



**DRAINAGE SERVICES DEPARTMENT
CONTRACT NO. DC/2011/06**

**REPROVISIONING OF BOUNDARY PATROL ROAD
AND ASSOCIATED SECURITY FACILITIES
BETWEEN PING YUEN RIVER AND PAK FU SHAN
AND DRAINAGE WORKS IN NORTH DISTRICT**

**THE THIRD QUARTERLY
EM&A SUMMARY REPORT FOR DRAINAGE
WORKS UNDER EP-277/2007/A
(DECEMBER 2012 – FEBRUARY 2013)**

**PREPARED FOR
SANG HING CIVIL CONSTRUCTORS CO., LTD.**

Quality Index

Date	Reference No.	Prepared By	Approval By
	TCS00599/12/600/R0102	 F. N. Wong Senior Environmental Consultant	 T. W. Tam Environmental Team Leader

Version	Date	Description
0	10 April 2013	First submission.
1	24 June 2013	Amended against IEC's comment

This report has been prepared by Action-United Environmental Services & Consulting with all reasonable skill, care and diligence within the terms of the Agreement with the client, incorporating our General Terms and Conditions of Business and taking account of the resources devoted to it by agreement with the client. We disclaim any responsibility to the client and others in respect of any matters outside the scope of the above. This report is confidential to the client and we accept no responsibility of whatsoever nature to third parties to whom this report, or any part thereof, is made known. Any such party relies upon the report at their own risk.

Ref.: DSDBPRNDEM00_0_0152L.13

2 July 2013

By Post and Fax (2959 6079)

Action-United Environmental Services & Consulting
Unit A, 20/F,
Gold King Industrial Building,
New Territories, Hong Kong

Attention: Mr. TW Tam

Dear Sir,

**Re: Contract No. DC/2011/06
Reprovisioning of Boundary Patrol Road and Associated Security Facilities
between Ping Yuen River and Pak Fu Shan and Drainage Works in North
District
Third Quarterly EM&A Summary Report for Drainage Works under EP-
277/2007/A (December 2012 - February 2013)**

Reference is made to the Environmental Team's submission of the captioned report (Version 1) dated 24 June 2012 received through E-mail on 27 June 2012 for our review and comment.

Please be informed that we have no adverse comment on the captioned submission.

Should you have any queries, please do not hesitate to contact the undersigned or our Mr. Simon Cheung at 3465 2810.

Yours sincerely,



Roger Leung
Independent Environmental Checker

c.c.	DSD	Mr. Eric Cheng	by fax: 2827 8700
	SHCCCL	Mr. Raymond W.M. Yau	by fax: 2403 1162

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EXECUTIVE SUMMARY

REPORTING OF THE CONTRACT

ES01. In order to ease reporting of the Contract, it has been agreed among the Engineer, IEC, Contractor and ET that the EM&A reports for the Contract are split into three stand-alone reports, namely EM&A Report for Advanced Works under EP-430/2011, EM&A Report for Drainage Works under EP-277/2007/A and EM&A Report for Drainage Works at Ma Wat Wai. This is the third quarterly EM&A summary report for Drainage Works under EP-277/2007/A, covering the construction period of the Works from 1 December 2012 to 28 February 2013.

ES02. The structure of this Report is as follows:

Executive Summary

1 Introduction

2 Requirements for Construction Impact monitoring

3 Environmental monitoring Results

4 solid and liquid Waste Management

5 Complaints, Notification of Summons and Successful Prosecution

6 Conclusions and Recommendations

Annex

Annex A Location plan for the Works

Annex B Environmental Management Organization, Communication Lines and 24-Hour Hotline

Annex C Construction Program

Annex D Status of Environmental Licenses and Permits

Annex E Environmental Monitoring Locations

Annex F Graphical Plots of the Trends of Monitored Parameters

Annex G Monthly Summary of Waste Flow Table

BREACH OF ENVIRONMENTAL QUALITY PERFORMANCE LIMITS

ES03. No exceedances of environmental quality performance limits for air quality, construction noise and water quality were recorded. Therefore, neither NOE nor remedial actions were required.

COMPLAINTS, NOTIFICATIONS OF SUMMONS AND SUCCESSFUL PROSECUTIONS

ES04. No environmental complaints, notifications of summons and successful prosecutions were registered during the quarter.

CONCLUSIONS

ES05. The EM&A results for the Reporting Period confirmed that the monitoring work was effective and was generating data with the necessary statistical power to categorically identify or confirm the absence of impact attributable to the works.

ES06. Neither breaches of environmental quality performance limits nor written or verbal environmental complaints, notification of summons and successful prosecutions were recorded during the Reporting Period, indicating the implemented environmental mitigation measures were effective and efficient to alleviate adverse environmental impacts generated from the construction activities of the Works.

RECOMMENDATIONS

ES07. The Contractor is reminded to fully comply with all the environmental requirements stipulated in the environmental regulations, guidelines and Particular Specifications under the Contract, in particular construction suppression measures during dusty construction activities under dry and windy conditions and water quality mitigation measures during rainy conditions.

ES08. In addition, attention is drawn to implementation of the construction noise mitigation measures during noisy construction works.

1 INTRODUCTION

BASIC PROJECT INFORMATION

- 1.01 Sang Hing Civil Contractors Company Limited has been awarded by DSD since 31 March 2012 Contract No. DC/2011/06 – Re-provisioning of Boundary Patrol Road and Associated Security Facilities between Ping Yuen River and Pak Fu Shan and Drainage Works in North District (hereafter “the Contract”). The Contract comprises:
- 1) Drainage Works in North District to be implemented under Environmental Permit No. EP-277/2007/A (hereinafter “Drainage Works under EP-277/2007/A or “the Works”);
 - 2) Re-provisioning of Boundary Patrol Road and Associated Security Facilities between Ping Yuen River and Pak Fu Shan; and
 - 3) Drainage Works in North District, a non-designated project of drainage works at Ma Wat Wai.
- 1.02 Location plan for the Works is shown in **Annex A**, whereas environmental management organization and communication lines, including contacts of key personnel under the Contract are shown in **Annex B**.
- 1.03 The Works has been commenced since 21 May 2012 upon completion of the site clearance and preparation activities after commencement of the Contract since 31 April 2012.
- 1.04 Action-United Environmental Services and Consulting (hereinafter “AUES”) has been commissioned by the Contractor as the Environmental Team (hereinafter “the ET”) to implement the environmental monitoring and audit (hereinafter “EM&A”) under the Contract.
- 1.05 In order to ease reporting of the Contract, it has been agreed among the Engineer, IEC, Contractor and ET that the EM&A reports for the Contract are split into three stand-alone reports, namely EM&A Report for Advanced Works under EP-430/2011, EM&A Report for Drainage Works under EP-277/2007/A and EM&A Report for Drainage Works at Ma Wat Wai.
- 1.06 This is the third quarterly EM&A summary report (herein after “this Report”) for Drainage Works under EP-277/2007/A, covering the construction period from 1 December 2012 to 28 February 2013 (hereinafter “the Reporting Period”).

WORK UNDERTAKEN DURING THE QUARTER

- 1.07 Construction program is presented in **Annex C**, whereas construction activities undertaken during the Reporting Period is summarized in the following **Table 1-1**.

