

AECOM

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Your Ref : (17) in EP2/N7/A/52Ax(1) Pt.10
 Our Ref : (CV/2012/08)/M45/010/(F00759)

20 June 2014

By Hand

Environmental Impact Assessment Ordinance Register Office
 Environmental Protection Department
 27/F, Southorn Centre,
 130 Hennessy Road,
 Wanchai, Hong Kong

Attn.: Mr. Charles Pang

Dear Sirs,

Agreement No. CE38/2010(CE)
Liantang / Heung Yuen Wai Boundary Control Point and Associated Works
(Site Formation and Infrastructures) – Design and Construction

Environmental Permit No. EP-404/2011/A
Condition 2.12 – Submission of Updated Topsoil Management Plan

Topsoil Management Plan (Rev.01) submitted on 16 October 2013 and 5 November 2013 for the Project titled "Liantang / Heung Yuen Wai Boundary Control Point and Associated Works under the captioned Environmental Permit was approved according to your above reference letter dated 29 November 2013.

I would like to submit three hard copies of Updated Topsoil Management Plan with sampling and testing results for Contract 2 of the Project titled "Liantang / Heung Yuen Wai Boundary Control Point and Associated Works", which had been certified by the ET Leader and verified by the IEC, for your reference.

Should you have any queries, please contact the undersigned or our Mr. Perry Yam at 2659 8810.

Yours faithfully,



C. T. Wong
 Chief Resident Engineer
 AECOM Asia Co. Ltd.

Encl.

c.c.	CEDD/BCP	- Attn: Mr. B. K. Chow	- 1 hard copy
	AECOM	- Attn: Mr. Francis Leong / Ms. Cherry Yau	- 1 CD copy
	SMEC(IEC)	- Attn: Mr. Antony Wong	- 1 CD copy
	AUES(ET)	- Attn: Mr. T. W. Tam	- 1 CD copy
	DHK	- Attn: Mr. Raymond Cheng	- w/o encl

CTW/GL/GW/PX/LQR/ptk

18 June 2014

Our ref: 7076192/L16220/Ry/AB/AW/rw
Your ref:

AECOM
8/F, Grand Central Plaza, Tower 2
138 Shatin Rural Committee Road
Shatin
N.T.

By Email & Post

Attention: Mr Gregory LO

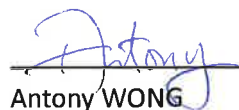
Dear Sirs

Agreement No. CE 45/2008 (CE)
Liantang/Heung Yuen Wai Boundary Control Point and Associated Works
Independent Environmental Checker – Investigation
Updated Topsoil Management Plan (June 2014)

Reference is made to the Updated Topsoil Management Plan dated June 2014 received by email on 18 June 2014 certified by the ET Leader (ET's ref.: TCS00670/13/300/L0190 dated 18 June 2014). Please be noted that we have no adverse comments on the captioned submission. We herewith verify the captioned submission in accordance with Condition 2.12 of the Environmental Permit No. EP-404/2011/A.

Thank you for your attention and please do not hesitate to contact the undersigned on tel. 3995 8120 or by email to antony.wong@smec.com; or our Ms Winnie MA on tel. 3995 8138 or by email to winnie.ma@smec.com.

Yours faithfully
For and on behalf of
SMEC Asia Limited



Antony WONG
Independent Environmental Checker

cc	CEDD/BCP	-	Mr Pui Sang LI / Mr CM OR	by fax: 2714 0103
	AECOM	-	Mr Pat LAM / Mr Perry YAM	by email
	DHK	-	Mr Raymond CHENG	by email
	AUES	-	Mr TW TAM	by email

Our Ref: TCS00670/13/300/L0190

AECOM
8/f Grand Central Plaza, Tower 2
138 Shatin Rural Committee Road
Shatin, Hong Kong

Attn: Mr. Gregory Lo
Engineer's Representative

18 June 2014
By E-mail and By Post

Dear Sir,

Re: Agreement No. CE 45/2008 (CE)
Liantang/ Heung Yuen Wai Boundary Control Point and Associated Works
Updated Topsoil Management Plan

With reference to the Update Topsoil Management Plan in June 2014 received on 18 June 2014, please note that we have no adverse comments on this submission. We herewith certify the Update Topsoil Management Plan in accordance with *Condition 2.12* of Environmental Permit (EP) No. EP-404/2011/A.

Should you have any question or require further information, please feel free to contact the undersigned at Tel: 2959-6059 or Fax: 2959-6079 or E-mail: twtam@fordbusiness.com.

Yours sincerely,
For and on Behalf of
Action-United Environmental Services & Consulting



T. W. Tam
Environmental Team Leader
TW/nh/jk

cc SMEC (IEC) Attn: Mr. Antony Wong By e-mail

Liantang / Heung Yuen Wai Boundary Control Point and Associated Works

Environmental Permit (EP No.: EP-404/2011/A)

Updated Topsoil Management Plan

June 2014

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1 Introduction

1.1 Purpose of the Plan

The Updated Topsoil Management Plan (the Plan) provides detailed guidance and direction for the management and use of topsoil recovered from the construction of Liantang/ Heung Yuen Wai Boundary Control Point and Associated Works (the Project). This Plan addresses the stripping, transport and re-use of recovered topsoil from construction works. This Plan identifies the different sources of topsoil that may be recovered during construction, and identifies the locations where this soil can be stockpiled. It also identifies the monitoring program to be undertaken to measure ongoing topsoil viability.

1.2 Project Background

Currently, there are four Boundary Control Points (BCP) in the HKSAR providing vehicular crossing at the Hong Kong – Shenzhen boundary. They are namely Shenzhen Bay, Lok Ma Chau, Man Kam To and Sha Tau Kok. On the eastern part of the boundary, the existing vehicular crossing points at Man Kam To and Sha Tau Kok have already reached their limits in the crossing capacity, while scope for the expansion works to enhance their capacities is limited by site constraints and capacity of connecting roads on both Hong Kong and Shenzhen sides. It is anticipated that the volume of cross-boundary traffic will continue to increase with the closer ties of Hong Kong- Shenzhen and the completion of the Eastern Corridor (東部過境通道) in Shenzhen. The establishment of a new BCP in the eastern part of Hong Kong-Shenzhen boundary is thus required to meet the future traffic demand and re-distribute cross-boundary traffic amongst the crossings in the east.

In December 2006, the Hong Kong and Shenzhen governments jointly commissioned a study, namely “Preliminary Planning Study on Developing Liantang/Heung Yuen Wai Control Point” (the Joint Study) (“深港興建蓮塘/ 香園圍口岸前期規劃研究”) to examine the need, benefit and function of a new BCP at Liantang/Heung Yuen Wai (LT/HYW). The Joint Study confirmed the need for a new BCP at LT/HYW.

In January 2007, the Planning Department (PlanD) commissioned a consultancy study “Planning Study on Liantang/Heung Yuen Wai Cross-boundary Control Point and its Associated Connecting Roads in Hong Kong – Feasibility Study” (the Feasibility Study) to examine the land, planning, traffic and engineering implications and its associated connecting road within Hong Kong territory for the LT/HYW BCP. The Feasibility Study put forward the preferred option for the LT/HYW BCP layout and alignment for its connecting road.

Both Hong Kong and Shenzhen Governments at the second meeting of the Hong Kong-Shenzhen Joint Task Force on Boundary District Development on 18 September 2008 endorsed the major findings of the Joint Study and they jointly announced after the meeting to implement the LT/HYW BCP.

CEDD commissioned the investigation and preliminary design (I&PD) and relevant impact assessments for the Project in April 2009 under Agreement No. CE 45/2008 (CE) "Liantang/Heung Yuen Wai Boundary Control Point and Associated Works". The I&PD determined the general layout of the BCP and the alignment of the connecting road. The I&PD also concluded that the Project with the recommended mitigation measures is environmentally acceptable.

1.3 Project Scope

The scope of the Project under this Assignment covers the site formation and infrastructures for the LT/HYW BCP, and comprises:

- (a) site formation of about 23 hectares of land for the development of the BCP;
- (b) provision of a perimeter road at the BCP together with the associated vehicular and pedestrian gates, fencing, etc;
- (c) an approximately 11-kilometre (km) long dual two-lane trunk road (Connecting Road) (with about 1.0 km of at grade road, 4.3 km of viaduct and 5.7 km of tunnels) connecting the BCP with Fanling Highway and the associated traffic control and surveillance system;
- (d) associated diversion/modification works at Lin Ma Hang Road;
- (e) widening of access road to the resite area of Chuk Yuen Village and further modification works to the facilities in the resite area;
- (f) provision of sewage collection, treatment and disposal facilities for the BCP and the resite of Chuk Yuen Village; and
- (g) associated environmental mitigation measures, landscaping works, drainage/sewerage, waterworks, utilities and traffic engineering works.

1.4 Construction Contract Packaging

To facilitate project management and implementation, the Project will be implemented in the following contract packages:

- Contract 2 (CV/2012/08)
- Contract 3 (CV/2012/09)
- Contract 4 (TCSS)
- Contract 5 (CV/2013/03)
- Contract 6

The details of each contracts is summarized below and the delineation of each contract is shown in **Figure 1.0**.

