimile	: ---	Facsimile	: +852 2610 2021		
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			Date Samples Received	: 08-May-2020
Order number	: WO008	Quote number	: HKE/2533/2019_V3	Issue Date	: 19-May-2020
C-O-C number	: ---			No. of samples received	: 1
Site	: ---			No. of samples analysed	: 1

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This document has been signed by those names that appear on this report and are the authorised signatories.

<i>Signatories</i>	<i>Position</i>	<i>Authorised results for</i>
 Lin Wai Yu , Iris	Assistant Manager - Inorganics	Inorganics
 Wong Wing , Kenneth	Manager - Metals	Metals_ENV



General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK2017103

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in chilled condition. The result(s) related only to the item(s) tested.

Result(s) of soil/sediment sample(s) was / were reported on dry weight basis.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

Sample(s) as received, digested by In-house method E-ASTM D3974-09 prior to determination of metals. The In-house method is developed based on ASTM D3974-09 method.



Analytical Results

Sub-Matrix: SOIL

Client sample ID

LD002-H1

Client sampling date / time

08-May-2020

Compound	CAS Number	LOR	Unit	HK2017103-001	---	---	---	---
EA/ED: Physical and Aggregate Properties								
EA055: Moisture Content (dried @ 103°C)	---	0.1	%	38.1	---	---	---	---
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	1	mg/kg	16	---	---	---	---



Laboratory Duplicate (DUP) Report

Matrix: SOIL				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 3019648)								
HK2017103-001	LD002-H1	EA055: Moisture Content (dried @ 103°C)	----	0.1	%	38.1	38.0	0.00
HK2017112-001	Anonymous	EA055: Moisture Content (dried @ 103°C)	----	0.1	%	37.6	37.7	0.363
EG: Metals and Major Cations (QC Lot: 3012087)								
HK2017104-001	Anonymous	EG020: Arsenic	7440-38-2	1	mg/kg	15	15	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: SOIL				Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report					
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)		
						LCS	DCS	Low	High	Value	Control Limit	
EG: Metals and Major Cations (QC Lot: 3012087)												
EG020: Arsenic	7440-38-2	1	mg/kg	<1	5 mg/kg	99.3	----	85.0	106	----	----	

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: SOIL				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3012087)										
HK2017103-001	LD002-H1	EG020: Arsenic	7440-38-2	5 mg/kg	87.0	----	75.0	125	----	----





CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	Work Order	: HK2017104
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: ---	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044	Date Samples Received	: 08-May-2020
Facsimile	: ---	Facsimile	: +852 2610 2021	Issue Date	: 19-May-2020
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS	Quote number	: HKE/2533/2019_V3	No. of samples received	: 1
Order number	: WO008			No. of samples analysed	: 1
C-O-C number	: ---				
Site	: ---				

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This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	Position	Authorised results for
 Lin Wai Yu , Iris	Assistant Manager - Inorganics	Inorganics
 Wong Wing , Kenneth	Manager - Metals	Metals_ENV



General Comments

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Specific Comments for Work Order: HK2017104

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in chilled condition. The result(s) related only to the item(s) tested.

Result(s) of soil/sediment sample(s) was / were reported on dry weight basis.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

Sample(s) as received, digested by In-house method E-ASTM D3974-09 prior to determination of metals. The In-house method is developed based on ASTM D3974-09 method.



Analytical Results

Sub-Matrix: SOIL

				Client sample ID				
				LD002-H2	---	---	---	---
				Client sampling date / time				
				08-May-2020	---	---	---	---
Compound	CAS Number	LOR	Unit	HK2017104-001	---	---	---	---
EA/ED: Physical and Aggregate Properties								
EA055: Moisture Content (dried @ 103°C)	---	0.1	%	37.6	---	---	---	---
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	1	mg/kg	15	---	---	---	---



Laboratory Duplicate (DUP) Report

Matrix: SOIL				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 3019648)								
HK2017103-001	Anonymous	EA055: Moisture Content (dried @ 103°C)	----	0.1	%	38.1	38.0	0.00
HK2017112-001	Anonymous	EA055: Moisture Content (dried @ 103°C)	----	0.1	%	37.6	37.7	0.363
EG: Metals and Major Cations (QC Lot: 3012087)								
HK2017104-001	LD002-H2	EG020: Arsenic	7440-38-2	1	mg/kg	15	15	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: SOIL				Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report					
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)		
						LCS	DCS	Low	High	Value	Control Limit	
EG: Metals and Major Cations (QC Lot: 3012087)												
EG020: Arsenic	7440-38-2	1	mg/kg	<1	5 mg/kg	99.3	----	85.0	106	----	----	

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: SOIL				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3012087)										
HK2017103-001	Anonymous	EG020: Arsenic	7440-38-2	5 mg/kg	87.0	----	75.0	125	----	----





CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	Work Order	: HK2017106
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: ---	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044		
Facsimile	: ---	Facsimile	: +852 2610 2021		
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			Date Samples Received	: 08-May-2020
Order number	: WO008	Quote number	: HKE/2533/2019_V3	Issue Date	: 19-May-2020
C-O-C number	: ---			No. of samples received	: 1
Site	: ---			No. of samples analysed	: 1

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This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	Position	Authorised results for
 Lin Wai Yu , Iris	Assistant Manager - Inorganics	Inorganics
 Wong Wing , Kenneth	Manager - Metals	Metals_ENV



General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK2017106

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in chilled condition. The result(s) related only to the item(s) tested.

Result(s) of soil/sediment sample(s) was / were reported on dry weight basis.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

Sample(s) as received, digested by In-house method E-ASTM D3974-09 prior to determination of metals. The In-house method is developed based on ASTM D3974-09 method.



Analytical Results

Sub-Matrix: SOIL

Client sample ID

LD002-H3

Client sampling date / time

08-May-2020

Compound	CAS Number	LOR	Unit	HK2017106-001	---	---	---	---
EA/ED: Physical and Aggregate Properties								
EA055: Moisture Content (dried @ 103°C)	---	0.1	%	38.4	---	---	---	---
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	1	mg/kg	16	---	---	---	---



Laboratory Duplicate (DUP) Report

Matrix: SOIL				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 3019648)								
HK2017103-001	Anonymous	EA055: Moisture Content (dried @ 103°C)	----	0.1	%	38.1	38.0	0.00
HK2017112-001	Anonymous	EA055: Moisture Content (dried @ 103°C)	----	0.1	%	37.6	37.7	0.363
EG: Metals and Major Cations (QC Lot: 3012087)								
HK2017104-001	Anonymous	EG020: Arsenic	7440-38-2	1	mg/kg	15	15	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: SOIL				Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report					
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)		
						LCS	DCS	Low	High	Value	Control Limit	
EG: Metals and Major Cations (QC Lot: 3012087)												
EG020: Arsenic	7440-38-2	1	mg/kg	<1	5 mg/kg	99.3	----	85.0	106	----	----	

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: SOIL				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3012087)										
HK2017103-001	Anonymous	EG020: Arsenic	7440-38-2	5 mg/kg	87.0	----	75.0	125	----	----



CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	Work Order	: HK2018374
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: ---	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044		
Facsimile	: ---	Facsimile	: +852 2610 2021		
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			Date Samples Received	: 15-May-2020
Order number	: WO008	Quote number	: HKE/2533/2019_V3	Issue Date	: 22-May-2020
C-O-C number	: ---			No. of samples received	: 1
Site	: ---			No. of samples analysed	: 1

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This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	Position	Authorised results for
Chan Siu Ming , Vico	Manager - Inorganics	Inorganics
Leung Chak Cheong , Mike	Senior Chemist	Metals_ENV



General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK2018374

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in ambient condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

Result(s) of soil/sediment sample(s) was / were reported on dry weight basis.

Sample(s) as received, digested by In-house method E-ASTM D3974-09 prior to determination of metals. The In-house method is developed based on ASTM D3974-09 method.



Analytical Results

Sub-Matrix: SOIL

Client sample ID

LD002-H4

Client sampling date / time

15-May-2020

Compound	CAS Number	LOR	Unit	LD002-H4	15-May-2020	---	---	---	---
EA/ED: Physical and Aggregate Properties									
EA055: Moisture Content (dried @ 103°C)	---	0.1	%	37.3	---	---	---	---	---
EG: Metals and Major Cations									
EG020: Arsenic	7440-38-2	1	mg/kg	15	---	---	---	---	---



Laboratory Duplicate (DUP) Report

Matrix: SOIL				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 3030482)								
HK2018369-001	Anonymous	EA055: Moisture Content (dried @ 103°C)	----	0.1	%	37.2	36.9	0.808
HK2018376-003	Anonymous	EA055: Moisture Content (dried @ 103°C)	----	0.1	%	18.0	17.8	1.48
EG: Metals and Major Cations (QC Lot: 3025407)								
HK2018357-016	Anonymous	EG020: Arsenic	7440-38-2	1	mg/kg	102	98	3.96

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: SOIL				Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report				
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
						LCS	DCS	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3025407)											
EG020: Arsenic	7440-38-2	1	mg/kg	<1	5 mg/kg	99.4	----	85.0	106	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: SOIL				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3025407)										
HK2018357-015	Anonymous	EG020: Arsenic	7440-38-2	5 mg/kg	# Not Determined	----	75.0	125	----	----





CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	Work Order	: HK2018375
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: ---	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044		
Facsimile	: ---	Facsimile	: +852 2610 2021		
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			Date Samples Received	: 15-May-2020
Order number	: WO008	Quote number	: HKE/2533/2019_V3	Issue Date	: 22-May-2020
C-O-C number	: ---			No. of samples received	: 1
Site	: ---			No. of samples analysed	: 1

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This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	Position	Authorised results for
 Chan Siu Ming , Vico	Manager - Inorganics	Inorganics
 Leung Chak Cheong , Mike	Senior Chemist	Metals_ENV



General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK2018375

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in ambient condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

Result(s) of soil/sediment sample(s) was / were reported on dry weight basis.

Sample(s) as received, digested by In-house method E-ASTM D3974-09 prior to determination of metals. The In-house method is developed based on ASTM D3974-09 method.



Analytical Results

Sub-Matrix: SOIL

Client sample ID

LD002-H5

Client sampling date / time

15-May-2020

Compound	CAS Number	LOR	Unit	HK2018375-001	---	---	---	---
EA/ED: Physical and Aggregate Properties								
EA055: Moisture Content (dried @ 103°C)	---	0.1	%	37.4	---	---	---	---
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	1	mg/kg	16	---	---	---	---



Laboratory Duplicate (DUP) Report

Matrix: SOIL				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 3030482)								
HK2018369-001	Anonymous	EA055: Moisture Content (dried @ 103°C)	----	0.1	%	37.2	36.9	0.808
HK2018376-003	Anonymous	EA055: Moisture Content (dried @ 103°C)	----	0.1	%	18.0	17.8	1.48
EG: Metals and Major Cations (QC Lot: 3025407)								
HK2018357-016	Anonymous	EG020: Arsenic	7440-38-2	1	mg/kg	102	98	3.96

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: SOIL				Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report				
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
						LCS	DCS	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3025407)											
EG020: Arsenic	7440-38-2	1	mg/kg	<1	5 mg/kg	99.4	----	85.0	106	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: SOIL				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3025407)										
HK2018357-015	Anonymous	EG020: Arsenic	7440-38-2	5 mg/kg	# Not Determined	----	75.0	125	----	----





CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	Work Order	: HK2017107
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: ---	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044		
Facsimile	: ---	Facsimile	: +852 2610 2021		
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			Date Samples Received	: 08-May-2020
Order number	: WO008	Quote number	: HKE/2533/2019_V3	Issue Date	: 19-May-2020
C-O-C number	: ---			No. of samples received	: 1
Site	: ---			No. of samples analysed	: 1

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This document has been signed by those names that appear on this report and are the authorised signatories.

<i>Signatories</i>	<i>Position</i>	<i>Authorised results for</i>
 Lin Wai Yu , Iris	Assistant Manager - Inorganics	Inorganics
 Wong Wing , Kenneth	Manager - Metals	Metals_ENV



General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK2017107

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in chilled condition. The result(s) related only to the item(s) tested.

Result(s) of soil/sediment sample(s) was / were reported on dry weight basis.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

Sample(s) as received, digested by In-house method E-ASTM D3974-09 prior to determination of metals. The In-house method is developed based on ASTM D3974-09 method.



Analytical Results

Sub-Matrix: SOIL

Client sample ID

LD002-H6

Client sampling date / time

08-May-2020

Compound	CAS Number	LOR	Unit	HK2017107-001	---	---	---	---
EA/ED: Physical and Aggregate Properties								
EA055: Moisture Content (dried @ 103°C)	---	0.1	%	16.1	---	---	---	---
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	1	mg/kg	2	---	---	---	---



Laboratory Duplicate (DUP) Report

Matrix: SOIL				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 3019648)								
HK2017103-001	Anonymous	EA055: Moisture Content (dried @ 103°C)	----	0.1	%	38.1	38.0	0.00
HK2017112-001	Anonymous	EA055: Moisture Content (dried @ 103°C)	----	0.1	%	37.6	37.7	0.363
EG: Metals and Major Cations (QC Lot: 3012087)								
HK2017104-001	Anonymous	EG020: Arsenic	7440-38-2	1	mg/kg	15	15	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: SOIL				Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report				
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
						LCS	DCS	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3012087)											
EG020: Arsenic	7440-38-2	1	mg/kg	<1	5 mg/kg	99.3	----	85.0	106	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: SOIL				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3012087)										
HK2017103-001	Anonymous	EG020: Arsenic	7440-38-2	5 mg/kg	87.0	----	75.0	125	----	----





CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	Work Order	: HK2017108
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: ---	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044		
Facsimile	: ---	Facsimile	: +852 2610 2021		
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			Date Samples Received	: 08-May-2020
Order number	: WO008	Quote number	: HKE/2533/2019_V3	Issue Date	: 19-May-2020
C-O-C number	: ---			No. of samples received	: 1
Site	: ---			No. of samples analysed	: 1

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This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	Position	Authorised results for
 Lin Wai Yu , Iris	Assistant Manager - Inorganics	Inorganics
 Wong Wing , Kenneth	Manager - Metals	Metals_ENV



General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK2017108

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in chilled condition. The result(s) related only to the item(s) tested.

Result(s) of soil/sediment sample(s) was / were reported on dry weight basis.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

Sample(s) as received, digested by In-house method E-ASTM D3974-09 prior to determination of metals. The In-house method is developed based on ASTM D3974-09 method.



Analytical Results

Sub-Matrix: SOIL

Client sample ID

LD002-H7

Client sampling date / time

08-May-2020

Compound	CAS Number	LOR	Unit	LD002-H7	08-May-2020	---	---	---	---
EA/ED: Physical and Aggregate Properties									
EA055: Moisture Content (dried @ 103°C)	---	0.1	%	17.8	---	---	---	---	---
EG: Metals and Major Cations									
EG020: Arsenic	7440-38-2	1	mg/kg	4	---	---	---	---	---



Laboratory Duplicate (DUP) Report

Matrix: SOIL				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 3019648)								
HK2017103-001	Anonymous	EA055: Moisture Content (dried @ 103°C)	----	0.1	%	38.1	38.0	0.00
HK2017112-001	Anonymous	EA055: Moisture Content (dried @ 103°C)	----	0.1	%	37.6	37.7	0.363
EG: Metals and Major Cations (QC Lot: 3012087)								
HK2017104-001	Anonymous	EG020: Arsenic	7440-38-2	1	mg/kg	15	15	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: SOIL				Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report					
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)		
						LCS	DCS	Low	High	Value	Control Limit	
EG: Metals and Major Cations (QC Lot: 3012087)												
EG020: Arsenic	7440-38-2	1	mg/kg	<1	5 mg/kg	99.3	----	85.0	106	----	----	

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: SOIL				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3012087)										
HK2017103-001	Anonymous	EG020: Arsenic	7440-38-2	5 mg/kg	87.0	----	75.0	125	----	----





CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	Work Order	: HK2017110
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: ---	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044		
Facsimile	: ---	Facsimile	: +852 2610 2021		
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			Date Samples Received	: 08-May-2020
Order number	: WO008	Quote number	: HKE/2533/2019_V3	Issue Date	: 19-May-2020
C-O-C number	: ---			No. of samples received	: 1
Site	: ---			No. of samples analysed	: 1

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This document has been signed by those names that appear on this report and are the authorised signatories.

<i>Signatories</i>	<i>Position</i>	<i>Authorised results for</i>
 Lin Wai Yu , Iris	Assistant Manager - Inorganics	Inorganics
 Wong Wing , Kenneth	Manager - Metals	Metals_ENV



General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK2017110

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in chilled condition. The result(s) related only to the item(s) tested.

Result(s) of soil/sediment sample(s) was / were reported on dry weight basis.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

Sample(s) as received, digested by In-house method E-ASTM D3974-09 prior to determination of metals. The In-house method is developed based on ASTM D3974-09 method.



Analytical Results

Sub-Matrix: SOIL

Client sample ID

LD002-H8

Client sampling date / time

08-May-2020

Compound	CAS Number	LOR	Unit	HK2017110-001	---	---	---	---
EA/ED: Physical and Aggregate Properties								
EA055: Moisture Content (dried @ 103°C)	---	0.1	%	14.6	---	---	---	---
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	1	mg/kg	3	---	---	---	---



Laboratory Duplicate (DUP) Report

Matrix: SOIL				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 3019648)								
HK2017103-001	Anonymous	EA055: Moisture Content (dried @ 103°C)	----	0.1	%	38.1	38.0	0.00
HK2017112-001	Anonymous	EA055: Moisture Content (dried @ 103°C)	----	0.1	%	37.6	37.7	0.363
EG: Metals and Major Cations (QC Lot: 3012087)								
HK2017104-001	Anonymous	EG020: Arsenic	7440-38-2	1	mg/kg	15	15	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: SOIL				Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report					
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)		
						LCS	DCS	Low	High	Value	Control Limit	
EG: Metals and Major Cations (QC Lot: 3012087)												
EG020: Arsenic	7440-38-2	1	mg/kg	<1	5 mg/kg	99.3	----	85.0	106	----	----	

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: SOIL				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3012087)										
HK2017103-001	Anonymous	EG020: Arsenic	7440-38-2	5 mg/kg	87.0	----	75.0	125	----	----





CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	Work Order	: HK2017114
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: ---	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044		
Facsimile	: ---	Facsimile	: +852 2610 2021		
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			Date Samples Received	: 08-May-2020
Order number	: WO008	Quote number	: HKE/2533/2019_V3	Issue Date	: 19-May-2020
C-O-C number	: ---			No. of samples received	: 1
Site	: ---			No. of samples analysed	: 1

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This document has been signed by those names that appear on this report and are the authorised signatories.

<i>Signatories</i>	<i>Position</i>	<i>Authorised results for</i>
 Lin Wai Yu , Iris	Assistant Manager - Inorganics	Inorganics
 Wong Wing , Kenneth	Manager - Metals	Metals_ENV



General Comments

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Specific Comments for Work Order: HK2017114

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in chilled condition. The result(s) related only to the item(s) tested.

Result(s) of soil/sediment sample(s) was / were reported on dry weight basis.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

Sample(s) as received, digested by In-house method E-ASTM D3974-09 prior to determination of metals. The In-house method is developed based on ASTM D3974-09 method.



Analytical Results

Sub-Matrix: SOIL

Client sample ID

LD002-H9

Client sampling date / time

08-May-2020

Compound	CAS Number	LOR	Unit	LD002-H9	08-May-2020	---	---	---	---
EA/ED: Physical and Aggregate Properties									
EA055: Moisture Content (dried @ 103°C)	---	0.1	%	38.2	---	---	---	---	---
EG: Metals and Major Cations									
EG020: Arsenic	7440-38-2	1	mg/kg	15	---	---	---	---	---



Laboratory Duplicate (DUP) Report

Matrix: SOIL				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 3019648)								
HK2017103-001	Anonymous	EA055: Moisture Content (dried @ 103°C)	----	0.1	%	38.1	38.0	0.00
HK2017112-001	Anonymous	EA055: Moisture Content (dried @ 103°C)	----	0.1	%	37.6	37.7	0.363
EG: Metals and Major Cations (QC Lot: 3012087)								
HK2017104-001	Anonymous	EG020: Arsenic	7440-38-2	1	mg/kg	15	15	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: SOIL				Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report				
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
						LCS	DCS	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3012087)											
EG020: Arsenic	7440-38-2	1	mg/kg	<1	5 mg/kg	99.3	----	85.0	106	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: SOIL				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3012087)										
HK2017103-001	Anonymous	EG020: Arsenic	7440-38-2	5 mg/kg	87.0	----	75.0	125	----	----





CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	Work Order	: HK2017112
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: ---	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044		
Facsimile	: ---	Facsimile	: +852 2610 2021		
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			Date Samples Received	: 08-May-2020
Order number	: WO008	Quote number	: HKE/2533/2019_V3	Issue Date	: 19-May-2020
C-O-C number	: ---			No. of samples received	: 1
Site	: ---			No. of samples analysed	: 1

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Signatories	Position	Authorised results for
 Lin Wai Yu , Iris	Assistant Manager - Inorganics	Inorganics
 Wong Wing , Kenneth	Manager - Metals	Metals_ENV



General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK2017112

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in chilled condition. The result(s) related only to the item(s) tested.

Result(s) of soil/sediment sample(s) was / were reported on dry weight basis.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

Sample(s) as received, digested by In-house method E-ASTM D3974-09 prior to determination of metals. The In-house method is developed based on ASTM D3974-09 method.



Analytical Results

Sub-Matrix: SOIL

Client sample ID

LD002-H9 (1)

Client sampling date / time

08-May-2020

Compound	CAS Number	LOR	Unit	HK2017112-001	-----	-----	-----	-----
EA/ED: Physical and Aggregate Properties								
EA055: Moisture Content (dried @ 103°C)	----	0.1	%	37.6	---	---	---	---
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	1	mg/kg	14	---	---	---	---



Laboratory Duplicate (DUP) Report

Matrix: SOIL				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 3019648)								
HK2017103-001	Anonymous	EA055: Moisture Content (dried @ 103°C)	----	0.1	%	38.1	38.0	0.00
HK2017112-001	LD002-H9 (1)	EA055: Moisture Content (dried @ 103°C)	----	0.1	%	37.6	37.7	0.363
EG: Metals and Major Cations (QC Lot: 3012087)								
HK2017104-001	Anonymous	EG020: Arsenic	7440-38-2	1	mg/kg	15	15	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: SOIL				Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report				
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
						LCS	DCS	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3012087)											
EG020: Arsenic	7440-38-2	1	mg/kg	<1	5 mg/kg	99.3	----	85.0	106	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: SOIL				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3012087)										
HK2017103-001	Anonymous	EG020: Arsenic	7440-38-2	5 mg/kg	87.0	----	75.0	125	----	----





CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	Work Order	: HK2017115
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: ---	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044		
Facsimile	: ---	Facsimile	: +852 2610 2021		
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			Date Samples Received	: 08-May-2020
Order number	: WO008	Quote number	: HKE/2533/2019_V3	Issue Date	: 19-May-2020
C-O-C number	: ---			No. of samples received	: 1
Site	: ---			No. of samples analysed	: 1

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<i>Signatories</i>	<i>Position</i>	<i>Authorised results for</i>
 Lin Wai Yu , Iris	Assistant Manager - Inorganics	Inorganics
 Wong Wing , Kenneth	Manager - Metals	Metals_ENV



General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK2017115

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in chilled condition. The result(s) related only to the item(s) tested.

Result(s) of soil/sediment sample(s) was / were reported on dry weight basis.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

Sample(s) as received, digested by In-house method E-ASTM D3974-09 prior to determination of metals. The In-house method is developed based on ASTM D3974-09 method.



Analytical Results

Sub-Matrix: SOIL

Client sample ID

LD002-H10

Client sampling date / time

08-May-2020

Compound	CAS Number	LOR	Unit	HK2017115-001	---	---	---	---
EA/ED: Physical and Aggregate Properties								
EA055: Moisture Content (dried @ 103°C)	---	0.1	%	38.4	---	---	---	---
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	1	mg/kg	15	---	---	---	---



Laboratory Duplicate (DUP) Report

Matrix: SOIL				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 3019648)								
HK2017103-001	Anonymous	EA055: Moisture Content (dried @ 103°C)	----	0.1	%	38.1	38.0	0.00
HK2017112-001	Anonymous	EA055: Moisture Content (dried @ 103°C)	----	0.1	%	37.6	37.7	0.363
EG: Metals and Major Cations (QC Lot: 3012087)								
HK2017104-001	Anonymous	EG020: Arsenic	7440-38-2	1	mg/kg	15	15	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: SOIL				Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report				
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
						LCS	DCS	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3012087)											
EG020: Arsenic	7440-38-2	1	mg/kg	<1	5 mg/kg	99.3	----	85.0	106	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: SOIL				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3012087)										
HK2017103-001	Anonymous	EG020: Arsenic	7440-38-2	5 mg/kg	87.0	----	75.0	125	----	----





CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	Work Order	: HK2017116
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: ---	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044		
Facsimile	: ---	Facsimile	: +852 2610 2021		
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			Date Samples Received	: 08-May-2020
Order number	: WO008	Quote number	: HKE/2533/2019_V3	Issue Date	: 19-May-2020
C-O-C number	: ---			No. of samples received	: 1
Site	: ---			No. of samples analysed	: 1

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<i>Signatories</i>	<i>Position</i>	<i>Authorised results for</i>
 Lin Wai Yu , Iris	Assistant Manager - Inorganics	Inorganics
 Wong Wing , Kenneth	Manager - Metals	Metals_ENV



General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK2017116

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in chilled condition. The result(s) related only to the item(s) tested.

Result(s) of soil/sediment sample(s) was / were reported on dry weight basis.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

Sample(s) as received, digested by In-house method E-ASTM D3974-09 prior to determination of metals. The In-house method is developed based on ASTM D3974-09 method.



Analytical Results

Sub-Matrix: SOIL

Client sample ID

LD002-H11

Client sampling date / time

08-May-2020

Compound	CAS Number	LOR	Unit	HK2017116-001	---	---	---	---
EA/ED: Physical and Aggregate Properties								
EA055: Moisture Content (dried @ 103°C)	---	0.1	%	37.8	---	---	---	---
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	1	mg/kg	16	---	---	---	---



Laboratory Duplicate (DUP) Report

Matrix: SOIL				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 3019648)								
HK2017103-001	Anonymous	EA055: Moisture Content (dried @ 103°C)	----	0.1	%	38.1	38.0	0.00
HK2017112-001	Anonymous	EA055: Moisture Content (dried @ 103°C)	----	0.1	%	37.6	37.7	0.363
EG: Metals and Major Cations (QC Lot: 3012087)								
HK2017104-001	Anonymous	EG020: Arsenic	7440-38-2	1	mg/kg	15	15	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: SOIL				Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report					
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)		
						LCS	DCS	Low	High	Value	Control Limit	
EG: Metals and Major Cations (QC Lot: 3012087)												
EG020: Arsenic	7440-38-2	1	mg/kg	<1	5 mg/kg	99.3	----	85.0	106	----	----	

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: SOIL				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3012087)										
HK2017103-001	Anonymous	EG020: Arsenic	7440-38-2	5 mg/kg	87.0	----	75.0	125	----	----





CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	Work Order	: HK2017117
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: ---	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044		
Facsimile	: ---	Facsimile	: +852 2610 2021		
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			Date Samples Received	: 08-May-2020
Order number	: WO008	Quote number	: HKE/2533/2019_V3	Issue Date	: 19-May-2020
C-O-C number	: ---			No. of samples received	: 1
Site	: ---			No. of samples analysed	: 1

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<i>Signatories</i>	<i>Position</i>	<i>Authorised results for</i>
 Lin Wai Yu , Iris	Assistant Manager - Inorganics	Inorganics
 Wong Wing , Kenneth	Manager - Metals	Metals_ENV



General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK2017117

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in chilled condition. The result(s) related only to the item(s) tested.

Result(s) of soil/sediment sample(s) was / were reported on dry weight basis.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

Sample(s) as received, digested by In-house method E-ASTM D3974-09 prior to determination of metals. The In-house method is developed based on ASTM D3974-09 method.



Analytical Results

Sub-Matrix: SOIL

Client sample ID

LD002-H12

Client sampling date / time

08-May-2020

Compound	CAS Number	LOR	Unit	HK2017117-001	---	---	---	---
EA/ED: Physical and Aggregate Properties								
EA055: Moisture Content (dried @ 103°C)	---	0.1	%	37.9	---	---	---	---
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	1	mg/kg	16	---	---	---	---



Laboratory Duplicate (DUP) Report

Matrix: SOIL				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 3019648)								
HK2017103-001	Anonymous	EA055: Moisture Content (dried @ 103°C)	----	0.1	%	38.1	38.0	0.00
HK2017112-001	Anonymous	EA055: Moisture Content (dried @ 103°C)	----	0.1	%	37.6	37.7	0.363
EG: Metals and Major Cations (QC Lot: 3012087)								
HK2017104-001	Anonymous	EG020: Arsenic	7440-38-2	1	mg/kg	15	15	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: SOIL				Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report					
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)		
						LCS	DCS	Low	High	Value	Control Limit	
EG: Metals and Major Cations (QC Lot: 3012087)												
EG020: Arsenic	7440-38-2	1	mg/kg	<1	5 mg/kg	99.3	----	85.0	106	----	----	

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: SOIL				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3012087)										
HK2017103-001	Anonymous	EG020: Arsenic	7440-38-2	5 mg/kg	87.0	----	75.0	125	----	----





CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	Work Order	: HK2017119
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: ---	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044		
Facsimile	: ---	Facsimile	: +852 2610 2021		
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			Date Samples Received	: 08-May-2020
Order number	: WO008	Quote number	: HKE/2533/2019_V3	Issue Date	: 19-May-2020
C-O-C number	: ---			No. of samples received	: 1
Site	: ---			No. of samples analysed	: 1

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This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	Position	Authorised results for
 Lin Wai Yu , Iris	Assistant Manager - Inorganics	Inorganics
 Wong Wing , Kenneth	Manager - Metals	Metals_ENV



General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK2017119

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in chilled condition. The result(s) related only to the item(s) tested.

Result(s) of soil/sediment sample(s) was / were reported on dry weight basis.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

Sample(s) as received, digested by In-house method E-ASTM D3974-09 prior to determination of metals. The In-house method is developed based on ASTM D3974-09 method.



Analytical Results

Sub-Matrix: SOIL

Client sample ID

LD002-H13

Client sampling date / time

08-May-2020

Compound	CAS Number	LOR	Unit	HK2017119-001	-----	-----	-----	-----
EA/ED: Physical and Aggregate Properties								
EA055: Moisture Content (dried @ 103°C)	----	0.1	%	37.6	---	---	---	---
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	1	mg/kg	15	---	---	---	---



Laboratory Duplicate (DUP) Report

Matrix: SOIL				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 3019648)								
HK2017103-001	Anonymous	EA055: Moisture Content (dried @ 103°C)	----	0.1	%	38.1	38.0	0.00
HK2017112-001	Anonymous	EA055: Moisture Content (dried @ 103°C)	----	0.1	%	37.6	37.7	0.363
EG: Metals and Major Cations (QC Lot: 3012087)								
HK2017104-001	Anonymous	EG020: Arsenic	7440-38-2	1	mg/kg	15	15	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: SOIL				Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report				
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
						LCS	DCS	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3012087)											
EG020: Arsenic	7440-38-2	1	mg/kg	<1	5 mg/kg	99.3	----	85.0	106	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: SOIL				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3012087)										
HK2017103-001	Anonymous	EG020: Arsenic	7440-38-2	5 mg/kg	87.0	----	75.0	125	----	----





CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	Work Order	: HK2017120
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: ---	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044	Date Samples Received	: 08-May-2020
Facsimile	: ---	Facsimile	: +852 2610 2021	Issue Date	: 19-May-2020
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			No. of samples received	: 1
Order number	: WO008	Quote number	: HKE/2533/2019_V3	No. of samples analysed	: 1
C-O-C number	: ---				
Site	: ---				

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This document has been signed by those names that appear on this report and are the authorised signatories.

<i>Signatories</i>	<i>Position</i>	<i>Authorised results for</i>
 Lin Wai Yu , Iris	Assistant Manager - Inorganics	Inorganics
 Wong Wing , Kenneth	Manager - Metals	Metals_ENV



General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK2017120

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in chilled condition. The result(s) related only to the item(s) tested.

Result(s) of soil/sediment sample(s) was / were reported on dry weight basis.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

Sample(s) as received, digested by In-house method E-ASTM D3974-09 prior to determination of metals. The In-house method is developed based on ASTM D3974-09 method.



Analytical Results

Sub-Matrix: SOIL

Client sample ID

LD002-H14

Client sampling date / time

08-May-2020

Compound	CAS Number	LOR	Unit	HK2017120-001	---	---	---	---
EA/ED: Physical and Aggregate Properties								
EA055: Moisture Content (dried @ 103°C)	---	0.1	%	36.7	---	---	---	---
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	1	mg/kg	15	---	---	---	---



Laboratory Duplicate (DUP) Report

Matrix: SOIL				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 3019648)								
HK2017103-001	Anonymous	EA055: Moisture Content (dried @ 103°C)	----	0.1	%	38.1	38.0	0.00
HK2017112-001	Anonymous	EA055: Moisture Content (dried @ 103°C)	----	0.1	%	37.6	37.7	0.363
EG: Metals and Major Cations (QC Lot: 3012087)								
HK2017104-001	Anonymous	EG020: Arsenic	7440-38-2	1	mg/kg	15	15	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: SOIL				Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report					
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)		
						LCS	DCS	Low	High	Value	Control Limit	
EG: Metals and Major Cations (QC Lot: 3012087)												
EG020: Arsenic	7440-38-2	1	mg/kg	<1	5 mg/kg	99.3	----	85.0	106	----	----	

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: SOIL				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3012087)										
HK2017103-001	Anonymous	EG020: Arsenic	7440-38-2	5 mg/kg	87.0	----	75.0	125	----	----





CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	Work Order	: HK2017121
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: ---	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044	Date Samples Received	: 08-May-2020
Facsimile	: ---	Facsimile	: +852 2610 2021	Issue Date	: 19-May-2020
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS	Quote number	: HKE/2533/2019_V3	No. of samples received	: 1
Order number	: WO008			No. of samples analysed	: 1
C-O-C number	: ---				
Site	: ---				

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Signatories	Position	Authorised results for
 Lin Wai Yu , Iris	Assistant Manager - Inorganics	Inorganics
 Wong Wing , Kenneth	Manager - Metals	Metals_ENV



General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK2017121

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in chilled condition. The result(s) related only to the item(s) tested.

Result(s) of soil/sediment sample(s) was / were reported on dry weight basis.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

Sample(s) as received, digested by In-house method E-ASTM D3974-09 prior to determination of metals. The In-house method is developed based on ASTM D3974-09 method.



Analytical Results

Sub-Matrix: SOIL

				Client sample ID				
				LD002-H15	---	---	---	---
				Client sampling date / time	08-May-2020	---	---	---
Compound	CAS Number	LOR	Unit	HK2017121-001	---	---	---	---
EA/ED: Physical and Aggregate Properties								
EA055: Moisture Content (dried @ 103°C)	---	0.1	%	37.6	---	---	---	---
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	1	mg/kg	15	---	---	---	---



Laboratory Duplicate (DUP) Report

Matrix: SOIL				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 3019648)								
HK2017103-001	Anonymous	EA055: Moisture Content (dried @ 103°C)	----	0.1	%	38.1	38.0	0.00
HK2017112-001	Anonymous	EA055: Moisture Content (dried @ 103°C)	----	0.1	%	37.6	37.7	0.363
EG: Metals and Major Cations (QC Lot: 3012087)								
HK2017104-001	Anonymous	EG020: Arsenic	7440-38-2	1	mg/kg	15	15	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: SOIL				Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report					
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)		
						LCS	DCS	Low	High	Value	Control Limit	
EG: Metals and Major Cations (QC Lot: 3012087)												
EG020: Arsenic	7440-38-2	1	mg/kg	<1	5 mg/kg	99.3	----	85.0	106	----	----	

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: SOIL				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3012087)										
HK2017103-001	Anonymous	EG020: Arsenic	7440-38-2	5 mg/kg	87.0	----	75.0	125	----	----



CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	Work Order	: HK2017150
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: ---	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044		
Facsimile	: ---	Facsimile	: +852 2610 2021		
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			Date Samples Received	: 08-May-2020
Order number	: S3-SC068 (YL/2017/03)	Quote number	: HKE/1516b/2019_Rev 1_V2	Issue Date	: 13-May-2020
C-O-C number	: ---			No. of samples received	: 1
Site	:			No. of samples analysed	: 1

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This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	Position	Authorised results for
Leung Chak Cheong , Mike	Senior Chemist	Metals_ENV



General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK2017150

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in chilled condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

Sample digested by In-house method E-3005 prior to the determination of total metals. The In-house method is developed based on USEPA method 3005.



Analytical Results

Sub-Matrix: WATER

Client sample ID

LD002-Water Sample for Equipment Blank	---	---	---	---
--	-----	-----	-----	-----

Client sampling date / time

08-May-2020	----	----	----	----
-------------	------	------	------	------

Compound	CAS Number	LOR	Unit	HK2017150-001	---	---	---	---
----------	------------	-----	------	---------------	-----	-----	-----	-----

EG: Metals and Major Cations - Total

EG020: Arsenic	7440-38-2	1	µg/L	<1	---	---	---	---
----------------	-----------	---	------	----	-----	-----	-----	-----



Laboratory Duplicate (DUP) Report

- No Laboratory Duplicate (DUP) Results are required to be reported.

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: WATER		Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits(%)		RPD (%)	
						LCS	DCS	Low	High	Value	Control Limit
EG: Metals and Major Cations - Total (QC Lot: 3010742)											
EG020: Arsenic	7440-38-2	1	µg/L	<1	50 µg/L	98.4	----	85.0	110	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: WATER				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations - Total (QC Lot: 3010742)										
HK2017150-001	LD002-Water Sample for Equipment Blank	EG020: Arsenic	7440-38-2	50 µg/L	96.2	----	75.0	125	----	----



CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	Work Order	: HK2018406
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: ---	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044		
Facsimile	: ---	Facsimile	: +852 2610 2021		
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			Date Samples Received	: 15-May-2020
Order number	: S3-SC068 (YL/2017/03)	Quote number	: HKE/1516b/2019_Rev 1_V2	Issue Date	: 20-May-2020
C-O-C number	: ---			No. of samples received	: 1
Site	:			No. of samples analysed	: 1

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This document has been signed by those names that appear on this report and are the authorised signatories.

<i>Signatories</i>	<i>Position</i>	<i>Authorised results for</i>
Leung Chak Cheong , Mike	Senior Chemist	Metals_ENV



General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK2018406

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in chilled condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

Sample digested by In-house method E-3005 prior to the determination of total metals. The In-house method is developed based on USEPA method 3005.



Analytical Results

Sub-Matrix: WATER

Client sample ID

LD002-Water Sample for Equipment Blank	---	---	---	---
--	-----	-----	-----	-----

Client sampling date / time

15-May-2020	----	----	----	----
-------------	------	------	------	------

Compound	CAS Number	LOR	Unit	HK2018406-001	---	---	---	---
----------	------------	-----	------	---------------	-----	-----	-----	-----

EG: Metals and Major Cations - Total

EG020: Arsenic	7440-38-2	1	µg/L	<1	---	---	---	---
----------------	-----------	---	------	----	-----	-----	-----	-----



Laboratory Duplicate (DUP) Report

- No Laboratory Duplicate (DUP) Results are required to be reported.

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: WATER		Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits(%)		RPD (%)	
						LCS	DCS	Low	High	Value	Control Limit
EG: Metals and Major Cations - Total (QC Lot: 3025507)											
EG020: Arsenic	7440-38-2	1	µg/L	<1	50 µg/L	96.7	----	85.0	110	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: WATER				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations - Total (QC Lot: 3025507)										
HK2018406-001	LD002-Water Sample for Equipment Blank	EG020: Arsenic	7440-38-2	50 µg/L	95.1	----	75.0	125	----	----



CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	Work Order	: HK2023366
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: ---	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044		
Facsimile	: ---	Facsimile	: +852 2610 2021		
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			Date Samples Received	: 22-Jun-2020
Order number	: S3-SC068 (YL/2017/03)	Quote number	: HKE/1516b/2019_Rev 1_V2	Issue Date	: 26-Jun-2020
C-O-C number	: ---			No. of samples received	: 1
Site	:			No. of samples analysed	: 1

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Hong Kong Accreditation Service (HKAS) has accredited this laboratory, ALS Technichem (HK) Pty Ltd (Reg. No. HOKLAS 066) under Hong Kong Laboratory Accreditation Scheme (HOKLAS) for specific laboratory activities as listed in the HOKLAS Directory of Accredited Laboratories.

This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	Position	Authorised results for
 Wong Wing , Kenneth	Manager - Metals	Metals_ENV



General Comments

This report supersedes any previous report(s) with this reference. All pages of this report have been checked and approved for release. When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes. Testing period is from 22-Jun-2020 to 26-Jun-2020.

Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK2023366

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in chilled condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

Sample digested by In-house method E-3005 prior to the determination of total metals. The In-house method is developed based on USEPA method 3005.



Analytical Results

Sub-Matrix: WATER

Client sample ID

LD002-Water Sample for Equipment Blank	---	---	---	---
--	-----	-----	-----	-----

Client sampling date / time

22-Jun-2020	----	----	----	----
-------------	------	------	------	------

Compound	CAS Number	LOR	Unit	HK2023366-001	---	---	---	---
----------	------------	-----	------	---------------	-----	-----	-----	-----

EG: Metals and Major Cations - Total

EG020: Arsenic	7440-38-2	10	µg/L	<10	---	---	---	---
----------------	-----------	----	------	-----	-----	-----	-----	-----



Laboratory Duplicate (DUP) Report

Matrix: WATER				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EG: Metals and Major Cations - Total (QC Lot: 3098377)								
HK2023367-001	Anonymous	EG020: Arsenic	7440-38-2	1	µg/L	<10	<10	0.00





Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: WATER				Method Blank (MB) Report		Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report					
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
						LCS	DCS	Low	High	Value	Control Limit
EG: Metals and Major Cations - Total (QC Lot: 3098377)											
EG020: Arsenic	7440-38-2	1	µg/L	<1	50 µg/L	95.6	----	85.0	110	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: WATER				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations - Total (QC Lot: 3098377)										
HK2023366-001	LD002-Water Sample for Equipment Blank	EG020: Arsenic	7440-38-2	50 µg/L	91.3	----	75.0	125	----	----

Appendix C LABORATORY REPORTS OF PILOT TEST

CONTRACT No. YL/2017/03 Development of Lok Ma Chau Loop: Land Decontamination and Advance Engineering Works		 生興 - 豐利聯營 Sang Hing - Kuly Joint Venture	
Contractor's Submission Form			
To : The Supervisor's Representative Attn : Mr. Victor Go (Senior Resident Engineer)		From : Contractor's Representative Signature :  Name : Eric Fong (Site Agent)	
CSF No.: SKJV/W56/SO/1118		Date: 28th May 2019	
Title of Submission:		Proposed mixing ratio for contaminated soil Solidification Stabilisation treatment	
Location of Works:		Land Decontamination Hot Spots	
Specification Reference:		P.S 32.09	
Drawing Reference:			
Description of Contents: <p>We would like to propose mixing ratio for contaminated soil Solidification/Stabilisation treatment at below formula: Contaminated soil : Cement : Sand = 1: 0.1: 0.1</p> <p>Enclose herewith the Toxicity Characteristic Leaching Procedure(TCLP) and Unconfined Compressive Strength (UCS) test report for our trial mix contaminated soil samples for your review and approval.</p> <p>Thank you for your kind attention.</p> <p>Attachment: <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes</p>			
Remarks :			
Purpose of Submission: <input checked="" type="checkbox"/> For Comment (if any) and Approval <input type="checkbox"/> For Reference and Record			
Prepared by : Marshall Chung Checked by : Alex PQ  Checked by:		Reviewed by: 	
C.C.			

Unconfined Compressive Strength (UCS)

ALS Technichem (HK) Pty Ltd



ALS Laboratory Group

ANALYTICAL CHEMISTRY & TESTING SERVICES

SUB-CONTRACTING REPORT

CONTACT	: MARSHALL CHUNG	WORK ORDER	: HK1919790
CLIENT	: SANG HING - KULY JOINT VENTURE		
ADDRESS	: P.O. BOX NO. 1051, YUEN LONG DELIVERY OFFICE, YUEN LONG, HONG KONG	SUB-BATCH	: 1
		DATE RECEIVED	: 10-MAY-2019
		DATE OF ISSUE	: 24-MAY-2019
PROJECT	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP - LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS	NO. OF SAMPLES	: 1
		CLIENT ORDER	:

General Comments

- Sample(s) were picked up from client by ALS Technichem (HK) staff in chilled condition.
- Sample(s) analysed and reported on an as received basis.
- UCS was subcontracted to and analysed by Soils & Materials Engineering Co., Ltd.
- UCS test on 15 May, 2019 (7th day).

Signatories

This document has been signed by those names that appear on this report and are the authorised signatories

Signatories

Position

Richard Fung

General Manager

This is the Final Report and supersedes any preliminary report with this batch number.

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

ALS Technichem (HK) Pty Ltd
Part of the ALS Laboratory Group

11/F, Chung Shun Knitting Centre 1 - 3 Wing Yip Street Kwai Chung N.T. Hong Kong
Tel. +852 2610 1044 Fax. +852 2610 2021 www.alsglobal.com

WORK ORDER : HK1919790
SUB-BATCH : 1
CLIENT : SANG HING - KULY JOINT VENTURE
PROJECT : YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION
AND ADVANCE ENGINEERING WORKS



ALS Lab ID	Client's Sample ID	Sample Type	Sample Date	External Lab Report No.
HK1919790-001	20190508-S7 20ka Contaminated	SOLID	08-May-2019 15:30	19SR051106-4



綜合試驗有限公司
SOILS & MATERIALS ENGINEERING CO., LTD.
 香港黃竹坑道37號利達中心12樓
 12/F., Leader Centre, 37 Wong Chuk Hang Road, Aberdeen, Hong Kong.
 E-mail: smec@cigismec.com Website: www.cigismec.com

Tel: (852) 2873 6860
 Fax: (852) 2555 7533



Test Report

On Determination Of The Unconfined Compressive Strength - Test Results

Report No.: 19SR051106-4
 Page: 1 of 2
 Date of Issue: 24/05/2019

Tested in Accordance With: BS1377:Part 7:Section 7:1990

Our job no.: 19SR051106-4 W.O.no.: -
 Contract no.: -
 Project title: -
 Project location: -
 Client: ALS Technichem (HK) Pty Ltd.
 Contractor: -
 Project engineer: -
 Project MEMO: -
 Ground investigation ref: -

Details as supplied by client

Drillhole/Trial pit no.: - Sample type: U76
 Client sample no.: HK1919790-001 Sample recovery(%): -
 Sample depth (m): - TO - Sample mass (kg): -
 Sample geological origin: - Type of test: -
 Sample visual description: 20190508-S7 20kg Contaminated Soil:2kg cement:2kg sand

Laboratory test results

Date sample received: 11/05/2019 Lab sample no.: 1
 Specimen no.: 1 Specimen depth(m): - TO -
 Orientation of the specimen: - Specimen selected by: - Specifier
 Date test(s) commenced: 15/05/2019 Date test(s) completed: 15/05/2019
 Sample description: -
 Whether sample disturbance or loss of moisture: - Soil signs of the specimen:
 Particle size assessment before test: - The size of the largest particle does not exceed 1/5 of the diameter of the specimen

Preparation of specimen: -

Nominal diameter: mm

Specimen details

Mean diameter	mm	77.3	Area	mm ²	4692.98
Mean length	mm	159.6	Volume	cm ³	749.00
Wet mass	g	1354.3	Dry mass	g	1092.2
Moisture content	%	24	Bulk density	Mg/m ³	1.81
Test Method		BS1377:Part 7:Section 7:1990	Dry density	Mg/m ³	1.46

Compression results

Machine no.	SR1190	Rate of deformation	mm/min	0.5
Force device no.	SR1192	Force device factor	KN/div	0.001
Dial gauge no.	SR1195	Dial gauge factor	mm/div	0.01

Elapsed time min:second	Deformation gauge reading	Compression of specimen ΔL mm	Specimen strain ε %	Force gauge reading	Axial force P kN	Corrected area A mm ²	Axial stress σ _i kPa
-	0	0.00	0.00	0	0.000	4692.98	0.00
-	10	0.10	0.06	519	0.519	4695.92	110.52
-	20	0.20	0.13	923	0.923	4698.87	196.43
-	30	0.30	0.19	1519	1.519	4701.82	323.07
-	43	0.43	0.27	2726	2.726	4705.66	579.30
-	54	0.54	0.34	4258	4.258	4708.91	904.24
-	60	0.60	0.38	5146	5.146	4710.69	1092.41
-	70	0.70	0.44	6804	6.804	4713.66	1443.47
-	80	0.80	0.50	7410	7.410	4716.62	1571.04
-	90	0.90	0.56	7104	7.104	4719.60	1505.21
-	100	1.00	0.63	6502	6.502	4722.57	1376.79
-	110	1.10	0.69	5916	5.916	4725.55	1251.92
-	120	1.20	0.75	5421	5.421	4728.53	1146.44
-	130	1.30	0.81	5042	5.042	4731.52	1065.62
-	140	1.40	0.88	4646	4.646	4734.51	981.30
-	150	1.50	0.94	4245	4.245	4737.51	896.04
-	160	1.60	1.00	3920	3.920	4740.51	826.92
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-

Sketch of failure condition
 Inclination of shear surface

#See attached the photograph 0 = - deg
 z = - mm

Maximum axial stress 1571.04 kPa
 Axial strain at failure 0.50 %
 Unconfined compressive strength q_u 1571.04 kPa

Remarks: -
 The test ref. no.: UCS_1

Page: 1 of 2

Checked by:

Lau Kam Yin

Approved signatory:

Yeung Chi San / Kwok Chun Guan

Form No SRRP 017-1/Issue 2/Rev C/01/11/2007
 © Soils and Materials Engineering Co Ltd.



綜合試驗有限公司

SOILS & MATERIALS ENGINEERING CO., LTD.

香港黃竹坑道37號利達中心12樓
12/F., Leader Centre, 37 Wong Chuk Hang Road, Aberdeen, Hong Kong.
E-mail: smec@cigismec.com Website: www.cigismec.com

Tel: (852) 2873 6860
Fax: (852) 2555 7533



Test Report

On Determination Of The Unconfined Compressive Strength - Stress/Strain Curve

Report No.: 19SR051106-4
Page: 2 of 2
Date of Issue: 24/05/2019

Tested in Accordance With: BS1377:Part 7:Section 7:1990

Our job no.: 19SR051106-4 W.O.no.: -

Contract no.: -

Project title: -

Project location: -

Customer: ALS Technichem (HK) Pty Ltd.

Contractor: -

Project engineer: -

Project MEMO: -

Ground investigation ref: -

Details as supplied by customer

Drillhole/Trial pit no.: - Sample type: U76

Customer sample no.: HK1919790-001 Sample recovery(%): -

Sample depth (m): - TO - Sample mass (kg): -

Sample geological origin: - Type of test: -

Sample visual description: 20190508-S7 20kg Contaminated Soil:2kg cement:2kg sand

Laboratory test results

Date sample received: 11/05/2019 Lab sample no.: 1

Specimen no.: 1 Specimen depth(m): - TO -

Orientation of the specimen: - Specimen selected by: - Specifier

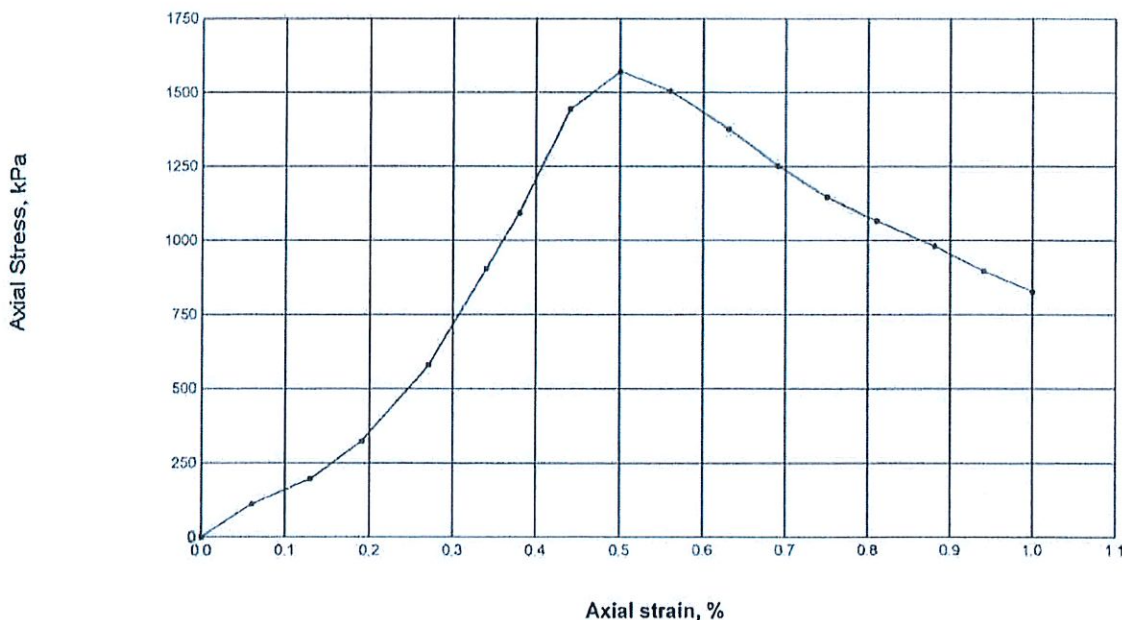
Date test(s) commenced: 15/05/2019 Date test(s) completed: 15/05/2019

Sample description: -

Whether sample disturbance or loss of moisture: - Soil signs of the specimen:

Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen

Stress - strain curve



From curve

Maximum axial stress kPa 1571.04 Axial strain at failure % 0.50

Remarks: -

The test ref. no.: UCS_1

Page: 2 of 2

Form No SRRP 017-2/Issue 2/Rev C/01/11/2007

Soils and Materials Engineering Co.Ltd

Toxicity Characteristic Leaching Procedure (TCLP)



CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: MARSHALL CHUNG	Contact	: Richard Fung	Work Order	: HK1911442
Address	: 43/F, AIA KOWLOIN TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong	Amendment	: 1
E-mail	: —	E-mail	: richard.fung@alsglobal.com		
Telephone	: —	Telephone	: +852 2610 1044		
Facsimile	: —	Facsimile	: +852 2610 2021		
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			Date Samples Received	: 15-Mar-2019
Order number	: YL201703-0302 (Revised)	Quote number	: HKE/1143c/2019	Issue Date	: 28-May-2019
C-O-C number	: —			No. of samples received	: 1
Site	: —			No. of samples analysed	: 1

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This document has been signed by those names that appear on this report and are the authorised signatories.

<i>Signatories</i>	<i>Position</i>	<i>Authorised results for</i>
		
Leung Chak Cheong, Mike	Senior Chemist	Metals_ENV

PRELIMINARY REPORT FOR REFERENCE ONLY

Page Number : 2 of 4
Client : BLACK & VEATCH HONG KONG LTD
Work Order : HK1911442, Amendment 1



General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes. Testing period is from 15-Mar-2019 to 25-Mar-2019.

Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1911442

Sample(s) were received in ambient condition.

Sample(s) analysed and reported on an as received basis.

TCLP extraction started on 20 March, 2019.

TCLP Leachate sample(s) were filtered prior to dissolved metal analysis.

The metal concentrations reported are those determined on the TCLP leachate. Extraction Fluid #1 pH 4.88 - 4.98.

TCLP extract were filtered prior to the determination of metals.

PRELIMINARY REPORT FOR REFERENCE ONLY

Page Number : 3 of 4
 Client : BLACK & VEATCH HONG KONG LTD
 Work Order : HK1911442, Amendment 1



Analytical Results

Sub-Matrix: TCLP LEACHATE

Client sample ID

T5 2.0kg cement:20kg contaminated soil:2kg sand	---	---	---	---
--	-----	-----	-----	-----

Client sampling date / time

13-Mar-2019	---	---	---	---
-------------	-----	-----	-----	-----

Compound	CAS Number	LOR	Unit	HK1911442-001	---	---	---	---
----------	------------	-----	------	---------------	-----	-----	-----	-----

EG: Metals and Major Cations

EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	---	---	---	---
----------------	-----------	-----	------	------	-----	-----	-----	-----

Sample Preparation Method

E-TCLP: Extraction Fluid Number	---	1	-	1	---	---	---	---
---------------------------------	-----	---	---	---	-----	-----	-----	-----

PRELIMINARY REPORT FOR REFERENCE ONLY

Page Number : 4 of 4
 Client : BLACK & VEATCH HONG KONG LTD
 Work Order : HK1911442, Amendment 1



Laboratory Duplicate (DUP) Report

Matrix: WATER

					Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	
EG: Metals and Major Cations (QC Lot: 2254763)									
HK1911438-001	Anonymous	EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00	

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report




Matrix: WATER





					Method Blank (MB) Report							Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report					
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits(%)		RPD (%)							
						LCS	DCS	Low	High	Value	Control Limit						
EG: Metals and Major Cations (QC Lot: 2254763)																	
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	97.9	---	85	112	---	---						

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: WATER

					Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 2254763)										
HK1911438-001	Anonymous	EG020: Arsenic	7440-38-2	1 mg/L	97.2	---	75	125	---	---

CONTRACT No. YL/2017/03 Development of Lok Ma Chau Loop: Land Decontamination and Advance Engineering Works		 生興 - 豐利聯營 Sang Hing - Kuly Joint Venture	
Contractor's Submission Form			
To : The Supervisor's Representative Attn : Mr. Victor GO (Senior Resident Engineer)		From : Contractor's Representative Signature :  Name : Eric FONG (Site Agent)	
CSF No.: SKJV/W56/SO/1560		Date: 16th October 2019	
Title of Submission:	Proposed Alternative Mixing Ratio for Cement Solidification / Stabilisation Treatment		
Location of Works:	Land Decontamination Works		
Specification Reference:	P.S 32.05 and 32.06		
Drawing Reference:			
Description of Contents: Further to our previous letter ref. (SKJV/W56/SO/1560) dated 16 th September 2019 regarding our proposal for revising mixing ratio of cement solidification/stabilization. Please be informed that this revised mixing ratio has been endorsed by our Land Decontamination Consultant Specialist (LCS) as per attached signed copy of cover letter ref. SKJV/W56/SO/1560. Therefore, if no further comment received from your side, Environmental Team (ET) and Independent Environmental Consultant by next week, we will proceed to change the cement ratio in cement solidification/stabilization works from 10% to 7.5 % (i.e. new mixing ratio: 7.5% cement & 10% sand by weight) Thank you for your kind attention. Attachment: <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes			
Remarks:			
Purpose of Submission: <input checked="" type="checkbox"/> For Comment (if any) and Approval <input type="checkbox"/> For Reference and Record			
Prepared by : Ronald WONG Checked by : Alex  Checked by:		Reviewed by :	
C.C.			

CONTRACT No. YL/2017/03 Development of Lok Ma Chau Loop: Land Decontamination and Advance Engineering Works		 生興 - 豐利聯營 Sang Hing - Kuly Joint Venture	
Contractor's Submission Form			
To : The Supervisor's Representative Attn : Mr. Victor GO (Senior Resident Engineer)		From : Contractor's Representative Signature :  Name : Eric FONG (Site Agent)	
CSF No.: SKJV/W56/SO/1560		Date: 16th September 2019	
Title of Submission:	Proposed Alternative Mixing Ratio for Cement Solidification / Stabilisation Treatment		
Location of Works:	Land Decontamination Works		
Specification Reference:	P.S 32.05 and 32.06		
Drawing Reference:			
Description of Contents: <p>Further to our previous letter ref. (SKJV/W56/SO/1560) dated 28th May 2019 regarding our proposal for mixing ratio of cement solidification/stabilization. After over a month of learning period for mixing of contaminated soil, most of UCS results are found more larger than 1 MPa, therefore we would like to propose a lower cement content mixing ratio to optimize the cement usage and to minimize the quantity of treated soil generation.</p> <p>We have conducted a trial on 16 Aug 2019 for mixing 20kg contaminated soil by using 7.5% of cement content and 10% of sand by weight under your supervision staff witness. The results are found satisfactory with method statement that larger than 1 MPa for UCS test and less than 1 mg for TCLP test. Enclosed please find the copy of test results for your reference.</p> <p>Therefore, we are writing to seek your approval for changing the cement ratio in cement solidification/stabilization works from 10% to 7.5 % (i.e. new mixing ratio: 7.5% cement & 10% sand by weight)</p> <p>Thank you for your kind attention.</p>			
Attachment: <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes			
Remarks:			
Purpose of Submission: <input checked="" type="checkbox"/> For Comment (if any) and Approval <input type="checkbox"/> For Reference and Record			
Prepared by : Kenneth WONG Checked by : Alex PO  Checked by:		Reviewed by: 	
C.C.			

Unconfined Compressive Strength (UCS)



Soil Services Testing Company Limited

Unit 04, 13/F, Luen Cheong Can Centre,
8 Yip Wong Road, Tuen Mun,
New Territories, Hong Kong.

Tel : +852 2463 0100
Fax : +852 2463 0609
E-mail : sst@soilservices.com.hk



Report on Unconfined Compression Test - Summary of Soil Properties
Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0190120
Job No.: SHK190013
Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: - Depth (m)#: - Date of Test: 16/8/2019
Sample No.#: Trial 1 Actual Depth (m): - W.O. No.#: -
Sample Type#: PT75 Sample Origin#: 20 kg contaminated soil mixed with 7.5% cement and 10% sand Date Received: 10/8/2019

Information provided by Client

Specimen Details

Diameter of specimen	mm	77.3	Wet mass of specimen	g	1325.4
Length of specimen	mm	155.2	Dry mass of specimen	g	-
Area of specimen	mm ²	4686.9	Moisture content	%	-
Volume of specimen	cm ³	727.55	Bulk density	Mg/m ³	1.82
Particle density (assumed/measured)*	Mg/m ³	2.65	Dry density	Mg/m ³	-

* Delete whichever is inappropriate

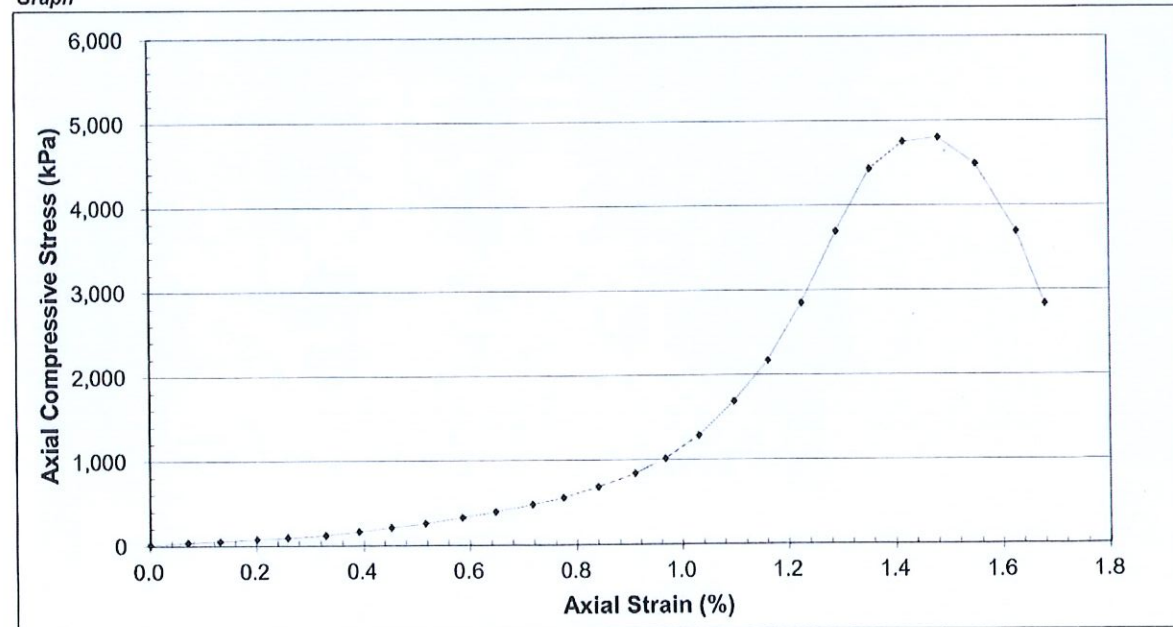
Visual Description: Grey sandy SILT/CLAY with Cement

Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

Compression Results

Maximum axial stress	4799	kPa	Sketch of failure conditions Inclination of shear surface	
Axial strain at failure	1.5	%		
Unconfined compressive strength, (q _u)	4799	kPa		

Graph



Remarks : Mixing Date : 9/8/2019

Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Certified by :
HUI King Fai

Date : 16 August 2019

Date : 16 August 2019



Soil Services Testing Company Limited

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8 Yip Wong Road, Tuen Mun,
New Territories, Hong Kong.

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Fax : +852 2463 0609
E-mail : sst@soilservices.com.hk



Report on Unconfined Compression Test - Compression Data
Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0190120
Job No.: SHK190013
Page: 2 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: - Depth (m)#: - Date of Test: 16/8/2019
Sample No.#: Trial 1 Actual Depth (m): - W.O. No.#: -
Sample Type#: PT75 Sample Origin#: 20 kg contaminated soil mixed with
7.5% cement and 10% sand Date Received: 10/8/2019

* Information provided by Client

Machine No.	TM08	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM08-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_0)	mm	155.2
		Original area (A_0)	mm ²	4686.9

The compression was terminated at 1.7% of axial strain and the peak axial compressive stress is reached at 1.5%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in *Italic*

<i>Axial Deformation Reading (mm)</i>	<i>Axial Strain ϵ (%)</i>	<i>Proving Ring Gauge Reading (mm)</i>	<i>Load Cell Reading (kN)</i>	<i>Axial Force P (N)</i>	<i>Cross-section Area A (mm²)</i>	<i>Axial Compressive Stress σ_1 (kPa)</i>
0.00	0.0	-	0.05	50	4686.9	10.67
0.11	0.1	-	0.18	180	4690.2	38.38
0.20	0.1	-	0.24	240	4693.0	51.14
0.31	0.2	-	0.35	350	4696.3	74.53
0.40	0.3	-	0.44	440	4699.0	93.64
0.51	0.3	-	0.56	560	4702.4	119.09
0.61	0.4	-	0.77	770	4705.3	163.65
0.70	0.5	-	0.99	990	4708.2	210.27
0.80	0.5	-	1.22	1220	4711.2	258.96
0.91	0.6	-	1.54	1540	4714.5	326.65
1.01	0.6	-	1.85	1850	4717.5	392.16
1.11	0.7	-	2.25	2250	4720.7	476.62
1.20	0.8	-	2.63	2630	4723.5	556.80
1.30	0.8	-	3.22	3220	4726.6	681.26
1.41	0.9	-	3.97	3970	4729.9	839.34
1.50	1.0	-	4.79	4790	4732.7	1012.11
1.60	1.0	-	6.08	6080	4735.7	1283.86
1.70	1.1	-	8.00	8000	4738.9	1688.15
1.80	1.2	-	10.29	10290	4742.0	2169.97
1.90	1.2	-	13.51	13510	4745.0	2847.19
2.00	1.3	-	17.54	17540	4748.2	3694.05
2.10	1.4	-	21.05	21050	4751.3	4430.41
2.20	1.4	-	22.59	22590	4754.3	4751.50
2.30	1.5	-	22.83	22830	4757.4	4798.81
2.41	1.6	-	21.38	21380	4760.8	4490.88
2.53	1.6	-	17.59	17590	4764.4	3691.96
2.61	1.7	-	13.51	13510	4767.0	2834.08



Soil Services Testing Company Limited

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E-mail : sst@soilservices.com.hk



Report on Unconfined Compression Test - Summary of Soil Properties

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0190120
Job No.: SHK190013
Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: - Depth (m)#: - Date of Test: 16/8/2019
Sample No.#: Trial 2 Actual Depth (m): - W.O. No.#: -
Sample Type#: PT75 Sample Origin#: 20 kg contaminated soil mixed with 7.5% cement and 10% sand Date Received: 10/8/2019

* Information provided by Client

Specimen Details

Diameter of specimen	mm	77.4	Wet mass of specimen	g	1341.0
Length of specimen	mm	156.5	Dry mass of specimen	g	-
Area of specimen	mm ²	4710.0	Moisture content	%	-
Volume of specimen	cm ³	737.26	Bulk density	Mg/m ³	1.82
Particle density (assumed/measured)*	Mg/m ³	2.65	Dry density	Mg/m ³	-

* Delete whichever is inappropriate

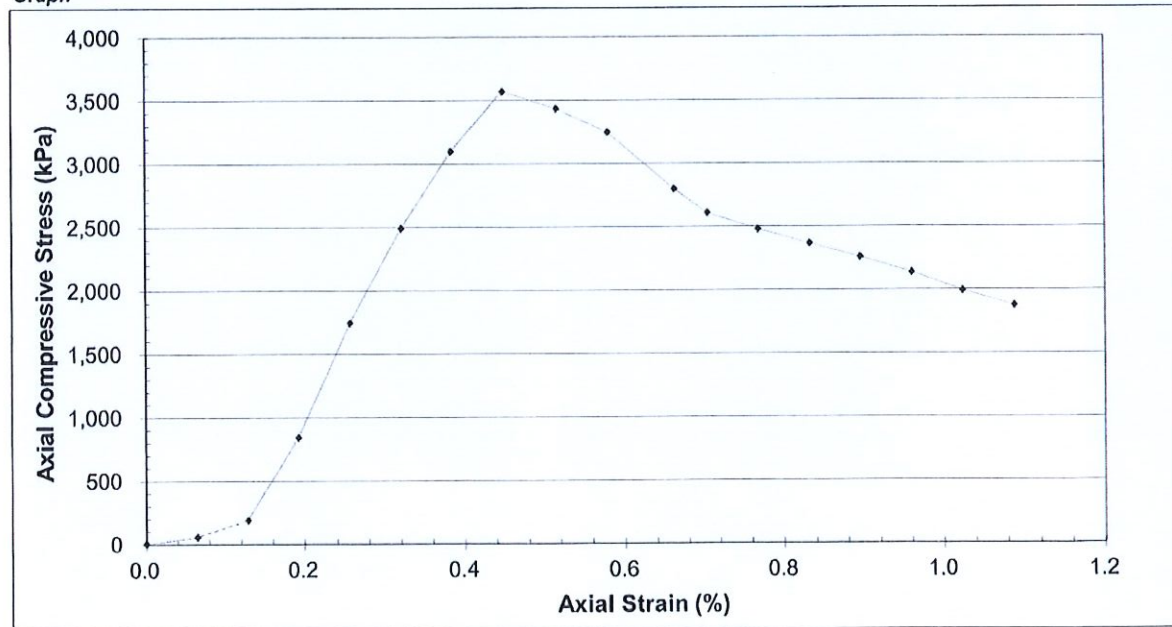
Visual Description: Grey sandy SILT/CLAY with Cement

Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

Compression Results

Maximum axial stress	3572	kPa	Sketch of failure conditions Inclination of shear surface	
Axial strain at failure	0.45	%		
Unconfined compressive strength, (q _u)	3572	kPa		

Graph



Remarks : Mixing Date : 9/8/2019

Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Certified by : HUI King Fai

Date : 16 August 2019

Date : 16 August 2019



Soil Services Testing Company Limited

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New Territories, Hong Kong.

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Fax : +852 2463 0609
E-mail : sst@soilservices.com.hk



Report on Unconfined Compression Test - Compression Data

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0190120

Job No.: SHK190013

Page: 2 of 2

Client#: Sang Hing - Kuly Joint Venture

Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -

Depth (m)#: -

Date of Test: 16/8/2019

Sample No.#: Trial 2

Actual Depth (m): -

W.O. No.#: -

Sample Type#: PT75

Sample Origin#: 20 kg contaminated soil mixed with
7.5% cement and 10% sand

Date Received: 10/8/2019

Information provided by Client

Machine No.	TM08	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM08-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_0)	mm	156.5
		Original area (A_0)	mm ²	4710.0

The compression was terminated at 1.1% of axial strain and the peak axial compressive stress is reached at 0.4%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in *Italic*

<i>Axial Deformation Reading (mm)</i>	<i>Axial Strain ϵ (%)</i>	<i>Proving Ring Gauge Reading (mm)</i>	<i>Load Cell Reading (kN)</i>	<i>Axial Force P (N)</i>	<i>Cross- section Area A (mm²)</i>	<i>Axial Compressive Stress σ_1 (kPa)</i>
0.00	0.0	-	0.01	10	4710.0	2.12
0.10	0.1	-	0.27	270	4713.0	57.29
0.20	0.1	-	0.89	890	4716.1	188.72
0.30	0.2	-	3.97	3970	4719.1	841.27
0.40	0.3	-	8.24	8240	4722.1	1744.99
0.50	0.3	-	11.77	11770	4725.2	2490.93
0.60	0.4	-	14.64	14640	4728.1	3096.37
0.70	0.4	-	16.90	16900	4731.2	3572.04
0.81	0.5	-	16.26	16260	4734.4	3434.43
0.91	0.6	-	15.39	15390	4737.4	3248.59
1.04	0.7	-	13.27	13270	4741.4	2798.76
1.10	0.7	-	12.37	12370	4743.4	2607.84
1.20	0.8	-	11.77	11770	4746.4	2479.75
1.30	0.8	-	11.24	11240	4749.5	2366.56
1.40	0.9	-	10.73	10730	4752.6	2257.73
1.50	1.0	-	10.16	10160	4755.6	2136.42
1.60	1.0	-	9.48	9480	4758.7	1992.14
1.70	1.1	-	8.93	8930	4761.8	1875.35

Toxicity Characteristic Leaching Procedure (TCLP)

ALS Technichem (HK) Pty Ltd

ALS Laboratory Group

ANALYTICAL CHEMISTRY & TESTING SERVICES



CERTIFICATE OF ANALYSIS

Client	: SANG HING - KULY JOINT VENTURE	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: KENITH WONG	Contact	: Richard Fung	Work Order	: HK1934341
Address	: P.O. BOX NO. 1051, YUEN LONG DELIVERY OFFICE, YUEN LONG, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: Kenithwong@skiv.com.hk	E-mail	: richard.fung@alsglobal.com		
Telephone	: ---	Telephone	: +852 2610 1044		
Facsimile	: ---	Facsimile	: +852 2610 2021		
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP - LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS	Date Samples Received	: 10-Aug-2019		
Order number	: S3-SC073 (YL/2017/03)	Issue Date	: 20-Aug-2019		
C-O-C number	: ---	No. of samples received	: 1		
Site	: ---	No. of samples analysed	: 1		

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Signatories Position Authorised results for

Richard Fung

Fung Lim Chee, Richard

Managing Director

Metals_ENV

ALS Technichem (HK) Pty Ltd
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Page Number : 2 of 4
Client : SANG HING - KJLY JOINT VENTURE
Work Order HK1934341

General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes. Testing period is from 10-Aug-2019 to 20-Aug-2019.
Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1934341

Sample(s) were picked up from client by ALS Technichern (HK) staff in chilled condition.

Sample(s) analysed and reported on an as received basis.

Sample information (Project name, Sample ID, Sampling date/ time) is provided by client.

TCLP Leachate sample(s) were filtered prior to dissolved metal analysis.

The metal concentrations reported are those determined on the TCLP leachate. Extraction Fluid #1 pH 4.88 - 4.98.

TCLP extract were filtered prior to the determination of metals.



Analytical Results

Sub-Matrix: TCLP LEACHATE

		Client sample ID	
Compound	CAS Number	LOR	Unit
EG: Metals and Major Cations			
EG020: Arsenic	7440-38-2	0.1	mg/L
Sample Preparation Method			
E-TCLP: Extraction Fluid Number	----	1	--
20190809-TCLP-Trial 1		---	---
20kg contaminated soil mixed with 7.5% cement and 10% sand		---	---
09-Aug-2019		---	---
HK1934341-001		---	---



Laboratory Duplicate (DUP) Report

Laboratory sample ID		Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EG: Metals and Major Cations (QC Lot: 2531399)									
HK1934157-001	Anonymous	EG020: Arsenic		7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Method Blank (MB) Report				Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report					
Method: Compound	CAS Number	LOR	Unit	Spike Concentration	LCS	DCS	Recovery Limits (%)	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 2531399)									
EG020: Arsenic	7440-38-2	0.1	mg/L	1 mg/L	97.3	---	85	112	---

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Laboratory sample ID		Client sample ID	Method: Compound	CAS Number	Spike Concentration	MS	MSD	Recovery Limits (%)	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 2531399)										
HK1934157-001	Anonymous	EG020: Arsenic		7440-38-2	1 mg/L	114	---	75	125	---

ALS Technichem (HK) Pty Ltd

ALS Laboratory Group

ANALYTICAL CHEMISTRY & TESTING SERVICES



CERTIFICATE OF ANALYSIS

Client	: SANG HING - KULY JOINT VENTURE	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: KENITH WONG	Contact	: Richard Fung	Work Order	: HK1934345
Address	: P.O. BOX NO. 1051, YUEN LONG DELIVERY OFFICE, YUEN LONG, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: Kenithwong@skjv.com.hk	E-mail	: richard.fung@alsglobal.com		
Telephone	: --	Telephone	: +852 2610 1044		
Facsimile	: --	Facsimile	: +852 2610 2021		
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP - LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS	Date Samples Received	: 10-Aug-2019		
Order number	: S3-SC073 (YL/2017/03)	Quote number	: HKE/2151/2019	Issue Date	: 20-Aug-2019
C-O-C number	: --	No. of samples received	: 1		
Site	: --	No. of samples analysed	: 1		

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Signatories *Richard Fung* Position *Managing Director* Authorised results for *Metals_ENV*

Fung Lim Chee, Richard Managing Director Metals_ENV

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Page Number : 2 of 4
Client : SANG HING - KULY JOINT VENTURE
Work Order : HK1934345

General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes. Testing period is from 10-Aug-2019 to 20-Aug-2019.
Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1934345

Sample(s) were picked up from client by ALS Technichem (HK) staff in chilled condition.

Sample(s) analysed and reported on an as received basis.

Sample information (Project name, Sample ID, Sampling date/ time) is provided by client.

TCLP Leachate sample(s) were filtered prior to dissolved metal analysis.

The metal concentrations reported are those determined on the TCLP leachate. Extraction Fluid #1 pH 4.88 - 4.98.

TCLP extract were filtered prior to the determination of metals.