Table 1-1 Major Construction Activities of the Works during the Reporting Period

Major Construction Activities during the Reporting Period	
Portion E (Man Uk Pin)	1) Excavation and installation of sheet pile for construction of gabion wall; 2) Construction of gabion wall between CH360 and CH333; 3) Concreting for transition at CH328 to CH333; 4) Construction of vehicle crossing at CH321 to CH328; 5) Installation of temporary sheet pile decking; and 6) Liaison with villagers to arrange relocation of hoarding or fencing.

ENVIRONMENTAL MITIGATION MEASURES AND ENVIRONMENTAL IMPLEMENTATION STATUS

- 1.08 Environmental mitigation measures to minimize potential environmental impacts arising from the construction of the project have been recommended the Final EIA and summarized in the stand-alone EM&A Manual. They can be found in the *First Monthly EM&A Report for Drainage Works under EP-277/2007/A* (ref. TCS00599/12/600/R0017v4, dated 16 July 2012).
- 1.09 Implementation status of environmental protection and pollution control/mitigation measures, as recommended in the Final EIA and summarized in the updated implementation schedule is detailed in the following *Section 3 to 5* of this Report, whereas status of environmental licenses and permit is summarized in the **Annex D**.

2 REQUIREMENTS FOR CONSTRUCTION IMPACT MONITORING

MONITORING PARAMETERS

2.01 The monitoring parameters to be monitored are summarized in *Table 2-1*.

Table 2-1 Summary of Environmental Monitoring Parameters

Aspect	Parameters
Air Quality	<ul style="list-style-type: none"> 1-Hour Total Suspended Particulate (hereinafter '1-Hr TSP'); and 24-Hour Total Suspended Particulate (hereinafter '24-Hr TSP').
Construction Noise	<ul style="list-style-type: none"> A-weighted equivalent continuous sound pressure level (30min) (hereinafter 'Leq(30min)' during the normal working hours; and A-weighted equivalent continuous sound pressure level (5min) (hereinafter 'Leq(5min)' for construction work during the restricted hours.
Water Quality	<ul style="list-style-type: none"> In Situ Measurement: Temperature, Dissolved Oxygen, Dissolved Oxygen Saturation, pH value, Water Depth & Turbidity
	<ul style="list-style-type: none"> Laboratory Analysis Suspended Solids (hereinafter 'SS'),
Ecology	<ul style="list-style-type: none"> The stream conditions monitoring (in-situ measurements of DO, pH and turbidity; laboratory testing of SS); Riparian vegetation along the banks of channel monitoring; General site audit to ensure the existing natural stream channel is protected; and Reported the sediment condition during the construction phase

2.02 As there was neither riparian vegetation along the banks of channel nor existing natural stream channel within the construction site under the Works, no ecology monitoring is required.

MONITORING LOCATIONS

MONITORING LOCATIONS DESIGNATED IN THE EM&A MANUAL

2.03 The sensitive receiver designated in the EM&A Manual, namely MUP05-2, which is the closest to the construction site, is selected as monitoring location for air quality namely MUP-A1 and construction noise namely MUP-N1 respectively. They are shown in *Annex E* and summarized in *Table 2-2* below.

Table 2-2 Designated Monitoring Locations

Issue	Channel	Sensitive Receiver	Location ID	Detailed Address
Air	MUP05	MUP05-2	MUP-A1	A village house at Man Uk Pin
Noise	MUP05	MUP05-2	MUP-N1	Same village house at Man Uk Pin as MUP-A1

ADDITIONAL MONITORING LOCATIONS

2.04 Additional monitoring locations for construction noise and water quality are also shown in *Annex E* and summarized in *Table 2-3* below.

Table 2-3 Summary of Additional Environmental Monitoring Locations

Issue	Channel	Sensitive Receiver	Location ID	Detailed Address
Noise	MUP05	MUP05-2	MUP-Nx	Village house
Water Quality	MUP05	-	MUP-Wx1	Additional Up-Stream Control Station: (Prior to and after connection of stream diversion)
		-	MUP-Wx2	Additional Impact Monitoring Station: (Prior to connection of stream diversion)
		-	MUP-Wx3	Additional Impact Monitoring Station: (After connection of stream diversion)

ENVIRONMENTAL QUALITY PERFORMANCE LIMITS

2.05 The environmental quality performance limits, i.e. Action/Limit Levels, for air quality and construction noise are summarized in *Table 2-4* and *Table 2-5* respectively.

Table 2-4 Action and Limit Levels for Air Quality

Monitoring Station	Action Level ($\mu\text{g}/\text{m}^3$)		Limit Level ($\mu\text{g}/\text{m}^3$)	
	1-Hour TSP	24-Hour TSP	1-Hour TSP	24-Hour TSP
MUP-A1	307	156	500	260

Table 2-5 Action and Limit Levels for Construction Noise (dB(A))

Time Period	Action Level	Limit Level
0700-1900 hours on normal weekdays	When one documented complaint is received	75 dB(A)

2.06 Environmental quality criteria for additional water quality monitoring are presented in **Table 2-6** below.

Table 2-6 Action and Limit Levels for Water Quality

Action Level	Limit Level
120% of the Levels of Up-Stream Control Station	130% of the Levels of Up-Stream Control Station

3 ENVIRONMENTAL MONITORING RESULTS

3.01 Graphical plots of the trends of monitored parameters over the past 4 months, including the last month of the previous quarter and the Reporting Period, are presented in **Annex F**.

3.02 Weather conditions extracted from Hong Kong Observatory have been used in interpretation of this Report. They can be found in corresponding Monthly EM&A Reports.

EXCEEDANCES OF THE ENVIRONMENTAL QUALITY PERFORMANCE LIMITS

3.03 No exceedances of environmental quality performance limits were registered during the Reporting Period. Neither Notice Of Exceedances of the environmental quality performance limits (hereinafter “NOE”) nor the associated remediation actions were required during the Reporting Period.

CONCLUSIONS

3.04 The EM&A results confirmed that the monitoring work was effective and generating data with necessary statistical power to categorically identify the absence of impact attributable to the works.

3.05 Monitoring results recorded no exceedances of the environmental quality performance limits during the Reporting Period, indicating no adverse environmental impacts were generated from construction activities during the Reporting Period. No remediation actions were required.

4 SOLID AND LIQUID WASTE MANAGEMENT

4.01 The quantity of solid and liquid waste for disposal or reuse is summarized in Monthly Summary of Waste Flow Table in **Annex G**.

5 COMPLAINTS, NOTIFICATION OF SUMMONS AND SUCCESSFUL PROSECUTION

5.01 No written or verbal environmental complaints, notification of summons and successful prosecutions were recorded during the Reporting Period. They are summarized in **Table 5-1**.

Table 5-1 Summary of Complaints, Notification of Summons and Successful Prosecutions

Environmental Issue	Frequency of Occurrence	
	September - November 2012	December 2012 – February 2013
Complaints	0	0
Nature of Complaints	Not Applicable	Not Applicable
Notification of Summons	0	0
Nature of Summons	Not Applicable	Not Applicable
Successful Prosecutions	0	0
Nature of Prosecutions	Not Applicable	Not Applicable

5.02 Project proponents' contacts and hotline telephone number for the public to make enquiries can be found in **Annex B**.

6 CONCLUSIONS AND RECOMMENDATIONS

CONCLUSIONS

6.01 Neither breaches of environmental quality performance limits nor written or verbal environmental complaints, notification of summons and successful prosecutions were recorded during the Reporting Period, indicating the implemented environmental mitigation measures were effective and efficient to alleviate adverse environmental impacts generated from the construction activities of the Works.