Contract 2	
Contract No.:	CV/2012/08
Contract Name:	Liantang/ Heung Yuen Wai Boundary Control Point Site Formation and Infrastructure Works - Contract 2
Commencement date:	20 Dec 2013
Major Scope of Works:	<ul style="list-style-type: none"> • construction of an approximately 5.2km long dual two-lane connecting road (with about 0.4km of at-grade road and 4.8km of tunnel) connecting the Fanling Interchange with the proposed Sha Tau Kok Interchange; • construction of a ventilation adit tunnel and the mid-ventilation building; • construction of the north and south portal buildings of the Lung Shan Tunnel and their associated slope works; • provision and installation of ventilation system, E&M works and building services works for Lung Shan tunnel and Cheung Shan tunnel and their portal buildings; • construction of Tunnel Administration Building adjacent to Wo Keng Shan Road and the associated E&M and building services works; and • construction of associated footpath, slopes, retaining structures, drainage, sewerage, waterworks, landscaping works and other ancillary works.

Contract 3	
Contract No.:	CV/2012/09
Contract Name:	Liantang/ Heung Yuen Wai Boundary Control Point Site Formation and Infrastructure Works - Contract 3
Commencement date:	31 July 2013
Major Scope of Works:	<ul style="list-style-type: none"> • construction of four link roads connecting the existing Fanling Highway and the south portal of the Lung Shan Tunnel; • realignment of the existing Tai Wo Service Road West and Tai Wo Service Road East; • widening of the existing Fanling Highway (HyD's entrustment works); • demolishing existing Kiu Tau vehicular bridge and Kiu Tau footbridge and reconstruction of the existing Kiu Tau Footbridge (HyD's entrustment works); and • construction of associated footpath, slopes, retaining structures, drainage, sewerage, waterworks, landscaping works and other ancillary works.

Contract 4	
Contract No.:	To be assigned
Contract Name:	Liantang/ Heung Yuen Wai Boundary Control Point Site Formation and Infrastructure Works – TCSS Contract
Commencement date:	The contract is still yet awarded
Major Scope of Works:	<ul style="list-style-type: none"> The works include provision and installation of Traffic Control and Surveillance System and the associated electrical and mechanical works for the Project.

Contract 5	
Contract No.:	CV/2013/03
Contract Name:	Liantang/ Heung Yuen Wai Boundary Control Point Site Formation and Infrastructure Works - Contract 5
Commencement date:	11 April 2013
Major Scope of Works:	<ul style="list-style-type: none"> site formation of about 23 hectares of land for the development of the BCP; construction of an approximately 1.6 km long perimeter road at the BCP including a 175m long depressed road; associated diversion/modification works at existing local roads and junctions including Lin Ma Hang Road; construction of pedestrian subway linking the BCP to Lin Ma Hang Road; provision of resite area with supporting infrastructure for reprovisioning of the affected village houses; construction of associated footpath, slopes, retaining structures, drainage, sewerage, waterworks, landscaping works and other ancillary works.

Contract 6	
Contract No.:	CV/2013/08
Contract Name:	Liantang/ Heung Yuen Wai Boundary Control Point Site Formation and Infrastructure Works - Contract 6
Commencement date:	The contract is still yet awarded
Major Scope of Works:	<ul style="list-style-type: none"> construction of an approximately 4.6km long dual two-lane connecting road (with about 0.6km of at-grade road, 3.3km of viaduct and 0.7km of tunnel) connecting the BCP with the proposed Sha Tau Kok Road Interchange and the associated ventilation buildings; associated diversion/modification works at access roads to

	<p>the resite of Chuk Yuen Village;</p> <ul style="list-style-type: none">• provision of sewage collection, treatment and disposal facilities for the BCP and the resite of Chuk Yuen Village;• construction of a pedestrian subway linking the BCP to Lin Ma Hang Road;• reprovisioning of the affected facilities including Wo Keng Shan Road garden; and• construction of associated footpath, slopes, retaining structures, drainage, sewerage, waterworks, landscaping works and other ancillary works.
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2 Topsoil Management Strategy

2.1 General

Topsoil management strategy is developed to conserve and reuse the topsoil excavated as much as possible by the Project and other projects in accordance with the Approved EIA Report. The objectives of the Topsoil Management Plan are to: -

- Optimize the recovery of topsoil for reuse as much as possible;
- Identify topsoil resources;
- Develop topsoil stripping and stockpiling guidelines; and
- Develop guidelines for re-spreading of topsoil for use.

2.2 Topsoil Recovery

2.2.1 Definition of Topsoil

Topsoil is the uppermost layer of soil capable of growing and supporting vegetation. Topsoil contains the essential nutrients, organic matter, physical characteristics necessary to grow and sustain permanent vegetation.

- Topsoil shall be evenly textured, fertile, dark brown or black, free draining, sandy loam with the following properties:
- The top 50-300 mm fertile layer immediately below undisturbed vegetation; the thickness of topsoil to be reused would be subject to the habitat of the vegetated areas.
- Containing not less than 7.5% organic matter;
- Having a pH value between 5.5 and 7.0;
- Free from all kinds of pests, toxic material, pernicious and/or perennial weed seed, weeds and roots, grass, clay lumps, non-soil material, brick, cement, concrete and other building materials, foreign matter and contamination;
- Maximum stone content % (m/m) as tested under BS 1377-2; and
- Exchangeable sodium percentage (ESP) %: <15.

2.2.2 Identification of Topsoil for Reuse

Existing vegetated areas within the project boundary shall be surveyed by the Contractor to determine the availability of soil materials for reuse and to formulate topsoil and stockpiling strategies. According to the Habitat Map (Drawing No. 60212563/ER1/901 – 908) within the project boundary, the following areas shall be surveyed to identify topsoil for the reuse:

- Woodland;
- Shrubland;
- Plantation;
- Active Agricultural Land;
- Abandoned Agricultural Land; and
- Hillside Grassland.

The depth of topsoil to be reused for different vegetated areas would be depending on the habitat type. In general, there would be thicker available potential topsoil to be reused in Plantation, Active Agricultural Land and Abandoned Agricultural Land. Relatively, there

would be thinner available potential topsoil to be reused in Hillside Woodland, Shrubland and Grassland.

Initial soil samples have been collected and tested. The test results of organic matter content showed that the soil samples can be classified as “Not Topsoil” according to the definition in the Section 2.2.1. Further soil sampling and testing would be carried out at different habitat locations. In case topsoil is identified on site confirmed by testing, the estimated volume would be submitted accordingly.

2.2.3 Stripping

Prior to the commencement of stripping, areas will be cleared of vegetation. At locations where topsoil is to be recovered, soil stripping will be undertaken by conventional earth-moving equipment such as bulldozers, scrapers, graders and off-road trucks where practical, giving consideration to operational safety and accessibility, to maximize the preservation of the quality of the topsoil. In areas where the topsoil is relatively thin, the Contractor shall remove the topsoil using smaller equipment. The Contractor shall provide detailed method statement for the stripping operation according to site condition to the Engineer for approval prior to the commencement of any works.

2.2.4 Stockpiling

Where possible, topsoil stripped off shall be re-spread directly from stripped areas onto recipient sites. However, based on the anticipated construction sequence and programme, it is likely that topsoil stripped off shall be stored in stockpiles for use at a later stage. General requirements for topsoil handling and stockpiling are listed below: -

- The surface of the completed stockpiles shall be left in a “rough” condition to help promoting water infiltration and minimize erosion prior to vegetation establishment;
- The height of topsoil stockpiles shall not be higher than 3m in order to limit the potential for anaerobic conditions to develop within the topsoil pile;
- The embankment of the topsoil stockpiles shall not be steeper than 3H:1V (to limit the potential for erosion of the outer pile face);
- If the stockpile is to be retained for a period of more than 6 months, the stockpile will be deep ripped and hydroseeded in order to keep the soil viable and to maintain biological activity.
- The establishment of weeds on the stockpiles shall be monitored and weed controlled measures shall be implemented as required.

The Contractor shall provide detailed method statement for the topsoil stockpiling including the proposed locations stockpiling, temporary soil stabilization and erosion treatment to the Engineer for approval prior to the commencement of any works.

2.2.5 Respreading

Prior to the use of any topsoil from each approved stockpiling site for landscaping works, for every 300m³ delivered to Site, the Contractor shall produce certificates of analysis of Topsoil from an approved laboratory within 14 calendar days of taking the samples. An approved laboratory shall mean one of the Employer’s laboratories or a laboratory accredited by the Hong Kong Laboratory Accreditation Scheme (HOKLAS) for the relevant tests in which case the laboratory shall have no affiliation as a legal entity to the Contractor or its sub-contractors. Particulars of the laboratory proposed by the Contractor shall be submitted to the Engineer

for approval. Tests shall be carried out according to BS 3882 and BS 1377. Each certificate shall state the results of test for the properties stipulated for compliance in the topsoil properties listed in Section 2.2.1.

During the removal of the topsoil from the stockpiles, care will be taken to minimise structural degradation of the topsoil. If required, soil conditioner shall be applied to the topsoil before re-spreading to mitigate any deficiencies in the topsoil to meet the requirement for landscaping works.

The detailed method statement for re-spreading works to the designated planting areas would be provided after topsoil identification and based on the estimated volume.

3 Plan Update

The landscape plan submitted separately under EP Condition 2.11 will indicate the approximate landscape areas to accommodate the topsoil.

An implementation programme for maximizing the reuse of the excavated topsoil would be submitted after the volume of topsoil to be generated is estimated.

Under the Engineer's supervision, topsoil samples were collected in March 2014 at different planned work locations of the Project, namely North Portal, Mid-Vent Portal, South Portal and Admin-Bldg. Please refer to Appendix A for allocation of the sampling points.

4 Topsoil Sampling and Testing

Analytical testing results are presented in Appendix B. Test results are summarized in Table 4.1.