Analytical Results

Sub-Matrix: TCLP LEACHATE

Client sample ID		Client sampling date / time	
Compound	CAS Number	LOR	Unit
EG: Metals and Major Cations			
EG020: Arsenic	7440-38-2	0.1	mg/L
Sample Preparation Method			
E-TCLP: Extraction Fluid Number	----	1	--
20190809-TCLP-Trial 2			
20kg contaminated soil mixed with 7.5% cement and 10% sand			
09-Aug-2019			
HK1934345-001			
			<0.1
			1



Laboratory Duplicate (DUP) Report

Matrix: WATER		Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EG: Metals and Major Cations (QC Lot: 2531399)							
HK1934157-001	Anonymous	EG020: Arsenic	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: WATER		Method Blank (MB) Report				Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report				
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	LCS	DCS	Recovery Limits (%)	RPD (%)	
						Low	High	Value	Control Limit	
EG: Metals and Major Cations (QC Lot: 2531399)										
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	97.3	---	85	112	---

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: WATER		Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report							
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	MS	MSD	Recovery Limits (%)	RPD (%)	
					Low	High	Value	Control Limit	
EG: Metals and Major Cations (QC Lot: 2531399)									
HK1934157-001	Anonymous	EG020: Arsenic	7440-38-2	1 mg/L	114	---	75	125	---

Appendix D LABORATORY REPORTS OF TREATED SOIL



CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	Work Order	: HK2014120
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: ---	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044	Date Samples Received	: 15-Apr-2020
Facsimile	: ---	Facsimile	: +852 2610 2021	Issue Date	: 24-Apr-2020
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			No. of samples received	: 1
Order number	: S3-SC073 (YL/2017/03)	Quote number	: HKE/2151/2019	No. of samples analysed	: 1
C-O-C number	: ---				
Site	: ---				

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This document has been signed by those names that appear on this report and are the authorised signatories.

<i>Signatories</i>	<i>Position</i>	<i>Authorised results for</i>
		
Leung Chak Cheong , Mike	Senior Chemist	Metals_ENV



General Comments

This report supersedes any previous report(s) with this reference. All pages of this report have been checked and approved for release. When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes. Testing period is from 15-Apr-2020 to 22-Apr-2020.

Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK2014120

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in ambient condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

The metal concentrations reported are those determined on the TCLP leachate. Extraction Fluid #1 pH 4.88 - 4.98.

TCLP extract were filtered prior to the determination of metals.



Analytical Results

Sub-Matrix: TCLP LEACHATE				Client sample ID	LD002-TCLP-S1	---	---	---	---
				Client sampling date / time	14-Apr-2020	---	---	---	---
Compound	CAS Number	LOR	Unit	HK2014120-001	---	---	---	---	---
EG: Metals and Major Cations									
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	---	---	---	---	---
Sample Preparation Method									
E-TCLP: Extraction Fluid Number	---	1	--	1	---	---	---	---	---



Laboratory Duplicate (DUP) Report

Matrix: WATER				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EG: Metals and Major Cations (QC Lot: 2978401)								
HK2013955-001	Anonymous	EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: WATER				Method Blank (MB) Report		Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report					
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
						LCS	DCS	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 2978401)											
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	98.8	----	85.0	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: WATER				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 2978401)										
HK2013955-001	Anonymous	EG020: Arsenic	7440-38-2	1 mg/L	96.7	----	75.0	125	----	----



CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	Work Order	: HK2014245
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: ---	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044	Date Samples Received	: 16-Apr-2020
Facsimile	: ---	Facsimile	: +852 2610 2021	Issue Date	: 27-Apr-2020
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS	Quote number	: HKE/2151/2019	No. of samples received	: 1
Order number	: S3-SC073 (YL/2017/03)			No. of samples analysed	: 1
C-O-C number	: ---				
Site	: ---				

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This document has been signed by those names that appear on this report and are the authorised signatories.

<i>Signatories</i>	<i>Position</i>	<i>Authorised results for</i>
Leung Chak Cheong , Mike	Senior Chemist	Metals_ENV



General Comments

This report supersedes any previous report(s) with this reference. All pages of this report have been checked and approved for release. When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes. Testing period is from 16-Apr-2020 to 22-Apr-2020.

Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK2014245

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in ambient condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

The metal concentrations reported are those determined on the TCLP leachate. Extraction Fluid #1 pH 4.88 - 4.98.

TCLP extract were filtered prior to the determination of metals.



Analytical Results

Sub-Matrix: TCLP LEACHATE				Client sample ID	LD002-TCLP S2	---	---	---	---
				Client sampling date / time	15-Apr-2020	---	---	---	---
Compound	CAS Number	LOR	Unit	HK2014245-001	---	---	---	---	---
EG: Metals and Major Cations									
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	---	---	---	---	---
Sample Preparation Method									
E-TCLP: Extraction Fluid Number	---	1	--	1	---	---	---	---	---



Laboratory Duplicate (DUP) Report

Matrix: WATER				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EG: Metals and Major Cations (QC Lot: 2978402)								
HK2014181-007	Anonymous	EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: WATER				Method Blank (MB) Report		Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report					
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
						LCS	DCS	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 2978402)											
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	99.0	----	85.0	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: WATER				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 2978402)										
HK2014181-007	Anonymous	EG020: Arsenic	7440-38-2	1 mg/L	100	----	75.0	125	----	----



CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	Work Order	: HK2014246
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: ---	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044	Date Samples Received	: 16-Apr-2020
Facsimile	: ---	Facsimile	: +852 2610 2021	Issue Date	: 27-Apr-2020
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			No. of samples received	: 1
Order number	: S3-SC073 (YL/2017/03)	Quote number	: HKE/2151/2019	No. of samples analysed	: 1
C-O-C number	: ---				
Site	: ---				

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This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	Position	Authorised results for
Leung Chak Cheong , Mike	Senior Chemist	Metals_ENV



General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK2014246

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in ambient condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

The metal concentrations reported are those determined on the TCLP leachate. Extraction Fluid #1 pH 4.88 - 4.98.

TCLP extract were filtered prior to the determination of metals.



Analytical Results

Sub-Matrix: TCLP LEACHATE				Client sample ID	LD002-TCLP S3	---	---	---	---
				Client sampling date / time	15-Apr-2020	---	---	---	---
Compound	CAS Number	LOR	Unit	HK2014246-001	---	---	---	---	---
EG: Metals and Major Cations									
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	---	---	---	---	---
Sample Preparation Method									
E-TCLP: Extraction Fluid Number	---	1	--	1	---	---	---	---	---



Laboratory Duplicate (DUP) Report

Matrix: WATER				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EG: Metals and Major Cations (QC Lot: 2978402)								
HK2014181-007	Anonymous	EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: WATER				Method Blank (MB) Report		Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report					
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
						LCS	DCS	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 2978402)											
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	99.0	----	85.0	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: WATER				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 2978402)										
HK2014181-007	Anonymous	EG020: Arsenic	7440-38-2	1 mg/L	100	----	75.0	125	----	----



CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	Work Order	: HK2014460
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: ---	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044	Date Samples Received	: 17-Apr-2020
Facsimile	: ---	Facsimile	: +852 2610 2021	Issue Date	: 28-Apr-2020
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS	Quote number	: HKE/2151/2019	No. of samples received	: 1
Order number	: S3-SC073 (YL/2017/03)			No. of samples analysed	: 1
C-O-C number	: ---				
Site	: ---				

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This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	Position	Authorised results for
Leung Chak Cheong , Mike	Senior Chemist	Metals_ENV



General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK2014460

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in ambient condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

The metal concentrations reported are those determined on the TCLP leachate. Extraction Fluid #1 pH 4.88 - 4.98.

TCLP extract were filtered prior to the determination of metals.



Analytical Results

Sub-Matrix: TCLP LEACHATE

				Client sample ID	LD002-TCLP-S4	---	---	---	---
				Client sampling date / time	16-Apr-2020	---	---	---	---
Compound	CAS Number	LOR	Unit	HK2014460-001	---	---	---	---	---
EG: Metals and Major Cations									
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	---	---	---	---	---
Sample Preparation Method									
E-TCLP: Extraction Fluid Number	---	1	--	1	---	---	---	---	---



Laboratory Duplicate (DUP) Report

Matrix: WATER				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EG: Metals and Major Cations (QC Lot: 2978402)								
HK2014181-007	Anonymous	EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: WATER				Method Blank (MB) Report		Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report					
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
						LCS	DCS	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 2978402)											
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	99.0	----	85.0	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: WATER				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 2978402)										
HK2014181-007	Anonymous	EG020: Arsenic	7440-38-2	1 mg/L	100	----	75.0	125	----	----



CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	Work Order	: HK2014461
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: ---	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044	Date Samples Received	: 17-Apr-2020
Facsimile	: ---	Facsimile	: +852 2610 2021	Issue Date	: 28-Apr-2020
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS	Quote number	: HKE/2151/2019	No. of samples received	: 1
Order number	: S3-SC073 (YL/2017/03)			No. of samples analysed	: 1
C-O-C number	: ---				
Site	: ---				

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This document has been signed by those names that appear on this report and are the authorised signatories.

<i>Signatories</i>	<i>Position</i>	<i>Authorised results for</i>
		
Leung Chak Cheong , Mike	Senior Chemist	Metals_ENV



General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK2014461

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in ambient condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

The metal concentrations reported are those determined on the TCLP leachate. Extraction Fluid #1 pH 4.88 - 4.98.

TCLP extract were filtered prior to the determination of metals.



Analytical Results

Sub-Matrix: TCLP LEACHATE				Client sample ID	LD002-TCLP-S5	---	---	---	---
				Client sampling date / time	16-Apr-2020	---	---	---	---
Compound	CAS Number	LOR	Unit	HK2014461-001	---	---	---	---	---
EG: Metals and Major Cations									
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	---	---	---	---	---
Sample Preparation Method									
E-TCLP: Extraction Fluid Number	---	1	--	1	---	---	---	---	---



Laboratory Duplicate (DUP) Report

Matrix: WATER				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EG: Metals and Major Cations (QC Lot: 2978402)								
HK2014181-007	Anonymous	EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: WATER				Method Blank (MB) Report		Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report					
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
						LCS	DCS	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 2978402)											
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	99.0	----	85.0	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: WATER				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 2978402)										
HK2014181-007	Anonymous	EG020: Arsenic	7440-38-2	1 mg/L	100	----	75.0	125	----	----



CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	Work Order	: HK2014484
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: ---	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044		
Facsimile	: ---	Facsimile	: +852 2610 2021		
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			Date Samples Received	: 18-Apr-2020
Order number	: S3-SC073 (YL/2017/03)	Quote number	: HKE/2151/2019	Issue Date	: 28-Apr-2020
C-O-C number	: ---			No. of samples received	: 1
Site	: ---			No. of samples analysed	: 1

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<i>Signatories</i>	<i>Position</i>	<i>Authorised results for</i>
Leung Chak Cheong , Mike	Senior Chemist	Metals_ENV



General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK2014484

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in ambient condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

The metal concentrations reported are those determined on the TCLP leachate. Extraction Fluid #1 pH 4.88 - 4.98.

TCLP extract were filtered prior to the determination of metals.



Analytical Results

Sub-Matrix: TCLP LEACHATE				Client sample ID	LD002-TCLP-S6	---	---	---	---
				Client sampling date / time	17-Apr-2020	---	---	---	---
Compound	CAS Number	LOR	Unit	HK2014484-001	---	---	---	---	---
EG: Metals and Major Cations									
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	---	---	---	---	---
Sample Preparation Method									
E-TCLP: Extraction Fluid Number	---	1	--	1	---	---	---	---	---



Laboratory Duplicate (DUP) Report

Matrix: WATER				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EG: Metals and Major Cations (QC Lot: 2978402)								
HK2014181-007	Anonymous	EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: WATER				Method Blank (MB) Report		Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report					
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
						LCS	DCS	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 2978402)											
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	99.0	----	85.0	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: WATER				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 2978402)										
HK2014181-007	Anonymous	EG020: Arsenic	7440-38-2	1 mg/L	100	----	75.0	125	----	----



CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	Work Order	: HK2014485
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: ---	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044	Date Samples Received	: 18-Apr-2020
Facsimile	: ---	Facsimile	: +852 2610 2021	Issue Date	: 28-Apr-2020
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS	Quote number	: HKE/2151/2019	No. of samples received	: 1
Order number	: S3-SC073 (YL/2017/03)			No. of samples analysed	: 1
C-O-C number	: ---				
Site	: ---				

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<i>Signatories</i>	<i>Position</i>	<i>Authorised results for</i>
Leung Chak Cheong , Mike	Senior Chemist	Metals_ENV



General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK2014485

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in ambient condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

The metal concentrations reported are those determined on the TCLP leachate. Extraction Fluid #1 pH 4.88 - 4.98.

TCLP extract were filtered prior to the determination of metals.



Analytical Results

Sub-Matrix: TCLP LEACHATE				Client sample ID	LD002-TCLP-S7	---	---	---	---
				Client sampling date / time	17-Apr-2020	---	---	---	---
Compound	CAS Number	LOR	Unit	HK2014485-001	---	---	---	---	---
EG: Metals and Major Cations									
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	---	---	---	---	---
Sample Preparation Method									
E-TCLP: Extraction Fluid Number	---	1	--	1	---	---	---	---	---



Laboratory Duplicate (DUP) Report

Matrix: WATER				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EG: Metals and Major Cations (QC Lot: 2978402)								
HK2014181-007	Anonymous	EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: WATER				Method Blank (MB) Report								Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report			
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)					
						LCS	DCS	Low	High	Value	Control Limit				
EG: Metals and Major Cations (QC Lot: 2978402)															
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	99.0	----	85.0	112	----	----				

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: WATER				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 2978402)										
HK2014181-007	Anonymous	EG020: Arsenic	7440-38-2	1 mg/L	100	----	75.0	125	----	----



CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	Work Order	: HK2014594
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: ---	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044		
Facsimile	: ---	Facsimile	: +852 2610 2021		
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			Date Samples Received	: 20-Apr-2020
Order number	: S3-SC073 (YL/2017/03)	Quote number	: HKE/2151/2019	Issue Date	: 29-Apr-2020
C-O-C number	: ---			No. of samples received	: 1
Site	: ---			No. of samples analysed	: 1

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<i>Signatories</i>	<i>Position</i>	<i>Authorised results for</i>
Leung Chak Cheong , Mike	Senior Chemist	Metals_ENV



General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK2014594

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in ambient condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

The metal concentrations reported are those determined on the TCLP leachate. Extraction Fluid #1 pH 4.88 - 4.98.

TCLP extract were filtered prior to the determination of metals.



Analytical Results

Sub-Matrix: TCLP LEACHATE				Client sample ID	LD002-TCLP-S8	---	---	---	---
				Client sampling date / time	18-Apr-2020	---	---	---	---
Compound	CAS Number	LOR	Unit	HK2014594-001	---	---	---	---	---
EG: Metals and Major Cations									
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	---	---	---	---	---
Sample Preparation Method									
E-TCLP: Extraction Fluid Number	---	1	--	1	---	---	---	---	---



Laboratory Duplicate (DUP) Report

Matrix: WATER				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EG: Metals and Major Cations (QC Lot: 2989233)								
HK2014590-001	Anonymous	EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: WATER				Method Blank (MB) Report								
				Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report								
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)		
						LCS	DCS	Low	High	Value	Control Limit	
EG: Metals and Major Cations (QC Lot: 2989233)												
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	97.9	----	85.0	112	----	----	

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: WATER				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 2989233)										
HK2014590-001	Anonymous	EG020: Arsenic	7440-38-2	1 mg/L	97.7	----	75.0	125	----	----



CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	Work Order	: HK2014595
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: ---	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044	Date Samples Received	: 20-Apr-2020
Facsimile	: ---	Facsimile	: +852 2610 2021	Issue Date	: 29-Apr-2020
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS	Quote number	: HKE/2151/2019	No. of samples received	: 1
Order number	: S3-SC073 (YL/2017/03)			No. of samples analysed	: 1
C-O-C number	: ---				
Site	: ---				

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<i>Signatories</i>	<i>Position</i>	<i>Authorised results for</i>
		
Leung Chak Cheong , Mike	Senior Chemist	Metals_ENV



General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK2014595

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in ambient condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

The metal concentrations reported are those determined on the TCLP leachate. Extraction Fluid #1 pH 4.88 - 4.98.

TCLP extract were filtered prior to the determination of metals.



Analytical Results

Sub-Matrix: TCLP LEACHATE				Client sample ID	LD002-TCLP-S9	---	---	---	---
				Client sampling date / time	18-Apr-2020	---	---	---	---
Compound	CAS Number	LOR	Unit	HK2014595-001	---	---	---	---	---
EG: Metals and Major Cations									
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	---	---	---	---	---
Sample Preparation Method									
E-TCLP: Extraction Fluid Number	---	1	--	1	---	---	---	---	---



Laboratory Duplicate (DUP) Report

Matrix: WATER				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EG: Metals and Major Cations (QC Lot: 2989233)								
HK2014590-001	Anonymous	EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: WATER				Method Blank (MB) Report		Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report					
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
						LCS	DCS	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 2989233)											
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	97.9	----	85.0	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: WATER				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 2989233)										
HK2014590-001	Anonymous	EG020: Arsenic	7440-38-2	1 mg/L	97.7	----	75.0	125	----	----



CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	Work Order	: HK2014769
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: ---	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044		
Facsimile	: ---	Facsimile	: +852 2610 2021		
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			Date Samples Received	: 21-Apr-2020
Order number	: S3-SC073 (YL/2017/03)	Quote number	: HKE/2151/2019	Issue Date	: 04-May-2020
C-O-C number	: ---			No. of samples received	: 1
Site	: ---			No. of samples analysed	: 1

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<i>Signatories</i>	<i>Position</i>	<i>Authorised results for</i>
		
Leung Chak Cheong , Mike	Senior Chemist	Metals_ENV



General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK2014769

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in ambient condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

The metal concentrations reported are those determined on the TCLP leachate. Extraction Fluid #1 pH 4.88 - 4.98.

TCLP extract were filtered prior to the determination of metals.



Analytical Results

Sub-Matrix: TCLP LEACHATE				Client sample ID	LD002-TCLP-S10	---	---	---	---
				Client sampling date / time	20-Apr-2020	---	---	---	---
Compound	CAS Number	LOR	Unit	HK2014769-001	---	---	---	---	---
EG: Metals and Major Cations									
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	---	---	---	---	---
Sample Preparation Method									
E-TCLP: Extraction Fluid Number	---	1	--	1	---	---	---	---	---



Laboratory Duplicate (DUP) Report

Matrix: WATER				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EG: Metals and Major Cations (QC Lot: 2989233)								
HK2014590-001	Anonymous	EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: WATER				Method Blank (MB) Report		Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report					
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
						LCS	DCS	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 2989233)											
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	97.9	----	85.0	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: WATER				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 2989233)										
HK2014590-001	Anonymous	EG020: Arsenic	7440-38-2	1 mg/L	97.7	----	75.0	125	----	----



CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	Work Order	: HK2014770
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: ---	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044		
Facsimile	: ---	Facsimile	: +852 2610 2021		
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			Date Samples Received	: 21-Apr-2020
Order number	: S3-SC073 (YL/2017/03)	Quote number	: HKE/2151/2019	Issue Date	: 04-May-2020
C-O-C number	: ---			No. of samples received	: 1
Site	: ---			No. of samples analysed	: 1

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<i>Signatories</i>	<i>Position</i>	<i>Authorised results for</i>
		
Leung Chak Cheong , Mike	Senior Chemist	Metals_ENV



General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK2014770

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in ambient condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

The metal concentrations reported are those determined on the TCLP leachate. Extraction Fluid #1 pH 4.88 - 4.98.

TCLP extract were filtered prior to the determination of metals.



Analytical Results

Sub-Matrix: TCLP LEACHATE				Client sample ID	LD002-TCLP-S11	---	---	---	---
				Client sampling date / time	20-Apr-2020	---	---	---	---
Compound	CAS Number	LOR	Unit	HK2014770-001	---	---	---	---	---
EG: Metals and Major Cations									
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	---	---	---	---	---
Sample Preparation Method									
E-TCLP: Extraction Fluid Number	---	1	--	1	---	---	---	---	---



Laboratory Duplicate (DUP) Report

Matrix: WATER				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EG: Metals and Major Cations (QC Lot: 2989233)								
HK2014590-001	Anonymous	EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: WATER				Method Blank (MB) Report		Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report					
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
						LCS	DCS	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 2989233)											
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	97.9	----	85.0	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: WATER				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 2989233)										
HK2014590-001	Anonymous	EG020: Arsenic	7440-38-2	1 mg/L	97.7	----	75.0	125	----	----



CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	Work Order	: HK2014916
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: ---	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044		
Facsimile	: ---	Facsimile	: +852 2610 2021		
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			Date Samples Received	: 22-Apr-2020
Order number	: S3-SC073 (YL/2017/03)	Quote number	: HKE/2151/2019	Issue Date	: 05-May-2020
C-O-C number	: ---			No. of samples received	: 1
Site	: ---			No. of samples analysed	: 1

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<i>Signatories</i>	<i>Position</i>	<i>Authorised results for</i>
Leung Chak Cheong , Mike	Senior Chemist	Metals_ENV



General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK2014916

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in ambient condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

The metal concentrations reported are those determined on the TCLP leachate. Extraction Fluid #1 pH 4.88 - 4.98.

TCLP extract were filtered prior to the determination of metals.



Analytical Results

Sub-Matrix: TCLP LEACHATE				Client sample ID	LD002-TCLP-S12	---	---	---	---
				Client sampling date / time	21-Apr-2020	---	---	---	---
Compound	CAS Number	LOR	Unit	HK2014916-001	---	---	---	---	---
EG: Metals and Major Cations									
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	---	---	---	---	---
Sample Preparation Method									
E-TCLP: Extraction Fluid Number	---	1	--	1	---	---	---	---	---



Laboratory Duplicate (DUP) Report

Matrix: WATER				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EG: Metals and Major Cations (QC Lot: 2991531)								
HK2014912-001	Anonymous	EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: WATER				Method Blank (MB) Report		Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report					
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
						LCS	DCS	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 2991531)											
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	102	----	85.0	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: WATER				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 2991531)										
HK2014912-001	Anonymous	EG020: Arsenic	7440-38-2	1 mg/L	102	----	75.0	125	----	----



CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	Work Order	: HK2014918
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: ---	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044		
Facsimile	: ---	Facsimile	: +852 2610 2021		
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			Date Samples Received	: 22-Apr-2020
Order number	: S3-SC073 (YL/2017/03)	Quote number	: HKE/2151/2019	Issue Date	: 05-May-2020
C-O-C number	: ---			No. of samples received	: 1
Site	: ---			No. of samples analysed	: 1

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Signatories	Position	Authorised results for
Leung Chak Cheong , Mike	Senior Chemist	Metals_ENV



General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK2014918

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in ambient condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

The metal concentrations reported are those determined on the TCLP leachate. Extraction Fluid #1 pH 4.88 - 4.98.

TCLP extract were filtered prior to the determination of metals.



Analytical Results

Sub-Matrix: TCLP LEACHATE

				Client sample ID	LD002-TCLP-S13	---	---	---	---
				Client sampling date / time	21-Apr-2020	---	---	---	---
Compound	CAS Number	LOR	Unit	HK2014918-001	---	---	---	---	---
EG: Metals and Major Cations									
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	---	---	---	---	---
Sample Preparation Method									
E-TCLP: Extraction Fluid Number	---	1	--	1	---	---	---	---	---



Laboratory Duplicate (DUP) Report

Matrix: WATER				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EG: Metals and Major Cations (QC Lot: 2991531)								
HK2014912-001	Anonymous	EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: WATER				Method Blank (MB) Report								Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report			
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)					
						LCS	DCS	Low	High	Value	Control Limit				
EG: Metals and Major Cations (QC Lot: 2991531)															
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	102	----	85.0	112	----	----				

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: WATER				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 2991531)										
HK2014912-001	Anonymous	EG020: Arsenic	7440-38-2	1 mg/L	102	----	75.0	125	----	----



CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	Work Order	: HK2015129
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: ---	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044		
Facsimile	: ---	Facsimile	: +852 2610 2021		
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			Date Samples Received	: 23-Apr-2020
Order number	: S3-SC073 (YL/2017/03)	Quote number	: HKE/2151/2019	Issue Date	: 06-May-2020
C-O-C number	: ---			No. of samples received	: 1
Site	: ---			No. of samples analysed	: 1

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This document has been signed by those names that appear on this report and are the authorised signatories.

<i>Signatories</i>	<i>Position</i>	<i>Authorised results for</i>
Leung Chak Cheong , Mike	Senior Chemist	Metals_ENV



General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK2015129

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in ambient condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

The metal concentrations reported are those determined on the TCLP leachate. Extraction Fluid #1 pH 4.88 - 4.98.

TCLP extract were filtered prior to the determination of metals.



Analytical Results

Sub-Matrix: TCLP LEACHATE				Client sample ID	LD002-TCLP-S14	---	---	---	---
				Client sampling date / time	22-Apr-2020	---	---	---	---
Compound	CAS Number	LOR	Unit	HK2015129-001	---	---	---	---	---
EG: Metals and Major Cations									
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	---	---	---	---	---
Sample Preparation Method									
E-TCLP: Extraction Fluid Number	---	1	--	1	---	---	---	---	---



Laboratory Duplicate (DUP) Report

Matrix: WATER				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EG: Metals and Major Cations (QC Lot: 2991531)								
HK2014912-001	Anonymous	EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: WATER				Method Blank (MB) Report		Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report					
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
						LCS	DCS	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 2991531)											
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	102	----	85.0	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: WATER				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 2991531)										
HK2014912-001	Anonymous	EG020: Arsenic	7440-38-2	1 mg/L	102	----	75.0	125	----	----



CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	Work Order	: HK2015130
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: ---	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044		
Facsimile	: ---	Facsimile	: +852 2610 2021		
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			Date Samples Received	: 23-Apr-2020
Order number	: S3-SC073 (YL/2017/03)	Quote number	: HKE/2151/2019	Issue Date	: 06-May-2020
C-O-C number	: ---			No. of samples received	: 1
Site	: ---			No. of samples analysed	: 1

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<i>Signatories</i>	<i>Position</i>	<i>Authorised results for</i>
		
Leung Chak Cheong , Mike	Senior Chemist	Metals_ENV



General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK2015130

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in ambient condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

The metal concentrations reported are those determined on the TCLP leachate. Extraction Fluid #1 pH 4.88 - 4.98.

TCLP extract were filtered prior to the determination of metals.



Analytical Results

Sub-Matrix: TCLP LEACHATE				Client sample ID	LD002-TCLP-S15	---	---	---	---
				Client sampling date / time	22-Apr-2020	---	---	---	---
Compound	CAS Number	LOR	Unit	HK2015130-001	---	---	---	---	---
EG: Metals and Major Cations									
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	---	---	---	---	---
Sample Preparation Method									
E-TCLP: Extraction Fluid Number	---	1	--	1	---	---	---	---	---



Laboratory Duplicate (DUP) Report

Matrix: WATER				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EG: Metals and Major Cations (QC Lot: 2991531)								
HK2014912-001	Anonymous	EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: WATER				Method Blank (MB) Report								
				Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report								
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)		
						LCS	DCS	Low	High	Value	Control Limit	
EG: Metals and Major Cations (QC Lot: 2991531)												
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	102	----	85.0	112	----	----	

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: WATER				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 2991531)										
HK2014912-001	Anonymous	EG020: Arsenic	7440-38-2	1 mg/L	102	----	75.0	125	----	----



CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	Work Order	: HK2015235
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: ---	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044		
Facsimile	: ---	Facsimile	: +852 2610 2021		
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			Date Samples Received	: 24-Apr-2020
Order number	: S3-SC073 (YL/2017/03)	Quote number	: HKE/2151/2019	Issue Date	: 06-May-2020
C-O-C number	: ---			No. of samples received	: 1
Site	: ---			No. of samples analysed	: 1

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<i>Signatories</i>	<i>Position</i>	<i>Authorised results for</i>
		
Leung Chak Cheong , Mike	Senior Chemist	Metals_ENV



General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK2015235

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in ambient condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

The metal concentrations reported are those determined on the TCLP leachate. Extraction Fluid #1 pH 4.88 - 4.98.

TCLP extract were filtered prior to the determination of metals.



Analytical Results

Sub-Matrix: WATER

				Client sample ID	LD002-TCLP-S16	---	---	---	---
				Client sampling date / time	23-Apr-2020	---	---	---	---
Compound	CAS Number	LOR	Unit	HK2015235-001	---	---	---	---	---
EG: Metals and Major Cations									
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	---	---	---	---	---
Sample Preparation Method									
E-TCLP: Extraction Fluid Number	---	1	--	1	---	---	---	---	---



Laboratory Duplicate (DUP) Report

Matrix: WATER				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EG: Metals and Major Cations (QC Lot: 2991579)								
HK2015232-001	Anonymous	EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: WATER				Method Blank (MB) Report		Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report					
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
						LCS	DCS	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 2991579)											
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	103	----	85.0	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: WATER				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 2991579)										
HK2015232-001	Anonymous	EG020: Arsenic	7440-38-2	1 mg/L	101	----	75.0	125	----	----



CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	Work Order	: HK2015236
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: ---	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044	Date Samples Received	: 24-Apr-2020
Facsimile	: ---	Facsimile	: +852 2610 2021	Issue Date	: 06-May-2020
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS	Quote number	: HKE/2151/2019	No. of samples received	: 1
Order number	: S3-SC073 (YL/2017/03)			No. of samples analysed	: 1
C-O-C number	: ---				
Site	: ---				

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<i>Signatories</i>	<i>Position</i>	<i>Authorised results for</i>
		
Leung Chak Cheong , Mike	Senior Chemist	Metals_ENV



General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK2015236

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in ambient condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

The metal concentrations reported are those determined on the TCLP leachate. Extraction Fluid #1 pH 4.88 - 4.98.

TCLP extract were filtered prior to the determination of metals.



Analytical Results

Sub-Matrix: WATER

				Client sample ID				
				LD002-TCLP-S17	---	---	---	---
				Client sampling date / time	23-Apr-2020	---	---	---
Compound	CAS Number	LOR	Unit	HK2015236-001	---	---	---	---
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	---	---	---	---
Sample Preparation Method								
E-TCLP: Extraction Fluid Number	---	1	--	1	---	---	---	---



Laboratory Duplicate (DUP) Report

Matrix: WATER				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EG: Metals and Major Cations (QC Lot: 2991579)								
HK2015232-001	Anonymous	EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: WATER				Method Blank (MB) Report		Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report					
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
						LCS	DCS	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 2991579)											
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	103	----	85.0	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: WATER				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 2991579)										
HK2015232-001	Anonymous	EG020: Arsenic	7440-38-2	1 mg/L	101	----	75.0	125	----	----



CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	Work Order	: HK2015384
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: ---	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044		
Facsimile	: ---	Facsimile	: +852 2610 2021		
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			Date Samples Received	: 25-Apr-2020
Order number	: S3-SC073 (YL/2017/03)	Quote number	: HKE/2151/2019	Issue Date	: 06-May-2020
C-O-C number	: ---			No. of samples received	: 1
Site	: ---			No. of samples analysed	: 1

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<i>Signatories</i>	<i>Position</i>	<i>Authorised results for</i>
		
Leung Chak Cheong , Mike	Senior Chemist	Metals_ENV



General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK2015384

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in ambient condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

The metal concentrations reported are those determined on the TCLP leachate. Extraction Fluid #1 pH 4.88 - 4.98.

TCLP extract were filtered prior to the determination of metals.



Analytical Results

Sub-Matrix: WATER

				Client sample ID	LD002-TCLP-S18	---	---	---	---
				Client sampling date / time	24-Apr-2020	---	---	---	---
Compound	CAS Number	LOR	Unit	HK2015384-001	---	---	---	---	---
EG: Metals and Major Cations									
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	---	---	---	---	---
Sample Preparation Method									
E-TCLP: Extraction Fluid Number	---	1	--	1	---	---	---	---	---



Laboratory Duplicate (DUP) Report

Matrix: WATER				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EG: Metals and Major Cations (QC Lot: 2991579)								
HK2015232-001	Anonymous	EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: WATER				Method Blank (MB) Report								
				Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report								
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)		
						LCS	DCS	Low	High	Value	Control Limit	
EG: Metals and Major Cations (QC Lot: 2991579)												
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	103	----	85.0	112	----	----	

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: WATER				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 2991579)										
HK2015232-001	Anonymous	EG020: Arsenic	7440-38-2	1 mg/L	101	----	75.0	125	----	----



CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	Work Order	: HK2015385
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: ---	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044	Date Samples Received	: 25-Apr-2020
Facsimile	: ---	Facsimile	: +852 2610 2021	Issue Date	: 06-May-2020
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			No. of samples received	: 1
Order number	: S3-SC073 (YL/2017/03)	Quote number	: HKE/2151/2019	No. of samples analysed	: 1
C-O-C number	: ---				
Site	: ---				

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<i>Signatories</i>	<i>Position</i>	<i>Authorised results for</i>
		
Leung Chak Cheong , Mike	Senior Chemist	Metals_ENV



General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK2015385

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in ambient condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

The metal concentrations reported are those determined on the TCLP leachate. Extraction Fluid #1 pH 4.88 - 4.98.

TCLP extract were filtered prior to the determination of metals.



Analytical Results

Sub-Matrix: WATER

				Client sample ID	LD002-TCLP-S19	---	---	---	---
				Client sampling date / time	24-Apr-2020	---	---	---	---
Compound	CAS Number	LOR	Unit	HK2015385-001	---	---	---	---	---
EG: Metals and Major Cations									
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	---	---	---	---	---
Sample Preparation Method									
E-TCLP: Extraction Fluid Number	---	1	--	1	---	---	---	---	---



Laboratory Duplicate (DUP) Report

Matrix: WATER				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EG: Metals and Major Cations (QC Lot: 2991579)								
HK2015232-001	Anonymous	EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: WATER				Method Blank (MB) Report								Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report			
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)					
						LCS	DCS	Low	High	Value	Control Limit				
EG: Metals and Major Cations (QC Lot: 2991579)															
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	103	----	85.0	112	----	----				

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: WATER				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 2991579)										
HK2015232-001	Anonymous	EG020: Arsenic	7440-38-2	1 mg/L	101	----	75.0	125	----	----



CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	Work Order	: HK2015430
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: ---	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044		
Facsimile	: ---	Facsimile	: +852 2610 2021		
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			Date Samples Received	: 27-Apr-2020
Order number	: S3-SC073 (YL/2017/03)	Quote number	: HKE/2151/2019	Issue Date	: 08-May-2020
C-O-C number	: ---			No. of samples received	: 1
Site	: ---			No. of samples analysed	: 1

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<i>Signatories</i>	<i>Position</i>	<i>Authorised results for</i>
Leung Chak Cheong , Mike	Senior Chemist	Metals_ENV



General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK2015430

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in ambient condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

The metal concentrations reported are those determined on the TCLP leachate. Extraction Fluid #1 pH 4.88 - 4.98.

TCLP extract were filtered prior to the determination of metals.



Analytical Results

Sub-Matrix: WATER

				Client sample ID	LD002-TCLP-S20	---	---	---	---
				Client sampling date / time	25-Apr-2020	---	---	---	---
Compound	CAS Number	LOR	Unit	HK2015430-001	---	---	---	---	---
EG: Metals and Major Cations									
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	---	---	---	---	---
Sample Preparation Method									
E-TCLP: Extraction Fluid Number	---	1	--	1	---	---	---	---	---



Laboratory Duplicate (DUP) Report

Matrix: WATER				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EG: Metals and Major Cations (QC Lot: 3004187)								
HK2015428-001	Anonymous	EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: WATER				Method Blank (MB) Report								Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report			
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)					
						LCS	DCS	Low	High	Value	Control Limit				
EG: Metals and Major Cations (QC Lot: 3004187)															
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	96.1	----	85.0	112	----	----				

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: WATER				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3004187)										
HK2015428-001	Anonymous	EG020: Arsenic	7440-38-2	1 mg/L	97.0	----	75.0	125	----	----



CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	Work Order	: HK2015431
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: ---	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044	Date Samples Received	: 27-Apr-2020
Facsimile	: ---	Facsimile	: +852 2610 2021	Issue Date	: 08-May-2020
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			No. of samples received	: 1
Order number	: S3-SC073 (YL/2017/03)	Quote number	: HKE/2151/2019	No. of samples analysed	: 1
C-O-C number	: ---				
Site	: ---				

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<i>Signatories</i>	<i>Position</i>	<i>Authorised results for</i>
Leung Chak Cheong , Mike	Senior Chemist	Metals_ENV



General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK2015431

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in ambient condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

The metal concentrations reported are those determined on the TCLP leachate. Extraction Fluid #1 pH 4.88 - 4.98.

TCLP extract were filtered prior to the determination of metals.



Analytical Results

Sub-Matrix: WATER

				Client sample ID	LD002-TCLP-S21	---	---	---	---
				Client sampling date / time	25-Apr-2020	---	---	---	---
Compound	CAS Number	LOR	Unit	HK2015431-001	---	---	---	---	---
EG: Metals and Major Cations									
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	---	---	---	---	---
Sample Preparation Method									
E-TCLP: Extraction Fluid Number	---	1	--	1	---	---	---	---	---



Laboratory Duplicate (DUP) Report

Matrix: WATER				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EG: Metals and Major Cations (QC Lot: 3004187)								
HK2015428-001	Anonymous	EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: WATER		Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
						LCS	DCS	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3004187)											
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	96.1	----	85.0	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: WATER				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3004187)										
HK2015428-001	Anonymous	EG020: Arsenic	7440-38-2	1 mg/L	97.0	----	75.0	125	----	----



CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	Work Order	: HK2015573
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: ---	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044		
Facsimile	: ---	Facsimile	: +852 2610 2021		
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			Date Samples Received	: 28-Apr-2020
Order number	: S3-SC073 (YL/2017/03)	Quote number	: HKE/2151/2019	Issue Date	: 09-May-2020
C-O-C number	: ---			No. of samples received	: 1
Site	: ---			No. of samples analysed	: 1

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<i>Signatories</i>	<i>Position</i>	<i>Authorised results for</i>
		
Leung Chak Cheong , Mike	Senior Chemist	Metals_ENV



General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK2015573

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in ambient condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

The metal concentrations reported are those determined on the TCLP leachate. Extraction Fluid #1 pH 4.88 - 4.98.

TCLP extract were filtered prior to the determination of metals.



Analytical Results

Sub-Matrix: TCLP LEACHATE

				Client sample ID	---	---	---	---
				Client sampling date / time	---	---	---	---
Compound	CAS Number	LOR	Unit	HK2015573-001	---	---	---	---
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	---	---	---	---
Sample Preparation Method								
E-TCLP: Extraction Fluid Number	---	1	--	1	---	---	---	---



Laboratory Duplicate (DUP) Report

Matrix: WATER				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EG: Metals and Major Cations (QC Lot: 3004187)								
HK2015428-001	Anonymous	EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: WATER				Method Blank (MB) Report								
				Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report								
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)		
						LCS	DCS	Low	High	Value	Control Limit	
EG: Metals and Major Cations (QC Lot: 3004187)												
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	96.1	----	85.0	112	----	----	

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: WATER				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3004187)										
HK2015428-001	Anonymous	EG020: Arsenic	7440-38-2	1 mg/L	97.0	----	75.0	125	----	----



CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	Work Order	: HK2015574
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: ---	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044		
Facsimile	: ---	Facsimile	: +852 2610 2021		
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			Date Samples Received	: 28-Apr-2020
Order number	: S3-SC073 (YL/2017/03)	Quote number	: HKE/2151/2019	Issue Date	: 09-May-2020
C-O-C number	: ---			No. of samples received	: 1
Site	: ---			No. of samples analysed	: 1

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Signatories	Position	Authorised results for
Leung Chak Cheong , Mike	Senior Chemist	Metals_ENV



General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK2015574

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in ambient condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

The metal concentrations reported are those determined on the TCLP leachate. Extraction Fluid #1 pH 4.88 - 4.98.

TCLP extract were filtered prior to the determination of metals.



Analytical Results

Sub-Matrix: TCLP LEACHATE

				Client sample ID	LD002-TCLP-S23	---	---	---	---
				Client sampling date / time	27-Apr-2020	---	---	---	---
Compound	CAS Number	LOR	Unit	HK2015574-001	---	---	---	---	---
EG: Metals and Major Cations									
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	---	---	---	---	---
Sample Preparation Method									
E-TCLP: Extraction Fluid Number	---	1	--	1	---	---	---	---	---



Laboratory Duplicate (DUP) Report

Matrix: WATER				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EG: Metals and Major Cations (QC Lot: 3004187)								
HK2015428-001	Anonymous	EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: WATER				Method Blank (MB) Report		Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report					
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
						LCS	DCS	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3004187)											
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	96.1	----	85.0	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: WATER				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3004187)										
HK2015428-001	Anonymous	EG020: Arsenic	7440-38-2	1 mg/L	97.0	----	75.0	125	----	----



CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	Work Order	: HK2015920
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: ---	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044	Date Samples Received	: 29-Apr-2020
Facsimile	: ---	Facsimile	: +852 2610 2021	Issue Date	: 12-May-2020
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			No. of samples received	: 1
Order number	: S3-SC073 (YL/2017/03)	Quote number	: HKE/2151/2019	No. of samples analysed	: 1
C-O-C number	: ---				
Site	: ---				

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<i>Signatories</i>	<i>Position</i>	<i>Authorised results for</i>
		
Leung Chak Cheong , Mike	Senior Chemist	Metals_ENV



General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK2015920

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in chilled condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

The metal concentrations reported are those determined on the TCLP leachate. Extraction Fluid #1 pH 4.88 - 4.98.

TCLP extract were filtered prior to the determination of metals.



Analytical Results

Sub-Matrix: TCLP LEACHATE

				Client sample ID				
				LD002-TCLP-S24	---	---	---	---
				Client sampling date / time	28-Apr-2020	---	---	---
Compound	CAS Number	LOR	Unit	HK2015920-001	---	---	---	---
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	---	---	---	---
Sample Preparation Method								
E-TCLP: Extraction Fluid Number	---	1	--	1	---	---	---	---



Laboratory Duplicate (DUP) Report

Matrix: WATER				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EG: Metals and Major Cations (QC Lot: 3009276)								
HK2015920-001	LD002-TCLP-S24	EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: WATER				Method Blank (MB) Report		Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report					
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
						LCS	DCS	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3009276)											
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	96.8	----	85.0	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: WATER				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3009276)										
HK2015920-001	LD002-TCLP-S24	EG020: Arsenic	7440-38-2	1 mg/L	96.4	----	75.0	125	----	----



CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	Work Order	: HK2015921
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E-mail	: ---	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044		
Facsimile	: ---	Facsimile	: +852 2610 2021		
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			Date Samples Received	: 29-Apr-2020
Order number	: S3-SC073 (YL/2017/03)	Quote number	: HKE/2151/2019	Issue Date	: 12-May-2020
C-O-C number	: ---			No. of samples received	: 1
Site	: ---			No. of samples analysed	: 1

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<i>Signatories</i>	<i>Position</i>	<i>Authorised results for</i>
		
Leung Chak Cheong , Mike	Senior Chemist	Metals_ENV



General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK2015921

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in chilled condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

The metal concentrations reported are those determined on the TCLP leachate. Extraction Fluid #1 pH 4.88 - 4.98.

TCLP extract were filtered prior to the determination of metals.



Analytical Results

Sub-Matrix: TCLP LEACHATE

				Client sample ID	LD002-TCLP-S25	---	---	---	---
				Client sampling date / time	28-Apr-2020	---	---	---	---
Compound	CAS Number	LOR	Unit	HK2015921-001	---	---	---	---	---
EG: Metals and Major Cations									
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	---	---	---	---	---
Sample Preparation Method									
E-TCLP: Extraction Fluid Number	---	1	--	1	---	---	---	---	---



Laboratory Duplicate (DUP) Report

Matrix: WATER				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EG: Metals and Major Cations (QC Lot: 3009276)								
HK2015920-001	Anonymous	EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: WATER				Method Blank (MB) Report								Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report			
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)					
						LCS	DCS	Low	High	Value	Control Limit				
EG: Metals and Major Cations (QC Lot: 3009276)															
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	96.8	----	85.0	112	----	----				

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: WATER				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3009276)										
HK2015920-001	Anonymous	EG020: Arsenic	7440-38-2	1 mg/L	96.4	----	75.0	125	----	----



CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	Work Order	: HK2015959
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: ---	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044	Date Samples Received	: 02-May-2020
Facsimile	: ---	Facsimile	: +852 2610 2021	Issue Date	: 12-May-2020
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			No. of samples received	: 1
Order number	: S3-SC073 (YL/2017/03)	Quote number	: HKE/2151/2019	No. of samples analysed	: 1
C-O-C number	: ---				
Site	: ---				

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<i>Signatories</i>	<i>Position</i>	<i>Authorised results for</i>
		
Leung Chak Cheong , Mike	Senior Chemist	Metals_ENV



General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK2015959

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in ambient condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

The metal concentrations reported are those determined on the TCLP leachate. Extraction Fluid #1 pH 4.88 - 4.98.

TCLP extract were filtered prior to the determination of metals.



Analytical Results

Sub-Matrix: TCLP LEACHATE				Client sample ID	LD002-TCLP-S26	---	---	---	---
				Client sampling date / time	29-Apr-2020	---	---	---	---
Compound	CAS Number	LOR	Unit	HK2015959-001	---	---	---	---	---
EG: Metals and Major Cations									
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	---	---	---	---	---
Sample Preparation Method									
E-TCLP: Extraction Fluid Number	---	1	--	1	---	---	---	---	---



Laboratory Duplicate (DUP) Report

Matrix: WATER				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EG: Metals and Major Cations (QC Lot: 3009276)								
HK2015920-001	Anonymous	EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: WATER				Method Blank (MB) Report		Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report					
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
						LCS	DCS	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3009276)											
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	96.8	----	85.0	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: WATER				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3009276)										
HK2015920-001	Anonymous	EG020: Arsenic	7440-38-2	1 mg/L	96.4	----	75.0	125	----	----



CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	Work Order	: HK2015960
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: ---	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044	Date Samples Received	: 02-May-2020
Facsimile	: ---	Facsimile	: +852 2610 2021	Issue Date	: 12-May-2020
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			No. of samples received	: 1
Order number	: S3-SC073 (YL/2017/03)	Quote number	: HKE/2151/2019	No. of samples analysed	: 1
C-O-C number	: ---				
Site	: ---				

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<i>Signatories</i>	<i>Position</i>	<i>Authorised results for</i>
		
Leung Chak Cheong , Mike	Senior Chemist	Metals_ENV



General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK2015960

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in ambient condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

The metal concentrations reported are those determined on the TCLP leachate. Extraction Fluid #1 pH 4.88 - 4.98.

TCLP extract were filtered prior to the determination of metals.



Analytical Results

Sub-Matrix: TCLP LEACHATE

				Client sample ID				
				LD002-TCLP-S27	---	---	---	---
				Client sampling date / time	29-Apr-2020	---	---	---
Compound	CAS Number	LOR	Unit	HK2015960-001	---	---	---	---
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	---	---	---	---
Sample Preparation Method								
E-TCLP: Extraction Fluid Number	---	1	--	1	---	---	---	---



Laboratory Duplicate (DUP) Report

Matrix: WATER				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EG: Metals and Major Cations (QC Lot: 3009276)								
HK2015920-001	Anonymous	EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: WATER				Method Blank (MB) Report		Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report					
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
						LCS	DCS	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3009276)											
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	96.8	----	85.0	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: WATER				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3009276)										
HK2015920-001	Anonymous	EG020: Arsenic	7440-38-2	1 mg/L	96.4	----	75.0	125	----	----



CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	Work Order	: HK2016122
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: ---	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044		
Facsimile	: ---	Facsimile	: +852 2610 2021		
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			Date Samples Received	: 04-May-2020
Order number	: S3-SC073 (YL/2017/03)	Quote number	: HKE/2151/2019	Issue Date	: 13-May-2020
C-O-C number	: ---			No. of samples received	: 1
Site	: ---			No. of samples analysed	: 1

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<i>Signatories</i>	<i>Position</i>	<i>Authorised results for</i>
		
Leung Chak Cheong , Mike	Senior Chemist	Metals_ENV



General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK2016122

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in chilled condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

The metal concentrations reported are those determined on the TCLP leachate. Extraction Fluid #1 pH 4.88 - 4.98.

TCLP extract were filtered prior to the determination of metals.



Analytical Results

Sub-Matrix: TCLP LEACHATE

				Client sample ID				
				LD002-TCLP-S28	---	---	---	---
				Client sampling date / time	02-May-2020	---	---	---
Compound	CAS Number	LOR	Unit	HK2016122-001	---	---	---	---
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	---	---	---	---
Sample Preparation Method								
E-TCLP: Extraction Fluid Number	---	1	--	1	---	---	---	---



Laboratory Duplicate (DUP) Report

Matrix: WATER				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EG: Metals and Major Cations (QC Lot: 3009288)								
HK2016119-001	Anonymous	EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: WATER				Method Blank (MB) Report		Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report					
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
						LCS	DCS	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3009288)											
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	97.3	----	85.0	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: WATER				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3009288)										
HK2016119-001	Anonymous	EG020: Arsenic	7440-38-2	1 mg/L	96.8	----	75.0	125	----	----



CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	Work Order	: HK2016123
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: ---	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044		
Facsimile	: ---	Facsimile	: +852 2610 2021		
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			Date Samples Received	: 04-May-2020
Order number	: S3-SC073 (YL/2017/03)	Quote number	: HKE/2151/2019	Issue Date	: 13-May-2020
C-O-C number	: ---			No. of samples received	: 1
Site	: ---			No. of samples analysed	: 1

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<i>Signatories</i>	<i>Position</i>	<i>Authorised results for</i>
Leung Chak Cheong , Mike	Senior Chemist	Metals_ENV



General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK2016123

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in chilled condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

The metal concentrations reported are those determined on the TCLP leachate. Extraction Fluid #1 pH 4.88 - 4.98.

TCLP extract were filtered prior to the determination of metals.



Analytical Results

Sub-Matrix: TCLP LEACHATE				Client sample ID	LD002-TCLP-S29	---	---	---	---
				Client sampling date / time	02-May-2020	---	---	---	---
Compound	CAS Number	LOR	Unit	HK2016123-001	---	---	---	---	---
EG: Metals and Major Cations									
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	---	---	---	---	---
Sample Preparation Method									
E-TCLP: Extraction Fluid Number	---	1	--	1	---	---	---	---	---



Laboratory Duplicate (DUP) Report

Matrix: WATER				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EG: Metals and Major Cations (QC Lot: 3009288)								
HK2016119-001	Anonymous	EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: WATER				Method Blank (MB) Report								
				Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report								
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)		
						LCS	DCS	Low	High	Value	Control Limit	
EG: Metals and Major Cations (QC Lot: 3009288)												
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	97.3	----	85.0	112	----	----	

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: WATER				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3009288)										
HK2016119-001	Anonymous	EG020: Arsenic	7440-38-2	1 mg/L	96.8	----	75.0	125	----	----



CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	Work Order	: HK2016391
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: ---	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044	Date Samples Received	: 05-May-2020
Facsimile	: ---	Facsimile	: +852 2610 2021	Issue Date	: 13-May-2020
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			No. of samples received	: 1
Order number	: S3-SC073 (YL/2017/03)	Quote number	: HKE/2151/2019	No. of samples analysed	: 1
C-O-C number	: ---				
Site	: ---				

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<i>Signatories</i>	<i>Position</i>	<i>Authorised results for</i>
		
Leung Chak Cheong , Mike	Senior Chemist	Metals_ENV



General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK2016391

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in ambient condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

The metal concentrations reported are those determined on the TCLP leachate. Extraction Fluid #1 pH 4.88 - 4.98.

TCLP extract were filtered prior to the determination of metals.



Analytical Results

Sub-Matrix: TCLP LEACHATE				Client sample ID	LD002-TCLP-S30	---	---	---	---
				Client sampling date / time	04-May-2020	---	---	---	---
Compound	CAS Number	LOR	Unit	HK2016391-001	---	---	---	---	---
EG: Metals and Major Cations									
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	---	---	---	---	---
Sample Preparation Method									
E-TCLP: Extraction Fluid Number	---	1	--	1	---	---	---	---	---



Laboratory Duplicate (DUP) Report

Matrix: WATER				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EG: Metals and Major Cations (QC Lot: 3009288)								
HK2016119-001	Anonymous	EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: WATER				Method Blank (MB) Report		Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report					
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
						LCS	DCS	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3009288)											
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	97.3	----	85.0	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: WATER				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3009288)										
HK2016119-001	Anonymous	EG020: Arsenic	7440-38-2	1 mg/L	96.8	----	75.0	125	----	----



CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	Work Order	: HK2016392
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: ---	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044	Date Samples Received	: 05-May-2020
Facsimile	: ---	Facsimile	: +852 2610 2021	Issue Date	: 13-May-2020
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			No. of samples received	: 1
Order number	: S3-SC073 (YL/2017/03)	Quote number	: HKE/2151/2019	No. of samples analysed	: 1
C-O-C number	: ---				
Site	: ---				

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Signatories	Position	Authorised results for
Leung Chak Cheong , Mike	Senior Chemist	Metals_ENV



General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK2016392

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in ambient condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

The metal concentrations reported are those determined on the TCLP leachate. Extraction Fluid #1 pH 4.88 - 4.98.

TCLP extract were filtered prior to the determination of metals.



Analytical Results

Sub-Matrix: TCLP LEACHATE

				Client sample ID				
				LD002-TCLP-S31	---	---	---	---
				Client sampling date / time	04-May-2020	---	---	---
Compound	CAS Number	LOR	Unit	HK2016392-001	---	---	---	---
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	---	---	---	---
Sample Preparation Method								
E-TCLP: Extraction Fluid Number	---	1	--	1	---	---	---	---



Laboratory Duplicate (DUP) Report

Matrix: WATER				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EG: Metals and Major Cations (QC Lot: 3009288)								
HK2016119-001	Anonymous	EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: WATER				Method Blank (MB) Report		Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report					
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
						LCS	DCS	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3009288)											
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	97.3	----	85.0	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: WATER				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3009288)										
HK2016119-001	Anonymous	EG020: Arsenic	7440-38-2	1 mg/L	96.8	----	75.0	125	----	----



CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	Work Order	: HK2016467
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: ---	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044		
Facsimile	: ---	Facsimile	: +852 2610 2021		
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			Date Samples Received	: 06-May-2020
Order number	: S3-SC073 (YL/2017/03)	Quote number	: HKE/2151/2019	Issue Date	: 15-May-2020
C-O-C number	: ---			No. of samples received	: 1
Site	: ---			No. of samples analysed	: 1

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Signatories	Position	Authorised results for
 Wong Wing , Kenneth	Manager - Metals	Metals_ENV



General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK2016467

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in ambient condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

The metal concentrations reported are those determined on the TCLP leachate. Extraction Fluid #1 pH 4.88 - 4.98.

TCLP extract were filtered prior to the determination of metals.



Analytical Results

Sub-Matrix: TCLP LEACHATE				Client sample ID	LD002-TCLP-S32	---	---	---	---
				Client sampling date / time	05-May-2020	---	---	---	---
Compound	CAS Number	LOR	Unit	HK2016467-001	---	---	---	---	---
EG: Metals and Major Cations									
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	---	---	---	---	---
Sample Preparation Method									
E-TCLP: Extraction Fluid Number	---	1	--	1	---	---	---	---	---



Laboratory Duplicate (DUP) Report

Matrix: WATER				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EG: Metals and Major Cations (QC Lot: 3017510)								
HK2016463-001	Anonymous	EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: WATER				Method Blank (MB) Report		Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report					
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
						LCS	DCS	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3017510)											
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	96.1	----	85.0	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: WATER				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3017510)										
HK2016463-001	Anonymous	EG020: Arsenic	7440-38-2	1 mg/L	95.7	----	75.0	125	----	----



CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	Work Order	: HK2016471
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: ---	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044		
Facsimile	: ---	Facsimile	: +852 2610 2021		
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			Date Samples Received	: 06-May-2020
Order number	: S3-SC073 (YL/2017/03)	Quote number	: HKE/2151/2019	Issue Date	: 15-May-2020
C-O-C number	: ---			No. of samples received	: 1
Site	: ---			No. of samples analysed	: 1

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Signatories	Position	Authorised results for
 Wong Wing , Kenneth	Manager - Metals	Metals_ENV



General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK2016471

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in ambient condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

The metal concentrations reported are those determined on the TCLP leachate. Extraction Fluid #1 pH 4.88 - 4.98.

TCLP extract were filtered prior to the determination of metals.



Analytical Results

Sub-Matrix: TCLP LEACHATE

				Client sample ID	---	---	---	---
				Client sampling date / time	---	---	---	---
Compound	CAS Number	LOR	Unit	HK2016471-001	---	---	---	---
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	---	---	---	---
Sample Preparation Method								
E-TCLP: Extraction Fluid Number	---	1	--	1	---	---	---	---



Laboratory Duplicate (DUP) Report

Matrix: WATER				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EG: Metals and Major Cations (QC Lot: 3017510)								
HK2016463-001	Anonymous	EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: WATER				Method Blank (MB) Report		Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report					
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
						LCS	DCS	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3017510)											
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	96.1	----	85.0	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: WATER				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3017510)										
HK2016463-001	Anonymous	EG020: Arsenic	7440-38-2	1 mg/L	95.7	----	75.0	125	----	----



CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	Work Order	: HK2016915
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: ---	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044	Date Samples Received	: 07-May-2020
Facsimile	: ---	Facsimile	: +852 2610 2021	Issue Date	: 19-May-2020
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			No. of samples received	: 1
Order number	: S3-SC073 (YL/2017/03)	Quote number	: HKE/2151/2019	No. of samples analysed	: 1
C-O-C number	: ---				
Site	: ---				

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Signatories	Position	Authorised results for
 Wong Wing , Kenneth	Manager - Metals	Metals_ENV



General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK2016915

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in ambient condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

The metal concentrations reported are those determined on the TCLP leachate. Extraction Fluid #1 pH 4.88 - 4.98.

TCLP extract were filtered prior to the determination of metals.



Analytical Results

Sub-Matrix: TCLP LEACHATE				Client sample ID	LD002-TCLP-S34	---	---	---	---
				Client sampling date / time	06-May-2020	---	---	---	---
Compound	CAS Number	LOR	Unit	HK2016915-001	---	---	---	---	---
EG: Metals and Major Cations									
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	---	---	---	---	---
Sample Preparation Method									
E-TCLP: Extraction Fluid Number	---	1	--	1	---	---	---	---	---



Laboratory Duplicate (DUP) Report

Matrix: WATER				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EG: Metals and Major Cations (QC Lot: 3017510)								
HK2016463-001	Anonymous	EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: WATER				Method Blank (MB) Report		Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report					
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
						LCS	DCS	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3017510)											
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	96.1	----	85.0	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: WATER				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3017510)										
HK2016463-001	Anonymous	EG020: Arsenic	7440-38-2	1 mg/L	95.7	----	75.0	125	----	----



CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	Work Order	: HK2016916
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: ---	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044	Date Samples Received	: 07-May-2020
Facsimile	: ---	Facsimile	: +852 2610 2021	Issue Date	: 19-May-2020
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS	Quote number	: HKE/2151/2019	No. of samples received	: 1
Order number	: S3-SC073 (YL/2017/03)			No. of samples analysed	: 1
C-O-C number	: ---				
Site	: ---				

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Signatories	Position	Authorised results for
 Wong Wing , Kenneth	Manager - Metals	Metals_ENV



General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK2016916

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in ambient condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

The metal concentrations reported are those determined on the TCLP leachate. Extraction Fluid #1 pH 4.88 - 4.98.

TCLP extract were filtered prior to the determination of metals.



Analytical Results

Sub-Matrix: TCLP LEACHATE				Client sample ID	LD002-TCLP-S35	---	---	---	---
				Client sampling date / time	06-May-2020	---	---	---	---
Compound	CAS Number	LOR	Unit	HK2016916-001	---	---	---	---	---
EG: Metals and Major Cations									
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	---	---	---	---	---
Sample Preparation Method									
E-TCLP: Extraction Fluid Number	---	1	--	1	---	---	---	---	---



Laboratory Duplicate (DUP) Report

Matrix: WATER				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EG: Metals and Major Cations (QC Lot: 3017510)								
HK2016463-001	Anonymous	EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: WATER				Method Blank (MB) Report								Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report			
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)					
						LCS	DCS	Low	High	Value	Control Limit				
EG: Metals and Major Cations (QC Lot: 3017510)															
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	96.1	----	85.0	112	----	----				

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: WATER				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3017510)										
HK2016463-001	Anonymous	EG020: Arsenic	7440-38-2	1 mg/L	95.7	----	75.0	125	----	----



CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	Work Order	: HK2017151
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: ---	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044	Date Samples Received	: 08-May-2020
Facsimile	: ---	Facsimile	: +852 2610 2021	Issue Date	: 19-May-2020
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			No. of samples received	: 1
Order number	: S3-SC073 (YL/2017/03)	Quote number	: HKE/2151/2019	No. of samples analysed	: 1
C-O-C number	: ---				
Site	: ---				

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Signatories	Position	Authorised results for
 Wong Wing , Kenneth	Manager - Metals	Metals_ENV



General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK2017151

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in ambient condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

The metal concentrations reported are those determined on the TCLP leachate. Extraction Fluid #1 pH 4.88 - 4.98.

TCLP extract were filtered prior to the determination of metals.



Analytical Results

Sub-Matrix: TCLP LEACHATE				Client sample ID	LD002-TCLP-S36	---	---	---	---
				Client sampling date / time	07-May-2020	---	---	---	---
Compound	CAS Number	LOR	Unit	HK2017151-001	---	---	---	---	---
EG: Metals and Major Cations									
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	---	---	---	---	---
Sample Preparation Method									
E-TCLP: Extraction Fluid Number	---	1	--	1	---	---	---	---	---



Laboratory Duplicate (DUP) Report

Matrix: WATER				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EG: Metals and Major Cations (QC Lot: 3017510)								
HK2016463-001	Anonymous	EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: WATER				Method Blank (MB) Report								Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report			
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)					
						LCS	DCS	Low	High	Value	Control Limit				
EG: Metals and Major Cations (QC Lot: 3017510)															
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	96.1	----	85.0	112	----	----				

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: WATER				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3017510)										
HK2016463-001	Anonymous	EG020: Arsenic	7440-38-2	1 mg/L	95.7	----	75.0	125	----	----



CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	Work Order	: HK2017152
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: ---	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044		
Facsimile	: ---	Facsimile	: +852 2610 2021		
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			Date Samples Received	: 08-May-2020
Order number	: S3-SC073 (YL/2017/03)	Quote number	: HKE/2151/2019	Issue Date	: 19-May-2020
C-O-C number	: ---			No. of samples received	: 1
Site	: ---			No. of samples analysed	: 1

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This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	Position	Authorised results for
 Wong Wing , Kenneth	Manager - Metals	Metals_ENV



General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK2017152

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in ambient condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

The metal concentrations reported are those determined on the TCLP leachate. Extraction Fluid #1 pH 4.88 - 4.98.

TCLP extract were filtered prior to the determination of metals.



Analytical Results

Sub-Matrix: TCLP LEACHATE				Client sample ID	LD002-TCLP-S37	---	---	---	---
				Client sampling date / time	07-May-2020	---	---	---	---
Compound	CAS Number	LOR	Unit	HK2017152-001	---	---	---	---	---
EG: Metals and Major Cations									
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	---	---	---	---	---
Sample Preparation Method									
E-TCLP: Extraction Fluid Number	---	1	--	1	---	---	---	---	---



Laboratory Duplicate (DUP) Report

Matrix: WATER				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EG: Metals and Major Cations (QC Lot: 3017510)								
HK2016463-001	Anonymous	EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: WATER				Method Blank (MB) Report								
				Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report								
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)		
						LCS	DCS	Low	High	Value	Control Limit	
EG: Metals and Major Cations (QC Lot: 3017510)												
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	96.1	----	85.0	112	----	----	

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: WATER				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3017510)										
HK2016463-001	Anonymous	EG020: Arsenic	7440-38-2	1 mg/L	95.7	----	75.0	125	----	----



CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	Work Order	: HK2017164
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: ---	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044		
Facsimile	: ---	Facsimile	: +852 2610 2021		
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			Date Samples Received	: 09-May-2020
Order number	: S3-SC073 (YL/2017/03)	Quote number	: HKE/2151/2019	Issue Date	: 19-May-2020
C-O-C number	: ---			No. of samples received	: 1
Site	: ---			No. of samples analysed	: 1

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This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	Position	Authorised results for
 Wong Wing , Kenneth	Manager - Metals	Metals_ENV



General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK2017164

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in ambient condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

The metal concentrations reported are those determined on the TCLP leachate. Extraction Fluid #1 pH 4.88 - 4.98.

TCLP extract were filtered prior to the determination of metals.



Analytical Results

Sub-Matrix: WATER

				Client sample ID				
				LD002-TCLP-S38	---	---	---	---
				Client sampling date / time	08-May-2020	---	---	---
Compound	CAS Number	LOR	Unit	HK2017164-001	---	---	---	---
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	---	---	---	---
Sample Preparation Method								
E-TCLP: Extraction Fluid Number	---	1	--	1	---	---	---	---



Laboratory Duplicate (DUP) Report

Matrix: WATER				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EG: Metals and Major Cations (QC Lot: 3017510)								
HK2016463-001	Anonymous	EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: WATER				Method Blank (MB) Report								Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report			
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)					
						LCS	DCS	Low	High	Value	Control Limit				
EG: Metals and Major Cations (QC Lot: 3017510)															
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	96.1	----	85.0	112	----	----				

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: WATER				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3017510)										
HK2016463-001	Anonymous	EG020: Arsenic	7440-38-2	1 mg/L	95.7	----	75.0	125	----	----



CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	Work Order	: HK2017165
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: ---	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044		
Facsimile	: ---	Facsimile	: +852 2610 2021		
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			Date Samples Received	: 09-May-2020
Order number	: S3-SC073 (YL/2017/03)	Quote number	: HKE/2151/2019	Issue Date	: 19-May-2020
C-O-C number	: ---			No. of samples received	: 1
Site	:			No. of samples analysed	: 1

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Signatories	Position	Authorised results for
 Wong Wing , Kenneth	Manager - Metals	Metals_ENV



General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK2017165

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in ambient condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

The metal concentrations reported are those determined on the TCLP leachate. Extraction Fluid #1 pH 4.88 - 4.98.

TCLP extract were filtered prior to the determination of metals.



Analytical Results

Sub-Matrix: WATER

				Client sample ID				
				LD002-TCLP-S39	---	---	---	---
				Client sampling date / time	08-May-2020	---	---	---
Compound	CAS Number	LOR	Unit	HK2017165-001	---	---	---	---
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	---	---	---	---
Sample Preparation Method								
E-TCLP: Extraction Fluid Number	---	1	--	1	---	---	---	---



Laboratory Duplicate (DUP) Report

Matrix: WATER				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EG: Metals and Major Cations (QC Lot: 3017510)								
HK2016463-001	Anonymous	EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: WATER				Method Blank (MB) Report		Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report					
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
						LCS	DCS	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3017510)											
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	96.1	----	85.0	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: WATER				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3017510)										
HK2016463-001	Anonymous	EG020: Arsenic	7440-38-2	1 mg/L	95.7	----	75.0	125	----	----



CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	Work Order	: HK2017418
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: ---	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044		
Facsimile	: ---	Facsimile	: +852 2610 2021		
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			Date Samples Received	: 11-May-2020
Order number	: S3-SC073 (YL/2017/03)	Quote number	: HKE/2151/2019	Issue Date	: 20-May-2020
C-O-C number	: ---			No. of samples received	: 1
Site	: ---			No. of samples analysed	: 1

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<i>Signatories</i>	<i>Position</i>	<i>Authorised results for</i>
Leung Chak Cheong , Mike	Senior Chemist	Metals_ENV



General Comments

This report supersedes any previous report(s) with this reference. All pages of this report have been checked and approved for release. When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes. Testing period is from 11-May-2020 to 19-May-2020.

Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK2017418

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in ambient condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

The metal concentrations reported are those determined on the TCLP leachate. Extraction Fluid #1 pH 4.88 - 4.98.

TCLP extract were filtered prior to the determination of metals.



Analytical Results

Sub-Matrix: TCLP LEACHATE				Client sample ID	LD002-TCLP-S40	---	---	---	---
				Client sampling date / time	09-May-2020	---	---	---	---
Compound	CAS Number	LOR	Unit	HK2017418-001	---	---	---	---	---
EG: Metals and Major Cations									
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	---	---	---	---	---
Sample Preparation Method									
E-TCLP: Extraction Fluid Number	---	1	--	1	---	---	---	---	---



Laboratory Duplicate (DUP) Report

Matrix: WATER				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EG: Metals and Major Cations (QC Lot: 3022723)								
HK2017413-001	Anonymous	EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: WATER				Method Blank (MB) Report		Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report					
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
						LCS	DCS	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3022723)											
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	98.5	----	85.0	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: WATER				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3022723)										
HK2017413-001	Anonymous	EG020: Arsenic	7440-38-2	1 mg/L	95.6	----	75.0	125	----	----



CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	Work Order	: HK2017419
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: ---	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044	Date Samples Received	: 11-May-2020
Facsimile	: ---	Facsimile	: +852 2610 2021	Issue Date	: 20-May-2020
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			No. of samples received	: 1
Order number	: S3-SC073 (YL/2017/03)	Quote number	: HKE/2151/2019	No. of samples analysed	: 1
C-O-C number	: ---				
Site	: ---				

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This document has been signed by those names that appear on this report and are the authorised signatories.

<i>Signatories</i>	<i>Position</i>	<i>Authorised results for</i>
		
Leung Chak Cheong , Mike	Senior Chemist	Metals_ENV



General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK2017419

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in ambient condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

The metal concentrations reported are those determined on the TCLP leachate. Extraction Fluid #1 pH 4.88 - 4.98.

TCLP extract were filtered prior to the determination of metals.



Analytical Results

Sub-Matrix: TCLP LEACHATE

				Client sample ID				
				LD002-TCLP-S41	---	---	---	---
				Client sampling date / time	09-May-2020	---	---	---
Compound	CAS Number	LOR	Unit	HK2017419-001	---	---	---	---
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	---	---	---	---
Sample Preparation Method								
E-TCLP: Extraction Fluid Number	---	1	--	1	---	---	---	---



Laboratory Duplicate (DUP) Report

Matrix: WATER				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EG: Metals and Major Cations (QC Lot: 3022723)								
HK2017413-001	Anonymous	EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: WATER				Method Blank (MB) Report		Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report					
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
						LCS	DCS	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3022723)											
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	98.5	----	85.0	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: WATER				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3022723)										
HK2017413-001	Anonymous	EG020: Arsenic	7440-38-2	1 mg/L	95.6	----	75.0	125	----	----



CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	Work Order	: HK2017742
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: ---	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044	Date Samples Received	: 12-May-2020
Facsimile	: ---	Facsimile	: +852 2610 2021	Issue Date	: 20-May-2020
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			No. of samples received	: 1
Order number	: S3-SC073 (YL/2017/03)	Quote number	: HKE/2151/2019	No. of samples analysed	: 1
C-O-C number	: ---				
Site	: ---				

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<i>Signatories</i>	<i>Position</i>	<i>Authorised results for</i>
Leung Chak Cheong , Mike	Senior Chemist	Metals_ENV



General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK2017742

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in ambient condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

The metal concentrations reported are those determined on the TCLP leachate. Extraction Fluid #1 pH 4.88 - 4.98.

TCLP extract were filtered prior to the determination of metals.



Analytical Results

Sub-Matrix: TCLP LEACHATE				Client sample ID	LD002-TCLP-S42	---	---	---	---
				Client sampling date / time	11-May-2020	---	---	---	---
Compound	CAS Number	LOR	Unit	HK2017742-001	---	---	---	---	---
EG: Metals and Major Cations									
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	---	---	---	---	---
Sample Preparation Method									
E-TCLP: Extraction Fluid Number	---	1	--	1	---	---	---	---	---



Laboratory Duplicate (DUP) Report

Matrix: WATER				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EG: Metals and Major Cations (QC Lot: 3022723)								
HK2017413-001	Anonymous	EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: WATER				Method Blank (MB) Report								Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report			
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)					
						LCS	DCS	Low	High	Value	Control Limit				
EG: Metals and Major Cations (QC Lot: 3022723)															
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	98.5	----	85.0	112	----	----				

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: WATER				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3022723)										
HK2017413-001	Anonymous	EG020: Arsenic	7440-38-2	1 mg/L	95.6	----	75.0	125	----	----



CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	Work Order	: HK2017744
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: ---	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044	Date Samples Received	: 12-May-2020
Facsimile	: ---	Facsimile	: +852 2610 2021	Issue Date	: 20-May-2020
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS	Quote number	: HKE/2151/2019	No. of samples received	: 1
Order number	: S3-SC073 (YL/2017/03)			No. of samples analysed	: 1
C-O-C number	: ---				
Site	: ---				

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This document has been signed by those names that appear on this report and are the authorised signatories.

<i>Signatories</i>	<i>Position</i>	<i>Authorised results for</i>
		
Leung Chak Cheong , Mike	Senior Chemist	Metals_ENV



General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK2017744

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in ambient condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

The metal concentrations reported are those determined on the TCLP leachate. Extraction Fluid #1 pH 4.88 - 4.98.

TCLP extract were filtered prior to the determination of metals.



Analytical Results

Sub-Matrix: TCLP LEACHATE				Client sample ID	LD002-TCLP-S43	---	---	---	---
				Client sampling date / time	11-May-2020	---	---	---	---
Compound	CAS Number	LOR	Unit	HK2017744-001	---	---	---	---	---
EG: Metals and Major Cations									
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	---	---	---	---	---
Sample Preparation Method									
E-TCLP: Extraction Fluid Number	---	1	--	1	---	---	---	---	---



Laboratory Duplicate (DUP) Report

Matrix: WATER				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EG: Metals and Major Cations (QC Lot: 3022723)								
HK2017413-001	Anonymous	EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: WATER				Method Blank (MB) Report		Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report					
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
						LCS	DCS	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3022723)											
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	98.5	----	85.0	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: WATER				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3022723)										
HK2017413-001	Anonymous	EG020: Arsenic	7440-38-2	1 mg/L	95.6	----	75.0	125	----	----



CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	Work Order	: HK2017754
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: ---	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044	Date Samples Received	: 13-May-2020
Facsimile	: ---	Facsimile	: +852 2610 2021	Issue Date	: 22-May-2020
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS	Quote number	: HKE/2151/2019	No. of samples received	: 1
Order number	: S3-SC073 (YL/2017/03)			No. of samples analysed	: 1
C-O-C number	: ---				
Site	: ---				

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This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	Position	Authorised results for
Leung Chak Cheong , Mike	Senior Chemist	Metals_ENV



General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK2017754

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in ambient condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

The metal concentrations reported are those determined on the TCLP leachate. Extraction Fluid #1 pH 4.88 - 4.98.

TCLP extract were filtered prior to the determination of metals.



Analytical Results

Sub-Matrix: TCLP LEACHATE

				Client sample ID				
				LD002-TCLP-S44	---	---	---	---
				Client sampling date / time	12-May-2020	---	---	---
Compound	CAS Number	LOR	Unit	HK2017754-001	---	---	---	---
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	---	---	---	---
Sample Preparation Method								
E-TCLP: Extraction Fluid Number	---	1	--	1	---	---	---	---



Laboratory Duplicate (DUP) Report

Matrix: WATER				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EG: Metals and Major Cations (QC Lot: 3031884)								
HK2017752-001	Anonymous	EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: WATER				Method Blank (MB) Report		Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report					
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
						LCS	DCS	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3031884)											
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	96.1	----	85.0	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: WATER				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3031884)										
HK2017752-001	Anonymous	EG020: Arsenic	7440-38-2	1 mg/L	96.4	----	75.0	125	----	----



CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	Work Order	: HK2017755
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: ---	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044	Date Samples Received	: 13-May-2020
Facsimile	: ---	Facsimile	: +852 2610 2021	Issue Date	: 22-May-2020
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			No. of samples received	: 1
Order number	: S3-SC073 (YL/2017/03)	Quote number	: HKE/2151/2019	No. of samples analysed	: 1
C-O-C number	: ---				
Site	: ---				

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<i>Signatories</i>	<i>Position</i>	<i>Authorised results for</i>
		
Leung Chak Cheong , Mike	Senior Chemist	Metals_ENV



General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK2017755

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in ambient condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

The metal concentrations reported are those determined on the TCLP leachate. Extraction Fluid #1 pH 4.88 - 4.98.

TCLP extract were filtered prior to the determination of metals.



Analytical Results

Sub-Matrix: TCLP LEACHATE

				Client sample ID				
				LD002-TCLP-S45	---	---	---	---
				Client sampling date / time	12-May-2020	---	---	---
Compound	CAS Number	LOR	Unit	HK2017755-001	---	---	---	---
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	---	---	---	---
Sample Preparation Method								
E-TCLP: Extraction Fluid Number	---	1	--	1	---	---	---	---



Laboratory Duplicate (DUP) Report

Matrix: WATER				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EG: Metals and Major Cations (QC Lot: 3031884)								
HK2017752-001	Anonymous	EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: WATER				Method Blank (MB) Report		Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report					
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
						LCS	DCS	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3031884)											
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	96.1	----	85.0	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: WATER				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3031884)										
HK2017752-001	Anonymous	EG020: Arsenic	7440-38-2	1 mg/L	96.4	----	75.0	125	----	----



CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	Work Order	: HK2018171
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: ---	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044	Date Samples Received	: 14-May-2020
Facsimile	: ---	Facsimile	: +852 2610 2021	Issue Date	: 22-May-2020
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			No. of samples received	: 1
Order number	: S3-SC073 (YL/2017/03)	Quote number	: HKE/2151/2019	No. of samples analysed	: 1
C-O-C number	: ---				
Site	: ---				

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<i>Signatories</i>	<i>Position</i>	<i>Authorised results for</i>
		
Leung Chak Cheong , Mike	Senior Chemist	Metals_ENV



General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK2018171

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in ambient condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

The metal concentrations reported are those determined on the TCLP leachate. Extraction Fluid #1 pH 4.88 - 4.98.

TCLP extract were filtered prior to the determination of metals.