RECOMMENDATIONS

6.02 The Contractor is reminded to fully comply with all the required environmental mitigation measures, in particular construction dust suppression measures during dusty construction activities under dry and windy conditions and water quality mitigation measures during rainy conditions. In addition, attention is drawn to implementation of the construction noise mitigation measures during noisy construction works.

ANNEX A

LOCATION PLAN FOR THE WORKS

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NOTES:

1. ALL LEVELS ARE IN METERS ABOVE MEAN SEA LEVEL UNLESS OTHERWISE SPECIFIED.
2. UNLESS OTHERWISE SPECIFIED, ALL CHANNELS ARE TO BE CONSTRUCTED WITH 1:1 SLOPES.
3. EMBANKMENTS AND CHANNELS ARE TO BE CONSTRUCTED WITH 1:1 SLOPES UNLESS OTHERWISE SPECIFIED.
4. THE CHANNELS FOR THE DRAINAGE OF THE SITE ARE TO BE CONSTRUCTED WITH 1:1 SLOPES UNLESS OTHERWISE SPECIFIED.
5. THE EXACT LOCATION FOR THE SUBMISSION OF WALLS, BARRIERS AND GATES TO BE AGREED WITH THE ENGINEER IN CHARGE.
6. FLOOD MARKING SIGN NOTICES TO GO TO STANDARD DRAWING NO. 200002.

LEGEND:

--- HORIZONAL LIMIT

--- SETTING OUT POINT (S.O.P.) FOR CHANNEL

--- BEGINNING OF ALIGNMENT

--- END OF ALIGNMENT

--- CHANNEL WITH CONCRETE LINING

--- CHANNEL WITH GRAVEL LINING

--- PROPOSED BANKLINE

--- PROPOSED FLOOD MARKING SIGN

FOR TENDER PURPOSES ONLY

Description	Quantity	Unit	Remarks
Channel	1.00	m	
Bank	1.00	m	
Structure	1.00	m	
Gate	1.00	m	
Wall	1.00	m	
Other	1.00	m	

Contract No. DC/2011/06

REPRODUCTION OF BOUNDARY, FACTORY, ROAD AND ASSOCIATED SECURITY FACILITIES BETWEEN PING YUEN RIVER AND PAK TU SHAN AND DRAINAGE WORKS IN NORTH DISTRICT

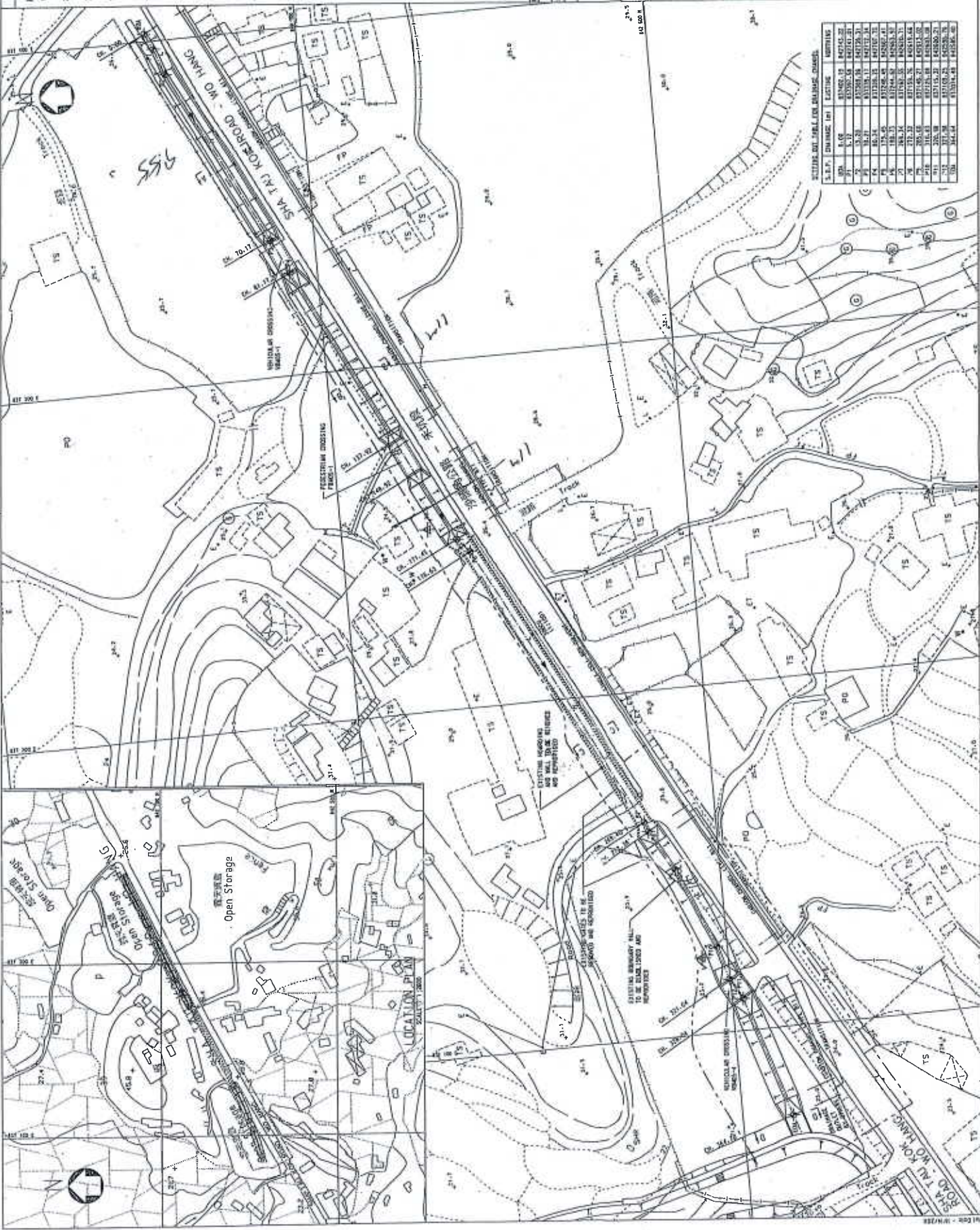
Drawing Title: GENERAL LAYOUT PLAN FOR DRAINAGE CHANNEL MUP05