Table 4.1: Summary of topsoil analytical testing results

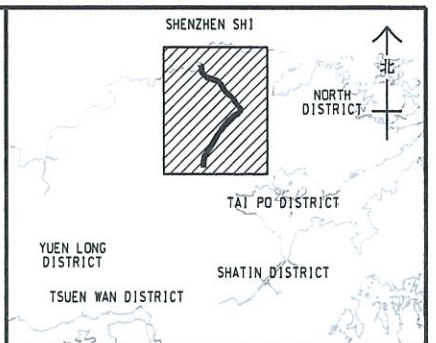
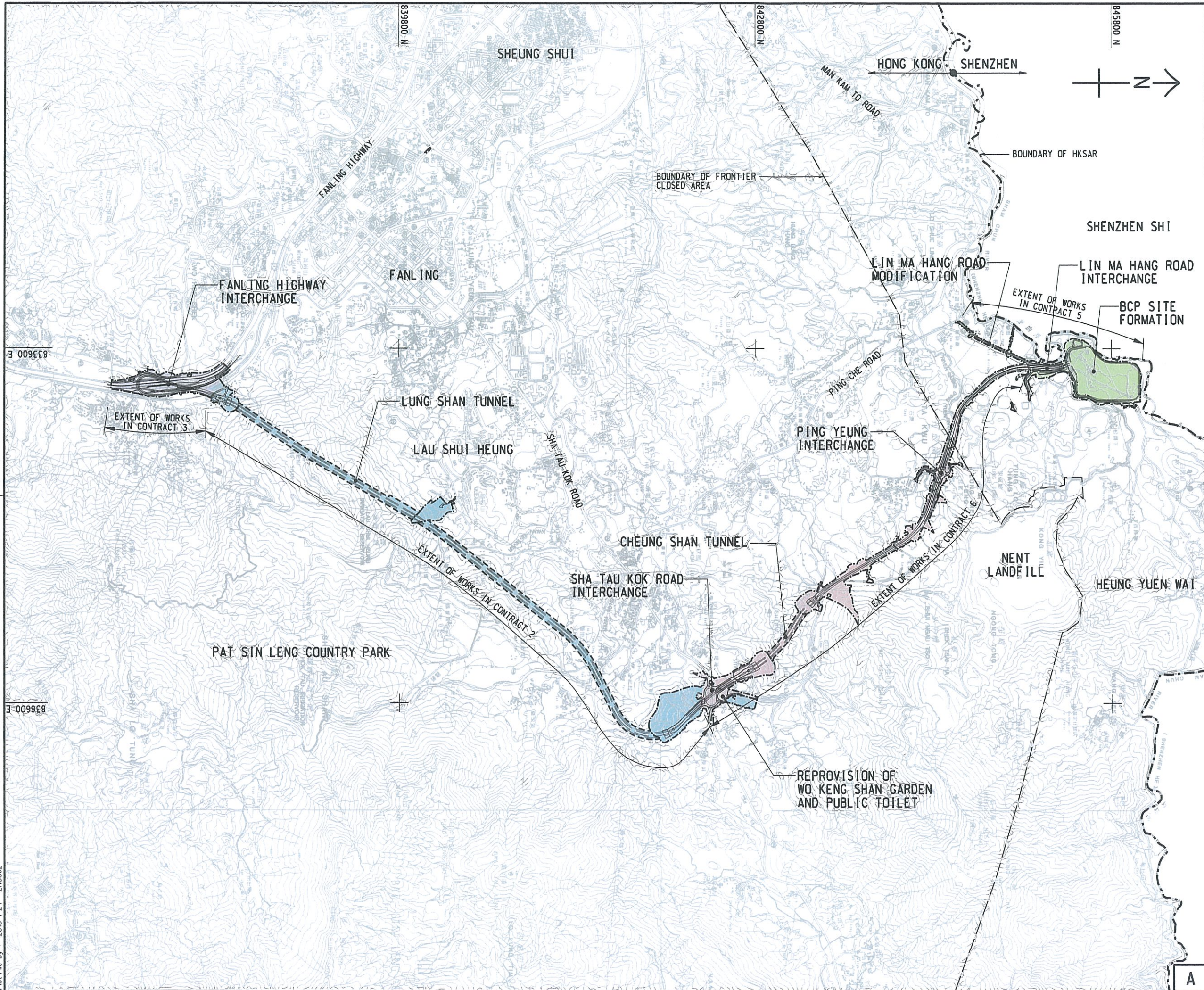
Location	Sample ID	Testing parameter		Likely to be Topsoil
		pH	Organic Content	
North Portal	C2M00002	3.9	4.5	No
	C2M00003	4.1	3.7	No
	C2M00004	4.3	4.3	No
	C2M00005	4.0	4.6	No
	C2M00006	4.2	2.3	No
Mid-Vent Portal	C2M00007	5.3	0.4	No
	C2M00008	5.9	3.1	No
South Portal	C2M00009	4.8	1.1	No
	C2M00010	4.7	1.8	No
	C2M00011	4.5	2.5	No
	C2M00012	4.5	3.3	No
	C2M00013	4.5	2.3	No
Admin-Bldg	C2M00014	5.8	0.8	No

The results indicated that all areas within the Project boundary do not contain any soil that fall into the definition of topsoil as stated in Section 2.2.1 of this Plan.

Therefore, the accommodation of the topsoil and the implementation programme for reuse of the excavated topsoil are not required.

Figure





LOCATION PLAN
SCALE 1 : 30000

- LEGEND:**
- SITE BOUNDARY
 - UNDERGROUND WORKS SITE BOUNDARY

REV. 修订	DESCRIPTION 内容摘要	DATE 日期

CEDD 土木工程拓展署
Civil Engineering and Development Department

Liantang/Heung Yuen Wai Boundary Control Point and Associated Works (Site Formation and Infrastructures) - Design and Construction

PROJECT LAYOUT PLAN

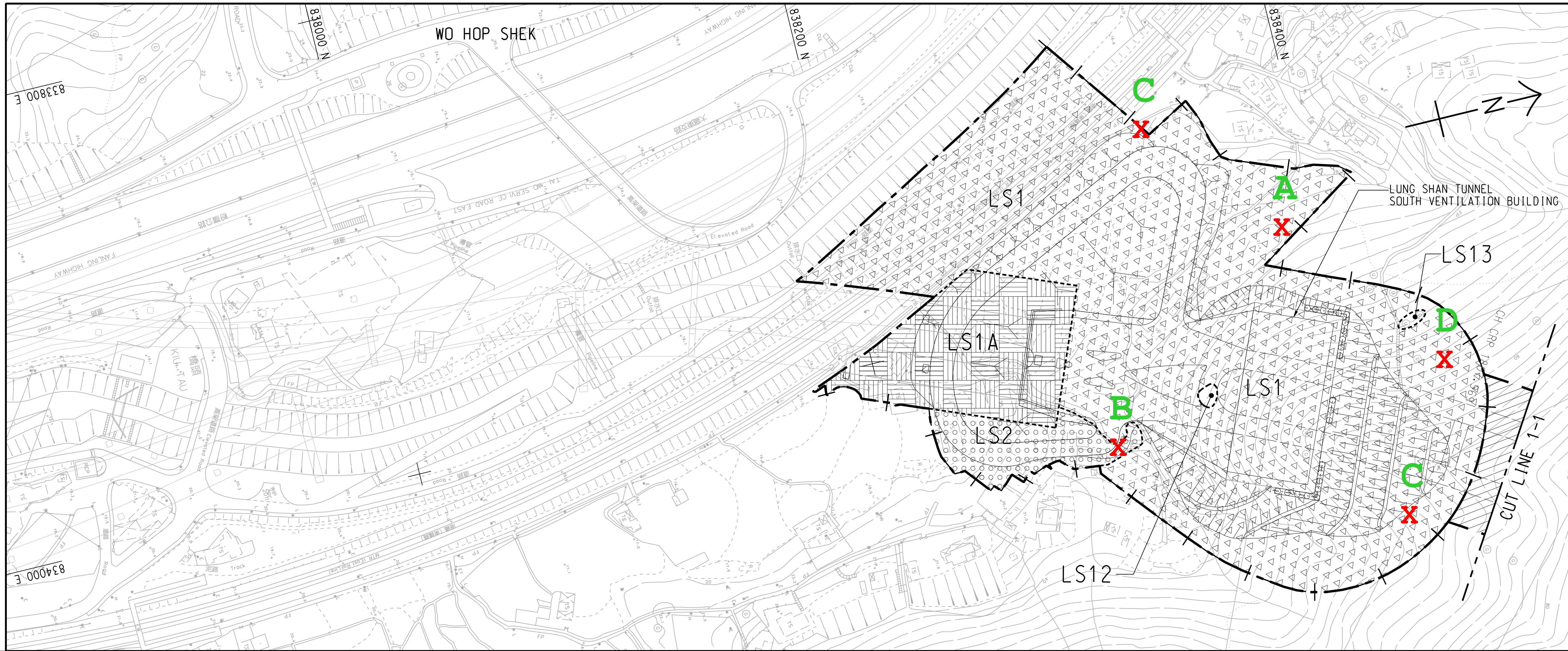
AECOM

DRG.NO. 圖紙編號 **Figure 1.0**

DESIGNED BY 設計	CONTRACT NO. 合約編號	P. DIR. APPROVED 署長
DRAWN BY 繪圖	STATUS 階段	
ZJ		
SCALE 比例		
A1 1 : 15000		
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Plot File by : 2013-1-24_ZHOUJ2

Appendix A
Sampling Plan



NOTE:

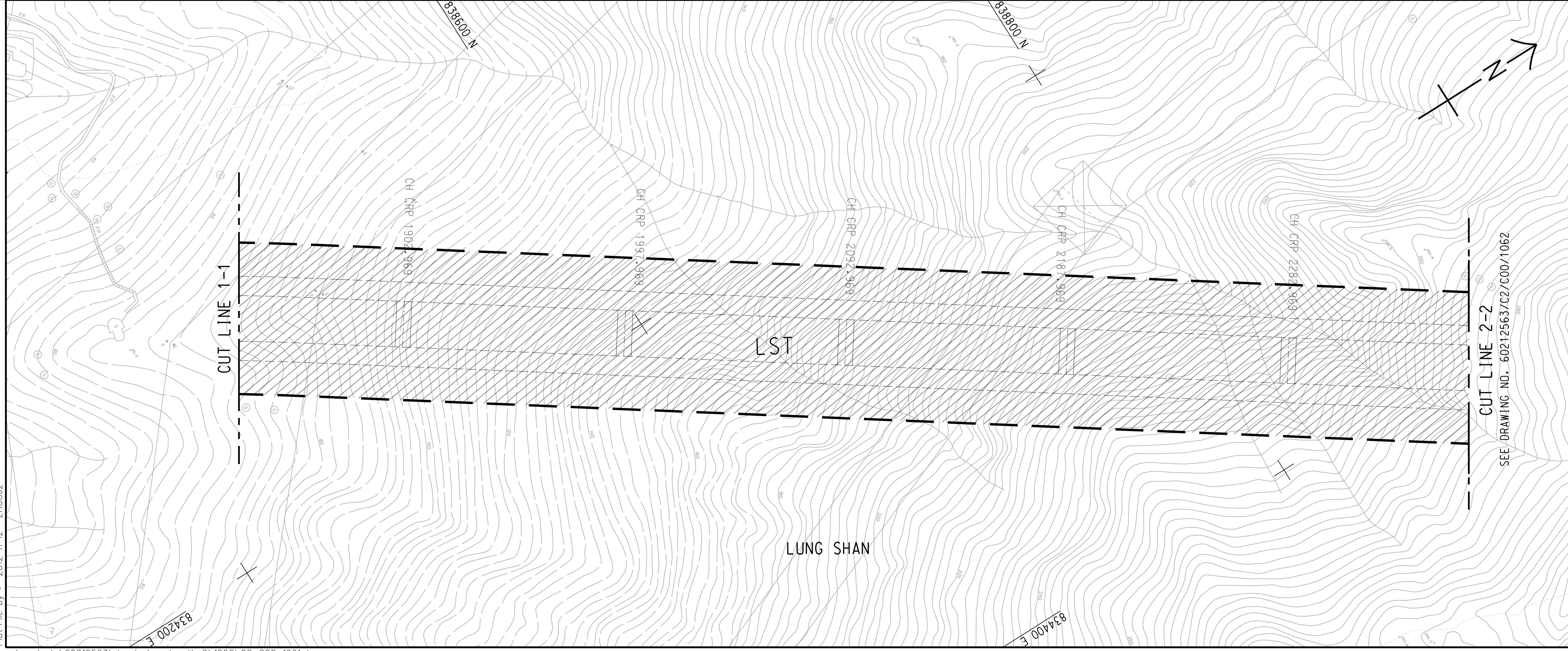
1. THE PORTIONS OF THE SITE ARE DEMARCATED WITHIN THE SITE BOUNDARY. THE NAMES OF THE PORTIONS OF THE SITE ARE SHOWN ON THE DRAWINGS. FOR EXAMPLE LS13 NAMES PORTION LS13.

LEGEND:

- RESUMPTION / CLEARANCE LIMIT
- SITE BOUNDARY
- UNDERGROUND SITE BOUNDARY
- PORTION LS1
- PORTION LS1A
- PORTION LS2
- PORTION LS3
- PORTION LS4
- PORTION LS5
- PORTION LS11
- PORTION LST
- PORTION AB1

Sampling Date:
24 Mar 2014

Point	Sample ID.
A:	C2M00009
B:	C2M00010
C:	C2M00011
D:	C2M00012
E:	C2M00013



REV.	DESCRIPTION	WLC	RYN	NOV-12
01	TENDER DRAWING	WLC	RYN	NOV-12

CEDD 土木工程拓展署
Civil Engineering and Development Department

LIANTANG/HEUNG YUEN WAI BOUNDARY CONTROL POINT
SITE FORMATION AND INFRASTRUCTURE WORKS -
CONTRACT 2

PORTION OF THE SITE

SHEET 1 OF 7

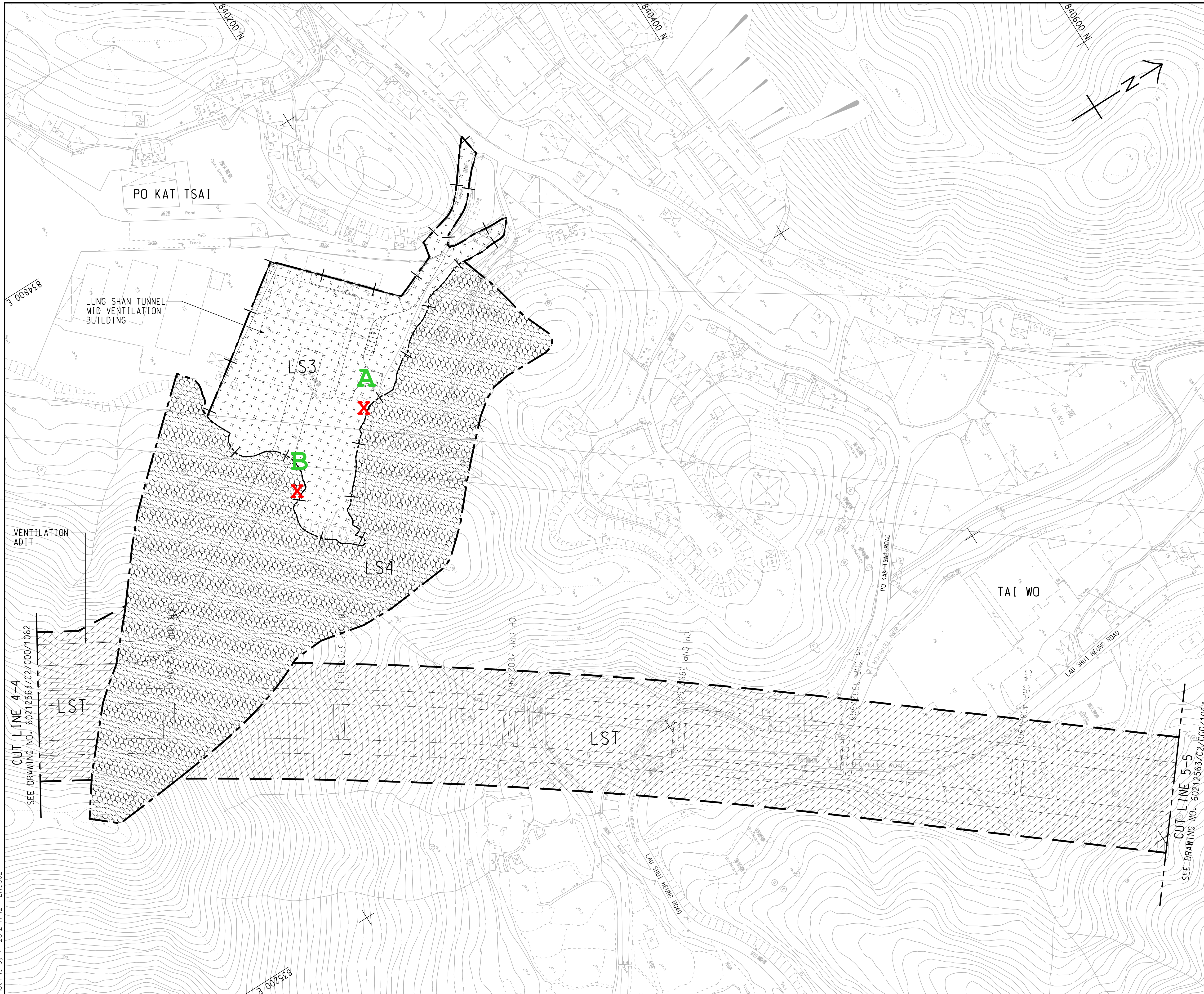
AECOM

DRG.NO. 60212563/C2/C00/1061
圖紙編號

DESIGNED BY WLC CONTRACT NO. CV/2012/08 P. DIR. APPROVED JLY
DRAWN BY ZJ STATUS 解除

SCALE A1 1 : 1000
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NOTE:

1. FOR NOTES AND LEGEND REFER TO DRAWING NO. 60212563/C2/C00/1061.

Sampling Date: 20 Mar 2014	
Point	Sample ID.
A:	C2M00008
B:	C2M00007

CUT LINE 4-4
SEE DRAWING NO. 60212563/C2/C00/1062

CUT LINE 5-5
SEE DRAWING NO. 60212563/C2/C00/1064

REV.	DESCRIPTION	WLC	KYN	DATE
1	TENDER DRAWING			NOV-12

CEDD 土木工程拓展署
Civil Engineering and Development Department

LIANTANG/HEUNG YUEN WAI BOUNDARY CONTROL POINT
SITE FORMATION AND INFRASTRUCTURE WORKS - CONTRACT 2

PORTION OF THE SITE

SHEET 3 OF 7

AECOM

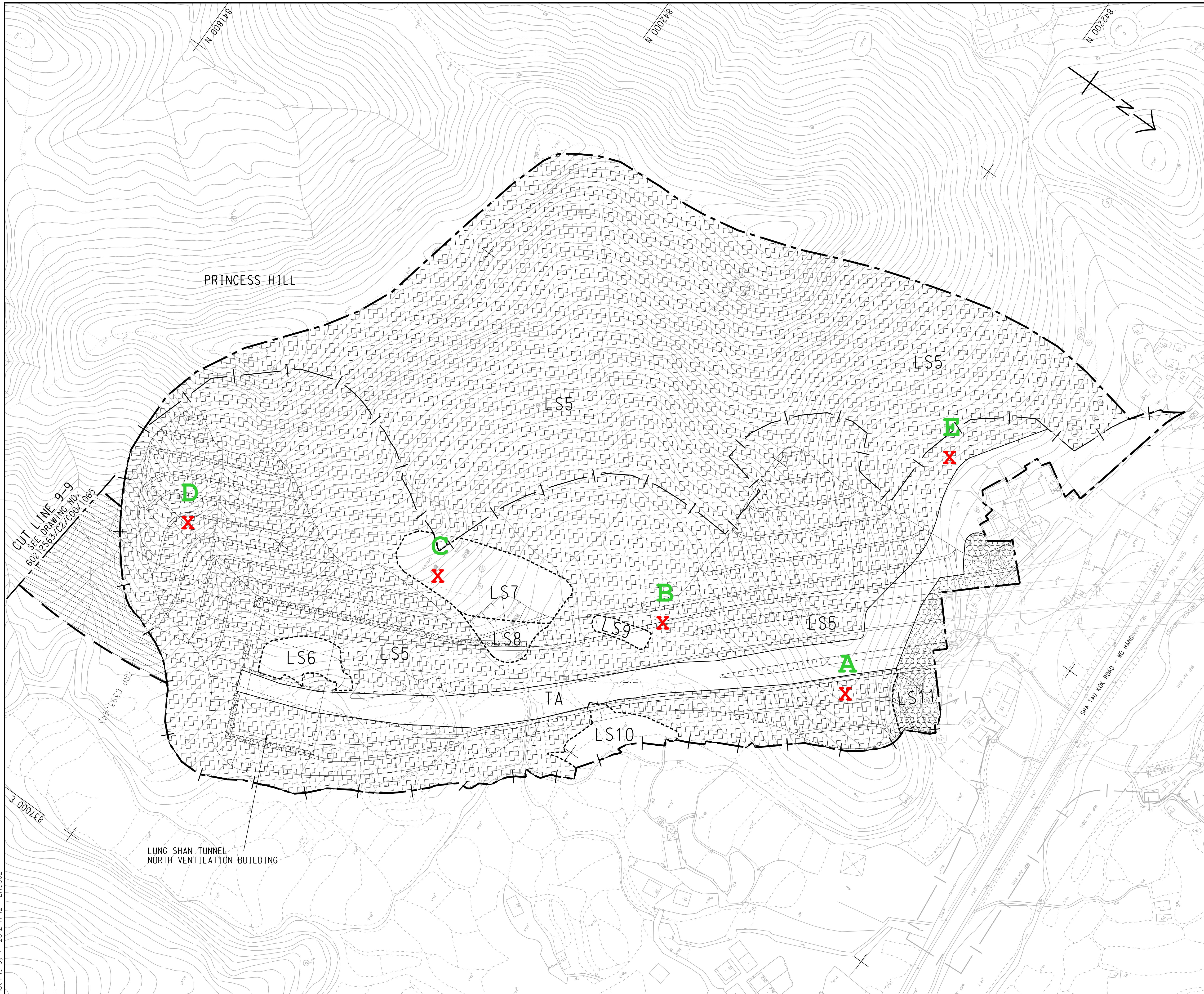
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圖紙編號

DESIGNED BY WLC	CONTRACT NO. CV/2012/08	P. DIR. APPROVED JLY
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DRAWN BY ZJ	STATUS CHECKED
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SCALE 1:1000
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NOTE:
 1. FOR NOTES AND LEGEND REFER TO DRAWING NO. 60212563/C2/C00/1061.

Sampling Date:
 18 Mar 2014

Point	Sample ID.
A:	C2M00005
B:	C2M00004
C:	C2M00003
D:	C2M00002
E:	C2M00006

REV.	DESCRIPTION	BY	DATE
1	TENDER DRAWING	WLC	NOV-12

CEDD 土木工程拓展署
 Civil Engineering and
 Development Department

LIANTANG/HEUNG YUEN WAI BOUNDARY CONTROL POINT
 SITE FORMATION AND INFRASTRUCTURE WORKS -
 CONTRACT 2

PORTION OF THE SITE

SHEET 6 OF 7

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DRG. NO. 60212563/C2/C00/1066
 圖紙編號

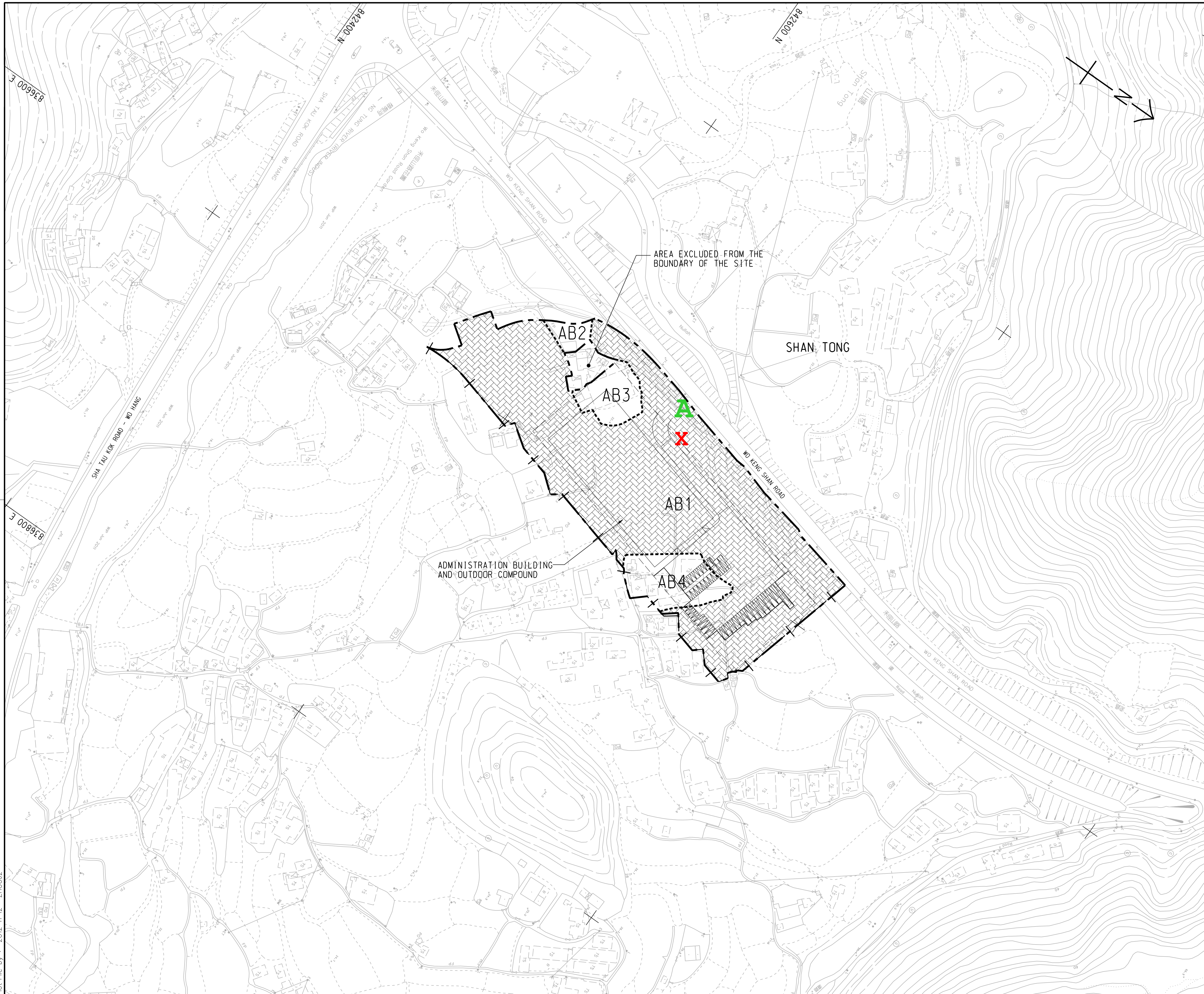
DESIGNED BY WLC	CONTRACT NO. CV/2012/08	P. Dir. APPROVED JLY
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DRAWN BY ZJ	STATUS Released
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SCALE 1:1000
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NOTE:

1. FOR NOTES AND LEGEND REFER TO DRAWING NO. 60212563/C2/C00/1061.

Sampling Date:
19 Mar 2014

Point Sample ID.

A: C2M00014

TENDER DRAWING		WLC	JY	NOV-12
REV.	DESCRIPTION	CHECKED	DATE	

CEDD 土木工程拓展署
Civil Engineering and
Development Department

LIANTANG/HEUNG YUEN WAI BOUNDARY CONTROL POINT
SITE FORMATION AND INFRASTRUCTURE WORKS -
CONTRACT 2

**PORTION OF THE SITE
(ADMINISTRATION BUILDING)**

SHEET 7 OF 7

AECOM

DRG.NO. 60212563/C2/C00/1067
圖紙編號

DESIGNED BY 設計	WLC	CONTRACT NO. 合約編號	CV/2012/08	P. Dir. APPROVED 負責人	JLY
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DRAWN BY 繪圖	ZJ	STATUS 階段	
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SCALE
比例 A1 1 : 1000

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Appendix B
Analytical Testing Reports



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E-mail: castco@netvigator.com Website: www.castco.com.hk

TEST CERTIFICATE
Chemical Analysis of Soil

Date of issue: 28-05-2014
Page 1A of 1 pages

Castco LRN: MO0140331-6

Sample Details as Supplied by Customer

Customer : CEDD/CEO

PWL TRN: 1322223

Customer's Ref. No.: C2M00002

Address:- To be collected in Tai Po Regional Laboratory J/O Ting Kok Rd. and Nam Wan Rd., Tai Po, N.T.