Analytical Results

Sub-Matrix: TCLP LEACHATE				Client sample ID	LD002-TCLP-S46	---	---	---	---
				Client sampling date / time	13-May-2020	---	---	---	---
Compound	CAS Number	LOR	Unit	HK2018171-001	---	---	---	---	---
EG: Metals and Major Cations									
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	---	---	---	---	---
Sample Preparation Method									
E-TCLP: Extraction Fluid Number	---	1	--	1	---	---	---	---	---



Laboratory Duplicate (DUP) Report

Matrix: WATER				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EG: Metals and Major Cations (QC Lot: 3031884)								
HK2017752-001	Anonymous	EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: WATER				Method Blank (MB) Report								Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report			
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)					
						LCS	DCS	Low	High	Value	Control Limit				
EG: Metals and Major Cations (QC Lot: 3031884)															
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	96.1	----	85.0	112	----	----				

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: WATER				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3031884)										
HK2017752-001	Anonymous	EG020: Arsenic	7440-38-2	1 mg/L	96.4	----	75.0	125	----	----



CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	Work Order	: HK2018176
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: ---	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044	Date Samples Received	: 14-May-2020
Facsimile	: ---	Facsimile	: +852 2610 2021	Issue Date	: 22-May-2020
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			No. of samples received	: 1
Order number	: S3-SC073 (YL/2017/03)	Quote number	: HKE/2151/2019	No. of samples analysed	: 1
C-O-C number	: ---				
Site	: ---				

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<i>Signatories</i>	<i>Position</i>	<i>Authorised results for</i>
Leung Chak Cheong , Mike	Senior Chemist	Metals_ENV



General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK2018176

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in ambient condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

The metal concentrations reported are those determined on the TCLP leachate. Extraction Fluid #1 pH 4.88 - 4.98.

TCLP extract were filtered prior to the determination of metals.



Analytical Results

Sub-Matrix: TCLP LEACHATE				Client sample ID	LD002-TCLP-S47	---	---	---	---
				Client sampling date / time	13-May-2020	---	---	---	---
Compound	CAS Number	LOR	Unit	HK2018176-001	---	---	---	---	---
EG: Metals and Major Cations									
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	---	---	---	---	---
Sample Preparation Method									
E-TCLP: Extraction Fluid Number	---	1	--	1	---	---	---	---	---



Laboratory Duplicate (DUP) Report

Matrix: WATER				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EG: Metals and Major Cations (QC Lot: 3031884)								
HK2017752-001	Anonymous	EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: WATER				Method Blank (MB) Report								Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report			
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)					
						LCS	DCS	Low	High	Value	Control Limit				
EG: Metals and Major Cations (QC Lot: 3031884)															
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	96.1	----	85.0	112	----	----				

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: WATER				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3031884)										
HK2017752-001	Anonymous	EG020: Arsenic	7440-38-2	1 mg/L	96.4	----	75.0	125	----	----



CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	Work Order	: HK2018361
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: ---	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044	Date Samples Received	: 15-May-2020
Facsimile	: ---	Facsimile	: +852 2610 2021	Issue Date	: 22-May-2020
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			No. of samples received	: 1
Order number	: S3-SC073 (YL/2017/03)	Quote number	: HKE/2151/2019	No. of samples analysed	: 1
C-O-C number	: ---				
Site	: ---				

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<i>Signatories</i>	<i>Position</i>	<i>Authorised results for</i>
		
Leung Chak Cheong , Mike	Senior Chemist	Metals_ENV



General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK2018361

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in ambient condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

The metal concentrations reported are those determined on the TCLP leachate. Extraction Fluid #1 pH 4.88 - 4.98.

TCLP extract were filtered prior to the determination of metals.



Analytical Results

Sub-Matrix: TCLP LEACHATE				Client sample ID	LD002-TCLP-S48	---	---	---	---
				Client sampling date / time	14-May-2020	---	---	---	---
Compound	CAS Number	LOR	Unit	HK2018361-001	---	---	---	---	---
EG: Metals and Major Cations									
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	---	---	---	---	---
Sample Preparation Method									
E-TCLP: Extraction Fluid Number	---	1	--	1	---	---	---	---	---



Laboratory Duplicate (DUP) Report

Matrix: WATER				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EG: Metals and Major Cations (QC Lot: 3031884)								
HK2017752-001	Anonymous	EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: WATER				Method Blank (MB) Report		Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report					
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
						LCS	DCS	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3031884)											
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	96.1	----	85.0	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: WATER				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3031884)										
HK2017752-001	Anonymous	EG020: Arsenic	7440-38-2	1 mg/L	96.4	----	75.0	125	----	----



CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	Work Order	: HK2018362
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: ---	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044		
Facsimile	: ---	Facsimile	: +852 2610 2021		
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			Date Samples Received	: 15-May-2020
Order number	: S3-SC073 (YL/2017/03)	Quote number	: HKE/2151/2019	Issue Date	: 22-May-2020
C-O-C number	: ---			No. of samples received	: 1
Site	: ---			No. of samples analysed	: 1

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<i>Signatories</i>	<i>Position</i>	<i>Authorised results for</i>
Leung Chak Cheong , Mike	Senior Chemist	Metals_ENV



General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK2018362

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in ambient condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

The metal concentrations reported are those determined on the TCLP leachate. Extraction Fluid #1 pH 4.88 - 4.98.

TCLP extract were filtered prior to the determination of metals.



Analytical Results

Sub-Matrix: TCLP LEACHATE				Client sample ID	LD002-TCLP-S49	---	---	---	---
				Client sampling date / time	14-May-2020	---	---	---	---
Compound	CAS Number	LOR	Unit	HK2018362-001	---	---	---	---	---
EG: Metals and Major Cations									
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	---	---	---	---	---
Sample Preparation Method									
E-TCLP: Extraction Fluid Number	---	1	--	1	---	---	---	---	---



Laboratory Duplicate (DUP) Report

Matrix: WATER				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EG: Metals and Major Cations (QC Lot: 3031884)								
HK2017752-001	Anonymous	EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: WATER				Method Blank (MB) Report		Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report					
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
						LCS	DCS	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3031884)											
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	96.1	----	85.0	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: WATER				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3031884)										
HK2017752-001	Anonymous	EG020: Arsenic	7440-38-2	1 mg/L	96.4	----	75.0	125	----	----



CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	Work Order	: HK2018409
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: ---	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044	Date Samples Received	: 16-May-2020
Facsimile	: ---	Facsimile	: +852 2610 2021	Issue Date	: 22-May-2020
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			No. of samples received	: 1
Order number	: S3-SC073 (YL/2017/03)	Quote number	: HKE/2151/2019	No. of samples analysed	: 1
C-O-C number	: ---				
Site	: ---				

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<i>Signatories</i>	<i>Position</i>	<i>Authorised results for</i>
Leung Chak Cheong , Mike	Senior Chemist	Metals_ENV



General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK2018409

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in ambient condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

The metal concentrations reported are those determined on the TCLP leachate. Extraction Fluid #1 pH 4.88 - 4.98.

TCLP extract were filtered prior to the determination of metals.



Analytical Results

Sub-Matrix: TCLP LEACHATE				Client sample ID	LD002-TCLP-S50	---	---	---	---
				Client sampling date / time	15-May-2020	---	---	---	---
Compound	CAS Number	LOR	Unit	HK2018409-001	---	---	---	---	---
EG: Metals and Major Cations									
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	---	---	---	---	---
Sample Preparation Method									
E-TCLP: Extraction Fluid Number	---	1	--	1	---	---	---	---	---



Laboratory Duplicate (DUP) Report

Matrix: WATER				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EG: Metals and Major Cations (QC Lot: 3031884)								
HK2017752-001	Anonymous	EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: WATER				Method Blank (MB) Report		Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report					
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
						LCS	DCS	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3031884)											
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	96.1	----	85.0	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: WATER				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3031884)										
HK2017752-001	Anonymous	EG020: Arsenic	7440-38-2	1 mg/L	96.4	----	75.0	125	----	----



CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	Work Order	: HK2018410
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: ---	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044	Date Samples Received	: 16-May-2020
Facsimile	: ---	Facsimile	: +852 2610 2021	Issue Date	: 22-May-2020
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			No. of samples received	: 1
Order number	: S3-SC073 (YL/2017/03)	Quote number	: HKE/2151/2019	No. of samples analysed	: 1
C-O-C number	: ---				
Site	: ---				

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<i>Signatories</i>	<i>Position</i>	<i>Authorised results for</i>
Leung Chak Cheong , Mike	Senior Chemist	Metals_ENV



General Comments

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Specific Comments for Work Order: HK2018410

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in ambient condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

The metal concentrations reported are those determined on the TCLP leachate. Extraction Fluid #1 pH 4.88 - 4.98.

TCLP extract were filtered prior to the determination of metals.



Analytical Results

Sub-Matrix: TCLP LEACHATE				Client sample ID	LD002-TCLP-S51	---	---	---	---
				Client sampling date / time	15-May-2020	---	---	---	---
Compound	CAS Number	LOR	Unit	HK2018410-001	---	---	---	---	---
EG: Metals and Major Cations									
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	---	---	---	---	---
Sample Preparation Method									
E-TCLP: Extraction Fluid Number	---	1	--	1	---	---	---	---	---



Laboratory Duplicate (DUP) Report

Matrix: WATER				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EG: Metals and Major Cations (QC Lot: 3031884)								
HK2017752-001	Anonymous	EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: WATER				Method Blank (MB) Report		Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report					
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
						LCS	DCS	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3031884)											
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	96.1	----	85.0	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: WATER				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3031884)										
HK2017752-001	Anonymous	EG020: Arsenic	7440-38-2	1 mg/L	96.4	----	75.0	125	----	----



CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	Work Order	: HK2018556
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: ---	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044	Date Samples Received	: 18-May-2020
Facsimile	: ---	Facsimile	: +852 2610 2021	Issue Date	: 27-May-2020
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS	Quote number	: HKE/2151/2019	No. of samples received	: 1
Order number	: S3-SC073 (YL/2017/03)			No. of samples analysed	: 1
C-O-C number	: ---				
Site	: ---				

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<i>Signatories</i>	<i>Position</i>	<i>Authorised results for</i>
Leung Chak Cheong , Mike	Senior Chemist	Metals_ENV



General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK2018556

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in ambient condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

The metal concentrations reported are those determined on the TCLP leachate. Extraction Fluid #1 pH 4.88 - 4.98.

TCLP extract were filtered prior to the determination of metals.



Analytical Results

Sub-Matrix: TCLP LEACHATE

				Client sample ID				
				LD002-TCLP-S52	---	---	---	---
				Client sampling date / time	16-May-2020	---	---	---
Compound	CAS Number	LOR	Unit	HK2018556-001	---	---	---	---
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	---	---	---	---
Sample Preparation Method								
E-TCLP: Extraction Fluid Number	---	1	--	1	---	---	---	---



Laboratory Duplicate (DUP) Report

Matrix: WATER				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EG: Metals and Major Cations (QC Lot: 3037440)								
HK2018554-001	Anonymous	EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: WATER				Method Blank (MB) Report		Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report					
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
						LCS	DCS	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3037440)											
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	99.5	----	85.0	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: WATER				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3037440)										
HK2018554-001	Anonymous	EG020: Arsenic	7440-38-2	1 mg/L	100	----	75.0	125	----	----



CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	Work Order	: HK2018557
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: ---	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044	Date Samples Received	: 18-May-2020
Facsimile	: ---	Facsimile	: +852 2610 2021	Issue Date	: 27-May-2020
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS	Quote number	: HKE/2151/2019	No. of samples received	: 1
Order number	: S3-SC073 (YL/2017/03)			No. of samples analysed	: 1
C-O-C number	: ---				
Site	: ---				

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<i>Signatories</i>	<i>Position</i>	<i>Authorised results for</i>
		
Leung Chak Cheong , Mike	Senior Chemist	Metals_ENV



General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK2018557

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in ambient condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

The metal concentrations reported are those determined on the TCLP leachate. Extraction Fluid #1 pH 4.88 - 4.98.

TCLP extract were filtered prior to the determination of metals.



Analytical Results

Sub-Matrix: TCLP LEACHATE				Client sample ID	LD002-TCLP-S53	---	---	---	---
				Client sampling date / time	16-May-2020	---	---	---	---
Compound	CAS Number	LOR	Unit	HK2018557-001	---	---	---	---	---
EG: Metals and Major Cations									
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	---	---	---	---	---
Sample Preparation Method									
E-TCLP: Extraction Fluid Number	---	1	--	1	---	---	---	---	---



Laboratory Duplicate (DUP) Report

Matrix: WATER				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EG: Metals and Major Cations (QC Lot: 3037440)								
HK2018554-001	Anonymous	EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: WATER				Method Blank (MB) Report		Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report					
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
						LCS	DCS	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3037440)											
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	99.5	----	85.0	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: WATER				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3037440)										
HK2018554-001	Anonymous	EG020: Arsenic	7440-38-2	1 mg/L	100	----	75.0	125	----	----



CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	Work Order	: HK2018638
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: ---	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044		
Facsimile	: ---	Facsimile	: +852 2610 2021		
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			Date Samples Received	: 19-May-2020
Order number	: S3-SC073 (YL/2017/03)	Quote number	: HKE/2151/2019	Issue Date	: 27-May-2020
C-O-C number	: ---			No. of samples received	: 1
Site	: ---			No. of samples analysed	: 1

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<i>Signatories</i>	<i>Position</i>	<i>Authorised results for</i>
		
Leung Chak Cheong , Mike	Senior Chemist	Metals_ENV



General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK2018638

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in ambient condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

The metal concentrations reported are those determined on the TCLP leachate. Extraction Fluid #1 pH 4.88 - 4.98.

TCLP extract were filtered prior to the determination of metals.



Analytical Results

Sub-Matrix: TCLP LEACHATE

				Client sample ID				
				LD002-TCLP-S54	---	---	---	---
				Client sampling date / time	18-May-2020	---	---	---
Compound	CAS Number	LOR	Unit	HK2018638-001	---	---	---	---
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	---	---	---	---
Sample Preparation Method								
E-TCLP: Extraction Fluid Number	---	1	--	1	---	---	---	---



Laboratory Duplicate (DUP) Report

Matrix: WATER				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EG: Metals and Major Cations (QC Lot: 3037440)								
HK2018554-001	Anonymous	EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: WATER				Method Blank (MB) Report		Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report					
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
						LCS	DCS	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3037440)											
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	99.5	----	85.0	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: WATER				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3037440)										
HK2018554-001	Anonymous	EG020: Arsenic	7440-38-2	1 mg/L	100	----	75.0	125	----	----



CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	Work Order	: HK2018639
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: ---	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044	Date Samples Received	: 19-May-2020
Facsimile	: ---	Facsimile	: +852 2610 2021	Issue Date	: 27-May-2020
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			No. of samples received	: 1
Order number	: S3-SC073 (YL/2017/03)	Quote number	: HKE/2151/2019	No. of samples analysed	: 1
C-O-C number	: ---				
Site	: ---				

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<i>Signatories</i>	<i>Position</i>	<i>Authorised results for</i>
		
Leung Chak Cheong , Mike	Senior Chemist	Metals_ENV



General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK2018639

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in ambient condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

The metal concentrations reported are those determined on the TCLP leachate. Extraction Fluid #1 pH 4.88 - 4.98.

TCLP extract were filtered prior to the determination of metals.



Analytical Results

Sub-Matrix: TCLP LEACHATE				Client sample ID	LD002-TCLP-S55	---	---	---	---
				Client sampling date / time	18-May-2020	---	---	---	---
Compound	CAS Number	LOR	Unit	HK2018639-001	---	---	---	---	---
EG: Metals and Major Cations									
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	---	---	---	---	---
Sample Preparation Method									
E-TCLP: Extraction Fluid Number	---	1	--	1	---	---	---	---	---



Laboratory Duplicate (DUP) Report

Matrix: WATER				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EG: Metals and Major Cations (QC Lot: 3037440)								
HK2018554-001	Anonymous	EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: WATER				Method Blank (MB) Report		Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report					
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
						LCS	DCS	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3037440)											
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	99.5	----	85.0	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: WATER				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3037440)										
HK2018554-001	Anonymous	EG020: Arsenic	7440-38-2	1 mg/L	100	----	75.0	125	----	----



CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	Work Order	: HK2018982
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: ---	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044		
Facsimile	: ---	Facsimile	: +852 2610 2021		
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			Date Samples Received	: 20-May-2020
Order number	: S3-SC073 (YL/2017/03)	Quote number	: HKE/2151/2019	Issue Date	: 29-May-2020
C-O-C number	: ---			No. of samples received	: 1
Site	: ---			No. of samples analysed	: 1

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<i>Signatories</i>	<i>Position</i>	<i>Authorised results for</i>
		
Leung Chak Cheong , Mike	Senior Chemist	Metals_ENV



General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK2018982

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in ambient condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

The metal concentrations reported are those determined on the TCLP leachate. Extraction Fluid #1 pH 4.88 - 4.98.

TCLP extract were filtered prior to the determination of metals.



Analytical Results

Sub-Matrix: TCLP LEACHATE				Client sample ID	LD002-TCLP-S56	---	---	---	---
				Client sampling date / time	19-May-2020	---	---	---	---
Compound	CAS Number	LOR	Unit	HK2018982-001	---	---	---	---	---
EG: Metals and Major Cations									
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	---	---	---	---	---
Sample Preparation Method									
E-TCLP: Extraction Fluid Number	---	1	--	1	---	---	---	---	---



Laboratory Duplicate (DUP) Report

Matrix: WATER				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EG: Metals and Major Cations (QC Lot: 3037471)								
HK2018982-001	LD002-TCLP-S56	EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: WATER				Method Blank (MB) Report		Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report					
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
						LCS	DCS	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3037471)											
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	98.9	----	85.0	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: WATER				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3037471)										
HK2018982-001	LD002-TCLP-S56	EG020: Arsenic	7440-38-2	1 mg/L	99.6	----	75.0	125	----	----



CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	Work Order	: HK2018985
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: ---	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044	Date Samples Received	: 20-May-2020
Facsimile	: ---	Facsimile	: +852 2610 2021	Issue Date	: 29-May-2020
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			No. of samples received	: 1
Order number	: S3-SC073 (YL/2017/03)	Quote number	: HKE/2151/2019	No. of samples analysed	: 1
C-O-C number	: ---				
Site	: ---				

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<i>Signatories</i>	<i>Position</i>	<i>Authorised results for</i>
Leung Chak Cheong , Mike	Senior Chemist	Metals_ENV



General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK2018985

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in ambient condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

The metal concentrations reported are those determined on the TCLP leachate. Extraction Fluid #1 pH 4.88 - 4.98.

TCLP extract were filtered prior to the determination of metals.



Analytical Results

Sub-Matrix: TCLP LEACHATE				Client sample ID	LD002-TCLP-S57	---	---	---	---
				Client sampling date / time	19-May-2020	---	---	---	---
Compound	CAS Number	LOR	Unit	HK2018985-001	---	---	---	---	---
EG: Metals and Major Cations									
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	---	---	---	---	---
Sample Preparation Method									
E-TCLP: Extraction Fluid Number	---	1	--	1	---	---	---	---	---



Laboratory Duplicate (DUP) Report

Matrix: WATER				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EG: Metals and Major Cations (QC Lot: 3037471)								
HK2018982-001	Anonymous	EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: WATER				Method Blank (MB) Report								Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report			
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)					
						LCS	DCS	Low	High	Value	Control Limit				
EG: Metals and Major Cations (QC Lot: 3037471)															
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	98.9	----	85.0	112	----	----				

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: WATER				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3037471)										
HK2018982-001	Anonymous	EG020: Arsenic	7440-38-2	1 mg/L	99.6	----	75.0	125	----	----



CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	Work Order	: HK2019020
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: ---	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044		
Facsimile	: ---	Facsimile	: +852 2610 2021		
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			Date Samples Received	: 21-May-2020
Order number	: S3-SC073 (YL/2017/03)	Quote number	: HKE/2151/2019	Issue Date	: 29-May-2020
C-O-C number	: ---			No. of samples received	: 1
Site	: ---			No. of samples analysed	: 1

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<i>Signatories</i>	<i>Position</i>	<i>Authorised results for</i>
		
Leung Chak Cheong , Mike	Senior Chemist	Metals_ENV



General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK2019020

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in ambient condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

The metal concentrations reported are those determined on the TCLP leachate. Extraction Fluid #1 pH 4.88 - 4.98.

TCLP extract were filtered prior to the determination of metals.



Analytical Results

Sub-Matrix: WATER				Client sample ID	LD002-TCLP-S58	---	---	---	---
				Client sampling date / time	20-May-2020	---	---	---	---
Compound	CAS Number	LOR	Unit	HK2019020-001	-----	-----	-----	-----	-----
EG: Metals and Major Cations									
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	---	---	---	---	---
Sample Preparation Method									
E-TCLP: Extraction Fluid Number	----	1	--	1	---	---	---	---	---



Laboratory Duplicate (DUP) Report

Matrix: WATER				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EG: Metals and Major Cations (QC Lot: 3037471)								
HK2018982-001	Anonymous	EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: WATER				Method Blank (MB) Report		Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report					
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
						LCS	DCS	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3037471)											
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	98.9	----	85.0	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: WATER				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3037471)										
HK2018982-001	Anonymous	EG020: Arsenic	7440-38-2	1 mg/L	99.6	----	75.0	125	----	----



CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	Work Order	: HK2019021
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: ---	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044	Date Samples Received	: 21-May-2020
Facsimile	: ---	Facsimile	: +852 2610 2021	Issue Date	: 29-May-2020
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS	Quote number	: HKE/2151/2019	No. of samples received	: 1
Order number	: S3-SC073 (YL/2017/03)			No. of samples analysed	: 1
C-O-C number	: ---				
Site	: ---				

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<i>Signatories</i>	<i>Position</i>	<i>Authorised results for</i>
		
Leung Chak Cheong , Mike	Senior Chemist	Metals_ENV



General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK2019021

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in ambient condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

The metal concentrations reported are those determined on the TCLP leachate. Extraction Fluid #1 pH 4.88 - 4.98.

TCLP extract were filtered prior to the determination of metals.



Analytical Results

Sub-Matrix: WATER

				Client sample ID				
				LD002-TCLP-S58 (1)	---	---	---	---
				Client sampling date / time	20-May-2020	----	----	----
Compound	CAS Number	LOR	Unit	HK2019021-001	-----	-----	-----	-----
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	---	---	---	---
Sample Preparation Method								
E-TCLP: Extraction Fluid Number	----	1	--	1	---	---	---	---



Laboratory Duplicate (DUP) Report

Matrix: WATER				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EG: Metals and Major Cations (QC Lot: 3037471)								
HK2018982-001	Anonymous	EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: WATER				Method Blank (MB) Report		Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report					
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
						LCS	DCS	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3037471)											
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	98.9	----	85.0	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: WATER				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3037471)										
HK2018982-001	Anonymous	EG020: Arsenic	7440-38-2	1 mg/L	99.6	----	75.0	125	----	----



CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	Work Order	: HK2019331
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: ---	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044	Date Samples Received	: 22-May-2020
Facsimile	: ---	Facsimile	: +852 2610 2021	Issue Date	: 02-Jun-2020
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS	Quote number	: HKE/2151/2019	No. of samples received	: 1
Order number	: S3-SC073 (YL/2017/03)			No. of samples analysed	: 1
C-O-C number	: ---				
Site	: ---				

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<i>Signatories</i>	<i>Position</i>	<i>Authorised results for</i>
Leung Chak Cheong , Mike	Senior Chemist	Metals_ENV



General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK2019331

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in ambient condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

The metal concentrations reported are those determined on the TCLP leachate. Extraction Fluid #1 pH 4.88 - 4.98.

TCLP extract were filtered prior to the determination of metals.



Analytical Results

Sub-Matrix: WATER

				Client sample ID	---	---	---	---
				Client sampling date / time	---	---	---	---
Compound	CAS Number	LOR	Unit	HK2019331-001	---	---	---	---
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	---	---	---	---
Sample Preparation Method								
E-TCLP: Extraction Fluid Number	---	1	--	1	---	---	---	---



Laboratory Duplicate (DUP) Report

Matrix: WATER				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EG: Metals and Major Cations (QC Lot: 3047133)								
HK2019331-001	LD002-TCLP-S59	EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: WATER				Method Blank (MB) Report		Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report					
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
						LCS	DCS	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3047133)											
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	94.7	----	85.0	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: WATER				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3047133)										
HK2019331-001	LD002-TCLP-S59	EG020: Arsenic	7440-38-2	1 mg/L	94.2	----	75.0	125	----	----



CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	Work Order	: HK2019507
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: ---	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044		
Facsimile	: ---	Facsimile	: +852 2610 2021		
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			Date Samples Received	: 25-May-2020
Order number	: S3-SC073 (YL/2017/03)	Quote number	: HKE/2151/2019	Issue Date	: 02-Jun-2020
C-O-C number	: ---			No. of samples received	: 1
Site	: ---			No. of samples analysed	: 1

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<i>Signatories</i>	<i>Position</i>	<i>Authorised results for</i>
Leung Chak Cheong , Mike	Senior Chemist	Metals_ENV



General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK2019507

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in ambient condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

The metal concentrations reported are those determined on the TCLP leachate. Extraction Fluid #1 pH 4.88 - 4.98.

TCLP extract were filtered prior to the determination of metals.



Analytical Results

Sub-Matrix: TCLP LEACHATE

				Client sample ID	LD002-TCLP-S60	---	---	---	---
				Client sampling date / time	23-May-2020	---	---	---	---
Compound	CAS Number	LOR	Unit	HK2019507-001	---	---	---	---	---
EG: Metals and Major Cations									
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	---	---	---	---	---
Sample Preparation Method									
E-TCLP: Extraction Fluid Number	---	1	--	1	---	---	---	---	---



Laboratory Duplicate (DUP) Report

Matrix: WATER				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EG: Metals and Major Cations (QC Lot: 3047133)								
HK2019331-001	Anonymous	EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: WATER				Method Blank (MB) Report		Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report					
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
						LCS	DCS	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3047133)											
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	94.7	----	85.0	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: WATER				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3047133)										
HK2019331-001	Anonymous	EG020: Arsenic	7440-38-2	1 mg/L	94.2	----	75.0	125	----	----



CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	Work Order	: HK2019702
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: ---	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044	Date Samples Received	: 26-May-2020
Facsimile	: ---	Facsimile	: +852 2610 2021	Issue Date	: 03-Jun-2020
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			No. of samples received	: 1
Order number	: S3-SC073 (YL/2017/03)	Quote number	: HKE/2151/2019	No. of samples analysed	: 1
C-O-C number	: ---				
Site	: ---				

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<i>Signatories</i>	<i>Position</i>	<i>Authorised results for</i>
Leung Chak Cheong , Mike	Senior Chemist	Metals_ENV



General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK2019702

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in ambient condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

The metal concentrations reported are those determined on the TCLP leachate. Extraction Fluid #1 pH 4.88 - 4.98.

TCLP extract were filtered prior to the determination of metals.



Analytical Results

Sub-Matrix: WATER

				Client sample ID				
				LD002-TCLP-S61	---	---	---	---
				Client sampling date / time	25-May-2020	---	---	---
Compound	CAS Number	LOR	Unit	HK2019702-001	---	---	---	---
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	---	---	---	---
Sample Preparation Method								
E-TCLP: Extraction Fluid Number	---	1	--	1	---	---	---	---



Laboratory Duplicate (DUP) Report

Matrix: WATER				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EG: Metals and Major Cations (QC Lot: 3047271)								
HK2019700-001	Anonymous	EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: WATER			Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report					
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
						LCS	DCS	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3047271)											
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	92.8	----	85.0	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: WATER				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3047271)										
HK2019700-001	Anonymous	EG020: Arsenic	7440-38-2	1 mg/L	94.1	----	75.0	125	----	----



CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	Work Order	: HK2019883
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: ---	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044	Date Samples Received	: 27-May-2020
Facsimile	: ---	Facsimile	: +852 2610 2021	Issue Date	: 05-Jun-2020
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			No. of samples received	: 1
Order number	: S3-SC073 (YL/2017/03)	Quote number	: HKE/2151/2019	No. of samples analysed	: 1
C-O-C number	: ---				
Site	: ---				

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<i>Signatories</i>	<i>Position</i>	<i>Authorised results for</i>
Leung Chak Cheong , Mike	Senior Chemist	Metals_ENV



General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK2019883

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in ambient condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

The metal concentrations reported are those determined on the TCLP leachate. Extraction Fluid #1 pH 4.88 - 4.98.

TCLP extract were filtered prior to the determination of metals.



Analytical Results

Sub-Matrix: WATER

				Client sample ID				
				LD002-TCLP-S62	---	---	---	---
				Client sampling date / time	25-May-2020	---	---	---
Compound	CAS Number	LOR	Unit	HK2019883-001	---	---	---	---
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	---	---	---	---
Sample Preparation Method								
E-TCLP: Extraction Fluid Number	---	1	--	1	---	---	---	---



Laboratory Duplicate (DUP) Report

Matrix: WATER				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EG: Metals and Major Cations (QC Lot: 3057617)								
HK2019883-001	LD002-TCLP-S62	EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: WATER				Method Blank (MB) Report		Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report					
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
						LCS	DCS	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3057617)											
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	95.0	----	85.0	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: WATER				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3057617)										
HK2019883-001	LD002-TCLP-S62	EG020: Arsenic	7440-38-2	1 mg/L	95.3	----	75.0	125	----	----



CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	Work Order	: HK2019884
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: ---	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044		
Facsimile	: ---	Facsimile	: +852 2610 2021		
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			Date Samples Received	: 27-May-2020
Order number	: S3-SC073 (YL/2017/03)	Quote number	: HKE/2151/2019	Issue Date	: 05-Jun-2020
C-O-C number	: ---			No. of samples received	: 1
Site	: ---			No. of samples analysed	: 1

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<i>Signatories</i>	<i>Position</i>	<i>Authorised results for</i>
		
Leung Chak Cheong , Mike	Senior Chemist	Metals_ENV



General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK2019884

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in ambient condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

The metal concentrations reported are those determined on the TCLP leachate. Extraction Fluid #1 pH 4.88 - 4.98.

TCLP extract were filtered prior to the determination of metals.



Analytical Results

Sub-Matrix: WATER

				Client sample ID				
				LD002-TCLP-S63	---	---	---	---
				Client sampling date / time	26-May-2020	---	---	---
Compound	CAS Number	LOR	Unit	HK2019884-001	---	---	---	---
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	---	---	---	---
Sample Preparation Method								
E-TCLP: Extraction Fluid Number	---	1	--	1	---	---	---	---



Laboratory Duplicate (DUP) Report

Matrix: WATER				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EG: Metals and Major Cations (QC Lot: 3057617)								
HK2019883-001	Anonymous	EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: WATER				Method Blank (MB) Report								
				Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report								
				Spike Recovery (%)		Recovery Limits (%)		RPD (%)				
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	LCS	DCS	Low	High	Value	Control Limit	
EG: Metals and Major Cations (QC Lot: 3057617)												
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	95.0	----	85.0	112	----	----	

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: WATER				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Recovery (%)		Recovery Limits (%)		RPD (%)		
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3057617)										
HK2019883-001	Anonymous	EG020: Arsenic	7440-38-2	1 mg/L	95.3	----	75.0	125	----	----



CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	Work Order	: HK2021477
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: ---	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044	Date Samples Received	: 08-Jun-2020
Facsimile	: ---	Facsimile	: +852 2610 2021	Issue Date	: 17-Jun-2020
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS	Quote number	: HKE/2151/2019	No. of samples received	: 1
Order number	: S3-SC073 (YL/2017/03)			No. of samples analysed	: 1
C-O-C number	: ---				
Site	: ---				

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This document has been signed by those names that appear on this report and are the authorised signatories.

<i>Signatories</i>	<i>Position</i>	<i>Authorised results for</i>
Leung Chak Cheong , Mike	Senior Chemist	Metals_ENV



General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK2021477

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in ambient condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

The metal concentrations reported are those determined on the TCLP leachate. Extraction Fluid #1 pH 4.88 - 4.98.

TCLP extract were filtered prior to the determination of metals.



Analytical Results

Sub-Matrix: TCLP LEACHATE				Client sample ID	LD002-TCLP-S64	---	---	---	---
				Client sampling date / time	03-Jun-2020	---	---	---	---
Compound	CAS Number	LOR	Unit	HK2021477-001	---	---	---	---	---
EG: Metals and Major Cations									
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	---	---	---	---	---
Sample Preparation Method									
E-TCLP: Extraction Fluid Number	---	1	--	1	---	---	---	---	---



Laboratory Duplicate (DUP) Report

Matrix: WATER				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EG: Metals and Major Cations (QC Lot: 3070160)								
HK2021458-001	Anonymous	EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: WATER				Method Blank (MB) Report		Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report					
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
						LCS	DCS	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3070160)											
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	96.0	----	85.0	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: WATER				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3070160)										
HK2021458-001	Anonymous	EG020: Arsenic	7440-38-2	1 mg/L	97.4	----	75.0	125	----	----



CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	Work Order	: HK2021478
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: ---	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044	Date Samples Received	: 08-Jun-2020
Facsimile	: ---	Facsimile	: +852 2610 2021	Issue Date	: 17-Jun-2020
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			No. of samples received	: 1
Order number	: S3-SC073 (YL/2017/03)	Quote number	: HKE/2151/2019	No. of samples analysed	: 1
C-O-C number	: ---				
Site	: ---				

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This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	Position	Authorised results for
Leung Chak Cheong , Mike	Senior Chemist	Metals_ENV



General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK2021478

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in ambient condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

The metal concentrations reported are those determined on the TCLP leachate. Extraction Fluid #1 pH 4.88 - 4.98.

TCLP extract were filtered prior to the determination of metals.



Analytical Results

Sub-Matrix: TCLP LEACHATE				Client sample ID	LD002-TCLP-S65	---	---	---	---
				Client sampling date / time	04-Jun-2020	---	---	---	---
Compound	CAS Number	LOR	Unit	HK2021478-001	---	---	---	---	---
EG: Metals and Major Cations									
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	---	---	---	---	---
Sample Preparation Method									
E-TCLP: Extraction Fluid Number	---	1	--	1	---	---	---	---	---



Laboratory Duplicate (DUP) Report

Matrix: WATER				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EG: Metals and Major Cations (QC Lot: 3070160)								
HK2021458-001	Anonymous	EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: WATER				Method Blank (MB) Report		Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report					
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
						LCS	DCS	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3070160)											
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	96.0	----	85.0	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: WATER				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3070160)										
HK2021458-001	Anonymous	EG020: Arsenic	7440-38-2	1 mg/L	97.4	----	75.0	125	----	----



CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	Work Order	: HK2021480
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: ---	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044	Date Samples Received	: 08-Jun-2020
Facsimile	: ---	Facsimile	: +852 2610 2021	Issue Date	: 17-Jun-2020
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS	Quote number	: HKE/2151/2019	No. of samples received	: 1
Order number	: S3-SC073 (YL/2017/03)			No. of samples analysed	: 1
C-O-C number	: ---				
Site	: ---				

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<i>Signatories</i>	<i>Position</i>	<i>Authorised results for</i>
Leung Chak Cheong , Mike	Senior Chemist	Metals_ENV



General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK2021480

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in ambient condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

The metal concentrations reported are those determined on the TCLP leachate. Extraction Fluid #1 pH 4.88 - 4.98.

TCLP extract were filtered prior to the determination of metals.



Analytical Results

Sub-Matrix: TCLP LEACHATE

				Client sample ID				
				LD002-TCLP-S66	---	---	---	---
				Client sampling date / time	05-Jun-2020	---	---	---
Compound	CAS Number	LOR	Unit	HK2021480-001	---	---	---	---
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	---	---	---	---
Sample Preparation Method								
E-TCLP: Extraction Fluid Number	---	1	--	1	---	---	---	---



Laboratory Duplicate (DUP) Report

Matrix: WATER				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EG: Metals and Major Cations (QC Lot: 3070160)								
HK2021458-001	Anonymous	EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: WATER				Method Blank (MB) Report		Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report					
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
						LCS	DCS	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3070160)											
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	96.0	----	85.0	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: WATER				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3070160)										
HK2021458-001	Anonymous	EG020: Arsenic	7440-38-2	1 mg/L	97.4	----	75.0	125	----	----



CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	Work Order	: HK2023170
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: ---	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044		
Facsimile	: ---	Facsimile	: +852 2610 2021		
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			Date Samples Received	: 20-Jun-2020
Order number	: S3-SC073 (YL/2017/03)	Quote number	: HKE/2151/2019	Issue Date	: 02-Jul-2020
C-O-C number	: ---			No. of samples received	: 1
Site	: ---			No. of samples analysed	: 1

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<i>Signatories</i>	<i>Position</i>	<i>Authorised results for</i>
		
Leung Chak Cheong , Mike	Senior Chemist	Metals_ENV



General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK2023170

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in ambient condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

The metal concentrations reported are those determined on the TCLP leachate. Extraction Fluid #1 pH 4.88 - 4.98.

TCLP extract were filtered prior to the determination of metals.



Analytical Results

Sub-Matrix: TCLP LEACHATE

Client sample ID

LD002-TCLP-Area
6(1)

Client sampling date / time

19-Jun-2020

Compound	CAS Number	LOR	Unit	HK2023170-001	-----	-----	-----	-----
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	---	---	---	---
Sample Preparation Method								
E-TCLP: Extraction Fluid Number	----	1	--	1	---	---	---	---



Laboratory Duplicate (DUP) Report

Matrix: WATER				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EG: Metals and Major Cations (QC Lot: 3096677)								
HK2022880-001	Anonymous	EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: WATER				Method Blank (MB) Report								Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report			
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)					
						LCS	DCS	Low	High	Value	Control Limit				
EG: Metals and Major Cations (QC Lot: 3096677)															
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	95.0	----	85.0	112	----	----				

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: WATER				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3096677)										
HK2022880-001	Anonymous	EG020: Arsenic	7440-38-2	1 mg/L	95.2	----	75.0	125	----	----



CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	Work Order	: HK2023172
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: ---	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044		
Facsimile	: ---	Facsimile	: +852 2610 2021		
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			Date Samples Received	: 20-Jun-2020
Order number	: S3-SC073 (YL/2017/03)	Quote number	: HKE/2151/2019	Issue Date	: 02-Jul-2020
C-O-C number	: ---			No. of samples received	: 1
Site	: ---			No. of samples analysed	: 1

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<i>Signatories</i>	<i>Position</i>	<i>Authorised results for</i>
Leung Chak Cheong , Mike	Senior Chemist	Metals_ENV



General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK2023172

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in ambient condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

The metal concentrations reported are those determined on the TCLP leachate. Extraction Fluid #1 pH 4.88 - 4.98.

TCLP extract were filtered prior to the determination of metals.



Analytical Results

Sub-Matrix: TCLP LEACHATE

Client sample ID

LD002-TCLP-Area
6(2)

Client sampling date / time

19-Jun-2020

Compound	CAS Number	LOR	Unit	HK2023172-001	-----	-----	-----	-----
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	---	---	---	---
Sample Preparation Method								
E-TCLP: Extraction Fluid Number	----	1	--	1	---	---	---	---



Laboratory Duplicate (DUP) Report

Matrix: WATER				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EG: Metals and Major Cations (QC Lot: 3096677)								
HK2022880-001	Anonymous	EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: WATER				Method Blank (MB) Report		Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report					
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
						LCS	DCS	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3096677)											
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	95.0	----	85.0	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: WATER				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3096677)										
HK2022880-001	Anonymous	EG020: Arsenic	7440-38-2	1 mg/L	95.2	----	75.0	125	----	----



CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	Work Order	: HK2023679
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: ---	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044	Date Samples Received	: 24-Jun-2020
Facsimile	: ---	Facsimile	: +852 2610 2021	Issue Date	: 07-Jul-2020
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			No. of samples received	: 1
Order number	: S3-SC073 (YL/2017/03)	Quote number	: HKE/2151/2019	No. of samples analysed	: 1
C-O-C number	: ---				
Site	: ---				

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<i>Signatories</i>	<i>Position</i>	<i>Authorised results for</i>
		
Leung Chak Cheong , Mike	Senior Chemist	Metals_ENV



General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK2023679

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in ambient condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

The metal concentrations reported are those determined on the TCLP leachate. Extraction Fluid #1 pH 4.88 - 4.98.

TCLP extract were filtered prior to the determination of metals.



Analytical Results

Sub-Matrix: TCLP LEACHATE				Client sample ID	LD002-TCLP-Area 6(3)	---	---	---	---
				Client sampling date / time	22-Jun-2020	----	----	----	----
Compound	CAS Number	LOR	Unit	HK2023679-001	-----	-----	-----	-----	-----
EG: Metals and Major Cations									
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	---	---	---	---	---
Sample Preparation Method									
E-TCLP: Extraction Fluid Number	----	1	--	1	---	---	---	---	---



Laboratory Duplicate (DUP) Report

Matrix: WATER				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EG: Metals and Major Cations (QC Lot: 3118193)								
HK2023679-001	LD002-TCLP-Area 6(3)	EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: WATER				Method Blank (MB) Report		Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report					
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
						LCS	DCS	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3118193)											
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	91.1	----	85.0	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: WATER				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 3118193)										
HK2023679-001	LD002-TCLP-Area 6(3)	EG020: Arsenic	7440-38-2	1 mg/L	91.9	----	75.0	125	----	----



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Report on Unconfined Compression Test - Summary of Soil Properties

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200060

Job No.: SHK200015

Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture

Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -

Depth (m)#: -

Date of Test: 20/4/2020

Sample No.#: S3-SC074A 18/04/2020
LD002 S1

Actual Depth (m): -

W.O. No.#: -

Sample Type#: PT75

Sample Origin#: Contaminated soil mixed with 7.5%
cement and 10% sand

Date Received: 18/4/2020

Information provided by Client

Specimen Details

Diameter of specimen	mm	75.8	Wet mass of specimen	g	1129.9
Length of specimen	mm	151.4	Dry mass of specimen	g	-
Area of specimen	mm ²	4512.6	Moisture content	%	-
Volume of specimen	cm ³	683.21	Bulk density	Mg/m ³	1.65
Particle density (assumed/measured)*	Mg/m ³	2.65	Dry density	Mg/m ³	-

* Delete whichever is inappropriate

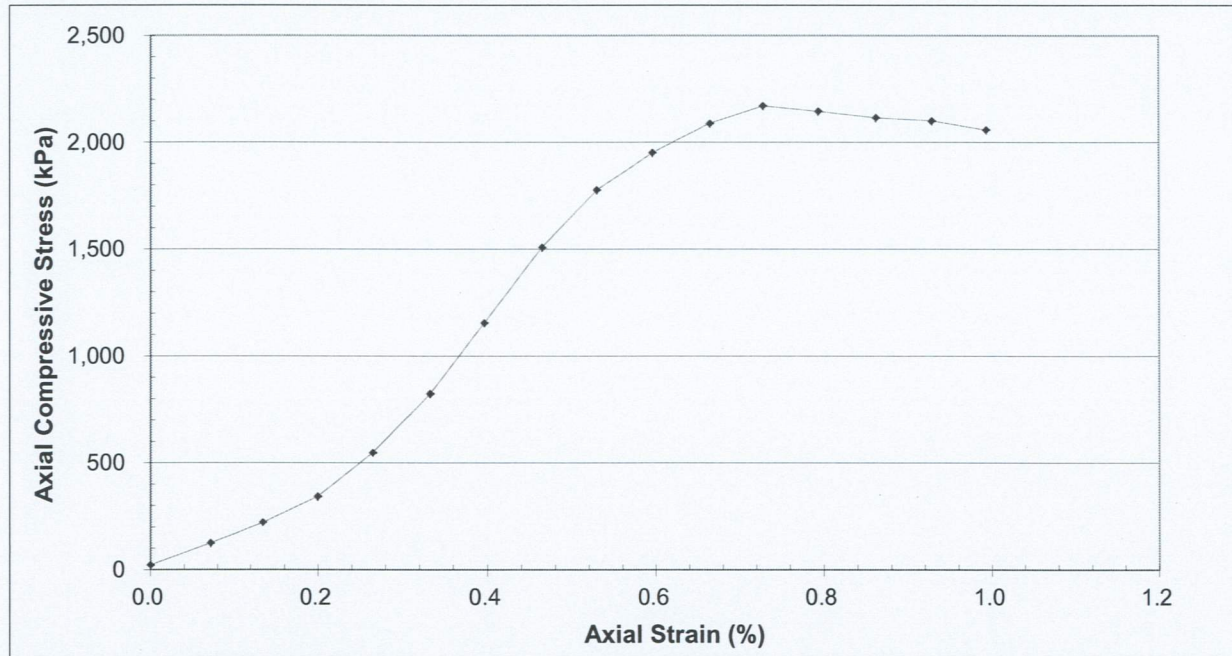
Visual Description: Light brownish grey sandy SILT/CLAY with Cement

Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

Compression Results

Maximum axial stress	2171	kPa	Sketch of failure conditions Inclination of shear surface	
Axial strain at failure	0.73	%		
Unconfined compressive strength, (q _u)	2171	kPa		

Graph



Remarks : Mixing Date : 14/4/2020

Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Certified by : HUI King Fai

Date : 20 April 2020

Date : 22 April 2020



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Report on Unconfined Compression Test - Compression Data

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200060

Job No.: SHK200015

Page: 2 of 2

Client#: Sang Hing - Kuly Joint Venture

Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: - Depth (m)#: -

Date of Test: 20/4/2020

Sample No.#: S3-SC074A Actual Depth (m): -
18/04/2020
LD002 S1

W.O. No.#: -

Sample Type#: PT75

Sample Origin#: Contaminated soil mixed with 7.5%
cement and 10% sand

Date Received: 18/4/2020

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_0)	mm	151.4
		Original area (A_0)	mm ²	4512.6

The compression was terminated at 1% of axial strain and the peak axial compressive stress is reached at 0.7%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in *Italic*

<i>Axial Deformation Reading (mm)</i>	<i>Axial Strain ϵ (%)</i>	<i>Proving Ring Gauge Reading (mm)</i>	<i>Load Cell Reading (kN)</i>	<i>Axial Force P (N)</i>	<i>Cross-section Area A (mm²)</i>	<i>Axial Compressive Stress σ_1 (kPa)</i>
0.00	0.0	-	0.10	100	4512.6	22.16
0.11	0.1	-	0.56	560	4515.8	124.01
0.20	0.1	-	1.00	1000	4518.7	221.30
0.30	0.2	-	1.55	1550	4521.6	342.80
0.40	0.3	-	2.48	2480	4524.6	548.11
0.50	0.3	-	3.73	3730	4527.7	823.82
0.60	0.4	-	5.23	5230	4530.6	1154.38
0.70	0.5	-	6.84	6840	4533.7	1508.71
0.80	0.5	-	8.06	8060	4536.6	1776.64
0.90	0.6	-	8.86	8860	4539.7	1951.67
1.01	0.7	-	9.49	9490	4542.8	2089.02
1.10	0.7	-	9.87	9870	4545.7	2171.28
1.20	0.8	-	9.76	9760	4548.7	2145.65
1.31	0.9	-	9.63	9630	4551.9	2115.62
1.41	0.9	-	9.57	9570	4554.9	2101.04
1.50	1.0	-	9.38	9380	4557.9	2057.97

Report No. : SLST0200060

Job No. : SHK200015





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Report on Unconfined Compression Test - Summary of Soil Properties

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200060

Job No.: SHK200015

Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: - Depth (m)#: - Date of Test: 20/4/2020
Sample No.#: S3-SC074A 18/04/2020 Actual Depth (m): - W.O. No.#: -
LD002 S2
Sample Type#: PT75 Sample Origin#: Contaminated soil mixed with 7.5% cement and 10% sand Date Received: 18/4/2020

Information provided by Client

Specimen Details

Diameter of specimen	mm	75.2	Wet mass of specimen	g	1191.3
Length of specimen	mm	153.6	Dry mass of specimen	g	-
Area of specimen	mm ²	4441.5	Moisture content	%	-
Volume of specimen	cm ³	682.21	Bulk density	Mg/m ³	1.75
Particle density (assumed/measured)*	Mg/m ³	2.65	Dry density	Mg/m ³	-

* Delete whichever is inappropriate

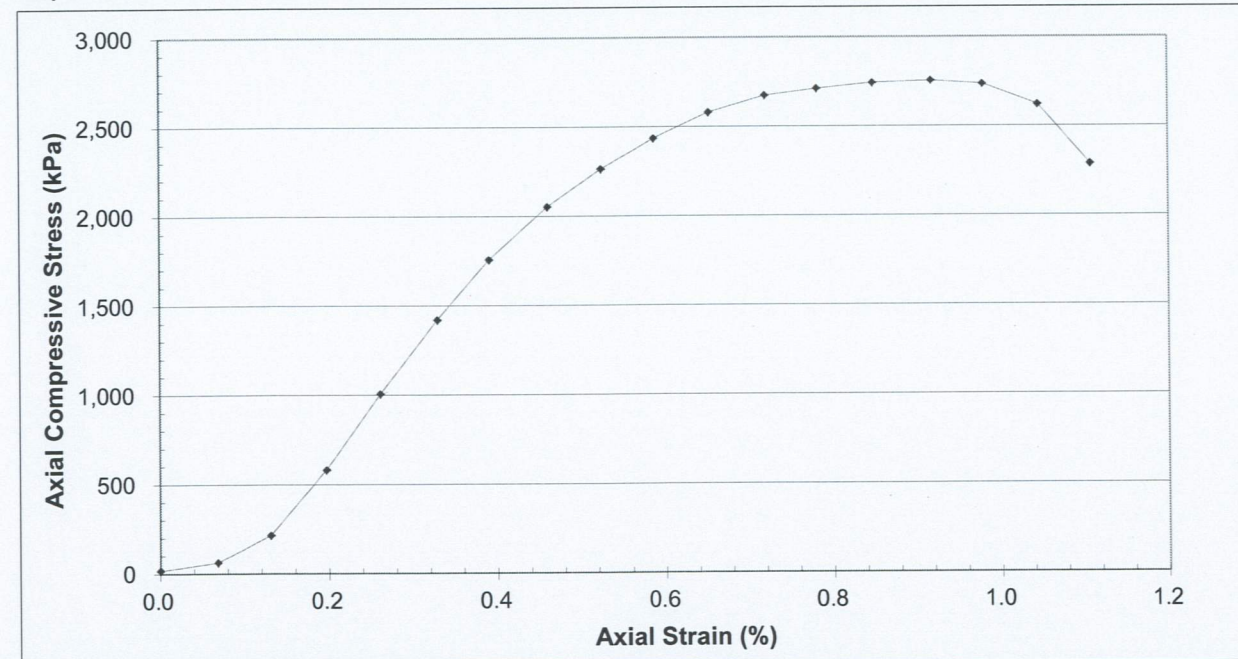
Visual Description: Light brownish grey sandy SILT/CLAY with Cement

Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

Compression Results

Maximum axial stress	2755	kPa	Sketch of failure conditions Inclination of shear surface	
Axial strain at failure	0.92	%		
Unconfined compressive strength, (q _u)	2755	kPa		

Graph



Remarks : Mixing Date : 15/4/2020

Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Certified by : HUI King Fai

Date : 20 April 2020

Date : 22 April 2020



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Report on Unconfined Compression Test - Compression Data

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200060

Job No.: SHK200015

Page: 2 of 2

Client#: Sang Hing - Kuly Joint Venture

Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: - Depth (m)#: -

Date of Test: 20/4/2020

Sample No.#: S3-SC074A
18/04/2020
LD002 S2

Actual Depth (m): -

W.O. No.#: -

Sample Type#: PT75

Sample Origin#: Contaminated soil mixed with 7.5%
cement and 10% sand

Date Received: 18/4/2020

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_0)	mm	153.6
		Original area (A_0)	mm ²	4441.5

The compression was terminated at 1.1% of axial strain and the peak axial compressive stress is reached at 0.9%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in Italic

<i>Axial Deformation Reading (mm)</i>	<i>Axial Strain ϵ (%)</i>	<i>Proving Ring Gauge Reading (mm)</i>	<i>Load Cell Reading (kN)</i>	<i>Axial Force P (N)</i>	<i>Cross- section Area A (mm²)</i>	<i>Axial Compressive Stress σ_1 (kPa)</i>
0.00	0.0	-	0.08	80	4441.5	18.01
0.11	0.1	-	0.28	280	4444.5	63.00
0.20	0.1	-	0.96	960	4447.3	215.86
0.30	0.2	-	2.59	2590	4450.2	581.99
0.40	0.3	-	4.48	4480	4453.1	1006.04
0.51	0.3	-	6.33	6330	4456.1	1420.52
0.60	0.4	-	7.83	7830	4458.9	1756.05
0.71	0.5	-	9.16	9160	4462.0	2052.89
0.81	0.5	-	10.11	10110	4464.9	2264.35
0.90	0.6	-	10.88	10880	4467.7	2435.28
1.00	0.7	-	11.53	11530	4470.6	2579.08
1.11	0.7	-	11.96	11960	4473.6	2673.44
1.20	0.8	-	12.14	12140	4476.4	2711.98
1.30	0.8	-	12.29	12290	4479.4	2743.65
1.41	0.9	-	12.35	12350	4482.6	2755.11
1.50	1.0	-	12.27	12270	4485.3	2735.57
1.60	1.0	-	11.76	11760	4488.3	2620.13
1.70	1.1	-	10.27	10270	4491.2	2286.70

Report No. : SLST0200060

Job No. : SHK200015





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Report on Unconfined Compression Test - Summary of Soil Properties

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200060

Job No.: SHK200015

Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: - Depth (m)#: - Date of Test: 20/4/2020
Sample No.#: S3-SC074A 18/04/2020 Actual Depth (m): - W.O. No.#: -
LD002 S3
Sample Type#: PT75 Sample Origin#: Contaminated soil mixed with 7.5% cement and 10% sand Date Received: 18/4/2020

Information provided by Client

Specimen Details

Diameter of specimen	mm	75.9	Wet mass of specimen	g	1206.3
Length of specimen	mm	153.9	Dry mass of specimen	g	-
Area of specimen	mm ²	4524.5	Moisture content	%	-
Volume of specimen	cm ³	696.33	Bulk density	Mg/m ³	1.73
Particle density (assumed/measured)*	Mg/m ³	2.65	Dry density	Mg/m ³	-

* Delete whichever is inappropriate

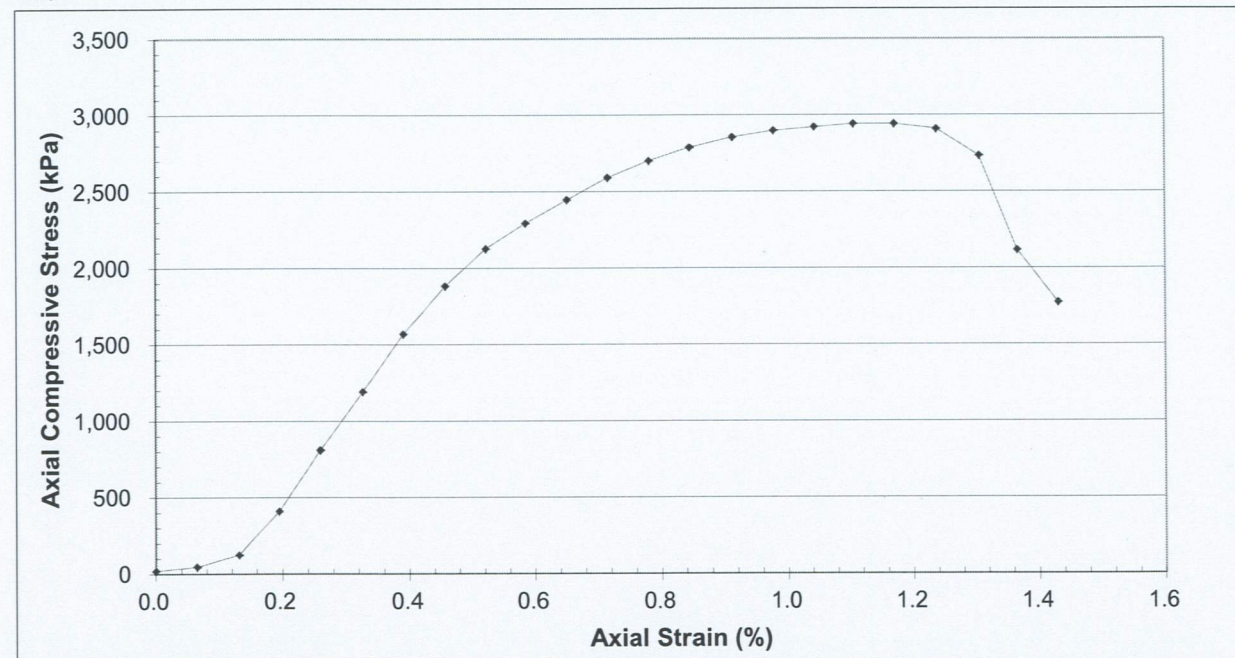
Visual Description: Light brownish grey sandy SILT/CLAY with Cement

Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

Compression Results

Maximum axial stress	2942	kPa	Sketch of failure conditions Inclination of shear surface	
Axial strain at failure	1.2	%		
Unconfined compressive strength, (q _u)	2942	kPa		

Graph



Remarks : Mixing Date : 15/4/2020

Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Certified by : HUI King Fai

Date : 20 April 2020

Date : 22 April 2020



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Report on Unconfined Compression Test - Compression Data

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200060

Job No.: SHK200015

Page: 2 of 2

Client#: Sang Hing - Kuly Joint Venture

Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: - Depth (m)#: -

Date of Test: 20/4/2020

Sample No.#: S3-SC074A Actual Depth (m): -
18/04/2020
LD002 S3

W.O. No.#: -

Sample Type#: PT75

Sample Origin#: Contaminated soil mixed with 7.5%
cement and 10% sand

Date Received: 18/4/2020

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_0)	mm	153.9
		Original area (A_0)	mm ²	4524.5

The compression was terminated at 1.4% of axial strain and the peak axial compressive stress is reached at 1.2%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in Italic

<i>Axial Deformation Reading (mm)</i>	<i>Axial Strain ϵ (%)</i>	<i>Proving Ring Gauge Reading (mm)</i>	<i>Load Cell Reading (kN)</i>	<i>Axial Force P (N)</i>	<i>Cross-section Area A (mm²)</i>	<i>Axial Compressive Stress σ_1 (kPa)</i>
0.00	0.0	-	0.09	90	4524.5	19.89
0.10	0.1	-	0.21	210	4527.5	46.38
0.20	0.1	-	0.57	570	4530.5	125.81
0.30	0.2	-	1.86	1860	4533.4	410.29
0.40	0.3	-	3.67	3670	4536.3	809.03
0.50	0.3	-	5.41	5410	4539.3	1191.80
0.60	0.4	-	7.12	7120	4542.3	1567.50
0.70	0.5	-	8.55	8550	4545.3	1881.07
0.80	0.5	-	9.67	9670	4548.3	2126.09
0.90	0.6	-	10.43	10430	4551.2	2291.72
1.00	0.7	-	11.14	11140	4554.2	2446.10
1.10	0.7	-	11.81	11810	4557.1	2591.54
1.20	0.8	-	12.32	12320	4560.1	2701.67
1.30	0.8	-	12.72	12720	4563.1	2787.58
1.40	0.9	-	13.04	13040	4566.2	2855.78
1.50	1.0	-	13.24	13240	4569.2	2897.67
1.61	1.0	-	13.36	13360	4572.2	2922.00
1.70	1.1	-	13.46	13460	4575.1	2942.01
1.80	1.2	-	13.47	13470	4578.1	2942.27
1.90	1.2	-	13.33	13330	4581.2	2909.71
2.01	1.3	-	12.53	12530	4584.4	2733.20
2.10	1.4	-	9.70	9700	4587.2	2114.59
2.20	1.4	-	8.14	8140	4590.2	1773.35

Report No. : SLST0200060

Job No. : SHK200015





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Report on Unconfined Compression Test - Summary of Soil Properties

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200060

Job No.: SHK200015

Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: - Depth (m)#: - Date of Test: 21/4/2020
Sample No.#: S3-SC074A 18/04/2020 Actual Depth (m): - W.O. No.#: -
LD002 S4
Sample Type#: PT75 Sample Origin#: Contaminated soil mixed with 7.5% cement and 10% sand Date Received: 18/4/2020

Information provided by Client

Specimen Details

Diameter of specimen	mm	76.2	Wet mass of specimen	g	1172.6
Length of specimen	mm	151.8	Dry mass of specimen	g	-
Area of specimen	mm ²	4560.4	Moisture content	%	-
Volume of specimen	cm ³	692.26	Bulk density	Mg/m ³	1.69
Particle density (assumed/measured)*	Mg/m ³	2.65	Dry density	Mg/m ³	-

* Delete whichever is inappropriate

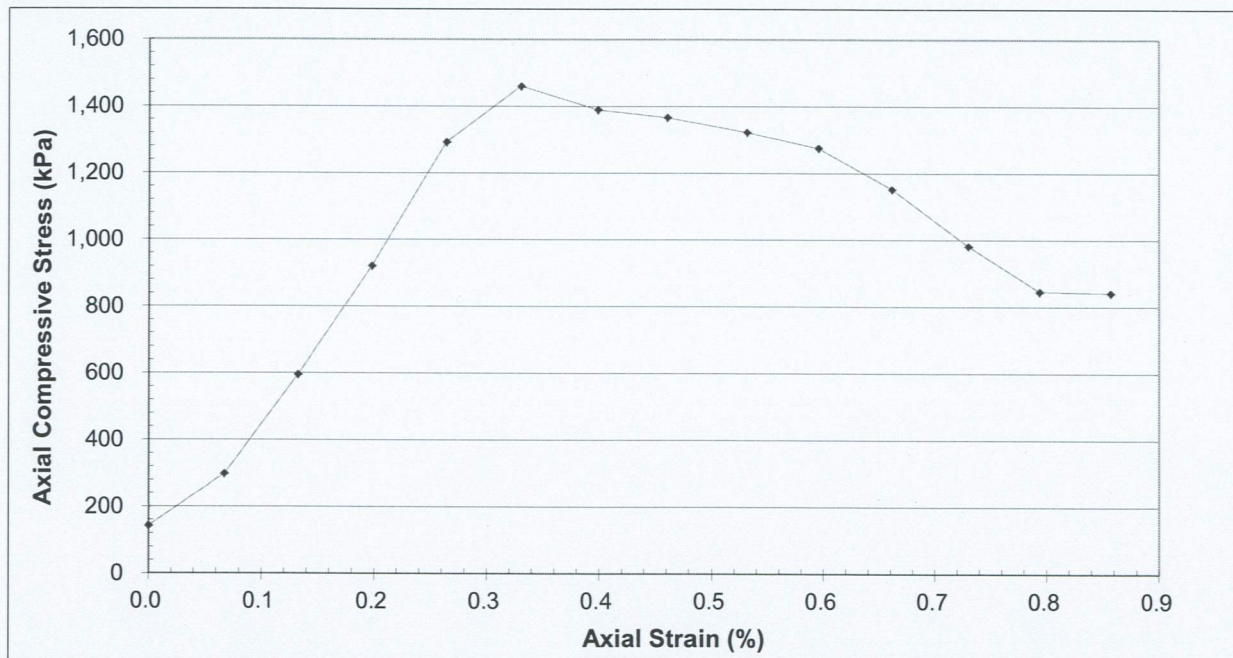
Visual Description: Dark greyish brown sandy SILT/CLAY with Cement

Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

Compression Results

Maximum axial stress	1460	kPa	Sketch of failure conditions Inclination of shear surface	
Axial strain at failure	0.33	%		
Unconfined compressive strength, (q _u)	1460	kPa		

Graph



Remarks : Mixing Date : 16/4/2020

Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Certified by :
HUI King Fai

Date : 21 April 2020

Date : 22 April 2020



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Report on Unconfined Compression Test - Compression Data

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200060

Job No.: SHK200015

Page: 2 of 2

Client#: Sang Hing - Kuly Joint Venture

Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: - Depth (m)#: -

Date of Test: 21/4/2020

Sample No.#: S3-SC074A Actual Depth (m): -

W.O. No.#: -

18/04/2020
LD002 S4

Sample Type#: PT75

Sample Origin#: Contaminated soil mixed with 7.5%
cement and 10% sand

Date Received: 18/4/2020

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_0)	mm	151.8
		Original area (A_0)	mm ²	4560.4

The compression was terminated at 0.9% of axial strain and the peak axial compressive stress is reached at 0.3%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in Italic

<i>Axial Deformation Reading (mm)</i>	<i>Axial Strain ϵ (%)</i>	<i>Proving Ring Gauge Reading (mm)</i>	<i>Load Cell Reading (kN)</i>	<i>Axial Force P (N)</i>	<i>Cross- section Area A (mm²)</i>	<i>Axial Compressive Stress σ_1 (kPa)</i>
0.00	0.0	-	0.65	650	4560.4	142.53
0.10	0.1	-	1.36	1360	4563.4	298.02
0.20	0.1	-	2.72	2720	4566.4	595.65
0.30	0.2	-	4.21	4210	4569.4	921.35
0.40	0.3	-	5.91	5910	4572.4	1292.52
0.50	0.3	-	6.68	6680	4575.5	1459.95
0.61	0.4	-	6.36	6360	4578.6	1389.06
0.70	0.5	-	6.26	6260	4581.5	1366.37
0.81	0.5	-	6.06	6060	4584.7	1321.78
0.90	0.6	-	5.85	5850	4587.7	1275.15
1.00	0.7	-	5.29	5290	4590.7	1152.32
1.11	0.7	-	4.51	4510	4593.9	981.74
1.21	0.8	-	3.89	3890	4596.9	846.23
1.30	0.9	-	3.87	3870	4599.8	841.34

Report No. : SLST0200060

Job No. : SHK200015





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Report on Unconfined Compression Test - Summary of Soil Properties

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200060

Job No.: SHK200015

Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture

Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -

Depth (m)#: -

Date of Test: 21/4/2020

Sample No.#: S3-SC074A 18/04/2020
LD002 S5

Actual Depth (m): -

W.O. No.#: -

Sample Type#: PT75

Sample Origin#: Contaminated soil mixed with 7.5%
cement and 10% sand

Date Received: 18/4/2020

Information provided by Client

Specimen Details

Diameter of specimen	mm	76.2	Wet mass of specimen	g	1182.5
Length of specimen	mm	150.0	Dry mass of specimen	g	-
Area of specimen	mm ²	4560.4	Moisture content	%	-
Volume of specimen	cm ³	684.06	Bulk density	Mg/m ³	1.73
Particle density (assumed/measured)*	Mg/m ³	2.65	Dry density	Mg/m ³	-

* Delete whichever is inappropriate

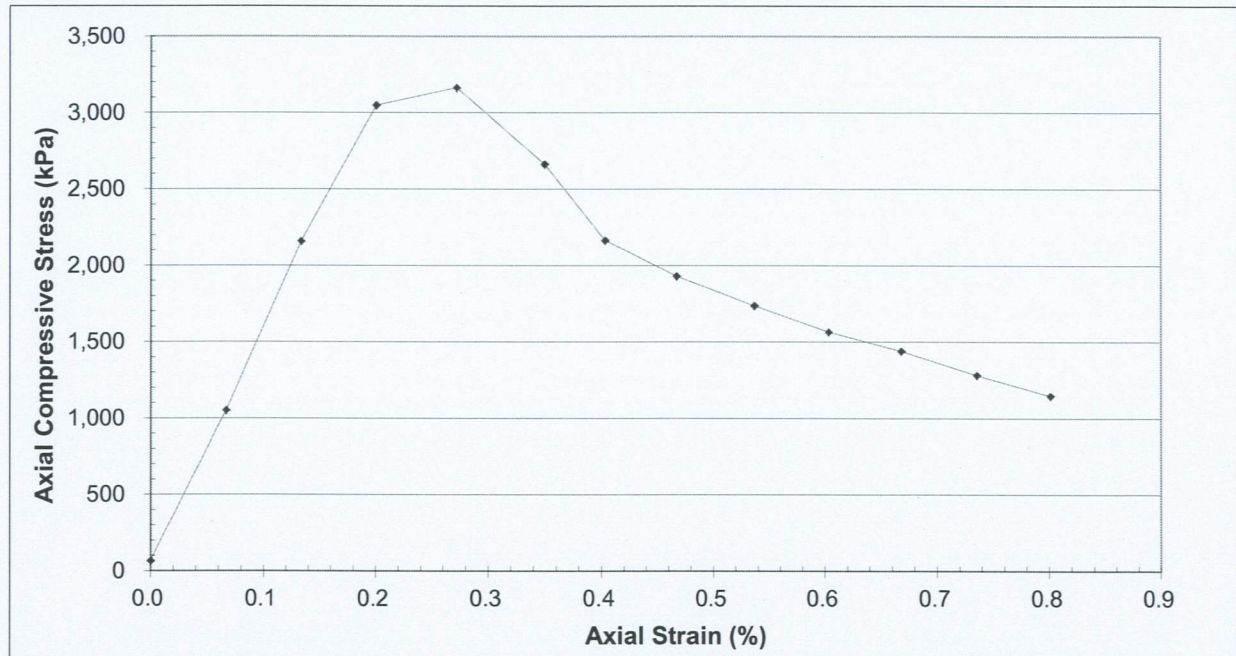
Visual Description: Light brownish grey sandy SILT/CLAY with Cement

Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

Compression Results

Maximum axial stress	3164	kPa	Sketch of failure conditions Inclination of shear surface	
Axial strain at failure	0.27	%		
Unconfined compressive strength, (q _u)	3164	kPa		

Graph



Remarks : Mixing Date : 16/4/2020

Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Certified by :

HUI King Fai

Date : 21 April 2020

Date : 22 April 2020



Soil Services Testing Company Limited

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Report on Unconfined Compression Test - Compression Data

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200060

Job No.: SHK200015

Page: 2 of 2

Client#: Sang Hing - Kuly Joint Venture

Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: - Depth (m)#: -

Date of Test: 21/4/2020

Sample No.#: S3-SC074A Actual Depth (m): -
18/04/2020
LD002 S5

W.O. No.#: -

Sample Type#: PT75

Sample Origin#: Contaminated soil mixed with 7.5%
cement and 10% sand

Date Received: 18/4/2020

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_0)	mm	150.0
		Original area (A_0)	mm ²	4560.4

The compression was terminated at 0.8% of axial strain and the peak axial compressive stress is reached at 0.3%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in Italic

<i>Axial Deformation Reading (mm)</i>	<i>Axial Strain ϵ (%)</i>	<i>Proving Ring Gauge Reading (mm)</i>	<i>Load Cell Reading (kN)</i>	<i>Axial Force P (N)</i>	<i>Cross- section Area A (mm²)</i>	<i>Axial Compressive Stress σ_1 (kPa)</i>
0.00	0.0	-	0.30	300	4560.4	65.78
0.10	0.1	-	4.80	4800	4563.4	1051.85
0.20	0.1	-	9.85	9850	4566.5	2157.03
0.30	0.2	-	13.93	13930	4569.5	3048.45
0.41	0.3	-	14.47	14470	4572.8	3164.36
0.53	0.4	-	12.19	12190	4576.4	2663.67
0.61	0.4	-	9.91	9910	4578.8	2164.31
0.70	0.5	-	8.84	8840	4581.8	1929.38
0.81	0.5	-	7.96	7960	4585.0	1736.11
0.91	0.6	-	7.18	7180	4588.0	1564.94
1.00	0.7	-	6.61	6610	4591.0	1439.76
1.10	0.7	-	5.89	5890	4594.1	1282.07
1.20	0.8	-	5.27	5270	4597.2	1146.35

Report No. : SLST0200060

Job No. : SHK200015





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Report on Unconfined Compression Test - Summary of Soil Properties

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200060

Job No.: SHK200015

Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture

Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: - Depth (m)#: - Date of Test: 21/4/2020
Sample No.#: S3-SC074A 18/04/2020 Actual Depth (m): - W.O. No.#: -
LD002 S6

Sample Type#: PT75 Sample Origin#: Contaminated soil mixed with 7.5% cement and 10% sand Date Received: 18/4/2020

Information provided by Client

Specimen Details

Diameter of specimen	mm	75.6	Wet mass of specimen	g	1187.0
Length of specimen	mm	150.3	Dry mass of specimen	g	-
Area of specimen	mm ²	4488.8	Moisture content	%	-
Volume of specimen	cm ³	674.67	Bulk density	Mg/m ³	1.76
Particle density (assumed/measured)*	Mg/m ³	2.65	Dry density	Mg/m ³	-

* Delete whichever is inappropriate

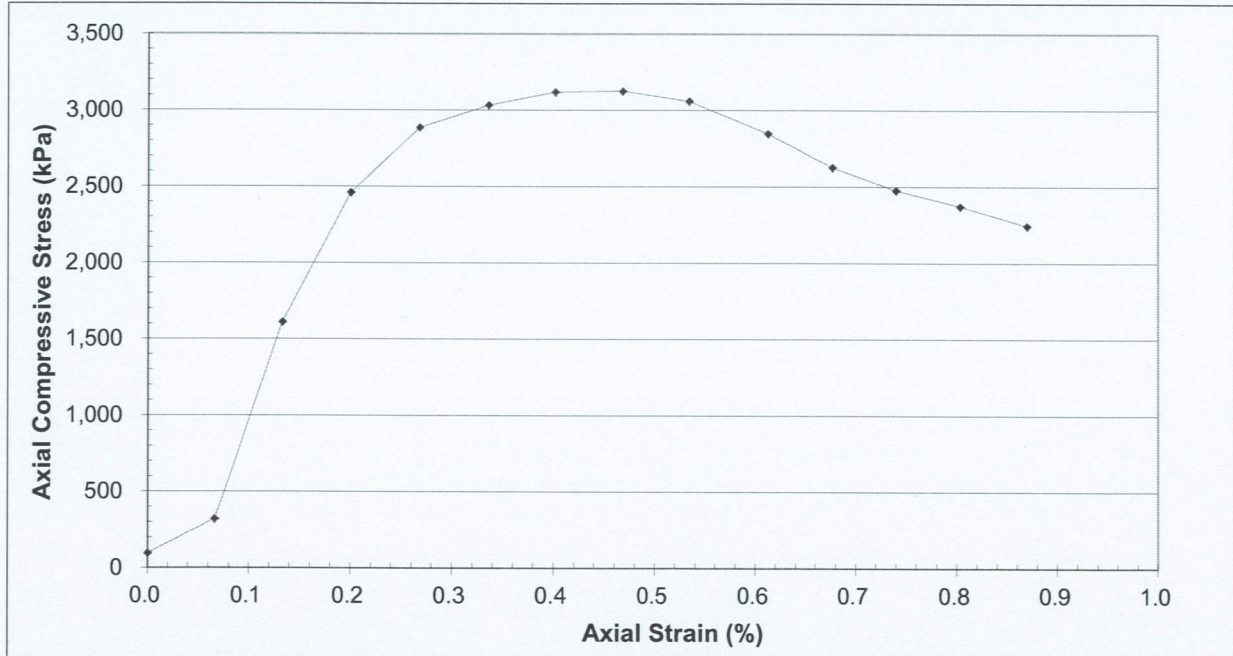
Visual Description: Light brownish grey sandy SILT/CLAY with Cement

Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

Compression Results

Maximum axial stress	3126	kPa	Sketch of failure conditions Inclination of shear surface	
Axial strain at failure	0.47	%		
Unconfined compressive strength, (q _u)	3126	kPa		

Graph



Remarks : Mixing Date : 17/4/2020

Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Certified by : HUI King Fai

Date : 21 April 2020

Date : 22 April 2020



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Report on Unconfined Compression Test - Compression Data

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200060

Job No.: SHK200015

Page: 2 of 2

Client#: Sang Hing - Kuly Joint Venture

Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: - Depth (m)#: -

Date of Test: 21/4/2020

Sample No.#: S3-SC074A Actual Depth (m): -
18/04/2020
LD002 S6

W.O. No.#: -

Sample Type#: PT75 Sample Origin#: Contaminated soil mixed with 7.5%
cement and 10% sand

Date Received: 18/4/2020

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_0)	mm	150.3
		Original area (A_0)	mm ²	4488.8

The compression was terminated at 0.9% of axial strain and the peak axial compressive stress is reached at 0.5%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in *italic*

<i>Axial Deformation Reading (mm)</i>	<i>Axial Strain ϵ (%)</i>	<i>Proving Ring Gauge Reading (mm)</i>	<i>Load Cell Reading (kN)</i>	<i>Axial Force P (N)</i>	<i>Cross- section Area A (mm²)</i>	<i>Axial Compressive Stress σ_1 (kPa)</i>
0.00	0.0	-	0.43	430	4488.8	95.79
0.10	0.1	-	1.44	1440	4491.8	320.58
0.20	0.1	-	7.24	7240	4494.8	1610.75
0.30	0.2	-	11.06	11060	4497.8	2458.96
0.40	0.3	-	12.99	12990	4500.9	2886.09
0.51	0.3	-	13.66	13660	4504.0	3032.88
0.60	0.4	-	14.06	14060	4506.9	3119.63
0.70	0.5	-	14.10	14100	4510.0	3126.42
0.80	0.5	-	13.81	13810	4512.9	3060.09
0.92	0.6	-	12.86	12860	4516.5	2847.33
1.02	0.7	-	11.87	11870	4519.4	2626.45
1.11	0.7	-	11.20	11200	4522.3	2476.62
1.21	0.8	-	10.73	10730	4525.2	2371.18
1.31	0.9	-	10.16	10160	4528.2	2243.71

Report No. : SLST0200060

Job No. : SHK200015





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Report on Unconfined Compression Test - Summary of Soil Properties

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200060

Job No.: SHK200015

Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture

Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -

Depth (m)#: -

Date of Test: 21/4/2020

Sample No.#: S3-SC074A 18/04/2020
LD002 S7

Actual Depth (m): -

W.O. No.#: -

Sample Type#: PT75

Sample Origin#: Contaminated soil mixed with 7.5%
cement and 10% sand

Date Received: 18/4/2020

Information provided by Client

Specimen Details

Diameter of specimen	mm	75.9	Wet mass of specimen	g	1174.7
Length of specimen	mm	149.4	Dry mass of specimen	g	-
Area of specimen	mm ²	4524.5	Moisture content	%	-
Volume of specimen	cm ³	675.96	Bulk density	Mg/m ³	1.74
Particle density (assumed/measured)*	Mg/m ³	2.65	Dry density	Mg/m ³	-