Scale: 1:500 A1
1:1000 A3

DDP/DC/1106/41011

香港特別行政區政府渠務署
THE HONG KONG GOVERNMENT
DRAINAGE SERVICES DEPARTMENT

BLACK & VEATCH ASIA HONG KONG LIMITED
黑地工程顧問有限公司

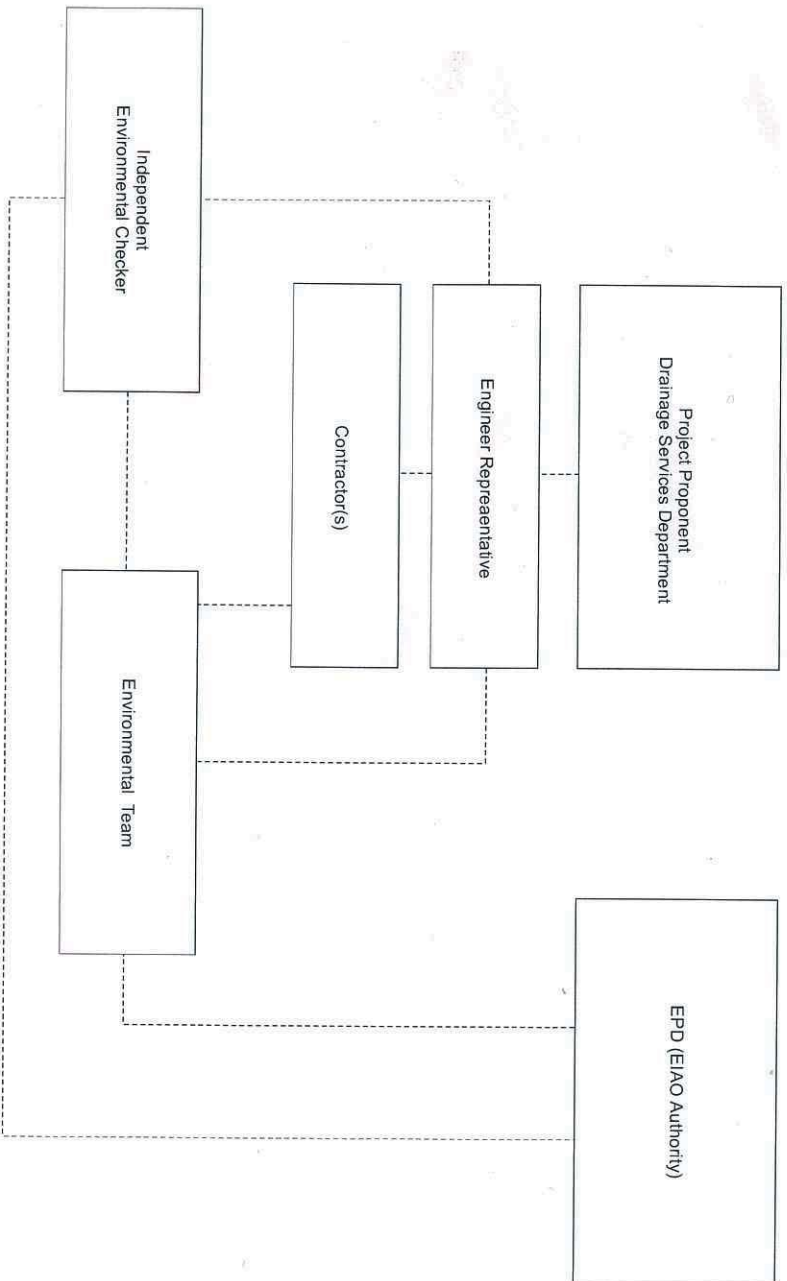


ANNEX B

ENVIRONMENTAL MANAGEMENT ORGANIZATION AND COMMUNICATION LINES

AND

24-HOUR HOTLINE



Key
----- Line of Communication

EM&A Organisation Chart

Contact Details of Key Personnel

Contact Details of Key Personnel

Organization	Project Role	Name of Key Staff	Tel No.	Fax No.
DSD	Project Proponent / Employer	Mr. Eric Y. M. Cheng	2594-7341	2827-8700
Environ	Independent Environmental Checker	Mr. Roger W. K. Leung	3465 2888	3465 2899
CHCC	Project Manager	Mr. Raymond Yau	2403 1165	2403 1165
SHCC	Site Agent	Mr. Elvin Lam	2640 9286	2640 9286
AUES	Environmental Team Leader	Mr. T. W. Tam	2959-6059	2959-6079
AUES	Senior Environmental Consultant	Mr. Wong Fu Nam	2959-6059	2959-6079
AUES	Environmental Team Supervisor	Mr. Ben Tam	2959-6059	2959-6079

24-Hour Hotline Telephone Number for the Public to Make Enquiries

24-Hour Hotline: 6770 3827
Contact Person: Mr. Mocha Mok

Legends:

DSD (Project Proponent / Engineer) – Drainage Services Department

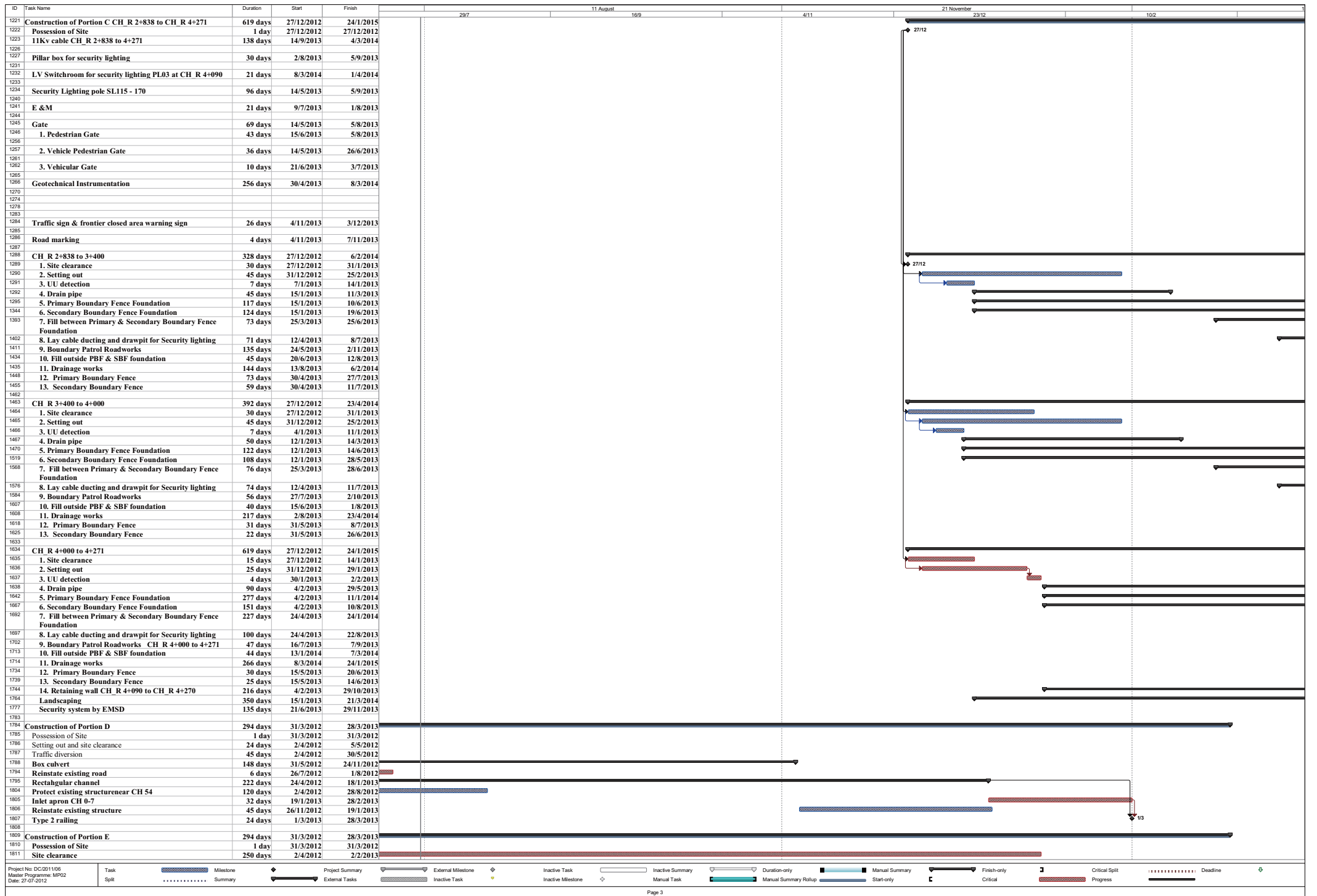
SHCC (Main Contractor) – Sang Hing Civil Constructors Co., Ltd