Job Title: Liantang/Heung Yuen Wai Boundary Control Point Site Formation and Infrastructure Works Contract 2

Contract No.: CV/2012/08

Sampling Date: --

Sample Location: North Portal

Sample I.D.No.: S1-A

Sample Origin: Unknown

Sample Type: Disturbed

Laboratory Test Results

Sample Received Date: 31-03-2014

Test Period : 14-04-2014 to 30-04-2014


Description of Soil: Moist brown silty/clayey very gravelly SAND

Condition of Sample when Received: Natural

Chemical Analysis	Results	
Percentage by dry mass finer than 2 mm in original sample (%)	43	
Organic Matter Content (Geospec 3:2001, Cl.9.1)	Check the presence of sulphides	Absent
	Check the presence of chlorides	Absent
	Organic matter content (%)	4.5
Mass Loss on Ignition (Geospec 3:2001, Cl.9.2)	(%)	--
Total Sulphate Content (Geospec 3:2001, Cl.9.3)	SO ₃ (%)	<0.01
	Water-soluble Sulphate Content (Geospec 3:2001, Cl.9.3)	(%)
Water-Soluble Chloride Content (Geospec 3:2001, Cl.9.4)	(g/L)	<0.01
	Water : soil ratio	--
pH value (Geospec 3:2001, Cl.9.5)	Cl (%)	--
	at 20°C	3.9

Remarks : 1. Test result present in the soil fraction finer than 2 mm.
2. Test result relates to the specimen tested only.
2. This test report supersedes previous test report of Castco LRN MO0140331-6 issued on 28-05-2014.

Checked by: 
LAU HIU YAT
Chemist

Approved Signatory: 
LO HIM LUN
Senior Manager

Form No.: CHM GE03_PWCL_T dd 25/04/2009

Code:PWCL/00157

End of Report

TEST CERTIFICATE
Chemical Analysis of Soil

Date of issue: 24-05-2014
Page 1 of 1 pages

Castco LRN: MO0140331-7

Sample Details as Supplied by Customer

PWL TRN: 1322224

Customer : CEDD/CEO

Customer's Ref. No.: C2M00003

Address:- To be collected in Tai Po Regional Laboratory J/O Ting Kok Rd. and Nam Wan Rd., Tai Po, N.T.

Job Title: Liantang/Heung Yuen Wai Boundary Control Point Site Formation and Infrastructure Works Contract 2

Contract No.: CV/2012/08

Sampling Date: --

Sample Location: North Portal

Sample I.D.No.: S1-A

Sample Origin: Unknown

Sample Type: Disturbed

Laboratory Test Results

Sample Received Date: 31-03-2014

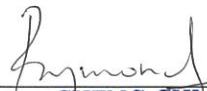
Test Period : 14-04-2014 to 30-04-2014

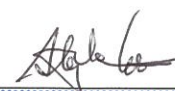
Description of Soil: Moist brown slightly gravelly sandy SILT

Condition of Sample when Received: Natural

Chemical Analysis	Results	
Percentage by dry mass finer than 2 mm in original sample (%)	90	
Organic Matter Content (Geospec 3:2001, Cl.9.1)	Check the presence of sulphides	Absent
	Check the presence of chlorides	Absent
	Organic matter content (%)	3.7
Mass Loss on Ignition (Geospec 3:2001, Cl.9.2)	(%)	--
Total Sulphate Content (Geospec 3:2001, Cl.9.3)	SO ₃ (%)	0.01
	Water-soluble Sulphate Content (Geospec 3:2001, Cl.9.3)	(%)
Water-Soluble Chloride Content (Geospec 3:2001, Cl.9.4)	SO ₃ (g/L)	0.01
	Water : soil ratio	--
pH value (Geospec 3:2001, Cl.9.5)	Cl (%)	--
	at 20°C	4.1

Remarks : 1. Test result present in the soil fraction finer than 2 mm.
2. Test result relates to the specimen tested only.

Checked by: 
CHENG CHI FAI
Senior Manager

Approved Signatory: 
LEE STEPHEN SHU HANG
Ph.D.
Technical Director

Form No.: CHM GEO3_PWCL_T dt 25/04/2009

Code:PWCL/00157

End of Report



TEST CERTIFICATE
Chemical Analysis of Soil

Date of issue: 24-05-2014
Page 1 of 1 pages

Castco LRN: MO0140331-8

Sample Details as Supplied by Customer

PWL TRN: 1322225

Customer : CEDD/CEO

Customer's Ref. No.: C2M00004

Address:- To be collected in Tai Po Regional Laboratory J/O Ting Kok Rd. and Nam Wan Rd., Tai Po, N.T.

Job Title: Liantang/Heung Yuen Wai Boundary Control Point Site Formation and Infrastructure Works Contract 2

Contract No.: CV/2012/08

Sampling Date: --

Sample Location: North Portal

Sample I.D.No.: S1-A

Sample Origin: Unknown

Sample Type: Disturbed

Laboratory Test Results

Sample Received Date: 31-03-2014

Test Period : 14-04-2014 to 30-04-2014

Description of Soil: Moist brown silty/clayey very gravelly SAND

Condition of Sample when Received: Natural

Chemical Analysis	Results	
Percentage by dry mass finer than 2 mm in original sample (%)	52	
Organic Matter Content (Geospec 3:2001, Cl.9.1)	Check the presence of sulphides	Absent
	Check the presence of chlorides	Absent
	Organic matter content (%)	4.3
Mass Loss on Ignition (Geospec 3:2001, Cl.9.2)	(%)	--
Total Sulphate Content (Geospec 3:2001, Cl.9.3)	SO ₃ (%)	< 0.01
	Water-soluble Sulphate Content (Geospec 3:2001, Cl.9.3)	(%)
Water-soluble Sulphate Content (Geospec 3:2001, Cl.9.3)	SO ₃ (g/L)	0.01
	Water-Soluble Chloride Content (Geospec 3:2001, Cl.9.4)	Water : soil ratio
pH value (Geospec 3:2001, Cl.9.5)		Cl (%)
		at 20°C

Remarks : 1. Test result present in the soil fraction finer than 2 mm.
2. Test result relates to the specimen tested only.

Checked by:

Approved Signatory:

Form No.: CHM GEO3_PWCL_T dd:25/04/2009
Senior Manager Code:PWCL/00157

End of Report

LEE STEPHEN SHU HANG
Ph.D.
Technical Director

TEST CERTIFICATE
Chemical Analysis of Soil

Date of issue: 28-05-2014
Page 1A of 1 pages

Castco LRN: MO0140331-9

Sample Details as Supplied by Customer

PWL TRN: 1322226

Customer : CEDD/CEO

Customer's Ref. No.: C2M00005

Address:- To be collected in Tai Po Regional Laboratory J/O Ting Kok Rd. and Nam Wan Rd., Tai Po, N.T.

Job Title: Liantang/Heung Yuen Wai Boundary Control Point Site Formation and Infrastructure Works Contract 2

Contract No.: CV/2012/08

Sampling Date: --

Sample Location: North Portal

Sample I.D.No.: S1-A

Sample Origin: Unknown

Sample Type: Disturbed

Laboratory Test Results

Sample Received Date: 31-03-2014

Test Period : 14-04-2014 to 30-04-2014

Description of Soil: Moist brown slightly gravelly sandy SILT

Condition of Sample when Received: Natural

Chemical Analysis		Results
Percentage by dry mass finer than 2 mm in original sample	(%)	75
Organic Matter Content (Geospec 3:2001, Cl.9.1)	Check the presence of sulphides	Absent
	Check the presence of chlorides	Absent
	Organic matter content	(%) 4.6
Mass Loss on Ignition (Geospec 3:2001, Cl.9.2)	(%)	--
Total Sulphate Content (Geospec 3:2001, Cl.9.3)	SO ₃ (%)	< 0.01
	Water-soluble Sulphate Content (Geospec 3:2001, Cl.9.3)	(%)
Water-Soluble Chloride Content (Geospec 3:2001, Cl.9.4)	SO ₃ (g/L)	< 0.01
	Water : soil ratio	--
pH value (Geospec 3:2001, Cl.9.5)	Cl (%)	--
	at 20°C	4.0

Remarks : 1. Test result present in the soil fraction finer than 2 mm.
2. Test result relates to the specimen tested only.
2. This test report supersedes previous test report of Castco LRN MO0140331-9 issued on 28-05-2014.