* Delete whichever is inappropriate

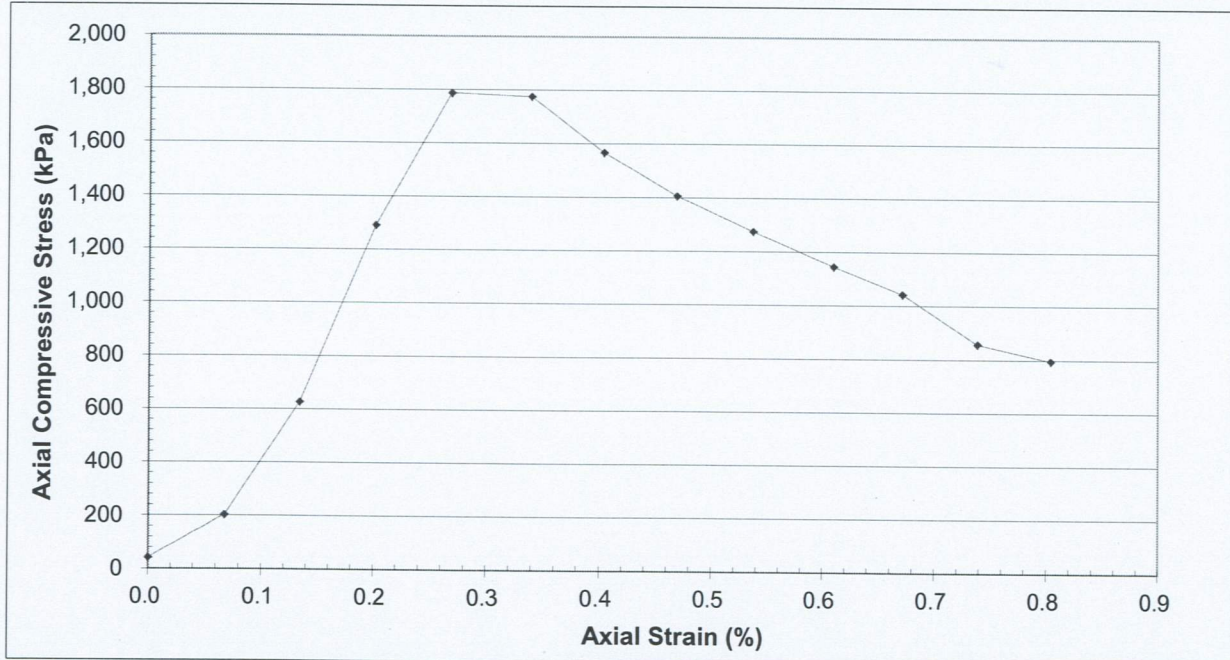
Visual Description: Light brownish grey sandy SILT/CLAY with Cement

Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

Compression Results

Maximum axial stress	1788	kPa	Sketch of failure conditions Inclination of shear surface	
Axial strain at failure	0.27	%		
Unconfined compressive strength, (q _u)	1788	kPa		

Graph



Remarks : Mixing Date : 17/4/2020

Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Certified by : HUI King Fai

Date : 21 April 2020

Date : 22 April 2020



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Report on Unconfined Compression Test - Compression Data

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200060

Job No.: SHK200015

Page: 2 of 2

Client#: Sang Hing - Kuly Joint Venture

Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: - Depth (m)#: -

Date of Test: 21/4/2020

Sample No.#: S3-SC074A Actual Depth (m): -
18/04/2020
LD002 S7

W.O. No.#: -

Sample Type#: PT75

Sample Origin#: Contaminated soil mixed with 7.5%
cement and 10% sand

Date Received: 18/4/2020

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_0)	mm	149.4
		Original area (A_0)	mm ²	4524.5

The compression was terminated at 0.8% of axial strain and the peak axial compressive stress is reached at 0.3%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in Italic

<i>Axial Deformation Reading (mm)</i>	<i>Axial Strain ϵ (%)</i>	<i>Proving Ring Gauge Reading (mm)</i>	<i>Load Cell Reading (kN)</i>	<i>Axial Force P (N)</i>	<i>Cross- section Area A (mm²)</i>	<i>Axial Compressive Stress σ_1 (kPa)</i>
0.00	0.0	-	0.19	190	4524.5	41.99
0.10	0.1	-	0.92	920	4527.6	203.20
0.20	0.1	-	2.84	2840	4530.6	626.85
0.30	0.2	-	5.85	5850	4533.7	1290.35
0.40	0.3	-	8.11	8110	4536.7	1787.64
0.51	0.3	-	8.06	8060	4539.9	1775.36
0.60	0.4	-	7.12	7120	4542.9	1567.29
0.70	0.5	-	6.39	6390	4545.9	1405.67
0.80	0.5	-	5.80	5800	4548.9	1275.02
0.91	0.6	-	5.21	5210	4552.3	1144.48
1.00	0.7	-	4.75	4750	4555.1	1042.78
1.10	0.7	-	3.91	3910	4558.2	857.80
1.20	0.8	-	3.63	3630	4561.2	795.84

Report No. : SLST0200060

Job No. : SHK200015





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Report on Unconfined Compression Test - Summary of Soil Properties

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200062

Job No.: SHK200016

Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: - Depth (m)#: - Date of Test: 23/4/2020
Sample No.#: S3-SC074A 21/04/2020 Actual Depth (m): - W.O. No.#: -
LD002 S8
Sample Type#: PT75 Sample Origin#: Contaminated soil mixed with 7.5% cement and 10% sand Date Received: 21/4/2020

Information provided by Client

Specimen Details

Diameter of specimen	mm	75.6	Wet mass of specimen	g	1227.5
Length of specimen	mm	153.6	Dry mass of specimen	g	-
Area of specimen	mm ²	4488.8	Moisture content	%	-
Volume of specimen	cm ³	689.48	Bulk density	Mg/m ³	1.78
Particle density (assumed/measured)*	Mg/m ³	2.65	Dry density	Mg/m ³	-

* Delete whichever is inappropriate

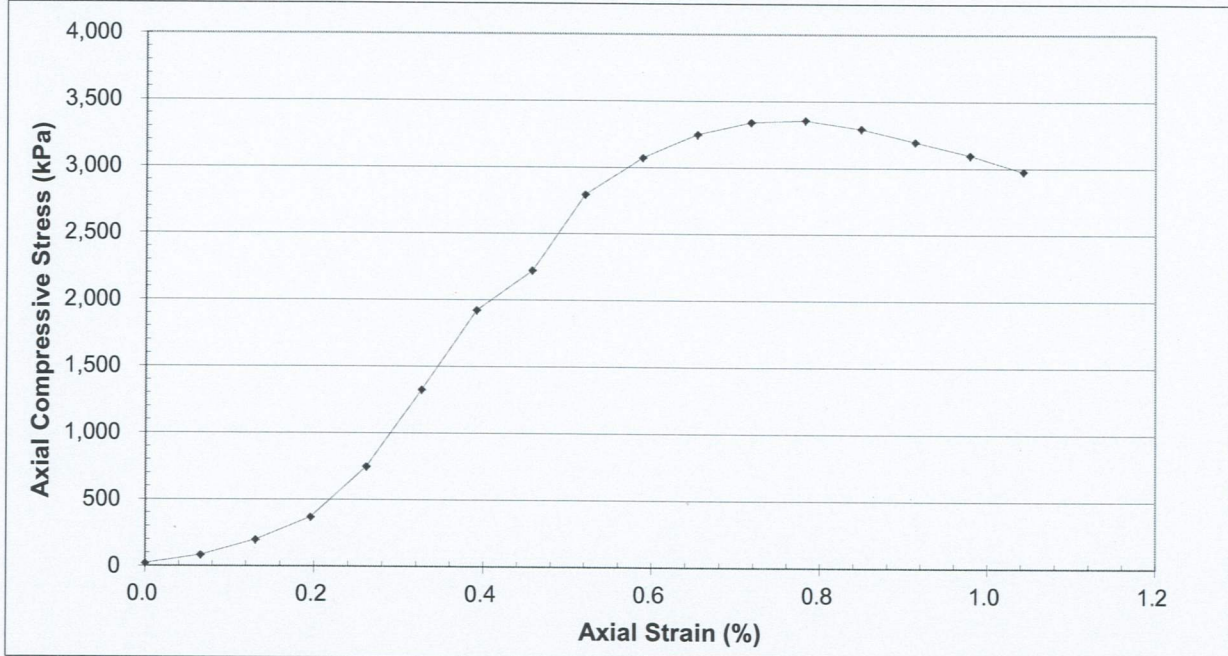
Visual Description: Light brownish grey sandy SILT/CLAY with Cement

Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

Compression Results

Maximum axial stress	3355	kPa	Sketch of failure conditions Inclination of shear surface	
Axial strain at failure	0.78	%		
Unconfined compressive strength, (q _u)	3355	kPa		

Graph



Remarks : Mixing Date : 18/4/2020

Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Certified by :
HUI King Fai

Date : 23 April 2020

Date : 24 April 2020



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Report on Unconfined Compression Test - Compression Data

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200062

Job No.: SHK200016

Page: 2 of 2

Client#: Sang Hing - Kuly Joint Venture

Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No. #: - Depth (m) #: -

Date of Test: 23/4/2020

Sample No. #: S3-SC074A
21/04/2020
LD002 S8
Actual Depth (m): -

W.O. No. #: -

Sample Type #: PT75
Sample Origin #: Contaminated soil mixed with 7.5%
cement and 10% sand

Date Received: 21/4/2020

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_0)	mm	153.6
		Original area (A_0)	mm ²	4488.8

The compression was terminated at 1% of axial strain and the peak axial compressive stress is reached at 0.8%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in Italic

<i>Axial Deformation Reading (mm)</i>	<i>Axial Strain ϵ (%)</i>	<i>Proving Ring Gauge Reading (mm)</i>	<i>Load Cell Reading (kN)</i>	<i>Axial Force P (N)</i>	<i>Cross- section Area A (mm²)</i>	<i>Axial Compressive Stress σ_1 (kPa)</i>
0.00	0.0	-	0.09	90	4488.8	20.05
0.10	0.1	-	0.37	370	4491.8	82.37
0.20	0.1	-	0.89	890	4494.7	198.01
0.30	0.2	-	1.66	1660	4497.6	369.08
0.40	0.3	-	3.36	3360	4500.6	746.57
0.50	0.3	-	5.97	5970	4503.5	1325.63
0.60	0.4	-	8.66	8660	4506.5	1921.68
0.70	0.5	-	10.02	10020	4509.5	2221.99
0.80	0.5	-	12.61	12610	4512.3	2794.56
0.90	0.6	-	13.87	13870	4515.4	3071.70
1.00	0.7	-	14.68	14680	4518.3	3248.98
1.10	0.7	-	15.10	15100	4521.2	3339.79
1.20	0.8	-	15.18	15180	4524.2	3355.31
1.30	0.8	-	14.91	14910	4527.2	3293.40
1.40	0.9	-	14.48	14480	4530.2	3196.34
1.50	1.0	-	14.04	14040	4533.2	3097.16
1.60	1.0	-	13.50	13500	4536.1	2976.12

Report No. : SLST0200062

Job No. : SHK200016





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Report on Unconfined Compression Test - Summary of Soil Properties

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200062

Job No.: SHK200016

Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: - Depth (m)#: - Date of Test: 23/4/2020
Sample No.#: S3-SC074A 21/04/2020 Actual Depth (m): - W.O. No.#: -
LD002 S9
Sample Type#: PT75 Sample Origin#: Contaminated soil mixed with 7.5% cement and 10% sand Date Received: 21/4/2020

Information provided by Client

Specimen Details

Diameter of specimen	mm	76.0	Wet mass of specimen	g	1204.7
Length of specimen	mm	149.7	Dry mass of specimen	g	-
Area of specimen	mm ²	4536.5	Moisture content	%	-
Volume of specimen	cm ³	679.11	Bulk density	Mg/m ³	1.77
Particle density (assumed/measured)*	Mg/m ³	2.65	Dry density	Mg/m ³	-

* Delete whichever is inappropriate

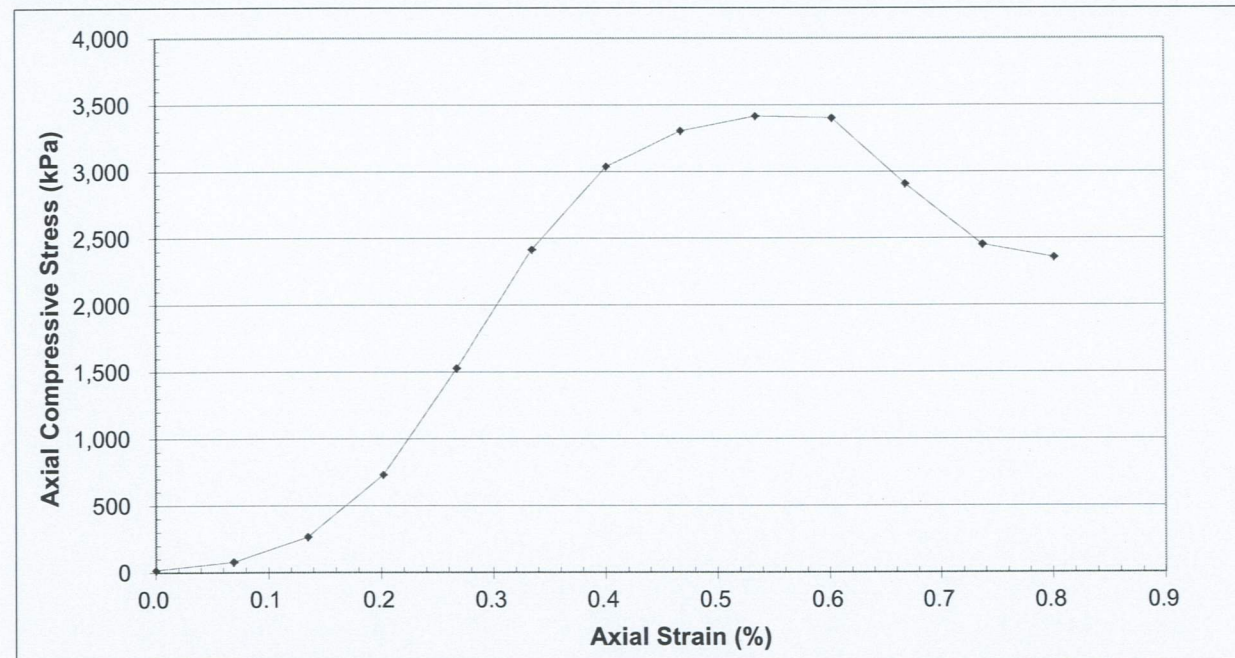
Visual Description: Light brownish grey sandy SILT/CLAY with Cement

Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

Compression Results

Maximum axial stress	3416	kPa	Sketch of failure conditions Inclination of shear surface	
Axial strain at failure	0.53	%		
Unconfined compressive strength, (q _u)	3416	kPa		

Graph



Remarks : Mixing Date : 18/4/2020

Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Certified by : HUI King Fai

Date : 23 April 2020

Date : 24 April 2020



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Report on Unconfined Compression Test - Compression Data

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200062

Job No.: SHK200016

Page: 2 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: - Depth (m)#: - Date of Test: 23/4/2020
Sample No.#: S3-SC074A Actual Depth (m): - W.O. No.#: -
21/04/2020
LD002 S9

Sample Type#: PT75 Sample Origin#: Contaminated soil mixed with 7.5%
cement and 10% sand Date Received: 21/4/2020

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L ₀)	mm	149.7
		Original area (A ₀)	mm ²	4536.5

The compression was terminated at 0.8% of axial strain and the peak axial compressive stress is reached at 0.5%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in Italic

<i>Axial Deformation Reading (mm)</i>	<i>Axial Strain ϵ (%)</i>	<i>Proving Ring Gauge Reading (mm)</i>	<i>Load Cell Reading (kN)</i>	<i>Axial Force P (N)</i>	<i>Cross- section Area A (mm²)</i>	<i>Axial Compressive Stress σ_1 (kPa)</i>
0.00	0.0	-	0.08	80	4536.5	17.63
0.10	0.1	-	0.36	360	4539.6	79.30
0.20	0.1	-	1.21	1210	4542.6	266.37
0.30	0.2	-	3.32	3320	4545.6	730.37
0.40	0.3	-	6.95	6950	4548.6	1527.94
0.50	0.3	-	10.99	10990	4551.7	2414.49
0.60	0.4	-	13.84	13840	4554.7	3038.59
0.70	0.5	-	15.06	15060	4557.8	3304.22
0.80	0.5	-	15.58	15580	4560.8	3416.04
0.90	0.6	-	15.53	15530	4564.0	3402.75
1.00	0.7	-	13.28	13280	4567.0	2907.82
1.10	0.7	-	11.21	11210	4570.2	2452.87
1.20	0.8	-	10.78	10780	4573.1	2357.25

Report No. : SLST0200062

Job No. : SHK200016





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Report on Unconfined Compression Test - Summary of Soil Properties

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200062
Job No.: SHK200016
Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: - Depth (m)#: - Date of Test: 24/4/2020
Sample No.#: S3-SC074A 21/04/2020 Actual Depth (m): - W.O. No.#: -
LD002 S10
Sample Type#: PT75 Sample Origin#: Contaminated soil mixed with 7.5% cement and 10% sand Date Received: 21/4/2020

Information provided by Client

Specimen Details


Diameter of specimen	mm	76.1	Wet mass of specimen	g	1221.3
Length of specimen	mm	153.0	Dry mass of specimen	g	-
Area of specimen	mm ²	4548.4	Moisture content	%	-
Volume of specimen	cm ³	695.91	Bulk density	Mg/m ³	1.75
Particle density (assumed/measured)*	Mg/m ³	2.65	Dry density	Mg/m ³	-

* Delete whichever is inappropriate

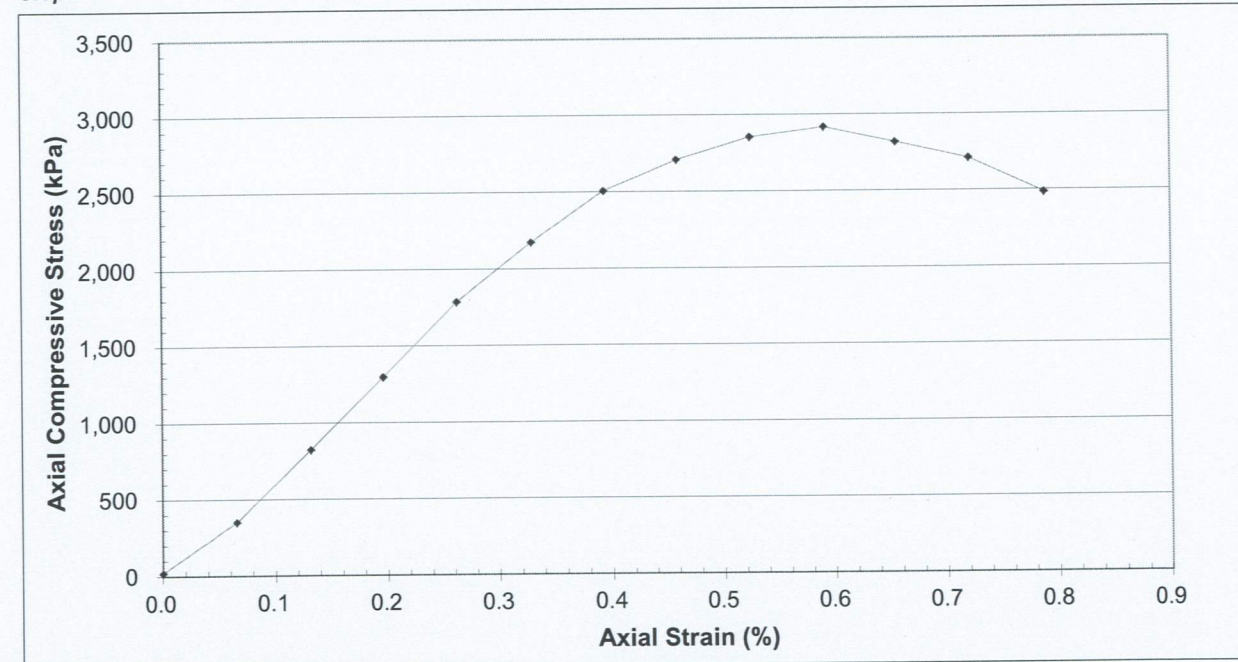
Visual Description: Light brownish grey sandy SILT/CLAY with Cement

Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

Compression Results

Maximum axial stress	2918	kPa	Sketch of failure conditions Inclination of shear surface	
Axial strain at failure	0.59	%		
Unconfined compressive strength, (q _u)	2918	kPa		

Graph



Remarks : Mixing Date : 20/4/2020

Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Certified by : HUI King Fai

Date : 24 April 2020

Date : 24 April 2020



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Report on Unconfined Compression Test - Compression Data

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200062

Job No.: SHK200016

Page: 2 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: - Depth (m)#: - Date of Test: 24/4/2020
Sample No.#: S3-SC074A Actual Depth (m): - W.O. No.#: -
21/04/2020
LD002 S10

Sample Type#: PT75 Sample Origin#: Contaminated soil mixed with 7.5% cement and 10% sand Date Received: 21/4/2020

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_0)	mm	153.0
		Original area (A_0)	mm ²	4548.4

The compression was terminated at 0.8% of axial strain and the peak axial compressive stress is reached at 0.6%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in Italic

<i>Axial Deformation Reading (mm)</i>	<i>Axial Strain ϵ (%)</i>	<i>Proving Ring Gauge Reading (mm)</i>	<i>Load Cell Reading (kN)</i>	<i>Axial Force P (N)</i>	<i>Cross-section Area A (mm²)</i>	<i>Axial Compressive Stress σ_1 (kPa)</i>
0.00	0.0	-	0.09	90	4548.4	19.79
0.10	0.1	-	1.60	1600	4551.4	351.54
0.20	0.1	-	3.75	3750	4554.4	823.38
0.30	0.2	-	5.91	5910	4557.3	1296.81
0.40	0.3	-	8.14	8140	4560.4	1784.95
0.50	0.3	-	9.91	9910	4563.4	2171.62
0.60	0.4	-	11.44	11440	4566.4	2505.27
0.70	0.5	-	12.37	12370	4569.4	2707.16
0.80	0.5	-	13.05	13050	4572.4	2854.10
0.90	0.6	-	13.35	13350	4575.4	2917.75
1.00	0.7	-	12.90	12900	4578.4	2817.58
1.10	0.7	-	12.42	12420	4581.4	2710.96
1.21	0.8	-	11.39	11390	4584.5	2484.45

Report No. : SLST0200062

Job No. : SHK200016





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Report on Unconfined Compression Test - Summary of Soil Properties

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200062

Job No.: SHK200016

Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: - Depth (m)#: - Date of Test: 24/4/2020
Sample No.#: S3-SC074A 21/04/2020 Actual Depth (m): - W.O. No.#: -
LD002 S11
Sample Type#: PT75 Sample Origin#: Contaminated soil mixed with 7.5% cement and 10% sand Date Received: 21/4/2020

Information provided by Client

Specimen Details

Diameter of specimen	mm	76.4	Wet mass of specimen	g	1236.1
Length of specimen	mm	154.1	Dry mass of specimen	g	-
Area of specimen	mm ²	4584.3	Moisture content	%	-
Volume of specimen	cm ³	706.45	Bulk density	Mg/m ³	1.75
Particle density (assumed/measured)*	Mg/m ³	2.65	Dry density	Mg/m ³	-

* Delete whichever is inappropriate

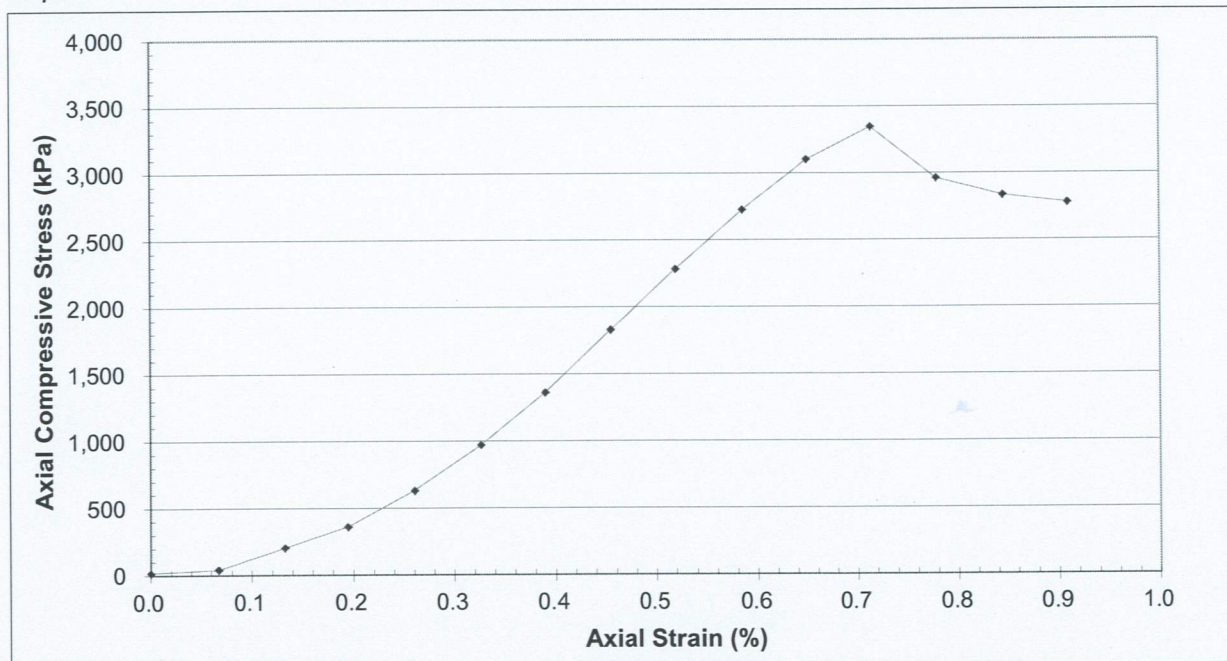
Visual Description: Light brownish grey sandy SILT/CLAY with Cement

Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

Compression Results

Maximum axial stress	3346	kPa	Sketch of failure conditions Inclination of shear surface	
Axial strain at failure	0.71	%		
Unconfined compressive strength, (q _u)	3346	kPa		

Graph



Remarks : Mixing Date : 20/4/2020

Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Certified by : HUI King Fai

Date : 24 April 2020

Date : 24 April 2020



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Report on Unconfined Compression Test - Compression Data

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200062

Job No.: SHK200016

Page: 2 of 2

Client#: Sang Hing - Kuly Joint Venture

Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: - Depth (m)#: -

Date of Test: 24/4/2020

Sample No.#: S3-SC074A Actual Depth (m): -

W.O. No.#: -

21/04/2020
LD002 S11

Sample Type#: PT75

Sample Origin#: Contaminated soil mixed with 7.5%
cement and 10% sand

Date Received: 21/4/2020

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_0)	mm	154.1
		Original area (A_0)	mm ²	4584.3

The compression was terminated at 0.9% of axial strain and the peak axial compressive stress is reached at 0.7%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in Italic

<i>Axial Deformation Reading (mm)</i>	<i>Axial Strain ϵ (%)</i>	<i>Proving Ring Gauge Reading (mm)</i>	<i>Load Cell Reading (kN)</i>	<i>Axial Force P (N)</i>	<i>Cross- section Area A (mm²)</i>	<i>Axial Compressive Stress σ_1 (kPa)</i>
0.00	0.0	-	0.08	80	4584.3	17.45
0.10	0.1	-	0.19	190	4587.4	41.42
0.20	0.1	-	0.94	940	4590.4	204.77
0.30	0.2	-	1.66	1660	4593.3	361.40
0.40	0.3	-	2.90	2900	4596.3	630.94
0.50	0.3	-	4.46	4460	4599.4	969.70
0.60	0.4	-	6.27	6270	4602.3	1362.37
0.70	0.5	-	8.43	8430	4605.3	1830.50
0.80	0.5	-	10.52	10520	4608.3	2282.84
0.90	0.6	-	12.57	12570	4611.3	2725.90
1.00	0.6	-	14.31	14310	4614.3	3101.22
1.10	0.7	-	15.45	15450	4617.3	3346.11
1.20	0.8	-	13.68	13680	4620.3	2960.84
1.30	0.8	-	13.10	13100	4623.4	2833.41
1.40	0.9	-	12.85	12850	4626.4	2777.54

Report No. : SLST0200062

Job No. : SHK200016





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Report on Unconfined Compression Test - Summary of Soil Properties

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200064

Job No.: SHK200017

Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture

Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -

Depth (m)#: -

Date of Test: 25/4/2020

Sample No.#: S3-SC074A 25/04/2020
LD002 S12

Actual Depth (m): -

W.O. No.#: -

Sample Type#: PT75

Sample Origin#: Contaminated soil mixed with 7.5%
cement and 10% sand

Date Received: 25/4/2020

Information provided by Client

Specimen Details


Diameter of specimen	mm	76.5	Wet mass of specimen	g	1211.2
Length of specimen	mm	150.8	Dry mass of specimen	g	-
Area of specimen	mm ²	4596.3	Moisture content	%	-
Volume of specimen	cm ³	693.13	Bulk density	Mg/m ³	1.75
Particle density (assumed/measured)*	Mg/m ³	2.65	Dry density	Mg/m ³	-

* Delete whichever is inappropriate

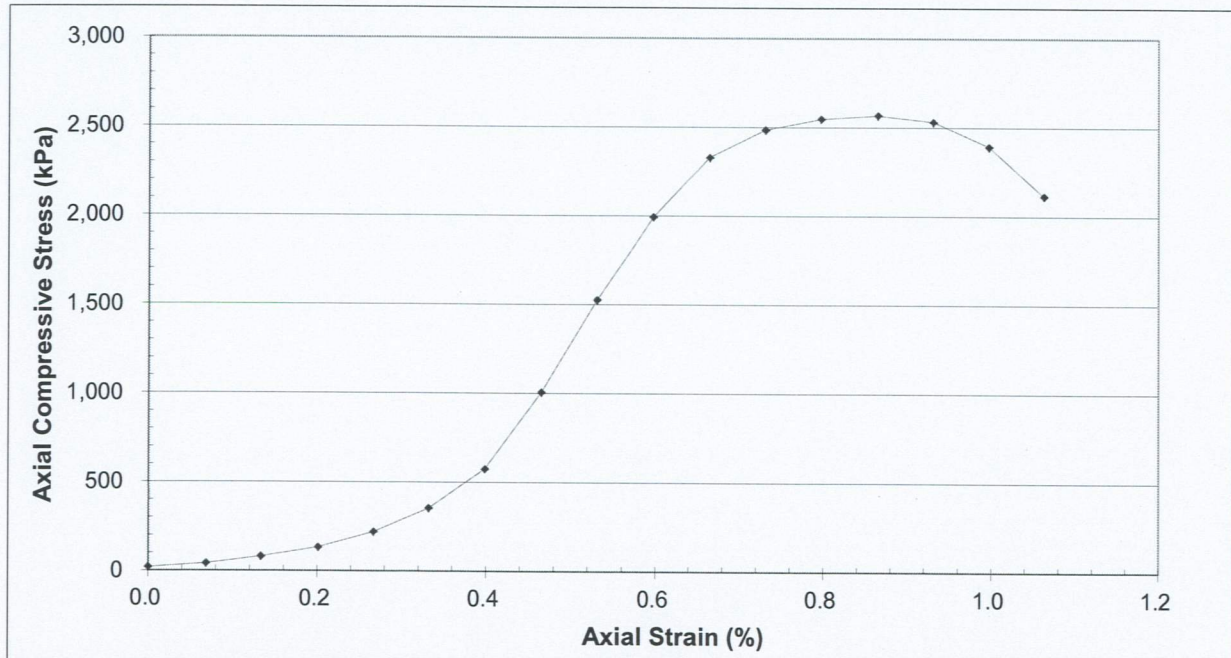
Visual Description: Light brownish grey sandy SILT/CLAY with Cement

Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

Compression Results

Maximum axial stress	2567	kPa	Sketch of failure conditions Inclination of shear surface	
Axial strain at failure	0.86	%		
Unconfined compressive strength, (q _u)	2567	kPa		

Graph



Remarks : Mixing Date : 21/4/2020

Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Certified by : HUI King Fai

Date : 25 April 2020

Date : 28 April 2020



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Report on Unconfined Compression Test - Compression Data

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200064

Job No.: SHK200017

Page: 2 of 2

Client#: Sang Hing - Kuly Joint Venture

Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: - Depth (m)#: -

Date of Test: 25/4/2020

Sample No.#: S3-SC074A Actual Depth (m): -
25/04/2020
LD002 S12

W.O. No.#: -

Sample Type#: PT75

Sample Origin#: Contaminated soil mixed with 7.5%
cement and 10% sand

Date Received: 25/4/2020

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_0)	mm	150.8
		Original area (A_0)	mm ²	4596.3

The compression was terminated at 1.1% of axial strain and the peak axial compressive stress is reached at 0.9%.

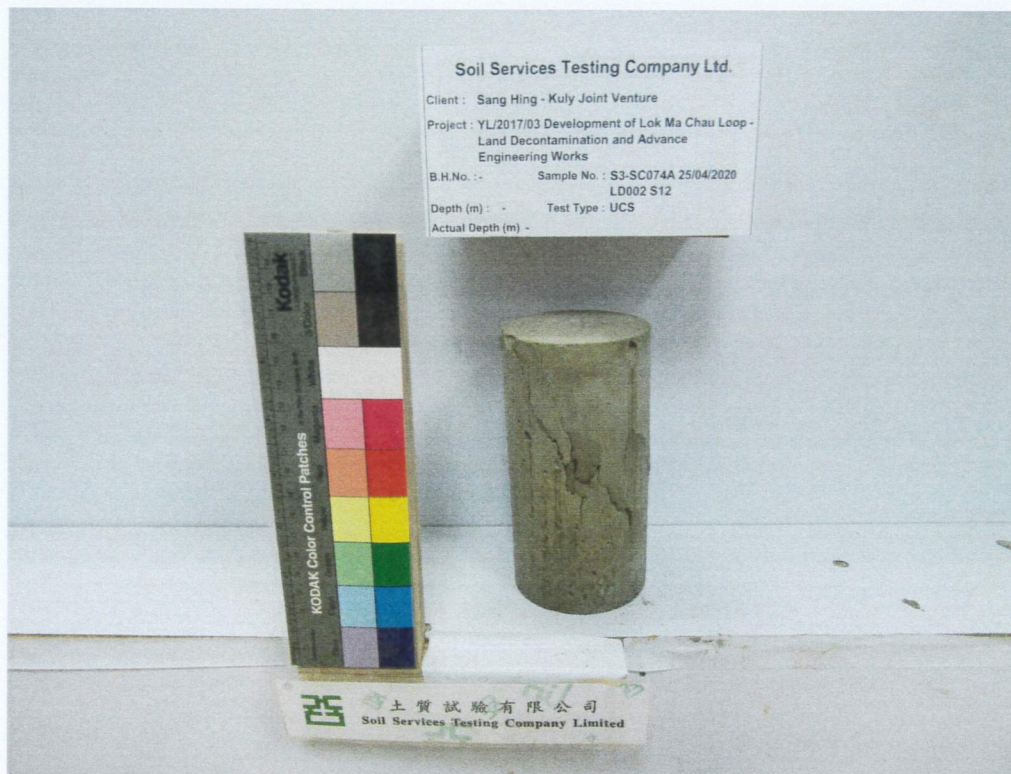
Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in Italic

<i>Axial Deformation Reading (mm)</i>	<i>Axial Strain ϵ (%)</i>	<i>Proving Ring Gauge Reading (mm)</i>	<i>Load Cell Reading (kN)</i>	<i>Axial Force P (N)</i>	<i>Cross-section Area A (mm²)</i>	<i>Axial Compressive Stress σ_1 (kPa)</i>
0.00	0.0	-	0.09	90	4596.3	19.58
0.10	0.1	-	0.19	190	4599.5	41.31
0.20	0.1	-	0.37	370	4602.5	80.39
0.30	0.2	-	0.61	610	4605.6	132.45
0.40	0.3	-	1.01	1010	4608.6	219.15
0.50	0.3	-	1.63	1630	4611.7	353.45
0.60	0.4	-	2.65	2650	4614.7	574.25
0.70	0.5	-	4.65	4650	4617.8	1006.96
0.80	0.5	-	7.06	7060	4620.9	1527.84
0.90	0.6	-	9.22	9220	4624.0	1993.96
1.00	0.7	-	10.78	10780	4627.1	2329.76
1.10	0.7	-	11.51	11510	4630.2	2485.86
1.20	0.8	-	11.80	11800	4633.3	2546.79
1.30	0.9	-	11.90	11900	4636.4	2566.63
1.40	0.9	-	11.75	11750	4639.5	2532.59
1.50	1.0	-	11.11	11110	4642.6	2393.05
1.60	1.1	-	9.83	9830	4645.7	2115.94

Report No. : SLST0200064

Job No. : SHK200017





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Report on Unconfined Compression Test - Summary of Soil Properties

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200064

Job No.: SHK200017

Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture

Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -

Depth (m)#: -

Date of Test: 25/4/2020

Sample No.#: S3-SC074A 25/04/2020
LD002 S13

Actual Depth (m): -

W.O. No.#: -

Sample Type#: PT75

Sample Origin#: Contaminated soil mixed with 7.5%
cement and 10% sand

Date Received: 25/4/2020

Information provided by Client

Specimen Details

Diameter of specimen	mm	76.2	Wet mass of specimen	g	1209.4
Length of specimen	mm	151.1	Dry mass of specimen	g	-
Area of specimen	mm ²	4560.4	Moisture content	%	-
Volume of specimen	cm ³	689.07	Bulk density	Mg/m ³	1.76
Particle density (assumed/measured)*	Mg/m ³	2.65	Dry density	Mg/m ³	-

* Delete whichever is inappropriate

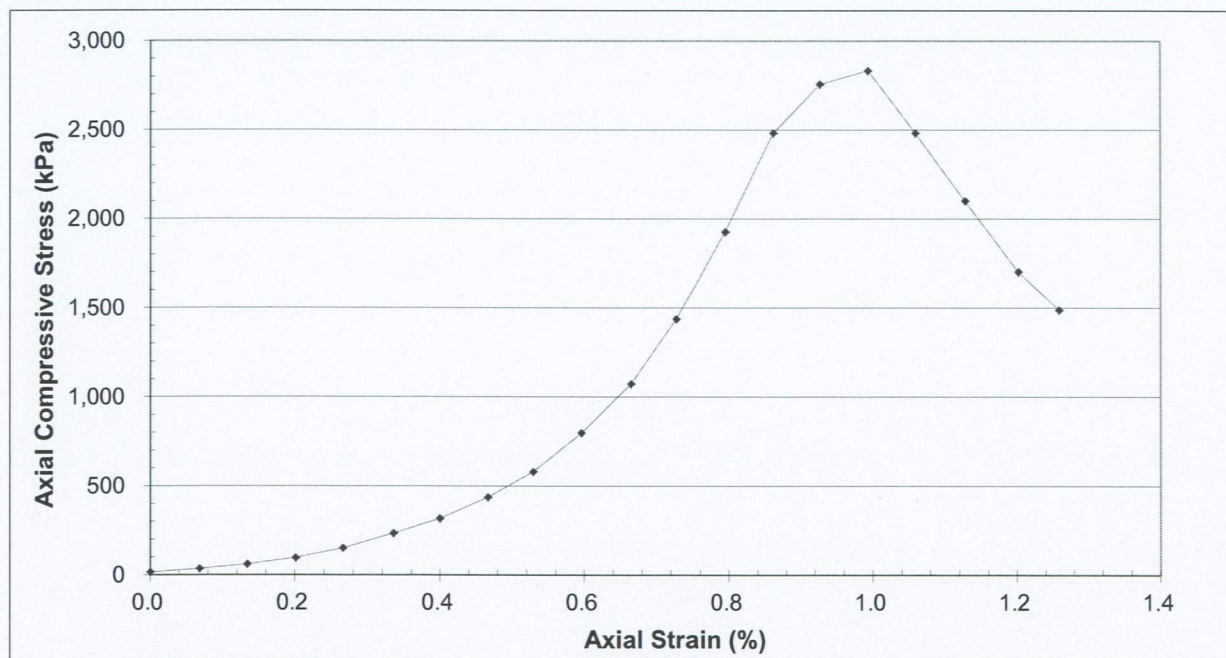
Visual Description: Light brownish grey sandy SILT/CLAY with Cement

Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

Compression Results

Maximum axial stress	2833	kPa	Sketch of failure conditions Inclination of shear surface	
Axial strain at failure	0.99	%		
Unconfined compressive strength, (q _u)	2833	kPa		

Graph



Remarks : Mixing Date : 21/4/2020

Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Certified by : HUI King Fai

Date : 25 April 2020

Date : 28 April 2020



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Report on Unconfined Compression Test - Compression Data

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200064

Job No.: SHK200017

Page: 2 of 2

Client#: Sang Hing - Kuly Joint Venture

Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: - Depth (m)#: -

Date of Test: 25/4/2020

Sample No.#: S3-SC074A Actual Depth (m): -
25/04/2020
LD002 S13

W.O. No.#: -

Sample Type#: PT75

Sample Origin#: Contaminated soil mixed with 7.5%
cement and 10% sand

Date Received: 25/4/2020

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_0)	mm	151.1
		Original area (A_0)	mm ²	4560.4

The compression was terminated at 1.3% of axial strain and the peak axial compressive stress is reached at 1.0%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in *italic*

<i>Axial Deformation Reading (mm)</i>	<i>Axial Strain ϵ (%)</i>	<i>Proving Ring Gauge Reading (mm)</i>	<i>Load Cell Reading (kN)</i>	<i>Axial Force P (N)</i>	<i>Cross-section Area A (mm²)</i>	<i>Axial Compressive Stress σ_1 (kPa)</i>
0.00	0.0	-	0.07	70	4560.4	15.35
0.10	0.1	-	0.16	160	4563.5	35.06
0.20	0.1	-	0.28	280	4566.5	61.32
0.30	0.2	-	0.44	440	4569.6	96.29
0.40	0.3	-	0.69	690	4572.5	150.90
0.51	0.3	-	1.07	1070	4575.7	233.84
0.60	0.4	-	1.45	1450	4578.7	316.69
0.71	0.5	-	2.00	2000	4581.7	436.51
0.80	0.5	-	2.66	2660	4584.6	580.20
0.90	0.6	-	3.66	3660	4587.7	797.78
1.00	0.7	-	4.93	4930	4590.9	1073.87
1.10	0.7	-	6.60	6600	4593.8	1436.72
1.20	0.8	-	8.86	8860	4596.9	1927.38
1.30	0.9	-	11.42	11420	4600.0	2482.61
1.40	0.9	-	12.69	12690	4603.0	2756.87
1.50	1.0	-	13.05	13050	4606.1	2833.18
1.60	1.1	-	11.44	11440	4609.2	2482.01
1.70	1.1	-	9.69	9690	4612.4	2100.87
1.82	1.2	-	7.86	7860	4615.8	1702.83
1.90	1.3	-	6.88	6880	4618.5	1489.66

Report No. : SLST0200064

Job No. : SHK200017





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Report on Unconfined Compression Test - Summary of Soil Properties

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200064

Job No.: SHK200017

Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: - Depth (m)#: - Date of Test: 27/4/2020
Sample No.#: S3-SC074A 25/04/2020 Actual Depth (m): - W.O. No.#: -
LD005 S14
Sample Type#: PT75 Sample Origin#: Contaminated soil mixed with 7.5% cement and 10% sand Date Received: 25/4/2020

Information provided by Client

Specimen Details


Diameter of specimen	mm	76.4	Wet mass of specimen	g	1231.1
Length of specimen	mm	153.9	Dry mass of specimen	g	-
Area of specimen	mm ²	4584.3	Moisture content	%	-
Volume of specimen	cm ³	705.53	Bulk density	Mg/m ³	1.74
Particle density (assumed/measured)*	Mg/m ³	2.65	Dry density	Mg/m ³	-

* Delete whichever is inappropriate

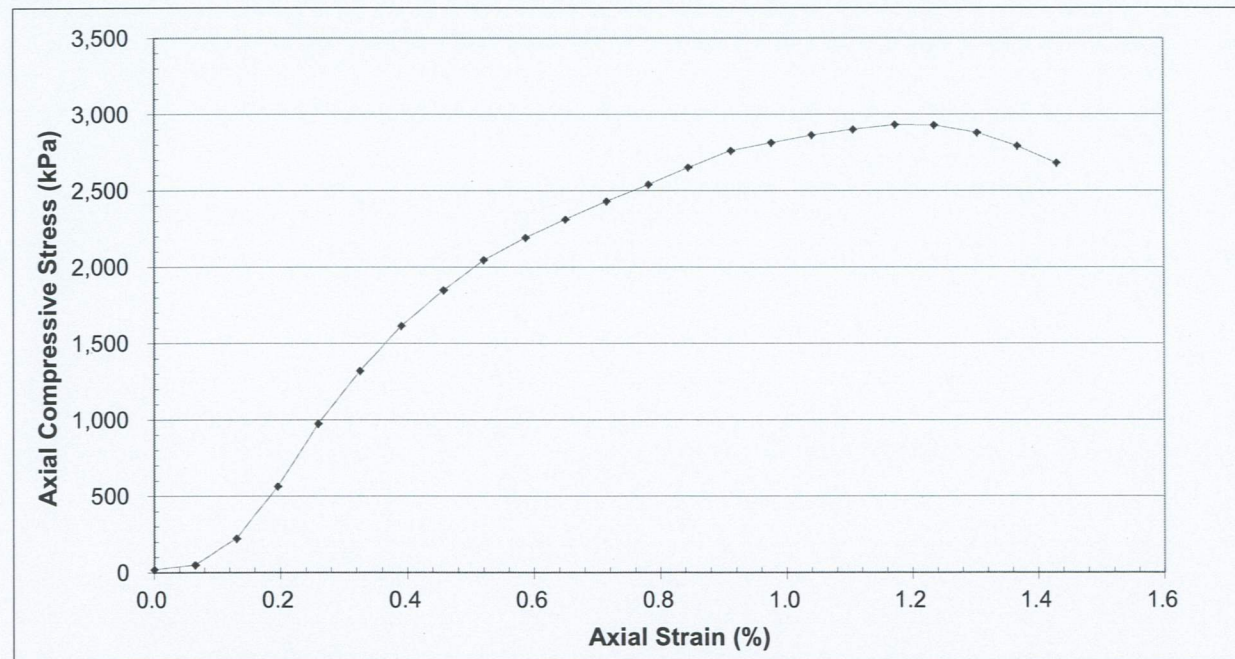
Visual Description: Light brownish grey sandy SILT/CLAY with Cement

Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

Compression Results

Maximum axial stress	2932	kPa	Sketch of failure conditions Inclination of shear surface	
Axial strain at failure	1.2	%		
Unconfined compressive strength, (q _u)	2932	kPa		

Graph



Remarks : Mixing Date : 22/4/2020

Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Certified by : HUI King Fai

Date : 27 April 2020

Date : 28 April 2020



Soil Services Testing Company Limited

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Report on Unconfined Compression Test - Compression Data

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200064

Job No.: SHK200017

Page: 2 of 2

Client#: Sang Hing - Kuly Joint Venture

Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: - Depth (m)#: -

Date of Test: 27/4/2020

Sample No.#: S3-SC074A Actual Depth (m): -
25/04/2020
LD005 S14

W.O. No.#: -

Sample Type#: PT75

Sample Origin#: Contaminated soil mixed with 7.5%
cement and 10% sand

Date Received: 25/4/2020

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_0)	mm	153.9
		Original area (A_0)	mm ²	4584.3

The compression was terminated at 1.4% of axial strain and the peak axial compressive stress is reached at 1.2%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in *Italic*

<i>Axial Deformation Reading (mm)</i>	<i>Axial Strain ϵ (%)</i>	<i>Proving Ring Gauge Reading (mm)</i>	<i>Load Cell Reading (kN)</i>	<i>Axial Force P (N)</i>	<i>Cross- section Area A (mm²)</i>	<i>Axial Compressive Stress σ_1 (kPa)</i>
0.00	0.0	-	0.09	90	4584.3	19.63
0.10	0.1	-	0.23	230	4587.3	50.14
0.20	0.1	-	1.03	1030	4590.3	224.38
0.30	0.2	-	2.59	2590	4593.3	563.86
0.40	0.3	-	4.48	4480	4596.3	974.70
0.50	0.3	-	6.07	6070	4599.3	1319.76
0.60	0.4	-	7.43	7430	4602.3	1614.41
0.70	0.5	-	8.51	8510	4605.4	1847.84
0.80	0.5	-	9.43	9430	4608.3	2046.30
0.90	0.6	-	10.11	10110	4611.4	2192.38
1.00	0.7	-	10.67	10670	4614.4	2312.35
1.10	0.7	-	11.22	11220	4617.4	2429.95
1.20	0.8	-	11.74	11740	4620.5	2540.88
1.30	0.8	-	12.26	12260	4623.4	2651.72
1.40	0.9	-	12.78	12780	4626.5	2762.32
1.50	1.0	-	13.03	13030	4629.5	2814.55
1.60	1.0	-	13.27	13270	4632.5	2864.53
1.70	1.1	-	13.45	13450	4635.6	2901.44
1.81	1.2	-	13.60	13600	4638.7	2931.83
1.90	1.2	-	13.60	13600	4641.7	2929.98
2.01	1.3	-	13.38	13380	4644.9	2880.59
2.11	1.4	-	12.98	12980	4647.9	2792.65
2.20	1.4	-	12.47	12470	4650.9	2681.23

Report No. : SLST0200064

Job No. : SHK200017





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Report on Unconfined Compression Test - Summary of Soil Properties

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200064

Job No.: SHK200017

Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: - Depth (m)#: - Date of Test: 27/4/2020
Sample No.#: S3-SC074A 25/04/2020 Actual Depth (m): - W.O. No.#: -
LD005 S15
Sample Type#: PT75 Sample Origin#: Contaminated soil mixed with 7.5% cement and 10% sand Date Received: 25/4/2020

Information provided by Client

Specimen Details

Diameter of specimen	mm	75.7	Wet mass of specimen	g	1232.1
Length of specimen	mm	153.8	Dry mass of specimen	g	-
Area of specimen	mm ²	4500.7	Moisture content	%	-
Volume of specimen	cm ³	692.21	Bulk density	Mg/m ³	1.78
Particle density (assumed/measured)*	Mg/m ³	2.65	Dry density	Mg/m ³	-

* Delete whichever is inappropriate

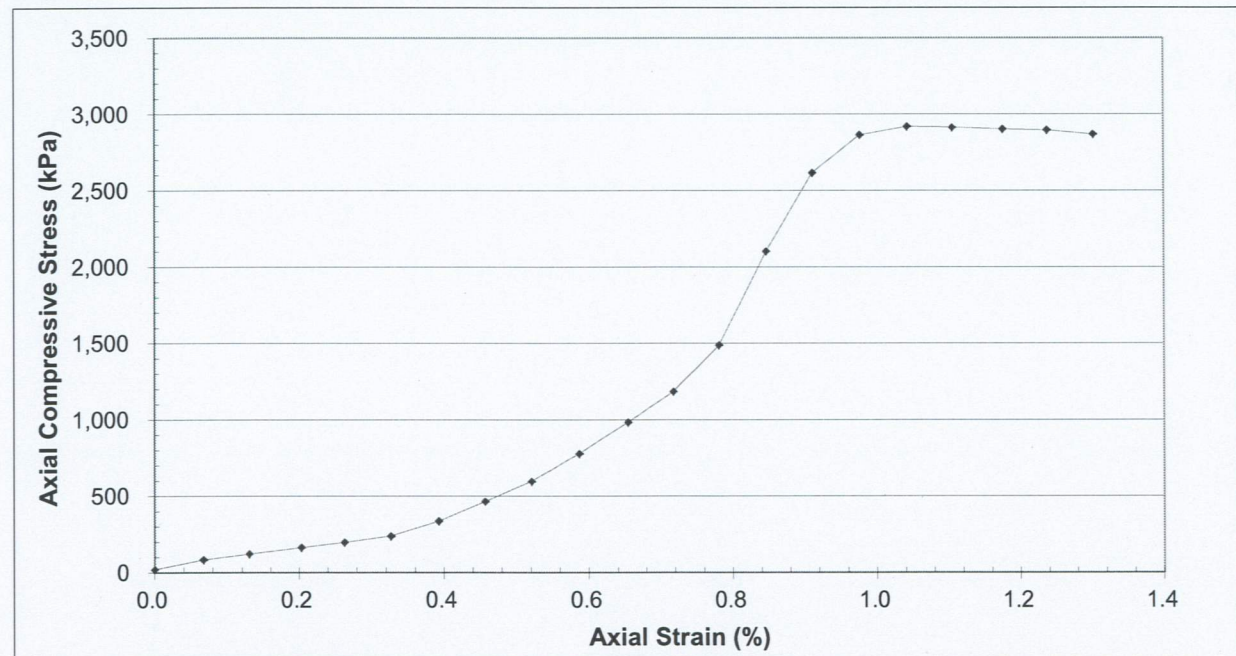
Visual Description: Light brownish grey sandy SILT/CLAY with Cement

Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

Compression Results

Maximum axial stress	2920	kPa	Sketch of failure conditions Inclination of shear surface	
Axial strain at failure	1.0	%		
Unconfined compressive strength, (q _u)	2920	kPa		

Graph



Remarks : Mixing Date : 22/4/2020

Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Certified by : HUI King Fai

Date : 27 April 2020

Date : 28 April 2020



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Report on Unconfined Compression Test - Compression Data

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200064

Job No.: SHK200017

Page: 2 of 2

Client#: Sang Hing - Kuly Joint Venture

Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No. #: - Depth (m) #: -

Date of Test: 27/4/2020

Sample No. #: S3-SC074A
25/04/2020
LD005 S15
Actual Depth (m): -

W.O. No. #: -

Sample Type#: PT75

Sample Origin#: Contaminated soil mixed with 7.5%
cement and 10% sand

Date Received: 25/4/2020

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_0)	mm	153.8
		Original area (A_0)	mm ²	4500.7

The compression was terminated at 1.3% of axial strain and the peak axial compressive stress is reached at 1.0%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in Italic

<i>Axial Deformation Reading (mm)</i>	<i>Axial Strain ϵ (%)</i>	<i>Proving Ring Gauge Reading (mm)</i>	<i>Load Cell Reading (kN)</i>	<i>Axial Force P (N)</i>	<i>Cross-section Area A (mm²)</i>	<i>Axial Compressive Stress σ_1 (kPa)</i>
0.00	0.0	-	0.09	90	4500.7	20.00
0.10	0.1	-	0.38	380	4503.7	84.37
0.20	0.1	-	0.55	550	4506.6	122.04
0.31	0.2	-	0.74	740	4509.9	164.08
0.40	0.3	-	0.89	890	4512.6	197.23
0.50	0.3	-	1.08	1080	4515.5	239.18
0.60	0.4	-	1.52	1520	4518.5	336.40
0.70	0.5	-	2.10	2100	4521.4	464.46
0.80	0.5	-	2.70	2700	4524.3	596.78
0.90	0.6	-	3.52	3520	4527.3	777.51
1.01	0.7	-	4.46	4460	4530.3	984.47
1.10	0.7	-	5.37	5370	4533.3	1184.58
1.20	0.8	-	6.75	6750	4536.1	1488.05
1.30	0.8	-	9.54	9540	4539.1	2101.72
1.40	0.9	-	11.88	11880	4542.1	2615.54
1.50	1.0	-	13.02	13020	4545.1	2864.62
1.60	1.0	-	13.28	13280	4548.1	2919.89
1.70	1.1	-	13.26	13260	4551.0	2913.63
1.81	1.2	-	13.22	13220	4554.3	2902.78
1.90	1.2	-	13.20	13200	4557.1	2896.58
2.00	1.3	-	13.08	13080	4560.1	2868.37

Report No. : SLST0200064

Job No. : SHK200017





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Report on Unconfined Compression Test - Summary of Soil Properties

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200064

Job No.: SHK200017

Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture

Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: - Depth (m)#: - Date of Test: 27/4/2020

Sample No.#: S3-SC074A 25/04/2020 Actual Depth (m): - W.O. No.#: -
LD005 S16

Sample Type#: PT75 Sample Origin#: Contaminated soil mixed with 7.5% cement and 10% sand Date Received: 25/4/2020

Information provided by Client

Specimen Details

Diameter of specimen	mm	75.7	Wet mass of specimen	g	1261.5
Length of specimen	mm	157.5	Dry mass of specimen	g	-
Area of specimen	mm ²	4500.7	Moisture content	%	-
Volume of specimen	cm ³	708.86	Bulk density	Mg/m ³	1.78
Particle density (assumed/measured)*	Mg/m ³	2.65	Dry density	Mg/m ³	-

* Delete whichever is inappropriate

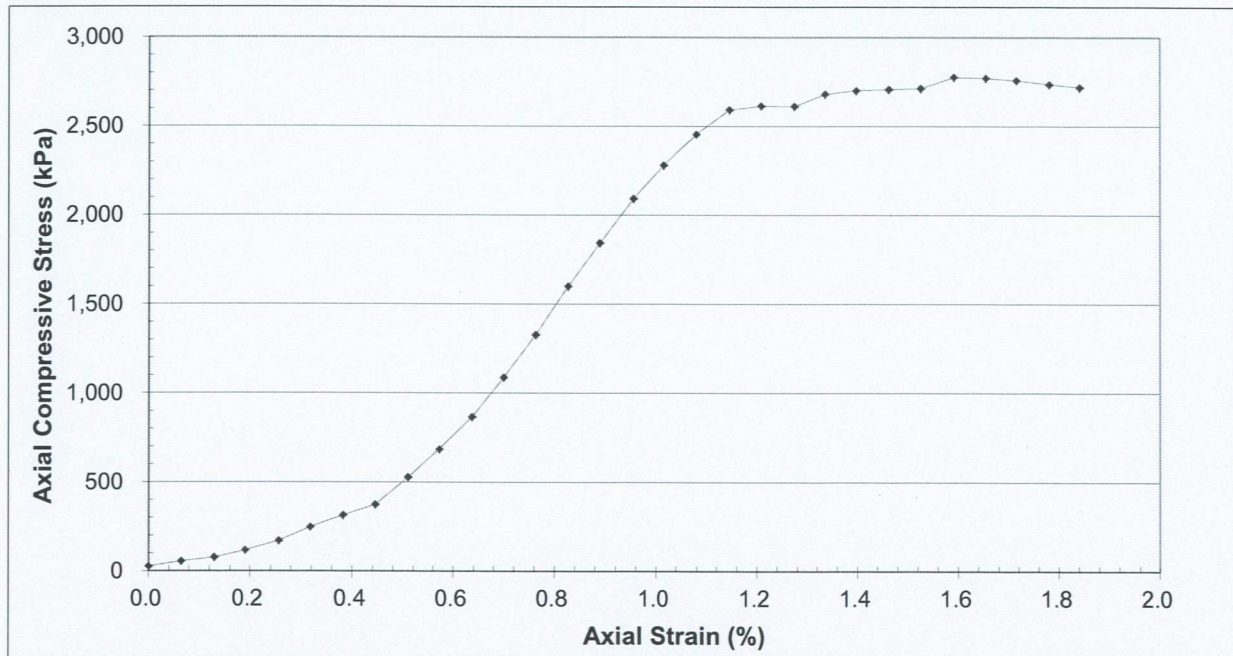
Visual Description: Light brownish grey sandy SILT/CLAY with Cement

Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

Compression Results

Maximum axial stress	2777	kPa	Sketch of failure conditions Inclination of shear surface	
Axial strain at failure	1.6	%		
Unconfined compressive strength, (q _u)	2777	kPa		

Graph



Remarks : Mixing Date : 23/4/2020

Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Certified by :
HUI King Fai

Date : 27 April 2020

Date : 28 April 2020



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Report on Unconfined Compression Test - Compression Data

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200064

Job No.: SHK200017

Page: 2 of 2

Client#: Sang Hing - Kuly Joint Venture

Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: - Depth (m)#: -

Date of Test: 27/4/2020

Sample No.#: S3-SC074A Actual Depth (m): -
25/04/2020
LD005 S16

W.O. No.#: -

Sample Type#: PT75

Sample Origin#: Contaminated soil mixed with 7.5%
cement and 10% sand

Date Received: 25/4/2020

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_0)	mm	157.5
		Original area (A_0)	mm ²	4500.7

The compression was terminated at 1.8% of axial strain and the peak axial compressive stress is reached at 1.6%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in Italic

<i>Axial Deformation Reading (mm)</i>	<i>Axial Strain ϵ (%)</i>	<i>Proving Ring Gauge Reading (mm)</i>	<i>Load Cell Reading (kN)</i>	<i>Axial Force P (N)</i>	<i>Cross-section Area A (mm²)</i>	<i>Axial Compressive Stress σ_1 (kPa)</i>
0.00	0.0	-	0.12	120	4500.7	26.66
0.10	0.1	-	0.25	250	4503.6	55.51
0.21	0.1	-	0.35	350	4506.6	77.66
0.30	0.2	-	0.53	530	4509.3	117.53
0.40	0.3	-	0.77	770	4512.3	170.65
0.50	0.3	-	1.12	1120	4515.1	248.06
0.60	0.4	-	1.42	1420	4518.0	314.30
0.70	0.4	-	1.69	1690	4520.8	373.82
0.80	0.5	-	2.38	2380	4523.8	526.11
0.90	0.6	-	3.10	3100	4526.6	684.84
1.00	0.6	-	3.92	3920	4529.6	865.43
1.10	0.7	-	4.93	4930	4532.4	1087.72
1.20	0.8	-	6.02	6020	4535.3	1327.36
1.30	0.8	-	7.26	7260	4538.3	1599.73
1.40	0.9	-	8.37	8370	4541.1	1843.15
1.51	1.0	-	9.51	9510	4544.1	2092.81
1.60	1.0	-	10.37	10370	4546.9	2280.67
1.70	1.1	-	11.17	11170	4549.9	2455.02
1.81	1.1	-	11.80	11800	4552.9	2591.76
1.90	1.2	-	11.91	11910	4555.8	2614.26
2.01	1.3	-	11.91	11910	4558.8	2612.51
2.10	1.3	-	12.23	12230	4561.7	2681.04
2.20	1.4	-	12.33	12330	4564.5	2701.28
2.30	1.5	-	12.37	12370	4567.5	2708.26
2.40	1.5	-	12.40	12400	4570.4	2713.08
2.51	1.6	-	12.70	12700	4573.5	2776.88
2.61	1.7	-	12.68	12680	4576.4	2770.73
2.70	1.7	-	12.63	12630	4579.2	2758.10
2.80	1.8	-	12.54	12540	4582.3	2736.62
2.90	1.8	-	12.47	12470	4585.1	2719.65

Report No. : SLST0200064

Job No. : SHK200017





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Report on Unconfined Compression Test - Summary of Soil Properties

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200064

Job No.: SHK200017

Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture

Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -

Depth (m)#: -

Date of Test: 27/4/2020

Sample No.#: S3-SC074A 25/04/2020
LD005 S17

Actual Depth (m): -

W.O. No.#: -

Sample Type#: PT75

Sample Origin#: Contaminated soil mixed with 7.5%
cement and 10% sand

Date Received: 25/4/2020

Information provided by Client

Specimen Details

Diameter of specimen	mm	75.9	Wet mass of specimen	g	1250.9
Length of specimen	mm	156.8	Dry mass of specimen	g	-
Area of specimen	mm ²	4524.5	Moisture content	%	-
Volume of specimen	cm ³	709.45	Bulk density	Mg/m ³	1.76
Particle density (assumed/measured)*	Mg/m ³	2.65	Dry density	Mg/m ³	-

* Delete whichever is inappropriate

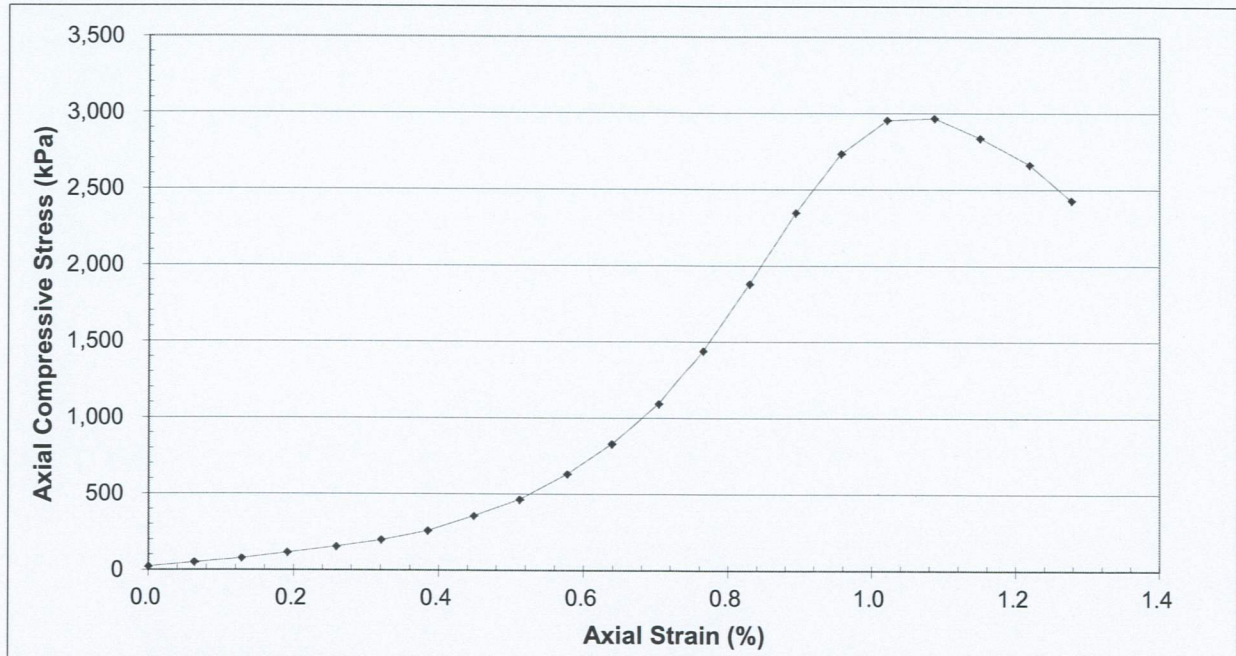
Visual Description: Light brownish grey sandy SILT/CLAY with Cement

Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

Compression Results

Maximum axial stress	2967	kPa	Sketch of failure conditions Inclination of shear surface	
Axial strain at failure	1.1	%		
Unconfined compressive strength, (q _u)	2967	kPa		

Graph



Remarks : Mixing Date : 23/4/2020

Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Certified by : HUI King Fai

HUI King Fai

Date : 27 April 2020

Date : 28 April 2020



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Report on Unconfined Compression Test - Compression Data

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200064

Job No.: SHK200017

Page: 2 of 2

Client#: Sang Hing - Kuly Joint Venture

Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: - Depth (m)#: -

Date of Test: 27/4/2020

Sample No.#: S3-SC074A Actual Depth (m): -
25/04/2020
LD005 S17

W.O. No.#: -

Sample Type#: PT75

Sample Origin#: Contaminated soil mixed with 7.5%
cement and 10% sand

Date Received: 25/4/2020

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_0)	mm	156.8
		Original area (A_0)	mm ²	4524.5

The compression was terminated at 1.3% of axial strain and the peak axial compressive stress is reached at 1.1%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in Italic

<i>Axial Deformation Reading (mm)</i>	<i>Axial Strain ϵ (%)</i>	<i>Proving Ring Gauge Reading (mm)</i>	<i>Load Cell Reading (kN)</i>	<i>Axial Force P (N)</i>	<i>Cross-section Area A (mm²)</i>	<i>Axial Compressive Stress σ_1 (kPa)</i>
0.00	0.0	-	0.10	100	4524.5	22.10
0.10	0.1	-	0.23	230	4527.4	50.80
0.20	0.1	-	0.35	350	4530.3	77.26
0.30	0.2	-	0.52	520	4533.2	114.71
0.41	0.3	-	0.70	700	4536.3	154.31
0.50	0.3	-	0.90	900	4539.1	198.28
0.60	0.4	-	1.17	1170	4542.0	257.60
0.70	0.4	-	1.62	1620	4544.9	356.44
0.80	0.5	-	2.11	2110	4547.8	463.96
0.91	0.6	-	2.87	2870	4550.8	630.66
1.00	0.6	-	3.78	3780	4553.6	830.11
1.10	0.7	-	4.98	4980	4556.6	1092.92
1.20	0.8	-	6.57	6570	4559.4	1440.97
1.30	0.8	-	8.58	8580	4562.4	1880.60
1.40	0.9	-	10.71	10710	4565.3	2345.93
1.50	1.0	-	12.49	12490	4568.3	2734.08
1.60	1.0	-	13.51	13510	4571.2	2955.46
1.70	1.1	-	13.57	13570	4574.2	2966.61
1.80	1.1	-	12.99	12990	4577.2	2838.00
1.91	1.2	-	12.20	12200	4580.4	2663.55
2.00	1.3	-	11.13	11130	4583.1	2428.50

Report No. : SLST0200064

Job No. : SHK200017





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Report on Unconfined Compression Test - Summary of Soil Properties

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200065

Job No.: SHK200018

Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: - Depth (m)#: - Date of Test: 28/4/2020
Sample No.#: S3-SC074A 27/04/2020 Actual Depth (m): - W.O. No.#: -
LD002 S18
Sample Type#: PT75 Sample Origin#: Contaminated soil mixed with 7.5% cement and 10% sand Date Received: 27/4/2020

Information provided by Client

Specimen Details

Diameter of specimen	mm	75.3	Wet mass of specimen	g	1237.1
Length of specimen	mm	151.3	Dry mass of specimen	g	-
Area of specimen	mm ²	4453.3	Moisture content	%	-
Volume of specimen	cm ³	673.78	Bulk density	Mg/m ³	1.84
Particle density (assumed/measured)*	Mg/m ³	2.65	Dry density	Mg/m ³	-

* Delete whichever is inappropriate

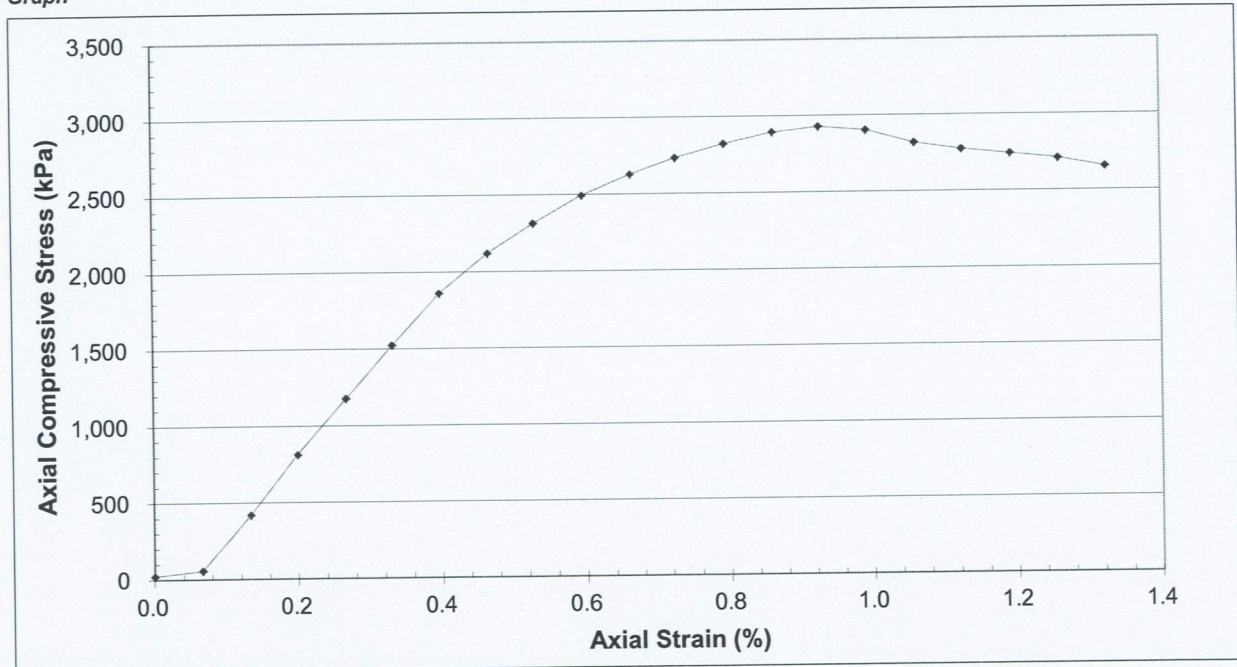
Visual Description: Light brownish grey sandy SILT/CLAY with Cement

Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

Compression Results

Maximum axial stress	2928	kPa	Sketch of failure conditions Inclination of shear surface	
Axial strain at failure	0.93	%		
Unconfined compressive strength, (q _u)	2928	kPa		

Graph



Remarks : Mixing Date : 24/4/2020

Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Certified by : HUI King Fai

Date : 28 April 2020

Date : 29 April 2020



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Report on Unconfined Compression Test - Compression Data

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200065

Job No.: SHK200018

Page: 2 of 2

Client#: Sang Hing - Kuly Joint Venture

Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: - Depth (m)#: -

Date of Test: 28/4/2020

Sample No.#: S3-SC074A Actual Depth (m): -

W.O. No.#: -

27/04/2020
LD002 S18

Sample Type#: PT75

Sample Origin#: Contaminated soil mixed with 7.5%
cement and 10% sand

Date Received: 27/4/2020

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_0)	mm	151.3
		Original area (A_0)	mm ²	4453.3

The compression was terminated at 1.3% of axial strain and the peak axial compressive stress is reached at 0.9%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in Italic

<i>Axial Deformation Reading (mm)</i>	<i>Axial Strain ϵ (%)</i>	<i>Proving Ring Gauge Reading (mm)</i>	<i>Load Cell Reading (kN)</i>	<i>Axial Force P (N)</i>	<i>Cross- section Area A (mm²)</i>	<i>Axial Compressive Stress σ_1 (kPa)</i>
0.00	0.0	-	0.10	100	4453.3	22.46
0.10	0.1	-	0.25	250	4456.2	56.10
0.20	0.1	-	1.87	1870	4459.2	419.35
0.30	0.2	-	3.62	3620	4462.2	811.26
0.40	0.3	-	5.25	5250	4465.2	1175.76
0.50	0.3	-	6.80	6800	4468.1	1521.91
0.60	0.4	-	8.31	8310	4471.0	1858.63
0.70	0.5	-	9.48	9480	4474.1	2118.86
0.80	0.5	-	10.35	10350	4477.0	2311.84
0.90	0.6	-	11.17	11170	4480.0	2493.31
1.00	0.7	-	11.78	11780	4483.0	2627.71
1.10	0.7	-	12.26	12260	4485.9	2733.01
1.20	0.8	-	12.67	12670	4488.9	2822.51
1.30	0.9	-	13.00	13000	4492.0	2894.06
1.40	0.9	-	13.16	13160	4494.9	2927.76
1.50	1.0	-	13.06	13060	4497.9	2903.58
1.60	1.1	-	12.68	12680	4501.0	2817.15
1.70	1.1	-	12.49	12490	4503.9	2773.13
1.80	1.2	-	12.36	12360	4507.0	2742.39
1.91	1.3	-	12.22	12220	4510.1	2709.50
2.00	1.3	-	11.98	11980	4513.0	2654.54

Report No. : SLST0200065

Job No. : SHK200018





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Report on Unconfined Compression Test - Summary of Soil Properties

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200065

Job No.: SHK200018

Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture

Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -

Depth (m)#: -

Date of Test: 28/4/2020

Sample No.#: S3-SC074A 27/04/2020
LD002 S19

Actual Depth (m): -

W.O. No.#: -

Sample Type#: PT75

Sample Origin#: Contaminated soil mixed with 7.5%
cement and 10% sand

Date Received: 27/4/2020

Information provided by Client

Specimen Details

Diameter of specimen	mm	76.0	Wet mass of specimen	g	1259.5
Length of specimen	mm	154.8	Dry mass of specimen	g	-
Area of specimen	mm ²	4536.5	Moisture content	%	-
Volume of specimen	cm ³	702.24	Bulk density	Mg/m ³	1.79
Particle density (assumed/measured)*	Mg/m ³	2.65	Dry density	Mg/m ³	-

* Delete whichever is inappropriate

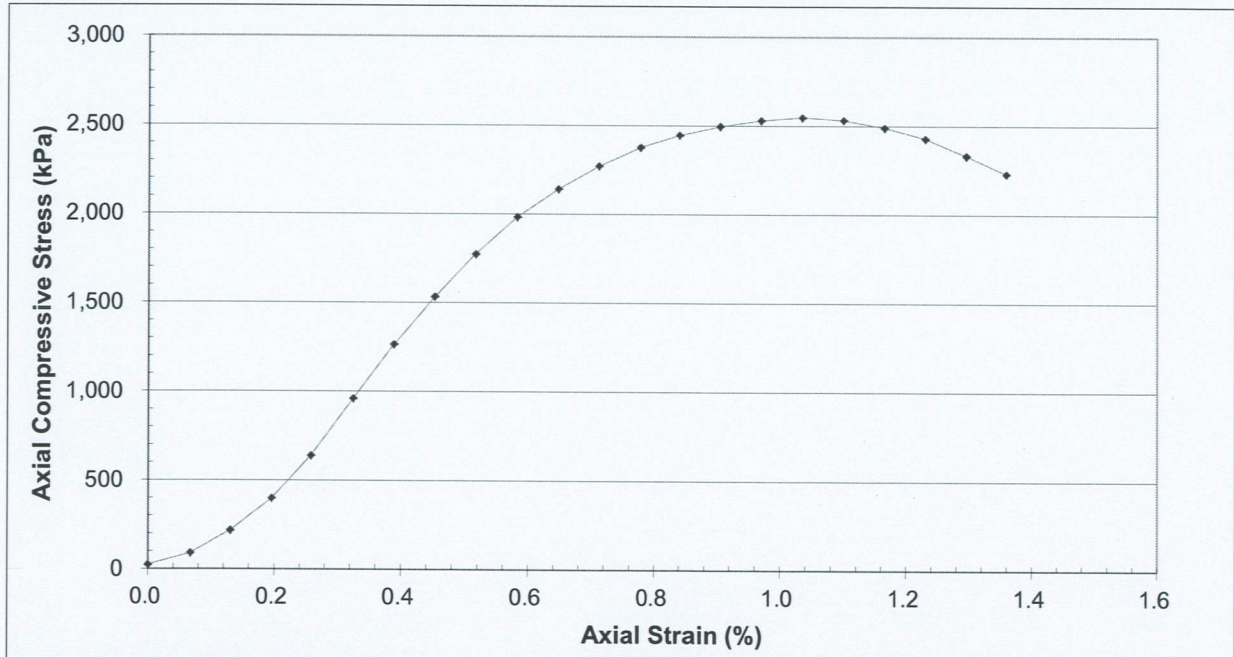
Visual Description: Light brownish grey sandy SILT/CLAY with Cement

Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

Compression Results

Maximum axial stress	2548	kPa	Sketch of failure conditions Inclination of shear surface	
Axial strain at failure	1.0	%		
Unconfined compressive strength, (q _u)	2548	kPa		

Graph



Remarks : Mixing Date : 24/4/2020

Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Certified by : HUI King Fai

Date : 28 April 2020

Date : 29 April 2020



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Report on Unconfined Compression Test - Compression Data

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200065

Job No.: SHK200018

Page: 2 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: - Depth (m)#: - Date of Test: 28/4/2020
Sample No.#: S3-SC074A Actual Depth (m): - W.O. No.#: -
27/04/2020
LD002 S19

Sample Type#: PT75 Sample Origin#: Contaminated soil mixed with 7.5% cement and 10% sand Date Received: 27/4/2020

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_0)	mm	154.8
		Original area (A_0)	mm ²	4536.5

The compression was terminated at 1.4% of axial strain and the peak axial compressive stress is reached at 1.0%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in Italic