Environ (IEC) – Environ Hong Kong Limited

AUES (ET) – Action-United Environmental Services & Consulting

ANNEX C

CONSTRUCTION PROGRAM



ID	Task Name	Duration	Start	Finish
1812	Setting out	45 days	14/4/2012	7/6/2012
1813	Utilities detection	150 days	10/5/2012	6/11/2012
1814	Utility Diversion	21 days	3/10/2012	27/10/2012
1815	Liasion with villagers	45 days	8/6/2012	1/8/2012
1821	Reprovisioning of existing boundary fence for private lots	30 days	2/8/2012	5/9/2012
1827	Landscaping Works	179 days	8/6/2012	11/1/2013
1832	Transition Section	206 days	16/7/2012	22/3/2013
1842	Gabion Wall Channel	196 days	27/7/2012	22/3/2013
1848	Box Culvert	156 days	6/9/2012	16/3/2013
1850	Vehicular Crossing	74 days	20/8/2012	16/11/2012
1853	Pedestrian Crossing FBM05-1	52 days	22/10/2012	21/12/2012
1854	Railing	107 days	17/11/2012	28/3/2013

ANNEX D SUMMARY OF STATUS OF ENVIRONMENTAL LICENSES AND PERMIT

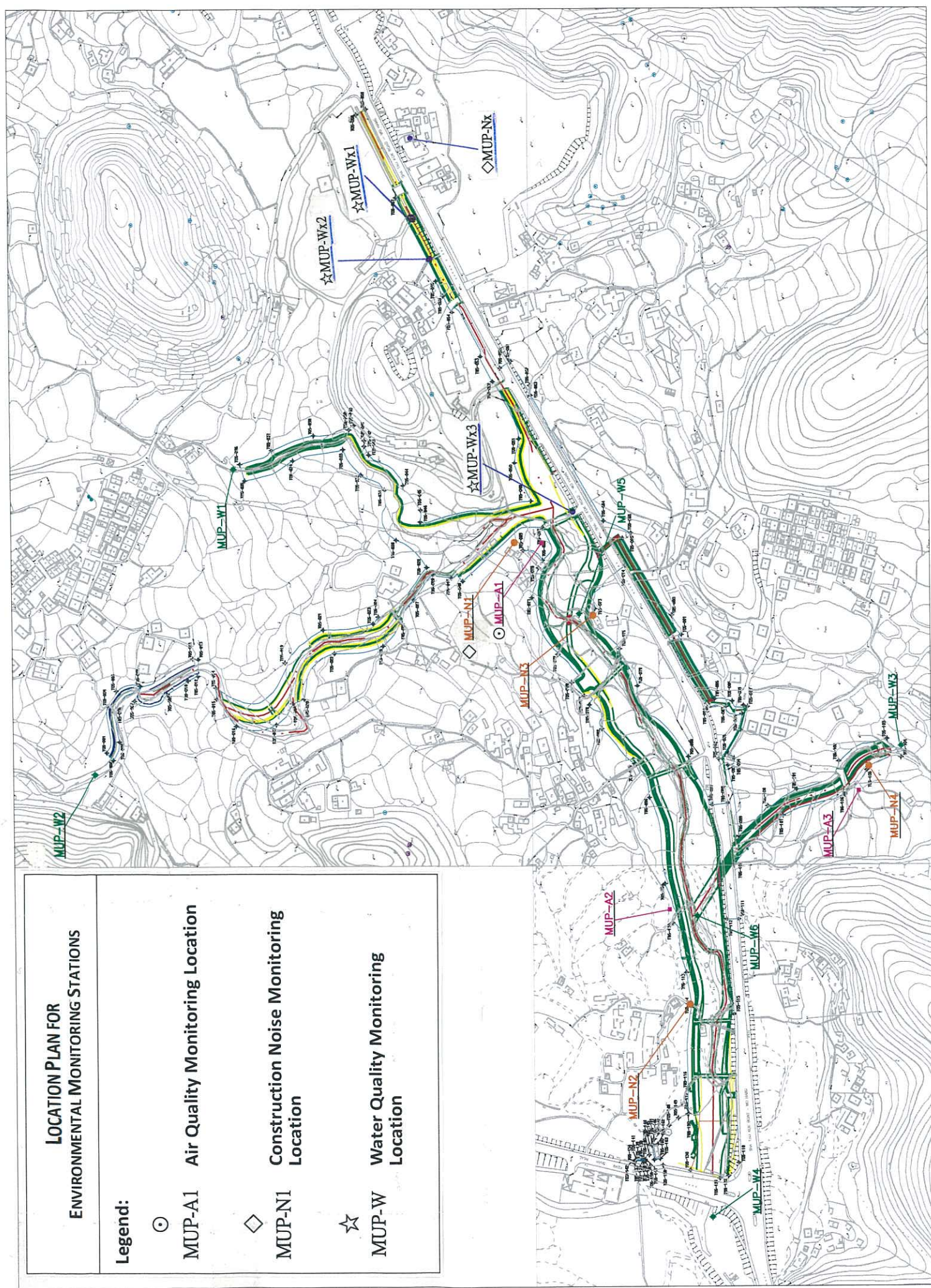
Permit Type	Licenses / Permit No.	Date of Issuance by EPD	Expiry Date	Concerned Location	Status
Environmental Permit	EP-277/2007	09 July 2007	N.A.	Lin Ma Hang and Man Uk Pin	EP-277/2007/A to supersede EP-277/2007
	EP-277/2007/A	01 December 2009			
Notification pursuant to Section 3(1) of the Air Pollution Control Ordinance (APCO) (Construction Dust) Regulation	N.A.	Pending	N.A.	Contract Area (Lin Ma Hang, Man Uk Pin, Ma Wat Wai and Ping Yuen River)	The Notification was submitted to EPD on 28 May 2012
Account for Disposal of Construction Waste	7015003	07 May 2012	N.A.	Contract Area (Lin Ma Hang, Man Uk Pin, Ma Wat Wai and Ping Yuen River)	Valid
Application for Wastewater Discharge License under Water Pollution Control Ordinance (WPCO)	W5/11363/1	29 August 2012	31 Aug 2017	Lin Ma Hang, Man Uk Pin and Ma Wat Wai	Valid
Register as a Chemical Waste Producer under Waste Disposal Ordinance	5123-642-S3565-03	3 October 2012	N.A.	Contract Area (Lin Ma Hang, Man Uk Pin, Ma Wat Wai and Ping Yuen River)	Valid