Checked by:


LAU HIU YAT

Approved Signatory:


LOTTRIM LUN
Senior Manager

Form No.: CHM GEO3_PWCL_T 00-29/04/2009

Code:PWCL/00157

End of Report

TEST CERTIFICATE
Chemical Analysis of Soil

Date of issue: 24-05-2014
Page 1 of 1 pages

Castco LRN: MO0140331-10

Sample Details as Supplied by Customer

Customer : CEDD/CEO
Address:- To be collected in Tai Po Regional Laboratory J/O Ting Kok Rd. and Nam Wan Rd., Tai Po, N.T.
Job Title: Liantang/Heung Yuen Wai Boundary Control Point Site Formation and Infrastructure Works Contract 2
Contract No.: CV/2012/08
Sample Location: North Portal
Sample Origin: Unknown

PWL TRN: 1322227
Customer's Ref. No.: C2M00006
Sampling Date: --
Sample I.D.No.: S1-A
Sample Type: Disturbed

Laboratory Test Results

Sample Received Date: 31-03-2014 Test Period : 14-04-2014 to 30-04-2014


Description of Soil: Moist brown slightly gravelly sandy SILT

Condition of Sample when Received: Natural

Chemical Analysis	Results	
Percentage by dry mass finer than 2 mm in original sample (%)	68	
Organic Matter Content (Geospec 3:2001, Cl.9.1)	Check the presence of sulphides	Absent
	Check the presence of chlorides	Absent
	Organic matter content (%)	2.3
Mass Loss on Ignition (Geospec 3:2001, Cl.9.2)	(%)	--
Total Sulphate Content (Geospec 3:2001, Cl.9.3)	SO ₃ (%)	< 0.01
	Water-soluble Sulphate Content (Geospec 3:2001, Cl.9.3)	(%)
Water-Soluble Chloride Content (Geospec 3:2001, Cl.9.4)	SO ₃ (g/L)	< 0.01
	Water : soil ratio	--
pH value (Geospec 3:2001, Cl.9.5)	Cl (%)	--
	at 20°C	4.2

Remarks : 1. Test result present in the soil fraction finer than 2 mm.
2. Test result relates to the specimen tested only.

Checked by: 
CHENG CHI FAI
Senior Manager

Approved Signatory: 
LEE STEPHEN SHU HANG
Ph.D.
Technical Director



TEST CERTIFICATE
Chemical Analysis of Soil

Date of issue: 24-05-2014
Page 1 of 1 pages

Castco LRN: MO0140331-11

Sample Details as Supplied by Customer

Customer : CEDD/CEO
Address:- To be collected in Tai Po Regional Laboratory J/O Ting Kok Rd. and Nam Wan Rd., Tai Po, N.T.
Job Title: Liantang/Heung Yuen Wai Boundary Control Point Site Formation and Infrastructure Works Contract 2
Contract No.: CV/2012/08
Sample Location: Mid-Ventilation Building
Sample Origin: Unknown

PWL TRN: 13222278
Customer's Ref. No.: C2M00007
Sampling Date: --
Sample I.D.No.: S1-A
Sample Type: Disturbed

Laboratory Test Results

Sample Received Date: 31-03-2014 Test Period : 14-04-2014 to 30-04-2014

Description of Soil: Moist brown slightly gravelly sandy SILT

Condition of Sample when Received: Natural

Chemical Analysis	Results	
Percentage by dry mass finer than 2 mm in original sample (%)	80	
Organic Matter Content (Geospec 3:2001, Cl.9.1)	Check the presence of sulphides	Absent
	Check the presence of chlorides	Absent
	Organic matter content (%)	0.4
Mass Loss on Ignition (Geospec 3:2001, Cl.9.2)	(%)	--
Total Sulphate Content (Geospec 3:2001, Cl.9.3)	SO ₃ (%)	<0.01
	Water-soluble Sulphate Content (Geospec 3:2001, Cl.9.3)	(%)
Water-Soluble Chloride Content (Geospec 3:2001, Cl.9.4)	SO ₃ (g/L)	0.01
	Water : soil ratio	--
pH value (Geospec 3:2001, Cl.9.5)	Cl (%)	--
	at 20°C	5.3

Remarks : 1. Test result present in the soil fraction finer than 2 mm.
2. Test result relates to the specimen tested only.

Checked by:
CHENG CHI FAI
Senior Manager

Approved Signatory:
LEE STEPHEN SHU HANG
Ph.D.
Technical Director

TEST CERTIFICATE
Chemical Analysis of SoilDate of issue: 24-05-2014
Page 1 of 1 pages

Castco LRN: MO0140331-12

Sample Details as Supplied by Customer

PWL TRN: 13222279

Customer : CEDD/CEO

Customer's Ref. No.: C2M00008

Address:- To be collected in Tai Po Regional Laboratory J/O Ting Kok Rd. and Nam Wan Rd., Tai Po, N.T.

Job Title: Liantang/Heung Yuen Wai Boundary Control Point Site Formation and Infrastructure Works Contract 2

Contract No.: CV/2012/08

Sampling Date: --

Sample Location: Mid-Ventilation Building

Sample I.D.No.: S1-A

Sample Origin: Unknown

Sample Type: Disturbed

Laboratory Test Results

Sample Received Date: 31-03-2014


Test Period : 14-04-2014 to 02-05-2014

Description of Soil: Moist brown slightly gravelly sandy SILT

Condition of Sample when Received: Natural

Chemical Analysis		Results
Percentage by dry mass finer than 2 mm in original sample	(%)	77
Organic Matter Content (Geospec 3:2001, Cl.9.1)	Check the presence of sulphides	Absent
	Check the presence of chlorides	Absent
	Organic matter content	(%) 3.1
Mass Loss on Ignition (Geospec 3:2001, Cl.9.2)	(%)	--
Total Sulphate Content (Geospec 3:2001, Cl.9.3)	SO ₃	(%) <0.01
	Water-soluble Sulphate Content (Geospec 3:2001, Cl.9.3)	(%) <0.01
Water-Soluble Chloride Content (Geospec 3:2001, Cl.9.4)	SO ₃	(g/L) 0.01
	Water : soil ratio	--
pH value (Geospec 3:2001, Cl.9.5)	Cl	(%) --
	at 20°C	5.9

Remarks : 1. Test result present in the soil fraction finer than 2 mm.
2. Test result relates to the specimen tested only.

Checked by: Approved Signatory: Form No.: CHM GEO3_PWCL_T dd 25/04/2009
Senior Manager

Code:PWCL/00157

End of Report

LEE STEPHEN SHU HANG
Ph.D.
Technical Director



佳力高試驗中心有限公司
CASTCO TESTING CENTRE LTD.

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E-mail: castco@netvigator.com Website: www.castco.com.hk



TEST CERTIFICATE
Chemical Analysis of Soil

Date of issue: 24-05-2014
Page 1 of 1 pages

Castco LRN: MO0140331-13

Sample Details as Supplied by Customer

PWL TRN: 132222730

Customer : CEDD/CEO

Customer's Ref. No.: C2M00009

Address:- To be collected in Tai Po Regional Laboratory J/O Ting Kok Rd. and Nam Wan Rd., Tai Po, N.T.

Job Title: Liantang/Heung Yuen Wai Boundary Control Point Site Formation and Infrastructure Works Contract 2

Contract No.: CV/2012/08

Sampling Date: --

Sample Location: South Portal

Sample I.D.No.: S1-A

Sample Origin: Unknown

Sample Type: Disturbed

Laboratory Test Results

Sample Received Date: 31-03-2014

Test Period : 16-04-2014 to 02-05-2014

Description of Soil: Moist brown slightly gravelly sandy SILT

Condition of Sample when Received: Natural

Chemical Analysis	Results	
Percentage by dry mass finer than 2 mm in original sample (%)	82	
Organic Matter Content (Geospec 3:2001, Cl.9.1)	Check the presence of sulphides	Absent
	Check the presence of chlorides	Absent
	Organic matter content (%)	1.1
Mass Loss on Ignition (Geospec 3:2001, Cl.9.2)	(%)	--
Total Sulphate Content (Geospec 3:2001, Cl.9.3)	SO ₃ (%)	0.01
	Water-soluble Sulphate Content (Geospec 3:2001, Cl.9.3)	(%)
Water-soluble Sulphate Content (Geospec 3:2001, Cl.9.3)	SO ₃ (g/L)	0.01
	Water-Soluble Chloride Content (Geospec 3:2001, Cl.9.4)	Water : soil ratio
pH value (Geospec 3:2001, Cl.9.5)		Cl (%)
		at 20°C

Remarks : 1. Test result present in the soil fraction finer than 2 mm.
2. Test result relates to the specimen tested only.

Checked by: 

Approved Signatory: 

Form No.: CHM GEO3_PWCL_T dd 05/04/2009
Senior Manager

Code:PWCL/00157

End of Report

LEE STEPHEN SHU HANG
Ph.D.
Technical Director



TEST CERTIFICATE
Chemical Analysis of Soil

Date of issue: 24-05-2014
Page 1 of 1 pages

Castco LRN: MO0140331-14

Sample Details as Supplied by Customer

PWL TRN: 132222731
Customer : CEDD/CEO Customer's Ref. No.: C2M00010
Address:- To be collected in Tai Po Regional Laboratory J/O Ting Kok Rd. and Nam Wan Rd., Tai Po, N.T.
Job Title: Liantang/Heung Yuen Wai Boundary Control Point Site Formation and Infrastructure Works Contract 2
Contract No.: CV/2012/08 Sampling Date: --
Sample Location: South Portal Sample I.D.No.: S1-A
Sample Origin: Unknown Sample Type: Disturbed

Laboratory Test Results

Sample Received Date: 31-03-2014 Test Period : 16-04-2014 to 02-05-2014

Description of Soil: Moist brown silty/clayey gravelly SAND

Condition of Sample when Received: Natural

Chemical Analysis	Results	
Percentage by dry mass finer than 2 mm in original sample (%)	70	
Organic Matter Content (Geospec 3:2001, Cl.9.1)	Check the presence of sulphides	Absent
	Check the presence of chlorides	Absent
	Organic matter content (%)	1.8
Mass Loss on Ignition (Geospec 3:2001, Cl.9.2) (%)	--	
Total Sulphate Content (Geospec 3:2001, Cl.9.3)	SO ₃ (%)	0.01
	Water-soluble Sulphate Content (Geospec 3:2001, Cl.9.3) (%)	<0.01
Water-soluble Sulphate Content (Geospec 3:2001, Cl.9.3)	SO ₃ (g/L)	0.02
	Water-Soluble Chloride Content (Geospec 3:2001, Cl.9.4)	Water : soil ratio
Cl (%)		--
pH value (Geospec 3:2001, Cl.9.5) at 20°C	4.7	

Remarks : 1. Test result present in the soil fraction finer than 2 mm.
2. Test result relates to the specimen tested only.