<i>Axial Deformation Reading (mm)</i>	<i>Axial Strain ϵ (%)</i>	<i>Proving Ring Gauge Reading (mm)</i>	<i>Load Cell Reading (kN)</i>	<i>Axial Force P (N)</i>	<i>Cross-section Area A (mm²)</i>	<i>Axial Compressive Stress σ_1 (kPa)</i>
0.00	0.0	-	0.11	110	4536.5	24.25
0.10	0.1	-	0.41	410	4539.5	90.32
0.20	0.1	-	0.99	990	4542.4	217.95
0.30	0.2	-	1.81	1810	4545.4	398.21
0.40	0.3	-	2.91	2910	4548.2	639.81
0.50	0.3	-	4.37	4370	4551.2	960.18
0.60	0.4	-	5.76	5760	4554.2	1264.77
0.70	0.5	-	6.99	6990	4557.1	1533.87
0.80	0.5	-	8.09	8090	4560.0	1774.11
0.90	0.6	-	9.05	9050	4563.0	1983.32
1.00	0.6	-	9.78	9780	4566.0	2141.90
1.10	0.7	-	10.38	10380	4569.0	2271.82
1.20	0.8	-	10.87	10870	4572.0	2377.50
1.30	0.8	-	11.19	11190	4574.9	2445.93
1.40	0.9	-	11.43	11430	4577.9	2496.78
1.50	1.0	-	11.59	11590	4580.9	2530.07
1.60	1.0	-	11.68	11680	4583.9	2548.05
1.70	1.1	-	11.62	11620	4586.9	2533.29
1.80	1.2	-	11.43	11430	4589.9	2490.24
1.90	1.2	-	11.16	11160	4593.0	2429.81
2.01	1.3	-	10.72	10720	4596.0	2332.47
2.10	1.4	-	10.26	10260	4598.9	2230.95

Report No. : SLST0200065

Job No. : SHK200018





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Report on Unconfined Compression Test - Summary of Soil Properties

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200065

Job No.: SHK200018

Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture

Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -

Depth (m)#: -

Date of Test: 29/4/2020

Sample No.#: S3-SC074A 27/04/2020
LD002 S20

Actual Depth (m): -

W.O. No.#: -

Sample Type#: PT75

Sample Origin#: Contaminated soil mixed with 7.5%
cement and 10% sand

Date Received: 27/4/2020

Information provided by Client

Specimen Details


Diameter of specimen	mm	75.6	Wet mass of specimen	g	1247.1
Length of specimen	mm	153.2	Dry mass of specimen	g	-
Area of specimen	mm ²	4488.8	Moisture content	%	-
Volume of specimen	cm ³	687.69	Bulk density	Mg/m ³	1.81
Particle density (assumed/measured)*	Mg/m ³	2.65	Dry density	Mg/m ³	-

* Delete whichever is inappropriate

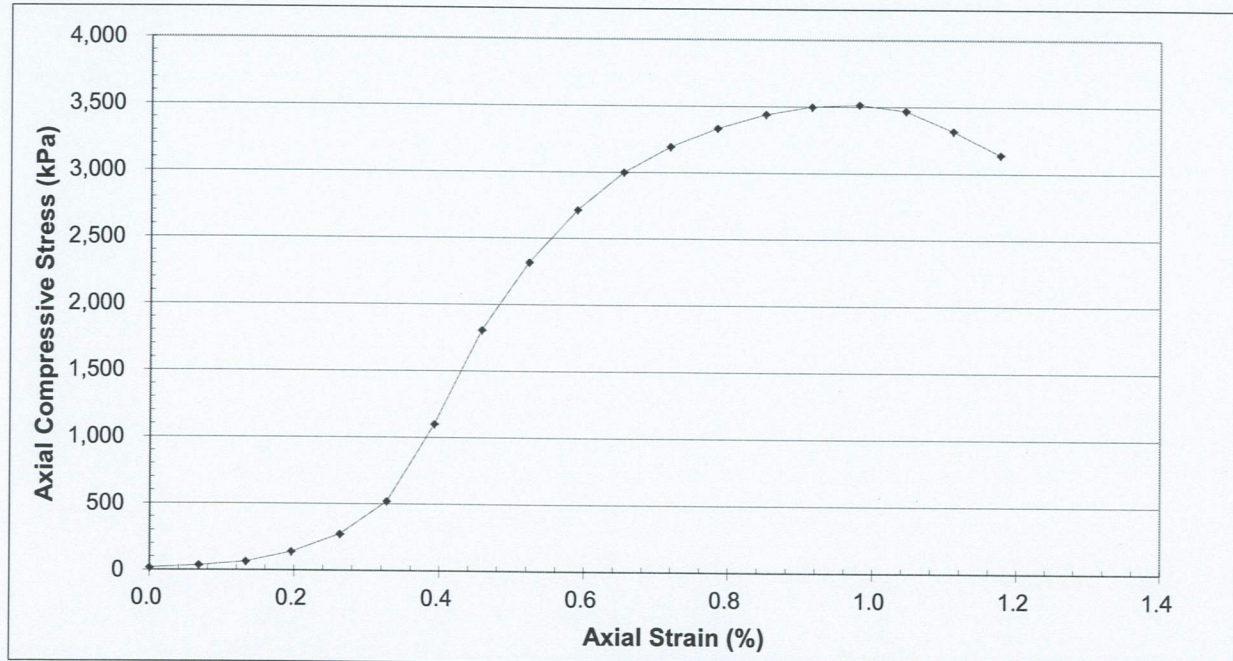
Visual Description: Light brownish grey sandy SILT/CLAY with Cement

Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

Compression Results

Maximum axial stress	3514	kPa	Sketch of failure conditions Inclination of shear surface	
Axial strain at failure	0.98	%		
Unconfined compressive strength, (q _u)	3514	kPa		

Graph



Remarks : Mixing Date : 25/4/2020

Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Certified by : HUI King Fai

Date : 29 April 2020

Date : 29 April 2020



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Report on Unconfined Compression Test - Compression Data

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200065

Job No.: SHK200018

Page: 2 of 2

Client#: Sang Hing - Kuly Joint Venture

Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: - Depth (m)#: -

Date of Test: 29/4/2020

Sample No.#: S3-SC074A Actual Depth (m): -

W.O. No.#: -

27/04/2020
LD002 S20

Sample Type#: PT75

Sample Origin#: Contaminated soil mixed with 7.5%
cement and 10% sand

Date Received: 27/4/2020

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_0)	mm	153.2
		Original area (A_0)	mm ²	4488.8

The compression was terminated at 1.2% of axial strain and the peak axial compressive stress is reached at 1.0%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in *Italic*

<i>Axial Deformation Reading (mm)</i>	<i>Axial Strain ϵ (%)</i>	<i>Proving Ring Gauge Reading (mm)</i>	<i>Load Cell Reading (kN)</i>	<i>Axial Force P (N)</i>	<i>Cross- section Area A (mm²)</i>	<i>Axial Compressive Stress σ_1 (kPa)</i>
0.00	0.0	-	0.08	80	4488.8	17.82
0.10	0.1	-	0.16	160	4491.9	35.62
0.20	0.1	-	0.29	290	4494.8	64.52
0.30	0.2	-	0.63	630	4497.6	140.07
0.40	0.3	-	1.23	1230	4500.7	273.29
0.50	0.3	-	2.34	2340	4503.6	519.59
0.60	0.4	-	4.96	4960	4506.5	1100.63
0.70	0.5	-	8.15	8150	4509.5	1807.31
0.80	0.5	-	10.46	10460	4512.4	2318.04
0.90	0.6	-	12.25	12250	4515.4	2712.91
1.00	0.7	-	13.55	13550	4518.4	2998.88
1.10	0.7	-	14.43	14430	4521.3	3191.54
1.20	0.8	-	15.08	15080	4524.3	3333.11
1.30	0.9	-	15.57	15570	4527.3	3439.11
1.40	0.9	-	15.85	15850	4530.3	3498.69
1.50	1.0	-	15.93	15930	4533.2	3514.04
1.60	1.0	-	15.73	15730	4536.2	3467.65
1.70	1.1	-	15.06	15060	4539.2	3317.74
1.80	1.2	-	14.26	14260	4542.3	3139.41

Report No. : SLST0200065

Job No. : SHK200018





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Report on Unconfined Compression Test - Summary of Soil Properties

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200065
Job No.: SHK200018
Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: - Depth (m)#: - Date of Test: 29/4/2020
Sample No.#: S3-SC074A 27/04/2020 Actual Depth (m): - W.O. No.#: -
LD002 S21
Sample Type#: PT75 Sample Origin#: Contaminated soil mixed with 7.5% cement and 10% sand Date Received: 27/4/2020

Information provided by Client

Specimen Details

Diameter of specimen	mm	76.2	Wet mass of specimen	g	1249.0
Length of specimen	mm	152.7	Dry mass of specimen	g	-
Area of specimen	mm ²	4560.4	Moisture content	%	-
Volume of specimen	cm ³	696.37	Bulk density	Mg/m ³	1.79
Particle density (assumed/measured)*	Mg/m ³	2.65	Dry density	Mg/m ³	-

* Delete whichever is inappropriate

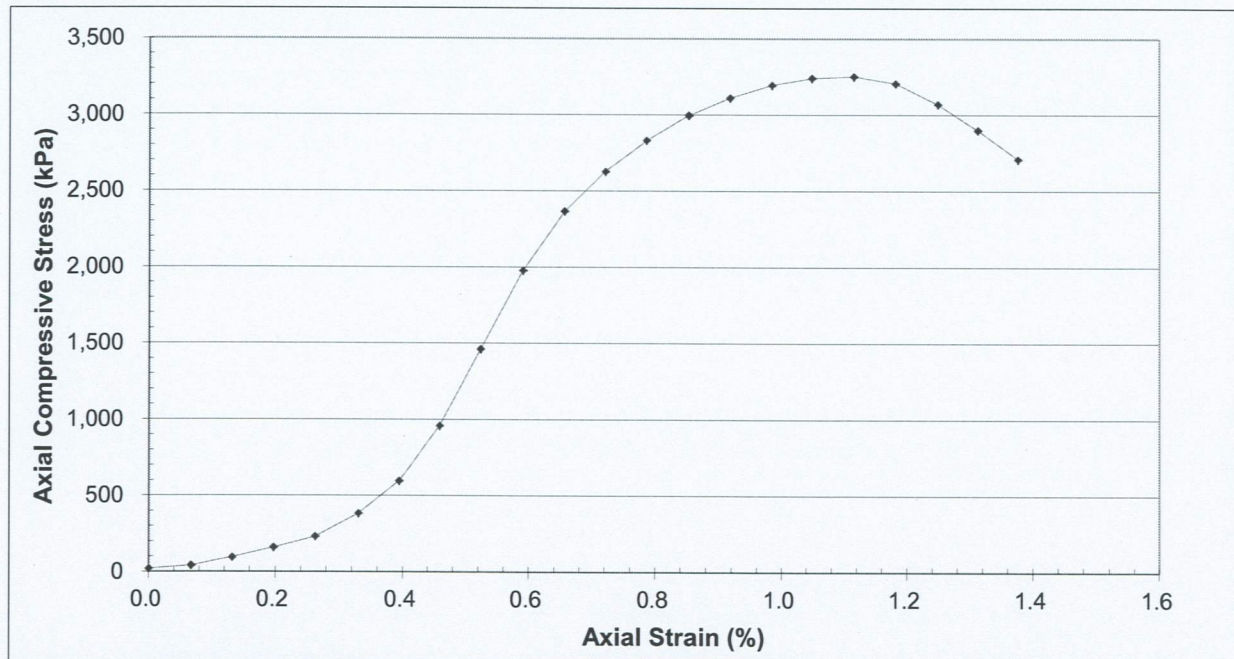
Visual Description: Light brownish grey sandy SILT/CLAY with Cement

Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

Compression Results

Maximum axial stress	3253	kPa	Sketch of failure conditions Inclination of shear surface	
Axial strain at failure	1.1	%		
Unconfined compressive strength, (q _u)	3253	kPa		

Graph



Remarks : Mixing Date : 25/4/2020

Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Certified by : HUI King Fai

Date : 29 April 2020

Date : 29 April 2020



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Report on Unconfined Compression Test - Compression Data

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200065

Job No.: SHK200018

Page: 2 of 2

Client#: Sang Hing - Kuly Joint Venture

Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: - Depth (m)#: -

Date of Test: 29/4/2020

Sample No.#: S3-SC074A Actual Depth (m): -
27/04/2020
LD002 S21

W.O. No.#: -

Sample Type#: PT75

Sample Origin#: Contaminated soil mixed with 7.5%
cement and 10% sand

Date Received: 27/4/2020

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_0)	mm	152.7
		Original area (A_0)	mm ²	4560.4

The compression was terminated at 1.4% of axial strain and the peak axial compressive stress is reached at 1.1%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in Italic

<i>Axial Deformation Reading (mm)</i>	<i>Axial Strain ϵ (%)</i>	<i>Proving Ring Gauge Reading (mm)</i>	<i>Load Cell Reading (kN)</i>	<i>Axial Force P (N)</i>	<i>Cross-section Area A (mm²)</i>	<i>Axial Compressive Stress σ_1 (kPa)</i>
0.00	0.0	-	0.09	90	4560.4	19.74
0.10	0.1	-	0.19	190	4563.5	41.63
0.20	0.1	-	0.44	440	4566.4	96.36
0.30	0.2	-	0.73	730	4569.4	159.76
0.40	0.3	-	1.06	1060	4572.4	231.83
0.50	0.3	-	1.75	1750	4575.5	382.47
0.60	0.4	-	2.73	2730	4578.4	596.28
0.70	0.5	-	4.39	4390	4581.4	958.22
0.80	0.5	-	6.70	6700	4584.4	1461.48
0.90	0.6	-	9.07	9070	4587.5	1977.11
1.00	0.7	-	10.86	10860	4590.5	2365.75
1.10	0.7	-	12.07	12070	4593.5	2627.62
1.20	0.8	-	13.01	13010	4596.5	2830.40
1.30	0.9	-	13.78	13780	4599.6	2995.90
1.40	0.9	-	14.32	14320	4602.6	3111.29
1.50	1.0	-	14.72	14720	4605.7	3196.04
1.60	1.0	-	14.94	14940	4608.7	3241.68
1.70	1.1	-	15.00	15000	4611.8	3252.53
1.80	1.2	-	14.80	14800	4614.9	3207.01
1.91	1.2	-	14.18	14180	4618.0	3070.57
2.00	1.3	-	13.40	13400	4621.0	2899.80
2.10	1.4	-	12.53	12530	4624.0	2709.78

Report No. : SLST0200065

Job No. : SHK200018





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Report on Unconfined Compression Test - Summary of Soil Properties

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200067

Job No.: SHK200019

Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: - Depth (m)#: - Date of Test: 2/5/2020
Sample No.#: S3-SC074A 2/5/2020 Actual Depth (m): - W.O. No.#: -
LD002 S22
Sample Type#: PT75 Sample Origin#: Contaminated soil mixed with 7.5% cement and 10% sand Date Received: 2/5/2020

* Information provided by Client

Specimen Details

Diameter of specimen	mm	75.9	Wet mass of specimen	g	1130.4
Length of specimen	mm	150.1	Dry mass of specimen	g	-
Area of specimen	mm ²	4524.5	Moisture content	%	-
Volume of specimen	cm ³	679.13	Bulk density	Mg/m ³	1.66
Particle density (assumed/measured)*	Mg/m ³	2.65	Dry density	Mg/m ³	-

* Delete whichever is inappropriate

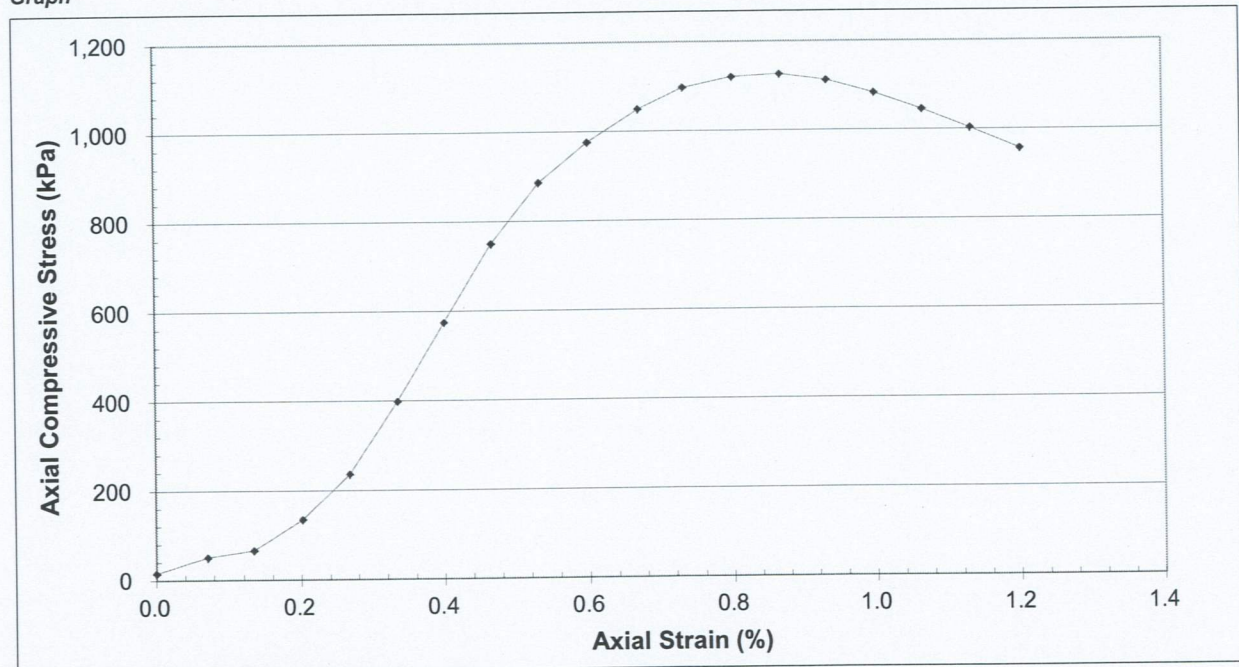
Visual Description: Light brownish grey sandy SILT/CLAY with Cement

Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

Compression Results

Maximum axial stress	1126	kPa	Sketch of failure conditions Inclination of shear surface	
Axial strain at failure	0.87	%		
Unconfined compressive strength, (q _u)	1126	kPa		

Graph



Remarks : Mixing Date : 27/4/2020

Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Certified by : HUI King Fai

Date : 2 May 2020

Date : 5 May 2020



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Report on Unconfined Compression Test - Compression Data

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200067

Job No.: SHK200019

Page: 2 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: - Depth (m)#: - Date of Test: 2/5/2020
Sample No.#: S3-SC074A Actual Depth (m): - W.O. No.#: -
2/5/2020 LD002
S22

Sample Type#: PT75 Sample Origin#: Contaminated soil mixed with 7.5% cement and 10% sand Date Received: 2/5/2020

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_0)	mm	150.1
		Original area (A_0)	mm ²	4524.5

The compression was terminated at 1.2% of axial strain and the peak axial compressive stress is reached at 0.9%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in Italic

<i>Axial Deformation Reading (mm)</i>	<i>Axial Strain ϵ (%)</i>	<i>Proving Ring Gauge Reading (mm)</i>	<i>Load Cell Reading (kN)</i>	<i>Axial Force P (N)</i>	<i>Cross-section Area A (mm²)</i>	<i>Axial Compressive Stress σ_1 (kPa)</i>
0.00	0.0	-	0.07	70	4524.5	15.47
0.11	0.1	-	0.23	230	4527.7	50.80
0.20	0.1	-	0.30	300	4530.6	66.22
0.30	0.2	-	0.61	610	4533.7	134.55
0.40	0.3	-	1.07	1070	4536.7	235.86
0.50	0.3	-	1.81	1810	4539.7	398.70
0.60	0.4	-	2.61	2610	4542.7	574.55
0.70	0.5	-	3.41	3410	4545.8	750.15
0.80	0.5	-	4.03	4030	4548.8	885.95
0.90	0.6	-	4.44	4440	4551.9	975.42
1.01	0.7	-	4.78	4780	4555.1	1049.38
1.10	0.7	-	5.00	5000	4558.0	1096.98
1.20	0.8	-	5.11	5110	4561.1	1120.35
1.30	0.9	-	5.14	5140	4564.2	1126.17
1.40	0.9	-	5.08	5080	4567.2	1112.28
1.50	1.0	-	4.95	4950	4570.2	1083.10
1.60	1.1	-	4.78	4780	4573.3	1045.19
1.70	1.1	-	4.59	4590	4576.4	1002.98
1.80	1.2	-	4.38	4380	4579.6	956.42

Report No. : SLST0200067

Job No. : SHK200019





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Report on Unconfined Compression Test - Summary of Soil Properties

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200067

Job No.: SHK200019

Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: - Depth (m)#: - Date of Test: 2/5/2020
Sample No.#: S3-SC074A 2/5/2020 Actual Depth (m): - W.O. No.#: -
LD002 S23
Sample Type#: PT75 Sample Origin#: Contaminated soil mixed with 7.5% cement and 10% sand Date Received: 2/5/2020

Information provided by Client

Specimen Details

Diameter of specimen	mm	76.0	Wet mass of specimen	g	1128.8
Length of specimen	mm	150.5	Dry mass of specimen	g	-
Area of specimen	mm ²	4536.5	Moisture content	%	-
Volume of specimen	cm ³	682.74	Bulk density	Mg/m ³	1.65
Particle density (assumed/measured)*	Mg/m ³	2.65	Dry density	Mg/m ³	-

* Delete whichever is inappropriate

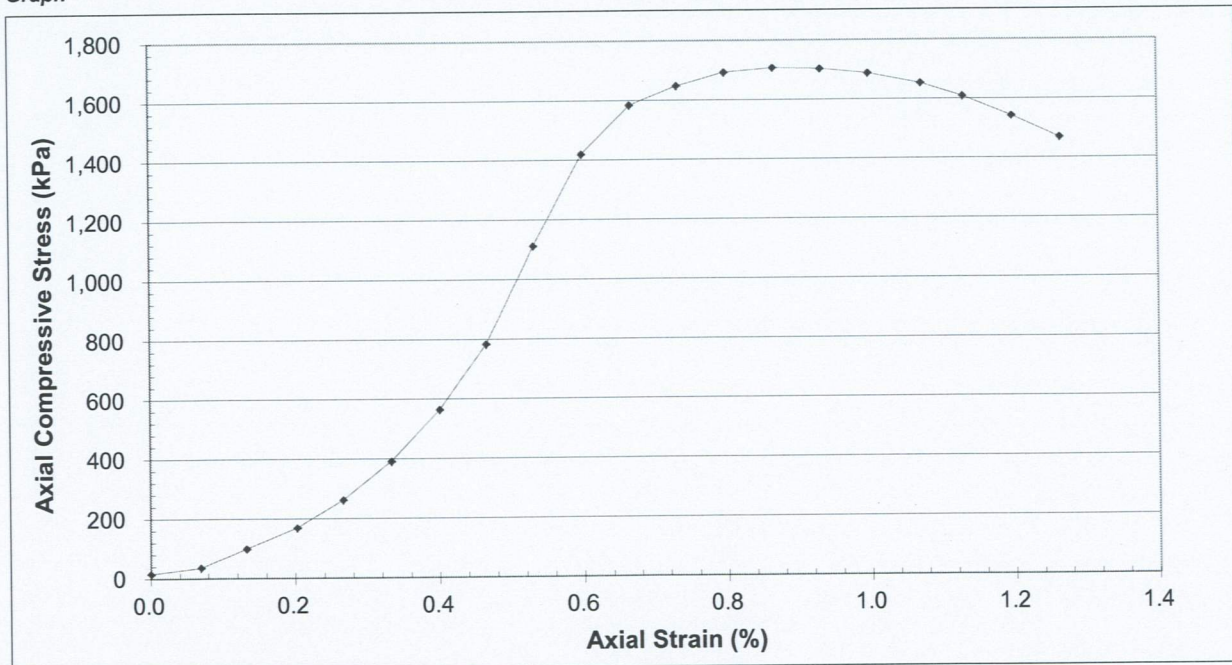
Visual Description: Light brownish grey sandy SILT/CLAY with Cement

Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

Compression Results

Maximum axial stress	1707	kPa	Sketch of failure conditions Inclination of shear surface	
Axial strain at failure	0.87	%		
Unconfined compressive strength, (q _u)	1707	kPa		

Graph



Remarks : Mixing Date : 27/4/2020

Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Certified by :
HUI King Fai

Date : 2 May 2020

Date : 5 May 2020



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Report on Unconfined Compression Test - Compression Data

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200067

Job No.: SHK200019

Page: 2 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: - Depth (m)#: - Date of Test: 2/5/2020
Sample No.#: S3-SC074A Actual Depth (m): - W.O. No.#: -
2/5/2020 LD002
S23

Sample Type#: PT75 Sample Origin#: Contaminated soil mixed with 7.5% cement and 10% sand Date Received: 2/5/2020

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_0)	mm	150.5
		Original area (A_0)	mm ²	4536.5

The compression was terminated at 1.3% of axial strain and the peak axial compressive stress is reached at 0.9%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in Italic

<i>Axial Deformation Reading (mm)</i>	<i>Axial Strain ϵ (%)</i>	<i>Proving Ring Gauge Reading (mm)</i>	<i>Load Cell Reading (kN)</i>	<i>Axial Force P (N)</i>	<i>Cross-section Area A (mm²)</i>	<i>Axial Compressive Stress σ_1 (kPa)</i>
0.00	0.0	-	0.07	70	4536.5	15.43
0.10	0.1	-	0.16	160	4539.6	35.25
0.20	0.1	-	0.45	450	4542.5	99.06
0.31	0.2	-	0.77	770	4545.7	169.39
0.40	0.3	-	1.19	1190	4548.5	261.62
0.50	0.3	-	1.78	1780	4551.6	391.07
0.60	0.4	-	2.57	2570	4554.7	564.25
0.70	0.5	-	3.57	3570	4557.7	783.29
0.80	0.5	-	5.07	5070	4560.7	1111.67
0.90	0.6	-	6.48	6480	4563.8	1419.87
1.00	0.7	-	7.23	7230	4566.9	1583.14
1.10	0.7	-	7.53	7530	4569.9	1647.73
1.20	0.8	-	7.74	7740	4573.0	1692.56
1.30	0.9	-	7.81	7810	4576.0	1706.71
1.40	0.9	-	7.80	7800	4579.1	1703.39
1.50	1.0	-	7.73	7730	4582.2	1686.97
1.61	1.1	-	7.58	7580	4585.6	1653.00
1.70	1.1	-	7.38	7380	4588.3	1608.44
1.80	1.2	-	7.08	7080	4591.4	1542.00
1.90	1.3	-	6.75	6750	4594.6	1469.13

Report No. : SLST0200067

Job No. : SHK200019





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Report on Unconfined Compression Test - Summary of Soil Properties

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200067
Job No.: SHK200019
Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: - Depth (m)#: - Date of Test: 4/5/2020
Sample No.#: S3-SC074A 2/5/2020 Actual Depth (m): - W.O. No.#: -
LD002 S24
Sample Type#: PT75 Sample Origin#: Contaminated soil mixed with 7.5% cement and 10% sand Date Received: 2/5/2020

Information provided by Client

Specimen Details


Diameter of specimen	mm	75.8	Wet mass of specimen	g	1128.4
Length of specimen	mm	150.1	Dry mass of specimen	g	-
Area of specimen	mm ²	4512.6	Moisture content	%	-
Volume of specimen	cm ³	677.34	Bulk density	Mg/m ³	1.67
Particle density (assumed/measured)*	Mg/m ³	2.65	Dry density	Mg/m ³	-

* Delete whichever is inappropriate

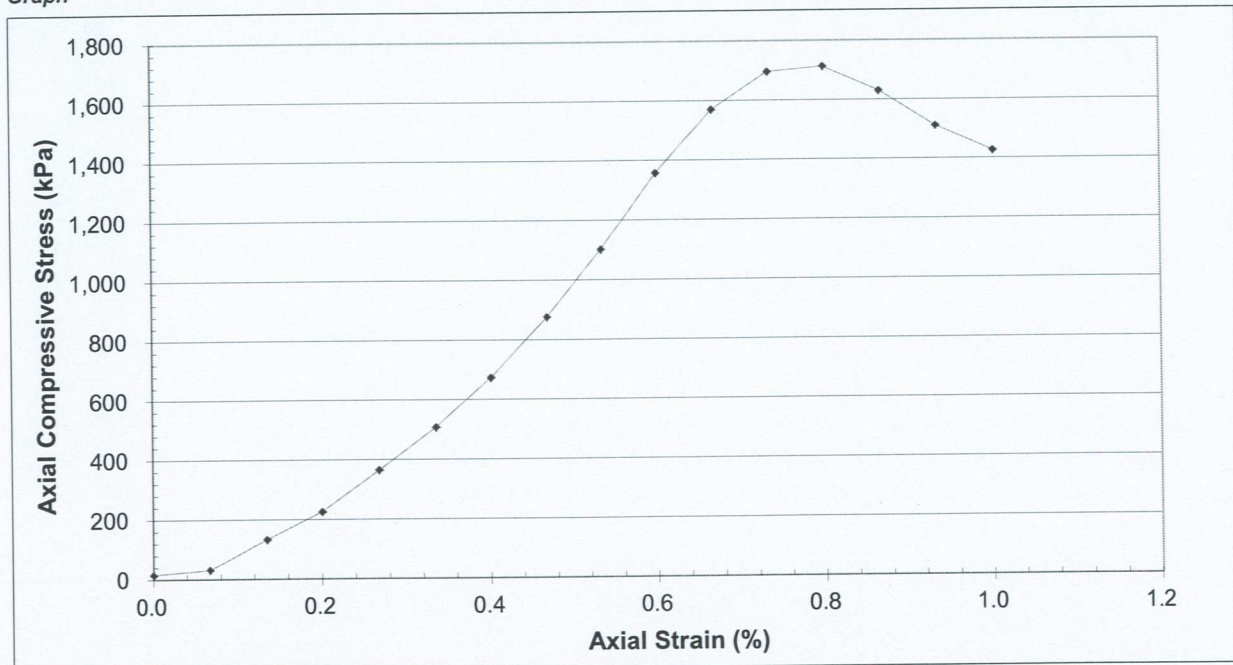
Visual Description: Light brownish grey sandy SILT/CLAY with Cement

Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

Compression Results

Maximum axial stress	1712	kPa	Sketch of failure conditions Inclination of shear surface	
Axial strain at failure	0.80	%		
Unconfined compressive strength, (q _u)	1712	kPa		

Graph



Remarks : Mixing Date : 28/4/2020

Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Certified by : HUI King Fai

Date : 4 May 2020

Date : 5 May 2020



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Report on Unconfined Compression Test - Compression Data

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200067

Job No.: SHK200019

Page: 2 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: - Depth (m)#: - Date of Test: 4/5/2020
Sample No.#: S3-SC074A Actual Depth (m): - W.O. No.#: -
2/5/2020 LD002
S24

Sample Type#: PT75 Sample Origin#: Contaminated soil mixed with 7.5%
cement and 10% sand Date Received: 2/5/2020

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_0)	mm	150.1
		Original area (A_0)	mm ²	4512.6

The compression was terminated at 1% of axial strain and the peak axial compressive stress is reached at 0.8%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in Italic

<i>Axial Deformation Reading (mm)</i>	<i>Axial Strain ϵ (%)</i>	<i>Proving Ring Gauge Reading (mm)</i>	<i>Load Cell Reading (kN)</i>	<i>Axial Force P (N)</i>	<i>Cross-section Area A (mm²)</i>	<i>Axial Compressive Stress σ_1 (kPa)</i>
0.00	0.0	-	0.07	70	4512.6	15.51
0.10	0.1	-	0.14	140	4515.7	31.00
0.20	0.1	-	0.60	600	4518.7	132.78
0.30	0.2	-	1.02	1020	4521.7	225.58
0.40	0.3	-	1.65	1650	4524.7	364.66
0.50	0.3	-	2.30	2300	4527.8	507.97
0.60	0.4	-	3.05	3050	4530.8	673.17
0.70	0.5	-	3.97	3970	4533.8	875.64
0.80	0.5	-	5.00	5000	4536.8	1102.09
0.90	0.6	-	6.16	6160	4539.9	1356.87
1.00	0.7	-	7.13	7130	4542.9	1569.48
1.10	0.7	-	7.71	7710	4546.0	1696.01
1.20	0.8	-	7.79	7790	4549.0	1712.46
1.30	0.9	-	7.42	7420	4552.1	1630.03
1.40	0.9	-	6.88	6880	4555.1	1510.38
1.50	1.0	-	6.50	6500	4558.3	1425.97

Report No. : SLST0200067

Job No. : SHK200019





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Report on Unconfined Compression Test - Summary of Soil Properties

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200067

Job No.: SHK200019

Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: - Depth (m)#: - Date of Test: 4/5/2020
Sample No.#: S3-SC074A 2/5/2020 Actual Depth (m): - W.O. No.#: -
LD002 S25
Sample Type#: PT75 Sample Origin#: Contaminated soil mixed with 7.5% cement and 10% sand Date Received: 2/5/2020

Information provided by Client

Specimen Details

Diameter of specimen	mm	75.6	Wet mass of specimen	g	1137.9
Length of specimen	mm	149.7	Dry mass of specimen	g	-
Area of specimen	mm ²	4488.8	Moisture content	%	-
Volume of specimen	cm ³	671.98	Bulk density	Mg/m ³	1.69
Particle density (assumed/measured)*	Mg/m ³	2.65	Dry density	Mg/m ³	-

* Delete whichever is inappropriate

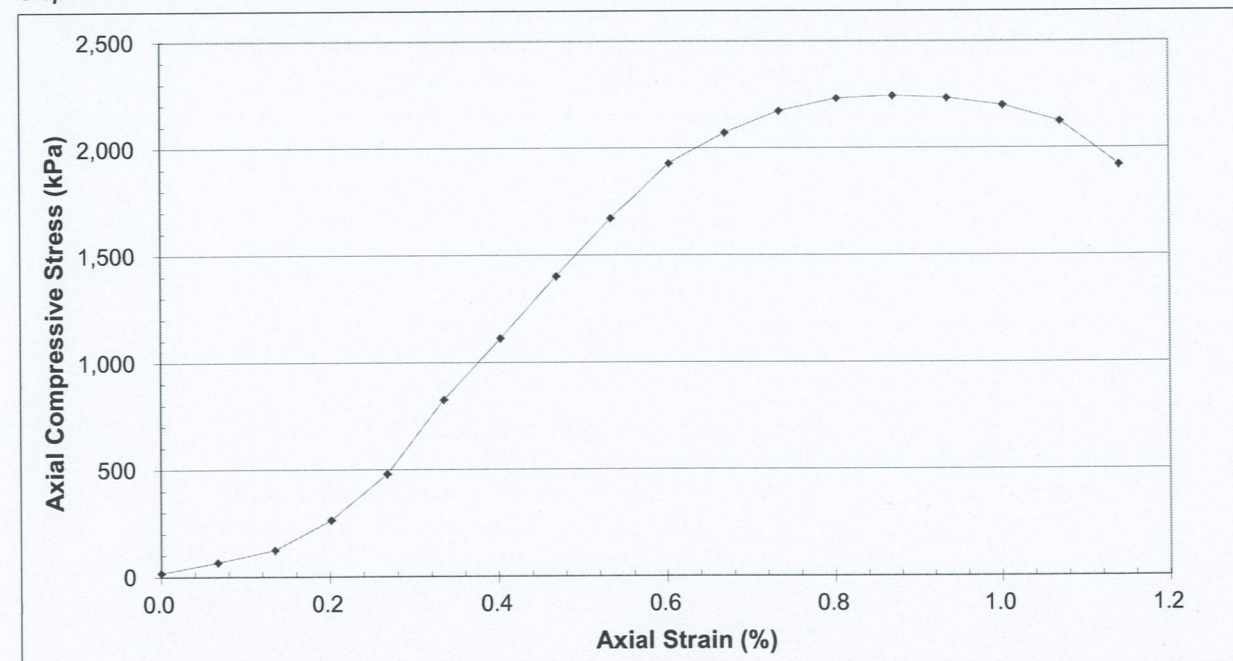
Visual Description: Light brownish grey sandy SILT/CLAY with Cement

Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

Compression Results

Maximum axial stress	2244	kPa	Sketch of failure conditions Inclination of shear surface	
Axial strain at failure	0.87	%		
Unconfined compressive strength, (q _u)	2244	kPa		

Graph



Remarks : Mixing Date : 28/4/2020

Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Certified by : HUI King Fai

Date : 4 May 2020

Date : 5 May 2020



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Report on Unconfined Compression Test - Compression Data

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200067

Job No.: SHK200019

Page: 2 of 2

Client#: Sang Hing - Kuly Joint Venture

Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No. #: - Depth (m) #: -

Date of Test: 4/5/2020

Sample No. #: S3-SC074A Actual Depth (m): -
2/5/2020 LD002
S25

W.O. No. #: -

Sample Type#: PT75 Sample Origin#: Contaminated soil mixed with 7.5%
cement and 10% sand

Date Received: 2/5/2020

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_0)	mm	149.7
		Original area (A_0)	mm ²	4488.8

The compression was terminated at 1.1% of axial strain and the peak axial compressive stress is reached at 0.9%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in *italic*

<i>Axial Deformation Reading (mm)</i>	<i>Axial Strain ϵ (%)</i>	<i>Proving Ring Gauge Reading (mm)</i>	<i>Load Cell Reading (kN)</i>	<i>Axial Force P (N)</i>	<i>Cross-section Area A (mm²)</i>	<i>Axial Compressive Stress σ_1 (kPa)</i>
0.00	0.0	-	0.08	80	4488.8	17.82
0.10	0.1	-	0.30	300	4491.8	66.79
0.20	0.1	-	0.56	560	4494.9	124.59
0.30	0.2	-	1.19	1190	4497.9	264.57
0.40	0.3	-	2.16	2160	4500.9	479.91
0.50	0.3	-	3.72	3720	4503.9	825.95
0.60	0.4	-	5.01	5010	4507.0	1111.61
0.70	0.5	-	6.32	6320	4510.0	1401.34
0.80	0.5	-	7.55	7550	4513.0	1672.96
0.90	0.6	-	8.71	8710	4516.1	1928.65
1.00	0.7	-	9.36	9360	4519.1	2071.20
1.10	0.7	-	9.83	9830	4522.1	2173.79
1.20	0.8	-	10.10	10100	4525.2	2231.95
1.30	0.9	-	10.16	10160	4528.2	2243.69
1.40	0.9	-	10.12	10120	4531.2	2233.38
1.50	1.0	-	9.97	9970	4534.3	2198.80
1.60	1.1	-	9.64	9640	4537.4	2124.56
1.71	1.1	-	8.72	8720	4540.6	1920.43

Report No. : SLST0200067

Job No. : SHK200019





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Report on Unconfined Compression Test - Summary of Soil Properties

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200067
Job No.: SHK200019
Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: - Depth (m)#: - Date of Test: 4/5/2020
Sample No.#: S3-SC074A 2/5/2020 Actual Depth (m): - W.O. No.#: -
LD002 S26
Sample Type#: PT75 Sample Origin#: Contaminated soil mixed with 7.5% cement and 10% sand Date Received: 2/5/2020

Information provided by Client

Specimen Details

Diameter of specimen	mm	75.8	Wet mass of specimen	g	1141.4
Length of specimen	mm	150.7	Dry mass of specimen	g	-
Area of specimen	mm ²	4512.6	Moisture content	%	-
Volume of specimen	cm ³	680.05	Bulk density	Mg/m ³	1.68
Particle density (assumed/measured)*	Mg/m ³	2.65	Dry density	Mg/m ³	-

* Delete whichever is inappropriate

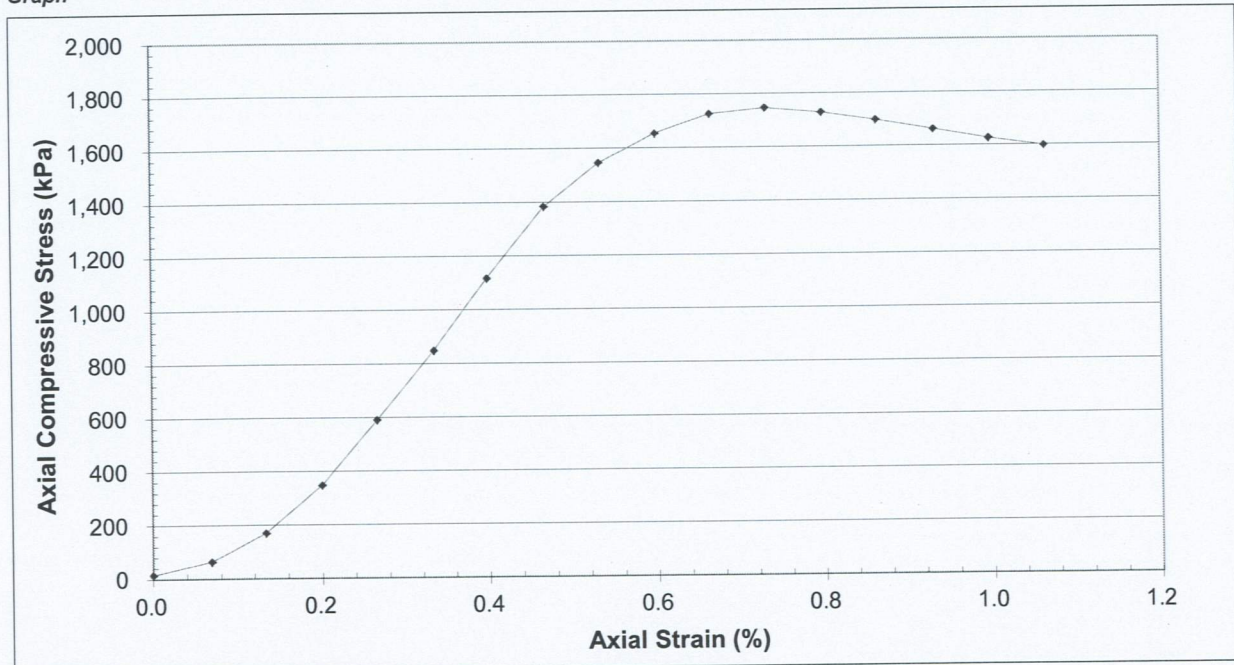
Visual Description: Light brownish grey sandy SILT/CLAY with Cement

Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

Compression Results

Maximum axial stress	1747	kPa	Sketch of failure conditions Inclination of shear surface	
Axial strain at failure	0.73	%		
Unconfined compressive strength, (q _u)	1747	kPa		

Graph



Remarks : Mixing Date : 29/4/2020

Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Certified by : HUI King Fai

Date : 4 May 2020

Date : 5 May 2020



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Report on Unconfined Compression Test - Compression Data

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200067

Job No.: SHK200019

Page: 2 of 2

Client#: Sang Hing - Kuly Joint Venture

Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: - Depth (m)#: -

Date of Test: 4/5/2020

Sample No.#: S3-SC074A Actual Depth (m): -
2/5/2020 LD002
S26

W.O. No.#: -

Sample Type#: PT75

Sample Origin#: Contaminated soil mixed with 7.5%
cement and 10% sand

Date Received: 2/5/2020

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_0)	mm	150.7
		Original area (A_0)	mm ²	4512.6

The compression was terminated at 1.1% of axial strain and the peak axial compressive stress is reached at 0.7%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in *Italic*

<i>Axial Deformation Reading (mm)</i>	<i>Axial Strain ϵ (%)</i>	<i>Proving Ring Gauge Reading (mm)</i>	<i>Load Cell Reading (kN)</i>	<i>Axial Force P (N)</i>	<i>Cross-section Area A (mm²)</i>	<i>Axial Compressive Stress σ_1 (kPa)</i>
0.00	0.0	-	0.07	70	4512.6	15.51
0.10	0.1	-	0.29	290	4515.7	64.22
0.20	0.1	-	0.77	770	4518.6	170.41
0.30	0.2	-	1.57	1570	4521.6	347.22
0.40	0.3	-	2.67	2670	4524.6	590.10
0.50	0.3	-	3.84	3840	4527.7	848.11
0.60	0.4	-	5.06	5060	4530.7	1116.84
0.70	0.5	-	6.27	6270	4533.8	1382.96
0.80	0.5	-	7.01	7010	4536.7	1545.17
0.90	0.6	-	7.51	7510	4539.8	1654.25
1.00	0.7	-	7.84	7840	4542.8	1725.81
1.10	0.7	-	7.94	7940	4545.8	1746.67
1.20	0.8	-	7.86	7860	4548.9	1727.89
1.30	0.9	-	7.73	7730	4551.9	1698.19
1.40	0.9	-	7.57	7570	4555.0	1661.90
1.50	1.0	-	7.41	7410	4558.0	1625.70
1.60	1.1	-	7.29	7290	4561.1	1598.31

Report No. : SLST0200067

Job No. : SHK200019





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Report on Unconfined Compression Test - Summary of Soil Properties

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200067

Job No.: SHK200019

Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture

Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -

Depth (m)#: -

Date of Test: 4/5/2020

Sample No.#: S3-SC074A 2/5/2020
LD002 S27

Actual Depth (m): -

W.O. No.#: -

Sample Type#: PT75

Sample Origin#: Contaminated soil mixed with 7.5%
cement and 10% sand

Date Received: 2/5/2020

Information provided by Client

Specimen Details


Diameter of specimen	mm	76.1	Wet mass of specimen	g	1132.3
Length of specimen	mm	150.0	Dry mass of specimen	g	-
Area of specimen	mm ²	4548.4	Moisture content	%	-
Volume of specimen	cm ³	682.26	Bulk density	Mg/m ³	1.66
Particle density (assumed/measured)*	Mg/m ³	2.65	Dry density	Mg/m ³	-

* Delete whichever is inappropriate

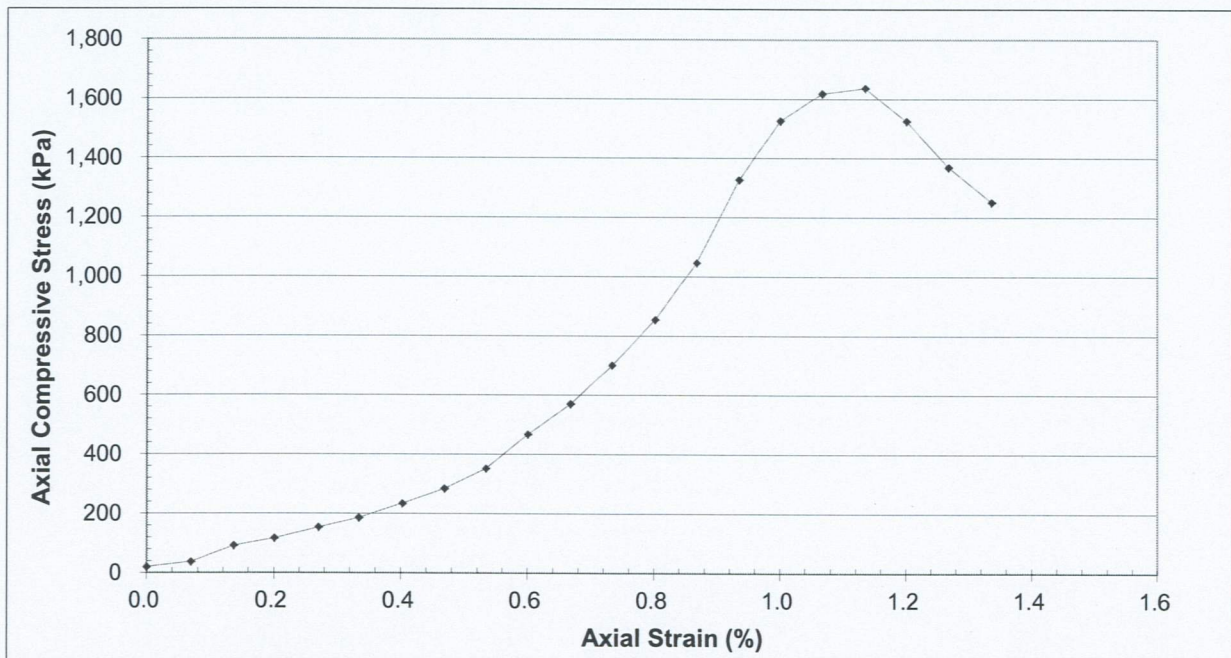
Visual Description: Light brownish grey sandy SILT/CLAY with Cement

Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

Compression Results

Maximum axial stress	1637	kPa	Sketch of failure conditions Inclination of shear surface	
Axial strain at failure	1.1	%		
Unconfined compressive strength, (q _u)	1637	kPa		


Graph



Remarks : Mixing Date : 29/4/2020

Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Certified by : 
HUI King Fai

Date : 4 May 2020

Date : 5 May 2020



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Report on Unconfined Compression Test - Compression Data

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200067

Job No.: SHK200019

Page: 2 of 2

Client#: Sang Hing - Kuly Joint Venture

Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: - Depth (m)#: -

Date of Test: 4/5/2020

Sample No.#: S3-SC074A Actual Depth (m): -
2/5/2020 LD002
S27

W.O. No.#: -

Sample Type#: PT75

Sample Origin#: Contaminated soil mixed with 7.5%
cement and 10% sand

Date Received: 2/5/2020

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_0)	mm	150.0
		Original area (A_0)	mm ²	4548.4

The compression was terminated at 1.3% of axial strain and the peak axial compressive stress is reached at 1.1%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in Italic

<i>Axial Deformation Reading (mm)</i>	<i>Axial Strain ϵ (%)</i>	<i>Proving Ring Gauge Reading (mm)</i>	<i>Load Cell Reading (kN)</i>	<i>Axial Force P (N)</i>	<i>Cross- section Area A (mm²)</i>	<i>Axial Compressive Stress σ_1 (kPa)</i>
0.00	0.0	-	0.09	90	4548.4	19.79
0.11	0.1	-	0.17	170	4551.6	37.35
0.21	0.1	-	0.42	420	4554.6	92.21
0.30	0.2	-	0.53	530	4557.6	116.29
0.41	0.3	-	0.70	700	4560.8	153.48
0.50	0.3	-	0.85	850	4563.7	186.25
0.60	0.4	-	1.07	1070	4566.8	234.30
0.70	0.5	-	1.30	1300	4569.8	284.47
0.80	0.5	-	1.61	1610	4572.8	352.08
0.90	0.6	-	2.14	2140	4575.9	467.67
1.00	0.7	-	2.61	2610	4579.0	569.99
1.10	0.7	-	3.21	3210	4582.0	700.57
1.20	0.8	-	3.92	3920	4585.2	854.93
1.30	0.9	-	4.80	4800	4588.2	1046.16
1.40	0.9	-	6.09	6090	4591.3	1326.42
1.50	1.0	-	7.01	7010	4594.4	1525.78
1.60	1.1	-	7.44	7440	4597.4	1618.29
1.70	1.1	-	7.53	7530	4600.6	1636.74
1.80	1.2	-	7.02	7020	4603.7	1524.87
1.90	1.3	-	6.31	6310	4606.8	1369.71
2.01	1.3	-	5.77	5770	4610.0	1251.62

Report No. : SLST0200067

Job No. : SHK200019





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Report on Unconfined Compression Test - Summary of Soil Properties

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200070

Job No.: SHK200020

Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture

Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -

Depth (m)#: -

Date of Test: 6/5/2020

Sample No.#: S3-SC074A 05/05/2020
LD002 S28

Actual Depth (m): -

W.O. No.#: -

Sample Type#: PT75

Sample Origin#: Contaminated soil mixed with 7.5%
cement and 10% sand

Date Received: 5/5/2020

Information provided by Client

Specimen Details

Diameter of specimen	mm	76.4	Wet mass of specimen	g	1104.1
Length of specimen	mm	149.8	Dry mass of specimen	g	-
Area of specimen	mm ²	4584.3	Moisture content	%	-
Volume of specimen	cm ³	686.73	Bulk density	Mg/m ³	1.61
Particle density (assumed/measured)*	Mg/m ³	2.65	Dry density	Mg/m ³	-

* Delete whichever is inappropriate

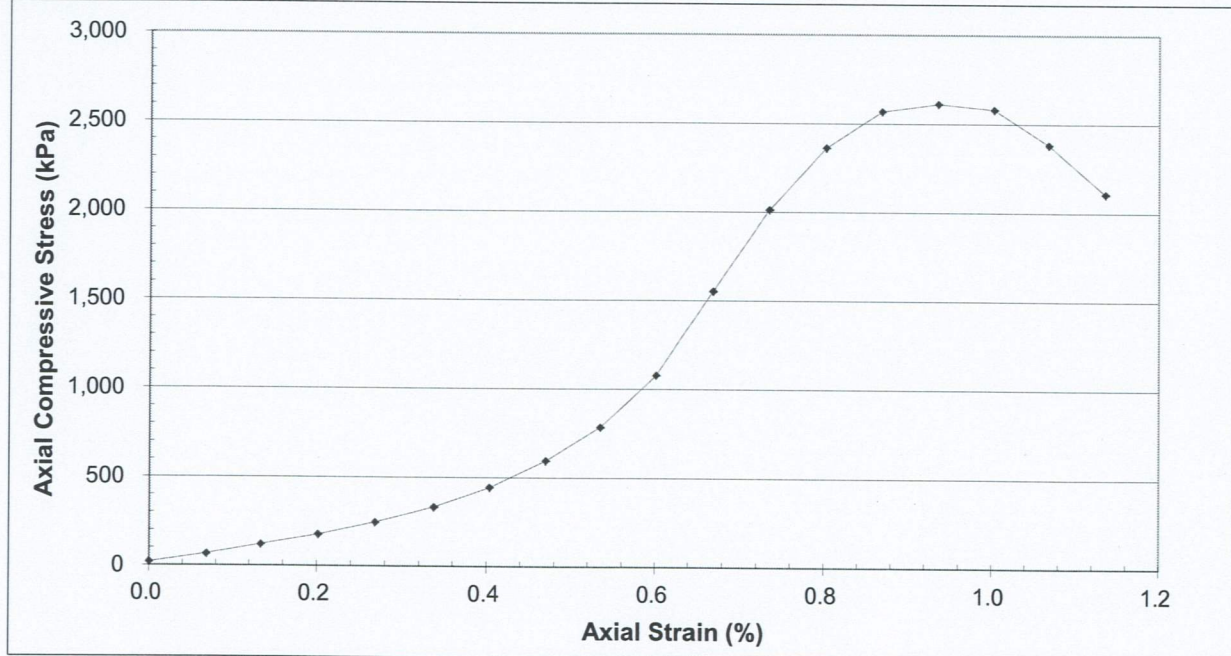
Visual Description: Light brownish grey sandy SILT/CLAY with Cement

Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

Compression Results

Maximum axial stress	2613	kPa	Sketch of failure conditions Inclination of shear surface	
Axial strain at failure	0.94	%		
Unconfined compressive strength, (q _u)	2613	kPa		

Graph



Remarks : Mixing Date : 2/5/2020

Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Certified by :
HUI King Fai

Date : 6 May 2020

Date : 9 May 2020



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Report on Unconfined Compression Test - Compression Data

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200070

Job No.: SHK200020

Page: 2 of 2

Client#: Sang Hing - Kuly Joint Venture

Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: - Depth (m)#: -

Date of Test: 6/5/2020

Sample No.#: S3-SC074A Actual Depth (m): -
05/05/2020
LD002 S28

W.O. No.#: -

Sample Type#: PT75

Sample Origin#: Contaminated soil mixed with 7.5%
cement and 10% sand

Date Received: 5/5/2020

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_0)	mm	149.8
		Original area (A_0)	mm ²	4584.3

The compression was terminated at 1.1% of axial strain and the peak axial compressive stress is reached at 0.9%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in italic

<i>Axial Deformation Reading (mm)</i>	<i>Axial Strain ϵ (%)</i>	<i>Proving Ring Gauge Reading (mm)</i>	<i>Load Cell Reading (kN)</i>	<i>Axial Force P (N)</i>	<i>Cross- section Area A (mm²)</i>	<i>Axial Compressive Stress σ_1 (kPa)</i>
0.00	0.0	-	0.09	90	4584.3	19.63
0.10	0.1	-	0.30	300	4587.5	65.40
0.20	0.1	-	0.55	550	4590.5	119.81
0.30	0.2	-	0.81	810	4593.6	176.33
0.40	0.3	-	1.13	1130	4596.7	245.83
0.51	0.3	-	1.53	1530	4599.9	332.62
0.60	0.4	-	2.04	2040	4602.9	443.20
0.70	0.5	-	2.74	2740	4606.0	594.88
0.80	0.5	-	3.62	3620	4609.0	785.42
0.90	0.6	-	4.98	4980	4612.1	1079.77
1.00	0.7	-	7.17	7170	4615.2	1553.57
1.10	0.7	-	9.30	9300	4618.3	2013.75
1.20	0.8	-	10.92	10920	4621.4	2362.93
1.30	0.9	-	11.88	11880	4624.5	2568.93
1.40	0.9	-	12.09	12090	4627.6	2612.58
1.50	1.0	-	11.95	11950	4630.7	2580.58
1.60	1.1	-	11.04	11040	4633.8	2382.48
1.70	1.1	-	9.77	9770	4637.0	2106.97

Report No. : SLST0200070

Job No. : SHK200020





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Report on Unconfined Compression Test - Summary of Soil Properties

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200070

Job No.: SHK200020

Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture

Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -

Depth (m)#: -

Date of Test: 6/5/2020

Sample No.#: S3-SC074A 05/05/2020
LD002 S29

Actual Depth (m): -

W.O. No.#: -

Sample Type#: PT75

Sample Origin#: Contaminated soil mixed with 7.5%
cement and 10% sand

Date Received: 5/5/2020

Information provided by Client

Specimen Details

Diameter of specimen	mm	76.5	Wet mass of specimen	g	1120.3
Length of specimen	mm	149.9	Dry mass of specimen	g	-
Area of specimen	mm ²	4596.3	Moisture content	%	-
Volume of specimen	cm ³	688.99	Bulk density	Mg/m ³	1.63
Particle density (assumed/measured)*	Mg/m ³	2.65	Dry density	Mg/m ³	-

* Delete whichever is inappropriate

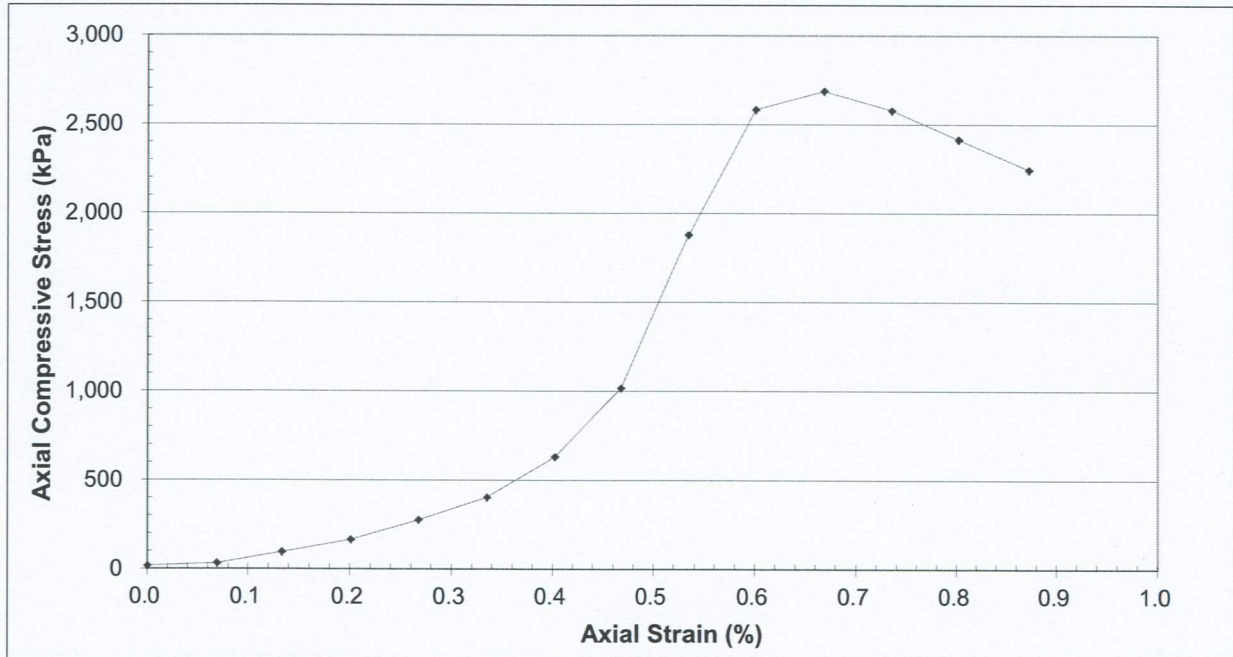
Visual Description: Light brownish grey sandy SILT/CLAY with Cement

Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

Compression Results

Maximum axial stress	2688	kPa	Sketch of failure conditions Inclination of shear surface	
Axial strain at failure	0.67	%		
Unconfined compressive strength, (q _u)	2688	kPa		

Graph



Remarks : Mixing Date : 2/5/2020

Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Certified by : HUI King Fai

Date : 6 May 2020

Date : 9 May 2020



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Report on Unconfined Compression Test - Compression Data

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200070

Job No.: SHK200020

Page: 2 of 2

Client#: Sang Hing - Kuly Joint Venture

Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: - Depth (m)#: -

Date of Test: 6/5/2020

Sample No.#: S3-SC074A Actual Depth (m): -
05/05/2020
LD002 S29

W.O. No.#: -

Sample Type#: PT75

Sample Origin#: Contaminated soil mixed with 7.5%
cement and 10% sand

Date Received: 5/5/2020

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_0)	mm	149.9
		Original area (A_0)	mm ²	4596.3

The compression was terminated at 0.9% of axial strain and the peak axial compressive stress is reached at 0.7%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in Italic

<i>Axial Deformation Reading (mm)</i>	<i>Axial Strain ϵ (%)</i>	<i>Proving Ring Gauge Reading (mm)</i>	<i>Load Cell Reading (kN)</i>	<i>Axial Force P (N)</i>	<i>Cross- section Area A (mm²)</i>	<i>Axial Compressive Stress σ_1 (kPa)</i>
0.00	0.0	-	0.08	80	4596.3	17.41
0.10	0.1	-	0.15	150	4599.5	32.61
0.20	0.1	-	0.44	440	4602.5	95.60
0.30	0.2	-	0.76	760	4605.6	165.02
0.40	0.3	-	1.27	1270	4608.7	275.57
0.50	0.3	-	1.86	1860	4611.8	403.31
0.60	0.4	-	2.91	2910	4614.9	630.56
0.70	0.5	-	4.70	4700	4617.9	1017.77
0.80	0.5	-	8.68	8680	4621.0	1878.37
0.90	0.6	-	11.95	11950	4624.1	2584.26
1.00	0.7	-	12.44	12440	4627.3	2688.41
1.10	0.7	-	11.94	11940	4630.4	2578.62
1.20	0.8	-	11.19	11190	4633.5	2415.02
1.31	0.9	-	10.41	10410	4636.8	2245.08

Report No. : SLST0200070

Job No. : SHK200020





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Report on Unconfined Compression Test - Summary of Soil Properties

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200070

Job No.: SHK200020

Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture

Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -

Depth (m)#: -

Date of Test: 8/5/2020

Sample No.#: S3-SC074A 05/05/2020
LD002 S30

Actual Depth (m): -

W.O. No.#: -

Sample Type#: PT75

Sample Origin#: Contaminated soil mixed with 7.5%
cement and 10% sand

Date Received: 5/5/2020

Information provided by Client

Specimen Details

Diameter of specimen	mm	75.8	Wet mass of specimen	g	1120.6
Length of specimen	mm	149.7	Dry mass of specimen	g	-
Area of specimen	mm ²	4512.6	Moisture content	%	-
Volume of specimen	cm ³	675.54	Bulk density	Mg/m ³	1.66
Particle density (assumed/measured)*	Mg/m ³	2.65	Dry density	Mg/m ³	-

* Delete whichever is inappropriate

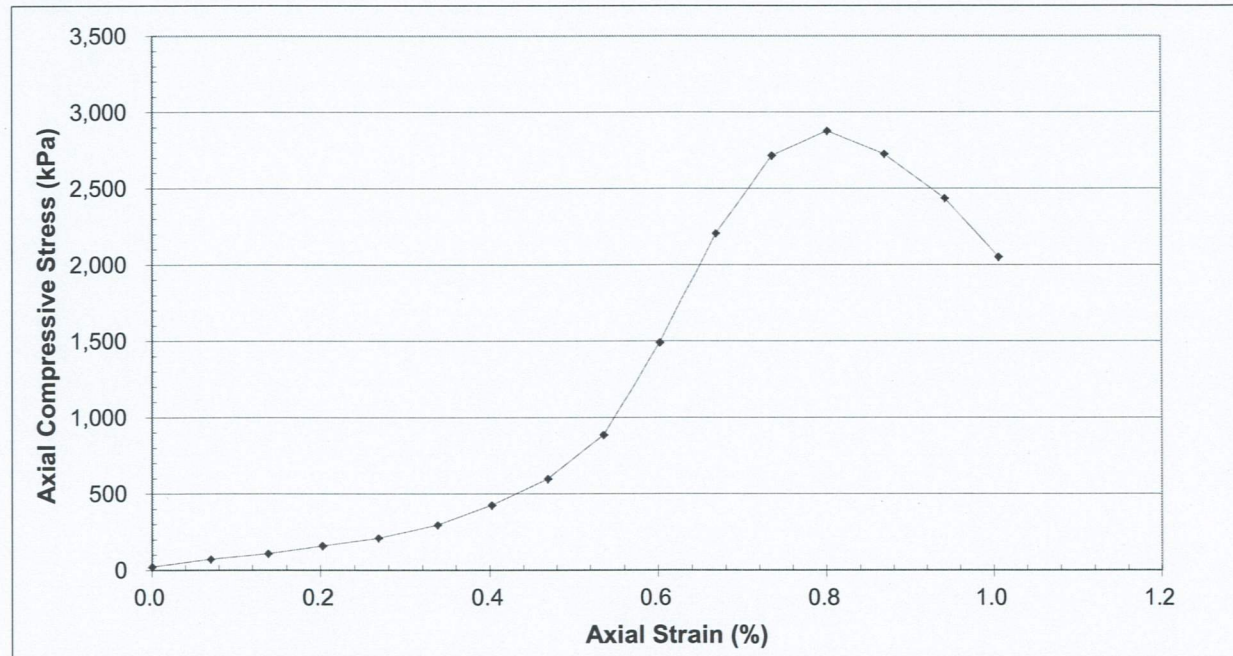
Visual Description: Light brownish grey sandy SILT/CLAY with Cement

Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

Compression Results

Maximum axial stress	2878	kPa	Sketch of failure conditions Inclination of shear surface	
Axial strain at failure	0.80	%		
Unconfined compressive strength, (q _u)	2878	kPa		

Graph



Remarks : Mixing Date : 4/5/2020

Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Certified by : HUI King Fai

Date : 8 May 2020

Date : 9 May 2020



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Report on Unconfined Compression Test - Compression Data

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200070

Job No.: SHK200020

Page: 2 of 2

Client#: Sang Hing - Kuly Joint Venture

Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: - Depth (m)#: -

Date of Test: 8/5/2020

Sample No.#: S3-SC074A Actual Depth (m): -
05/05/2020
LD002 S30

W.O. No.#: -

Sample Type#: PT75

Sample Origin#: Contaminated soil mixed with 7.5%
cement and 10% sand

Date Received: 5/5/2020

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_0)	mm	149.7
		Original area (A_0)	mm ²	4512.6

The compression was terminated at 1% of axial strain and the peak axial compressive stress is reached at 0.8%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in *Italic*

<i>Axial Deformation Reading (mm)</i>	<i>Axial Strain ϵ (%)</i>	<i>Proving Ring Gauge Reading (mm)</i>	<i>Load Cell Reading (kN)</i>	<i>Axial Force P (N)</i>	<i>Cross- section Area A (mm²)</i>	<i>Axial Compressive Stress σ_1 (kPa)</i>
0.00	0.0	-	0.10	100	4512.6	22.16
0.11	0.1	-	0.33	330	4515.8	73.08
0.21	0.1	-	0.49	490	4518.9	108.43
0.30	0.2	-	0.72	720	4521.8	159.23
0.40	0.3	-	0.95	950	4524.7	209.96
0.51	0.3	-	1.34	1340	4527.9	295.94
0.60	0.4	-	1.93	1930	4530.8	425.97
0.70	0.5	-	2.71	2710	4533.9	597.72
0.80	0.5	-	4.02	4020	4536.9	886.06
0.90	0.6	-	6.77	6770	4540.0	1491.20
1.00	0.7	-	10.02	10020	4543.0	2205.59
1.10	0.7	-	12.35	12350	4546.0	2716.64
1.20	0.8	-	13.09	13090	4549.1	2877.50
1.30	0.9	-	12.41	12410	4552.2	2726.17
1.41	0.9	-	11.09	11090	4555.5	2434.41
1.51	1.0	-	9.35	9350	4558.5	2051.13

Report No. : SLST0200070

Job No. : SHK200020





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Report on Unconfined Compression Test - Summary of Soil Properties

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200070

Job No.: SHK200020

Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: - Depth (m)#: - Date of Test: 8/5/2020
Sample No.#: S3-SC074A 05/05/2020 Actual Depth (m): - W.O. No.#: -
LD002 S31
Sample Type#: PT75 Sample Origin#: Contaminated soil mixed with 7.5% cement and 10% sand Date Received: 5/5/2020

Information provided by Client

Specimen Details

Diameter of specimen	mm	75.6	Wet mass of specimen	g	1110.1
Length of specimen	mm	150.1	Dry mass of specimen	g	-
Area of specimen	mm ²	4488.8	Moisture content	%	-
Volume of specimen	cm ³	673.77	Bulk density	Mg/m ³	1.65
Particle density (assumed/measured)*	Mg/m ³	2.65	Dry density	Mg/m ³	-

* Delete whichever is inappropriate

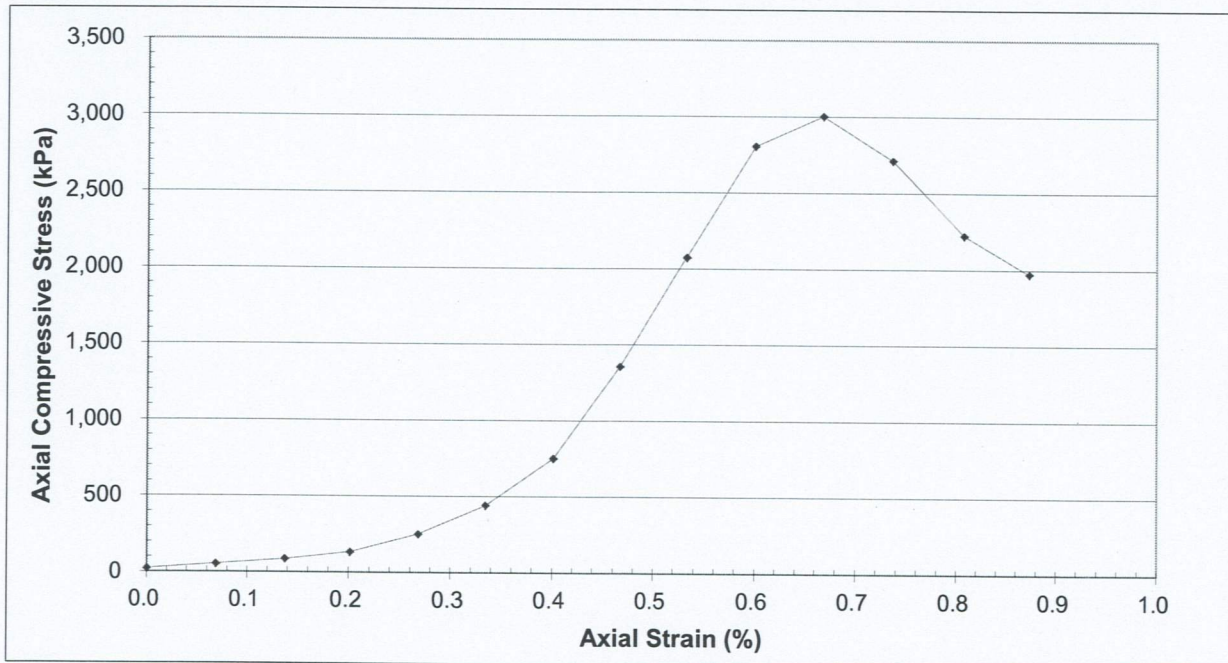
Visual Description: Light brownish grey sandy SILT/CLAY with Cement

Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

Compression Results

Maximum axial stress	3003	kPa	Sketch of failure conditions Inclination of shear surface	
Axial strain at failure	0.67	%		
Unconfined compressive strength, (q _u)	3003	kPa		

Graph



Remarks : Mixing Date : 4/5/2020

Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Certified by :
HUI King Fai

Date : 8 May 2020

Date : 9 May 2020



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Report on Unconfined Compression Test - Compression Data

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200070

Job No.: SHK200020

Page: 2 of 2

Client#: Sang Hing - Kuly Joint Venture

Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: - Depth (m)#: -

Date of Test: 8/5/2020

Sample No.#: S3-SC074A Actual Depth (m): -
05/05/2020
LD002 S31

W.O. No.#: -

Sample Type#: PT75

Sample Origin#: Contaminated soil mixed with 7.5%
cement and 10% sand

Date Received: 5/5/2020

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_0)	mm	150.1
		Original area (A_0)	mm ²	4488.8

The compression was terminated at 0.9% of axial strain and the peak axial compressive stress is reached at 0.7%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in Italic

<i>Axial Deformation Reading (mm)</i>	<i>Axial Strain ϵ (%)</i>	<i>Proving Ring Gauge Reading (mm)</i>	<i>Load Cell Reading (kN)</i>	<i>Axial Force P (N)</i>	<i>Cross- section Area A (mm²)</i>	<i>Axial Compressive Stress σ_1 (kPa)</i>
0.00	0.0	-	0.10	100	4488.8	22.28
0.10	0.1	-	0.24	240	4491.9	53.43
0.21	0.1	-	0.39	390	4495.0	86.76
0.30	0.2	-	0.60	600	4497.9	133.40
0.40	0.3	-	1.13	1130	4500.9	251.06
0.50	0.3	-	1.99	1990	4503.9	441.84
0.60	0.4	-	3.38	3380	4506.9	749.96
0.70	0.5	-	6.12	6120	4509.9	1357.02
0.80	0.5	-	9.36	9360	4512.9	2074.06
0.90	0.6	-	12.67	12670	4515.9	2805.62
1.00	0.7	-	13.57	13570	4519.0	3002.88
1.11	0.7	-	12.27	12270	4522.1	2713.33
1.21	0.8	-	10.06	10060	4525.4	2223.02
1.31	0.9	-	8.93	8930	4528.4	1972.02

Report No. : SLST0200070

Job No. : SHK200020





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Report on Unconfined Compression Test - Summary of Soil Properties

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200072

Job No.: SHK200021

Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: - Depth (m)#: - Date of Test: 11/5/2020
Sample No.#: S3-SC074A 9/5/2020 Actual Depth (m): - W.O. No.#: -
LD002 S32
Sample Type#: PT75 Sample Origin#: Contaminated soil mixed with 7.5% cement and 10% sand Date Received: 9/5/2020

* Information provided by Client

Specimen Details

Diameter of specimen	mm	75.8	Wet mass of specimen	g	1147.6
Length of specimen	mm	149.7	Dry mass of specimen	g	-
Area of specimen	mm ²	4512.6	Moisture content	%	-
Volume of specimen	cm ³	675.54	Bulk density	Mg/m ³	1.70
Particle density (assumed/measured)*	Mg/m ³	2.65	Dry density	Mg/m ³	-

* Delete whichever is inappropriate

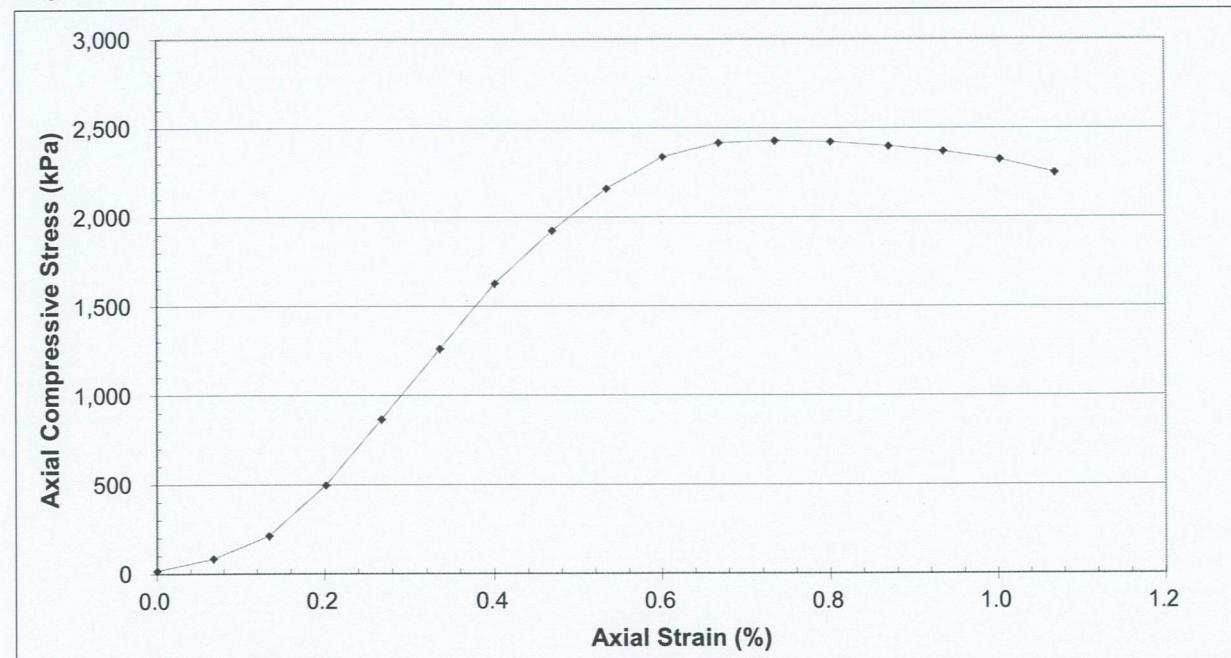
Visual Description: Light brownish grey sandy SILT/CLAY with Cement

Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

Compression Results

Maximum axial stress	2428	kPa	Sketch of failure conditions Inclination of shear surface	
Axial strain at failure	0.74	%		
Unconfined compressive strength, (q _u)	2428	kPa		

Graph



Remarks : Mixing Date : 5/5/2020

Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Certified by : HUI King Fai

Date : 11 May 2020

Date : 13 May 2020



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Report on Unconfined Compression Test - Compression Data

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200072

Job No.: SHK200021

Page: 2 of 2

Client#: Sang Hing - Kuly Joint Venture

Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No. #: - Depth (m) #: -

Date of Test: 11/5/2020

Sample No. #: S3-SC074A Actual Depth (m): -
9/5/2020 LD002
S32

W.O. No. #: -

Sample Type#: PT75 Sample Origin#: Contaminated soil mixed with 7.5%
cement and 10% sand