ANNEX E

ENVIRONMENTAL MONITORING LOCATIONS

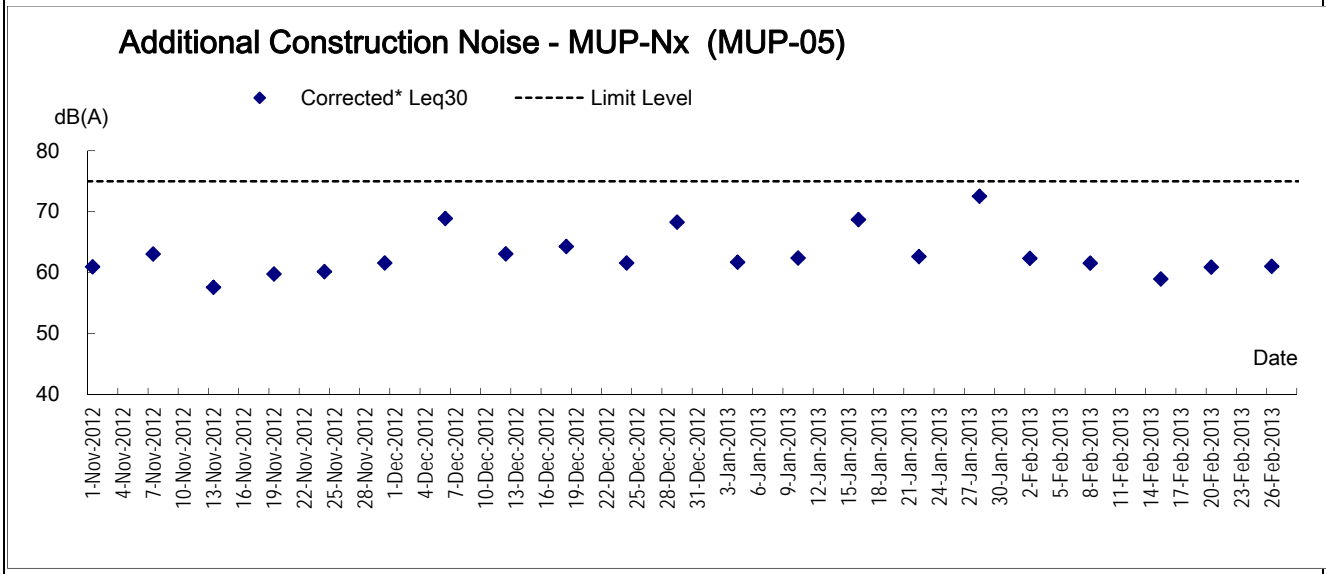
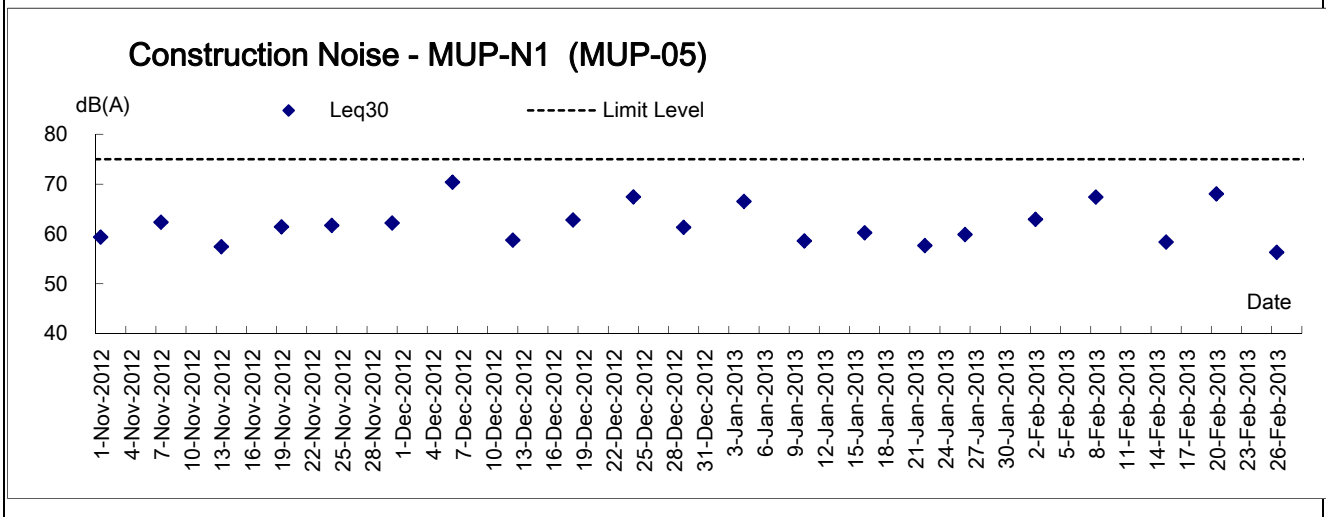
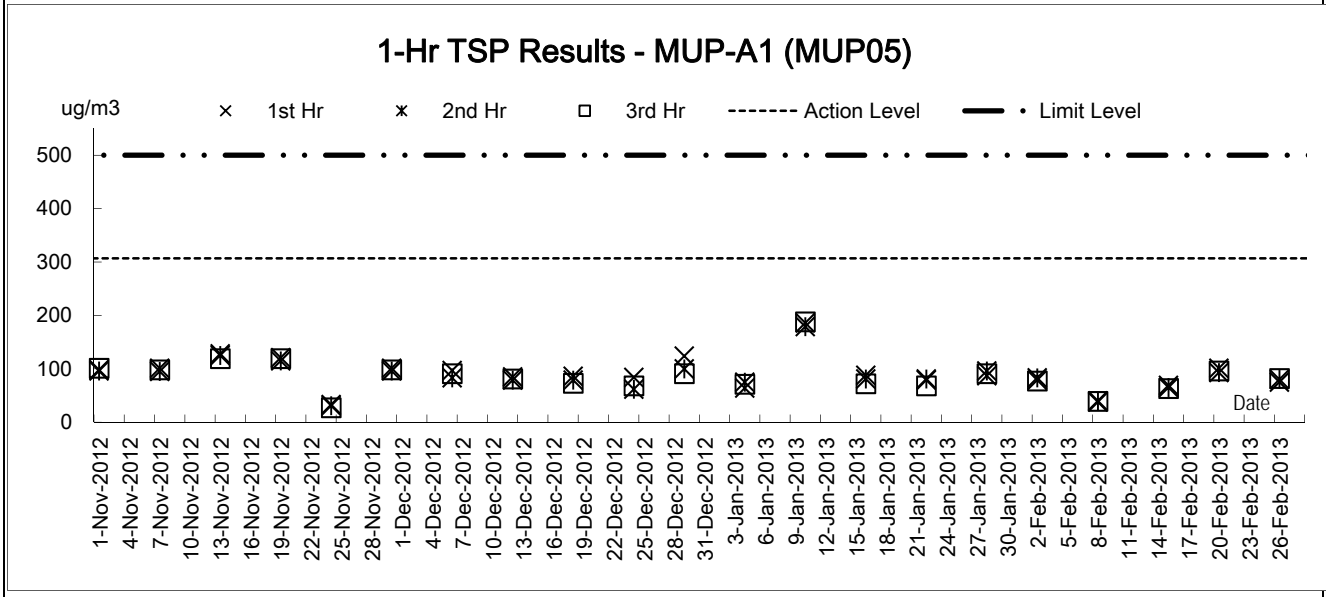
LOCATION PLAN FOR ENVIRONMENTAL MONITORING STATIONS