Checked by: 

Approved Signatory: 

Form No.: CHM GEO3_PWCL_T 06 23/04/2009
Senior Manager

End of Report
LEE STEPHEN SHU HANG
Ph.D.
Technical Director

TEST CERTIFICATE
Chemical Analysis of Soil

Date of issue: 24-05-2014
Page 1 of 1 pages

Castco LRN: MO0140331-15

Sample Details as Supplied by Customer

Customer : CEDD/CEO
Address:- To be collected in Tai Po Regional Laboratory J/O Ting Kok Rd. and Nam Wan Rd., Tai Po, N.T.
Job Title: Liantang/Heung Yuen Wai Boundary Control Point Site Formation and Infrastructure Works Contract 2
Contract No.: CV/2012/08
Sample Location: South Portal
Sample Origin: Unknown

PWL TRN: 132222732
Customer's Ref. No.: C2M00011
Sampling Date: --
Sample I.D.No.: S1-A
Sample Type: Disturbed

Laboratory Test Results

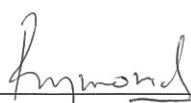
Sample Received Date: 31-03-2014 Test Period : 16-04-2014 to 02-05-2014

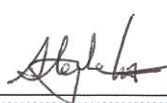
Description of Soil: Moist brown slightly gravelly sandy SILT

Condition of Sample when Received: Natural

Chemical Analysis	Results	
Percentage by dry mass finer than 2 mm in original sample (%)	72	
Organic Matter Content (Geospec 3:2001, Cl.9.1)	Check the presence of sulphides	Absent
	Check the presence of chlorides	Absent
	Organic matter content (%)	2.5
Mass Loss on Ignition (Geospec 3:2001, Cl.9.2)	(%)	--
Total Sulphate Content (Geospec 3:2001, Cl.9.3)	SO ₃ (%)	< 0.01
	Water-soluble Sulphate Content (Geospec 3:2001, Cl.9.3)	SO ₃ (%)
Water-soluble Sulphate Content (Geospec 3:2001, Cl.9.3)	SO ₃ (g/L)	0.02
	Water-Soluble Chloride Content (Geospec 3:2001, Cl.9.4)	Water : soil ratio
pH value (Geospec 3:2001, Cl.9.5)		Cl (%)
		at 20°C

Remarks : 1. Test result present in the soil fraction finer than 2 mm.
2. Test result relates to the specimen tested only.

Checked by: 
CHENG CHI FAI
Senior Manager

Approved Signatory: 
LEE STEPHEN SHU HANG
Ph.D.
Technical Director

Form No.: CHM GEO3_PWCL_T dd 25/04/2009 Code:PWCL/00157

End of Report

TEST CERTIFICATE
Chemical Analysis of Soil

Date of issue: 24-05-2014
Page 1 of 1 pages

Castco LRN: MO0140331-16

Sample Details as Supplied by Customer

Customer : CEDD/CEO

PWL TRN: 132222733

Customer's Ref. No.: C2M00012

Address:- To be collected in Tai Po Regional Laboratory J/O Ting Kok Rd. and Nam Wan Rd., Tai Po, N.T.

Job Title: Liantang/Heung Yuen Wai Boundary Control Point Site Formation and Infrastructure Works Contract 2

Contract No.: CV/2012/08

Sampling Date: --

Sample Location: South Portal

Sample I.D.No.: S1-A

Sample Origin: Unknown

Sample Type: Disturbed

Laboratory Test Results

Sample Received Date: 31-03-2014

Test Period : 16-04-2014 to 02-05-2014

Description of Soil: Moist brown slightly gravelly sandy SILT

Condition of Sample when Received: Natural

Chemical Analysis	Results	
Percentage by dry mass finer than 2 mm in original sample (%)	75	
Organic Matter Content (Geospec 3:2001, Cl.9.1)	Check the presence of sulphides	Absent
	Check the presence of chlorides	Absent
	Organic matter content (%)	3.3
Mass Loss on Ignition (Geospec 3:2001, Cl.9.2) (%)	--	
Total Sulphate Content (Geospec 3:2001, Cl.9.3)	SO ₃ (%)	<0.01
	Water-soluble Sulphate Content (Geospec 3:2001, Cl.9.3) (%)	<0.01
Water-soluble Sulphate Content (Geospec 3:2001, Cl.9.3)	SO ₃ (g/L)	0.02
	Water-Soluble Chloride Content (Geospec 3:2001, Cl.9.4)	Water : soil ratio
		Cl (%)
pH value (Geospec 3:2001, Cl.9.5)	at 20°C	4.5

Remarks : 1. Test result present in the soil fraction finer than 2 mm.
2. Test result relates to the specimen tested only.

Checked by: 
CHENG CHI FAI
Manager

Approved Signatory: 
LEE STEPHEN SHU HANG
Ph.D.
Technical Director

Form No.: CHM GEO3_PWCL_T dd 25/04/2009 Code:PWCL/00157

End of Report



TEST CERTIFICATE
Chemical Analysis of Soil

Date of issue: 24-05-2014
Page 1 of 1 pages

Castco LRN: MO0140331-17

Sample Details as Supplied by Customer

Customer : CEDD/CEO

PWL TRN: 132222734

Customer's Ref. No.: C2M00013

Address:- To be collected in Tai Po Regional Laboratory J/O Ting Kok Rd. and Nam Wan Rd., Tai Po, N.T.

Job Title: Liantang/Heung Yuen Wai Boundary Control Point Site Formation and Infrastructure Works Contract 2

Contract No.: CV/2012/08

Sampling Date: --

Sample Location: South Portal

Sample I.D.No.: S1-A

Sample Origin: Unknown

Sample Type: Disturbed

Laboratory Test Results

Sample Received Date: 31-03-2014


Test Period : 16-04-2014 to 02-05-2014

Description of Soil: Moist brown slightly gravelly sandy SILT

Condition of Sample when Received: Natural

Chemical Analysis		Results
Percentage by dry mass finer than 2 mm in original sample	(%)	77
Organic Matter Content (Geospec 3:2001, Cl.9.1)	Check the presence of sulphides	Absent
	Check the presence of chlorides	Absent
	Organic matter content	(%) 2.3
Mass Loss on Ignition (Geospec 3:2001, Cl.9.2)	(%)	--
Total Sulphate Content (Geospec 3:2001, Cl.9.3)	SO ₃	(%) 0.01
	Water-soluble Sulphate Content (Geospec 3:2001, Cl.9.3)	(%)
Water-soluble Sulphate Content (Geospec 3:2001, Cl.9.3)	SO ₃	(g/L) 0.02
	Water-Soluble Chloride Content (Geospec 3:2001, Cl.9.4)	Water : soil ratio
pH value (Geospec 3:2001, Cl.9.5)		Cl
		at 20°C

Remarks : 1. Test result present in the soil fraction finer than 2 mm.
2. Test result relates to the specimen tested only.

Checked by: 
CHENG CHI FA!
Senior Manager

Approved Signatory: 
LEE STEPHEN SHU HANG
Ph.D.
Technical Director

Form No.: CHM GEO3_PWCL_T dd 23/04/2009

Senior Manager

Code:PWCL/00157

End of Report

LEE STEPHEN SHU HANG
Ph.D.
Technical Director

TEST CERTIFICATE
Chemical Analysis of SoilDate of issue: 24-05-2014
Page 1 of 1 pages

Castco LRN: MO0140331-18

Sample Details as Supplied by Customer

PWL TRN: 132222735

Customer : CEDD/CEO

Customer's Ref. No.: C2M00014

Address:- To be collected in Tai Po Regional Laboratory J/O Ting Kok Rd. and Nam Wan Rd., Tai Po, N.T.

Job Title: Liantang/Heung Yuen Wai Boundary Control Point Site Formation and Infrastructure Works Contract 2

Contract No.: CV/2012/08

Sampling Date: --

Sample Location: Administration Building

Sample I.D.No.: S1-A

Sample Origin: Unknown

Sample Type: Disturbed

Laboratory Test Results

Sample Received Date: 31-03-2014

Test Period : 16-04-2014 to 08-05-2014

Description of Soil: Moist brown slightly gravelly sandy SILT

Condition of Sample when Received: Natural

Chemical Analysis	Results	
Percentage by dry mass finer than 2 mm in original sample (%)	91	
Organic Matter Content (Geospec 3:2001, Cl.9.1)	Check the presence of sulphides	Absent
	Check the presence of chlorides	Absent
	Organic matter content (%)	0.8
Mass Loss on Ignition (Geospec 3:2001, Cl.9.2)	(%)	--
Total Sulphate Content (Geospec 3:2001, Cl.9.3)	SO ₃ (%)	0.01
	Water-soluble Sulphate Content (Geospec 3:2001, Cl.9.3)	(%)
Water-soluble Sulphate Content (Geospec 3:2001, Cl.9.3)	SO ₃ (g/L)	0.01
	Water-Soluble Chloride Content (Geospec 3:2001, Cl.9.4)	Water : soil ratio
Cl (%)		--
pH value (Geospec 3:2001, Cl.9.5)	at 20°C	5.8

Remarks : 1. Test result present in the soil fraction finer than 2 mm.
2. Test result relates to the specimen tested only.

Checked by: 
CHENG CHI FAI
Senior Manager

Approved Signatory: 

Form No.: CHM GE03_PWCL_T do Senior Manager Code:PWCL/00157

End of Report

LEE STEPHEN SHU HANG
Ph.D.
Technical Director