Date Received: 9/5/2020

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_0)	mm	149.7
		Original area (A_0)	mm ²	4512.6

The compression was terminated at 1.1% of axial strain and the peak axial compressive stress is reached at 0.7%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in Italic

<i>Axial Deformation Reading (mm)</i>	<i>Axial Strain ϵ (%)</i>	<i>Proving Ring Gauge Reading (mm)</i>	<i>Load Cell Reading (kN)</i>	<i>Axial Force P (N)</i>	<i>Cross-section Area A (mm²)</i>	<i>Axial Compressive Stress σ_1 (kPa)</i>
0.00	0.0	-	0.08	80	4512.6	17.73
0.10	0.1	-	0.38	380	4515.7	84.15
0.20	0.1	-	0.96	960	4518.7	212.45
0.30	0.2	-	2.25	2250	4521.7	497.60
0.40	0.3	-	3.92	3920	4524.7	866.35
0.50	0.3	-	5.71	5710	4527.8	1261.09
0.60	0.4	-	7.37	7370	4530.8	1626.65
0.70	0.5	-	8.72	8720	4533.9	1923.30
0.80	0.5	-	9.80	9800	4536.9	2160.08
0.90	0.6	-	10.61	10610	4539.9	2337.04
1.00	0.7	-	10.98	10980	4543.0	2416.91
1.10	0.7	-	11.04	11040	4546.0	2428.48
1.20	0.8	-	11.02	11020	4549.1	2422.47
1.30	0.9	-	10.92	10920	4552.2	2398.82
1.40	0.9	-	10.79	10790	4555.2	2368.70
1.50	1.0	-	10.59	10590	4558.4	2323.21
1.60	1.1	-	10.26	10260	4561.4	2249.31

Report No. : SLST0200072

Job No. : SHK200021





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Report on Unconfined Compression Test - Summary of Soil Properties

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200072

Job No.: SHK200021

Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture

Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -

Depth (m)#: -

Date of Test: 11/5/2020

Sample No.#: S3-SC074A 9/5/2020
LD002 S33

Actual Depth (m): -

W.O. No.#: -

Sample Type#: PT75

Sample Origin#: Contaminated soil mixed with 7.5%
cement and 10% sand

Date Received: 9/5/2020

Information provided by Client

Specimen Details

Diameter of specimen	mm	76.4	Wet mass of specimen	g	1134.3
Length of specimen	mm	150.4	Dry mass of specimen	g	-
Area of specimen	mm ²	4584.3	Moisture content	%	-
Volume of specimen	cm ³	689.48	Bulk density	Mg/m ³	1.65
Particle density (assumed/measured)*	Mg/m ³	2.65	Dry density	Mg/m ³	-

* Delete whichever is inappropriate

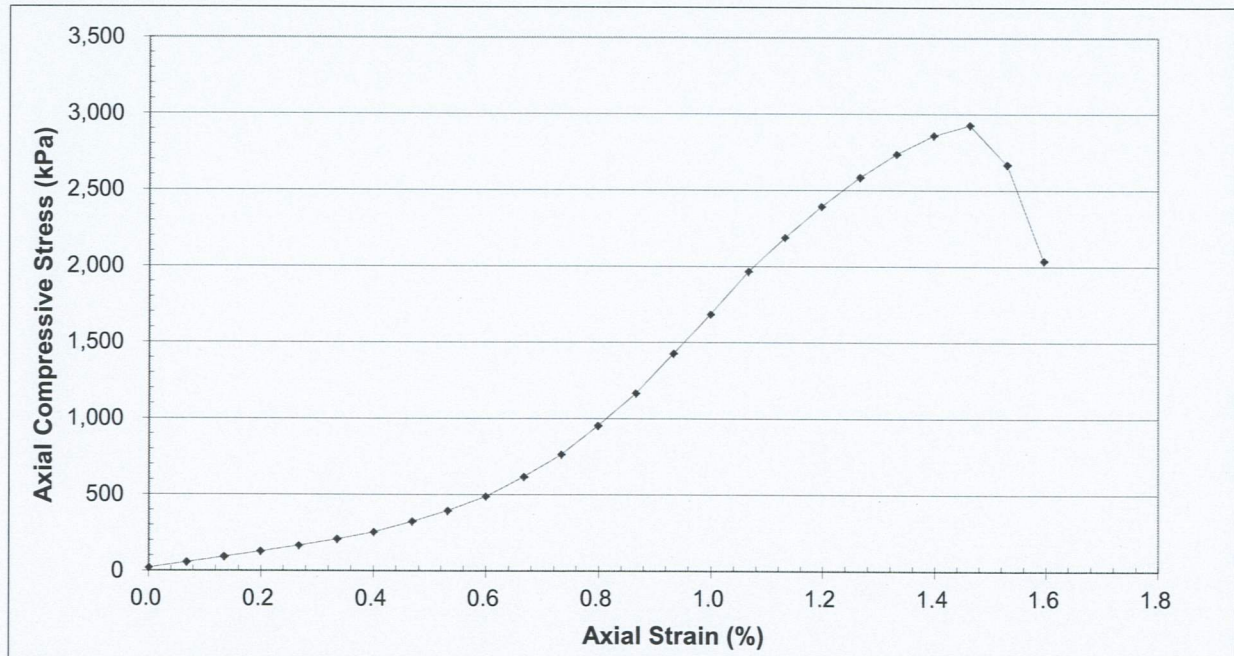
Visual Description: Light grey sandy SILT/CLAY with Cement

Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

Compression Results

Maximum axial stress	2928	kPa	Sketch of failure conditions Inclination of shear surface	
Axial strain at failure	1.5	%		
Unconfined compressive strength, (q _u)	2928	kPa		

Graph



Remarks : Mixing Date : 5/5/2020

Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Certified by : HUI King Fai

Date : 11 May 2020

Date : 13 May 2020



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Report on Unconfined Compression Test - Compression Data

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200072

Job No.: SHK200021

Page: 2 of 2

Client#: Sang Hing - Kuly Joint Venture

Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: - Depth (m)#: -

Date of Test: 11/5/2020

Sample No.#: S3-SC074A Actual Depth (m): -
9/5/2020 LD002
S33

W.O. No.#: -

Sample Type#: PT75

Sample Origin#: Contaminated soil mixed with 7.5%
cement and 10% sand

Date Received: 9/5/2020

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_0)	mm	150.4
		Original area (A_0)	mm ²	4584.3

The compression was terminated at 1.6% of axial strain and the peak axial compressive stress is reached at 1.5%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in *italic*

<i>Axial Deformation Reading (mm)</i>	<i>Axial Strain ϵ (%)</i>	<i>Proving Ring Gauge Reading (mm)</i>	<i>Load Cell Reading (kN)</i>	<i>Axial Force P (N)</i>	<i>Cross-section Area A (mm²)</i>	<i>Axial Compressive Stress σ_1 (kPa)</i>
0.00	0.0	-	0.09	90	4584.3	19.63
0.10	0.1	-	0.26	260	4587.4	56.68
0.20	0.1	-	0.42	420	4590.5	91.49
0.30	0.2	-	0.59	590	4593.5	128.44
0.40	0.3	-	0.76	760	4596.6	165.34
0.50	0.3	-	0.96	960	4599.8	208.71
0.60	0.4	-	1.17	1170	4602.8	254.20
0.70	0.5	-	1.49	1490	4605.9	323.50
0.80	0.5	-	1.82	1820	4608.9	394.89
0.90	0.6	-	2.25	2250	4612.0	487.86
1.00	0.7	-	2.85	2850	4615.1	617.54
1.10	0.7	-	3.53	3530	4618.2	764.37
1.20	0.8	-	4.40	4400	4621.2	952.13
1.30	0.9	-	5.39	5390	4624.4	1165.56
1.40	0.9	-	6.60	6600	4627.5	1426.24
1.50	1.0	-	7.80	7800	4630.6	1684.45
1.60	1.1	-	9.11	9110	4633.7	1966.02
1.70	1.1	-	10.15	10150	4636.8	2189.02
1.80	1.2	-	11.10	11100	4639.9	2392.29
1.90	1.3	-	12.00	12000	4643.1	2584.47
2.00	1.3	-	12.72	12720	4646.2	2737.73
2.10	1.4	-	13.30	13300	4649.3	2860.64
2.20	1.5	-	13.62	13620	4652.4	2927.53
2.30	1.5	-	12.42	12420	4655.6	2667.78
2.40	1.6	-	9.49	9490	4658.7	2037.06

Report No. : SLST0200072

Job No. : SHK200021





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Report on Unconfined Compression Test - Summary of Soil Properties

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200072

Job No.: SHK200021

Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: - Depth (m)#: - Date of Test: 11/5/2020
Sample No.#: S3-SC074A 9/5/2020 Actual Depth (m): - W.O. No.#: -
LD002 S34
Sample Type#: PT75 Sample Origin#: Contaminated soil mixed with 7.5% cement and 10% sand Date Received: 9/5/2020

Information provided by Client

Specimen Details

Diameter of specimen	mm	75.1	Wet mass of specimen	g	1152.9
Length of specimen	mm	149.8	Dry mass of specimen	g	-
Area of specimen	mm ²	4429.7	Moisture content	%	-
Volume of specimen	cm ³	663.56	Bulk density	Mg/m ³	1.74
Particle density (assumed/measured)*	Mg/m ³	2.65	Dry density	Mg/m ³	-

* Delete whichever is inappropriate

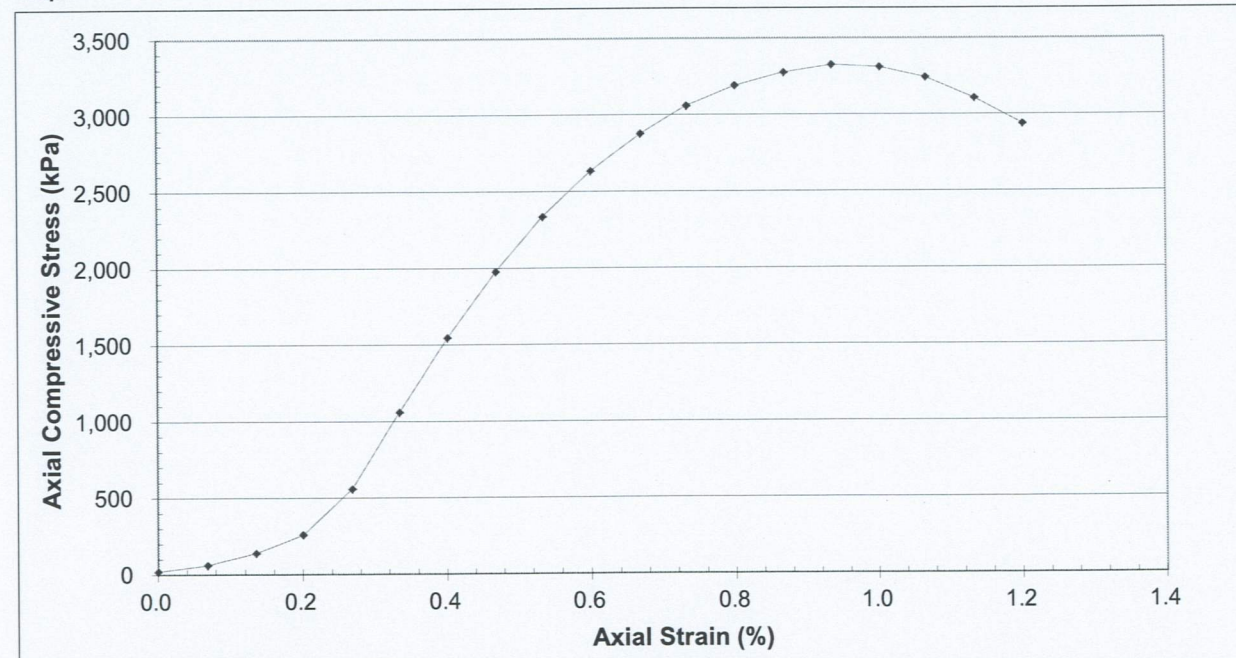
Visual Description: Light brownish grey sandy SILT/CLAY with Cement

Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

Compression Results

Maximum axial stress	3325	kPa	Sketch of failure conditions Inclination of shear surface	
Axial strain at failure	0.94	%		
Unconfined compressive strength, (q _u)	3325	kPa		

Graph



Remarks : Mixing Date : 6/5/2020

Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Certified by : HUI King Fai

Date : 11 May 2020

Date : 13 May 2020



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Report on Unconfined Compression Test - Compression Data

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200072

Job No.: SHK200021

Page: 2 of 2

Client#: Sang Hing - Kuly Joint Venture

Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: - Depth (m)#: -

Date of Test: 11/5/2020

Sample No.#: S3-SC074A Actual Depth (m): -
9/5/2020 LD002
S34

W.O. No.#: -

Sample Type#: PT75

Sample Origin#: Contaminated soil mixed with 7.5%
cement and 10% sand

Date Received: 9/5/2020

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_0)	mm	149.8
		Original area (A_0)	mm ²	4429.7

The compression was terminated at 1.2% of axial strain and the peak axial compressive stress is reached at 0.9%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in Italic

<i>Axial Deformation Reading (mm)</i>	<i>Axial Strain ϵ (%)</i>	<i>Proving Ring Gauge Reading (mm)</i>	<i>Load Cell Reading (kN)</i>	<i>Axial Force P (N)</i>	<i>Cross- section Area A (mm²)</i>	<i>Axial Compressive Stress σ_1 (kPa)</i>
0.00	0.0	-	0.09	90	4429.7	20.32
0.10	0.1	-	0.27	270	4432.7	60.91
0.20	0.1	-	0.62	620	4435.7	139.78
0.30	0.2	-	1.15	1150	4438.5	259.09
0.40	0.3	-	2.48	2480	4441.6	558.36
0.50	0.3	-	4.71	4710	4444.5	1059.73
0.60	0.4	-	6.87	6870	4447.5	1544.69
0.70	0.5	-	8.79	8790	4450.5	1975.04
0.80	0.5	-	10.40	10400	4453.5	2335.26
0.90	0.6	-	11.74	11740	4456.5	2634.38
1.00	0.7	-	12.83	12830	4459.5	2877.00
1.10	0.7	-	13.65	13650	4462.4	3058.88
1.20	0.8	-	14.25	14250	4465.4	3191.19
1.30	0.9	-	14.64	14640	4468.5	3276.27
1.40	0.9	-	14.87	14870	4471.5	3325.48
1.50	1.0	-	14.81	14810	4474.6	3309.81
1.60	1.1	-	14.52	14520	4477.5	3242.90
1.70	1.1	-	13.92	13920	4480.5	3106.77
1.80	1.2	-	13.18	13180	4483.6	2939.63

Report No. : SLST0200072

Job No. : SHK200021





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Report on Unconfined Compression Test - Summary of Soil Properties

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200072

Job No.: SHK200021

Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture

Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -

Depth (m)#: -

Date of Test: 11/5/2020

Sample No.#: S3-SC074A 9/5/2020
LD002 S35

Actual Depth (m): -

W.O. No.#: -

Sample Type#: PT75

Sample Origin#: Contaminated soil mixed with 7.5%
cement and 10% sand

Date Received: 9/5/2020

Information provided by Client

Specimen Details

Diameter of specimen	mm	76.3	Wet mass of specimen	g	1137.5
Length of specimen	mm	150.1	Dry mass of specimen	g	-
Area of specimen	mm ²	4572.3	Moisture content	%	-
Volume of specimen	cm ³	686.31	Bulk density	Mg/m ³	1.66
Particle density (assumed/measured)*	Mg/m ³	2.65	Dry density	Mg/m ³	-

* Delete whichever is inappropriate

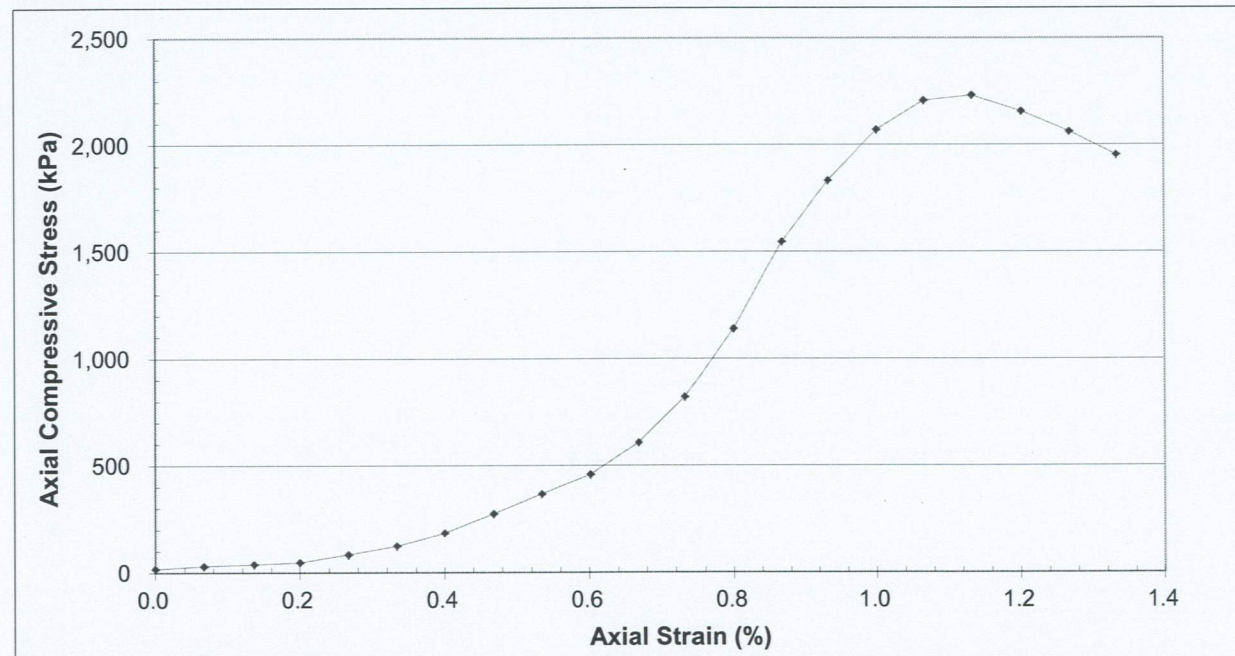
Visual Description: Light brownish grey sandy SILT/CLAY with Cement

Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

Compression Results

Maximum axial stress	2231	kPa	Sketch of failure conditions Inclination of shear surface	
Axial strain at failure	1.1	%		
Unconfined compressive strength, (q _u)	2231	kPa		

Graph



Remarks : Mixing Date : 6/5/2020

Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Certified by : HUI King Fai

Date : 11 May 2020

Date : 13 May 2020



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Report on Unconfined Compression Test - Compression Data

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200072

Job No.: SHK200021

Page: 2 of 2

Client#: Sang Hing - Kuly Joint Venture

Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: - Depth (m)#: -

Date of Test: 11/5/2020

Sample No.#: S3-SC074A Actual Depth (m): -
9/5/2020 LD002
S35

W.O. No.#: -

Sample Type#: PT75

Sample Origin#: Contaminated soil mixed with 7.5%
cement and 10% sand

Date Received: 9/5/2020

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_0)	mm	150.1
		Original area (A_0)	mm ²	4572.3

The compression was terminated at 1.3% of axial strain and the peak axial compressive stress is reached at 1.1%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in Italic

<i>Axial Deformation Reading (mm)</i>	<i>Axial Strain ϵ (%)</i>	<i>Proving Ring Gauge Reading (mm)</i>	<i>Load Cell Reading (kN)</i>	<i>Axial Force P (N)</i>	<i>Cross- section Area A (mm²)</i>	<i>Axial Compressive Stress σ_1 (kPa)</i>
0.00	0.0	-	0.08	80	4572.3	17.50
0.10	0.1	-	0.14	140	4575.4	30.60
0.21	0.1	-	0.18	180	4578.6	39.31
0.30	0.2	-	0.22	220	4581.5	48.02
0.40	0.3	-	0.39	390	4584.6	85.07
0.50	0.3	-	0.57	570	4587.7	124.25
0.60	0.4	-	0.85	850	4590.7	185.16
0.70	0.5	-	1.26	1260	4593.8	274.28
0.80	0.5	-	1.69	1690	4596.9	367.64
0.90	0.6	-	2.11	2110	4600.0	458.69
1.00	0.7	-	2.80	2800	4603.1	608.29
1.10	0.7	-	3.78	3780	4606.1	820.65
1.20	0.8	-	5.25	5250	4609.2	1139.02
1.30	0.9	-	7.13	7130	4612.4	1545.85
1.40	0.9	-	8.46	8460	4615.4	1832.98
1.50	1.0	-	9.56	9560	4618.6	2069.91
1.60	1.1	-	10.20	10200	4621.6	2207.01
1.70	1.1	-	10.32	10320	4624.8	2231.47
1.80	1.2	-	9.98	9980	4628.0	2156.45
1.90	1.3	-	9.55	9550	4631.1	2062.15
2.00	1.3	-	9.05	9050	4634.1	1952.90

Report No. : SLST0200072

Job No. : SHK200021





Soil Services Testing Company Limited

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Report on Unconfined Compression Test - Summary of Soil Properties

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200072

Job No.: SHK200021

Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: - Depth (m)#: - Date of Test: 11/5/2020
Sample No.#: S3-SC074A 9/5/2020 Actual Depth (m): - W.O. No.#: -
LD002 S36
Sample Type#: PT75 Sample Origin#: Contaminated soil mixed with 7.5% cement and 10% sand Date Received: 9/5/2020

Information provided by Client

Specimen Details

Diameter of specimen	mm	76.0	Wet mass of specimen	g	1126.4
Length of specimen	mm	150.3	Dry mass of specimen	g	-
Area of specimen	mm ²	4536.5	Moisture content	%	-
Volume of specimen	cm ³	681.83	Bulk density	Mg/m ³	1.65
Particle density (assumed/measured)*	Mg/m ³	2.65	Dry density	Mg/m ³	-

* Delete whichever is inappropriate

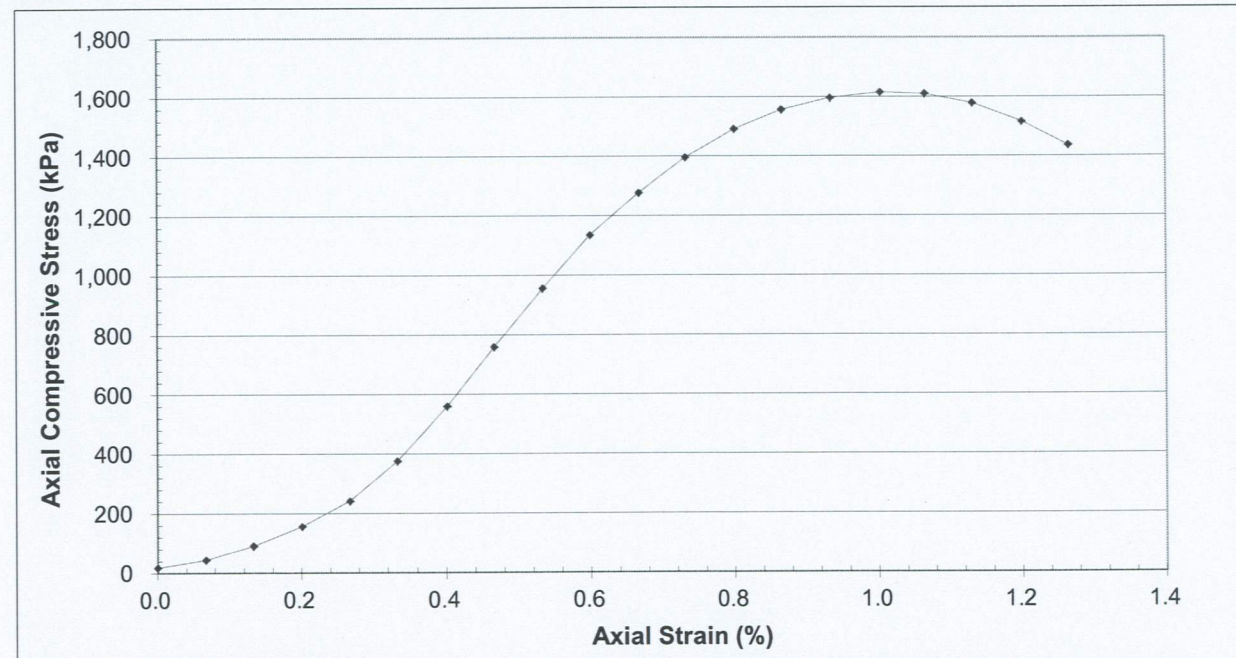
Visual Description: Light brownish grey sandy SILT/CLAY with Cement

Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

Compression Results

Maximum axial stress	1615	kPa	Sketch of failure conditions Inclination of shear surface	
Axial strain at failure	1.0	%		
Unconfined compressive strength, (q _u)	1615	kPa		

Graph



Remarks : Mixing Date : 7/5/2020

Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Certified by : HUI King Fai

Date : 11 May 2020

Date : 13 May 2020



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Report on Unconfined Compression Test - Compression Data

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200072

Job No.: SHK200021

Page: 2 of 2

Client#: Sang Hing - Kuly Joint Venture

Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: - Depth (m)#: -

Date of Test: 11/5/2020

Sample No.#: S3-SC074A Actual Depth (m): -
9/5/2020 LD002
S36

W.O. No.#: -

Sample Type#: PT75 Sample Origin#: Contaminated soil mixed with 7.5%
cement and 10% sand

Date Received: 9/5/2020

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_0)	mm	150.3
		Original area (A_0)	mm ²	4536.5

The compression was terminated at 1.3% of axial strain and the peak axial compressive stress is reached at 1.0%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in Italic

<i>Axial Deformation Reading (mm)</i>	<i>Axial Strain ϵ (%)</i>	<i>Proving Ring Gauge Reading (mm)</i>	<i>Load Cell Reading (kN)</i>	<i>Axial Force P (N)</i>	<i>Cross-section Area A (mm²)</i>	<i>Axial Compressive Stress σ_1 (kPa)</i>
0.00	0.0	-	0.08	80	4536.5	17.63
0.10	0.1	-	0.20	200	4539.5	44.06
0.20	0.1	-	0.41	410	4542.5	90.26
0.30	0.2	-	0.71	710	4545.6	156.20
0.40	0.3	-	1.10	1100	4548.6	241.83
0.50	0.3	-	1.71	1710	4551.6	375.69
0.60	0.4	-	2.55	2550	4554.7	559.86
0.70	0.5	-	3.46	3460	4557.7	759.15
0.80	0.5	-	4.36	4360	4560.8	955.97
0.90	0.6	-	5.18	5180	4563.8	1135.01
1.00	0.7	-	5.83	5830	4566.9	1276.58
1.10	0.7	-	6.38	6380	4569.9	1396.08
1.20	0.8	-	6.82	6820	4573.1	1491.34
1.30	0.9	-	7.12	7120	4576.1	1555.91
1.40	0.9	-	7.31	7310	4579.2	1596.34
1.51	1.0	-	7.40	7400	4582.4	1614.86
1.60	1.1	-	7.38	7380	4585.3	1609.49
1.70	1.1	-	7.24	7240	4588.4	1577.90
1.80	1.2	-	6.96	6960	4591.6	1515.82
1.90	1.3	-	6.60	6600	4594.6	1436.48

Report No. : SLST0200072

Job No. : SHK200021





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Report on Unconfined Compression Test - Summary of Soil Properties

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200072

Job No.: SHK200021

Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture

Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -

Depth (m)#: -

Date of Test: 11/5/2020

Sample No.#: S3-SC074A 9/5/2020
LD002 S37

Actual Depth (m): -

W.O. No.#: -

Sample Type#: PT75

Sample Origin#: Contaminated soil mixed with 7.5%
cement and 10% sand

Date Received: 9/5/2020

Information provided by Client

Specimen Details

Diameter of specimen	mm	76.1	Wet mass of specimen	g	1140.2
Length of specimen	mm	149.5	Dry mass of specimen	g	-
Area of specimen	mm ²	4548.4	Moisture content	%	-
Volume of specimen	cm ³	679.99	Bulk density	Mg/m ³	1.68
Particle density (assumed/measured)*	Mg/m ³	2.65	Dry density	Mg/m ³	-

* Delete whichever is inappropriate

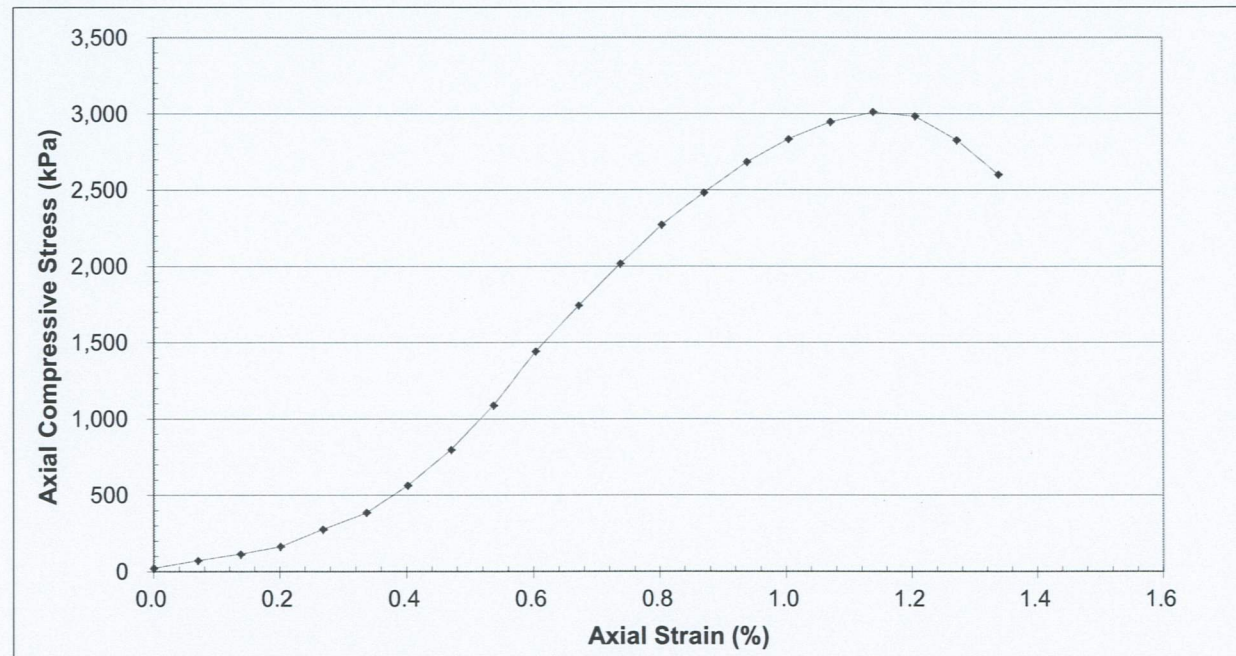
Visual Description: Light brownish grey sandy SILT/CLAY with Cement

Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

Compression Results

Maximum axial stress	3013	kPa	Sketch of failure conditions Inclination of shear surface	
Axial strain at failure	1.1	%		
Unconfined compressive strength, (q _u)	3013	kPa		

Graph



Remarks : Mixing Date : 7/5/2020

Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Certified by : HUI King Fai

HUI King Fai

Date : 11 May 2020

Date : 13 May 2020



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Report on Unconfined Compression Test - Compression Data

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200072

Job No.: SHK200021

Page: 2 of 2

Client#: Sang Hing - Kuly Joint Venture

Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: - Depth (m)#: -

Date of Test: 11/5/2020

Sample No.#: S3-SC074A Actual Depth (m): -
9/5/2020 LD002
S37

W.O. No.#: -

Sample Type#: PT75

Sample Origin#: Contaminated soil mixed with 7.5%
cement and 10% sand

Date Received: 9/5/2020

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_0)	mm	149.5
		Original area (A_0)	mm ²	4548.4

The compression was terminated at 1.3% of axial strain and the peak axial compressive stress is reached at 1.1%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in Italic

<i>Axial Deformation Reading (mm)</i>	<i>Axial Strain ϵ (%)</i>	<i>Proving Ring Gauge Reading (mm)</i>	<i>Load Cell Reading (kN)</i>	<i>Axial Force P (N)</i>	<i>Cross- section Area A (mm²)</i>	<i>Axial Compressive Stress σ_1 (kPa)</i>
0.00	0.0	-	0.10	100	4548.4	21.99
0.11	0.1	-	0.33	330	4551.6	72.50
0.21	0.1	-	0.52	520	4554.7	114.17
0.30	0.2	-	0.75	750	4557.6	164.56
0.40	0.3	-	1.26	1260	4560.7	276.28
0.50	0.3	-	1.76	1760	4563.8	385.64
0.60	0.4	-	2.57	2570	4566.7	562.77
0.70	0.5	-	3.65	3650	4569.9	798.71
0.80	0.5	-	4.98	4980	4573.0	1089.01
0.90	0.6	-	6.60	6600	4576.0	1442.30
1.00	0.7	-	7.98	7980	4579.2	1742.68
1.10	0.7	-	9.24	9240	4582.2	2016.49
1.20	0.8	-	10.41	10410	4585.3	2270.31
1.30	0.9	-	11.39	11390	4588.4	2482.37
1.40	0.9	-	12.32	12320	4591.5	2683.20
1.50	1.0	-	13.02	13020	4594.6	2833.78
1.60	1.1	-	13.55	13550	4597.7	2947.14
1.70	1.1	-	13.86	13860	4600.8	3012.51
1.80	1.2	-	13.74	13740	4603.9	2984.41
1.90	1.3	-	13.03	13030	4607.0	2828.29
2.00	1.3	-	11.99	11990	4610.1	2600.81

Report No. : SLST0200072

Job No. : SHK200021





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Report on Unconfined Compression Test - Summary of Soil Properties

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200072

Job No.: SHK200021

Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: - Depth (m)#: - Date of Test: 12/5/2020
Sample No.#: S3-SC074A 9/5/2020 Actual Depth (m): - W.O. No.#: -
LD002 S38
Sample Type#: PT75 Sample Origin#: Contaminated soil mixed with 7.5% cement and 10% sand Date Received: 9/5/2020

Information provided by Client

Specimen Details

Diameter of specimen	mm	76.0	Wet mass of specimen	g	1133.3
Length of specimen	mm	149.5	Dry mass of specimen	g	-
Area of specimen	mm ²	4536.5	Moisture content	%	-
Volume of specimen	cm ³	678.20	Bulk density	Mg/m ³	1.67
Particle density (assumed/measured)*	Mg/m ³	2.65	Dry density	Mg/m ³	-

* Delete whichever is inappropriate

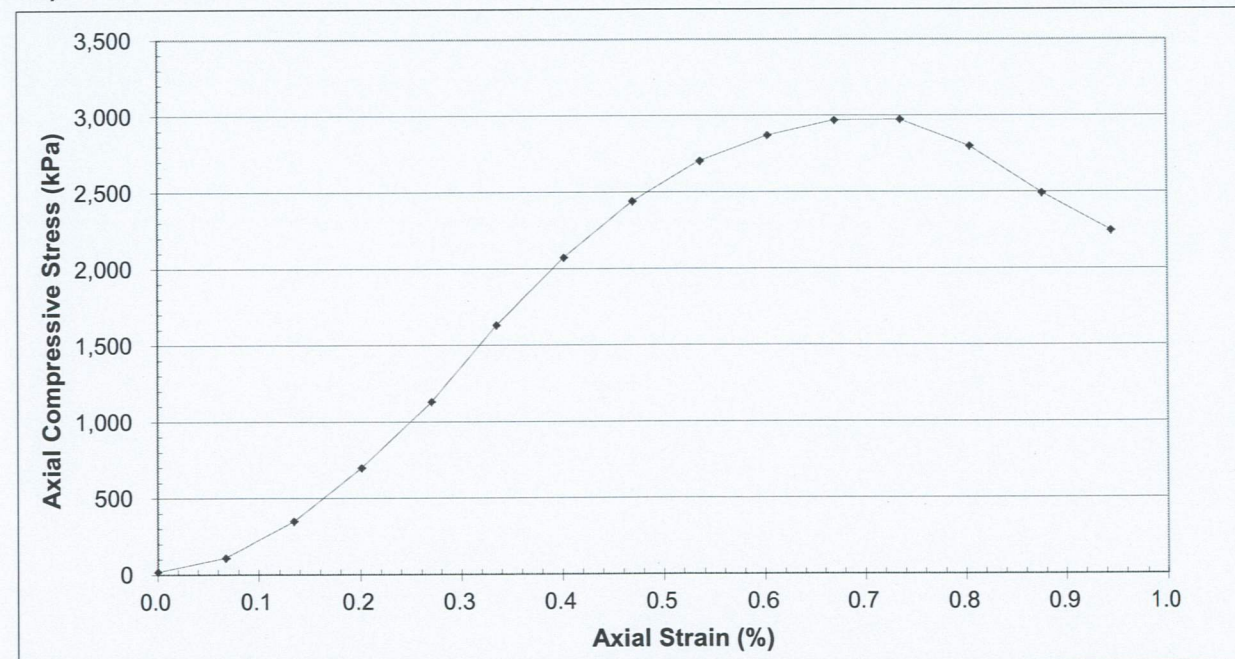
Visual Description: Light brownish grey sandy SILT/CLAY with Cement

Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

Compression Results

Maximum axial stress	2974	kPa	Sketch of failure conditions Inclination of shear surface	
Axial strain at failure	0.74	%		
Unconfined compressive strength, (q _u)	2974	kPa		

Graph



Remarks : Mixing Date : 8/5/2020

Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Certified by : HUI King Fai

Date : 12 May 2020

Date : 13 May 2020



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Report on Unconfined Compression Test - Compression Data

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200072

Job No.: SHK200021

Page: 2 of 2

Client#: Sang Hing - Kuly Joint Venture

Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: - Depth (m)#: -

Date of Test: 12/5/2020

Sample No.#: S3-SC074A Actual Depth (m): -

W.O. No.#: -

9/5/2020 LD002
S38

Sample Type#: PT75

Sample Origin#: Contaminated soil mixed with 7.5%
cement and 10% sand

Date Received: 9/5/2020

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_0)	mm	149.5
		Original area (A_0)	mm ²	4536.5

The compression was terminated at 0.9% of axial strain and the peak axial compressive stress is reached at 0.7%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in Italic

<i>Axial Deformation Reading (mm)</i>	<i>Axial Strain ϵ (%)</i>	<i>Proving Ring Gauge Reading (mm)</i>	<i>Load Cell Reading (kN)</i>	<i>Axial Force P (N)</i>	<i>Cross- section Area A (mm²)</i>	<i>Axial Compressive Stress σ_1 (kPa)</i>
0.00	0.0	-	0.08	80	4536.5	17.63
0.10	0.1	-	0.50	500	4539.5	110.14
0.20	0.1	-	1.59	1590	4542.6	350.02
0.30	0.2	-	3.17	3170	4545.6	697.38
0.40	0.3	-	5.14	5140	4548.8	1129.98
0.50	0.3	-	7.42	7420	4551.7	1630.16
0.60	0.4	-	9.44	9440	4554.8	2072.55
0.70	0.5	-	11.12	11120	4557.9	2439.74
0.80	0.5	-	12.33	12330	4560.9	2703.40
0.90	0.6	-	13.10	13100	4564.0	2870.29
1.00	0.7	-	13.56	13560	4567.1	2969.08
1.10	0.7	-	13.59	13590	4570.1	2973.69
1.20	0.8	-	12.80	12800	4573.3	2798.88
1.31	0.9	-	11.41	11410	4576.6	2493.14
1.41	0.9	-	10.29	10290	4579.7	2246.85

Report No. : SLST0200072

Job No. : SHK200021





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Report on Unconfined Compression Test - Summary of Soil Properties

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200072

Job No.: SHK200021

Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: - Depth (m)#: - Date of Test: 12/5/2020
Sample No.#: S3-SC074A 9/5/2020 Actual Depth (m): - W.O. No.#: -
LD002 S39
Sample Type#: PT75 Sample Origin#: Contaminated soil mixed with 7.5% cement and 10% sand Date Received: 9/5/2020

Information provided by Client

Specimen Details

Diameter of specimen	mm	76.5	Wet mass of specimen	g	1146.9
Length of specimen	mm	150.4	Dry mass of specimen	g	-
Area of specimen	mm ²	4596.3	Moisture content	%	-
Volume of specimen	cm ³	691.29	Bulk density	Mg/m ³	1.66
Particle density (assumed/measured)*	Mg/m ³	2.65	Dry density	Mg/m ³	-

* Delete whichever is inappropriate

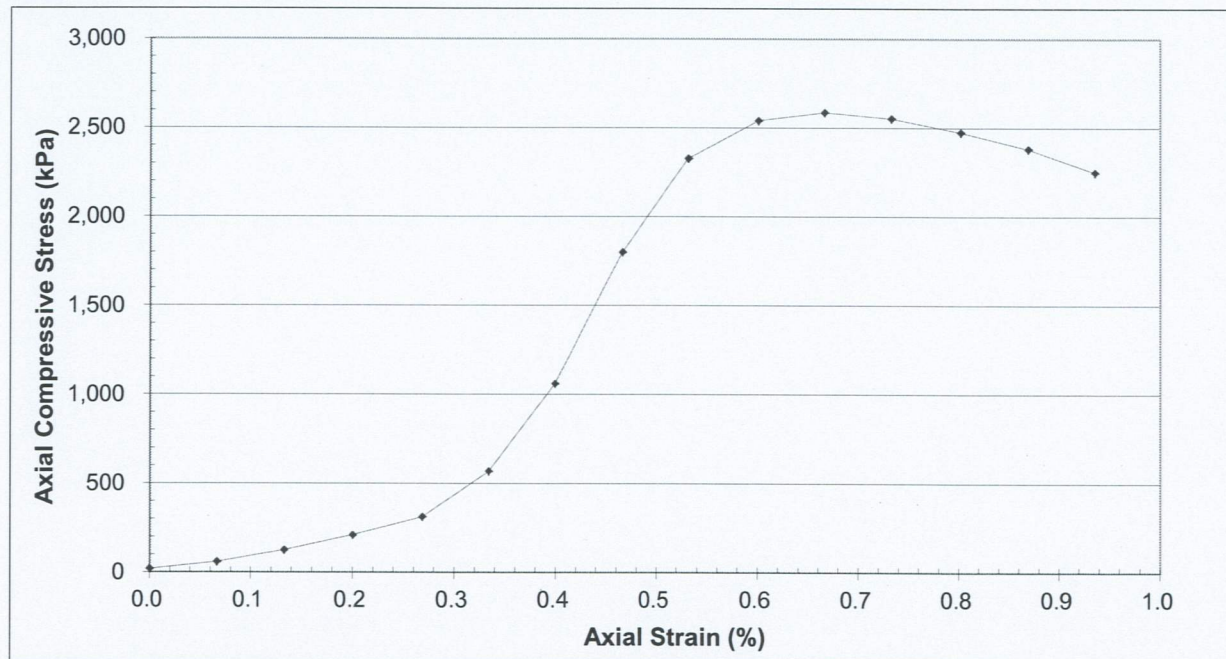
Visual Description: Light brownish grey sandy SILT/CLAY with Cement

Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

Compression Results

Maximum axial stress	2587	kPa	Sketch of failure conditions Inclination of shear surface	
Axial strain at failure	0.67	%		
Unconfined compressive strength, (q _u)	2587	kPa		

Graph



Remarks : Mixing Date : 8/5/2020

Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Certified by : HUI King Fai

Date : 12 May 2020

Date : 13 May 2020



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Report on Unconfined Compression Test - Compression Data

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200072

Job No.: SHK200021

Page: 2 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: - Depth (m)#: - Date of Test: 12/5/2020
Sample No.#: S3-SC074A Actual Depth (m): - W.O. No.#: -
9/5/2020 LD002
S39

Sample Type#: PT75 Sample Origin#: Contaminated soil mixed with 7.5% cement and 10% sand Date Received: 9/5/2020

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_0)	mm	150.4
		Original area (A_0)	mm ²	4596.3

The compression was terminated at 0.9% of axial strain and the peak axial compressive stress is reached at 0.7%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in Italic

<i>Axial Deformation Reading (mm)</i>	<i>Axial Strain ϵ (%)</i>	<i>Proving Ring Gauge Reading (mm)</i>	<i>Load Cell Reading (kN)</i>	<i>Axial Force P (N)</i>	<i>Cross- section Area A (mm²)</i>	<i>Axial Compressive Stress σ_1 (kPa)</i>
0.00	0.0	-	0.09	90	4596.3	19.58
0.10	0.1	-	0.27	270	4599.4	58.70
0.20	0.1	-	0.58	580	4602.5	126.02
0.30	0.2	-	0.97	970	4605.6	210.61
0.40	0.3	-	1.44	1440	4608.7	312.45
0.50	0.3	-	2.62	2620	4611.7	568.12
0.60	0.4	-	4.90	4900	4614.8	1061.80
0.70	0.5	-	8.31	8310	4617.9	1799.53
0.80	0.5	-	10.76	10760	4620.9	2328.54
0.90	0.6	-	11.75	11750	4624.1	2541.01
1.00	0.7	-	11.97	11970	4627.2	2586.89
1.10	0.7	-	11.82	11820	4630.3	2552.77
1.21	0.8	-	11.47	11470	4633.5	2475.45
1.31	0.9	-	11.04	11040	4636.6	2381.03
1.41	0.9	-	10.44	10440	4639.8	2250.12

Report No. : SLST0200072

Job No. : SHK200021





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Report on Unconfined Compression Test - Summary of Soil Properties

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200075
Job No.: SHK200022
Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: - Depth (m)#: - Date of Test: 14/5/2020
Sample No.#: S3-SC074A 13/5/2020 Actual Depth (m): - W.O. No.#: -
LD002 S40
Sample Type#: PT75 Sample Origin#: Contaminated soil mixed with 7.5% cement and 10% sand Date Received: 13/5/2020

Information provided by Client

Specimen Details


Diameter of specimen	mm	76.5	Wet mass of specimen	g	1142.3
Length of specimen	mm	149.3	Dry mass of specimen	g	-
Area of specimen	mm ²	4596.3	Moisture content	%	-
Volume of specimen	cm ³	686.23	Bulk density	Mg/m ³	1.66
Particle density (assumed/measured)*	Mg/m ³	2.65	Dry density	Mg/m ³	-

* Delete whichever is inappropriate

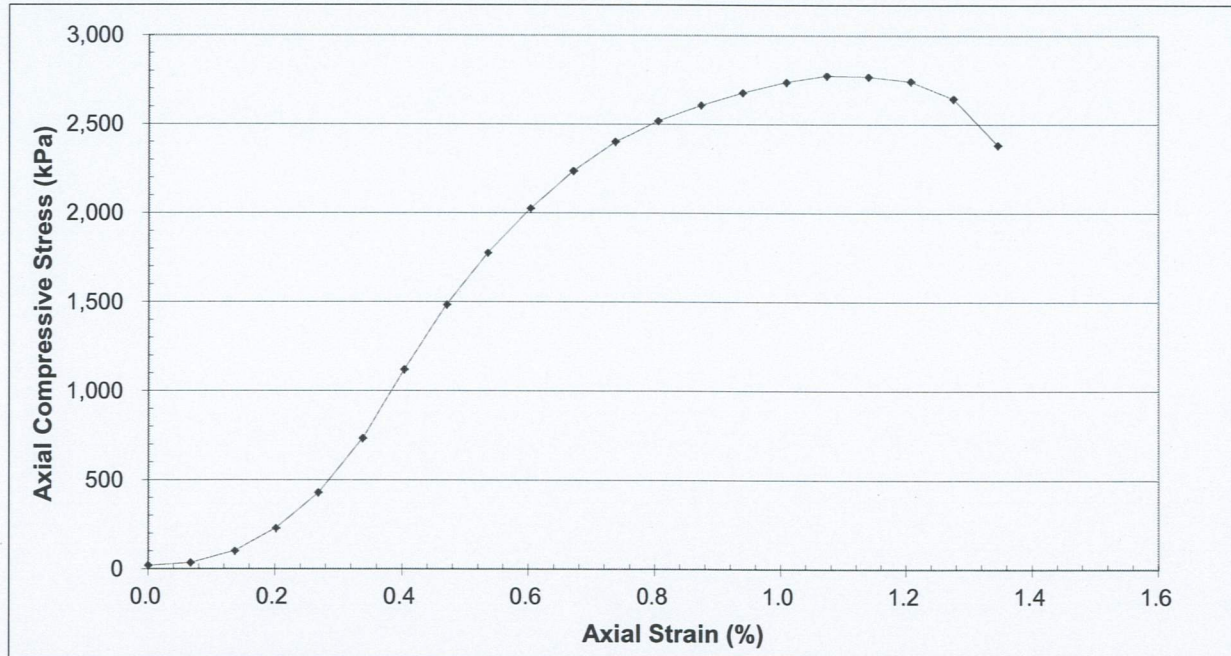
Visual Description: Light brownish grey sandy SILT/CLAY with Cement

Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

Compression Results

Maximum axial stress	2774	kPa	Sketch of failure conditions Inclination of shear surface	
Axial strain at failure	1.1	%		
Unconfined compressive strength, (q _u)	2774	kPa		

Graph



Remarks : Mixing Date : 9/5/2020

Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Certified by : HUI King Fai

Date : 14 May 2020

Date : 15 May 2020



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Report on Unconfined Compression Test - Compression Data

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200075

Job No.: SHK200022

Page: 2 of 2

Client#: Sang Hing - Kuly Joint Venture

Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: - Depth (m)#: -

Date of Test: 14/5/2020

Sample No.#: S3-SC074A
13/5/2020
LD002 S40
Actual Depth (m): -

W.O. No.#: -

Sample Type#: PT75

Sample Origin#: Contaminated soil mixed with 7.5%
cement and 10% sand

Date Received: 13/5/2020

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_0)	mm	149.3
		Original area (A_0)	mm ²	4596.3

The compression was terminated at 1.3% of axial strain and the peak axial compressive stress is reached at 1.1%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in Italic

<i>Axial Deformation Reading (mm)</i>	<i>Axial Strain ϵ (%)</i>	<i>Proving Ring Gauge Reading (mm)</i>	<i>Load Cell Reading (kN)</i>	<i>Axial Force P (N)</i>	<i>Cross-section Area A (mm²)</i>	<i>Axial Compressive Stress σ_1 (kPa)</i>
0.00	0.0	-	0.09	90	4596.3	19.58
0.10	0.1	-	0.16	160	4599.4	34.79
0.20	0.1	-	0.47	470	4602.6	102.12
0.30	0.2	-	1.06	1060	4605.6	230.15
0.40	0.3	-	1.98	1980	4608.7	429.62
0.51	0.3	-	3.39	3390	4611.9	735.05
0.60	0.4	-	5.17	5170	4615.0	1120.27
0.70	0.5	-	6.86	6860	4618.1	1485.47
0.80	0.5	-	8.21	8210	4621.1	1776.63
0.90	0.6	-	9.37	9370	4624.3	2026.27
1.00	0.7	-	10.35	10350	4627.4	2236.68
1.10	0.7	-	11.12	11120	4630.5	2401.47
1.20	0.8	-	11.67	11670	4633.7	2518.52
1.30	0.9	-	12.09	12090	4636.8	2607.38
1.40	0.9	-	12.43	12430	4639.9	2678.91
1.51	1.0	-	12.71	12710	4643.2	2737.35
1.60	1.1	-	12.89	12890	4646.2	2774.31
1.70	1.1	-	12.87	12870	4649.3	2768.15
1.80	1.2	-	12.76	12760	4652.5	2742.61
1.90	1.3	-	12.31	12310	4655.7	2644.06
2.01	1.3	-	11.11	11110	4659.0	2384.61

Report No. : SLST0200075

Job No. : SHK200022





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Report on Unconfined Compression Test - Summary of Soil Properties

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200075

Job No.: SHK200022

Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: - Depth (m)#: - Date of Test: 14/5/2020
Sample No.#: S3-SC074A 13/5/2020 Actual Depth (m): - W.O. No.#: -
LD002 S41
Sample Type#: PT75 Sample Origin#: Contaminated soil mixed with 7.5% cement and 10% sand Date Received: 13/5/2020

Information provided by Client

Specimen Details


Diameter of specimen	mm	76.1	Wet mass of specimen	g	1121.4
Length of specimen	mm	149.5	Dry mass of specimen	g	-
Area of specimen	mm ²	4548.4	Moisture content	%	-
Volume of specimen	cm ³	679.99	Bulk density	Mg/m ³	1.65
Particle density (assumed/measured)*	Mg/m ³	2.65	Dry density	Mg/m ³	-

* Delete whichever is inappropriate

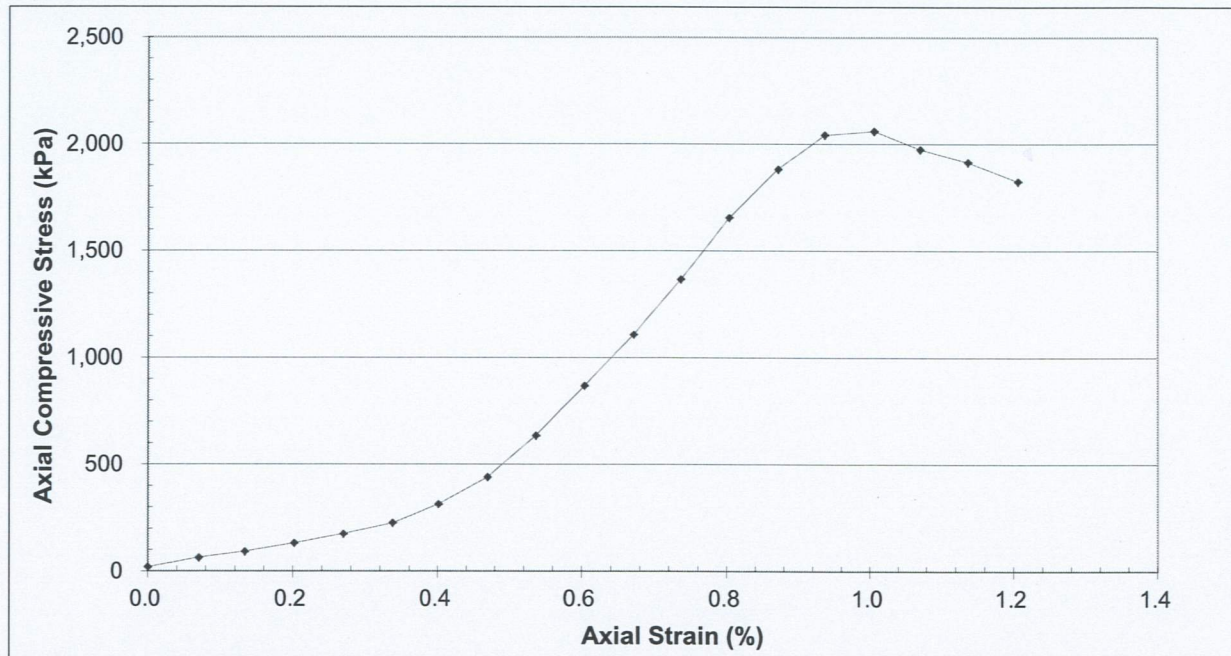
Visual Description: Light brownish grey sandy SILT/CLAY with Cement

Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

Compression Results

Maximum axial stress	2061	kPa	Sketch of failure conditions Inclination of shear surface	
Axial strain at failure	1.0	%		
Unconfined compressive strength, (q _u)	2061	kPa		

Graph



Remarks : Mixing Date : 9/5/2020

Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Certified by : HUI King Fai

Date : 14 May 2020

Date : 15 May 2020



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Report on Unconfined Compression Test - Compression Data

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200075

Job No.: SHK200022

Page: 2 of 2

Client#: Sang Hing - Kuly Joint Venture

Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: - Depth (m)#: -

Date of Test: 14/5/2020

Sample No.#: S3-SC074A Actual Depth (m): -

W.O. No.#: -

13/5/2020
LD002 S41

Sample Type#: PT75

Sample Origin#: Contaminated soil mixed with 7.5%
cement and 10% sand

Date Received: 13/5/2020

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_0)	mm	149.5
		Original area (A_0)	mm ²	4548.4

The compression was terminated at 1.2% of axial strain and the peak axial compressive stress is reached at 1.0%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in Italic

<i>Axial Deformation Reading</i> (mm)	<i>Axial Strain</i> ϵ (%)	<i>Proving Ring Gauge Reading</i> (mm)	<i>Load Cell Reading</i> (kN)	<i>Axial Force</i> P (N)	<i>Cross- section Area</i> A (mm ²)	<i>Axial Compressive Stress</i> σ_1 (kPa)
0.00	0.0	-	0.09	90	4548.4	19.79
0.11	0.1	-	0.29	290	4551.6	63.71
0.20	0.1	-	0.42	420	4554.5	92.22
0.30	0.2	-	0.60	600	4557.6	131.65
0.40	0.3	-	0.80	800	4560.7	175.41
0.50	0.3	-	1.03	1030	4563.8	225.69
0.60	0.4	-	1.43	1430	4566.7	313.13
0.70	0.5	-	2.01	2010	4569.9	439.84
0.80	0.5	-	2.90	2900	4572.9	634.17
0.90	0.6	-	3.97	3970	4576.0	867.56
1.00	0.7	-	5.07	5070	4579.1	1107.20
1.10	0.7	-	6.26	6260	4582.2	1366.16
1.20	0.8	-	7.59	7590	4585.2	1655.31
1.30	0.9	-	8.64	8640	4588.4	1883.01
1.40	0.9	-	9.38	9380	4591.4	2042.94
1.50	1.0	-	9.47	9470	4594.6	2061.10
1.60	1.1	-	9.08	9080	4597.6	1974.93
1.70	1.1	-	8.81	8810	4600.7	1914.92
1.80	1.2	-	8.40	8400	4603.9	1824.53

Report No. : SLST0200075

Job No. : SHK200022





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Report on Unconfined Compression Test - Summary of Soil Properties

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200077

Job No.: SHK200023

Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: - Depth (m)#: - Date of Test: 15/5/2020
Sample No.#: S3-SC074A 14/5/2020 Actual Depth (m): - W.O. No.#: -
LD002 S42
Sample Type#: PT75 Sample Origin#: Contaminated soil mixed with 7.5% cement and 10% sand Date Received: 14/5/2020

Information provided by Client

Specimen Details

Diameter of specimen	mm	76.1	Wet mass of specimen	g	1147.7
Length of specimen	mm	149.6	Dry mass of specimen	g	-
Area of specimen	mm ²	4548.4	Moisture content	%	-
Volume of specimen	cm ³	680.44	Bulk density	Mg/m ³	1.69
Particle density (assumed/measured)*	Mg/m ³	2.65	Dry density	Mg/m ³	-

* Delete whichever is inappropriate

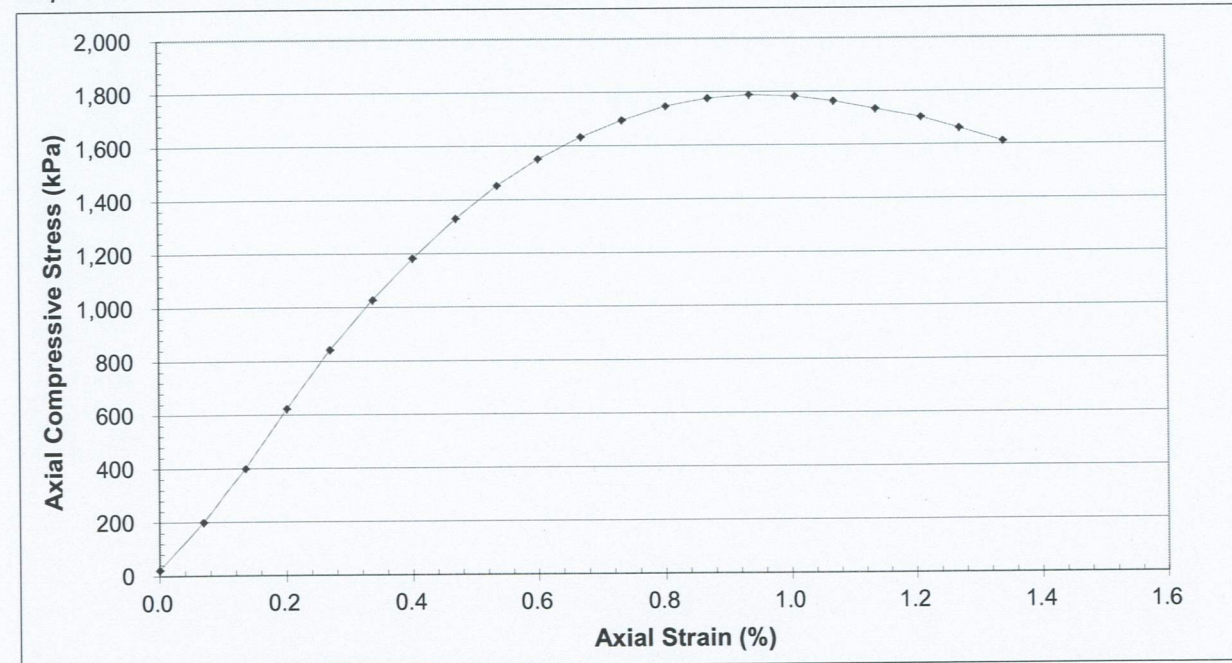
Visual Description: Light olive grey sandy SILT/CLAY with Cement

Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

Compression Results

Maximum axial stress	1788	kPa	Sketch of failure conditions Inclination of shear surface	
Axial strain at failure	0.94	%		
Unconfined compressive strength, (q _u)	1788	kPa		

Graph



Remarks : Mixing Date : 11/5/2020

Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Certified by : HUI King Fai

Date : 15 May 2020

Date : 19 May 2020



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Report on Unconfined Compression Test - Compression Data

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200077

Job No.: SHK200023

Page: 2 of 2

Client#: Sang Hing - Kuly Joint Venture

Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: - Depth (m)#: -

Date of Test: 15/5/2020

Sample No.#: S3-SC074A Actual Depth (m): -

W.O. No.#: -

14/5/2020
LD002 S42

Sample Type#: PT75

Sample Origin#: Contaminated soil mixed with 7.5%
cement and 10% sand

Date Received: 14/5/2020

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_0)	mm	149.6
		Original area (A_0)	mm ²	4548.4

The compression was terminated at 1.3% of axial strain and the peak axial compressive stress is reached at 0.9%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in Italic

<i>Axial Deformation Reading (mm)</i>	<i>Axial Strain ϵ (%)</i>	<i>Proving Ring Gauge Reading (mm)</i>	<i>Load Cell Reading (kN)</i>	<i>Axial Force P (N)</i>	<i>Cross- section Area A (mm²)</i>	<i>Axial Compressive Stress σ_1 (kPa)</i>
0.00	0.0	-	0.10	100	4548.4	21.99
0.10	0.1	-	0.91	910	4551.6	199.93
0.20	0.1	-	1.82	1820	4554.6	399.60
0.30	0.2	-	2.84	2840	4557.6	623.14
0.40	0.3	-	3.84	3840	4560.7	841.97
0.51	0.3	-	4.69	4690	4563.8	1027.65
0.60	0.4	-	5.40	5400	4566.7	1182.47
0.70	0.5	-	6.08	6080	4569.9	1330.45
0.80	0.5	-	6.64	6640	4572.9	1452.03
0.90	0.6	-	7.10	7100	4576.0	1551.59
1.00	0.7	-	7.48	7480	4579.1	1633.51
1.10	0.7	-	7.77	7770	4582.1	1695.73
1.20	0.8	-	8.01	8010	4585.3	1746.90
1.30	0.9	-	8.15	8150	4588.3	1776.24
1.40	0.9	-	8.21	8210	4591.4	1788.12
1.51	1.0	-	8.19	8190	4594.8	1782.47
1.60	1.1	-	8.11	8110	4597.6	1763.95
1.70	1.1	-	7.98	7980	4600.8	1734.49
1.81	1.2	-	7.84	7840	4604.1	1702.81
1.90	1.3	-	7.65	7650	4607.0	1660.52
2.01	1.3	-	7.43	7430	4610.2	1611.64

Report No. : SLST0200077

Job No. : SHK200023





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Report on Unconfined Compression Test - Summary of Soil Properties

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200077

Job No.: SHK200023

Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: - Depth (m)#: - Date of Test: 15/5/2020
Sample No.#: S3-SC074A 14/5/2020 Actual Depth (m): - W.O. No.#: -
LD002 S43
Sample Type#: PT75 Sample Origin#: Contaminated soil mixed with 7.5% cement and 10% sand Date Received: 14/5/2020

Information provided by Client

Specimen Details

Diameter of specimen	mm	76.3	Wet mass of specimen	g	1147.0
Length of specimen	mm	150.4	Dry mass of specimen	g	-
Area of specimen	mm ²	4572.3	Moisture content	%	-
Volume of specimen	cm ³	687.68	Bulk density	Mg/m ³	1.67
Particle density (assumed/measured)*	Mg/m ³	2.65	Dry density	Mg/m ³	-

* Delete whichever is inappropriate

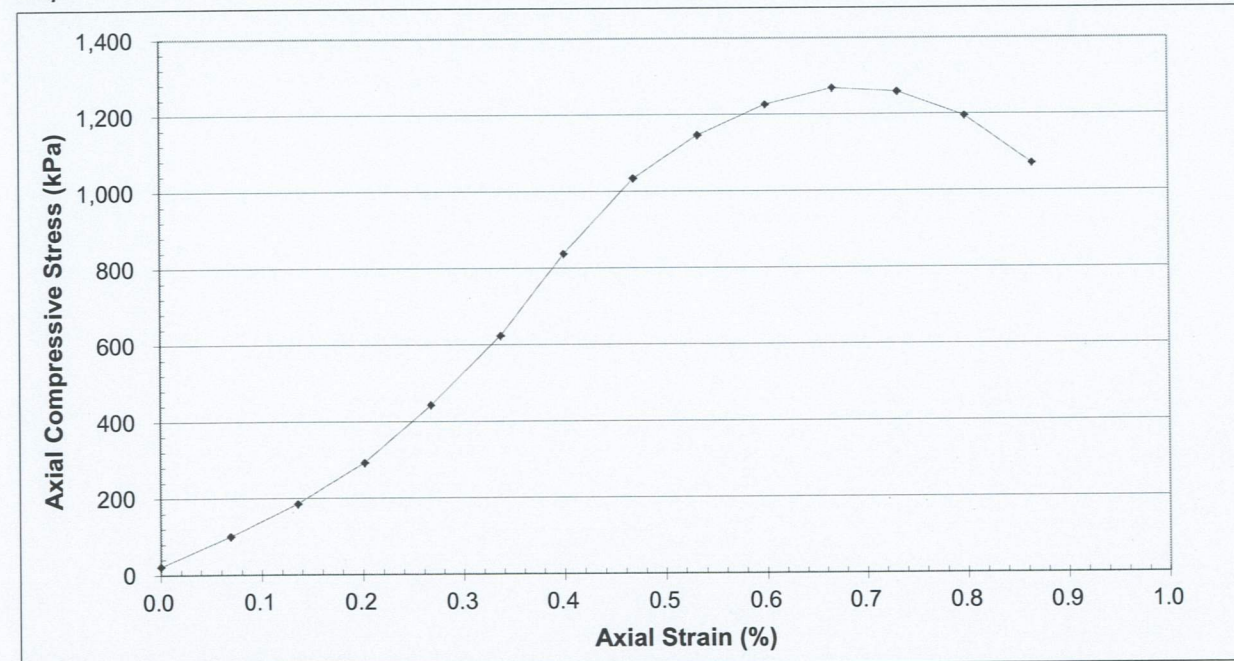
Visual Description: Light olive grey sandy SILT/CLAY with Cement

Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

Compression Results

Maximum axial stress	1269	kPa	Sketch of failure conditions Inclination of shear surface	
Axial strain at failure	0.67	%		
Unconfined compressive strength, (q _u)	1269	kPa		

Graph



Remarks : Mixing Date : 11/5/2020

Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Certified by : HUI King Fai

Date : 15 May 2020

Date : 19 May 2020



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Report on Unconfined Compression Test - Compression Data

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200077

Job No.: SHK200023

Page: 2 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: - Depth (m)#: - Date of Test: 15/5/2020
Sample No.#: S3-SC074A Actual Depth (m): - W.O. No.#: -
14/5/2020
LD002 S43

Sample Type#: PT75 Sample Origin#: Contaminated soil mixed with 7.5%
cement and 10% sand Date Received: 14/5/2020

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_0)	mm	150.4
		Original area (A_0)	mm ²	4572.3

The compression was terminated at 0.9% of axial strain and the peak axial compressive stress is reached at 0.7%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in Italic

<i>Axial Deformation Reading (mm)</i>	<i>Axial Strain ϵ (%)</i>	<i>Proving Ring Gauge Reading (mm)</i>	<i>Load Cell Reading (kN)</i>	<i>Axial Force P (N)</i>	<i>Cross-section Area A (mm²)</i>	<i>Axial Compressive Stress σ_1 (kPa)</i>
0.00	0.0	-	0.10	100	4572.3	21.87
0.10	0.1	-	0.46	460	4575.5	100.54
0.20	0.1	-	0.85	850	4578.6	185.65
0.30	0.2	-	1.34	1340	4581.6	292.48
0.40	0.3	-	2.03	2030	4584.6	442.79
0.51	0.3	-	2.86	2860	4587.8	623.39
0.60	0.4	-	3.84	3840	4590.7	836.47
0.71	0.5	-	4.75	4750	4593.9	1033.98
0.80	0.5	-	5.27	5270	4596.9	1146.44
0.90	0.6	-	5.64	5640	4599.9	1226.11
1.00	0.7	-	5.84	5840	4603.0	1268.73
1.10	0.7	-	5.80	5800	4606.1	1259.21
1.20	0.8	-	5.51	5510	4609.2	1195.45
1.30	0.9	-	4.94	4940	4612.2	1071.06

Report No. : SLST0200077

Job No. : SHK200023





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Report on Unconfined Compression Test - Summary of Soil Properties

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200077

Job No.: SHK200023

Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: - Depth (m)#: - Date of Test: 16/5/2020
Sample No.#: S3-SC074A 14/5/2020 Actual Depth (m): - W.O. No.#: -
LD002 S44
Sample Type#: PT75 Sample Origin#: Contaminated soil mixed with 7.5% cement and 10% sand Date Received: 14/5/2020

Information provided by Client

Specimen Details


Diameter of specimen	mm	76.6	Wet mass of specimen	g	1122.6
Length of specimen	mm	149.7	Dry mass of specimen	g	-
Area of specimen	mm ²	4608.4	Moisture content	%	-
Volume of specimen	cm ³	689.87	Bulk density	Mg/m ³	1.63
Particle density (assumed/measured)*	Mg/m ³	2.65	Dry density	Mg/m ³	-

* Delete whichever is inappropriate

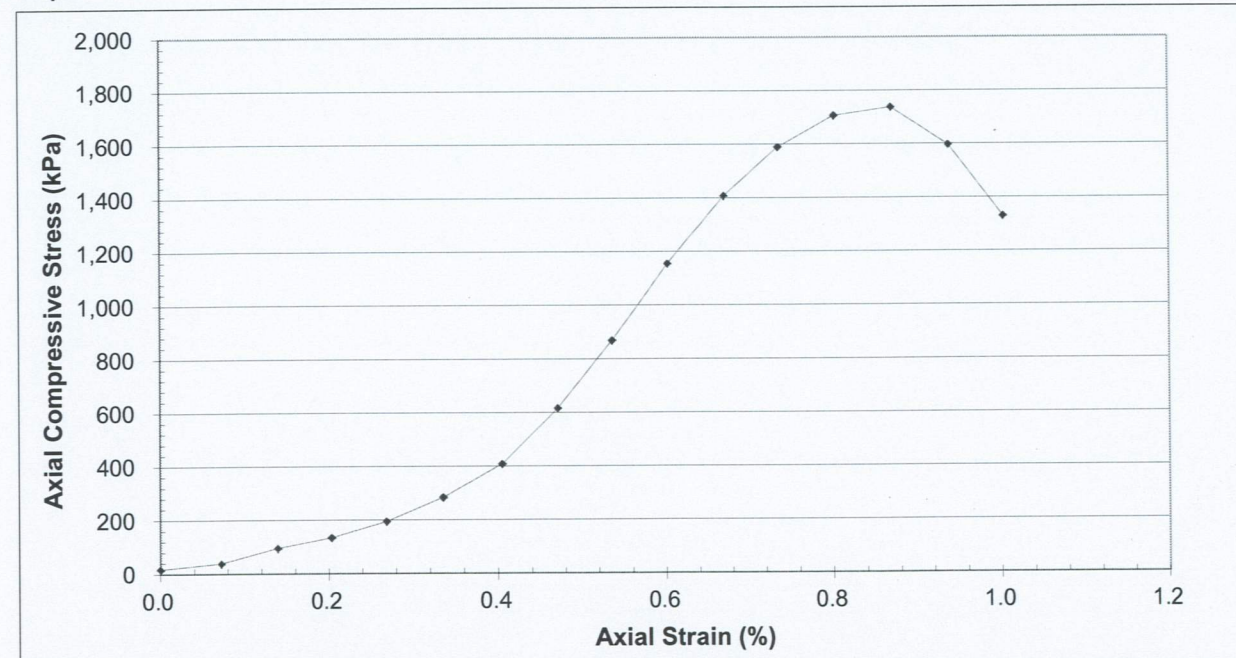
Visual Description: Light olive grey sandy SILT/CLAY with Cement

Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

Compression Results

Maximum axial stress	1738	kPa	Sketch of failure conditions Inclination of shear surface	
Axial strain at failure	0.87	%		
Unconfined compressive strength, (q _u)	1738	kPa		

Graph



Remarks : Mixing Date : 12/5/2020

Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Certified by : HUI King Fai

Date : 16 May 2020

Date : 19 May 2020



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Report on Unconfined Compression Test - Compression Data

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200077

Job No.: SHK200023

Page: 2 of 2

Client#: Sang Hing - Kuly Joint Venture

Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: - Depth (m)#: -

Date of Test: 16/5/2020

Sample No.#: S3-SC074A Actual Depth (m): -
14/5/2020
LD002 S44

W.O. No.#: -

Sample Type#: PT75

Sample Origin#: Contaminated soil mixed with 7.5%
cement and 10% sand

Date Received: 14/5/2020

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_0)	mm	149.7
		Original area (A_0)	mm ²	4608.4

The compression was terminated at 1% of axial strain and the peak axial compressive stress is reached at 0.9%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in Italic

<i>Axial Deformation Reading (mm)</i>	<i>Axial Strain ϵ (%)</i>	<i>Proving Ring Gauge Reading (mm)</i>	<i>Load Cell Reading (kN)</i>	<i>Axial Force P (N)</i>	<i>Cross-section Area A (mm²)</i>	<i>Axial Compressive Stress σ_1 (kPa)</i>
0.00	0.0	-	0.08	80	4608.4	17.36
0.11	0.1	-	0.18	180	4611.7	39.03
0.21	0.1	-	0.44	440	4614.8	95.35
0.30	0.2	-	0.62	620	4617.7	134.26
0.40	0.3	-	0.90	900	4620.8	194.77
0.50	0.3	-	1.31	1310	4623.9	283.31
0.61	0.4	-	1.89	1890	4627.1	408.46
0.71	0.5	-	2.85	2850	4630.2	615.53
0.80	0.5	-	4.02	4020	4633.2	867.65
0.90	0.6	-	5.35	5350	4636.3	1153.94
1.00	0.7	-	6.53	6530	4639.5	1407.49
1.10	0.7	-	7.38	7380	4642.5	1589.66
1.20	0.8	-	7.93	7930	4645.6	1706.98
1.30	0.9	-	8.08	8080	4648.8	1738.08
1.40	0.9	-	7.43	7430	4652.0	1597.16
1.50	1.0	-	6.19	6190	4655.0	1329.74

Report No. : SLST0200077

Job No. : SHK200023





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Report on Unconfined Compression Test - Summary of Soil Properties

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200077

Job No.: SHK200023

Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: - Depth (m)#: - Date of Test: 16/5/2020
Sample No.#: S3-SC074A 14/5/2020 Actual Depth (m): - W.O. No.#: -
LD002 S45
Sample Type#: PT75 Sample Origin#: Contaminated soil mixed with 7.5% cement and 10% sand Date Received: 14/5/2020

Information provided by Client

Specimen Details

Diameter of specimen	mm	76.2	Wet mass of specimen	g	1140.7
Length of specimen	mm	149.8	Dry mass of specimen	g	-
Area of specimen	mm ²	4560.4	Moisture content	%	-
Volume of specimen	cm ³	683.14	Bulk density	Mg/m ³	1.67
Particle density (assumed/measured)*	Mg/m ³	2.65	Dry density	Mg/m ³	-

* Delete whichever is inappropriate

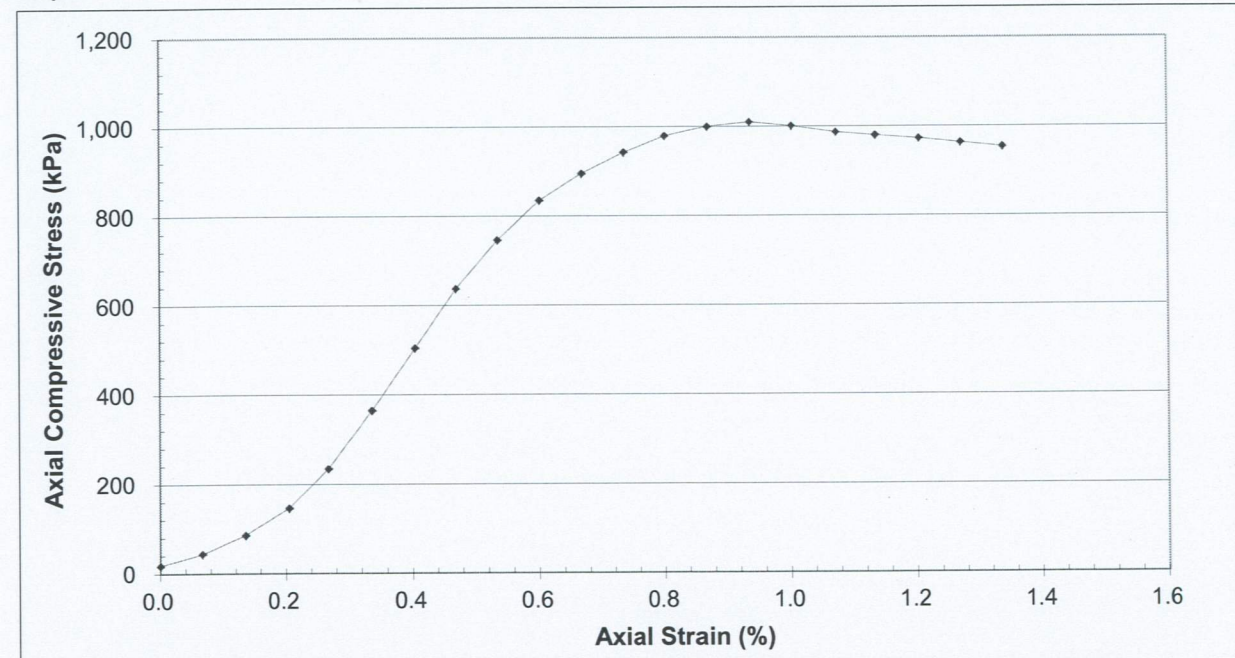
Visual Description: Light olive grey sandy SILT/CLAY with Cement

Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

Compression Results

Maximum axial stress	1010	kPa	Sketch of failure conditions Inclination of shear surface	
Axial strain at failure	0.94	%		
Unconfined compressive strength, (q _u)	1010	kPa		

Graph



Remarks : Mixing Date : 12/5/2020

Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Certified by : HUI King Fai

Date : 16 May 2020

Date : 19 May 2020



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Report on Unconfined Compression Test - Compression Data

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200077

Job No.: SHK200023

Page: 2 of 2

Client#: Sang Hing - Kuly Joint Venture

Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: - Depth (m)#: -

Date of Test: 16/5/2020

Sample No.#: S3-SC074A Actual Depth (m): -

W.O. No.#: -

14/5/2020

LD002 S45

Sample Type#: PT75

Sample Origin#: Contaminated soil mixed with 7.5%
cement and 10% sand

Date Received: 14/5/2020

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_0)	mm	149.8
		Original area (A_0)	mm ²	4560.4

The compression was terminated at 1.3% of axial strain and the peak axial compressive stress is reached at 0.9%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in Italic

<i>Axial Deformation Reading (mm)</i>	<i>Axial Strain ϵ (%)</i>	<i>Proving Ring Gauge Reading (mm)</i>	<i>Load Cell Reading (kN)</i>	<i>Axial Force P (N)</i>	<i>Cross-section Area A (mm²)</i>	<i>Axial Compressive Stress σ_1 (kPa)</i>
0.00	0.0	-	0.08	80	4560.4	17.54
0.10	0.1	-	0.20	200	4563.4	43.83
0.20	0.1	-	0.39	390	4566.5	85.40
0.31	0.2	-	0.67	670	4569.7	146.62
0.40	0.3	-	1.07	1070	4572.6	234.00
0.50	0.3	-	1.67	1670	4575.8	364.97
0.61	0.4	-	2.31	2310	4578.9	504.49
0.70	0.5	-	2.92	2920	4581.9	637.29
0.80	0.5	-	3.42	3420	4584.9	745.92
0.90	0.6	-	3.83	3830	4588.0	834.79
1.00	0.7	-	4.11	4110	4591.0	895.22
1.10	0.7	-	4.33	4330	4594.2	942.50
1.20	0.8	-	4.50	4500	4597.2	978.85
1.30	0.9	-	4.60	4600	4600.3	999.93
1.40	0.9	-	4.65	4650	4603.5	1010.11
1.50	1.0	-	4.61	4610	4606.6	1000.75
1.61	1.1	-	4.55	4550	4609.8	987.02
1.70	1.1	-	4.52	4520	4612.7	979.89
1.80	1.2	-	4.49	4490	4616.0	972.71
1.90	1.3	-	4.45	4450	4619.0	963.40
2.00	1.3	-	4.41	4410	4622.2	954.09

Report No. : SLST0200077

Job No. : SHK200023





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Report on Unconfined Compression Test - Summary of Soil Properties

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200077

Job No.: SHK200023

Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture

Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -

Depth (m)#: -

Date of Test: 18/5/2020

Sample No.#: S3-SC074A 14/5/2020
LD002 S46

Actual Depth (m): -

W.O. No.#: -

Sample Type#: PT75

Sample Origin#: Contaminated soil mixed with 7.5%
cement and 10% sand

Date Received: 14/5/2020

Information provided by Client

Specimen Details


Diameter of specimen	mm	76.2	Wet mass of specimen	g	1157.7
Length of specimen	mm	151.6	Dry mass of specimen	g	-
Area of specimen	mm ²	4560.4	Moisture content	%	-
Volume of specimen	cm ³	691.35	Bulk density	Mg/m ³	1.67
Particle density (assumed/measured)*	Mg/m ³	2.65	Dry density	Mg/m ³	-

* Delete whichever is inappropriate

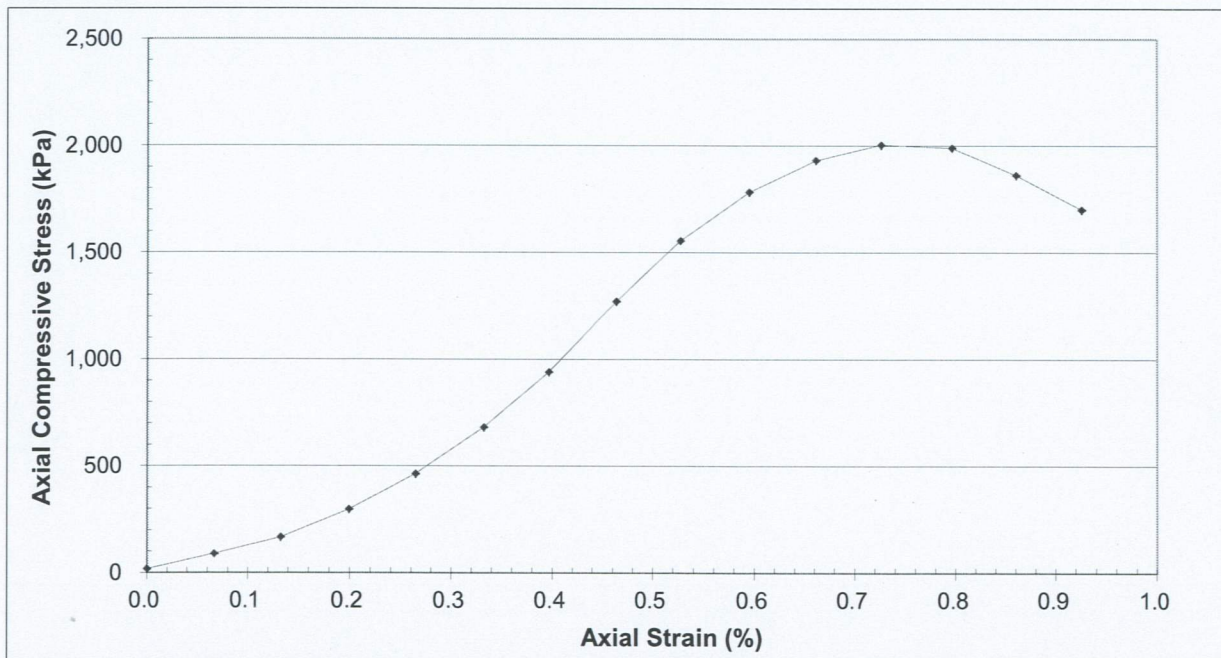
Visual Description: Light olive grey sandy SILT/CLAY with Cement

Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

Compression Results

Maximum axial stress	2005	kPa	Sketch of failure conditions Inclination of shear surface	
Axial strain at failure	0.73	%		
Unconfined compressive strength, (q _u)	2005	kPa		

Graph



Remarks : Mixing Date : 13/5/2020

Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Certified by : HUI King Fai

HUI King Fai

Date : 18 May 2020

Date : 19 May 2020



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Report on Unconfined Compression Test - Compression Data

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200077

Job No.: SHK200023

Page: 2 of 2

Client#: Sang Hing - Kuly Joint Venture

Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: - Depth (m)#: -

Date of Test: 18/5/2020

Sample No.#: S3-SC074A Actual Depth (m): -
14/5/2020
LD002 S46

W.O. No.#: -

Sample Type#: PT75 Sample Origin#: Contaminated soil mixed with 7.5%
cement and 10% sand

Date Received: 14/5/2020

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_0)	mm	151.6
		Original area (A_0)	mm ²	4560.4

The compression was terminated at 0.9% of axial strain and the peak axial compressive stress is reached at 0.7%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in Italic

<i>Axial Deformation Reading (mm)</i>	<i>Axial Strain ϵ (%)</i>	<i>Proving Ring Gauge Reading (mm)</i>	<i>Load Cell Reading (kN)</i>	<i>Axial Force P (N)</i>	<i>Cross-section Area A (mm²)</i>	<i>Axial Compressive Stress σ_1 (kPa)</i>
0.00	0.0	-	0.08	80	4560.4	17.54
0.10	0.1	-	0.41	410	4563.4	89.85
0.20	0.1	-	0.76	760	4566.4	166.43
0.30	0.2	-	1.36	1360	4569.5	297.63
0.40	0.3	-	2.12	2120	4572.5	463.65
0.50	0.3	-	3.12	3120	4575.6	681.88
0.60	0.4	-	4.30	4300	4578.5	939.17
0.70	0.5	-	5.82	5820	4581.6	1270.29
0.80	0.5	-	7.13	7130	4584.6	1555.22
0.90	0.6	-	8.18	8180	4587.7	1783.04
1.00	0.7	-	8.87	8870	4590.7	1932.15
1.10	0.7	-	9.21	9210	4593.7	2004.91
1.21	0.8	-	9.15	9150	4597.0	1990.44
1.30	0.9	-	8.57	8570	4599.9	1863.07
1.40	0.9	-	7.83	7830	4603.0	1701.08

Report No. : SLST0200077

Job No. : SHK200023





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Report on Unconfined Compression Test - Summary of Soil Properties

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200077

Job No.: SHK200023

Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture

Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -

Depth (m)#: -

Date of Test: 18/5/2020

Sample No.#: S3-SC074A 14/5/2020
LD002 S47

Actual Depth (m): -

W.O. No.#: -

Sample Type#: PT75

Sample Origin#: Contaminated soil mixed with 7.5%
cement and 10% sand

Date Received: 14/5/2020

Information provided by Client

Specimen Details


Diameter of specimen	mm	76.3	Wet mass of specimen	g	1148.0
Length of specimen	mm	151.0	Dry mass of specimen	g	-
Area of specimen	mm ²	4572.3	Moisture content	%	-
Volume of specimen	cm ³	690.42	Bulk density	Mg/m ³	1.66
Particle density (assumed/measured)*	Mg/m ³	2.65	Dry density	Mg/m ³	-

* Delete whichever is inappropriate

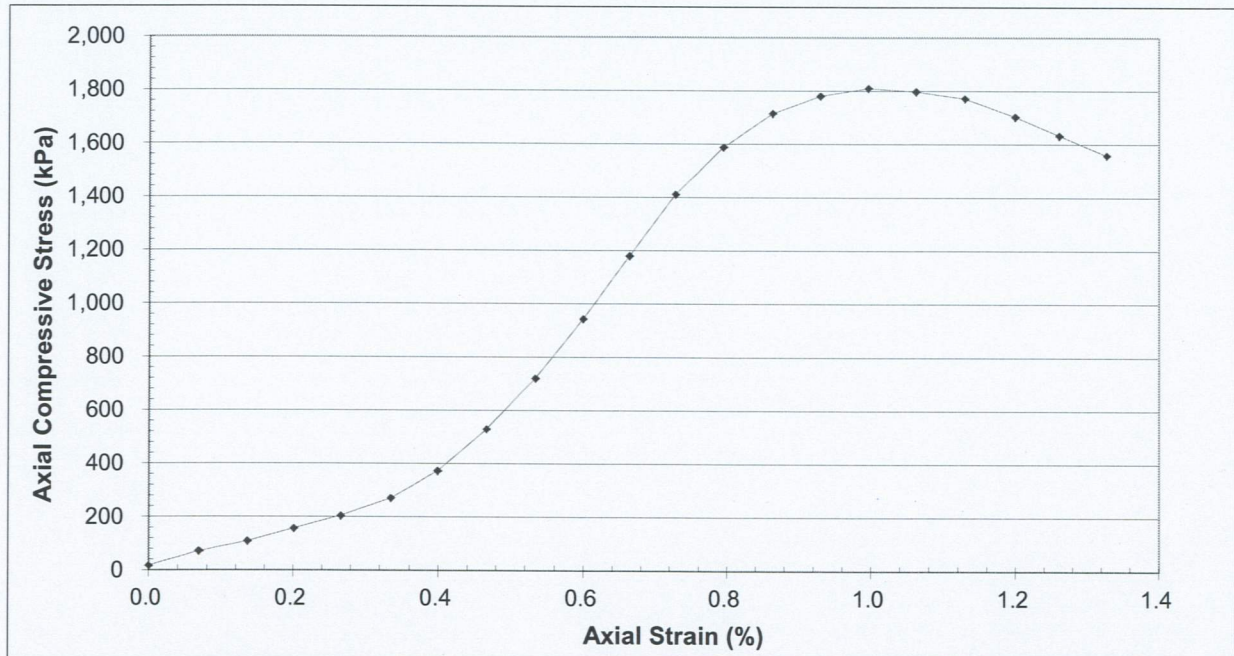
Visual Description: Light olive grey sandy SILT/CLAY with Cement

Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

Compression Results

Maximum axial stress	1810	kPa	Sketch of failure conditions Inclination of shear surface	
Axial strain at failure	1.00	%		
Unconfined compressive strength, (q _u)	1810	kPa		

Graph



Remarks : Mixing Date : 13/5/2020

Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Certified by : HUI King Fai

Date : 18 May 2020

Date : 19 May 2020



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Report on Unconfined Compression Test - Compression Data

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200077

Job No.: SHK200023

Page: 2 of 2

Client#: Sang Hing - Kuly Joint Venture

Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: - Depth (m)#: -

Date of Test: 18/5/2020

Sample No.#: S3-SC074A Actual Depth (m): -

W.O. No.#: -

14/5/2020
LD002 S47

Sample Type#: PT75

Sample Origin#: Contaminated soil mixed with 7.5%
cement and 10% sand

Date Received: 14/5/2020

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_0)	mm	151.0
		Original area (A_0)	mm ²	4572.3

The compression was terminated at 1.3% of axial strain and the peak axial compressive stress is reached at 1.0%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in Italic

<i>Axial Deformation Reading (mm)</i>	<i>Axial Strain ϵ (%)</i>	<i>Proving Ring Gauge Reading (mm)</i>	<i>Load Cell Reading (kN)</i>	<i>Axial Force P (N)</i>	<i>Cross-section Area A (mm²)</i>	<i>Axial Compressive Stress σ_1 (kPa)</i>
0.00	0.0	-	0.08	80	4572.3	17.50
0.11	0.1	-	0.33	330	4575.5	72.12
0.21	0.1	-	0.50	500	4578.6	109.20
0.30	0.2	-	0.72	720	4581.5	157.15
0.40	0.3	-	0.94	940	4584.5	205.04
0.51	0.3	-	1.24	1240	4587.7	270.29
0.60	0.4	-	1.71	1710	4590.6	372.50
0.70	0.5	-	2.43	2430	4593.8	528.98
0.81	0.5	-	3.31	3310	4596.9	720.05
0.91	0.6	-	4.34	4340	4599.9	943.50
1.00	0.7	-	5.43	5430	4602.9	1179.70
1.10	0.7	-	6.50	6500	4605.9	1411.23
1.20	0.8	-	7.32	7320	4609.0	1588.21
1.30	0.9	-	7.91	7910	4612.1	1715.04
1.40	0.9	-	8.22	8220	4615.2	1781.06
1.50	1.0	-	8.36	8360	4618.3	1810.17
1.60	1.1	-	8.31	8310	4621.4	1798.17
1.71	1.1	-	8.19	8190	4624.6	1770.98
1.81	1.2	-	7.88	7880	4627.8	1702.74
1.90	1.3	-	7.56	7560	4630.7	1632.57
2.00	1.3	-	7.22	7220	4633.8	1558.10

Report No. : SLST0200077

Job No. : SHK200023





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Report on Unconfined Compression Test - Summary of Soil Properties

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200079

Job No.: SHK200024

Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: - Depth (m)#: - Date of Test: 18/5/2020
Sample No.#: S3-SC074A 16/5/2020 Actual Depth (m): - W.O. No.#: -
LD002 S48
Sample Type#: PT75 Sample Origin#: Contaminated soil mixed with 7.5% cement and 10% sand Date Received: 16/5/2020

Information provided by Client

Specimen Details

Diameter of specimen	mm	75.7	Wet mass of specimen	g	1196.8
Length of specimen	mm	152.6	Dry mass of specimen	g	-
Area of specimen	mm ²	4500.7	Moisture content	%	-
Volume of specimen	cm ³	686.81	Bulk density	Mg/m ³	1.74
Particle density (assumed/measured)*	Mg/m ³	2.65	Dry density	Mg/m ³	-

* Delete whichever is inappropriate

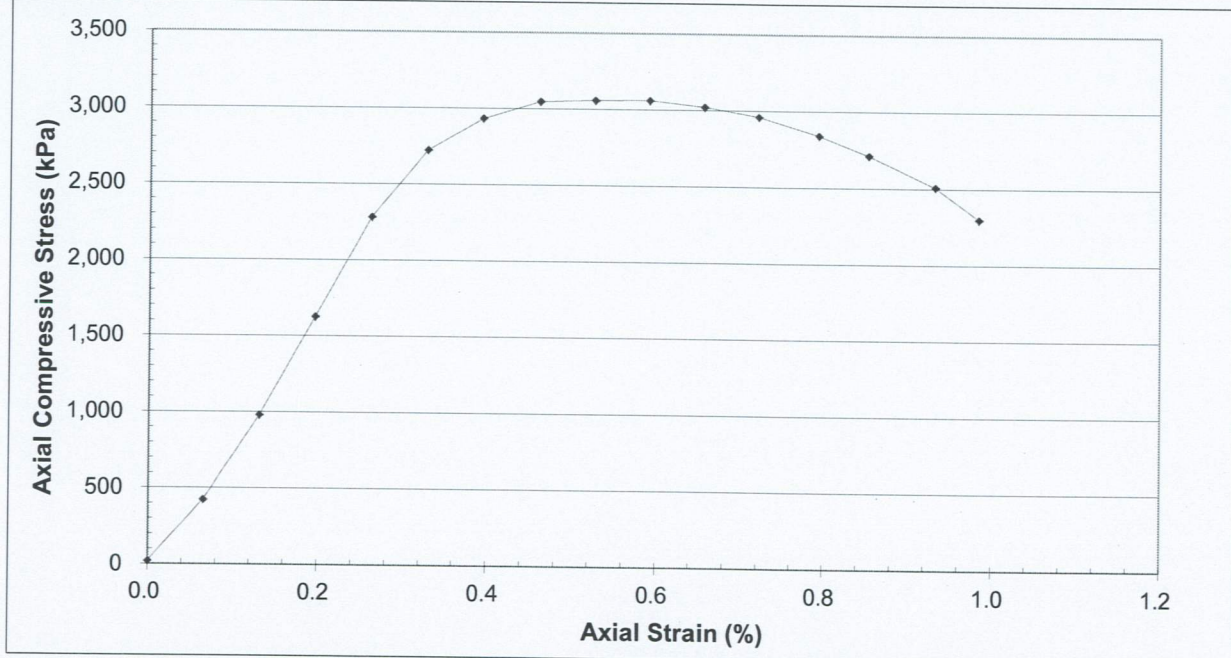
Visual Description: Light brownish grey sandy SILT/CLAY with Cement

Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

Compression Results

Maximum axial stress	3061	kPa	Sketch of failure conditions Inclination of shear surface	
Axial strain at failure	0.59	%		
Unconfined compressive strength, (q _u)	3061	kPa		

Graph



Remarks : Mixing Date : 14/5/2020

Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Certified by : HUI King Fai

Date : 18 May 2020

Date : 20 May 2020



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Report on Unconfined Compression Test - Compression Data

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200079

Job No.: SHK200024

Page: 2 of 2

Client#: Sang Hing - Kuly Joint Venture

Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: - Depth (m)#: -

Date of Test: 18/5/2020

Sample No.#: S3-SC074A
16/5/2020
LD002 S48

Actual Depth (m): -

W.O. No.#: -

Sample Type#: PT75

Sample Origin#: Contaminated soil mixed with 7.5%
cement and 10% sand

Date Received: 16/5/2020

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_0)	mm	152.6
		Original area (A_0)	mm ²	4500.7

The compression was terminated at 1% of axial strain and the peak axial compressive stress is reached at 0.6%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in Italic

<i>Axial Deformation Reading (mm)</i>	<i>Axial Strain ϵ (%)</i>	<i>Proving Ring Gauge Reading (mm)</i>	<i>Load Cell Reading (kN)</i>	<i>Axial Force P (N)</i>	<i>Cross- section Area A (mm²)</i>	<i>Axial Compressive Stress σ_1 (kPa)</i>
0.00	0.0	-	0.09	90	4500.7	20.00
0.10	0.1	-	1.90	1900	4503.7	421.88
0.20	0.1	-	4.41	4410	4506.7	978.55
0.30	0.2	-	7.33	7330	4509.6	1625.43
0.40	0.3	-	10.30	10300	4512.5	2282.53
0.50	0.3	-	12.30	12300	4515.6	2723.91
0.60	0.4	-	13.26	13260	4518.5	2934.58
0.70	0.5	-	13.78	13780	4521.6	3047.61
0.80	0.5	-	13.84	13840	4524.6	3058.86
0.90	0.6	-	13.86	13860	4527.5	3061.31
1.00	0.7	-	13.69	13690	4530.4	3021.79
1.10	0.7	-	13.42	13420	4533.4	2960.25
1.21	0.8	-	12.89	12890	4536.7	2841.26
1.30	0.9	-	12.31	12310	4539.4	2711.78
1.42	0.9	-	11.40	11400	4543.1	2509.31
1.50	1.0	-	10.45	10450	4545.5	2299.00

Report No. : SLST0200079

Job No. : SHK200024





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Report on Unconfined Compression Test - Summary of Soil Properties

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200079

Job No.: SHK200024

Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture

Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -

Depth (m)#: -

Date of Test: 18/5/2020

Sample No.#: S3-SC074A 16/5/2020
LD002 S49

Actual Depth (m): -

W.O. No.#: -

Sample Type#: PT75

Sample Origin#: Contaminated soil mixed with 7.5%
cement and 10% sand

Date Received: 16/5/2020

Information provided by Client

Specimen Details


Diameter of specimen	mm	75.8	Wet mass of specimen	g	1161.8
Length of specimen	mm	149.7	Dry mass of specimen	g	-
Area of specimen	mm ²	4512.6	Moisture content	%	-
Volume of specimen	cm ³	675.54	Bulk density	Mg/m ³	1.72
Particle density (assumed/measured)*	Mg/m ³	2.65	Dry density	Mg/m ³	-

* Delete whichever is inappropriate

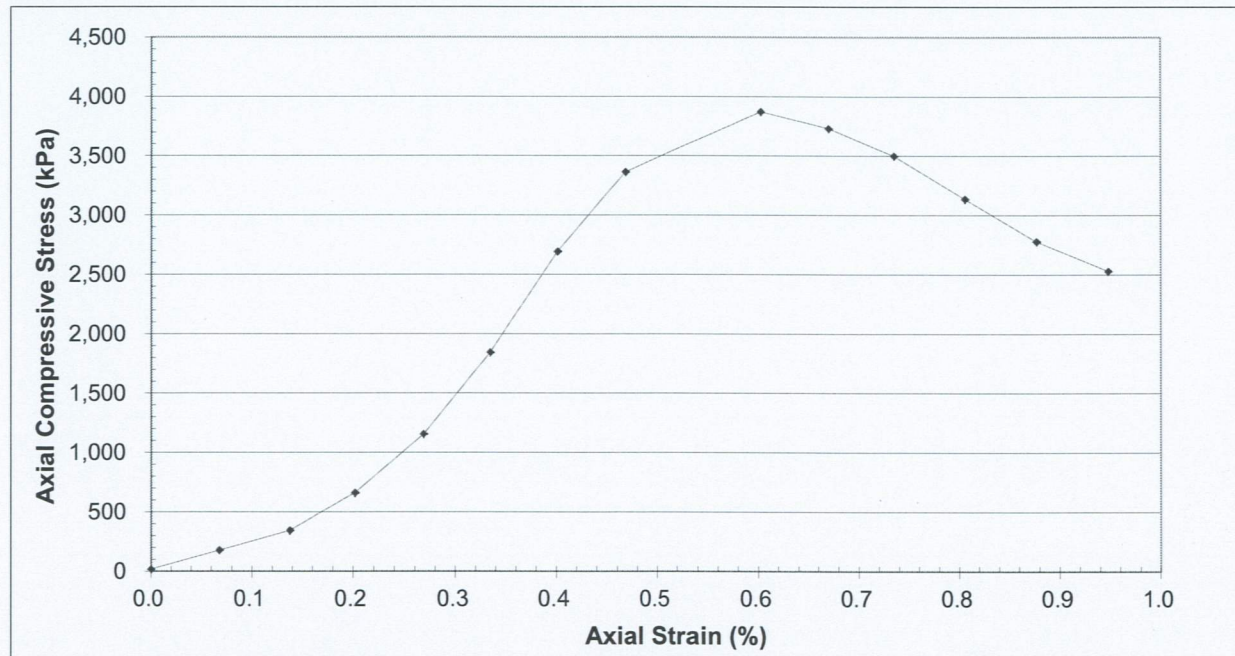
Visual Description: Light brownish grey sandy SILT/CLAY with Cement

Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

Compression Results

Maximum axial stress	3872	kPa	Sketch of failure conditions Inclination of shear surface	
Axial strain at failure	0.60	%		
Unconfined compressive strength, (q _u)	3872	kPa		

Graph



Remarks : Mixing Date : 14/5/2020

Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Certified by : HUI King Fai

HUI King Fai

Date : 18 May 2020

Date : 20 May 2020



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Report on Unconfined Compression Test - Compression Data

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200079

Job No.: SHK200024

Page: 2 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: - Depth (m)#: - Date of Test: 18/5/2020
Sample No.#: S3-SC074A Actual Depth (m): - W.O. No.#: -
16/5/2020
LD002 S49

Sample Type#: PT75 Sample Origin#: Contaminated soil mixed with 7.5% cement and 10% sand Date Received: 16/5/2020

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_0)	mm	149.7
		Original area (A_0)	mm ²	4512.6

The compression was terminated at 0.9% of axial strain and the peak axial compressive stress is reached at 0.6%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in Italic

<i>Axial Deformation Reading (mm)</i>	<i>Axial Strain ϵ (%)</i>	<i>Proving Ring Gauge Reading (mm)</i>	<i>Load Cell Reading (kN)</i>	<i>Axial Force P (N)</i>	<i>Cross- section Area A (mm²)</i>	<i>Axial Compressive Stress σ_1 (kPa)</i>
0.00	0.0	-	0.08	80	4512.6	17.73
0.10	0.1	-	0.80	800	4515.7	177.16
0.21	0.1	-	1.56	1560	4518.8	345.22
0.30	0.2	-	2.99	2990	4521.7	661.25
0.40	0.3	-	5.23	5230	4524.8	1155.86
0.50	0.3	-	8.35	8350	4527.8	1844.18
0.60	0.4	-	12.21	12210	4530.8	2694.89
0.70	0.5	-	15.25	15250	4533.8	3363.59
0.90	0.6	-	17.58	17580	4540.0	3872.27
1.00	0.7	-	16.95	16950	4543.1	3730.97
1.10	0.7	-	15.90	15900	4546.0	3497.57
1.21	0.8	-	14.27	14270	4549.3	3136.77
1.31	0.9	-	12.65	12650	4552.5	2778.67
1.42	0.9	-	11.52	11520	4555.8	2528.65

Report No. : SLST0200079

Job No. : SHK200024





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Report on Unconfined Compression Test - Summary of Soil Properties

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200079

Job No.: SHK200024

Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: - Depth (m)#: - Date of Test: 19/5/2020
Sample No.#: S3-SC074A 16/5/2020 Actual Depth (m): - W.O. No.#: -
LD002 S50
Sample Type#: PT75 Sample Origin#: Contaminated soil mixed with 7.5% cement and 10% sand Date Received: 16/5/2020

Information provided by Client

Specimen Details

Diameter of specimen	mm	76.2	Wet mass of specimen	g	1206.2
Length of specimen	mm	151.7	Dry mass of specimen	g	-
Area of specimen	mm ²	4560.4	Moisture content	%	-
Volume of specimen	cm ³	691.81	Bulk density	Mg/m ³	1.74
Particle density (assumed/measured)*	Mg/m ³	2.65	Dry density	Mg/m ³	-

* Delete whichever is inappropriate

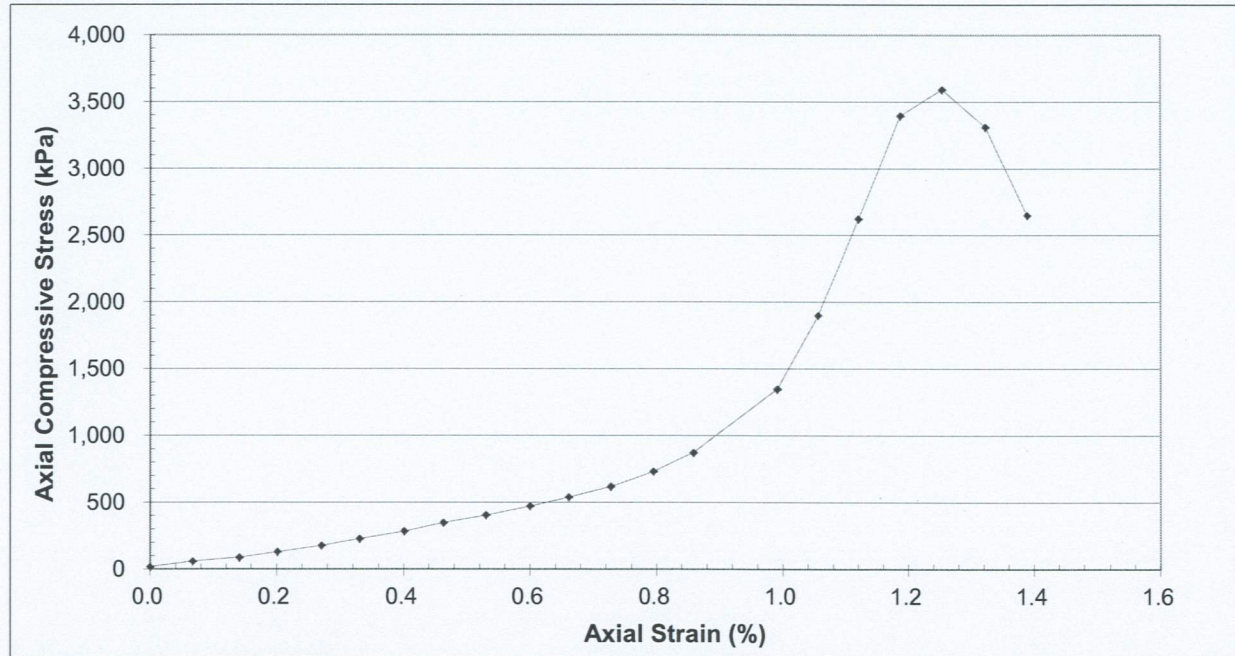
Visual Description: Light brownish grey sandy SILT/CLAY with Cement

Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

Compression Results

Maximum axial stress	3592	kPa	Sketch of failure conditions Inclination of shear surface	
Axial strain at failure	1.3	%		
Unconfined compressive strength, (q _u)	3592	kPa		

Graph



Remarks : Mixing Date : 15/5/2020

Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Certified by : HUI King Fai

Date : 19 May 2020

Date : 20 May 2020



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Report on Unconfined Compression Test - Compression Data

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200079

Job No.: SHK200024

Page: 2 of 2

Client#: Sang Hing - Kuly Joint Venture

Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: - Depth (m)#: -

Date of Test: 19/5/2020

Sample No.#: S3-SC074A Actual Depth (m): -

W.O. No.#: -

16/5/2020

LD002 S50

Sample Type#: PT75

Sample Origin#: Contaminated soil mixed with 7.5%
cement and 10% sand

Date Received: 16/5/2020

* Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_0)	mm	151.7
		Original area (A_0)	mm ²	4560.4

The compression was terminated at 1.4% of axial strain and the peak axial compressive stress is reached at 1.3%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in *Italic*

<i>Axial Deformation Reading</i> (mm)	Axial Strain ϵ (%)	<i>Proving Ring Gauge Reading</i> (mm)	<i>Load Cell Reading</i> (kN)	Axial Force P (N)	Cross- section Area A (mm ²)	Axial Compressive Stress σ_1 (kPa)
0.00	0.0	-	0.08	80	4560.4	17.54
0.10	0.1	-	0.27	270	4563.4	59.17
0.21	0.1	-	0.40	400	4566.8	87.59
0.31	0.2	-	0.59	590	4569.6	129.12
0.41	0.3	-	0.81	810	4572.8	177.14
0.50	0.3	-	1.04	1040	4575.5	227.30
0.61	0.4	-	1.30	1300	4578.7	283.92
0.70	0.5	-	1.59	1590	4581.6	347.04
0.80	0.5	-	1.85	1850	4584.7	403.52
0.91	0.6	-	2.16	2160	4587.9	470.80
1.00	0.7	-	2.47	2470	4590.7	538.04
1.10	0.7	-	2.84	2840	4593.8	618.22
1.21	0.8	-	3.36	3360	4596.9	730.93
1.30	0.9	-	4.01	4010	4599.8	871.77
1.50	1.0	-	6.21	6210	4606.0	1348.24
1.60	1.1	-	8.75	8750	4609.0	1898.44
1.70	1.1	-	12.09	12090	4612.1	2621.39
1.80	1.2	-	15.67	15670	4615.2	3395.33
1.90	1.3	-	16.59	16590	4618.3	3592.25
2.01	1.3	-	15.30	15300	4621.5	3310.63
2.11	1.4	-	12.25	12250	4624.6	2648.88

Report No. : SLST0200079

Job No. : SHK200024





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Report on Unconfined Compression Test - Summary of Soil Properties

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200079

Job No.: SHK200024

Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: - Depth (m)#: - Date of Test: 19/5/2020
Sample No.#: S3-SC074A 16/5/2020 Actual Depth (m): - W.O. No.#: -
LD002 S51
Sample Type#: PT75 Sample Origin#: Contaminated soil mixed with 7.5% cement and 10% sand Date Received: 16/5/2020

Information provided by Client

Specimen Details

Diameter of specimen	mm	76.4	Wet mass of specimen	g	1170.4
Length of specimen	mm	149.6	Dry mass of specimen	g	-
Area of specimen	mm ²	4584.3	Moisture content	%	-
Volume of specimen	cm ³	685.82	Bulk density	Mg/m ³	1.71
Particle density (assumed/measured)*	Mg/m ³	2.65	Dry density	Mg/m ³	-

* Delete whichever is inappropriate

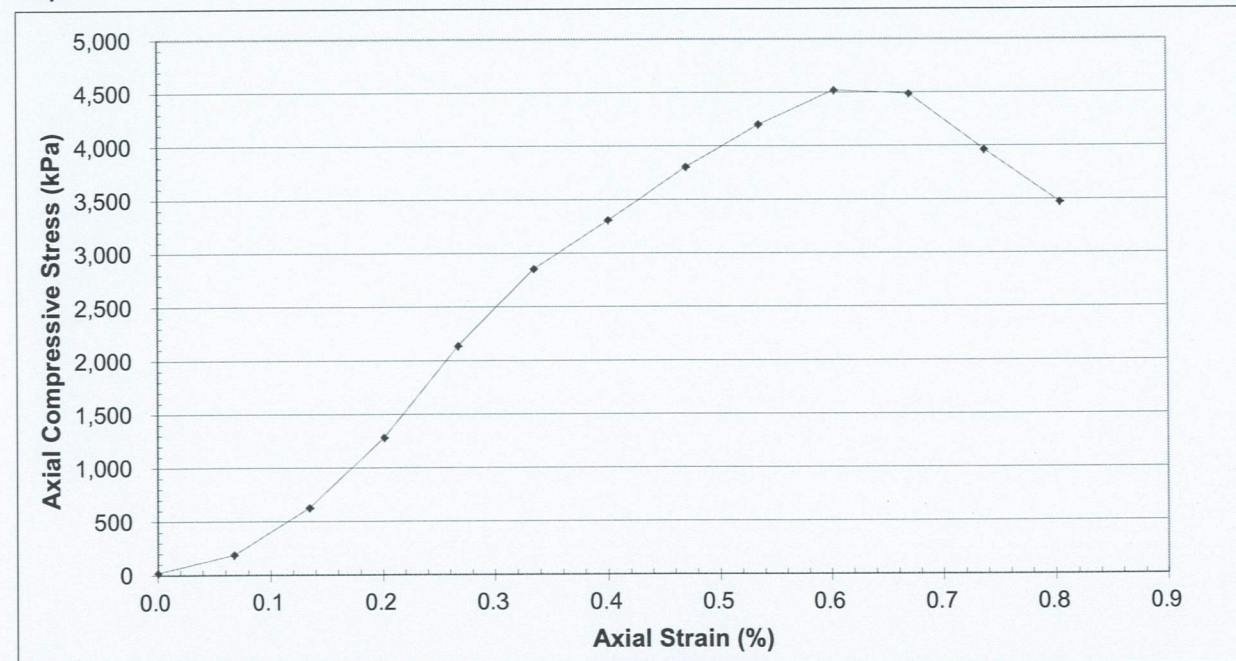
Visual Description: Light brownish grey sandy SILT/CLAY with Cement

Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

Compression Results

Maximum axial stress	4521	kPa	Sketch of failure conditions Inclination of shear surface	
Axial strain at failure	0.60	%		
Unconfined compressive strength, (q _u)	4521	kPa		

Graph



Remarks : Mixing Date : 15/5/2020

Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Certified by : HUI King Fai

Date : 19 May 2020

Date : 20 May 2020



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Report on Unconfined Compression Test - Compression Data

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200079

Job No.: SHK200024

Page: 2 of 2

Client#: Sang Hing - Kuly Joint Venture

Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: - Depth (m)#: -

Date of Test: 19/5/2020

Sample No.#: S3-SC074A Actual Depth (m): -

W.O. No.#: -

16/5/2020

LD002 S51

Sample Type#: PT75

Sample Origin#: Contaminated soil mixed with 7.5%
cement and 10% sand

Date Received: 16/5/2020

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_0)	mm	149.6
		Original area (A_0)	mm ²	4584.3

The compression was terminated at 0.8% of axial strain and the peak axial compressive stress is reached at 0.6%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in Italic

<i>Axial Deformation Reading (mm)</i>	<i>Axial Strain ϵ (%)</i>	<i>Proving Ring Gauge Reading (mm)</i>	<i>Load Cell Reading (kN)</i>	<i>Axial Force P (N)</i>	<i>Cross- section Area A (mm²)</i>	<i>Axial Compressive Stress σ_1 (kPa)</i>
0.00	0.0	-	0.09	90	4584.3	19.63
0.10	0.1	-	0.87	870	4587.4	189.65
0.20	0.1	-	2.88	2880	4590.5	627.38
0.30	0.2	-	5.89	5890	4593.6	1282.22
0.40	0.3	-	9.81	9810	4596.6	2134.17
0.50	0.3	-	13.12	13120	4599.7	2852.33
0.60	0.4	-	15.22	15220	4602.8	3306.68
0.70	0.5	-	17.52	17520	4606.0	3803.72
0.80	0.5	-	19.36	19360	4609.0	4200.46
0.90	0.6	-	20.85	20850	4612.2	4520.64
1.00	0.7	-	20.71	20710	4615.3	4487.27
1.10	0.7	-	18.31	18310	4618.4	3964.59
1.20	0.8	-	16.05	16050	4621.5	3472.87

Report No. : SLST0200079

Job No. : SHK200024





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Report on Unconfined Compression Test - Summary of Soil Properties

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200092

Job No.: SHK200028

Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: - Depth (m)#: - Date of Test: 6/6/2020
Sample No.#: S3-SC074A 6/6/2020 Actual Depth (m): - W.O. No.#: -
LD002 S52
Sample Type#: PT75 Sample Origin#: Contaminated soil mixed with 7.5% cement and 10% sand Date Received: 5/6/2020

* Information provided by Client

Specimen Details

Diameter of specimen	mm	76.0	Wet mass of specimen	g	1121.3
Length of specimen	mm	151.2	Dry mass of specimen	g	-
Area of specimen	mm ²	4536.5	Moisture content	%	-
Volume of specimen	cm ³	685.91	Bulk density	Mg/m ³	1.63
Particle density (assumed/measured)*	Mg/m ³	2.65	Dry density	Mg/m ³	-

* Delete whichever is inappropriate

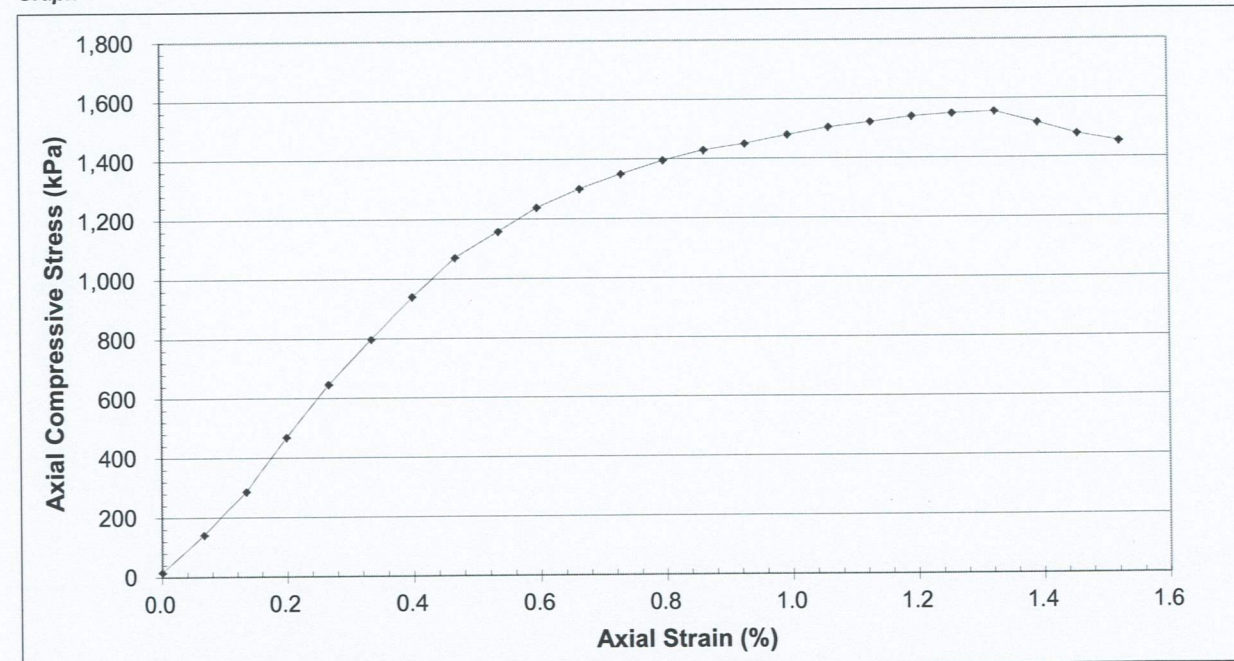
Visual Description: Light brownish grey sandy SILT/CLAY with Cement

Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

Compression Results

Maximum axial stress	1555	kPa	Sketch of failure conditions Inclination of shear surface	
Axial strain at failure	1.3	%		
Unconfined compressive strength, (q _u)	1555	kPa		

Graph



Remarks : Mixing Date : 16/5/2020

Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Certified by : HUI King Fai

Date : 6 June 2020

Date : 10 June 2020



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Report on Unconfined Compression Test - Compression Data

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200092

Job No.: SHK200028

Page: 2 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: - Depth (m)#: - Date of Test: 6/6/2020
Sample No.#: S3-SC074A Actual Depth (m): - W.O. No.#: -
6/6/2020 LD002
S52

Sample Type#: PT75 Sample Origin#: Contaminated soil mixed with 7.5%
cement and 10% sand Date Received: 5/6/2020

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_0)	mm	151.2
		Original area (A_0)	mm ²	4536.5

The compression was terminated at 1.5% of axial strain and the peak axial compressive stress is reached at 1.3%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in Italic

<i>Axial Deformation Reading (mm)</i>	<i>Axial Strain ϵ (%)</i>	<i>Proving Ring Gauge Reading (mm)</i>	<i>Load Cell Reading (kN)</i>	<i>Axial Force P (N)</i>	<i>Cross-section Area A (mm²)</i>	<i>Axial Compressive Stress σ_1 (kPa)</i>
0.00	0.0	-	0.07	70	4536.5	15.43
0.10	0.1	-	0.64	640	4539.5	140.98
0.20	0.1	-	1.30	1300	4542.6	286.18
0.30	0.2	-	2.13	2130	4545.5	468.59
0.40	0.3	-	2.94	2940	4548.6	646.36
0.51	0.3	-	3.63	3630	4551.7	797.51
0.60	0.4	-	4.28	4280	4554.6	939.70
0.71	0.5	-	4.88	4880	4557.7	1070.71
0.81	0.5	-	5.28	5280	4560.8	1157.68
0.90	0.6	-	5.65	5650	4563.7	1238.04
1.00	0.7	-	5.94	5940	4566.8	1300.70
1.10	0.7	-	6.17	6170	4569.8	1350.17
1.21	0.8	-	6.38	6380	4572.9	1395.17
1.30	0.9	-	6.54	6540	4575.9	1429.23
1.40	0.9	-	6.64	6640	4578.9	1450.12
1.50	1.0	-	6.78	6780	4582.0	1479.69
1.60	1.1	-	6.90	6900	4585.1	1504.88
1.70	1.1	-	6.98	6980	4588.2	1521.30
1.80	1.2	-	7.07	7070	4591.2	1539.89
1.90	1.3	-	7.12	7120	4594.2	1549.77
2.00	1.3	-	7.15	7150	4597.4	1555.24
2.11	1.4	-	6.98	6980	4600.6	1517.20
2.20	1.5	-	6.81	6810	4603.5	1479.30
2.30	1.5	-	6.70	6700	4606.6	1454.43

Report No. : SLST0200092

Job No. : SHK200028





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Report on Unconfined Compression Test - Summary of Soil Properties

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200092
Job No.: SHK200028
Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: - Depth (m)#: - Date of Test: 6/6/2020
Sample No.#: S3-SC074A 6/6/2020 Actual Depth (m): - W.O. No.#: -
LD002 S53
Sample Type#: PT75 Sample Origin#: Contaminated soil mixed with 7.5% cement and 10% sand Date Received: 5/6/2020

Information provided by Client

Specimen Details

Diameter of specimen	mm	76.4	Wet mass of specimen	g	1102.5
Length of specimen	mm	149.8	Dry mass of specimen	g	-
Area of specimen	mm ²	4584.3	Moisture content	%	-
Volume of specimen	cm ³	686.73	Bulk density	Mg/m ³	1.61
Particle density (assumed/measured)*	Mg/m ³	2.65	Dry density	Mg/m ³	-

* Delete whichever is inappropriate

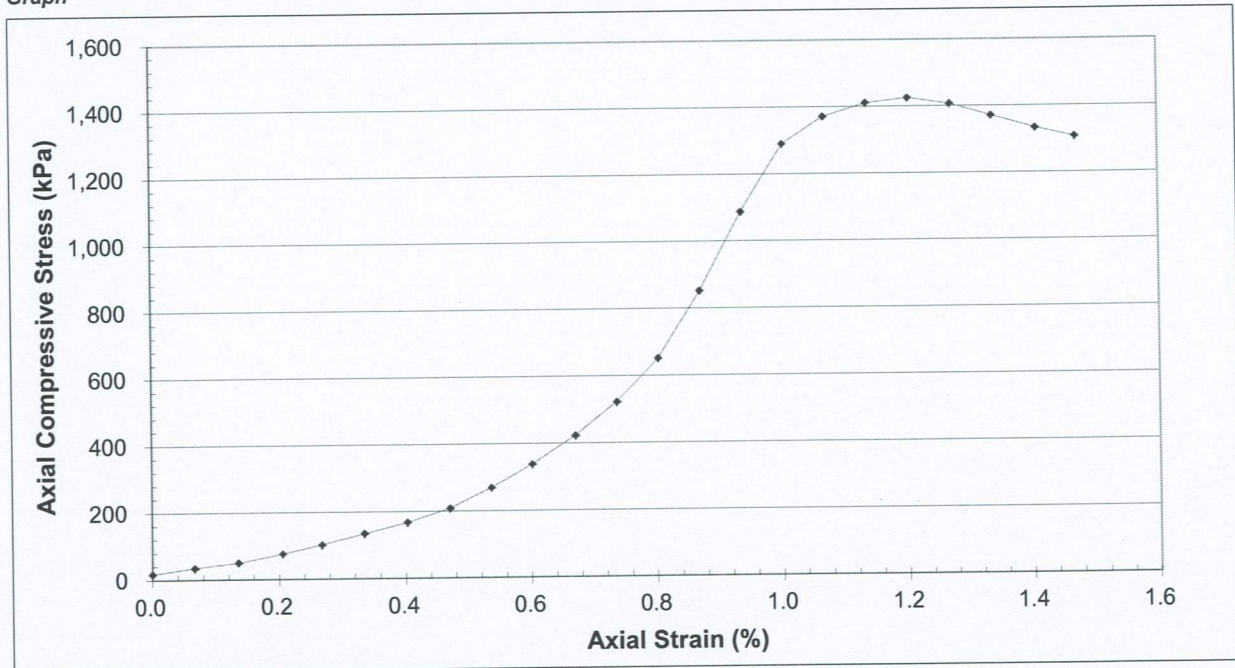
Visual Description: Light brownish grey sandy SILT/CLAY with Cement

Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

Compression Results

Maximum axial stress	1425	kPa	Sketch of failure conditions Inclination of shear surface	
Axial strain at failure	1.2	%		
Unconfined compressive strength, (q _u)	1425	kPa		

Graph



Remarks : Mixing Date : 16/5/2020

Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Certified by : HUI King Fai

Date : 6 June 2020

Date : 10 June 2020



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Report on Unconfined Compression Test - Compression Data

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200092

Job No.: SHK200028

Page: 2 of 2

Client#: Sang Hing - Kuly Joint Venture

Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: - Depth (m)#: -

Date of Test: 6/6/2020

Sample No.#: S3-SC074A Actual Depth (m): -

W.O. No.#: -

6/6/2020 LD002
S53

Sample Type#: PT75

Sample Origin#: Contaminated soil mixed with 7.5%
cement and 10% sand

Date Received: 5/6/2020

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_0)	mm	149.8
		Original area (A_0)	mm ²	4584.3

The compression was terminated at 1.5% of axial strain and the peak axial compressive stress is reached at 1.2%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in Italic

<i>Axial Deformation Reading (mm)</i>	<i>Axial Strain ϵ (%)</i>	<i>Proving Ring Gauge Reading (mm)</i>	<i>Load Cell Reading (kN)</i>	<i>Axial Force P (N)</i>	<i>Cross-section Area A (mm²)</i>	<i>Axial Compressive Stress σ_1 (kPa)</i>
0.00	0.0	-	0.08	80	4584.3	17.45
0.10	0.1	-	0.16	160	4587.4	34.88
0.20	0.1	-	0.23	230	4590.6	50.10
0.31	0.2	-	0.35	350	4593.8	76.19
0.40	0.3	-	0.47	470	4596.6	102.25
0.50	0.3	-	0.62	620	4599.8	134.79
0.60	0.4	-	0.77	770	4602.9	167.29
0.71	0.5	-	0.96	960	4606.0	208.42
0.80	0.5	-	1.24	1240	4609.0	269.04
0.90	0.6	-	1.56	1560	4612.1	338.24
1.00	0.7	-	1.95	1950	4615.3	422.51
1.10	0.7	-	2.41	2410	4618.3	521.83
1.20	0.8	-	3.01	3010	4621.5	651.31
1.30	0.9	-	3.94	3940	4624.5	851.98
1.40	0.9	-	5.03	5030	4627.6	1086.95
1.50	1.0	-	5.97	5970	4630.7	1289.21
1.60	1.1	-	6.35	6350	4633.8	1370.36
1.70	1.1	-	6.54	6540	4637.0	1410.40
1.80	1.2	-	6.61	6610	4640.1	1424.53
1.90	1.3	-	6.53	6530	4643.3	1406.33
2.00	1.3	-	6.37	6370	4646.4	1370.94
2.11	1.4	-	6.20	6200	4649.7	1333.41
2.20	1.5	-	6.08	6080	4652.7	1306.77

Report No. : SLST0200092

Job No. : SHK200028





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Report on Unconfined Compression Test - Summary of Soil Properties

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200081

Job No.: SHK200025

Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: - Depth (m)#: - Date of Test: 23/5/2020
Sample No.#: S3-SC074A 21/5/2020 Actual Depth (m): - W.O. No.#: -
LD002 S54

Sample Type#: PT75 Sample Origin#: Contaminated soil mixed with 7.5% cement and 10% sand Date Received: 21/5/2020

Information provided by Client

Specimen Details


Diameter of specimen	mm	75.9	Wet mass of specimen	g	1108.1
Length of specimen	mm	152.3	Dry mass of specimen	g	-
Area of specimen	mm ²	4524.5	Moisture content	%	-
Volume of specimen	cm ³	689.09	Bulk density	Mg/m ³	1.61
Particle density (assumed/measured)*	Mg/m ³	2.65	Dry density	Mg/m ³	-

* Delete whichever is inappropriate

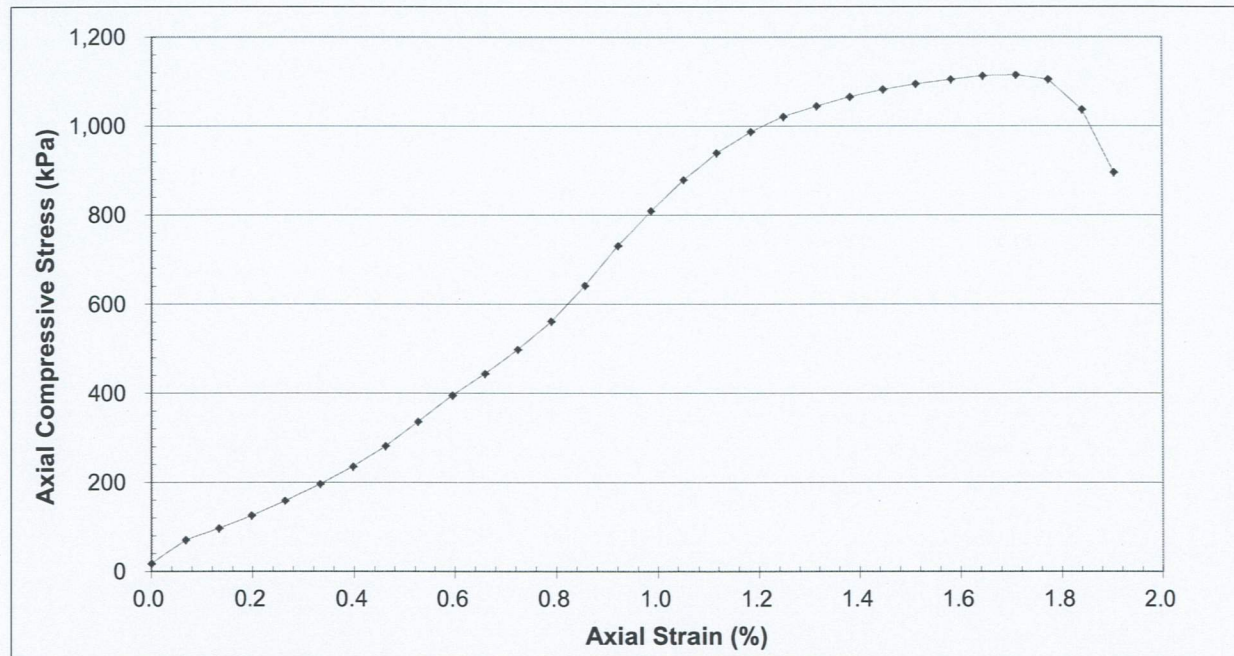
Visual Description: Dark greyish brown sandy SILT/CLAY with Cement

Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

Compression Results

Maximum axial stress	1114	kPa	Sketch of failure conditions Inclination of shear surface	
Axial strain at failure	1.7	%		
Unconfined compressive strength, (q _u)	1114	kPa		

Graph



Remarks : Mixing Date : 18/5/2020

Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Certified by : HUI King Fai

Date : 23 May 2020

Date : 27 May 2020



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Report on Unconfined Compression Test - Compression Data

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200081

Job No.: SHK200025

Page: 2 of 2

Client#: Sang Hing - Kuly Joint Venture

Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: - Depth (m)#: -

Date of Test: 23/5/2020

Sample No.#: S3-SC074A Actual Depth (m): -
21/5/2020
LD002 S54

W.O. No.#: -

Sample Type#: PT75

Sample Origin#: Contaminated soil mixed with 7.5%
cement and 10% sand

Date Received: 21/5/2020

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_0)	mm	152.3
		Original area (A_0)	mm ²	4524.5

The compression was terminated at 1.9% of axial strain and the peak axial compressive stress is reached at 1.7%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in Italic

<i>Axial Deformation Reading (mm)</i>	<i>Axial Strain ϵ (%)</i>	<i>Proving Ring Gauge Reading (mm)</i>	<i>Load Cell Reading (kN)</i>	<i>Axial Force P (N)</i>	<i>Cross-section Area A (mm²)</i>	<i>Axial Compressive Stress σ_1 (kPa)</i>
0.00	0.0	-	0.08	80	4524.5	17.68
0.10	0.1	-	0.32	320	4527.6	70.68
0.20	0.1	-	0.44	440	4530.6	97.12
0.30	0.2	-	0.57	570	4533.5	125.73
0.40	0.3	-	0.72	720	4536.5	158.71
0.51	0.3	-	0.89	890	4539.6	196.05
0.61	0.4	-	1.07	1070	4542.6	235.55
0.70	0.5	-	1.28	1280	4545.5	281.60
0.80	0.5	-	1.53	1530	4548.4	336.38
0.91	0.6	-	1.80	1800	4551.6	395.47
1.00	0.7	-	2.02	2020	4554.5	443.52
1.10	0.7	-	2.27	2270	4557.5	498.08
1.20	0.8	-	2.56	2560	4560.6	561.34
1.30	0.9	-	2.93	2930	4563.6	642.04
1.40	0.9	-	3.34	3340	4566.6	731.40
1.50	1.0	-	3.70	3700	4569.6	809.70
1.60	1.1	-	4.02	4020	4572.6	879.15
1.70	1.1	-	4.30	4300	4575.6	939.77
1.80	1.2	-	4.52	4520	4578.7	987.17
1.90	1.2	-	4.68	4680	4581.7	1021.45
2.00	1.3	-	4.79	4790	4584.8	1044.75
2.10	1.4	-	4.89	4890	4587.9	1065.85
2.20	1.4	-	4.97	4970	4591.0	1082.56
2.30	1.5	-	5.03	5030	4594.0	1094.91
2.41	1.6	-	5.08	5080	4597.2	1105.01
2.50	1.6	-	5.12	5120	4600.2	1113.00
2.60	1.7	-	5.13	5130	4603.2	1114.43
2.70	1.8	-	5.09	5090	4606.2	1105.03
2.80	1.8	-	4.78	4780	4609.4	1037.01
2.90	1.9	-	4.13	4130	4612.4	895.42

Report No. : SLST0200081

Job No. : SHK200025





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Report on Unconfined Compression Test - Summary of Soil Properties

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200081

Job No.: SHK200025

Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture

Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -

Depth (m)#: -

Date of Test: 23/5/2020

Sample No.#: S3-SC074A 21/5/2020
LD002 S55

Actual Depth (m): -

W.O. No.#: -

Sample Type#: PT75

Sample Origin#: Contaminated soil mixed with 7.5%
cement and 10% sand

Date Received: 21/5/2020

Information provided by Client

Specimen Details


Diameter of specimen	mm	76.2	Wet mass of specimen	g	1110.0
Length of specimen	mm	152.0	Dry mass of specimen	g	-
Area of specimen	mm ²	4560.4	Moisture content	%	-
Volume of specimen	cm ³	693.18	Bulk density	Mg/m ³	1.60
Particle density (assumed/measured)*	Mg/m ³	2.65	Dry density	Mg/m ³	-

* Delete whichever is inappropriate

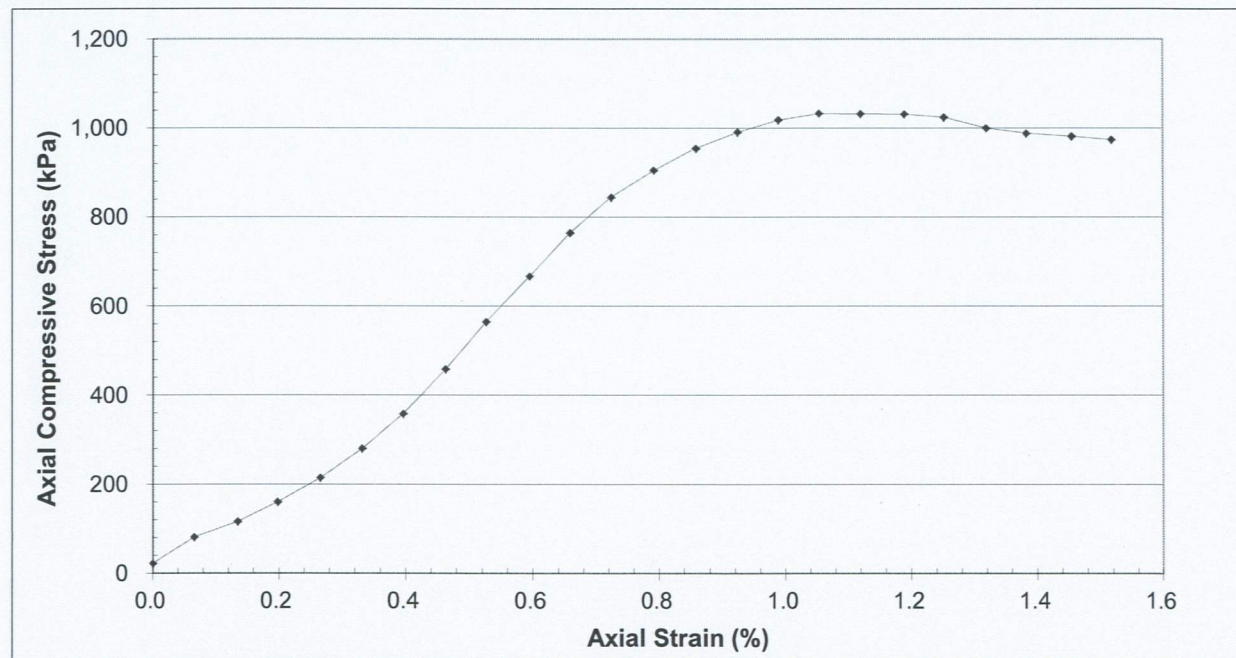
Visual Description: Dark greyish brown sandy SILT/CLAY with Cement

Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

Compression Results

Maximum axial stress	1033	kPa	Sketch of failure conditions Inclination of shear surface	
Axial strain at failure	1.1	%		
Unconfined compressive strength, (q _u)	1033	kPa		

Graph



Remarks : Mixing Date : 18/5/2020

Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Certified by : HUI King Fai

Date : 23 May 2020

Date : 27 May 2020



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Report on Unconfined Compression Test - Compression Data

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200081

Job No.: SHK200025

Page: 2 of 2

Client#: Sang Hing - Kuly Joint Venture

Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: - Depth (m)#: -

Date of Test: 23/5/2020

Sample No.#: S3-SC074A Actual Depth (m): -

W.O. No.#: -

21/5/2020

LD002 S55

Sample Type#: PT75

Sample Origin#: Contaminated soil mixed with 7.5%
cement and 10% sand

Date Received: 21/5/2020

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_0)	mm	152.0
		Original area (A_0)	mm ²	4560.4

The compression was terminated at 1.5% of axial strain and the peak axial compressive stress is reached at 1.1%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in Italic

<i>Axial Deformation Reading (mm)</i>	<i>Axial Strain ϵ (%)</i>	<i>Proving Ring Gauge Reading (mm)</i>	<i>Load Cell Reading (kN)</i>	<i>Axial Force P (N)</i>	<i>Cross-section Area A (mm²)</i>	<i>Axial Compressive Stress σ_1 (kPa)</i>
0.00	0.0	-	0.10	100	4560.4	21.93
0.10	0.1	-	0.37	370	4563.4	81.08
0.20	0.1	-	0.53	530	4566.5	116.06
0.30	0.2	-	0.73	730	4569.4	159.76
0.40	0.3	-	0.98	980	4572.5	214.32
0.50	0.3	-	1.28	1280	4575.5	279.75
0.60	0.4	-	1.64	1640	4578.5	358.20
0.70	0.5	-	2.10	2100	4581.6	458.36
0.80	0.5	-	2.59	2590	4584.5	564.95
0.90	0.6	-	3.06	3060	4587.7	667.01
1.00	0.7	-	3.51	3510	4590.6	764.61
1.10	0.7	-	3.88	3880	4593.6	844.65
1.20	0.8	-	4.16	4160	4596.7	904.99
1.30	0.9	-	4.39	4390	4599.8	954.38
1.40	0.9	-	4.56	4560	4602.9	990.68
1.50	1.0	-	4.69	4690	4605.9	1018.26
1.60	1.1	-	4.76	4760	4608.9	1032.78
1.70	1.1	-	4.76	4760	4612.0	1032.09
1.81	1.2	-	4.76	4760	4615.2	1031.37
1.90	1.3	-	4.73	4730	4618.2	1024.22
2.00	1.3	-	4.62	4620	4621.3	999.72
2.10	1.4	-	4.57	4570	4624.3	988.25
2.21	1.5	-	4.54	4540	4627.7	981.05
2.31	1.5	-	4.51	4510	4630.6	973.95

Report No. : SLST0200081

Job No. : SHK200025





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Report on Unconfined Compression Test - Summary of Soil Properties

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200081

Job No.: SHK200025

Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture

Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -

Depth (m)#: -

Date of Test: 23/5/2020

Sample No.#: S3-SC074A 21/5/2020
LD002 S56

Actual Depth (m): -

W.O. No.#: -

Sample Type#: PT75

Sample Origin#: Contaminated soil mixed with 7.5%
cement and 10% sand

Date Received: 21/5/2020

Information provided by Client

Specimen Details


Diameter of specimen	mm	76.3	Wet mass of specimen	g	1089.0
Length of specimen	mm	150.0	Dry mass of specimen	g	-
Area of specimen	mm ²	4572.3	Moisture content	%	-
Volume of specimen	cm ³	685.85	Bulk density	Mg/m ³	1.59
Particle density (assumed/measured)*	Mg/m ³	2.65	Dry density	Mg/m ³	-

* Delete whichever is inappropriate

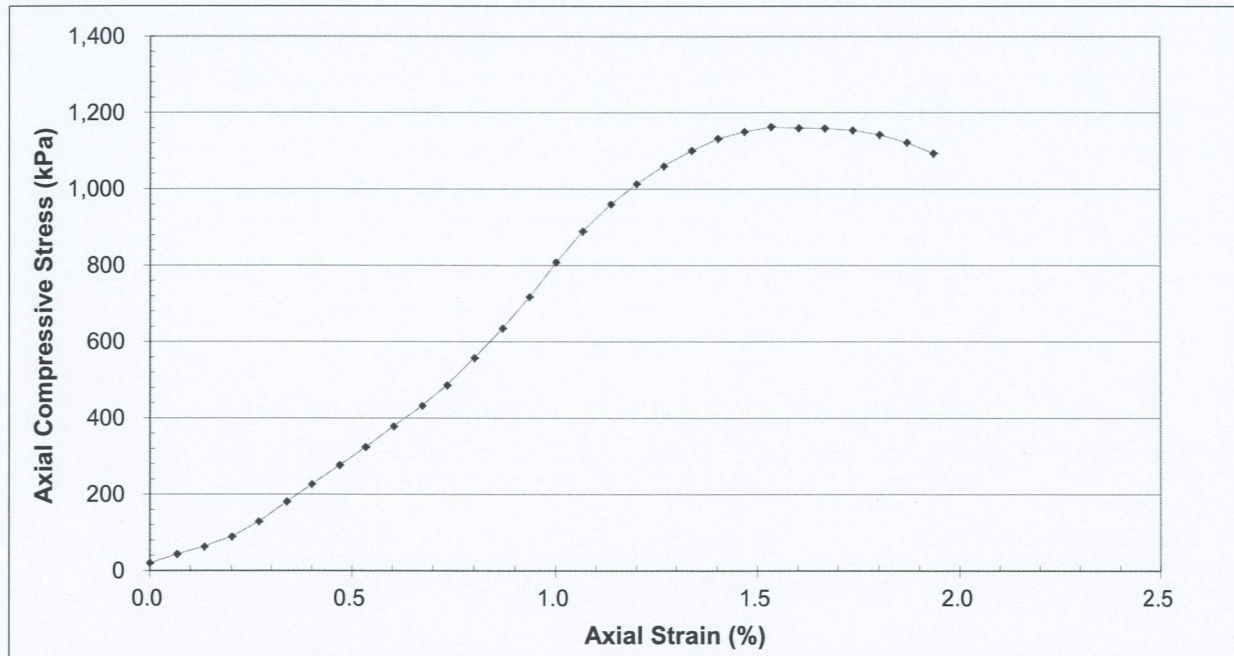
Visual Description: Light brownish grey sandy SILT/CLAY with Cement

Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

Compression Results

Maximum axial stress	1163	kPa	Sketch of failure conditions Inclination of shear surface	
Axial strain at failure	1.5	%		
Unconfined compressive strength, (q _u)	1163	kPa		

Graph



Remarks : Mixing Date : 19/5/2020

Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Certified by : HUI King Fai

Date : 23 May 2020

Date : 27 May 2020



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Report on Unconfined Compression Test - Compression Data

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200081

Job No.: SHK200025

Page: 2 of 2

Client#: Sang Hing - Kuly Joint Venture

Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: - Depth (m)#: -

Date of Test: 23/5/2020

Sample No.#: S3-SC074A Actual Depth (m): -
21/5/2020
LD002 S56

W.O. No.#: -

Sample Type#: PT75

Sample Origin#: Contaminated soil mixed with 7.5%
cement and 10% sand

Date Received: 21/5/2020

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_0)	mm	150.0
		Original area (A_0)	mm ²	4572.3

The compression was terminated at 1.9% of axial strain and the peak axial compressive stress is reached at 1.5%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in Italic

<i>Axial Deformation Reading (mm)</i>	<i>Axial Strain ϵ (%)</i>	<i>Proving Ring Gauge Reading (mm)</i>	<i>Load Cell Reading (kN)</i>	<i>Axial Force P (N)</i>	<i>Cross-section Area A (mm²)</i>	<i>Axial Compressive Stress σ_1 (kPa)</i>
0.00	0.0	-	0.09	90	4572.3	19.68
0.10	0.1	-	0.20	200	4575.4	43.71
0.20	0.1	-	0.29	290	4578.4	63.34
0.30	0.2	-	0.41	410	4581.6	89.49
0.40	0.3	-	0.59	590	4584.7	128.69
0.51	0.3	-	0.83	830	4587.9	180.91
0.60	0.4	-	1.04	1040	4590.7	226.54
0.70	0.5	-	1.27	1270	4593.9	276.45
0.80	0.5	-	1.49	1490	4596.9	324.13
0.91	0.6	-	1.74	1740	4600.1	378.25
1.01	0.7	-	1.99	1990	4603.3	432.29
1.10	0.7	-	2.24	2240	4606.2	486.30
1.20	0.8	-	2.57	2570	4609.3	557.57
1.31	0.9	-	2.93	2930	4612.5	635.23
1.40	0.9	-	3.31	3310	4615.5	717.15
1.50	1.0	-	3.73	3730	4618.6	807.61
1.60	1.1	-	4.11	4110	4621.7	889.29
1.71	1.1	-	4.44	4440	4624.9	960.01
1.80	1.2	-	4.69	4690	4627.9	1013.42
1.90	1.3	-	4.91	4910	4631.1	1060.22
2.01	1.3	-	5.10	5100	4634.4	1100.48
2.11	1.4	-	5.25	5250	4637.4	1132.09
2.20	1.5	-	5.34	5340	4640.5	1150.74
2.30	1.5	-	5.40	5400	4643.6	1162.88
2.41	1.6	-	5.39	5390	4646.8	1159.93
2.50	1.7	-	5.39	5390	4649.9	1159.16
2.61	1.7	-	5.37	5370	4653.2	1154.06
2.70	1.8	-	5.32	5320	4656.3	1142.55
2.80	1.9	-	5.23	5230	4659.4	1122.45
2.90	1.9	-	5.10	5100	4662.6	1093.81

Report No. : SLST0200081

Job No. : SHK200025





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Report on Unconfined Compression Test - Summary of Soil Properties

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200081

Job No.: SHK200025

Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture

Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -

Depth (m)#: -

Date of Test: 23/5/2020

Sample No.#: S3-SC074A 21/5/2020
LD002 S57

Actual Depth (m): -

W.O. No.#: -

Sample Type#: PT75

Sample Origin#: Contaminated soil mixed with 7.5%
cement and 10% sand

Date Received: 21/5/2020

Information provided by Client

Specimen Details

Diameter of specimen	mm	76.3	Wet mass of specimen	g	1098.5
Length of specimen	mm	149.8	Dry mass of specimen	g	-
Area of specimen	mm ²	4572.3	Moisture content	%	-
Volume of specimen	cm ³	684.94	Bulk density	Mg/m ³	1.60
Particle density (assumed/measured)*	Mg/m ³	2.65	Dry density	Mg/m ³	-

* Delete whichever is inappropriate

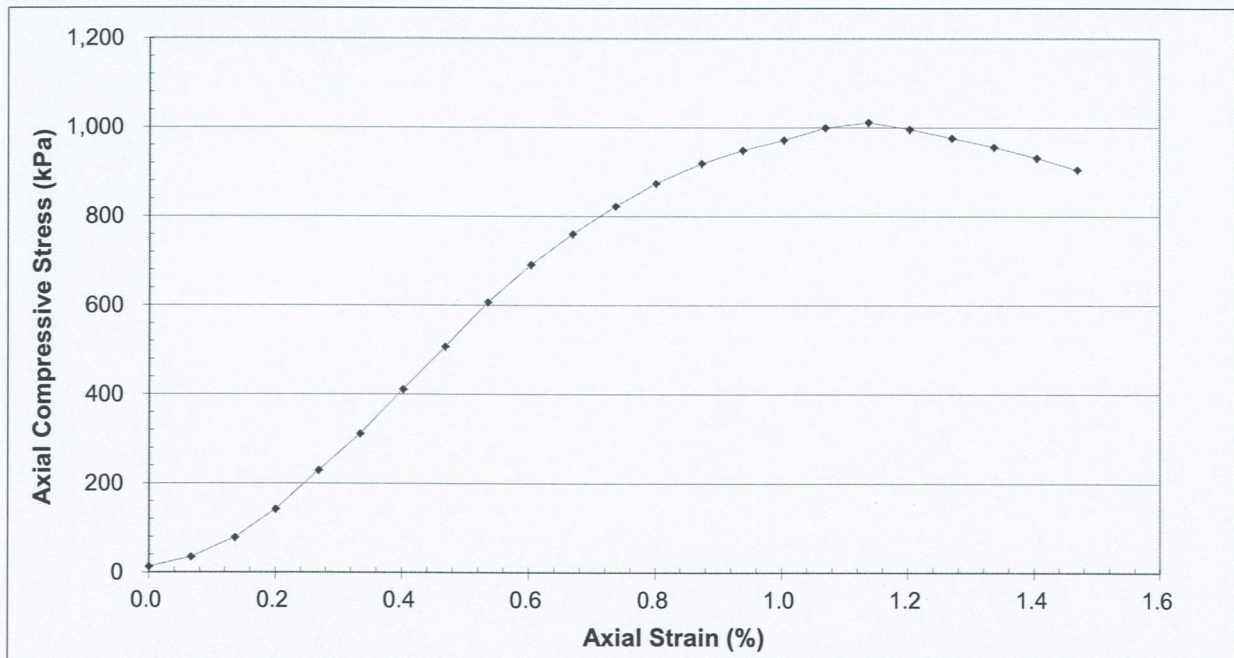
Visual Description: Dark greyish brown sandy SILT/CLAY with Cement

Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

Compression Results

Maximum axial stress	1012	kPa	Sketch of failure conditions Inclination of shear surface	
Axial strain at failure	1.1	%		
Unconfined compressive strength, (q _u)	1012	kPa		

Graph



Remarks : Mixing Date : 19/5/2020

Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Certified by :

HUI King Fai

Date : 23 May 2020

Date : 27 May 2020



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Report on Unconfined Compression Test - Compression Data

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200081

Job No.: SHK200025

Page: 2 of 2

Client#: Sang Hing - Kuly Joint Venture

Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: - Depth (m)#: -

Date of Test: 23/5/2020

Sample No.#: S3-SC074A Actual Depth (m): -

W.O. No.#: -

21/5/2020
LD002 S57

Sample Type#: PT75

Sample Origin#: Contaminated soil mixed with 7.5%
cement and 10% sand

Date Received: 21/5/2020

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_0)	mm	149.8
		Original area (A_0)	mm ²	4572.3

The compression was terminated at 1.5% of axial strain and the peak axial compressive stress is reached at 1.1%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in *Italic*

<i>Axial Deformation Reading (mm)</i>	<i>Axial Strain ϵ (%)</i>	<i>Proving Ring Gauge Reading (mm)</i>	<i>Load Cell Reading (kN)</i>	<i>Axial Force P (N)</i>	<i>Cross- section Area A (mm²)</i>	<i>Axial Compressive Stress σ_1 (kPa)</i>
0.00	0.0	-	0.06	60	4572.3	13.12
0.10	0.1	-	0.16	160	4575.4	34.97
0.20	0.1	-	0.36	360	4578.5	78.63
0.30	0.2	-	0.65	650	4581.5	141.87
0.40	0.3	-	1.05	1050	4584.7	229.02
0.50	0.3	-	1.43	1430	4587.7	311.70
0.60	0.4	-	1.89	1890	4590.8	411.69
0.70	0.5	-	2.33	2330	4593.8	507.20
0.80	0.5	-	2.79	2790	4597.0	606.92
0.90	0.6	-	3.18	3180	4600.1	691.29
1.00	0.7	-	3.50	3500	4603.1	760.35
1.10	0.7	-	3.79	3790	4606.3	822.79
1.20	0.8	-	4.03	4030	4609.3	874.33
1.31	0.9	-	4.24	4240	4612.7	919.21
1.41	0.9	-	4.38	4380	4615.7	948.94
1.50	1.0	-	4.49	4490	4618.7	972.14
1.60	1.1	-	4.62	4620	4621.8	999.62
1.70	1.1	-	4.68	4680	4625.0	1011.90
1.80	1.2	-	4.61	4610	4628.0	996.11
1.90	1.3	-	4.52	4520	4631.1	976.00
2.00	1.3	-	4.43	4430	4634.3	955.92
2.10	1.4	-	4.32	4320	4637.5	931.54
2.20	1.5	-	4.20	4200	4640.5	905.07