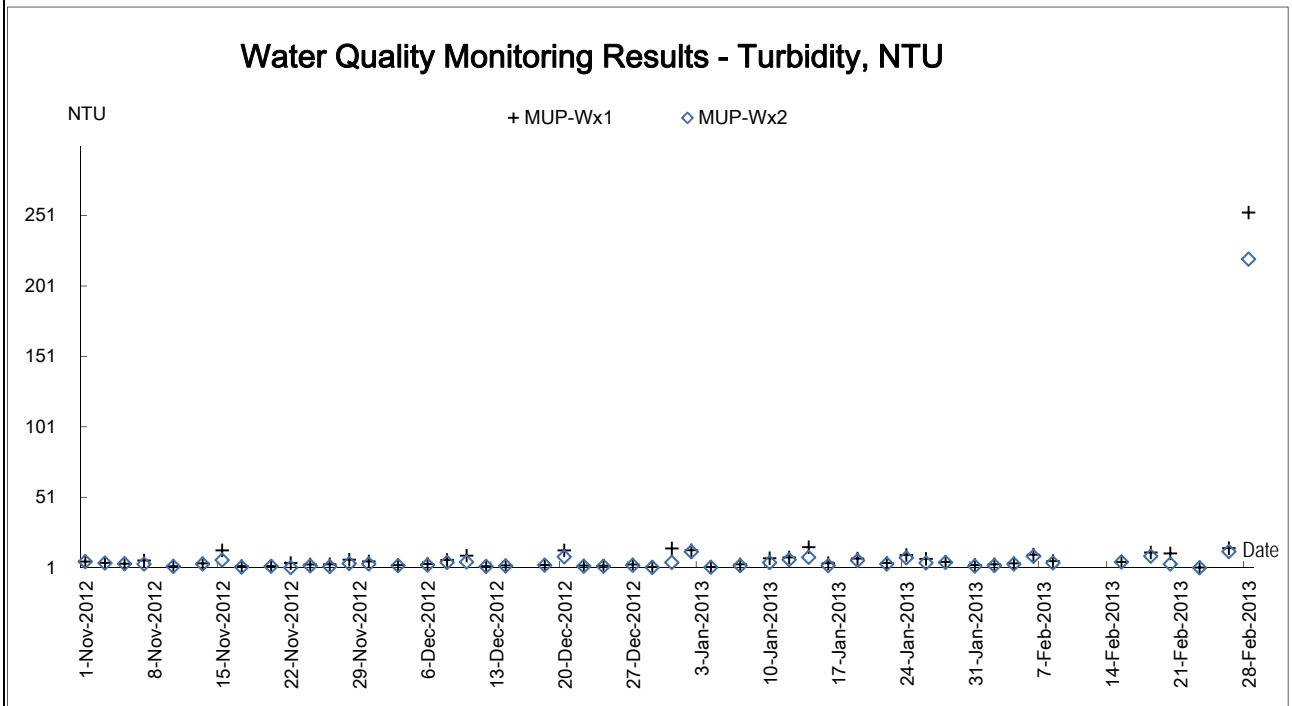
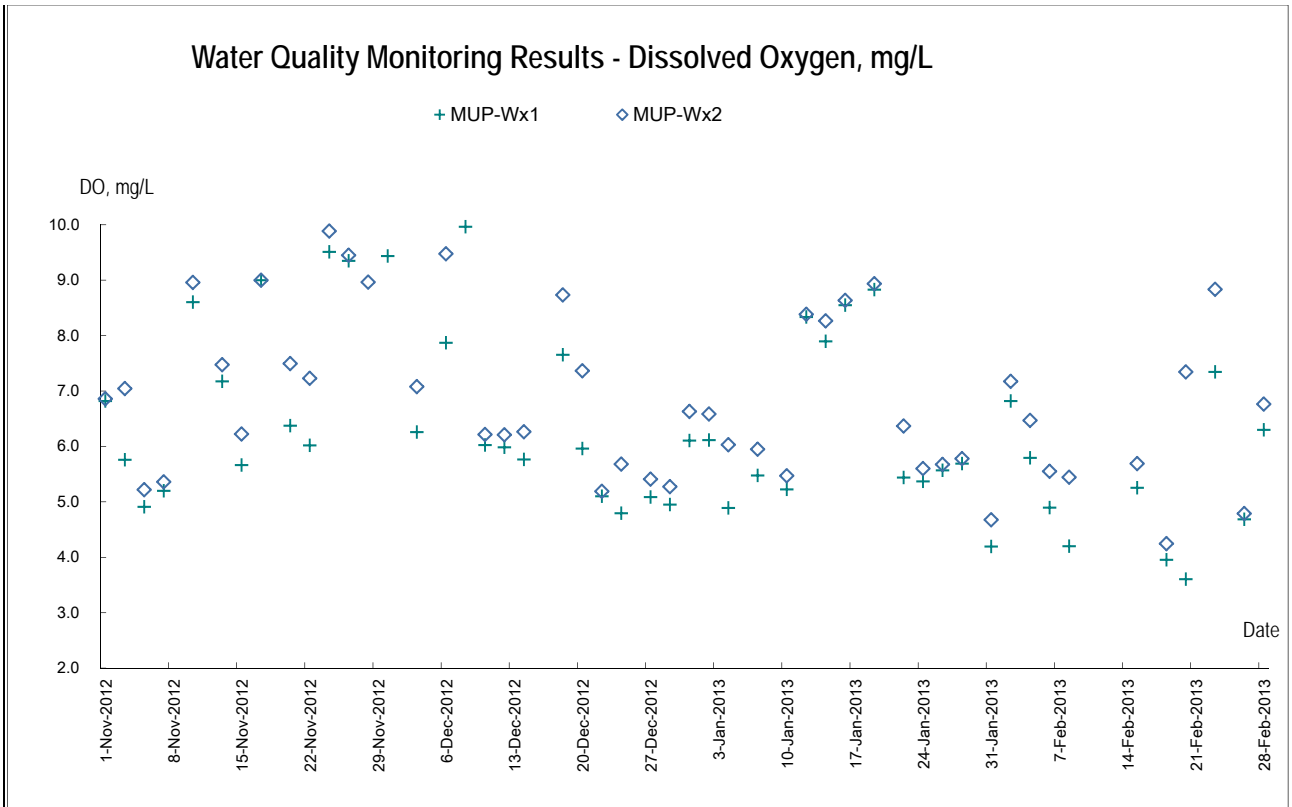
- Legend:**
- MUP-A1 Air Quality Monitoring Location
 - ◇ MUP-N1 Construction Noise Monitoring Location
 - ☆ MUP-W Water Quality Monitoring Location