Report No. : SLST0200081

Job No. : SHK200025





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Report on Unconfined Compression Test - Summary of Soil Properties

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200092

Job No.: SHK200028

Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: - Depth (m)#: - Date of Test: 6/6/2020
Sample No.#: S3-SC074A 6/6/2020 Actual Depth (m): - W.O. No.#: -
LD002 S58

Sample Type#: PT75 Sample Origin#: Contaminated soil mixed with 7.5% cement and 10% sand Date Received: 5/6/2020

Information provided by Client

Specimen Details


Diameter of specimen	mm	75.3	Wet mass of specimen	g	1109.6
Length of specimen	mm	149.8	Dry mass of specimen	g	-
Area of specimen	mm ²	4453.3	Moisture content	%	-
Volume of specimen	cm ³	667.10	Bulk density	Mg/m ³	1.66
Particle density (assumed/measured)*	Mg/m ³	2.65	Dry density	Mg/m ³	-

* Delete whichever is inappropriate

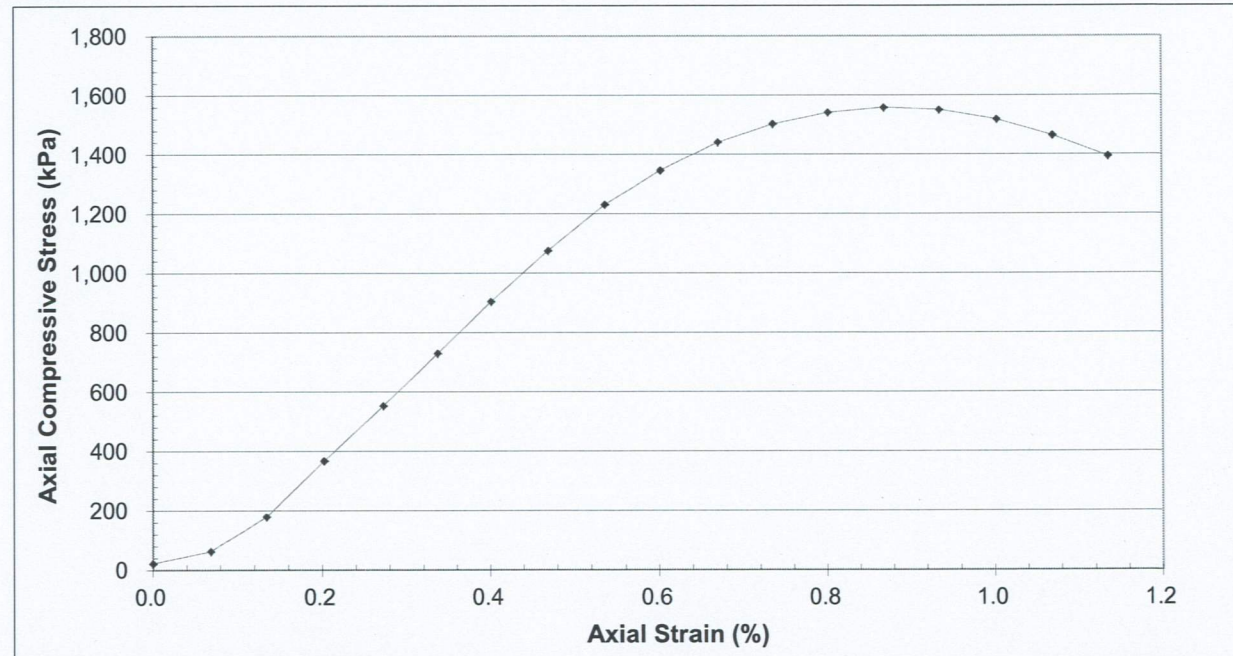
Visual Description: Light brownish grey sandy SILT/CLAY with Cement

Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

Compression Results

Maximum axial stress	1558	kPa	Sketch of failure conditions Inclination of shear surface	
Axial strain at failure	0.87	%		
Unconfined compressive strength, (q _u)	1558	kPa		

Graph



Remarks : Mixing Date : 20/5/2020

Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Certified by : HUI King Fai

Date : 6 June 2020

Date : 10 June 2020



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Report on Unconfined Compression Test - Compression Data

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200092

Job No.: SHK200028

Page: 2 of 2

Client#: Sang Hing - Kuly Joint Venture

Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: - Depth (m)#: -

Date of Test: 6/6/2020

Sample No.#: S3-SC074A Actual Depth (m): -
6/6/2020 LD002
S58

W.O. No.#: -

Sample Type#: PT75

Sample Origin#: Contaminated soil mixed with 7.5%
cement and 10% sand

Date Received: 5/6/2020

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_0)	mm	149.8
		Original area (A_0)	mm ²	4453.3

The compression was terminated at 1.1% of axial strain and the peak axial compressive stress is reached at 0.9%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in Italic

<i>Axial Deformation Reading (mm)</i>	<i>Axial Strain ϵ (%)</i>	<i>Proving Ring Gauge Reading (mm)</i>	<i>Load Cell Reading (kN)</i>	<i>Axial Force P (N)</i>	<i>Cross-section Area A (mm²)</i>	<i>Axial Compressive Stress σ_1 (kPa)</i>
0.00	0.0	-	0.10	100	4453.3	22.46
0.10	0.1	-	0.28	280	4456.3	62.83
0.20	0.1	-	0.80	800	4459.3	179.40
0.30	0.2	-	1.64	1640	4462.3	367.52
0.41	0.3	-	2.47	2470	4465.4	553.14
0.51	0.3	-	3.26	3260	4468.3	729.58
0.60	0.4	-	4.04	4040	4471.2	903.56
0.70	0.5	-	4.81	4810	4474.3	1075.03
0.80	0.5	-	5.51	5510	4477.3	1230.66
0.90	0.6	-	6.03	6030	4480.3	1345.91
1.00	0.7	-	6.46	6460	4483.3	1440.89
1.10	0.7	-	6.74	6740	4486.3	1502.36
1.20	0.8	-	6.92	6920	4489.3	1541.45
1.30	0.9	-	7.00	7000	4492.3	1558.21
1.40	0.9	-	6.97	6970	4495.3	1550.50
1.50	1.0	-	6.83	6830	4498.4	1518.31
1.60	1.1	-	6.59	6590	4501.4	1463.97
1.70	1.1	-	6.28	6280	4504.5	1394.17

Report No. : SLST0200092

Job No. : SHK200028





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Report on Unconfined Compression Test - Summary of Soil Properties

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200092
Job No.: SHK200028
Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: - Depth (m)#: - Date of Test: 6/6/2020
Sample No.#: S3-SC074A 6/6/2020 Actual Depth (m): - W.O. No.#: -
LD002 S59
Sample Type#: PT75 Sample Origin#: Contaminated soil mixed with 7.5% cement and 10% sand Date Received: 5/6/2020

* Information provided by Client

Specimen Details

Diameter of specimen	mm	76.0	Wet mass of specimen	g	1112.9
Length of specimen	mm	151.0	Dry mass of specimen	g	-
Area of specimen	mm ²	4536.5	Moisture content	%	-
Volume of specimen	cm ³	685.01	Bulk density	Mg/m ³	1.62
Particle density (assumed/measured)*	Mg/m ³	2.65	Dry density	Mg/m ³	-

* Delete whichever is inappropriate

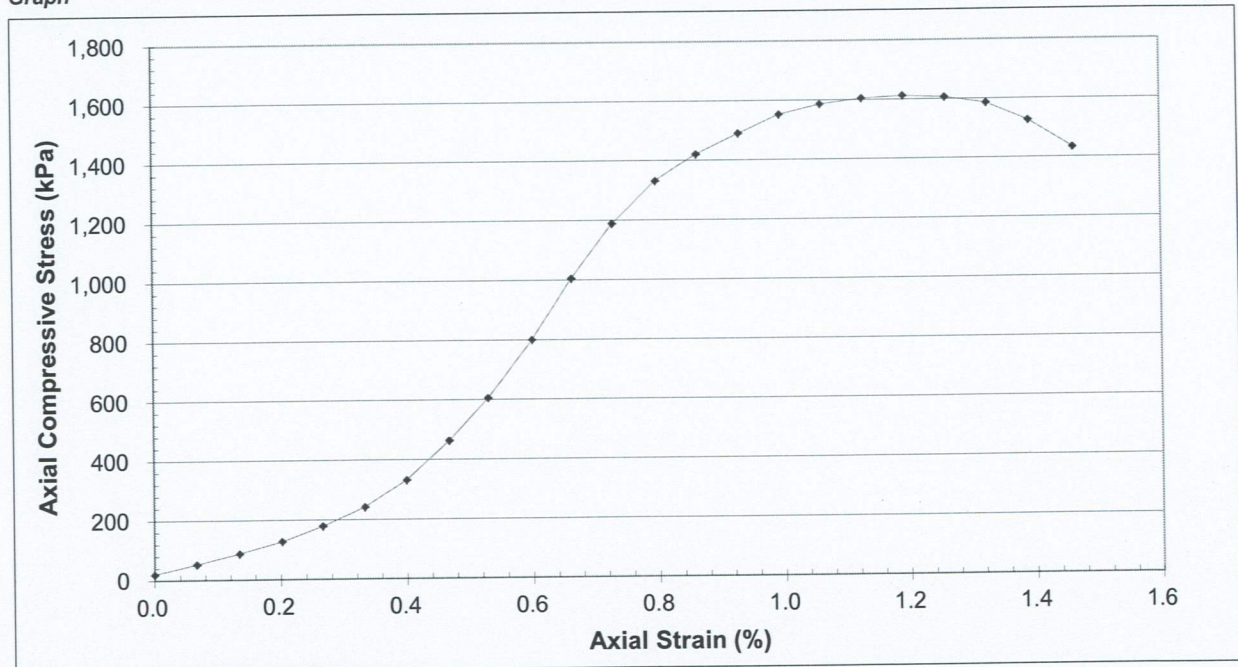
Visual Description: Light brownish grey sandy SILT/CLAY with Cement

Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

Compression Results

Maximum axial stress	1612	kPa	Sketch of failure conditions Inclination of shear surface	
Axial strain at failure	1.2	%		
Unconfined compressive strength, (q _u)	1612	kPa		

Graph



Remarks : Mixing Date : 21/5/2020

Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Certified by : HUI King Fai

Date : 6 June 2020

Date : 10 June 2020



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Report on Unconfined Compression Test - Compression Data

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200092

Job No.: SHK200028

Page: 2 of 2

Client#: Sang Hing - Kuly Joint Venture

Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: - Depth (m)#: -

Date of Test: 6/6/2020

Sample No.#: S3-SC074A Actual Depth (m): -
6/6/2020 LD002
S59

W.O. No.#: -

Sample Type#: PT75 Sample Origin#: Contaminated soil mixed with 7.5%
cement and 10% sand

Date Received: 5/6/2020

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_0)	mm	151.0
		Original area (A_0)	mm ²	4536.5

The compression was terminated at 1.5% of axial strain and the peak axial compressive stress is reached at 1.2%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in *italic*

<i>Axial Deformation Reading (mm)</i>	<i>Axial Strain ϵ (%)</i>	<i>Proving Ring Gauge Reading (mm)</i>	<i>Load Cell Reading (kN)</i>	<i>Axial Force P (N)</i>	<i>Cross-section Area A (mm²)</i>	<i>Axial Compressive Stress σ_1 (kPa)</i>
0.00	0.0	-	0.09	90	4536.5	19.84
0.10	0.1	-	0.24	240	4539.5	52.87
0.20	0.1	-	0.40	400	4542.6	88.06
0.31	0.2	-	0.58	580	4545.6	127.59
0.40	0.3	-	0.81	810	4548.5	178.08
0.50	0.3	-	1.10	1100	4551.6	241.67
0.60	0.4	-	1.51	1510	4554.6	331.53
0.71	0.5	-	2.11	2110	4557.8	462.95
0.80	0.5	-	2.76	2760	4560.6	605.18
0.91	0.6	-	3.65	3650	4563.8	799.77
1.00	0.7	-	4.59	4590	4566.7	1005.09
1.10	0.7	-	5.43	5430	4569.7	1188.25
1.20	0.8	-	6.09	6090	4572.9	1331.75
1.30	0.9	-	6.50	6500	4575.9	1420.49
1.40	0.9	-	6.82	6820	4579.0	1489.41
1.50	1.0	-	7.11	7110	4582.0	1551.72
1.60	1.1	-	7.27	7270	4585.1	1585.58
1.70	1.1	-	7.36	7360	4588.1	1604.13
1.80	1.2	-	7.40	7400	4591.2	1611.77
1.90	1.3	-	7.38	7380	4594.3	1606.34
2.00	1.3	-	7.29	7290	4597.4	1585.68
2.10	1.4	-	7.02	7020	4600.5	1525.93
2.21	1.5	-	6.60	6600	4603.7	1433.61

Report No. : SLST0200092

Job No. : SHK200028





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Report on Unconfined Compression Test - Summary of Soil Properties

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200085

Job No.: SHK200027

Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture

Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -

Depth (m)#: -

Date of Test: 27/5/2020

Sample No.#: S3-SC074A 27/5/2020
LD002 S60

Actual Depth (m): -

W.O. No.#: -

Sample Type#: PT75

Sample Origin#: Contaminated soil mixed with 7.5%
cement and 10% sand

Date Received: 27/5/2020

Information provided by Client

Specimen Details


Diameter of specimen	mm	76.1	Wet mass of specimen	g	1126.0
Length of specimen	mm	149.8	Dry mass of specimen	g	-
Area of specimen	mm ²	4548.4	Moisture content	%	-
Volume of specimen	cm ³	681.35	Bulk density	Mg/m ³	1.65
Particle density (assumed/measured)*	Mg/m ³	2.65	Dry density	Mg/m ³	-

* Delete whichever is inappropriate

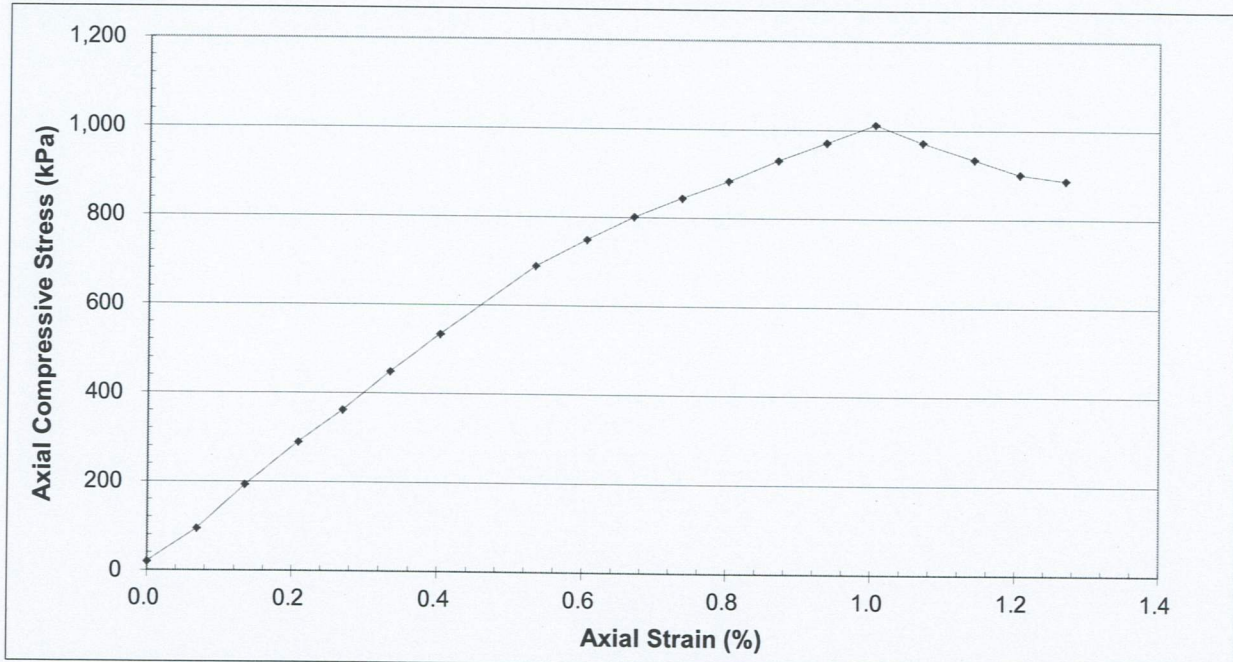
Visual Description: Light brownish grey sandy SILT/CLAY with Cement

Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

Compression Results

Maximum axial stress	1012	kPa	Sketch of failure conditions Inclination of shear surface	
Axial strain at failure	1.0	%		
Unconfined compressive strength, (q _u)	1012	kPa		

Graph



Remarks : Mixing Date : 23/5/2020

Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Certified by : HUI King Fai

Date : 27 May 2020

Date : 29 May 2020



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Report on Unconfined Compression Test - Compression Data

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200085

Job No.: SHK200027

Page: 2 of 2

Client#: Sang Hing - Kuly Joint Venture

Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: - Depth (m)#: -

Date of Test: 27/5/2020

Sample No.#: S3-SC074A Actual Depth (m): -
27/5/2020
LD002 S60

W.O. No.#: -

Sample Type#: PT75

Sample Origin#: Contaminated soil mixed with 7.5%
cement and 10% sand

Date Received: 27/5/2020

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_0)	mm	149.8
		Original area (A_0)	mm ²	4548.4

The compression was terminated at 1.3% of axial strain and the peak axial compressive stress is reached at 1.0%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in *italic*

<i>Axial Deformation Reading (mm)</i>	<i>Axial Strain ϵ (%)</i>	<i>Proving Ring Gauge Reading (mm)</i>	<i>Load Cell Reading (kN)</i>	<i>Axial Force P (N)</i>	<i>Cross- section Area A (mm²)</i>	<i>Axial Compressive Stress σ_1 (kPa)</i>
0.00	0.0	-	0.09	90	4548.4	19.79
0.10	0.1	-	0.43	430	4551.5	94.47
0.20	0.1	-	0.88	880	4554.5	193.21
0.31	0.2	-	1.32	1320	4557.9	289.61
0.40	0.3	-	1.65	1650	4560.7	361.79
0.50	0.3	-	2.05	2050	4563.7	449.20
0.60	0.4	-	2.44	2440	4566.8	534.29
0.80	0.5	-	3.15	3150	4572.8	688.85
0.91	0.6	-	3.43	3430	4576.1	749.55
1.00	0.7	-	3.67	3670	4579.1	801.47
1.10	0.7	-	3.87	3870	4582.2	844.58
1.20	0.8	-	4.05	4050	4585.2	883.28
1.30	0.9	-	4.27	4270	4588.3	930.62
1.40	0.9	-	4.46	4460	4591.4	971.37
1.51	1.0	-	4.65	4650	4594.6	1012.07
1.60	1.1	-	4.47	4470	4597.6	972.25
1.71	1.1	-	4.30	4300	4600.9	934.59
1.81	1.2	-	4.15	4150	4603.9	901.41
1.90	1.3	-	4.09	4090	4606.9	887.80

Report No. : SLST0200085

Job No. : SHK200027





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Report on Unconfined Compression Test - Summary of Soil Properties

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200092
Job No.: SHK200028
Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: - Depth (m)#: - Date of Test: 6/6/2020
Sample No.#: S3-SC074A 6/6/2020 Actual Depth (m): - W.O. No.#: -
LD002 S61
Sample Type#: PT75 Sample Origin#: Contaminated soil mixed with 7.5% cement and 10% sand Date Received: 5/6/2020

* Information provided by Client

Specimen Details

Diameter of specimen	mm	76.2	Wet mass of specimen	g	1116.7
Length of specimen	mm	149.7	Dry mass of specimen	g	-
Area of specimen	mm ²	4560.4	Moisture content	%	-
Volume of specimen	cm ³	682.69	Bulk density	Mg/m ³	1.64
Particle density (assumed/measured)*	Mg/m ³	2.65	Dry density	Mg/m ³	-

* Delete whichever is inappropriate

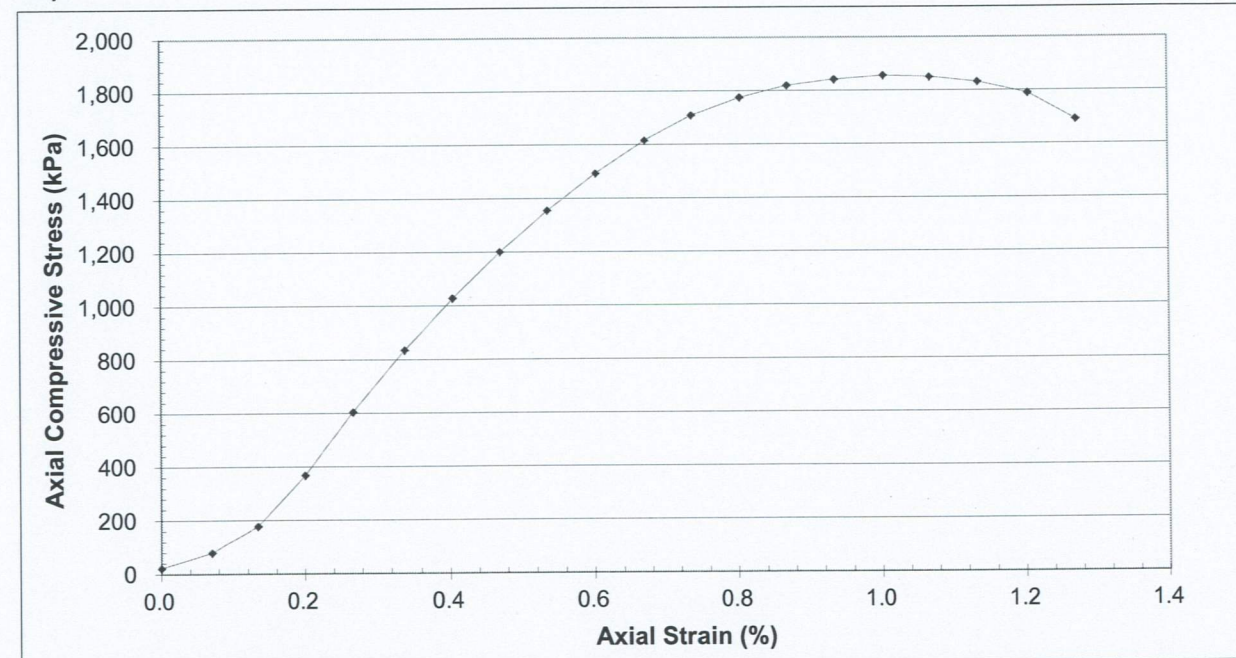
Visual Description: Light brownish grey sandy SILT/CLAY with Cement

Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

Compression Results

Maximum axial stress	1856	kPa	Sketch of failure conditions Inclination of shear surface	
Axial strain at failure	1.0	%		
Unconfined compressive strength, (q _u)	1856	kPa		

Graph



Remarks : Mixing Date : 25/5/2020

Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Certified by : HUI King Fai

Date : 6 June 2020

Date : 10 June 2020



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Report on Unconfined Compression Test - Compression Data

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200092

Job No.: SHK200028

Page: 2 of 2

Client#: Sang Hing - Kuly Joint Venture

Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: - Depth (m)#: -

Date of Test: 6/6/2020

Sample No.#: S3-SC074A Actual Depth (m): -
6/6/2020 LD002
S61

W.O. No.#: -

Sample Type#: PT75

Sample Origin#: Contaminated soil mixed with 7.5%
cement and 10% sand

Date Received: 5/6/2020

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_0)	mm	149.7
		Original area (A_0)	mm ²	4560.4

The compression was terminated at 1.3% of axial strain and the peak axial compressive stress is reached at 1.0%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in *Italic*

<i>Axial Deformation Reading (mm)</i>	<i>Axial Strain ϵ (%)</i>	<i>Proving Ring Gauge Reading (mm)</i>	<i>Load Cell Reading (kN)</i>	<i>Axial Force P (N)</i>	<i>Cross-section Area A (mm²)</i>	<i>Axial Compressive Stress σ_1 (kPa)</i>
0.00	0.0	-	0.10	100	4560.4	21.93
0.11	0.1	-	0.36	360	4563.6	78.89
0.20	0.1	-	0.81	810	4566.5	177.38
0.30	0.2	-	1.68	1680	4569.5	367.65
0.40	0.3	-	2.76	2760	4572.6	603.60
0.51	0.3	-	3.82	3820	4575.9	834.81
0.61	0.4	-	4.71	4710	4578.9	1028.64
0.70	0.5	-	5.50	5500	4581.9	1200.37
0.80	0.5	-	6.21	6210	4584.9	1354.44
0.90	0.6	-	6.85	6850	4588.0	1493.01
1.00	0.7	-	7.42	7420	4591.2	1616.15
1.10	0.7	-	7.85	7850	4594.2	1708.67
1.20	0.8	-	8.16	8160	4597.3	1774.94
1.30	0.9	-	8.37	8370	4600.4	1819.42
1.40	0.9	-	8.48	8480	4603.4	1842.10
1.50	1.0	-	8.55	8550	4606.6	1856.03
1.60	1.1	-	8.53	8530	4609.6	1850.47
1.70	1.1	-	8.45	8450	4612.7	1831.88
1.80	1.2	-	8.26	8260	4616.0	1789.43
1.90	1.3	-	7.81	7810	4619.1	1690.80

Report No. : SLST0200092

Job No. : SHK200028





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Report on Unconfined Compression Test - Summary of Soil Properties

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200092

Job No.: SHK200028

Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture

Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -

Depth (m)#: -

Date of Test: 6/6/2020

Sample No.#: S3-SC074A 6/6/2020
LD002 S62

Actual Depth (m): -

W.O. No.#: -

Sample Type#: PT75

Sample Origin#: Contaminated soil mixed with 7.5%
cement and 10% sand

Date Received: 5/6/2020

Information provided by Client

Specimen Details

Diameter of specimen	mm	76.5	Wet mass of specimen	g	1114.7
Length of specimen	mm	150.1	Dry mass of specimen	g	-
Area of specimen	mm ²	4596.3	Moisture content	%	-
Volume of specimen	cm ³	689.91	Bulk density	Mg/m ³	1.62
Particle density (assumed/measured)*	Mg/m ³	2.65	Dry density	Mg/m ³	-

* Delete whichever is inappropriate

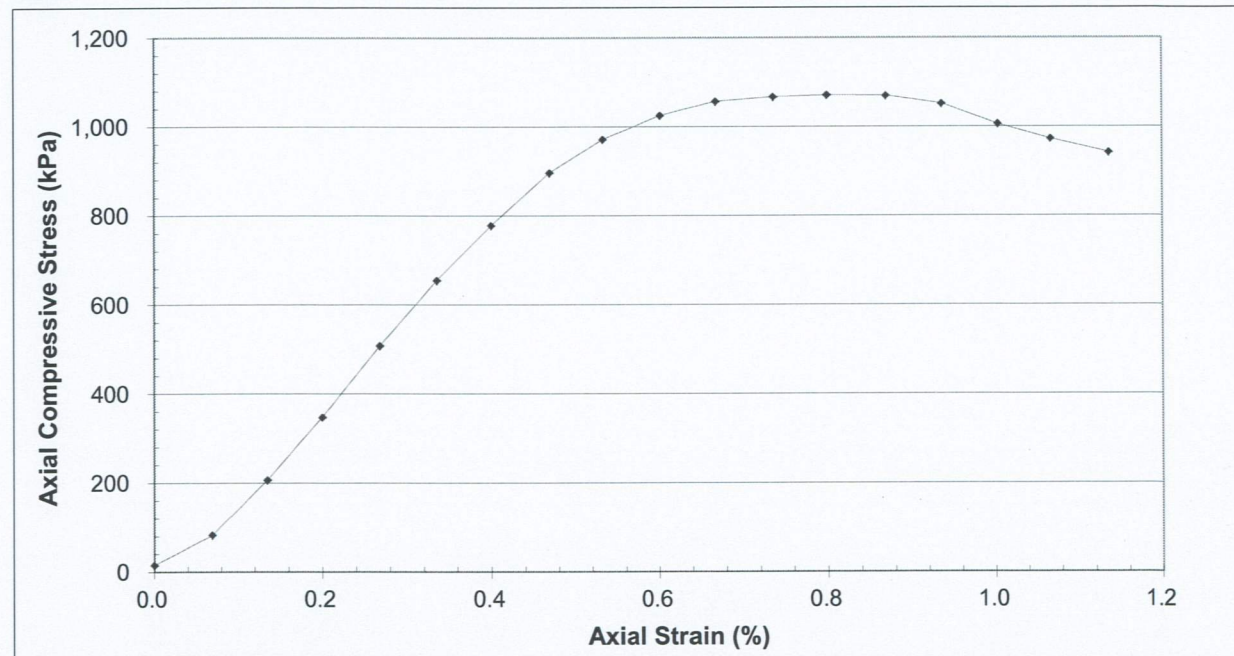
Visual Description: Light brownish grey sandy SILT/CLAY with Cement

Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

Compression Results

Maximum axial stress	1070	kPa	Sketch of failure conditions Inclination of shear surface	
Axial strain at failure	0.80	%		
Unconfined compressive strength, (q _u)	1070	kPa		

Graph



Remarks : Mixing Date : 25/5/2020

Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Certified by : HUI King Fai

Date : 6 June 2020

Date : 10 June 2020



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Report on Unconfined Compression Test - Compression Data

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200092

Job No.: SHK200028

Page: 2 of 2

Client#: Sang Hing - Kuly Joint Venture

Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: - Depth (m)#: -

Date of Test: 6/6/2020

Sample No.#: S3-SC074A Actual Depth (m): -
6/6/2020 LD002
S62

W.O. No.#: -

Sample Type#: PT75 Sample Origin#: Contaminated soil mixed with 7.5%
cement and 10% sand

Date Received: 5/6/2020

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_0)	mm	150.1
		Original area (A_0)	mm ²	4596.3

The compression was terminated at 1.1% of axial strain and the peak axial compressive stress is reached at 0.8%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in Italic

<i>Axial Deformation Reading (mm)</i>	<i>Axial Strain ϵ (%)</i>	<i>Proving Ring Gauge Reading (mm)</i>	<i>Load Cell Reading (kN)</i>	<i>Axial Force P (N)</i>	<i>Cross-section Area A (mm²)</i>	<i>Axial Compressive Stress σ_1 (kPa)</i>
0.00	0.0	-	0.07	70	4596.3	15.23
0.10	0.1	-	0.38	380	4599.5	82.62
0.20	0.1	-	0.95	950	4602.5	206.41
0.30	0.2	-	1.60	1600	4605.6	347.41
0.40	0.3	-	2.34	2340	4608.7	507.74
0.50	0.3	-	3.02	3020	4611.8	654.84
0.60	0.4	-	3.59	3590	4614.8	777.93
0.70	0.5	-	4.14	4140	4618.0	896.49
0.80	0.5	-	4.49	4490	4621.0	971.66
0.90	0.6	-	4.74	4740	4624.2	1025.05
1.00	0.7	-	4.89	4890	4627.2	1056.79
1.10	0.7	-	4.94	4940	4630.4	1066.86
1.20	0.8	-	4.96	4960	4633.4	1070.49
1.31	0.9	-	4.96	4960	4636.7	1069.74
1.40	0.9	-	4.88	4880	4639.7	1051.78
1.51	1.0	-	4.67	4670	4642.9	1005.83
1.60	1.1	-	4.52	4520	4645.9	972.90
1.71	1.1	-	4.38	4380	4649.2	942.11

Report No. : SLST0200092

Job No. : SHK200028





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Report on Unconfined Compression Test - Summary of Soil Properties

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200092

Job No.: SHK200028

Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: - Depth (m)#: - Date of Test: 6/6/2020
Sample No.#: S3-SC074A 6/6/2020 Actual Depth (m): - W.O. No.#: -
LD002 S63
Sample Type#: PT75 Sample Origin#: Contaminated soil mixed with 7.5% cement and 10% sand Date Received: 5/6/2020

Information provided by Client

Specimen Details

Diameter of specimen	mm	75.5	Wet mass of specimen	g	1122.9
Length of specimen	mm	150.0	Dry mass of specimen	g	-
Area of specimen	mm ²	4477.0	Moisture content	%	-
Volume of specimen	cm ³	671.54	Bulk density	Mg/m ³	1.67
Particle density (assumed/measured)*	Mg/m ³	2.65	Dry density	Mg/m ³	-

* Delete whichever is inappropriate

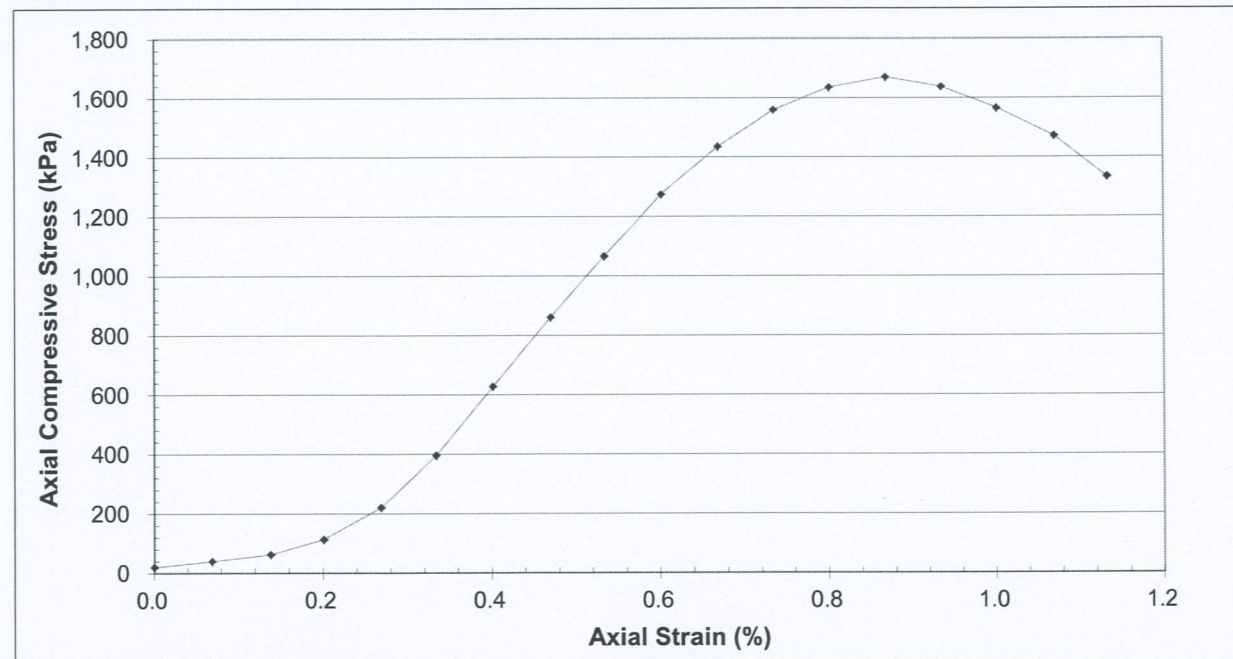
Visual Description: Light brownish grey sandy SILT/CLAY with Cement

Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

Compression Results

Maximum axial stress	1670	kPa	Sketch of failure conditions Inclination of shear surface	
Axial strain at failure	0.87	%		
Unconfined compressive strength, (q _u)	1670	kPa		

Graph



Remarks : Mixing Date : 26/5/2020

Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Certified by : HUI King Fai

Date : 6 June 2020

Date : 10 June 2020



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Report on Unconfined Compression Test - Compression Data

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200092

Job No.: SHK200028

Page: 2 of 2

Client#: Sang Hing - Kuly Joint Venture

Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: - Depth (m)#: -

Date of Test: 6/6/2020

Sample No.#: S3-SC074A Actual Depth (m): -

W.O. No.#: -

6/6/2020 LD002
S63

Sample Type#: PT75

Sample Origin#: Contaminated soil mixed with 7.5%
cement and 10% sand

Date Received: 5/6/2020

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_0)	mm	150.0
		Original area (A_0)	mm ²	4477.0

The compression was terminated at 1.1% of axial strain and the peak axial compressive stress is reached at 0.9%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in *Italic*

<i>Axial Deformation Reading (mm)</i>	<i>Axial Strain ϵ (%)</i>	<i>Proving Ring Gauge Reading (mm)</i>	<i>Load Cell Reading (kN)</i>	<i>Axial Force P (N)</i>	<i>Cross- section Area A (mm²)</i>	<i>Axial Compressive Stress σ_1 (kPa)</i>
0.00	0.0	-	0.09	90	4477.0	20.10
0.10	0.1	-	0.18	180	4480.0	40.18
0.21	0.1	-	0.28	280	4483.2	62.46
0.30	0.2	-	0.51	510	4486.0	113.69
0.40	0.3	-	0.99	990	4489.0	220.54
0.50	0.3	-	1.78	1780	4492.0	396.26
0.60	0.4	-	2.82	2820	4495.0	627.36
0.71	0.5	-	3.87	3870	4498.1	860.36
0.80	0.5	-	4.80	4800	4501.0	1066.43
0.90	0.6	-	5.74	5740	4504.1	1274.40
1.00	0.7	-	6.47	6470	4507.1	1435.51
1.10	0.7	-	7.03	7030	4510.1	1558.72
1.20	0.8	-	7.38	7380	4513.1	1635.23
1.30	0.9	-	7.54	7540	4516.2	1669.55
1.40	0.9	-	7.40	7400	4519.2	1637.44
1.50	1.0	-	7.08	7080	4522.3	1565.58
1.61	1.1	-	6.66	6660	4525.4	1471.69
1.70	1.1	-	6.04	6040	4528.3	1333.84

Report No. : SLST0200092

Job No. : SHK200028





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Report on Unconfined Compression Test - Summary of Soil Properties

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200092

Job No.: SHK200028

Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture

Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -

Depth (m)#: -

Date of Test: 8/6/2020

Sample No.#: S3-SC074A 6/6/2020

Actual Depth (m): -

W.O. No.#: -

LD002 S64

Sample Type#: PT75

Sample Origin#: Contaminated soil mixed with 7.5%
cement and 10% sand

Date Received: 5/6/2020

Information provided by Client

Specimen Details

Diameter of specimen	mm	76.2	Wet mass of specimen	g	1080.9
Length of specimen	mm	149.6	Dry mass of specimen	g	-
Area of specimen	mm ²	4560.4	Moisture content	%	-
Volume of specimen	cm ³	682.23	Bulk density	Mg/m ³	1.58
Particle density (assumed/measured)*	Mg/m ³	2.65	Dry density	Mg/m ³	-

* Delete whichever is inappropriate

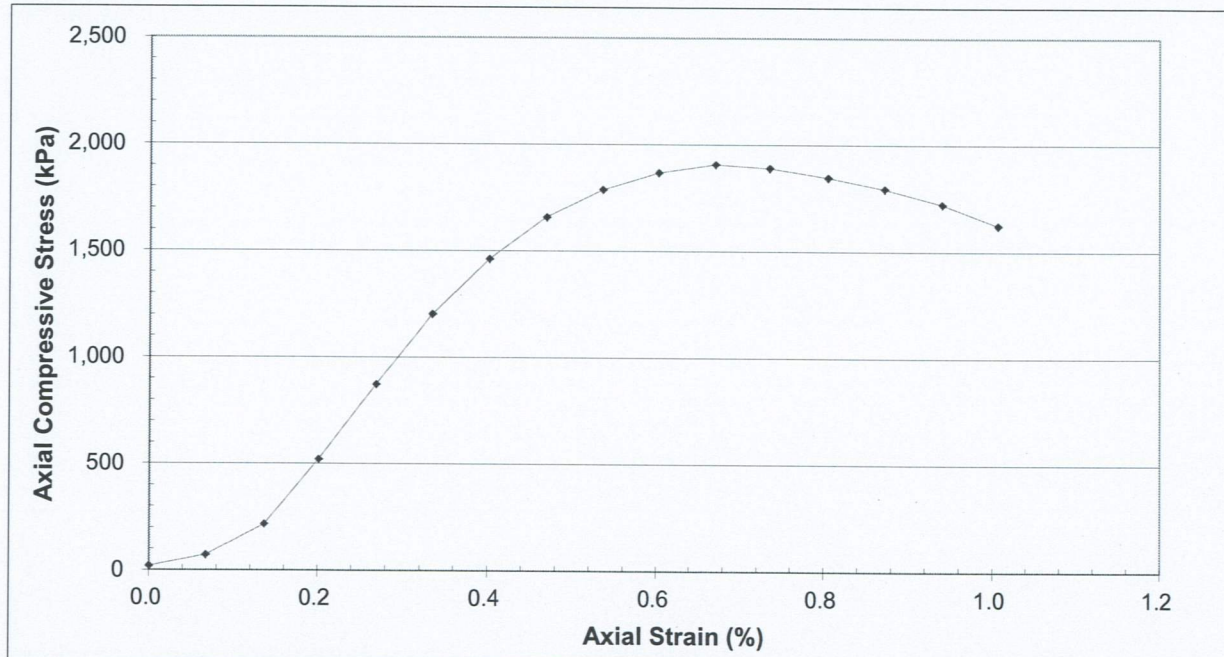
Visual Description: Greyish brown sandy SILT/CLAY with Cement

Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

Compression Results

Maximum axial stress	1908	kPa	Sketch of failure conditions Inclination of shear surface	
Axial strain at failure	0.67	%		
Unconfined compressive strength, (q _u)	1908	kPa		

Graph



Remarks : Mixing Date : 3/6/2020

Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Certified by : HUI King Fai

Date : 8 June 2020

Date : 10 June 2020



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Report on Unconfined Compression Test - Compression Data

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200092

Job No.: SHK200028

Page: 2 of 2

Client#: Sang Hing - Kuly Joint Venture

Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: - Depth (m)#: -

Date of Test: 8/6/2020

Sample No.#: S3-SC074A Actual Depth (m): -
6/6/2020 LD002
S64

W.O. No.#: -

Sample Type#: PT75

Sample Origin#: Contaminated soil mixed with 7.5%
cement and 10% sand

Date Received: 5/6/2020

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_0)	mm	149.6
		Original area (A_0)	mm ²	4560.4

The compression was terminated at 1% of axial strain and the peak axial compressive stress is reached at 0.7%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in Italic

<i>Axial Deformation Reading (mm)</i>	<i>Axial Strain ϵ (%)</i>	<i>Proving Ring Gauge Reading (mm)</i>	<i>Load Cell Reading (kN)</i>	<i>Axial Force P (N)</i>	<i>Cross- section Area A (mm²)</i>	<i>Axial Compressive Stress σ_1 (kPa)</i>
0.00	0.0	-	0.09	90	4560.4	19.74
0.10	0.1	-	0.33	330	4563.4	72.31
0.20	0.1	-	0.99	990	4566.6	216.79
0.30	0.2	-	2.38	2380	4569.6	520.84
0.40	0.3	-	3.99	3990	4572.7	872.58
0.50	0.3	-	5.50	5500	4575.7	1202.00
0.60	0.4	-	6.69	6690	4578.8	1461.09
0.70	0.5	-	7.60	7600	4581.9	1658.71
0.80	0.5	-	8.20	8200	4584.9	1788.46
0.90	0.6	-	8.57	8570	4588.0	1867.90
1.00	0.7	-	8.76	8760	4591.1	1908.02
1.10	0.7	-	8.69	8690	4594.1	1891.54
1.20	0.8	-	8.49	8490	4597.4	1846.71
1.30	0.9	-	8.26	8260	4600.5	1795.47
1.41	0.9	-	7.93	7930	4603.7	1722.54
1.51	1.0	-	7.48	7480	4606.7	1623.71

Report No. : SLST0200092

Job No. : SHK200028





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Report on Unconfined Compression Test - Summary of Soil Properties

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200095

Job No.: SHK200029

Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: - Depth (m)#: - Date of Test: 12/6/2020
Sample No.#: S3-SC074A 11/6/2020 Actual Depth (m): - W.O. No.#: -
LD002 S65
Sample Type#: PT75 Sample Origin#: Contaminated soil mixed with 7.5% cement and 10% sand Date Received: 11/6/2020

Information provided by Client

Specimen Details

Diameter of specimen	mm	76.0	Wet mass of specimen	g	1189.9
Length of specimen	mm	150.1	Dry mass of specimen	g	-
Area of specimen	mm ²	4536.5	Moisture content	%	-
Volume of specimen	cm ³	680.92	Bulk density	Mg/m ³	1.75
Particle density (assumed/measured)*	Mg/m ³	2.65	Dry density	Mg/m ³	-

* Delete whichever is inappropriate

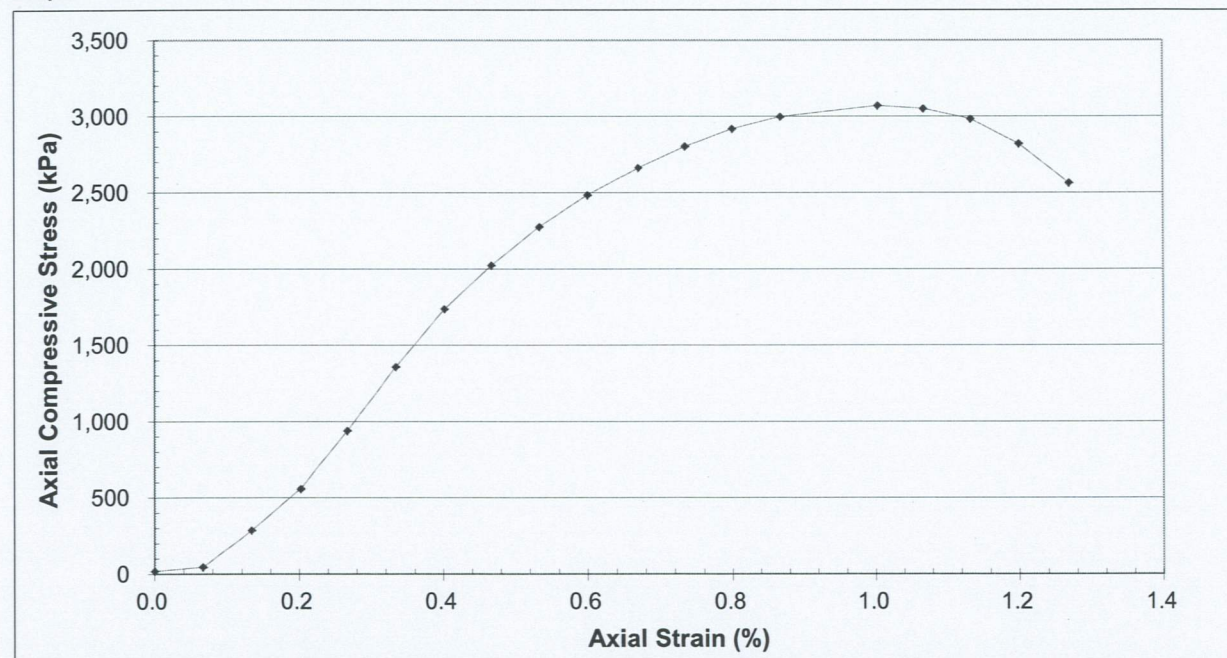
Visual Description: Light greenish grey sandy SILT/CLAY with Cement

Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

Compression Results

Maximum axial stress	3070	kPa	Sketch of failure conditions Inclination of shear surface	
Axial strain at failure	1.0	%		
Unconfined compressive strength, (q _u)	3070	kPa		

Graph



Remarks : Mixing Date : 4/6/2020

Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Certified by : HUI King Fai

Date : 12 June 2020

Date : 15 June 2020



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Report on Unconfined Compression Test - Compression Data

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200095

Job No.: SHK200029

Page: 2 of 2

Client#: Sang Hing - Kuly Joint Venture

Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: - Depth (m)#: -

Date of Test: 12/6/2020

Sample No.#: S3-SC074A Actual Depth (m): -
11/6/2020
LD002 S65

W.O. No.#: -

Sample Type#: PT75

Sample Origin#: Contaminated soil mixed with 7.5%
cement and 10% sand

Date Received: 11/6/2020

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_0)	mm	150.1
		Original area (A_0)	mm ²	4536.5

The compression was terminated at 1.3% of axial strain and the peak axial compressive stress is reached at 1.0%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in *italic*

<i>Axial Deformation Reading (mm)</i>	<i>Axial Strain ϵ (%)</i>	<i>Proving Ring Gauge Reading (mm)</i>	<i>Load Cell Reading (kN)</i>	<i>Axial Force P (N)</i>	<i>Cross- section Area A (mm²)</i>	<i>Axial Compressive Stress σ_1 (kPa)</i>
0.00	0.0	-	0.08	80	4536.5	17.63
0.10	0.1	-	0.21	210	4539.5	46.26
0.20	0.1	-	1.30	1300	4542.5	286.18
0.30	0.2	-	2.54	2540	4545.6	558.78
0.40	0.3	-	4.27	4270	4548.6	938.75
0.50	0.3	-	6.18	6180	4551.7	1357.75
0.60	0.4	-	7.91	7910	4554.8	1736.65
0.70	0.5	-	9.22	9220	4557.7	2022.93
0.80	0.5	-	10.38	10380	4560.8	2275.92
0.90	0.6	-	11.34	11340	4563.9	2484.74
1.01	0.7	-	12.16	12160	4567.1	2662.54
1.10	0.7	-	12.81	12810	4570.0	2803.04
1.20	0.8	-	13.35	13350	4573.1	2919.28
1.30	0.9	-	13.72	13720	4576.2	2998.15
1.51	1.0	-	14.07	14070	4582.4	3070.42
1.60	1.1	-	13.99	13990	4585.4	3050.99
1.70	1.1	-	13.69	13690	4588.5	2983.57
1.80	1.2	-	12.95	12950	4591.6	2820.40
1.91	1.3	-	11.78	11780	4594.8	2563.78

Report No. : SLST0200095

Job No. : SHK200029





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Report on Unconfined Compression Test - Summary of Soil Properties

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200095

Job No.: SHK200029

Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: - Depth (m)#: - Date of Test: 12/6/2020
Sample No.#: S3-SC074A 11/6/2020 Actual Depth (m): - W.O. No.#: -
LD002 S66
Sample Type#: PT75 Sample Origin#: Contaminated soil mixed with 7.5% cement and 10% sand Date Received: 11/6/2020

Information provided by Client

Specimen Details


Diameter of specimen	mm	76.1	Wet mass of specimen	g	1172.6
Length of specimen	mm	149.7	Dry mass of specimen	g	-
Area of specimen	mm ²	4548.4	Moisture content	%	-
Volume of specimen	cm ³	680.90	Bulk density	Mg/m ³	1.72
Particle density (assumed/measured)*	Mg/m ³	2.65	Dry density	Mg/m ³	-

* Delete whichever is inappropriate

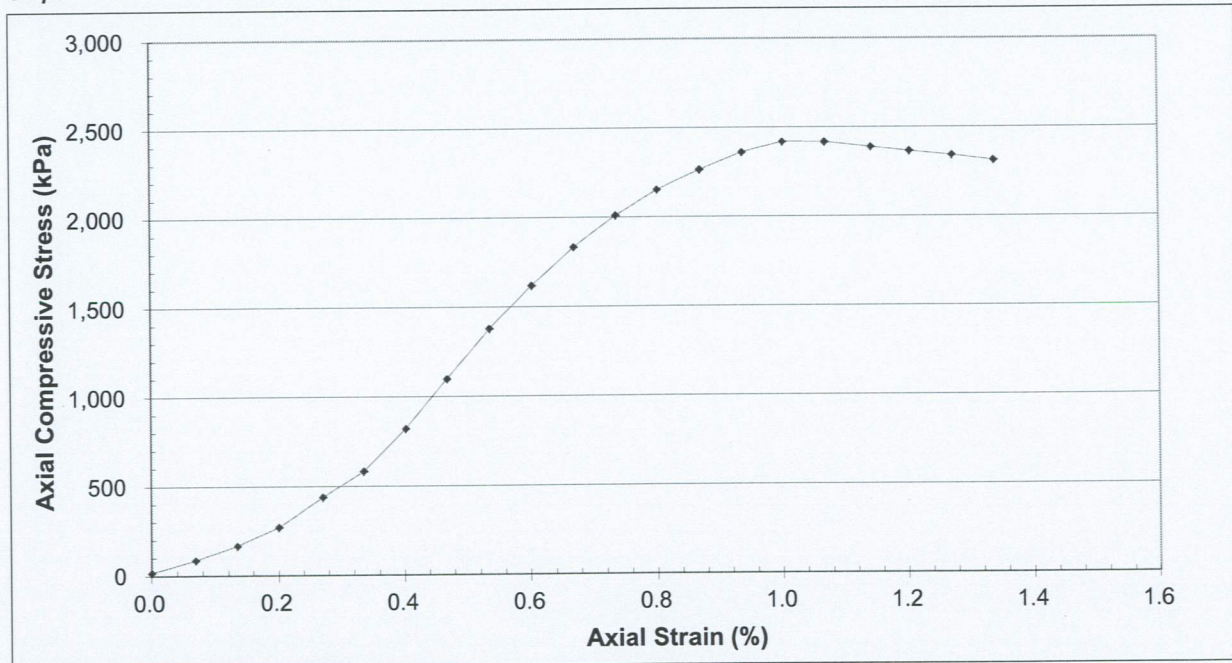
Visual Description: Light greenish grey sandy SILT/CLAY with Cement

Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

Compression Results

Maximum axial stress	2418	kPa	Sketch of failure conditions Inclination of shear surface	
Axial strain at failure	1.0	%		
Unconfined compressive strength, (q _u)	2418	kPa		

Graph



Remarks : Mixing Date : 5/6/2020

Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Certified by : HUI King Fai

Date : 12 June 2020

Date : 15 June 2020



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Report on Unconfined Compression Test - Compression Data

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200095

Job No.: SHK200029

Page: 2 of 2

Client#: Sang Hing - Kuly Joint Venture

Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No. #: - Depth (m) #: -

Date of Test: 12/6/2020

Sample No. #: S3-SC074A Actual Depth (m): -

W.O. No. #: -

11/6/2020
LD002 S66

Sample Type#: PT75

Sample Origin#: Contaminated soil mixed with 7.5%
cement and 10% sand

Date Received: 11/6/2020

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L ₀)	mm	149.7
		Original area (A ₀)	mm ²	4548.4

The compression was terminated at 1.3% of axial strain and the peak axial compressive stress is reached at 1.0%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in *Italic*

<i>Axial Deformation Reading (mm)</i>	<i>Axial Strain ε (%)</i>	<i>Proving Ring Gauge Reading (mm)</i>	<i>Load Cell Reading (kN)</i>	<i>Axial Force P (N)</i>	<i>Cross- section Area A (mm²)</i>	<i>Axial Compressive Stress σ₁ (kPa)</i>
0.00	0.0	-	0.08	80	4548.4	17.59
0.10	0.1	-	0.39	390	4551.5	85.69
0.20	0.1	-	0.76	760	4554.5	166.87
0.30	0.2	-	1.23	1230	4557.5	269.88
0.41	0.3	-	2.00	2000	4560.7	438.52
0.50	0.3	-	2.66	2660	4563.7	582.86
0.60	0.4	-	3.75	3750	4566.8	821.15
0.70	0.5	-	5.02	5020	4569.8	1098.52
0.80	0.5	-	6.30	6300	4572.9	1377.68
0.90	0.6	-	7.41	7410	4576.0	1619.32
1.00	0.7	-	8.39	8390	4579.1	1832.24
1.10	0.7	-	9.21	9210	4582.1	2009.98
1.20	0.8	-	9.87	9870	4585.2	2152.58
1.30	0.9	-	10.39	10390	4588.3	2264.46
1.40	0.9	-	10.84	10840	4591.4	2360.92
1.50	1.0	-	11.11	11110	4594.5	2418.12
1.60	1.1	-	11.11	11110	4597.6	2416.49
1.71	1.1	-	10.99	10990	4601.0	2388.61
1.80	1.2	-	10.89	10890	4603.9	2365.41
1.91	1.3	-	10.79	10790	4607.0	2342.07
2.00	1.3	-	10.66	10660	4610.1	2312.30

Report No. : SLST0200095

Job No. : SHK200029





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Report on Unconfined Compression Test - Summary of Soil Properties

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200103

Job No.: SHK200031

Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: - Depth (m)#: - Date of Test: 23/6/2020
Sample No.#: S3-SC074A 20/6/2020 Actual Depth (m): - W.O. No.#: -
LD002 Area 6(1)
Sample Type#: PT75 Sample Origin#: Contaminated soil mixed with 7.5% cement and 10% sand Date Received: 20/6/2020

Information provided by Client

Specimen Details


Diameter of specimen	mm	75.3	Wet mass of specimen	g	1129.8
Length of specimen	mm	150.7	Dry mass of specimen	g	-
Area of specimen	mm ²	4453.3	Moisture content	%	-
Volume of specimen	cm ³	671.11	Bulk density	Mg/m ³	1.68
Particle density (assumed/measured)*	Mg/m ³	2.65	Dry density	Mg/m ³	-

* Delete whichever is inappropriate

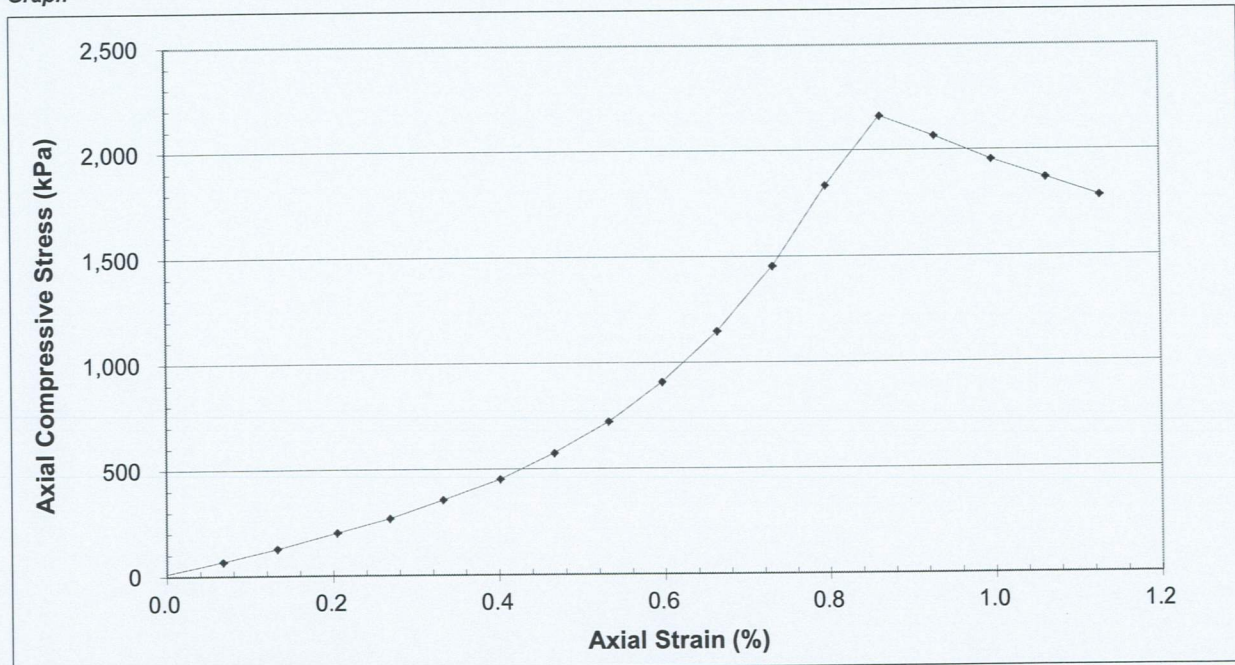
Visual Description: Light brownish grey sandy SILT/CLAY with Cement

Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

Compression Results

Maximum axial stress	2162	kPa	Sketch of failure conditions Inclination of shear surface	
Axial strain at failure	0.86	%		
Unconfined compressive strength, (q _u)	2162	kPa		

Graph



Remarks : Mixing Date : 19/6/2020

Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Certified by : HUI King Fai

Date : 23 June 2020

Date : 24 June 2020



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Report on Unconfined Compression Test - Compression Data

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200103

Job No.: SHK200031

Page: 2 of 2

Client#: Sang Hing - Kuly Joint Venture

Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: - Depth (m)#: -

Date of Test: 23/6/2020

Sample No.#: S3-SC074A Actual Depth (m): -

W.O. No.#: -

20/6/2020
LD002 Area 6(1)

Sample Type#: PT75

Sample Origin#: Contaminated soil mixed with 7.5%
cement and 10% sand

Date Received: 20/6/2020

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_0)	mm	150.7
		Original area (A_0)	mm ²	4453.3

The compression was terminated at 1.1% of axial strain and the peak axial compressive stress is reached at 0.9%.

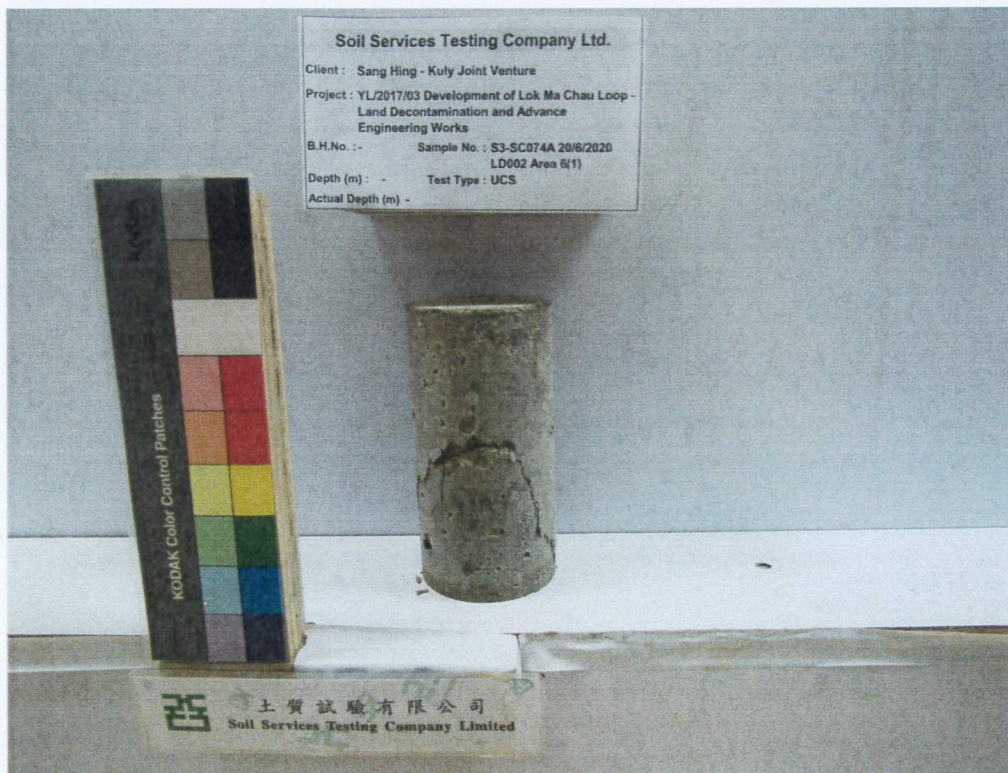
Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in Italic

<i>Axial Deformation Reading (mm)</i>	<i>Axial Strain ϵ (%)</i>	<i>Proving Ring Gauge Reading (mm)</i>	<i>Load Cell Reading (kN)</i>	<i>Axial Force P (N)</i>	<i>Cross-section Area A (mm²)</i>	<i>Axial Compressive Stress σ_1 (kPa)</i>
0.00	0.0	-	0.05	50	4453.2	11.23
0.10	0.1	-	0.30	300	4456.3	67.32
0.20	0.1	-	0.57	570	4459.2	127.83
0.31	0.2	-	0.90	900	4462.4	201.69
0.40	0.3	-	1.20	1200	4465.2	268.74
0.50	0.3	-	1.59	1590	4468.1	355.85
0.61	0.4	-	2.02	2020	4471.2	451.78
0.70	0.5	-	2.57	2570	4474.1	574.41
0.80	0.5	-	3.23	3230	4477.1	721.45
0.90	0.6	-	4.07	4070	4480.0	908.48
1.00	0.7	-	5.14	5140	4483.0	1146.55
1.10	0.7	-	6.52	6520	4486.1	1453.39
1.20	0.8	-	8.23	8230	4489.0	1833.36
1.30	0.9	-	9.71	9710	4492.0	2161.61
1.40	0.9	-	9.29	9290	4495.0	2066.74
1.50	1.0	-	8.79	8790	4498.1	1954.14
1.60	1.1	-	8.41	8410	4501.1	1868.42
1.70	1.1	-	8.03	8030	4504.1	1782.83

Report No. : SLST0200103

Job No. : SHK200031





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Report on Unconfined Compression Test - Summary of Soil Properties

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200103

Job No.: SHK200031

Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: - Depth (m)#: - Date of Test: 23/6/2020
Sample No.#: S3-SC074A 20/6/2020 Actual Depth (m): - W.O. No.#: -
LD002 Area 6(2)
Sample Type#: PT75 Sample Origin#: Contaminated soil mixed with 7.5% cement and 10% sand Date Received: 20/6/2020

Information provided by Client

Specimen Details

Diameter of specimen	mm	75.9	Wet mass of specimen	g	1095.5
Length of specimen	mm	146.8	Dry mass of specimen	g	-
Area of specimen	mm ²	4524.5	Moisture content	%	-
Volume of specimen	cm ³	664.20	Bulk density	Mg/m ³	1.65
Particle density (assumed/measured)*	Mg/m ³	2.65	Dry density	Mg/m ³	-

* Delete whichever is inappropriate

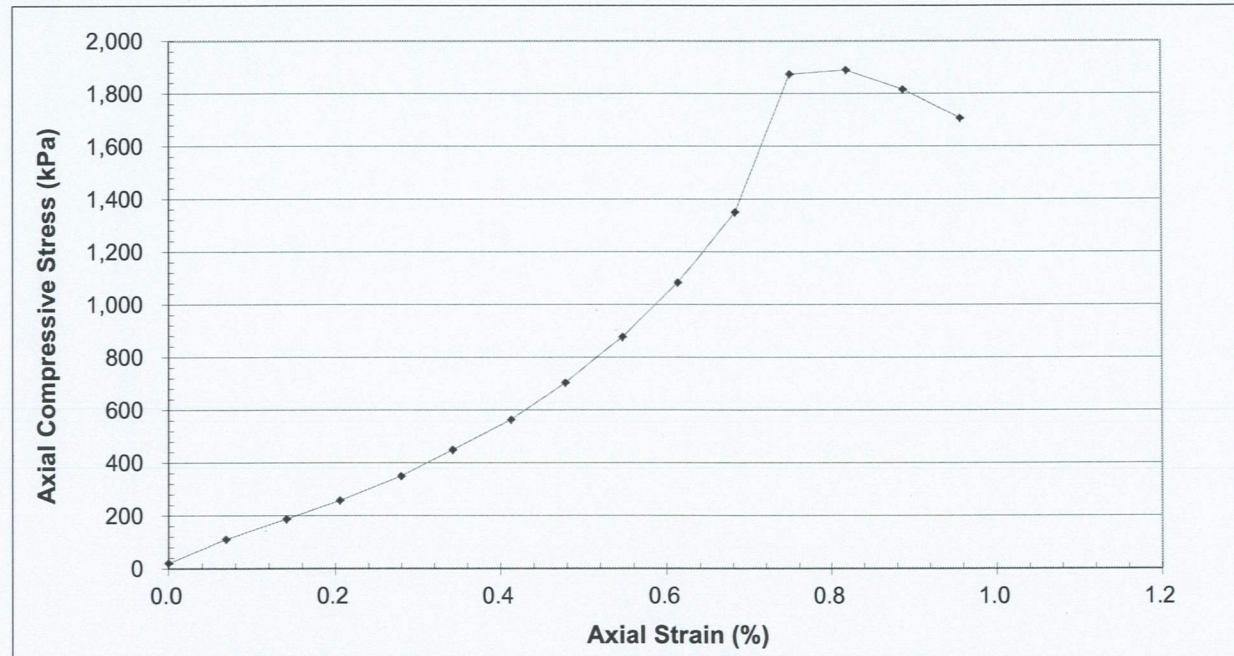
Visual Description: Light brownish grey sandy SILT/CLAY with Cement

Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

Compression Results

Maximum axial stress	1890	kPa	Sketch of failure conditions Inclination of shear surface	
Axial strain at failure	0.82	%		
Unconfined compressive strength, (q _u)	1890	kPa		

Graph



Remarks : Mixing Date : 19/6/2020

Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Certified by : HUI King Fai

Date : 23 June 2020

Date : 24 June 2020



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Report on Unconfined Compression Test - Compression Data

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200103

Job No.: SHK200031

Page: 2 of 2

Client#: Sang Hing - Kuly Joint Venture

Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: - Depth (m)#: -

Date of Test: 23/6/2020

Sample No.#: S3-SC074A Actual Depth (m): -

W.O. No.#: -

20/6/2020
LD002 Area 6(2)

Sample Type#: PT75

Sample Origin#: Contaminated soil mixed with 7.5%
cement and 10% sand

Date Received: 20/6/2020

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_0)	mm	146.8
		Original area (A_0)	mm ²	4524.5

The compression was terminated at 1% of axial strain and the peak axial compressive stress is reached at 0.8%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in Italic

<i>Axial Deformation Reading (mm)</i>	<i>Axial Strain ϵ (%)</i>	<i>Proving Ring Gauge Reading (mm)</i>	<i>Load Cell Reading (kN)</i>	<i>Axial Force P (N)</i>	<i>Cross- section Area A (mm²)</i>	<i>Axial Compressive Stress σ_1 (kPa)</i>
0.00	0.0	-	0.09	90	4524.5	19.89
0.10	0.1	-	0.50	500	4527.6	110.43
0.21	0.1	-	0.85	850	4530.9	187.60
0.30	0.2	-	1.17	1170	4533.9	258.06
0.41	0.3	-	1.59	1590	4537.2	350.44
0.50	0.3	-	2.04	2040	4540.1	449.33
0.61	0.4	-	2.56	2560	4543.3	563.47
0.70	0.5	-	3.20	3200	4546.3	703.87
0.80	0.5	-	3.99	3990	4549.4	877.04
0.90	0.6	-	4.93	4930	4552.5	1082.93
1.00	0.7	-	6.15	6150	4555.6	1349.98
1.10	0.7	-	8.54	8540	4558.7	1873.35
1.20	0.8	-	8.62	8620	4561.9	1889.57
1.30	0.9	-	8.29	8290	4565.0	1815.97
1.41	1.0	-	7.80	7800	4568.3	1707.44

Report No. : SLST0200103

Job No. : SHK200031





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Report on Unconfined Compression Test - Summary of Soil Properties

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200104

Job No.: SHK200032

Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: - Depth (m)#: - Date of Test: 26/6/2020
Sample No.#: S3-SC074A 24/6/2020 Actual Depth (m): - W.O. No.#: -
LD002 Area 6(3)
Sample Type#: PT75 Sample Origin#: Contaminated soil mixed with 7.5% cement and 10% sand Date Received: 24/6/2020

Information provided by Client

Specimen Details


Diameter of specimen	mm	75.9	Wet mass of specimen	g	1079.3
Length of specimen	mm	149.8	Dry mass of specimen	g	-
Area of specimen	mm ²	4524.5	Moisture content	%	-
Volume of specimen	cm ³	677.77	Bulk density	Mg/m ³	1.59
Particle density (assumed/measured)*	Mg/m ³	2.65	Dry density	Mg/m ³	-

* Delete whichever is inappropriate

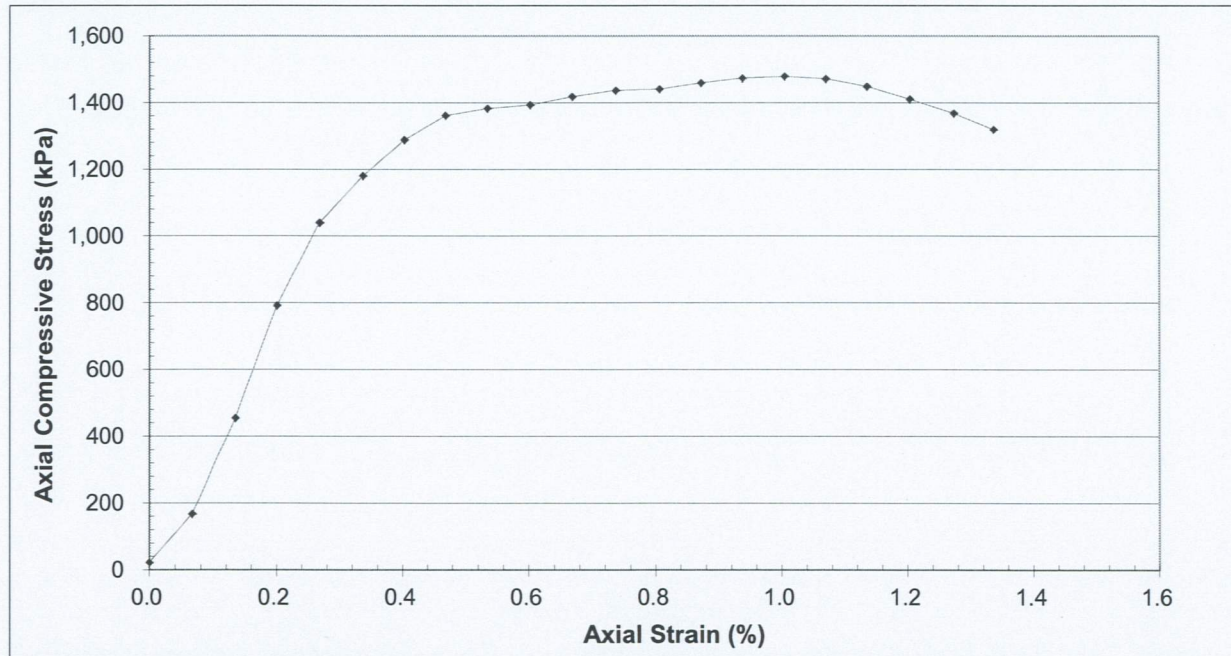
Visual Description: Light brownish grey sandy SILT/CLAY with Cement

Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

Compression Results

Maximum axial stress	1479	kPa	Sketch of failure conditions Inclination of shear surface	
Axial strain at failure	1.0	%		
Unconfined compressive strength, (q _u)	1479	kPa		

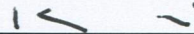
Graph



Remarks : Mixing Date : 22/6/2020

Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Certified by : 
HUI King Fai

Date : 26 June 2020

Date : 29 June 2020



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Report on Unconfined Compression Test - Compression Data

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200104

Job No.: SHK200032

Page: 2 of 2

Client#: Sang Hing - Kuly Joint Venture

Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: - Depth (m)#: -

Date of Test: 26/6/2020

Sample No.#: S3-SC074A Actual Depth (m): -

W.O. No.#: -

24/6/2020
LD002 Area 6(3)

Sample Type#: PT75

Sample Origin#: Contaminated soil mixed with 7.5%
cement and 10% sand

Date Received: 24/6/2020

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_0)	mm	149.8
		Original area (A_0)	mm ²	4524.5

The compression was terminated at 1.3% of axial strain and the peak axial compressive stress is reached at 1.0%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in Italic

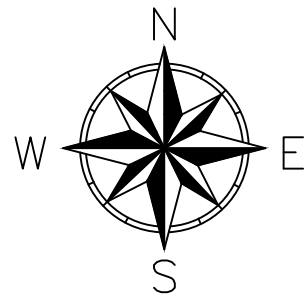
<i>Axial Deformation Reading (mm)</i>	<i>Axial Strain ϵ (%)</i>	<i>Proving Ring Gauge Reading (mm)</i>	<i>Load Cell Reading (kN)</i>	<i>Axial Force P (N)</i>	<i>Cross- section Area A (mm²)</i>	<i>Axial Compressive Stress σ_1 (kPa)</i>
0.00	0.0	-	0.10	100	4524.5	22.10
0.10	0.1	-	0.76	760	4527.6	167.86
0.20	0.1	-	2.06	2060	4530.6	454.69
0.30	0.2	-	3.59	3590	4533.6	791.86
0.40	0.3	-	4.72	4720	4536.7	1040.40
0.50	0.3	-	5.36	5360	4539.8	1180.67
0.60	0.4	-	5.85	5850	4542.8	1287.75
0.70	0.5	-	6.19	6190	4545.8	1361.69
0.80	0.5	-	6.29	6290	4548.9	1382.77
0.90	0.6	-	6.34	6340	4551.9	1392.81
1.00	0.7	-	6.46	6460	4555.0	1418.23
1.10	0.7	-	6.55	6550	4558.1	1437.00
1.21	0.8	-	6.57	6570	4561.3	1440.37
1.31	0.9	-	6.66	6660	4564.3	1459.14
1.41	0.9	-	6.73	6730	4567.4	1473.50
1.51	1.0	-	6.76	6760	4570.4	1479.07
1.60	1.1	-	6.73	6730	4573.5	1471.52
1.70	1.1	-	6.63	6630	4576.5	1448.71
1.80	1.2	-	6.46	6460	4579.7	1410.59
1.91	1.3	-	6.27	6270	4582.9	1368.13
2.00	1.3	-	6.05	6050	4585.8	1319.28

Report No. : SLST0200104

Job No. : SHK200032



Appendix E **TREATED SOIL TEMPORARY AND PERMANENT
LOCATION PLAN**



SHENZHEN SHI

SHENZHEN SHI

SHAM CHUN RIVER (SHENZHEN HE)

SHAM CHUN RIVER (SHENZHEN HE)

SHAM CHUN RIVER (SHENZHEN HE)

SHAM CHUN RIVER (SHENZHEN HE)

SHAM CHUN RIVER (SHENZHEN HE)

LD-005

LD-004

LD-003

LD-001

LD-002

ECOLOGICAL ZONE

LEGEND:

- 6445.82 m³ TREATED SOIL (WILL BE BACKFILLED IN AUGUST 2020)
- TEMPORARY STORAGE AREA
- LAND DECONTAMINATION AREA
- AS-BUILT GREEN FENCE ALIGNMENT



DRG. TITLE
圖紙標題
STORAGE LOCATION PLAN FOR LD-002 TREATED SOIL

DRG. NO.
圖紙編號 **SKJV/AP/STO/LD002**

CONTRACT NO. 合約編號 YL/2017/03	DATE OF ISSUE 發出日期 20/7/2020
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CHECKED BY 覆核 ALEX PO	DRAWN BY 繪圖 LEO CHUNG
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SCALE 比例 1:5000@A3	SURVEY DATE 測量日期
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DIMENSIONS ARE IN 單位尺寸 METRES	PAPER SIZE 圖紙尺寸 A3	REVISION 版本 00
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Appendix F **PHOTOGRAPHICAL RECORD**

Photographical Record



Photo 1

Mixing area of contaminated soil



Photo 2

Soil sample collected at LD-002



Photo 3

Confirmatory sampling at LD-002



Photo 4

Condition of temporary backfilled treated soil

local people
global experience

SMEC is recognised for providing technical excellence and consultancy expertise in urban, infrastructure and management advisory. From concept to completion, our core service offering covers the life-cycle of a project and maximises value to our clients and communities. We align global expertise with local knowledge and state-of-the-art processes and systems to deliver innovative solutions to a range of industry sectors.