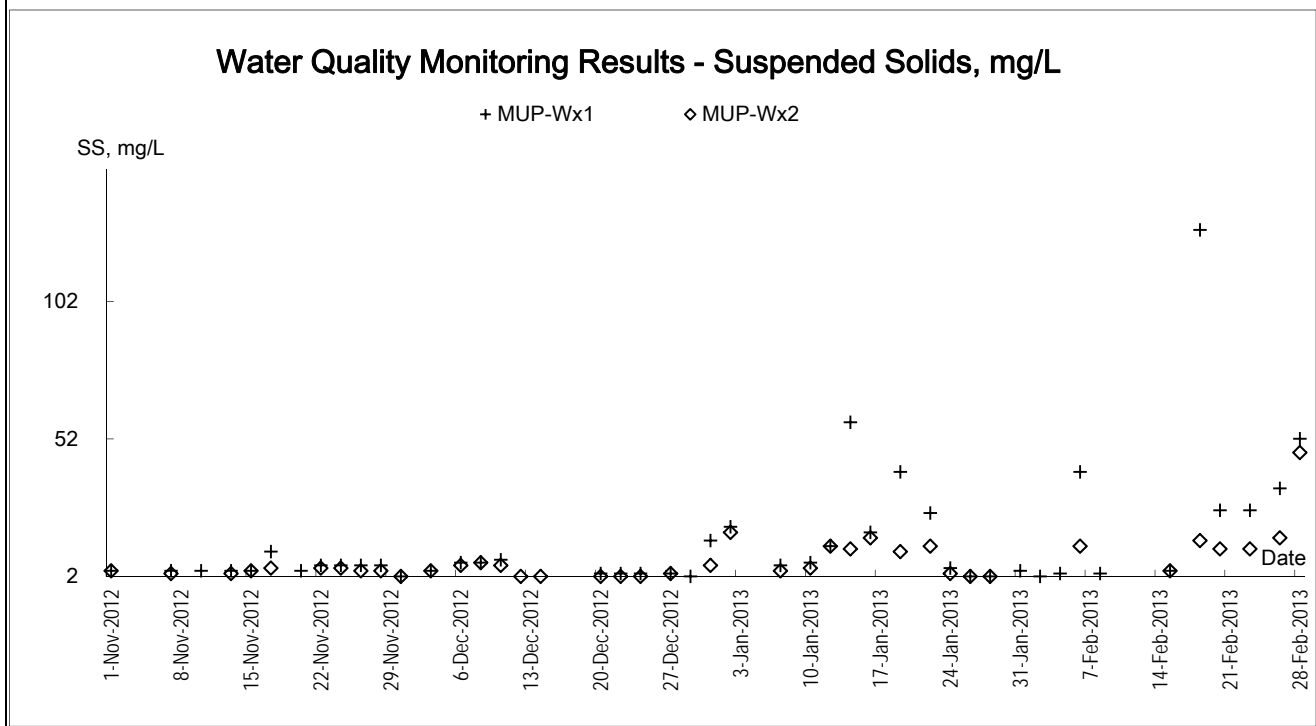
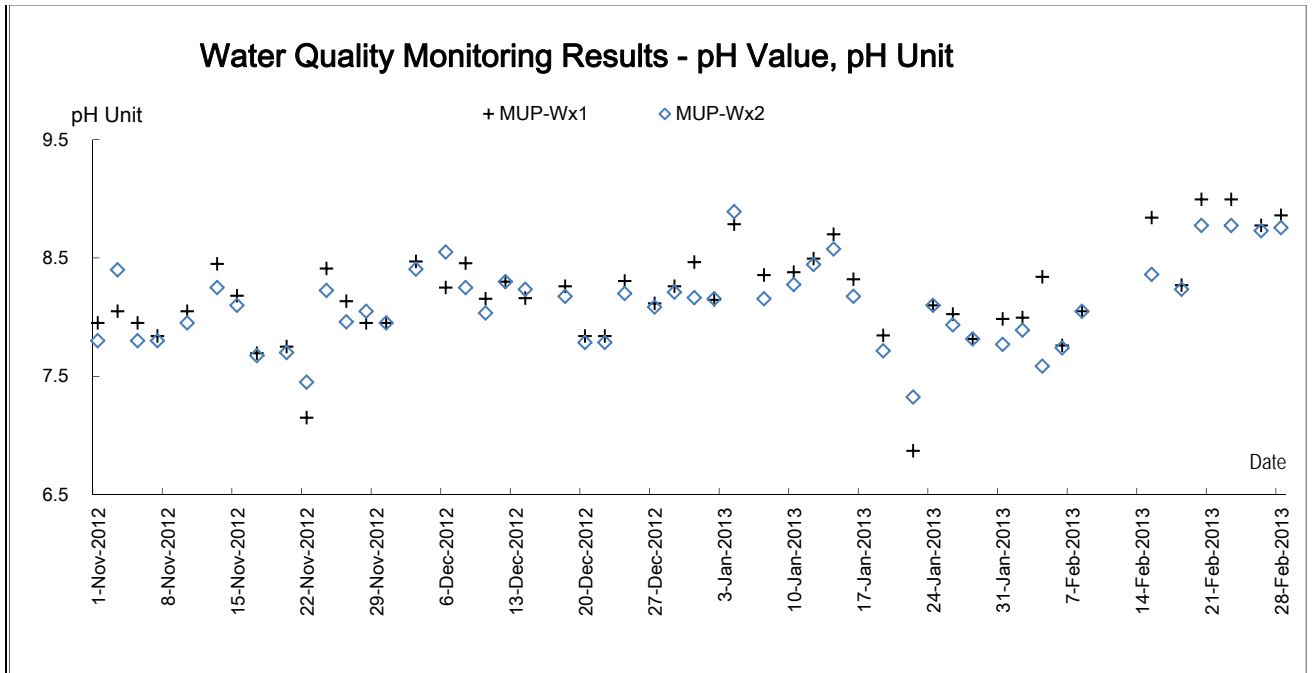


ANNEX F GRAPHICAL PLOTS OF THE TRENDS OF MONITORED PARAMETERS

NO GRAPHICAL PLOTS OF THE TRENDS OF 24-HR TSP ARE PRESENTED
 AS THE POWER SUPPLY OF THE HVS HAS NOT BEEN RE-INSTATED)







ANNEX G

MONTHLY SUMMARY OF WASTE FLOW TABLE

Monthly Summary Waste Flow Table

Name of Department: DSD

Contract No.: DC/2011/06

Monthly Summary Waste Flow Table for Feb 2013

Month	Actual Quantities of Inert C&D Materials Generated Monthly						Actual Quantities of Non C&D Wastes Generated Monthly					
	Total Quantity Generated (in '000m ³)	Hard Rock and Large Broken Concrete (in '000m ³)	Reused in the Contract (in '000m ³)	Reused in other Projects (in '000m ³)	Disposed as Public Fill (in '000m ³)	Imported Fill (in '000m ³)	Metals (in '000kg)	Paper/ cardboard packaging (in '000kg)	Plastics (see Note 3) (in '000kg)	Chemical Waste (in '000kg)	Others, e.g. general refuse (in '000m ³)	
Jan-12	N/A											
Feb-12	N/A											
Mar-12	N/A											
Apr-12	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000		
May-12	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.013		
Jun-12	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001		
Jul-12	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000		
Aug-12	0.007	0.000	0.007	0.000	0.000	0.000	0.000	0.000	0.000	0.000		
Sep-12	0.002	0.000	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.154		
Oct-12	0.003	0.000	0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.058		
Nov-12	0.005	0.000	0.005	0.000	0.000	0.000	0.000	0.000	0.000	0.042		
Dec-12	0.003	0.000	0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.041		
Jan-13	0.002	0.000	0.002	0.000	0.000	0.000	0.000	0.000	0.001	0.035		
Feb-13	0.001	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.015		
Total	0.023	0.000	0.023	0.000	0.000	0.000	0.000	0.000	0.001	0.359		

Notes :

- (1) Note Used.
- (2) The waste flow table shall also include C&D materials that are specified in the Contract to be imported for use at the Sites.
- (3) Plastics refer to plastic bottles/containers, plastic sheets/foam from packaging materials.
- (4) The summary table shall be submitted to the Engineer's Representative monthly together with the Waste Flow Table for review and monitoring.